

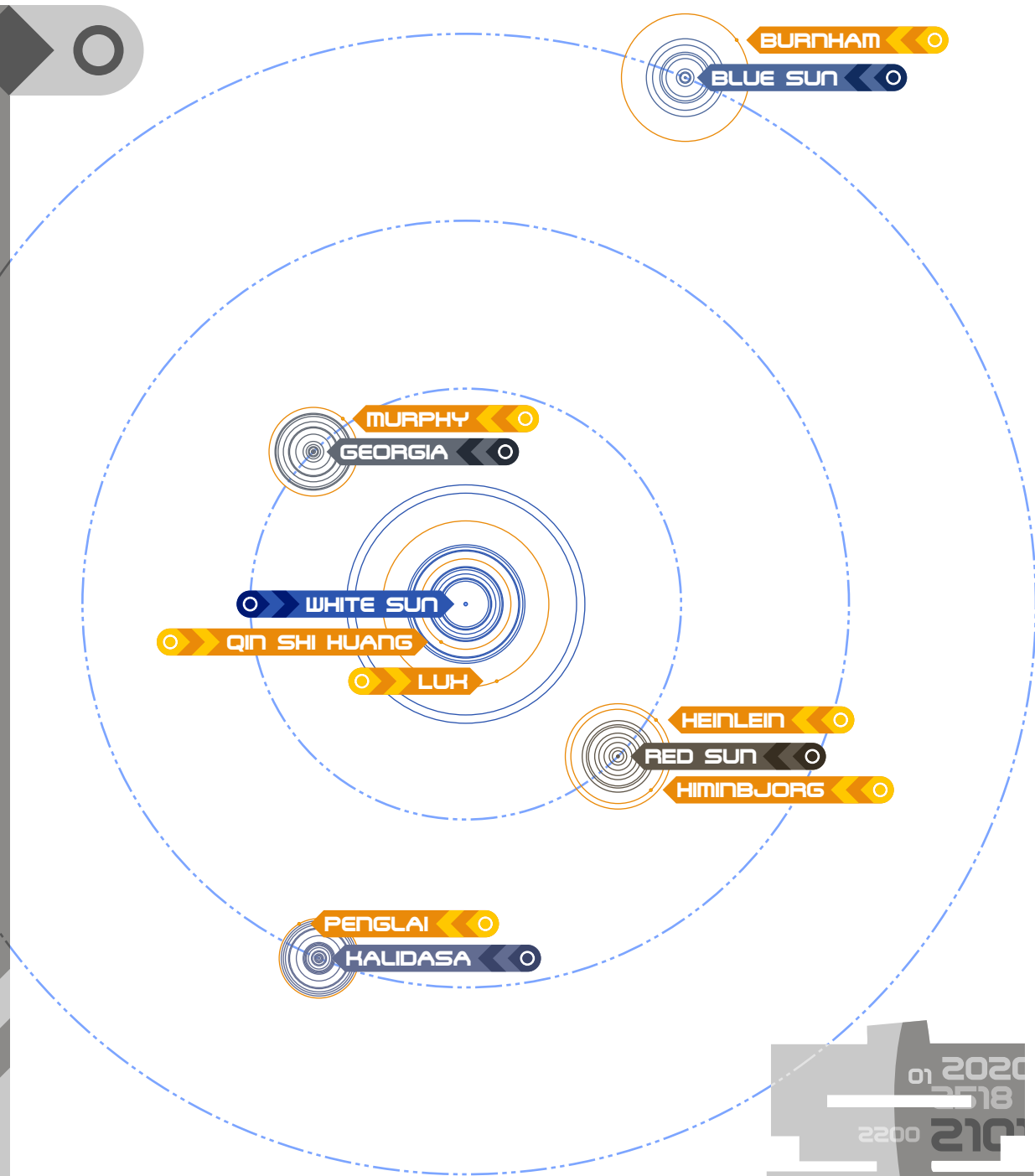
THE VERSE IN NUMBERS

THE WHITE PAPER

CORTEK ACCESS



VERSION 2.1



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Note: This is a living document. There will be occasional updates as new planetary data is discovered or created, or as errors are found and corrected. Each planet or significant body has its own page to make it easier for readers to incorporate changes and updates.

Version 1.0 - February 2009 - Initial Release

Version 1.1 - March 2009 - Added orbital periods to primary stars. Added the moon, Ita, to Whittier, updated terraform and discovery charts, fixed grammar and punctuation errors.

Version 1.6 - April 2011 - Major update. Added more astronomical data, which required a reformat of the document.

Version 2.0 - November 2011 - Added fan-created content and corrected errors.

Version 2.01 - July 2012 - Updates and corrections made to the 'Timeline'. 'KD-FA' added to Dragon's Egg L4 (Castaways) and numerous asteroids added to 'Halo' of the White Sun System.

Version 2.1 - November 2014 - TVIN 2.01 is recovered from a significant hard drive failure and restored. Continued additions are made to the Halo Belt in the White Sun System. All the primary asteroid diagrams are updated. Zack Whedon's world 'Theophrastus' is added to the moons of Zeus. Angel is given three new moons and various corrections are made to credited, but uncatalogued asteroids.

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ASTEROIDS & REGIONS · A-G

MINDY ALLEN	Nao Sun Shang
ALVERIC	Josephine Station
JOHN ANDERSON	Namebrand D5P, Navvayu
ROBERT "BUMA" ASWIN	REX, Sil Station
ATTI2DBOY	Bashful Sapphire, Great Flying Mountain, Hope's Rest, Jenny, Kayenta, K4JE-475, Oh Please Be Mine, Propitious Beginnings, Robinson Run No.95, Serenity Valley, Slumbering Dragon, Speck 7K453, Unformed Rock With A Destiny
MATT A. BORSELLI	Venefica
J. CHRIS BOURDIER	Curran, Curran's Berth, Kaenie, Scotty
BRIGANDIA36	Anir, Asantar, Atlartano, Austror, Cesibium, Escion, Estius, Florinion, Myrilion, Olano
BRON	J. Paul, Mairi
BROWNCOATWHIT	Bonnie Prince Charlie
JEANIE COFFIELD	Jarren, Starwen, Zui hao de Zhangfu
LLOYD G. COLLINS II	JAC 1937, Magor's Hammer
JEN CUMMINGS	11th Hour, LuxLucre, New Melbourne
HALO CURE	Disintegration, Lullaby
DBCOOPER	Lanier
SEAN CROWLEY	Ash Angel, Grafton, Huffman-Purrington, Pipestem, Sandman, Titus, Trail Guide
MARK DILLY	Shepherd
JASON EATON	Jason's Regret, Kampf, Pallis, Cosmoline
KENNETH M. EATON	Asteroid Wu, Long Mu - Alpha, Long Mu - Beta
ERH	Ankanseki (The Ankanseki Project: Dark, cold rock in Japanese), Bai Chen Dong (White Dust Caves)
EVO	L'antre du diable
FAEDOTHER	Deegean Mines, Deep hell Hole, Gefrorene Asteroiden (Frozen asteroid), Hormigueros del Espacio (Ant Hills of Space), Shieh Lode, Slag Corps, Taisce Móra i rac-cheol spiacánacha sa dubh (Large deposit in jagged rock in the black)
BRUNO FONVIELLE	le club des derniers gentilshommes (The last gentlemen's club), le facétieux marchand (The merry merchantman), le cratère de la tortue, le trou du diable, heat & sweat valley, Survivor's eye, dead's man pit, Saint Julien
FROSTWOLF	Mizpah, Prospector Station
CORTEK GHOST	Pryeispodnyaya Moe (Russian - "The Pit of Hell Mine")

ASTEROIDS & REGIONS · H-P

JEFFREY J. HOOVER	Reaver Bait
ADAM HORTON	Elwin's Relay
RACHEL HUNTER	Nitebox
IMPRISONED243	Salamanca
LOU J	Cindy R
MIKE JENKINS	Birchwood, Dalton, Harrison, Reliance, Whiteside, Whitwell
SEAN KENNEDY	Achilles, Agamemnon, Chrysopoeia, Hector, Hippolyta's Belt, House of the Rising Sun, Jörmungandr, Kuàng yún mí (Lost Gold Mine), Pinos Altos Field, Raksasha, Shí Zhuàng Dào Lù (The Stony Way), Surat al Nas, Qarin, Quetzalcoatl, Qundalini's Coils, Xu II shí (Pebbles in the Void)
JOHN MACEK	Cornholio, Download, Maybelle, Orichalcum Horizon, Potter's Pitfall, Tungsten Carbide, Union Mill 23, Vaccine
MACTROM	Smack
THE MALUM	Kobalt
MARY MCHAY-EATON	Apex, Bolton, Burton's Ferry, Candor, Celo, Dover, Emporia Station, Emul, Enka, Gamewell, Griffon, Hampstead, Kenly, Merlin, McCuller's Crossroads, Misenheimer, Mordred, Morgana, Mount Airy, Mount Gilead, Mount Holy, Mount Olive, Mount Pleasant, Moyok, Newport, Nimue, Ogend, Old Fort, Onslow, Pembroke, Polk, Ramseur, Rodanthe Relay, Roper, Satterwhite Point, Shattuck Stronghold, Stanfield, St. Pauls, St. Stephens, Swain, Tai Dong, Tau Yuan, Thompson's Haven, Troy, Wagram, Waxhaw, Weldon, Yancey
RACHAEL MIDHIFF	Kasmodan, Majist, Mao Fen, Vaslyn
MATTHEW NICKERSON	Judith-N
OB	Freesoup
FRANK OLSEN	Bloody Tsar's Tomb, Chekhov, Gogol Dostoevsky, Ilya Muramets, Lenin, Lev Tolstoy, Park Pobyedi (Victory Park), Pushkin, Yuri Gagarin
DANIEL OUTHIER	Kisin
SERENITY OZ	Chocky
ANDREW PACE	Grooble, LC-JC, Lector-Ramses, Nickel & Dime, Oxnard, Roman, Shift, Solo, Three Little Boys, The Tinderbox, Trask, Wamsutter
TRACY PACE	Franklin, Hespiron, Sadeema, Timarion, Tradewinds
WILLIAM T. PACE	Abu Omar, Ashlands, Askelon, Black Syren, Brand, Caesarea, Cathen, Chameleon, Cidi, Cul de Sac Obscurité, Duke, Easthollow, Eve, Fedallah, The Fleet, The Gorgons, Gwangi, Hebron, Herat, Ife, Jaffa, Joppa, La Blanquilla, Little Siberia, le village des corbeaux (Village of Crows), le chien de garde (The Watchdog), Little Lucifer, Madden, Mad Dog, Marcus, Negev, New Mercury, Qumran, Raphael, Romani 1 & 2, São João Baptista, S-Bar Ranch, Sevda, Shems, Sidon, Terra, The Peers, Ticalock, Tyre, TY, Wayward 1 & 2, West Indies, Wuding Xiyi
BROOKE PHILLIPS	Caregis, Cyrellian, Tytress

ASTEROIDS & REGIONS · Q-Z

JAIMI RASMUSSEN	Ying Guang
REH ROUVIERE	Backbreaker, Black Rock, Chin's Folly, Dalmation Consortium, Diamond Rock, 49'er, Goldhome, Heart o' Gold, Longshaft, Olympia Mining Group, Shiny, Stardust 12, Speck, Yukon Falls
BRAD RUTLAND	Asiyahola, Donahogawa, Heháka Sápa, Ité Omáğažu, Maḥpiya Lúta, Matoska, Táńča Hušté, Tašúnke Witkó, Tene-angop'te
SELEH	DLR 1-5, Fat Sal Mine
SHOALHAVEN BROWNCOATS	Deadwood, Haven
CORWIN H. SOLO	L'Oubliette Prison
AARON SUTHERLAND	Murray
BRANDON SWEET	Baal, Cowan's Folly, Isis, The Rockpile, Samogon, The Scattering, Stone's Throw
STEVE SZYNDROWSKI	ID3052
MICHAEL TAYLOR	Tongzhi Gongyuan (comrade park)
ANASTASIA THOMAS	Adriano, Jace, Juni, Kadin, Lucian
THOMAS TURNER	SL4913
WHITNEY WARE	Cherryh
LLOYD WEIBE MICHAEL WELCH	Crowsnest Mines & Materials, Lost Lemon Mining & Explorations, Santiam
MARK WILKINSON	Antwaris, Dark Zone, DR-C, Hehm, Vortis M
BRIAN WISER	Fort Wiser
ZACH W.	Archangel Station
ZAEBRA	Tora 371

WORLDS

J. CHRIS BOURDIER	Gayle (name only)
ZACH BROOKS	Vesta
ADAM HORTON	New Vienna
INTO THE BLACK	Iscariot
SELENA JENSEN	Sakura
KIRK LUND	Lear, Port Chester, Six Sigma
PATTON OSWALT	Madcap
TRACY PACE	Namira
WILLIAM T. PACE	Dakhla, Dukkha, Magga, Nirodha, Ra Amiran, Samudaya, Sault, Skardu
CHRIS SCHULTZ	Shenandoah
JENNIFER SCHULTZ	Illyria
BRANDON SWEET	Stonewall, Shenzhou, Tiangong
MICHAEL WELCH	Genae
GENAE L. WELCH	Katarina
ZACH WHEDON	Theophrastus
MIKE WILKES	Jackson, Jasper, Lincoln
BRIAN WISER	Nipmuc
H1628	Geneva, Lennox, Yunnan

What you are about to read is one of the most heroic efforts I have ever seen to make sense of something patently ridiculous. This is a work of exacting detail and you should be aware that once you start reading it, *The Verse In Numbers* will lead to calculators, graph paper, protractors and other math amphetamines. You will spend endless hours on Wikipedia, astronomy and astrophysics reference sites, reviewing, confirming and contending with the information here to the point where it might even eclipse that *Warcraft* addiction you've so carefully cultivated.

I say all this because I want to make sure you understand that the next 100 pages (no, really, 100 pages) represent the most painstakingly-researched and thoughtful effort to make sense of a bunch of hooey that I've encountered, and I am speaking as somewhat of an expert on hooey. J. Chris Bourdier is an insane genius and the most dedicated fan of any show/movie with whom it has been my pleasure to work. And I humbly bow my head to his Awesomeness and the singular achievement that this document represents.

Consider yourself warned.

And while we're on the subject of thoroughness and the crazy lengths fans will go to make sense of something which doesn't, I feel it's important to address the canonicity of this document, if for no other reason than to limit the number of e-mails I'll get if I don't.

What Chris has done here is take two-plus years of editorial research and applied real-world science to it. He did not get to choose the facts of the Verse, he only got to try and make sense of them. The concept, architecture, and many of the specifics of the Verse came from Joss Whedon, Tim Minear, and Jane Espenson, plus a host of very talented folks who worked on both *Firefly* and *Serenity*. A lot of it was on screen (even if it was only for a second) and much of it was part of the voluminous background materials which are generated by any movie or TV show set in imaginary worlds.

And, while we're at it, let's not forget Geoffrey Mandel, *Serenity* Graphic Designer, who designed many of the maps you see on-screen and who is the creator of *The Official Map of the Verse*, the development of which this document was originally drafted to support.

Beyond that, there is the *Official Serenity Role-Playing Game*, the *Serenity* comics from Dark Horse, and several other licensed resources.

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The gaps which remained were filled in by The Map of the Verse Brain Trust, following closely the model for planet naming established by Joss.

What was produced was then reviewed, and ultimately approved by, Universal Studios.

So, what does that make The Map of the Verse? Canon? Extended Canon? Speculation?

Here's how I like to think about it - it's as accurate as it's possible to be right now. Meaning to say, it's 100 percent accurate, until Joss says it isn't. It's Joss' Verse, after all. We're just lucky that we were allowed to visit and bring home a few souvenirs.

Plus, while the Verse belongs to Joss, all of us Browncoats live in it. And you should know your way around your own neighborhood better than anyone else. So if something here doesn't make sense to you, ignore it. If something doesn't fit your personal narrative of the Verse, don't use it.

It's here for you, not the other way around.

Oh, the timeline was created to give context to the rest of the material (and as such, was added last). It's total and complete speculation. Feel free to ignore it or use it as you see fit.

Andy Gore

Quantum Mechanics Inc.

2.16.09

When QMx released The Complete and Official Map of the Verse, The Verse In Numbers was released as a free download to add meat to the Verse in the form of an astronomical document giving pseudo-scientific data for the planets and moons. It was written for you, the fans, to be used or discarded as you see fit. So it stands to reason that fan-created worlds would eventually find their way into this document. But there are some requested guidelines:

Please let me assign the planetary data. I'm trying to correct a common mistake in TV-based science fiction - a lack of internal consistency. Andy Gore said it best in his introduction. The Verse is a bunch of hooey. It's an impossibility that cannot exist in reality. But regardless of that, it can have its own internal consistency. The equations that I used for mass, gravity, and such, are the same for all worlds of that type.

The gravity range for a terraformed world is 0.95 G to 1.05 G. Honestly, I did this so episode writers wouldn't have to come up with wild explanations for why everything looks like it's in a 1 G environment even though the characters said the gravity was wildly different. The same is true for the explanation in the section on terraforming relating to the fact that all terraformed worlds have 24-hour days and 365.25 day years. It's just easier to deal with.

When deciding the ratio of land to water, remember that these are manufactured worlds. Blue Sun isn't going to create a moon with no standing water unless there's an excellent (financially sound) reason. Planets have 30% to 40% land area (ETW has 29%). Since in the show, moons tended to be more arid, their range is 50% to 60% land.

The trend has been that if a planet is terraformed, so are its moons. I'd love to add a couple more moons to Di Yu, but there's no point because Di Yu hasn't been terraformed yet. The moons would essentially be unusable. And while there are a couple planets that are unusable that have terraformed moons, there are specific reasons behind it (Shadow was destroyed in the war, etc.). It would make no sense to expend resources to terraform a moon, but not its parent planet. And why bother adding planets and moons to Burnham? Miranda is unusable because of the Reavers. Any other world orbiting Burnham would be equally off-limits.

My system for mass and land area assumes bodies of terraformable size in the various habitation zones. It doesn't work for unterraformable asteroids or mystery planets outside of habitation zones.

Please be sure the world names are not from copyrighted material.

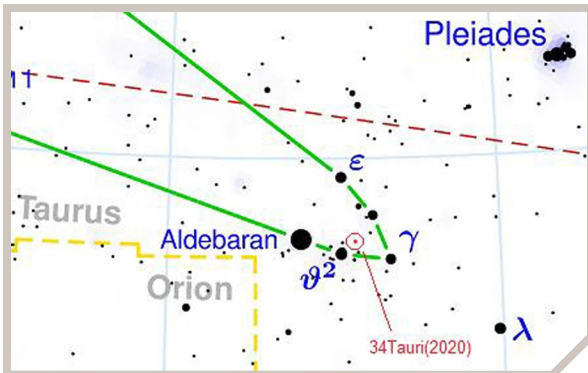
And finally, a sanity check concerning planet size: During the initial creation of the Map, I was allowed to add the moon Gayle to Zeus, in honor of my mom, Gayle H Bourdier, who died of cancer in 2008. Gayle has 9,901,986 km² of land. That's mainland China + Kenya + Bali + 97% of Toronto. That's spread over an entire globe. So it has frozen polar regions, tropics, mountains, deserts, swamps, grasslands, forests, jungles, cities, towns. It is what all moons are: little planets. It has everything a full-sized planet has. No land-based Firefly episode occurred in an area larger than about 12-15 km². That's a Podunk town and its outlying areas -- and that's all.

I can put EVERYTHING I could ever want, from a ranch to honor my mom to a full-blown kingdom whose people do nothing but worship and pleasure me, and still have millions of square kilometers of land available for anything else. If you make a tiny moon, at the minimum terraformable size, then a single person (your Verse alter-ego) could realistically be ruler of the entire moon. A moon 970 km across with 60% land area would have 1,773,555 km² of land. That's Libya + The Bahamas + San Marino + 91% of Tokelau. Every single land-based Firefly episode collectively could all have taken place on that same single tiny moon, totally isolated from any other episode, with well over a million square kilometers of land left over.

I'm not saying you can't create and add more than one planet and/or moon. **I do not have the authority to limit the number of worlds you can add.** Just be aware that when you create a planet or moon, you aren't creating a single province, township, valley, or beach. You're creating an entire world that will contain hundreds or thousands of each of those. When creating moons, ask yourself why you need the second, or the tenth. What does moon 2 (or 10) have that the first (or first nine) doesn't? And why can't you simply add what's missing to the world you've already created?

It's a common idea to treat an entire moon or planet as if its entirety consists of just what you'd see in an episode. I got an email from a fan when we first published TVIN, who wanted to know what THE export was for a certain moon, what its climate was (as if it had only one), and how many Alliance troops it would take to hold it. I replied that the moon had dozens to hundreds of exports, just as many climates as the Earth, and (at several times the land area of the continental U.S.) would require several million troops.

So, by all means, create those worlds. Just remember that you're creating a world, not just a single town or mine, or valley.



While the official discovery date for Uranus is March 13, 1781 by William Herschel, the planet was observed in 1690 by John Flamsteed, who thought that he'd discovered a new star in the constellation of Taurus. He named the star "34Tauri." Later observers realized that 34Tauri was actually a planet, and the designation "34Tauri" was removed from the record of discoveries.

In July of 2020, another new star was discovered in the constellation of Taurus. The astronomer who discovered the star decided to reapply the designation, modified by the addition of the year. The new star became 34Tauri(2020). The name of the discoverer was lost in the exodus from Earth.

Further study showed that 34Tauri(2020) was actually a small star cluster of five main sequence stars. Seven gas giants large enough to be brown dwarfs and seven Jovian-sized gas giants were also discovered in the cluster. Over the next few decades, dozens of terrestrial planets were revealed. A few of those showed the unmistakable signs of oxygen, nitrogen - and water. For the first time, near-Earthlike conditions were found to exist elsewhere in the universe. Moons, asteroids, and other smaller bodies were speculated to exist in the star cluster, as well, which by all accounts was sizing up to be its own miniverse. Or the Verse, as it was dubbed in the media when news of the discovery was revealed.

When the decision was made to abandon Earth, 34Tauri(2020) was chosen to be the exodus fleet's destination. Engine systems capable of long periods of acceleration would propel the evacuation fleet to approximately 1/3 of light speed. Even then, the journey would take roughly 120 years to traverse the 40 light-year gap between Earth and 34Tauri(2020).

34Tauri(2020) The Verse in 2020

(names added
by colonists
upon arrival)

34Tauri(2020)A - White Sun - Class A0

P/2020(White Sun)01 - Qin Shi Huang - brown dwarf

P/2020(White Sun)02 - Lux - brown dwarf

34Tauri(2020)B - Georgia - Class G0

P/2020(Georgia)01 - Murphy - brown dwarf

P/2020(Georgia)02 - Elphame - gas giant

P/2020(Georgia)03 - Daedalus - gas giant

34Tauri(2020)C - Red Sun - Class G5

P/2020(Red Sun)01 - Himinbjorg - brown dwarf

P/2020(Red Sun)02 - Heinlein - brown dwarf

34Tauri(2020)D - Kalidasa - Class F5

P/2020(Kalidasa)01 - Penglai - brown dwarf

P/2020(Kalidasa)02 - Heaven - gas giant

P/2020(Kalidasa)03 - Zeus - gas giant

P/2020 (Kalidasa)04 - Djinn's Bane - gas giant

34Tauri(2020)E - Blue Sun - Class F0

P/2020(Blue Sun)01 - Burnham - brown dwarf

P/2020(Blue Sun)02 - Fury - gas giant

P/2020(Blue Sun)03 - Dragon's Egg - gas giant

2020	Star cluster in Taurus is discovered, designated “34Tauri(2020)”. Five stars and 14 gas giants found.
2021	Recycling programs beginning to fail, global warming increasing.
2027-2042	Terrestrial planets found by the dozens in 34Tauri(2020). Most are believed to be within acceptable limits for terraforming.
2027	P/2027(White Sun)03 showing chemical signature of Earthlike conditions. Despite reddish hue, P/2027(White Sun)04 showing similar conditions.
2030	It's official: Earth will lose the ability to sustain 21st century society and current population levels within 100 years.
2035	The quantum nature of gravity is deduced, allowing for rapid and unprecedented advances in gravity manipulation technologies. Creation of artificial gravity and gravity screening soon follow.
2037	Space technology development vastly accelerated by new discoveries. Due to the advent of gravity technology, terraforming can take decades instead of centuries.
2040	First theories for evacuating the Earth presented. Gravity manipulation technology makes evacuation plausible idea.
2042	Terraforming technology tested on Mars with positive results.
2045	Terraforming of Venus, Mars and Earth's moon begun. Terraforming efforts will be abandoned within two years due to a lack of native resources.
2048	Failure of terraforming efforts in the Solar System hit home. Global morale sinks to new lows as riots break out in many major cities. Earth's governments decide that fast action is required to keep society from falling into chaos. As rebuilding Earth's ecosystem no longer appears to be an option, a plan for mass exodus is proposed instead. The GEA (Global Exodus Alliance) is formed and given unlimited governmental authority and complete control over Earth's meager remaining resources as member nations cede their power to the organization. The GEA moves quickly to take control of infrastructure, police and military and most of the private sector as well, all in the name of mobilization of the greatest single endeavor in human history.

2053	Collection and storage of samples of all life on Earth.
2060	With plans for colonization in place, global resources mobilized, and construction of arks and ark modules on-going, the GEA makes its final move to cement control over humanity: The GEA publishes the "Articles of Alliance", a super-constitution which supersedes all other legal systems on the planet. As China and the U.S. are contributing most of the resources and much of the know-how to the Exodus Project, they take joint stewardship over the new "global government". Smaller countries are given a choice - toe the line or give up any chance of having their populations join the exodus. Results are almost immediate - unilateral capitulation of 98 percent of Earth's governments. The Alliance is born.
2072	First Wave: Dozens of robotic terraforming ships are launched. Their targets are two planets orbiting the Verse's central sun, a white primary, dubbed "White Star" (later, simply "White Sun") by the Americans and "Bai Hu" or "White Tiger" by the Chinese.
2075	Latest projections show Earth unable to support more than 5 percent of current population within three decades. GEA recommends a vast expansion of the Exodus Project and Alliance approves - remaining cities will be systematically dismantled to increase the size of the ark fleet tenfold. Pollution runs wild as ark fleet is considered the only priority.
2090	Loading of ships begun with cargo, fuel, & stored genetic samples.
2094	Boarding of the ark ships begins. Over the last five decades, Earth population has dropped to around one billion due to starvation, disease, toxic contamination and criminal activities. Reproductive rates have dropped to near zero. Most of the Earth's population now lives in squalor. Although most ark ships will not depart until completely loaded (a process that takes years), survivors welcome the safe, sterile, climate-controlled environments of the Ark ships after the horror Earth has become. A rich black market develops that sells positions in the boarding lottery, falsified medical certificates and other items needed to gain quicker access to the arks.
2095	The Alliance declares global martial law.
2097	First ark ships begin to depart. Priority is given to those ships populated with the ancestors of those who will act as the terraforming and construction labor force upon arrival.

2100	Loading of the ark ships is complete. Over a quarter billion people are contained in hundreds of ships ranging in size from a municipal stadium to a small city. Remaining planet-side population negligible - the death rate during the years loading took place rose to near-extinction levels. Those who remain are either too ill to make the journey or are considered "undesirable" by the GEA.
2101	The final Ark ship leaves Earth orbit.
2102	Leading ships of the Ark Fleet reach cruise velocity of approximately 102,777 km/s or 0.34483c. Fleet formation spreads a little as trailing ships take a little longer to reach cruise velocity. Ships at cruise velocity for 116 years, Earth time. Time dilation slows time aboard ship to 108 years 10 months 18 days.
2110	All telemetry data from Earth ceases. It is assumed that remaining Earth population is 0.
2164-2190	As the Exodus fleet approaches, higher resolution imaging of the Verse becomes possible. Observers discover hundreds of planets and moons, many of which appear to be terraformable.
2190	Last person in the fleet who was born on Earth dies.
2200	Robot terraformers arrive and "tweak" P/2027(White Sun)03 and P/2027(White Sun)04, start terraforming P/2028(White Sun)13.
2218	Leading ships of Ark fleet begin to decelerate as they enter the Verse. Destination: P/2027(White Sun)03 "Londinium" and P/2027(White Sun)04 "Sihnon". Last member of the first "star generation" dies. No living member of crew has direct memories of Earth or the Solar System.
2220	Terraforming of P/2027(White Sun)03 "Londinium" complete. Terraforming of P/2027(White Sun)04 "Sihnon" complete. Arks arrive in the Verse; start terraforming other worlds, mostly core worlds.
2225	Colonization of Londinium and Sihnon complete.
2240	P/2028(White Sun)13 "Bernadette" ready for colonization. Terraforming of worlds in Georgia and Red Sun systems begun.

2251	Terraforming of P/2030(Red Sun)08 "Harvest" complete.
2253	Decision to use nano-compression technology to compress and ignite brown dwarfs. P/2020(Blue Sun)01 "Burnham" first brown dwarf to be "helioformed" due to distance from core systems. Ignition successful but produces random bursts of radiation.
2255	Terraforming of P/2028(White Sun)12 "Liann Jiun" complete.
2256	Terraforming of P/2027(White Sun)06 "Osiris" complete.
2258	Helioform process improved to mostly stable levels, minor radiation bursts but within acceptable levels. P/2020(Red Sun)02 "Heinlein" helioformed.
2259	Heinlein stable. Heinlein's satellites available for terraforming. P/2020(Red Sun)01 "Himinbjorg" helioformed.
2260	Himinbjorg stable. Himinbjorg's satellites available for terraforming. P/2020(Georgia)01 "Murphy" helioformed. Helioform technology vastly improved, declared safe for brown dwarfs inside inner solar systems.
2261	Murphy stable. Murphy's satellites available for terraforming. P/2020(White Sun)02 "Lux" helioformed.
2262	Lux stable. Lux's satellites available for terraforming. Radiation burst problem at Burnham resolved. S/2038(Burnham)01 "Miranda" available for terraforming.
2266	Terraforming of P/2027(White Sun)07 "Ariel" complete. Terraforming of P/2028(White Sun)09 "Valentine" complete. Terraforming of P/2027(White Sun)08 "Bellerophon" complete.
2270	P/2020(Kalidasa)01 "Penglai" helioformed. Terraforming of P/2028(White Sun)11 "Albion" complete.
2271	Penglai stable, satellites available for terraforming. P/2020(White Sun)01 "Qin Shi Huang", last brown dwarf to be helioformed, is ignited.
2273	Qin Shi Huang stable. S/2032(Qin Shi Huang)01 "Santo" available for terraforming.

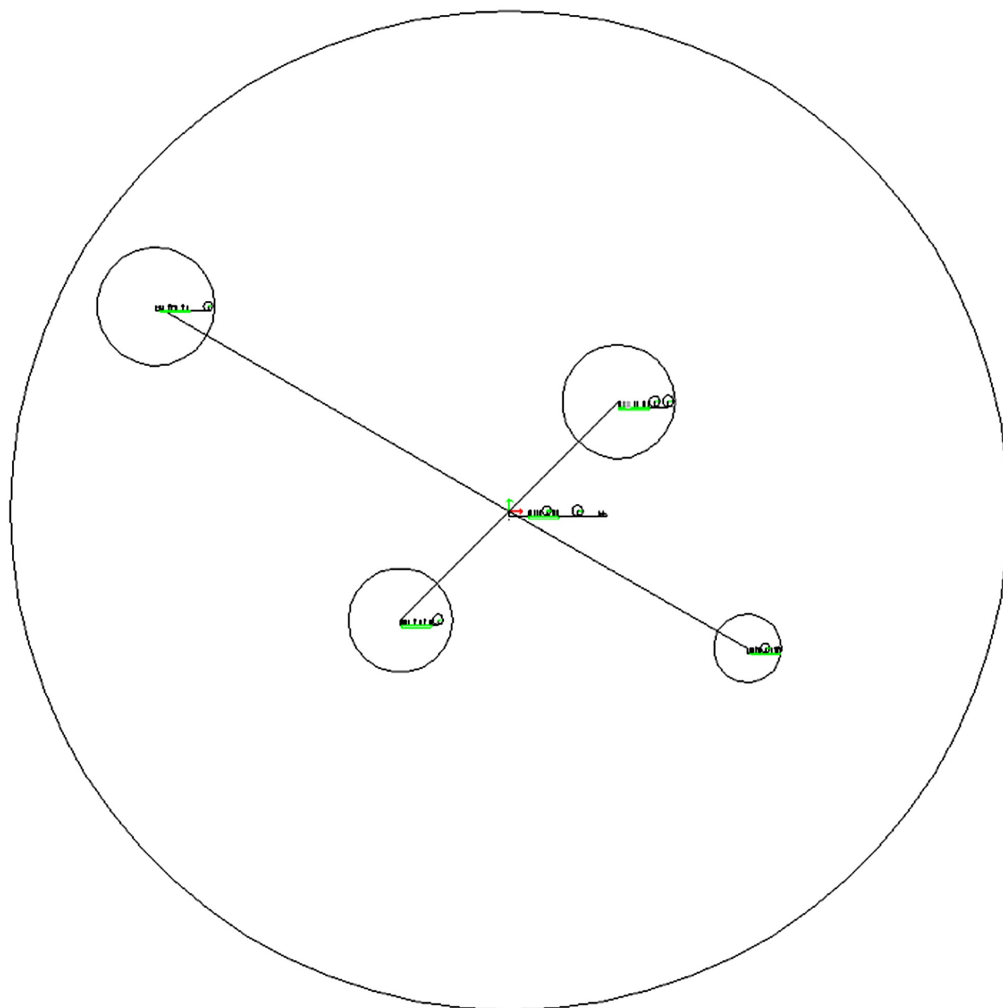
- 2290** Comm Station Ring 1 asteroids terraforming complete. Cortex coverage expanded.
- 2305** Comm Station Ring 2 asteroids terraforming complete. Cortex coverage optimum for four inner systems, considered mostly reliable in Blue Sun system. Terraforming of S/2032(Qin Shi Huang)01 “Santo” complete.
- 2308** Terraforming of S/2040(Lux)02 “Persephone” complete except for S/2176(Persephone)01 “Hades”. Terraforming of S/2040(Lux)01 “Pelorum” complete.
- 2404** Terraforming of S/2037(Murphy)02 “Shadow” complete.
- 2407** Terraforming of S/2041(Murphy)03 “Hera” complete.
- 2417** Terraforming of S/2036(Heinlein)02 “Silverhold” complete.
- 2440** Titan Terraforming Project complete. The moons of gas giants P/2020(Kalidasa)02 “Heaven,” P/2020(Kalidasa)03 “Zeus,” P/2020(Kalidasa)04 “Djinnis Bane,” P/2020(Blue Sun)02 “Fury,” and P/2020(Blue Sun)03 “Dragon’s Egg” are ready for colonization, except for S/2165(Fury)03 “Seventh Circle” and S/2178(Zeus)06 “Betty.” While the moons are ready for colonization, they are not opened to colonists until 2436.
- 2433** Terraforming of P/2031(Kalidasa)16 “Beaumonde” complete.
- 2435** Terraforming of P/2027(Blue Sun)04 “New Canaan” should be complete, but having trouble. Terraforming of New Canaan’s moons completed on schedule.
- 2436** Core resources running low, Londinium importing over 60% of raw materials despite extensive recycling programs. Rimward expansion begins as worlds in Kalidasa and Blue Sun systems complete terraforming.
- 2506** Terraforming fails on Miranda. Some settlers die. Miranda removed from maps of habitable worlds. The war for Unification begins.
- 2511** Unification War ends with the defeat of the Independents.
- 2518** The Verse In Numbers, 2518 Edition.

2519

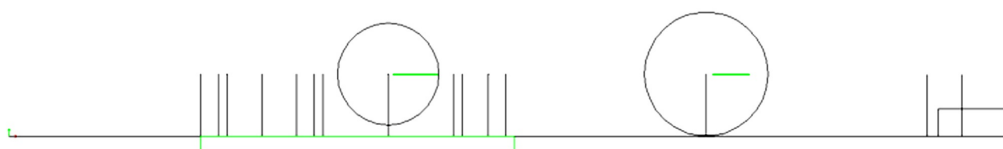
Terraforming of P/2028(White Sun)10 “Rubicon” complete. All White Sun planets available for colonization. “Miranda Affirmation” project initiated. I.A.V. Unification on station to oversee habitation and distribution. Call sent out for colonists with harsh environment experience and military background to assist with exploration and construction. Assignments considered extremely hazardous. S/2180(Miranda)01 “Caliban” terraforming resumed. Fast-track, utilizing new techniques pioneered at Ita. Tentative completion set for 2530.

2520

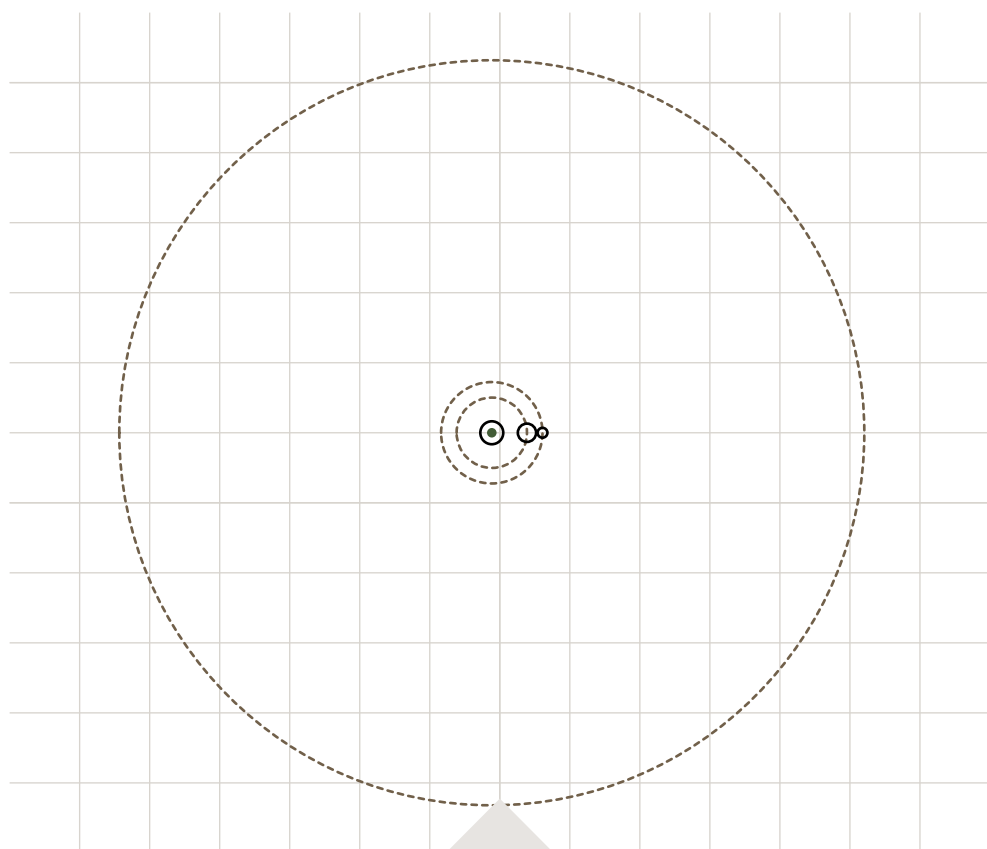
The Verse In Numbers, 2520 Edition Published by the Alliance Geographical Survey 2520.



Gravity Map of the Verse. The effective limit of White Sun's gravity is also the political boundary of the Verse: 440 AU across. Beyond that boundary is a Kuiper Belt and an Oort Cloud, but the Verse as most people know it, is the area inside that boundary.



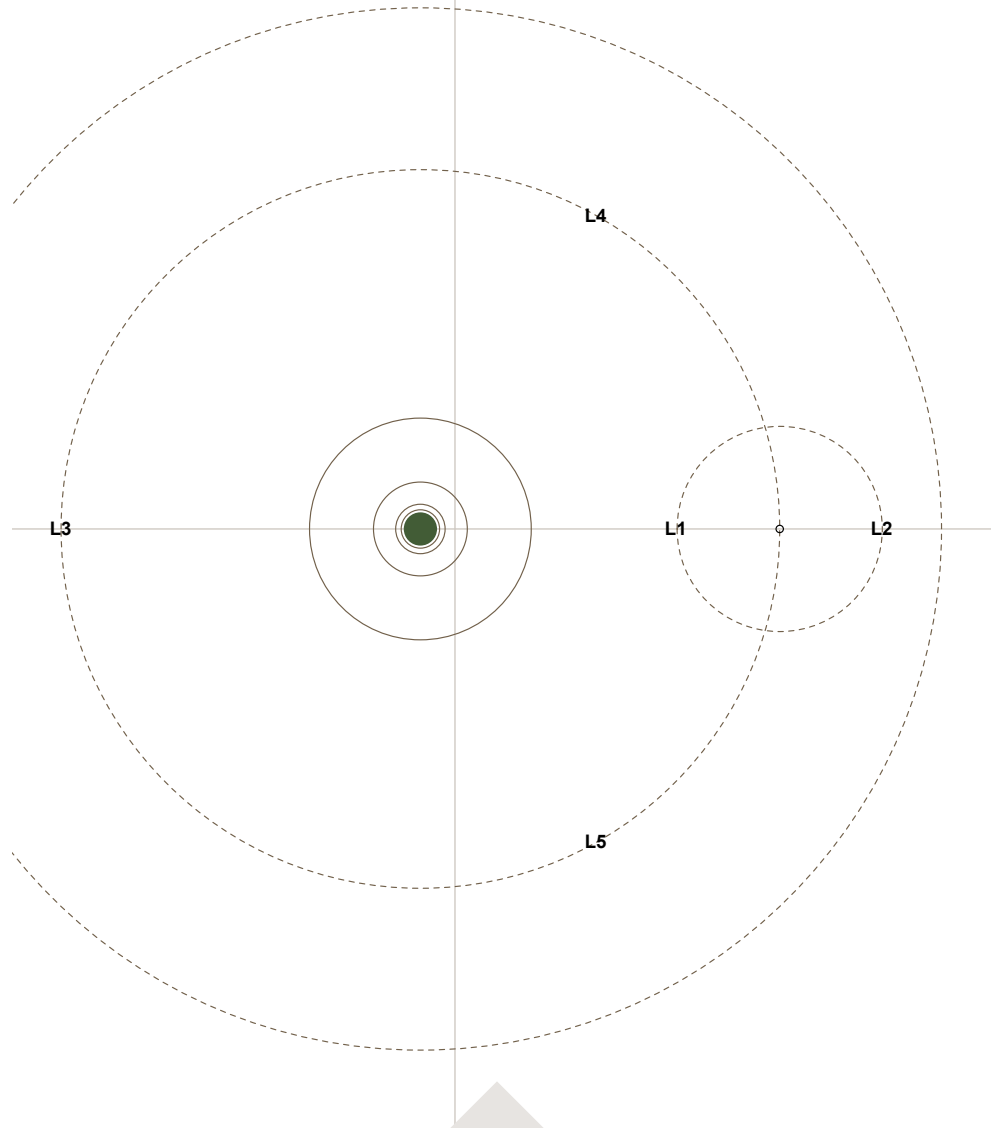
Zooming in shows the inner White Sun System.



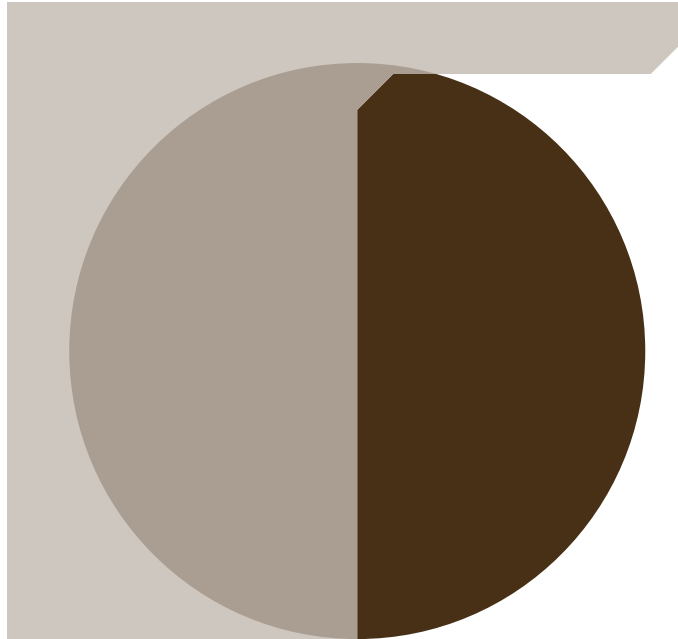
The Londinium System. The large dotted circle is Londinium's Hill Sphere. The two smaller dashed circles are the orbits of Colchester and Balcerne.



The circles around Londinium are (from the outside in): GEO, Outer Roche Limit and MEO, Inner Roche Limit, and LEO. The MEO and Outer Roche Limit are too close together in this view to differentiate. The dashed arcs are the orbits of Colchester and Balcerne. The dotted circles are the Hill Spheres for Colchester and Balcerne.



Londinium & Colchester. Dashed circle is Colchester's orbit around Londinium. Dotted circle around Colchester is the moon's Hill Sphere. Colchester's Lagrangian points are labeled.



The Verse in Numbers would not be complete without a sense of both nostalgia and scale, for our emotional ties to a thing and our sense of size through comparison, help us relate to all of our surroundings. If I have learned one thing from the Verse, it is this. The most important place in the Verse, is the one we left behind. Earth.

After all, that first world was, is and forever will be the undeniable, never to be forgotten home of humankind's nativity.

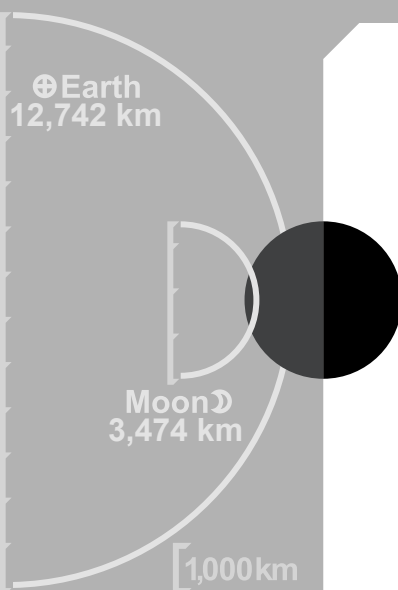
Earth
Orbit: 149,597,870km 1.000 AU
Period: 365.25 days 1.00 years

Diameter: 12,742 km
Surface Area: 510,064,472 km²
Land Area: 148,938,826 km²
Arable Land: 40,213,483 km²
Horizon: 4.654 km

Mass: 5,976,299,998,943,010,000,000 metric tonnes
Surface Gravity: 1.0000 G
Escape Velocity: 11.1750 km/s
LEO (alt): 1,000 km
MEO (alt): 20,000 km
GEO (alt): 35,786 km

Hill Sphere (radius): 1,465,330 km
LaGrangian Points
L1: 1,465,330 km
L2: 1,465,330 km
L3 (+-180): 149,597,870 km
L4 (+60): 149,597,870 km
L5 (-60): 149,597,870 km
Inner Roche Limit 9,577 km
Outer Roche Limit 17,839 km

Terraformed (year): N/A
Population: Unknown (Presumed 0)



Throughout the Verse in Numbers you will see planets and moons compared to what we know - Earth That Was and the Moon. Numbers are one thing, but the familiar adds a comparative human element of perspective, and what better perspective than that which we understand best?

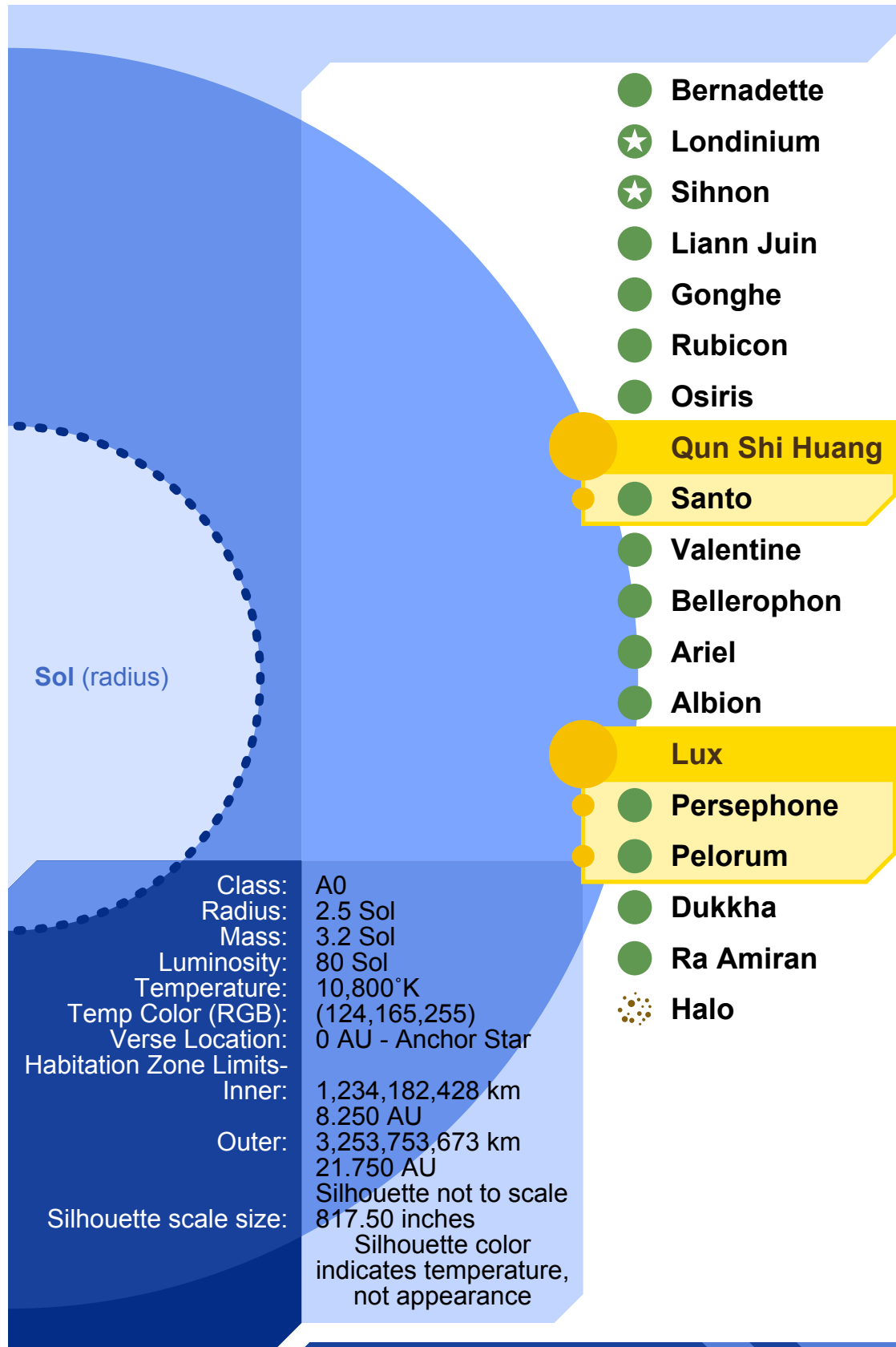
Moon Orbit: 384,400 km
Period: 27.30 days

Diameter: 3,474 km
Surface Area: 37,919,230 km²
Land Area: N/A
Arable Land: N/A
Horizon: 2.430 km

Mass: 73,485,613,750,059,700,000 metric tonnes
Surface Gravity: 0.1645 G
Escape Velocity: 2.3730 km/s
LEO (alt): 45 km
MEO (alt): 902 km
GEO (alt): 1,614 km

Hill Sphere (radius): 10,173 km
LaGrangian Points
L1: 10,173 km
L2: 10,173 km
L3 (+-180): 384,400 km
L4 (+60): 384,400 km
L5 (-60): 384,400 km
Inner Roche Limit 431 km
Outer Roche Limit 804 km

Terraformed (year): N/A
Population: Unknown (Presumed 0)





WHITE SUN (BAI HU)

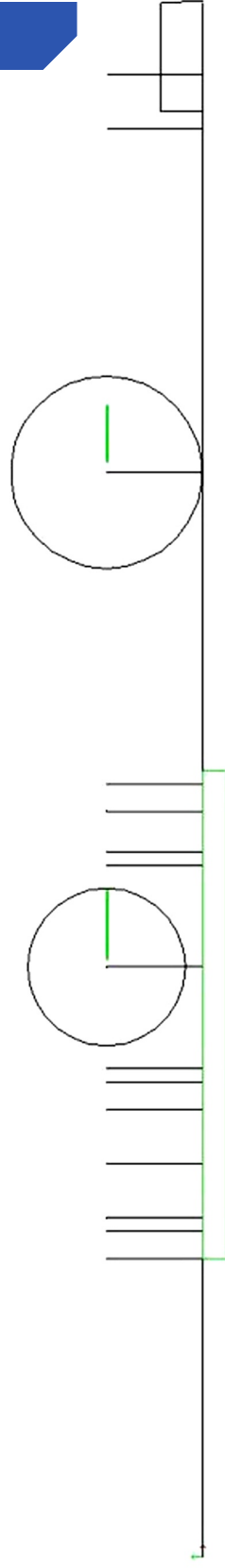


太阳

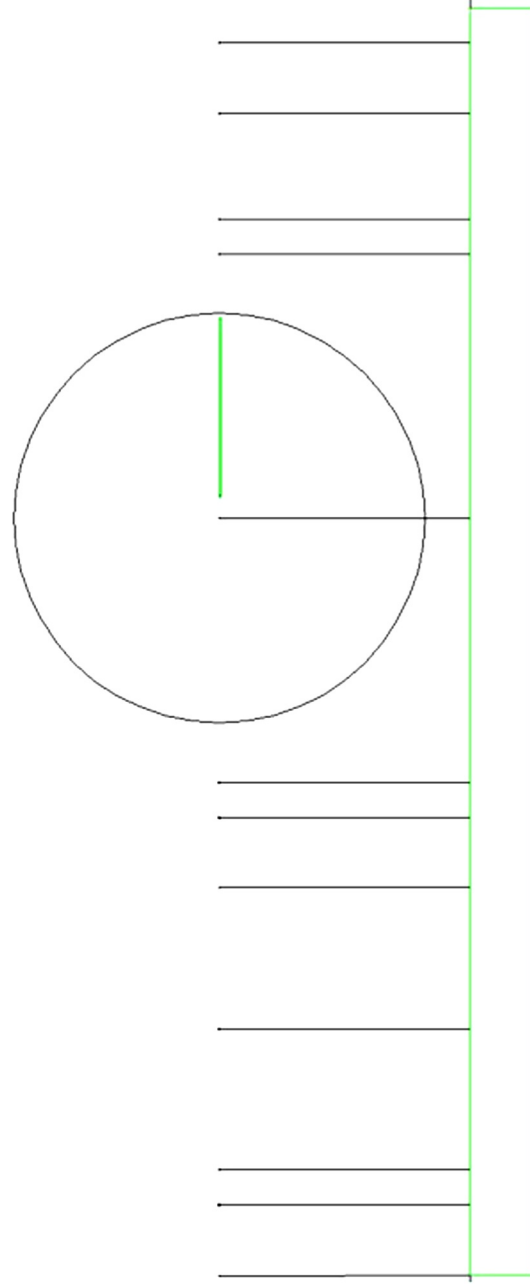
34TAURI(2020)A



Gravity maps showing the relative positions of White Sun's core planets. The first vertical line to the left is Bernadette, while the last to the far right is Ra Amiran. The large circles are the Hill Spheres for Qin Shi Huang and Lux, respectively. The flat rectangle on the far right is the Halo asteroid belt.



Close-up of White Sun's Habitation Zone. Even at this closer scale, the terrestrial Hill Spheres are not visible. The largest of which is Lordinium's, at 4.2 million kilometers across, is visible only as a slightly heavier dot at the top of the second vertical line from the left.



GRAVITY & HABITATION

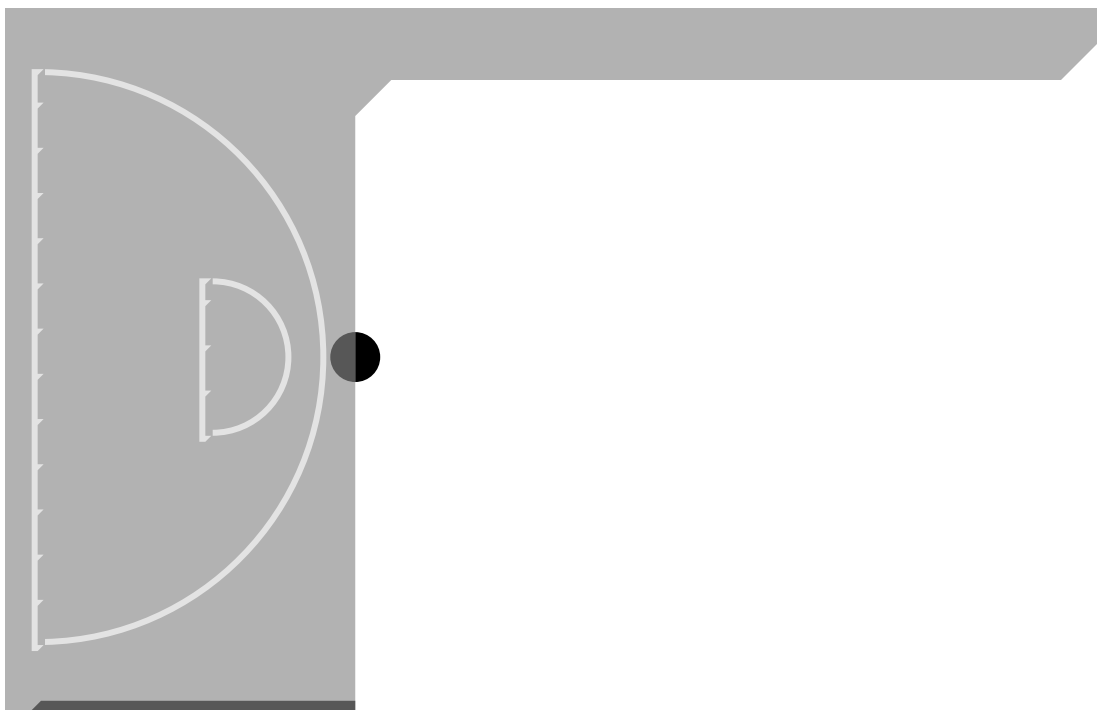


太阳

2.02

Note: Bernadette is the home office of the Alliance Colony and Settlement Authority. The majority of settlement ventures to the border and rim worlds start with a standard form CSA-0010B Request for Resettlement and Homestead being waved to an agent of the central office at One OK Corral Plaza, New Tombstone, Bernadette.

Bernadette	
Orbit:	P/2028(White Sun)13
Period:	1,234,182,428 km - 8.250 AU 8,655.00 days - 23.70 years
Diameter:	10,582 km
Surface Area:	351,791,537 km ²
Land Area:	112,572,292 km ²
Arable Land:	36,023,453 km ²
Horizon:	4.241 km
Mass:	4,114,435,595,255,810,000,000 metric tonnes
Surface Gravity:	0.9982 g _n
Escape Velocity:	10.174 km/s
LEO (alt):	829 km
MEO (alt):	16,580 km
GEO (alt):	29,666 km
Hill Sphere (radius):	1,214,740 km
LaGrangian Points	
L1:	1,214,740 km
L2:	1,214,740 km
L3 (+-180):	1,234,182,428 km
L4 (+60):	1,234,182,428 km
L5 (-60):	1,234,182,428 km
Inner Roche Limit	7,922 km
Outer Roche Limit	14,788 km
Terraformed (year):	2240
Population:	3,754,542,000



Nautilus
Orbit:
Period:

S/2175(Bernadette)01
249,860 km
17.75 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,084 km
3,691,547 km²
2,104,182 km²
673,338 km²
1.357 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

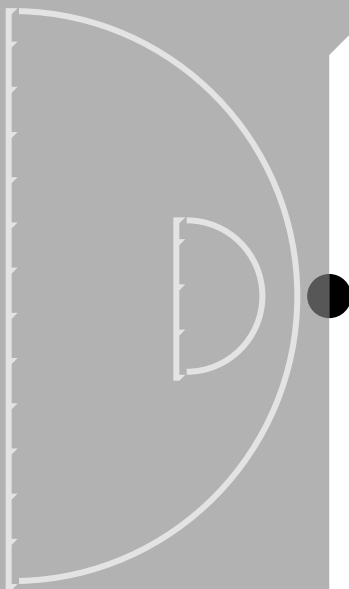
43,296,204,927,813,600,000 metric tonnes
1.001 g_n
3.261 km/s
829 km
1,703 km
3,047 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

19,209 km
19,209 km
19,209 km
249,860 km
249,860 km
249,860 km
814 km
1,519 km

Terraformed (year):
Population:

2240
7,500,000



Spinrad
Orbit: 345,960 km
Period: 24.57 days

Diameter: 978 km
Surface Area: 3,004,883 km²
Land Area: 1,802,930 km²
Arable Land: 576,938 km²
Horizon: 1.289 km

Mass: 34,855,401,744,666,300,000 metric tonnes
Surface Gravity: 0.9900 g_n
Escape Velocity: 3.08 km/s
LEO (alt): 76 km
MEO (alt): 1,520 km
GEO (alt): 2,719 km

Hill Sphere (radius): 17,140 km
LaGrangian Points
L1: 17,140 km
L2: 17,140 km
L3 (+-180): 345,960 km
L4 (+60): 345,960 km
L5 (-60): 345,960 km
Inner Roche Limit: 726 km
Outer Roche Limit: 1,356 km

Terraformed (year): 2240
Population: 250,000



Note: White Sun Capital ★ Verse Capital

Londinium P/2027(White Sun)03

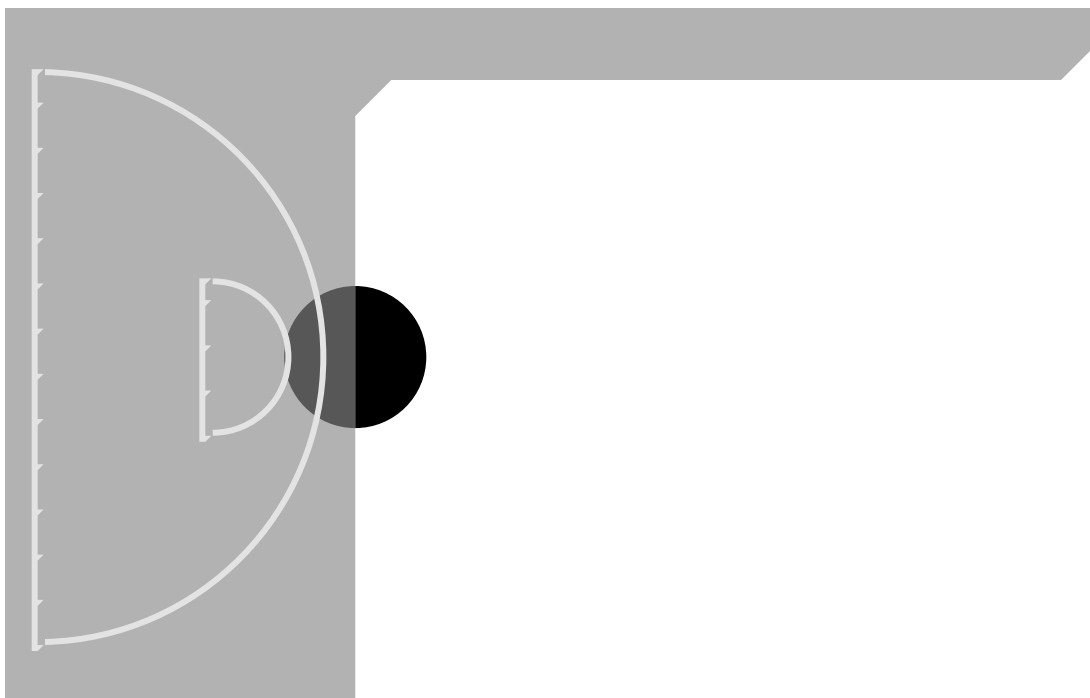
Orbit: 1,346,380,830 km - 9.000 AU
Period: 9,862.00 days - 27.00 years

Diameter: 18,000 km
Surface Area: 1,017,876,020 km²
Land Area: 386,792,888 km²
Arable Land: 123,773,724 km²
Horizon: 5.532 km

Mass: 12,099,132,984,771,700,000,000 metric tonnes
Surface Gravity: 1.0145 g_n
Escape Velocity: 13.378 km/s
LEO (alt): 1,433 km
MEO (alt): 28,663 km
GEO (alt): 51,286 km

Hill Sphere (radius): 2,100,015 km
LaGrangian Points
L1: 2,100,015 km
L2: 2,100,015 km
L3 (+-180): 1,346,380,830 km
L4 (+60): 1,346,380,830 km
L5 (-60): 1,346,380,830 km
Inner Roche Limit: 13,696 km
Outer Roche Limit: 25,565 km

Terraformed (year): 2220
Population: 4,510,000,000



Colchester
Orbit:
Period:

S/2172(Londinium)01
196,044 km
13.92 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

3,145 km
31,073,571 km²
15,536,786 km²
4,971,771 km²
2.312 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

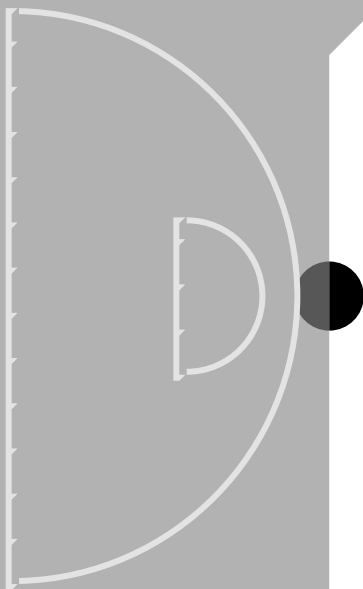
364,991,599,881,284,000,000 metric tonnes
1.0025 g_n
5.559 km/s
247 km
4,949 km
8,855 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

55,815 km
55,815 km
55,815 km
196,044 km
196,044 km
196,044 km
2,365 km
4,414 km

Terraformed (year):
Population:

2220
9,100,000



Balkerne
Orbit:
Period:

S/2172(Londinium)02
284,456 km
20.20 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,524 km
7,296,588 km²
3,867,191 km²
1,237,501 km²
1.61 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

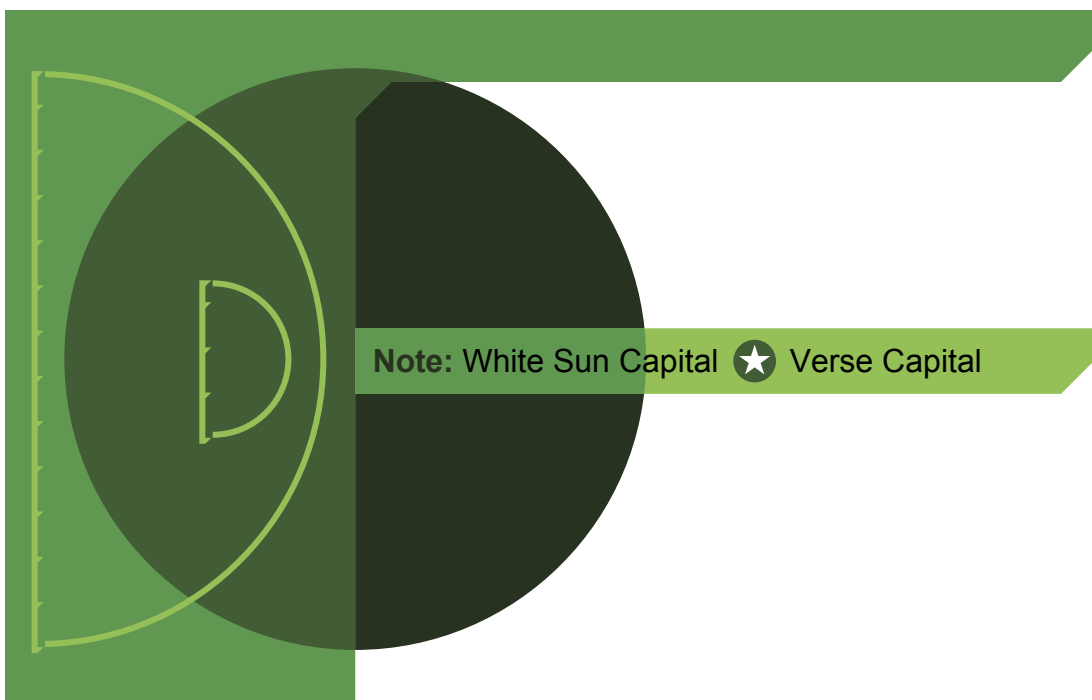
82,132,475,599,831,600,000 metric tonnes
0.9607 g_n
3.788 km/s
115 km
2,298 km
4,112km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

25,919 km
25,919 km
25,919 km
284,456 km
284,456 km
284,456 km
1,098 km
2,050 km

Terraformed (year):
Population:

2220
722,000



Sihnon
Orbit:
Period:

P/2027(White Sun)04
1,402,480,031 km - 9.375 AU
10,484.00 days - 28.70 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

12,881 km
521,253,559 km²
177,226,210 km²
56,712,387 km²
4.679 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

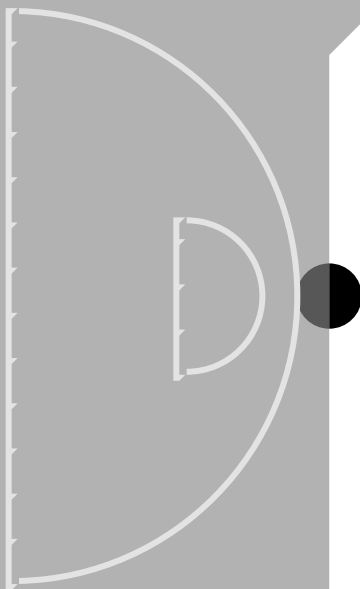
5,986,717,560,070,730,000,000 metric tonnes
0.9802 g_n
11.124 km/s
991 km
19,819 km
35,462 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,452,044 km
1,452,044 km
1,452,044 km
1,402,480,031 km
1,402,480,031 km
1,402,480,031 km
9,470 km
17,677 km

Terraformed (year):
Population:

2220
5,330,000,000



Airen Orbit:
Period:

S/2173(Sihnon)02
76,880 km
5.46 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,470 km
6,788,668 km²
3,665,880 km²
1,173,082 km²
1.581 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

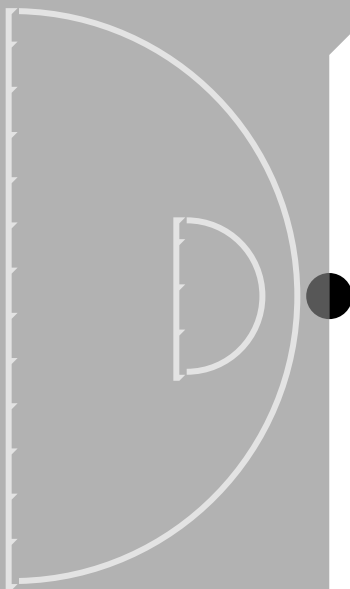
77,258,317,647,799,000,000 metric tonnes
0.9713 g_n
3.741 km/s
112 km
2,241 km
4,010 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

25,276 km
25,276 km
25,276 km
76,880 km
76,880 km
76,880 km
1,071 km
1,999 km

Terraformed (year):
Population:

2220
47,000



Xiaojie
Orbit:
Period:

S/2164(Sihnon)01
326,740 km
23.21 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,004 km
3,166,776 km²
1,836,730 km²
587,754 km²
1.306 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

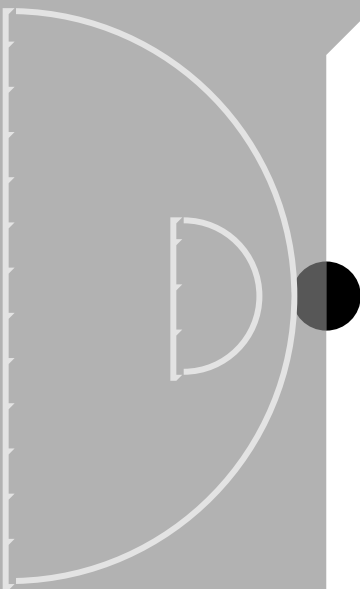
36,859,443,152,036,600,000 metric tonnes
0.9934 g_n
3.126 km/s
78 km
1,565 km
2,801 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

17,656 km
17,656 km
17,656 km
326,740 km
326,740km
326,740 km
748 km
1,396 km

Terraformed (year):
Population:

2220
97,000



Xiansheng
Orbit:
Period:

S/2176(Sihnon)03
422,840 km
30.03 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,527 km
7,325,343 km²
3,882,432 km²
1,242,378 km²
1.611 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

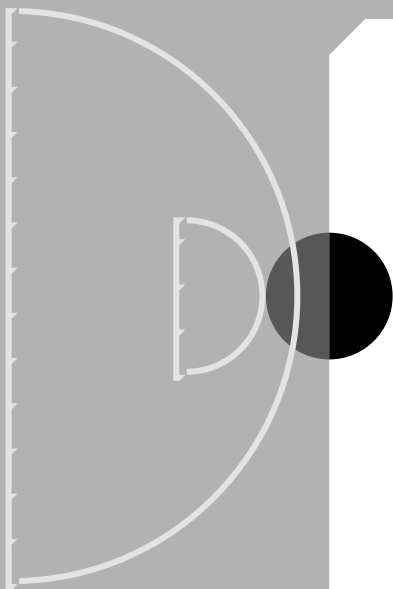
85,932,234,253,190,800,000 metric tonnes
1.0012 g_n
3.871 km/s
120 km
2,400 km
4,294 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

27,065 km
27,065 km
27,065 km
422,840 km
422,840 km
422,840 km
1,147 km
2,140 km

Terraformed (year):
Population:

2220
2,300,000



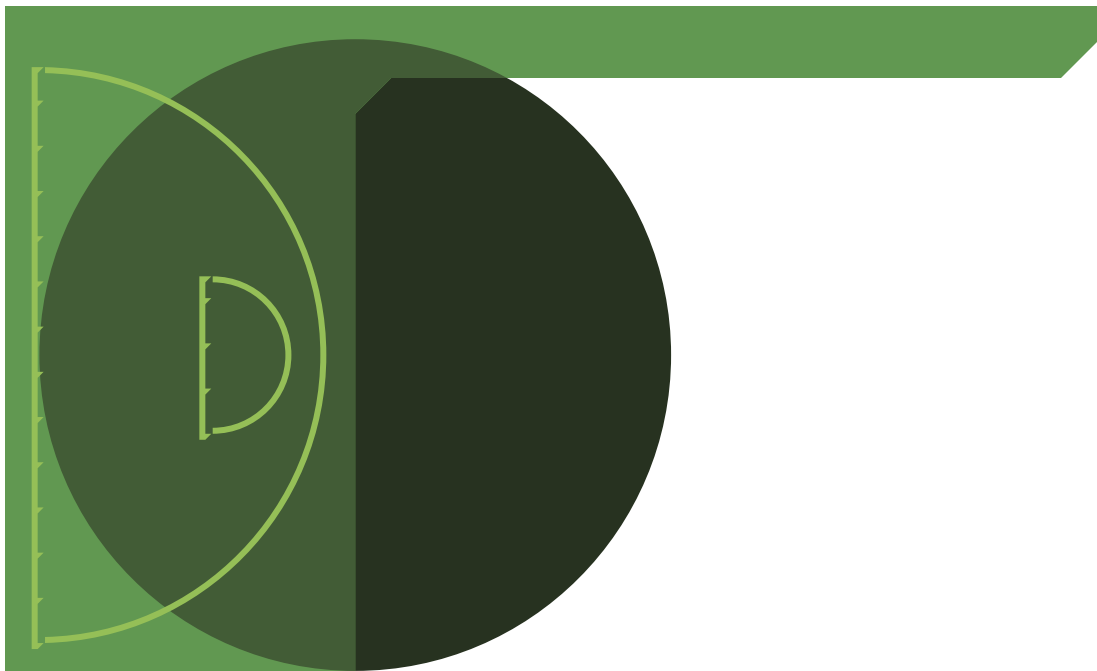
Yunnan
Orbit: 780,332 km
Period: 55.42 days

Diameter: 2,820 km
Surface Area: 24,983,201 km²
Land Area: 14,989,921 km²
Arable Land: 4,796,775 km²
Horizon: 2.190 km

Mass: 284,028,183,734,614,000,000 metric tonnes
Surface Gravity: 0.9703 g_n
Escape Velocity: 5.1783 km/s
LEO (alt): 215 km
MEO (alt): 4,295 km
GEO (alt): 7,685 km

Hill Sphere (radius): 48,440 km
LaGrangian Points
L1: 48,440 km
L2: 48,440 km
L3 (+-180): 780,332 km
L4 (+60): 780,332 km
L5 (-60): 780,332 km
Inner Roche Limit: 2,052 km
Outer Roche Limit: 3,831 km

Terraformed (year): 2220
Population: 3,860,000



Liann Jiun
Orbit:
Period:

P/2028(White Sun)12
1,626,876,836 km - 10.875 AU
13,099.00 days - 35.86 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

13,957 km
611,975,491 km²
232,550,687 km²
74,416,220 km²
4.871 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

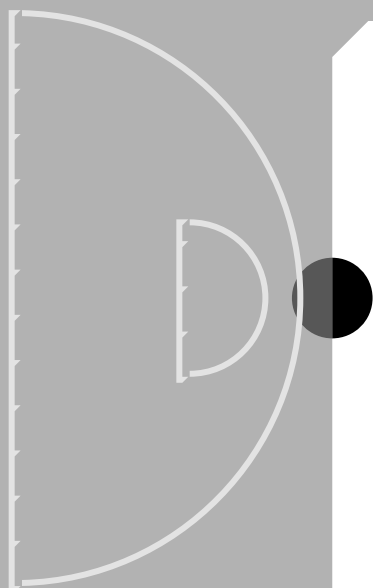
7,171,800,428,400,900,000,000 metric tonnes
1.0002 g_n
11.696 km/s
1,096 km
21,911 km
39,206 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,605,376 km
1,605,376 km
1,605,376 km
1,626,876,836 km
1,626,876,836 km
1,626,876,836 km
10,470 km
19,544 km

Terraformed (year):
Population:

2255
3,750,000,000



Tiantan
Orbit:
Period:

S/2176(Liann Jiun)01
196,044 km
13.92 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,784 km
9,998,609 km²
5,199,277 km²
1,663,768 km²
1.741 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

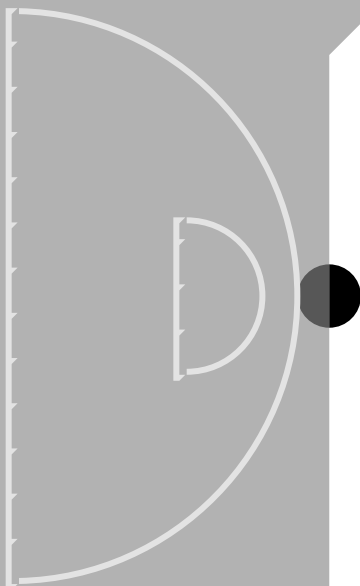
118,955,368,797,160,000,000 metric tonnes
1.0154 g_n
4.213 km/s
142 km
2,843 km
5,088 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

32,068 km
32,068 km
32,068 km
196,044 km
196,044 km
196,044 km
1,359 km
2,536 km

Terraformed (year):
Population:

2255
5,500,000



Fu
Orbit:
Period:

S/2176(Liann Jiun)02
272,924 km
19.38 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,396 km
6,122,386 km²
3,306,088 km²
1,057,948 km²
1.541 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

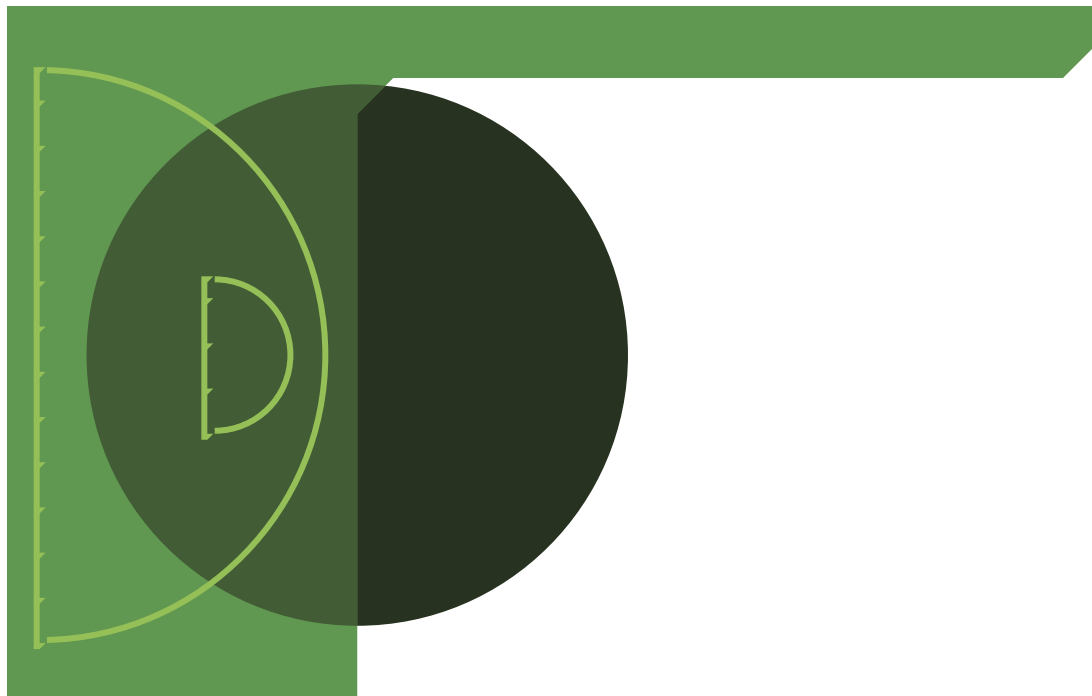
68,269,715,733,646,000,000 metric tonnes
0.9517 g_n
3.608 km/s
104 km
2,085 km
3,731 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

23,520 km
23,520 km
23,520 km
272,924 km
272,924 km
272,924 km
996 km
1,860 km

Terraformed (year):
Population:

2255
2,250,000



Gonghe
Orbit:
Period:

P/2027(White Sun)05
1,851,273,641 km - 12.375 AU
15,900.00 days - 43.53 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

11,990 km
451,635,674 km²
171,621,556 km²
54,918,898 km²
4.515 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

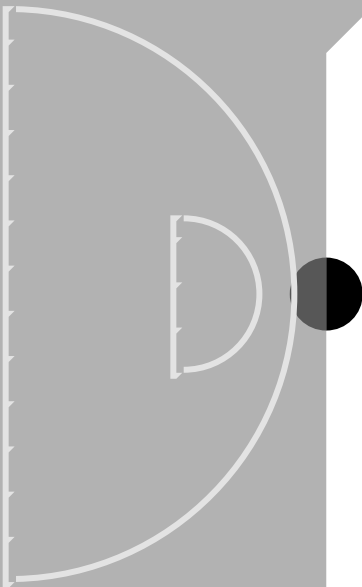
5,313,400,128,178,680,000,000 metric tonnes
1.0041 g_n
10.862 km/s
945 km
18,897 km
33,812 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,384,503 km
1,384,503 km
1,384,503 km
1,851,273,641 km
1,851,273,641 km
1,851,273,641 km
9,029 km
16,855 km

Terraformed (year):
Population:

2255
2,550,000,000



Xing Yun
Orbit:
Period:

S/2173(Gonghe)01
338,272 km
24.02 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,601 km
8,052,533 km²
4,187,317 km²
1,339,942 km²
1.65 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

92,037,990,119,928,300,000 metric tonnes
0.9755 g_n
3.912 km/s
123 km
2,451 km
4,386 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

27,648 km
27,648 km
27,648 km
338,272 km
338,272 km
338,272 km
1,171 km
2,186 km

Terraformed (year):
Population:

2255
12,000,000



Rubicon
Orbit:
Period:

P/2028(White Sun)10
1,963,472,044 km - 13.125 AU
17,368.00 days - 47.55 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

15,075 km
713,944,602 km²
235,601,719 km²
75,392,550 km²
5.062 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

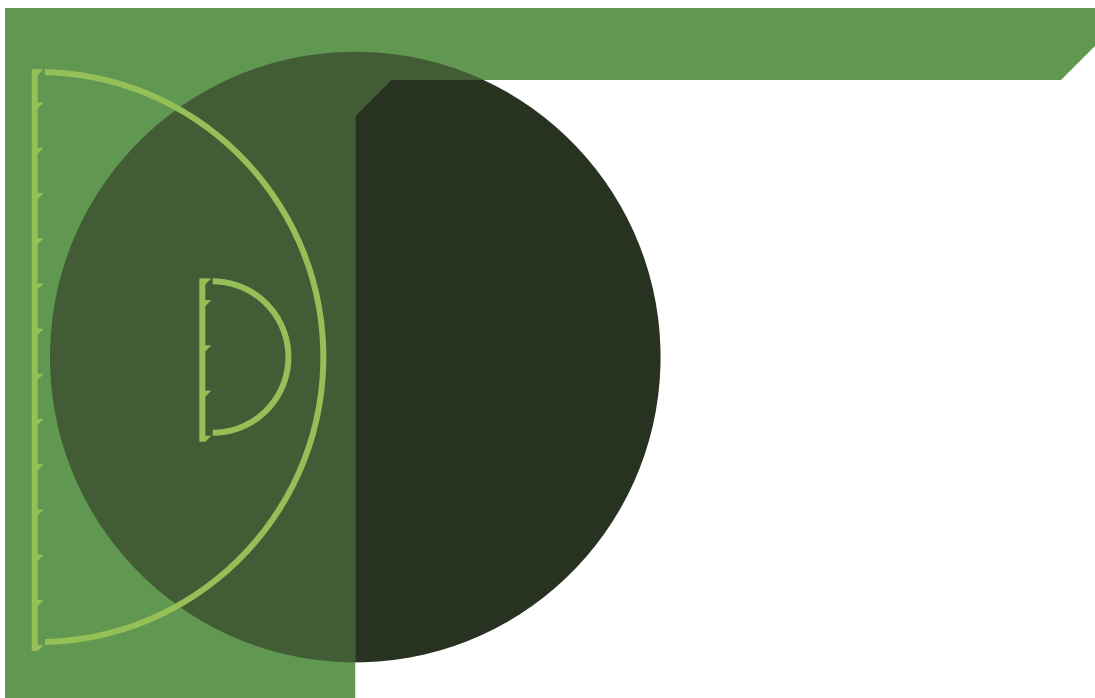
8,458,802,621,040,080,000,000 metric tonnes
1.0112 g_n
12.223 km/s
1,196 km
23,927 km
42,812 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,753,042 km
1,753,042 km
1,753,042 km
1,963,472,044 km
1,963,472,044 km
1,963,472,044 km
11,433 km
21,341 km

Terraformed (year):
Population:

2519
1,005,000



Osiris
Orbit:
Period:

P/2027(White Sun)06
2,019,571,245 km - 13.500 AU
18,117.00 days - 49.60 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

13,523 km
574,507,852 km²
178,097,434 km²
56,991,179 km²
4.795 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

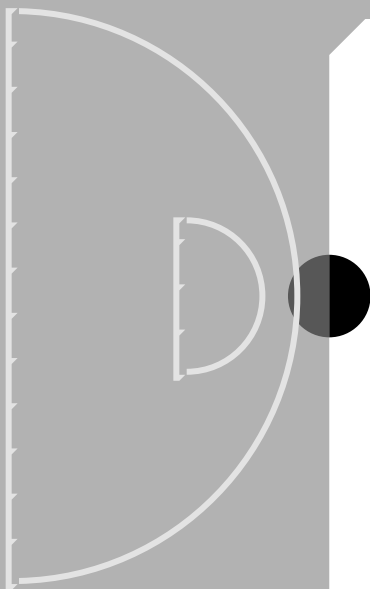
6,963,599,408,036,470,000,000 metric tonnes
1.0345 g_n
11.709 km/s
1,098 km
21,958 km
39,290 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,608,798 km
1,608,798 km
1,608,798 km
2,019,571,245 km
2,019,571,245 km
2,019,571,245 km
10,492 km
19,585 km

Terraformed (year):
Population:

2256
3,980,000,000



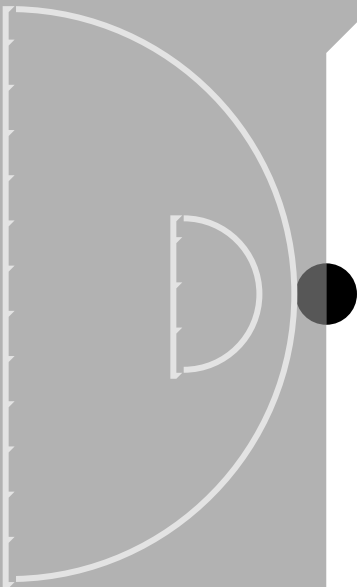
Epeuva
Orbit: 96,100 km
Period: 6.83 days

Diameter: 1,846 km
Surface Area: 10,705,656 km²
Land Area: 5,566,941 km²
Arable Land: 1,781,421 km²
Horizon: 1.771 km

Mass: 121,998,600,083,164,000,000 metric tonnes
Surface Gravity: 0.9726 g_n
Escape Velocity: 4.1950 km/s
LEO (alt): 141 km
MEO (alt): 2,818 km
GEO (alt): 5,042 km

Hill Sphere (radius): 31,784 km
LaGrangian Points
L1: 31,784 km
L2: 31,784 km
L3 (+-180): 96,100 km
L4 (+60): 96,100 km
L5 (-60): 96,100 km
Inner Roche Limit 1,347 km
Outer Roche Limit 2,514 km

Terraformed (year): 2256
Population: 2,911,000



Tannhauser
Orbit:
Period:

S/2176(Osiris)02
219,108 km
15.56 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,359 km
5,802,148 km²
3,191,181 km²
1,021,178 km²
1.520 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

65,358,220,601,776,400,000 metric tonnes
0.9614 g_n
3.5780 km/s
103 km
2,051 km
3,669 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

23,130 km
23,130 km
23,130 km
219,108 km
219,108 km
219,108 km
980 km
1,829 km

Terraformed (year):
Population:

2256
177,000

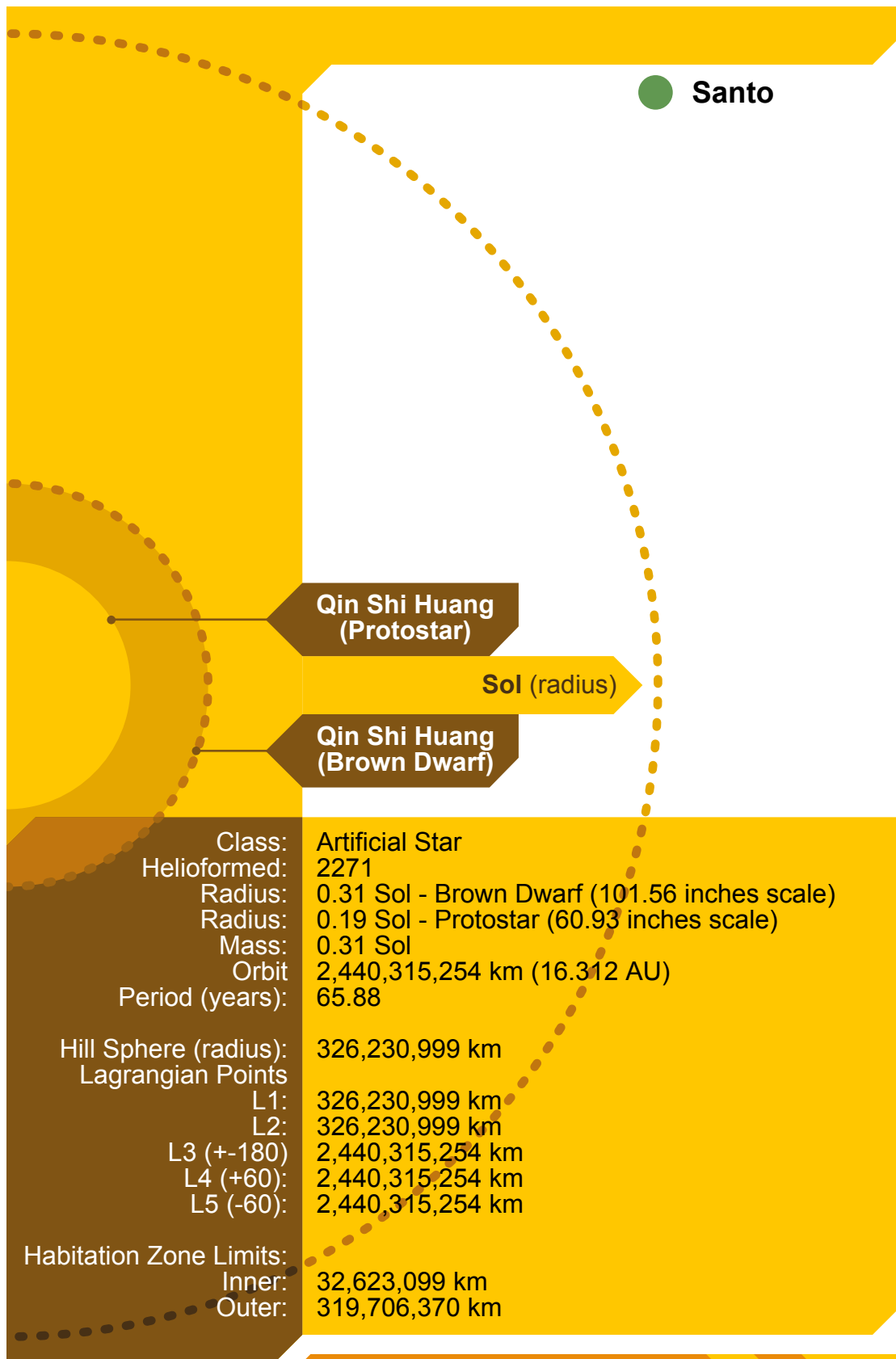
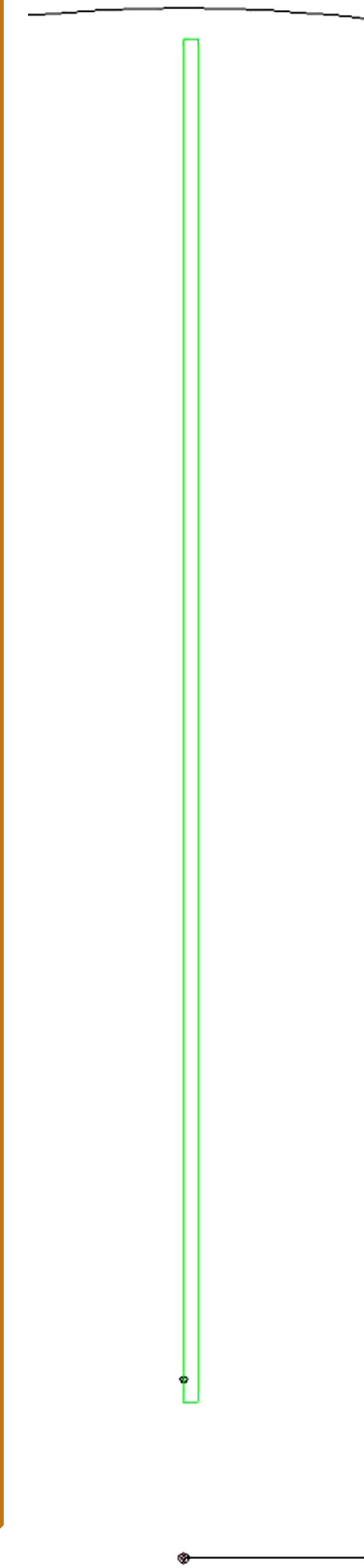
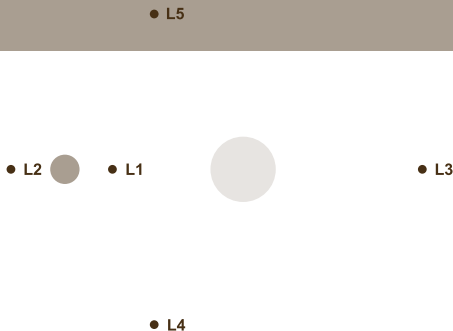


Diagram of Qin Shi Huang's limit and habitation zone. The tiny circle on the left is Qin Shi Huang. The blank area between Qin Shi Huang and the green rectangle is the area of space where the protostar's heat makes terraforming impossible. The green rectangle is Qin Shi Huang's habitation zone. The arc on the far right is the limit of Qin Shi Huang's gravitational influence, or Hill Sphere. Ordinarily, the habitation zone of a protostar wouldn't extend so far out, but Qin Shi Huang's habitation zone is superseded by that of White Sun. The tiny circle at the left edge of the green rectangle is Santo's Hill Sphere. At this scale, Santo itself is too small to see.



Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2223(White Sun)1ab1e**
The current numbering is able to catalog up to 33,554,432 objects per year per region.



REGION: L1

REGION: L2

REGION: L3

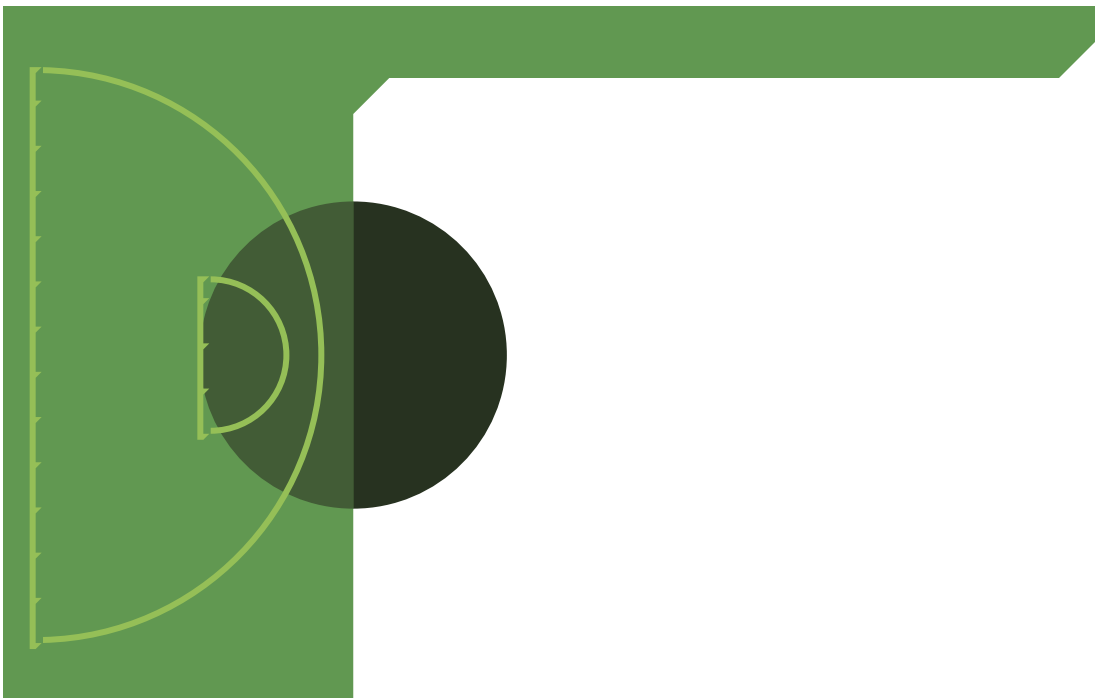
Emporia Station A/2270(White Sun)e0g90

REGION: L4

Changjiao	A/2273(White Sun)e7gh1
Huha	A/2271(White Sun)e0ga0
Isis	A/2277(White Sun)kg68g
Jianglu	A/2274(White Sun)k31h5
Li Si	A/2272(White Sun)e4s82
Tide (Fusu)	A/2275(White Sun)k6m5h
Zhao Gao	A/2271(White Sun)e0qa3

REGION: L5

Makko	A/2276(White Sun)ka10r
Yu-Shin	A/2276(White Sun)ka10q



Santo
Orbit:
Period:

S/2032(Qin Shi Huang)01
37,613,216 km - 0.251 AU
827.00 days - 2.27 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

6,790 km
144,840,302 km²
57,936,121 km²
18,539,559 km²
3.397 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

1,697,058,202,493,520,000,000 metric tonnes
1.0000 g_n
8.1570 km/s
533 km
10,658 km
19,070 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

780,850 km
780,850 km
780,850 km
37,613,216 km
37,613,216 km
37,613,216 km
5,093 km
9,506 km

Terraformed (year):
Population:

2305
846,500,000

WHITE SUN (BAI HU)

太阳

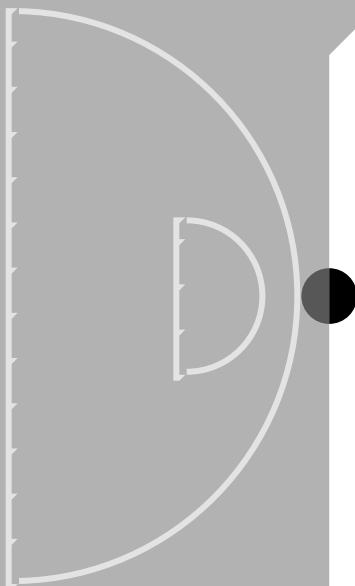
QIN SHI HUANG

SANTO

卫星

TETHYS

S/2173(Santo)01



Tethys
Orbit:
Period:

S/2173(Santo)01
115,320 km
8.18 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

970 km
2,955,925 km²
1,773,555 km²
567,538 km²
1.284 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

34,807,010,071,550,700,000 metric tonnes
1.0050 g_n
3.0910 km/s
77 km
1,530 km
2,738 km

Hill Sphere (radius):
LaGrangian Points

17,258 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

17,258 km
17,258 km
115,320 km
115,320 km
115,320 km

Inner Roche Limit
Outer Roche Limit

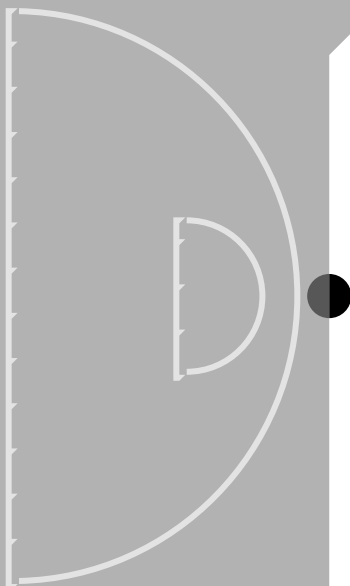
731 KM
1,365 KM

Terraformed (year):
Population:

2305
27,000

卫星

2.27



New Luxor
Orbit:
Period:

S/2176(Santo)02
230,640 km
16.38 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

985 km
3,048,052 km²
1,828,831 km²
585,226 km²
1.294 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

35,798,984,524,610,700,000 metric tonnes
1.0024 g_n
3.1110 km/s
77 km
1,550 km
2,773 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

17,479 km
17,479 km
17,479 km
230,640 km
230,640 km
230,640 km
741 km
1,382 km

Terraformed (year):
Population:

2305
154,000



Valentine
Orbit:
Period:

S/2028(White Sun)09
2,861,059,264 km - 19.125 AU
30,549.00 days - 83.64 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

9,358 km
275,116,067 km²
96,290,623 km²
30,813,000 km²
3.989 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

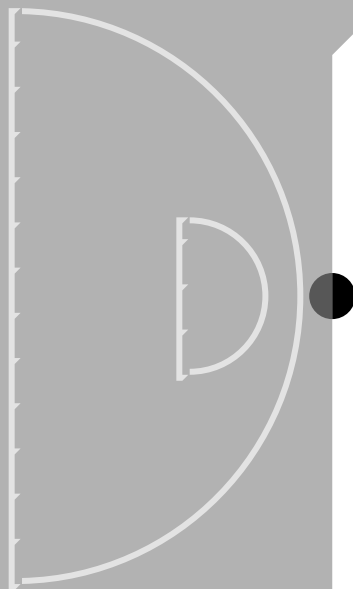
3,220,888,536,571,070,000,000 metric tonnes
0.9992 g_n
9.5730 km/s
734 km
14,677 km
26,261 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,075,309 km
1,075,309 km
1,075,309 km
2,861,059,264 km
2,861,059,264 km
2,861,059,264 km
7,013 km
13,091 km

Terraformed (year):
Population:

2266
2,650,000,000



Selene
Orbit:
Period:

S/2176(Valentine)01
61,504 km
4.37 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,003 km
3,160,470 km²
1,864,678 km²
596,697 km²
1.306 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

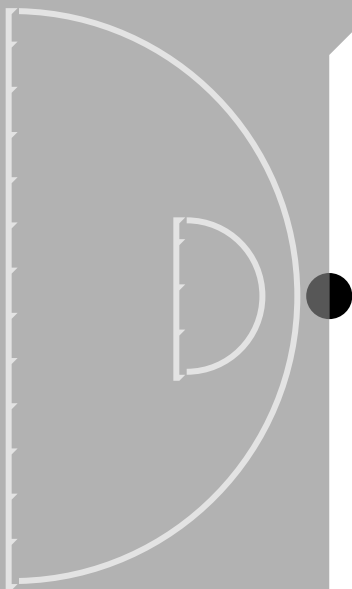
36,834,194,125,003,400,000 metric tonnes
0.9947 g_n
3.1270 km/s
78 km
1,566 km
2,802 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

17,662 km
17,662 km
17,662 km
61,504 km
61,504 km
61,504 km
748 km
1,397 km

Terraformed (year):
Population:

2266
8,000,000



Chons
Orbit:
Period:

S/2176(VALENTINE)02
380,556 km
27.03 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,018 km
3,255,708 km²
1,888,311 km²
604,259 km²
1.316 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

37,143,080,078,275,800,000 metric tonnes
0.9737 g_n
3.1170 km/s
78 km
1,556 km
2,784 km

Hill Sphere (radius):
LaGrangian Points

17,548 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

17,548 km
17,548 km
380,556 km
380,556 km
380,556 km

Inner Roche Limit
Outer Roche Limit

743 km
1,388 km

Terraformed (year):
Population:

2266
11,000,000



Bellerophon
Orbit:
Period:

S/2027(White Sun)08
2,917,158,465 km - 19.500 AU
31,452.00 days - 86.11 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

12,266 km
472,667,556 km²
170,160,320 km²
54,451,302 km²
4.566 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

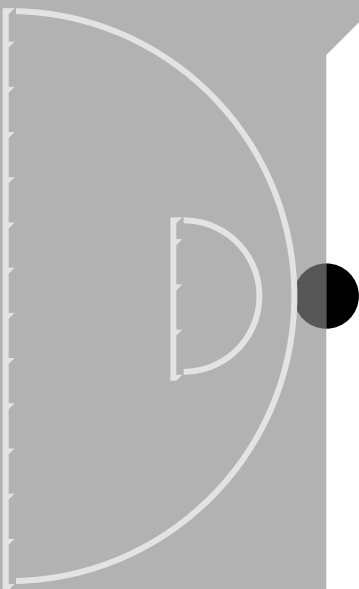
5,555,297,733,933,860,000,000 metric tonnes
1.0031 g_n
10.9810 km/s
966 km
19,313 km
34,556 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,414,963 km
1,414,963 km
1,414,963 km
2,917,158,465 km
2,917,158,465 km
2,917,158,465 km
9,228 km
17,226 km

Terraformed (year):
Population:

2266
3,124,510,000



Tyrins
Orbit:
Period:

S/2172(Bellerophon)01
84,568 km
6.01 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,456 km
6,659,975 km²
3,596,387 km²
1,150,844 km²
1.573 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

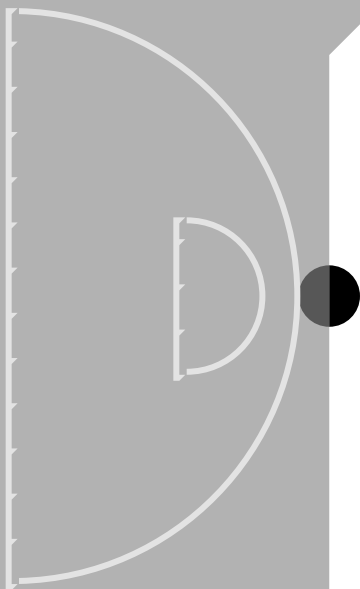
79,336,449,737,584,500,000 metric tonnes
1.0167 g_n
3.8090 km/s
116 km
2,324 km
4,157 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

26,206 km
26,206 km
26,206 km
84,568 km
84,568 km
84,568 km
1,110 km
2,072 km

Terraformed (year):
Population:

2266
7,000,000



Xanthus
Orbit:
Period:

S/2172(Bellerophon)02
138,384 km
9.83 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,349 km
5,717,073 km²
3,144,390 km²
1,006,205 km²
1.514 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

63,864,017,542,595,100,000 metric tonnes
0.9534 g_n
3.5500 km/s
101 km
2,019 km
3,612 km

Hill Sphere (radius):
LaGrangian Points

22,768 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

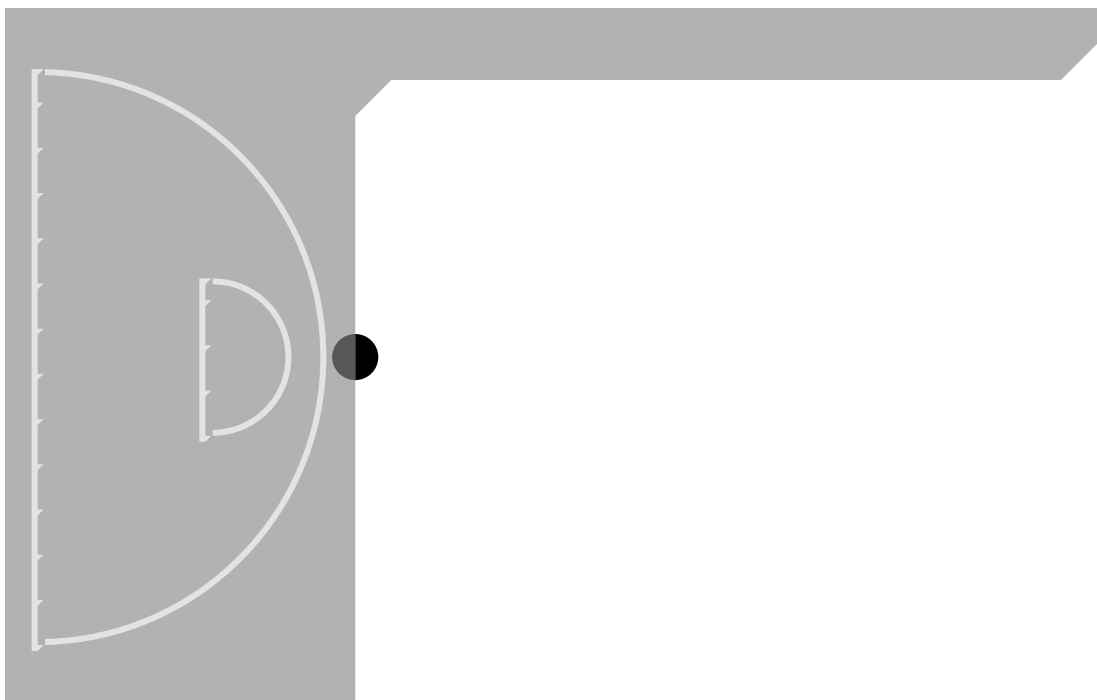
22,768 km
22,768 km
138,384 km
138,384 km
138,384 km

Inner Roche Limit
Outer Roche Limit

965 km
1,801 km

Terraformed (year):
Population:

2266
5,500,000



Parth
Orbit:
Period:

S/2172(Bellerophon)03
192,200 km
13.65 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,006 km
3,179,405 km²
1,844,055 km²
590,098 km²
1.308 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

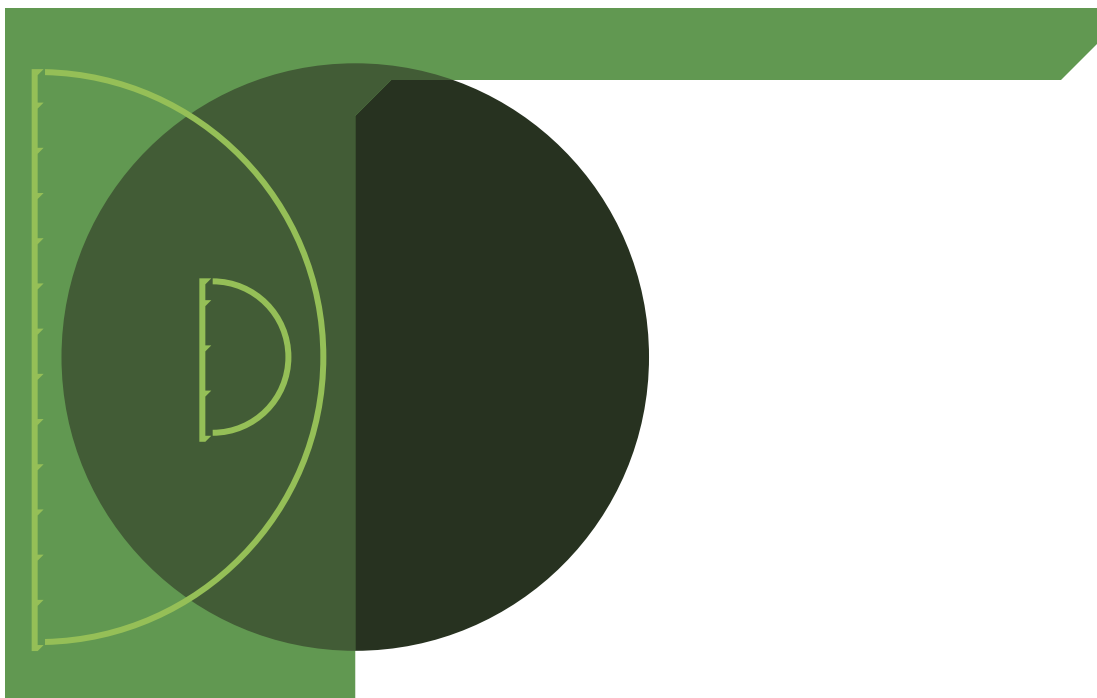
38,708,870,127,037,700,000 metric tonnes
1.0391 g_n
3.2010 km/s
82 km
1,641 km
2,936 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

18,505 km
18,505 km
18,505 km
192,200 km
192,200 km
192,200 km
784 km
1,463 km

Terraformed (year):
Population:

2266
3,000,000



Ariel
Orbit:
Period:

S/2027(White Sun)07
3,085,456,069 km - 20.625 AU
34,212.00 days - 93.67 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

13,016 km
532,236,865 km²
207,572,377 km²
66,423,161 km²
4.704 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

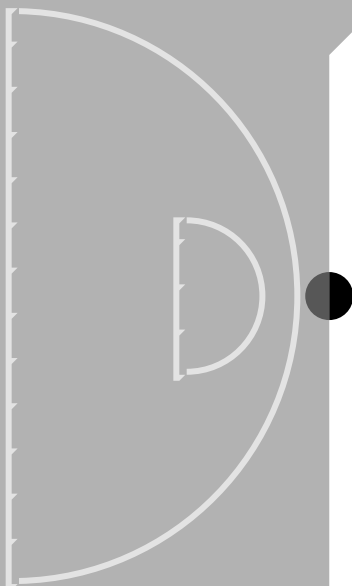
6,323,393,718,495,080,000,000 metric tonnes
1.0140 g_n
11.3730 km/s
1,036 km
20,716 km
37,067 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,517,796 km
1,517,796 km
1,517,796 km
3,085,456,069 km
3,085,456,069 km
3,085,456,069 km
9,899 km
18,478 km

Terraformed (year):
Population:

2266
3,610,000,000



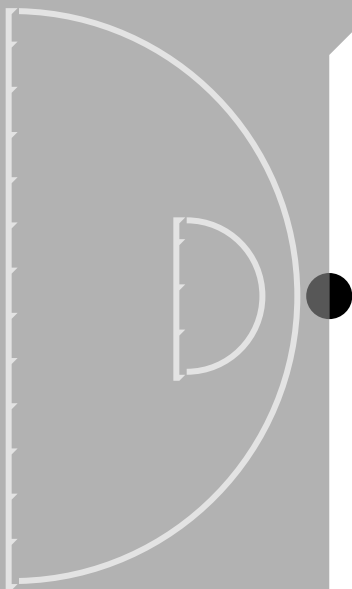
Ariopolis S/2176(Ariel)01
Orbit: 307,520 km
Period: 21.84 days

Diameter: 1,075 km
Surface Area: 3,630,503 km²
Land Area: 2,069,387 km²
Arable Land: 662,204 km²
Horizon: 1.352 km

Mass: 41,427,476,817,709,800,000 metric tonnes
Surface Gravity: 0.9739 g_n
Escape Velocity: 3.2030 km/s
LEO (alt): 82 km
MEO (alt): 1,643 km
GEO (alt): 2,940 km

Hill Sphere (radius): 18,534 km
LaGrangian Points
L1: 18,534 km
L2: 18,534 km
L3 (+-180): 307,520 km
L4 (+60): 307,520 km
L5 (-60): 307,520 km
Inner Roche Limit: 785 km
Outer Roche Limit: 1,466 km

Terraformed (year): 2266
Population: 6,000,000



Shiva
Orbit:
Period:

S/2176(Ariel)02
353,648 km
25.12 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,003 km
3,160,470 km²
1,864,678 km²
596,697 km²
1.306 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

35,627,001,274,420,200,000 metric tonnes
0.9621 g_n
3.0750 km/s
76 km
1,515 km
2,710 km

Hill Sphere (radius):
LaGrangian Points

17,083 km

L1:
L2:

17,083 km
17,083 km

L3 (+-180):
L4 (+60):
L5 (-60):

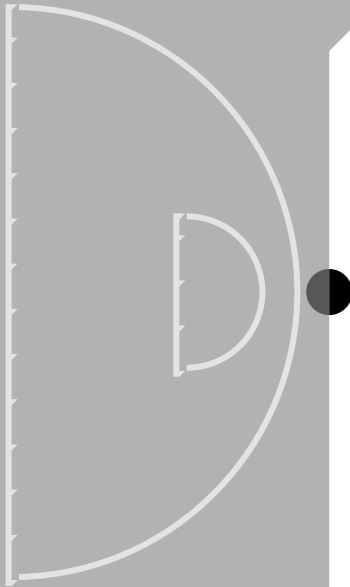
353,648 km
353,648 km
353,648 km

Inner Roche Limit
Outer Roche Limit

724 km
1,351 km

Terraformed (year):
Population:

2266
4,570,000



Poseidon
Orbit:
Period:

S/2176(Ariel)03
392,088 km
27.85 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,024 km
3,294,199 km²
1,910,635 km²
611,403 km²
1.319 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

38,886,795,545,317,600,000 metric tonnes
1.0075 g_n
3.1800 km/s
81 km
1,619 km
2,897 km

Hill Sphere (radius):
LaGrangian Points

18,264 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

18,264 km
18,264 km
392,088 km
392,088 km
392,088 km

Inner Roche Limit
Outer Roche Limit

774 km
1,444 km

Terraformed (year):
Population:

2266
5,000,000



Albion
Orbit:
Period:

S/2028(White Sun)11
3,197,654,471 km - 21.375 AU
36,095.00 days - 98.08 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

10,760 km
363,726,058 km²
120,029,599 km²
38,409,472 km²
4.277 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

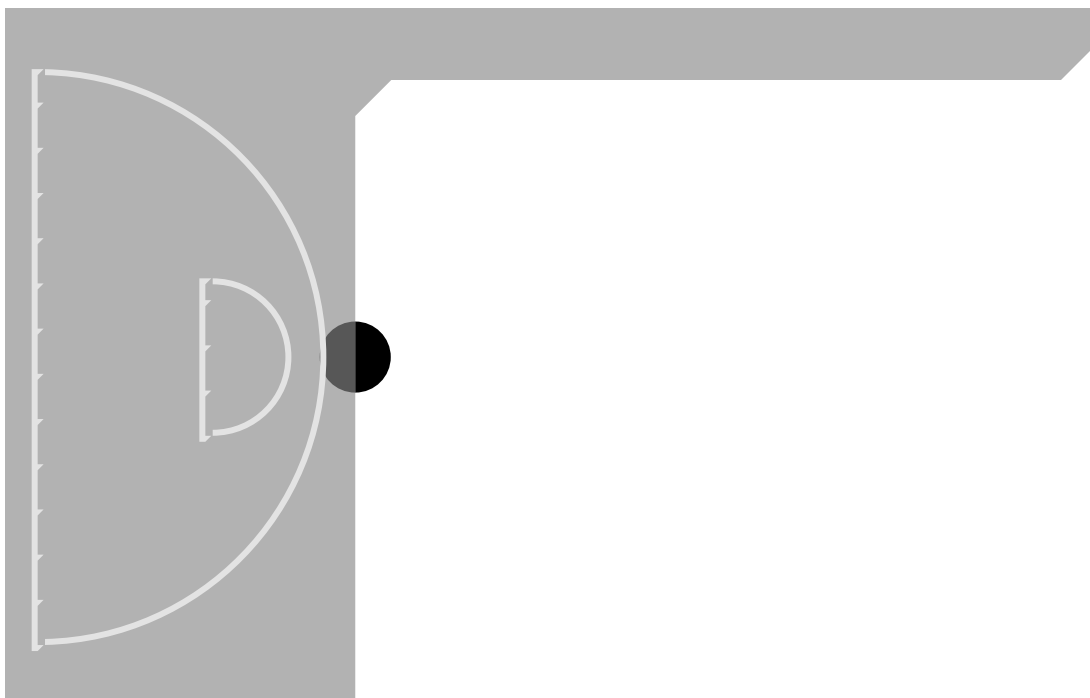
4,196,484,943,011,890,000,000 metric tonnes
0.9847 g_n
10.1900 km/s
832 km
16,631 km
29,757 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,218,468 km
1,218,468 km
1,218,468 km
3,197,654,471 km
3,197,654,471 km
3,197,654,471 km
7,947 km
14,834 km

Terraformed (year):
Population:

2270
2,154,500,000



Albion
Orbit: 384,400 km
Period: 27.30 days

Diameter: 1,589 km
Surface Area: 7,932,273 km²
Land Area: 4,124,782 km²
Arable Land: 1,319,930 km²
Horizon: 1.644 km

Mass: 90,421,807,968,898,900,000 metric tonnes
Surface Gravity: 0.9729 g_n
Escape Velocity: 3.8920 km/s
LEO (alt): 121 km
MEO (alt): 2,427 km
GEO (alt): 4,342 km

Hill Sphere (radius): 27,368 km
LaGrangian Points
L1: 27,368 km
L2: 27,368 km
L3 (+-180): 384,400 km
L4 (+60): 384,400 km
L5 (-60): 384,400 km
Inner Roche Limit: 1,159 km
Outer Roche Limit: 2,164 km

Terraformed (year): 2270
Population: 10,000,000

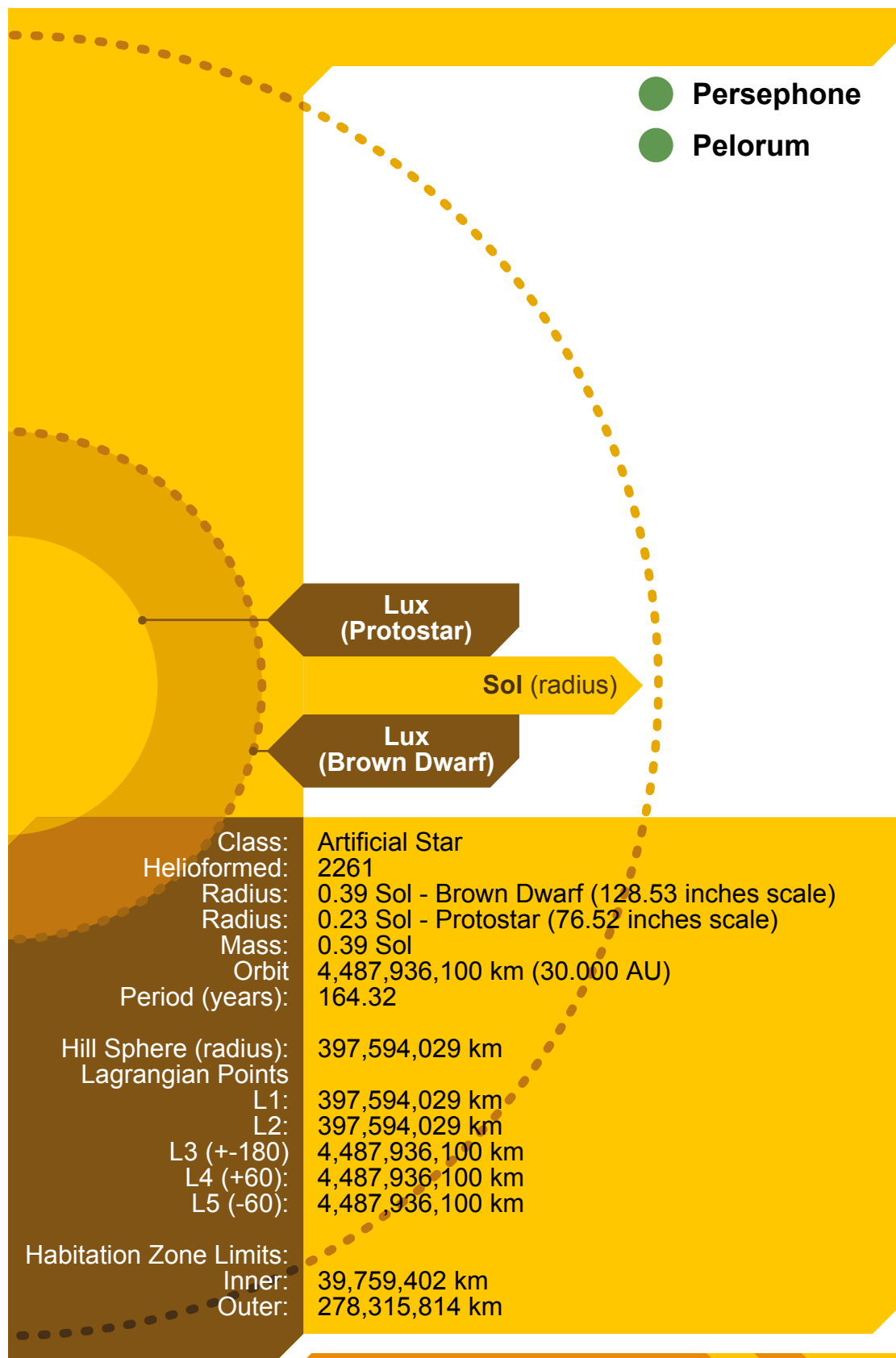
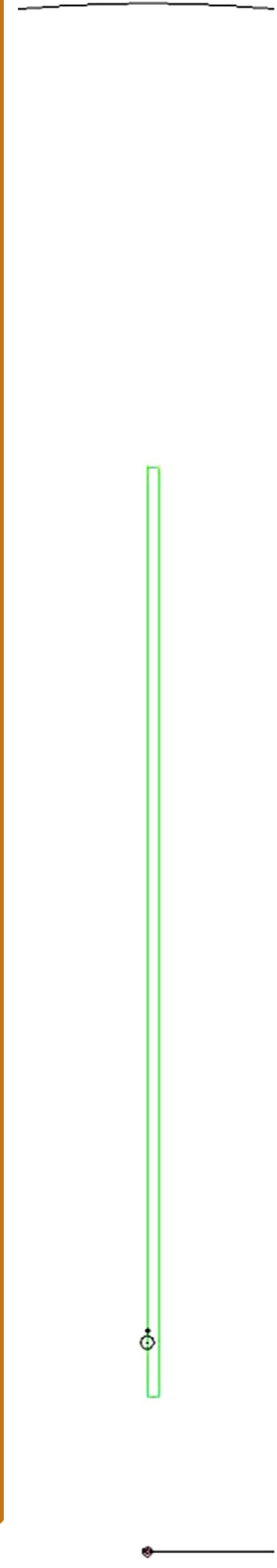




Diagram of the gravity and habitation zone for the protostar, Lux. The tiny circle on the left is Lux. The blank area between Lux and the green rectangle is the area of space where the protostar's heat makes terraforming impossible. The green rectangle is Lux's habitation zone. The arc on the far right is the limit of Lux's gravitational influence, or Hill Sphere. The blank area to the right of the habitation zone is too cold to support terraformed planets. The tiny circles at the left edge of the green rectangle are the Hill Spheres of Persephone and Pelorum. The actual planets and their moons are too small to be seen at this scale.



Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2223(White Sun)1ab1e**
The current numbering is able to catalog up to 33,554,432 objects per year per region.

• L5

• L2

• L1

• L3

• L4

REGION: L1

REGION: L2

REGION: L3

11th Hour A/2270(White Sun)e0h24

LuxLucre A/2270(White Sun)e0h23

Sil Station A/2270(White Sun)e0ga1

REGION: L4

Rodanthe Relay A/2271(White Sun)e0g95

Sandy Station A/2270(White Sun)e0g94

REGION: L5

Asiyahola A/2270(White Sun)e0g2c

Donahogawa A/2270(White Sun)e0g2f

Heháka Sápa A/2270(White Sun)e0g2d

Ité Omágažu A/2270(White Sun)e0g2a

Mahpiya Lúta A/2270(White Sun)e0g2b

Matoska A/2270(White Sun)e0g28

Táhča Hušté A/2270(White Sun)e0g2g

Tašúnke Witkó A/2270(White Sun)e0g2e

Tene-angop'te A/2270(White Sun)e0g29

Note: The protostars Lux & Murphy reached their closest approach to each other in 2511, making the planets Persephone and Hera of vital strategic importance in the Unification War. Persephone was firmly an Alliance planet, while Hera was a major staging area for Independent Forces.

Persephone
Orbit:
Period:

S/2040(Lux)02
53,718,287 km - 0.359 AU
1,182.00 days - 3.24 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

14,613 km
670,854,970 km²
254,924,888 km²
81,575,964 km²
4.984 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

8,096,050,005,015,200,000,000 metric tonnes
1.0300 g_n
12.1450 km/s
1,181 km
23,625 km
42,272 km

Hill Sphere (radius):
LaGrangian Points

1,730,910 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

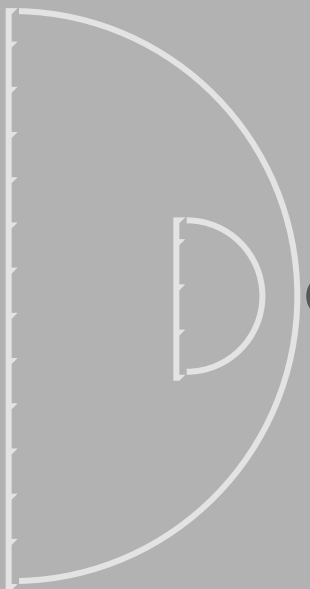
1,730,910 km
1,730,910 km
53,718,287 km
53,718,287 km
53,718,287 km

Inner Roche Limit
Outer Roche Limit

11,289 km
21,072 km

Terraformed (year):
Population:

2308
2,570,000,000



Note: Hades' thin, brittle crust makes it unsuitable for terraforming with current techniques. Hades opened to mining ventures in 2310.

Hades
Orbit:
Period:

S/2176(Persephone)01
153,760 km
10.92 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,018 km
3,255,708 km²
1,888,311 km²
604,259 km²
1.316 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

38,283,655,300,973,200,000 metric tonnes
1.0036 g_n
3.1640 km/s
80 km
1,604 km
2,869 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

18,086 km
18,086 km
18,086 km
153,760 km
153,760 km
153,760 km
766 km
1,430 km

Terraformed (year):
Population:

On Hold
12,750 (mining outposts)

WHITE SUN (BAI HU)

太阳

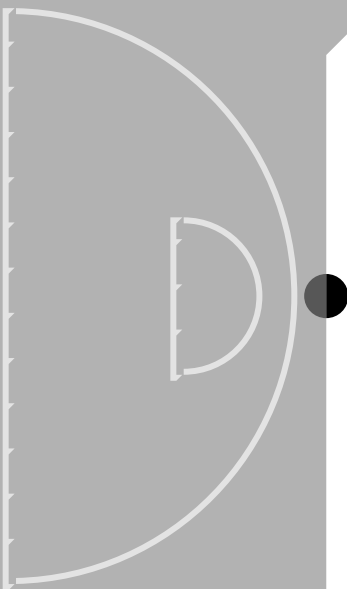
LUH

PERSEPHONE

卫星

RENAO

S/2177(Persephone)02



Renao
Orbit:
Period:

S/2177(Persephone)02
234,484 km
16.65 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

992 km
3,091,528 km²
1,824,002 km²
583,681 km²
1.299 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

36,077,785,434,411,800,000 metric tonnes
0.9960 g_n
3.1120 km/s
78 km
1,551 km
2,775 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

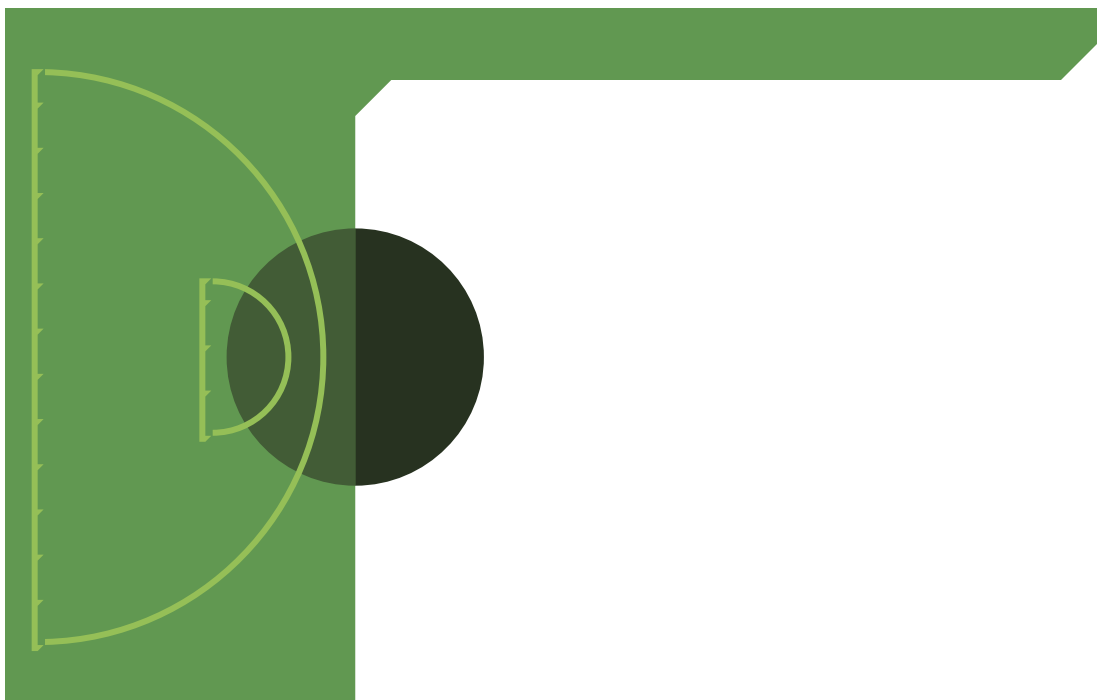
17,491 km
17,491 km
17,491 km
234,484 km
234,484 km
234,484 km
741 km
1,383 km

Terraformed (year):
Population:

2308
42,000

卫星

2.47



Pelorum
Orbit:
Period:

S/2040(Lux)01
56,747,287 km - 0.379 AU
1,248.00 days - 3.42 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

5,700 km
102,070,345 km²
39,807,435 km²
12,738,379 km²
3.113 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

1,207,892,469,628,610,000,000 metric tonnes
1.0100 g_n
7.5110 km/s
452 km
9,036 km
16,169 km

Hill Sphere (radius):
LaGrangian Points

662,055 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

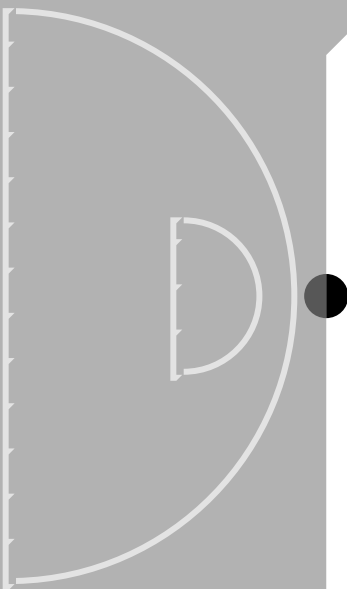
662,055 km
662,055 km
56,747,287 km
56,747,287 km
56,747,287 km

Inner Roche Limit
Outer Roche Limit

4,318 km
8,060 km

Terraformed (year):
Population:

2308
563,500,000



Kaleidoscope
Orbit:
Period:

S/2173(Pelorum)01
319,052 km
22.66 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

993 km
3,097,764 km²
1,827,681 km²
584,858 km²
1.299 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

36,949,065,902,896,200,000 metric tonnes
1.0180 g_n
3.1470 km/s
79 km
1,587 km
2,839 km

Hill Sphere (radius):
LaGrangian Points

17,895 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

17,895 km
17,895 km
319,052 km
319,052 km
319,052 km

Inner Roche Limit
Outer Roche Limit

758 km
1,415 km

Terraformed (year):
Population:

2308
750,000



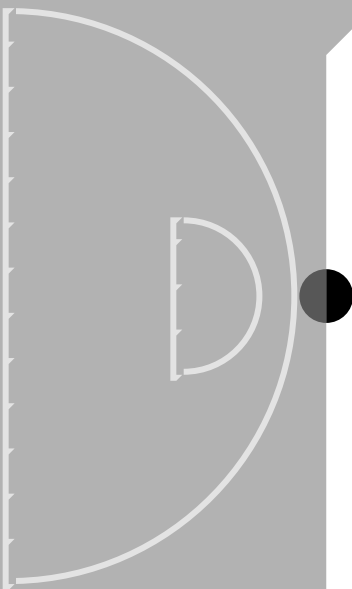
Dukkha
Orbit: 5,913,000,000 km - 39.526 AU
Period: 90,764.00 days - 248.50 years

Diameter: 2,274 km
Surface Area: 16,245,414 km²
Land Area: N/A
Arable Land: N/A
Horizon: 1.966 km

Mass: 57,103,057,698,886,000,000 metric tonnes
Surface Gravity: 0.3000 g_n
Escape Velocity: 2.5860 km/s
LEO (alt): 54 km
MEO (alt): 1,071 km
GEO (alt): 1,916 km

Hill Sphere (radius): 78,453 km
LaGrangian Points
L1: 78,453 km
L2: 78,453 km
L3 (+-180): 5,913,000,000 km
L4 (+60): 5,913,000,000 km
L5 (-60): 5,913,000,000 km
Inner Roche Limit: 512 km
Outer Roche Limit: 955 km

Terraformed (year): N/A
Population: 1,750



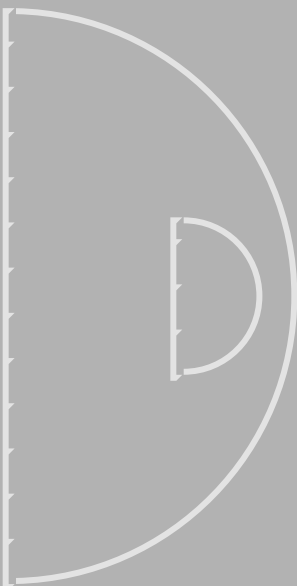
Samudaya
Orbit: 18,350 km
Period: 1.30 days

Diameter: 1,207 km
Surface Area: 4,576,826 km²
Land Area: N/A
Arable Land: N/A
Horizon: 1.432 km

Mass: 2,681,277,310,742,950,000 metric tonnes
Surface Gravity: 0.0500 g_n
Escape Velocity: 0.7690 km/s
LEO (alt): 5 km
MEO (alt): 95 km
GEO (alt): 169 km

Hill Sphere (radius): 1,068 km
LaGrangian Points
L1: 1,068 km
L2: 1,068 km
L3 (+-180): 18,350 km
L4 (+60): 18,350 km
L5 (-60): 18,350 km
Inner Roche Limit: 45 km
Outer Roche Limit: 84 km

Terraformed (year): N/A
Population: 300



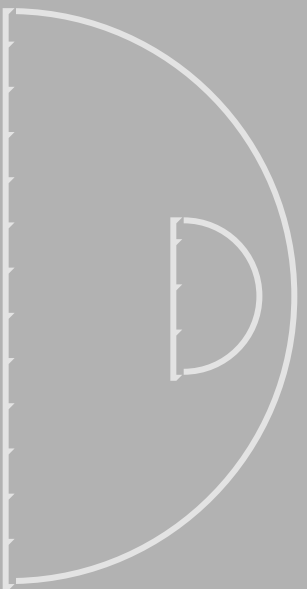
Nirodha
Orbit: 48,708 km
Period: 3.46 days

Diameter: 96 km
Surface Area: 28,953 km²
Land Area: N/A
Arable Land: N/A
Horizon: 0.404 km

Mass: 3,392,342,198,238,390 metric tonnes
Surface Gravity: 0.0100 g_n
Escape Velocity: 0.0970 km/s
LEO (alt): 0 km
MEO (alt): 2 km
GEO (alt): 3 km

Hill Sphere (radius): 17 km
LaGrangian Points
L1: 17 km
L2: 17 km
L3 (+-180): 48,708 km
L4 (+60): 48,708 km
L5 (-60): 48,708 km
Inner Roche Limit: 1 km
Outer Roche Limit: 1 km

Terraformed (year): N/A
Population: 270



Magga
Orbit:
Period:

S/2170(Dukkha)02
64,749 km
4.60 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

102 km
32,685 km²
N/A
N/A
0.416 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

3,829,636,309,730,050 metric tonnes
0.0100 g_n
0.1000 km/s
0 km
2 km
3 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

18 km
18 km
18 km
64,749 km
64,749 km
64,749 km
1 km
1 km

Terraformed (year):
Population:

N/A
350



Ra Amiran
Orbit:
Period:

P/2190(White Sun)15
6,113,662,309 km - 40.867 AU
95,423.00 days - 261.25 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,498 km
19,603,551 km²
N/A
N/A
2.061 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

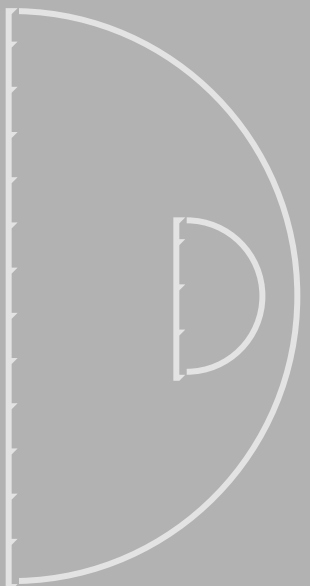
227,117,455,760,079,000,000 metric tonnes
0.9888 g_n
4.9200 km/s
194 km
3,877 km
6,937 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

284,053 km
284,053 km
284,053 km
6,113,662,309 km
6,113,662,309 km
6,113,662,309 km
1,853 km
3,458 km

Terraformed (year):
Population:

Partial / Ongoing
1,300



Namira
Orbit:
Period:

S/2190(Ra Amiran)01
34,347 km
2.44 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

242 km
183,984 km²
N/A
N/A
0.641 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

129,341,880,532,313,000 metric tonnes
0.0600 g_n
0.3770 km/s
1 km
23 km
41 km

Hill Sphere (radius):
LaGrangian Points

257 km

L1:

257 km

L2:

257 km

L3 (+-180):

34,347 km

L4 (+60):

34,347 km

L5 (-60):

34,347 km

Inner Roche Limit

11 km

Outer Roche Limit

20 km

Terraformed (year):
Population:

N/A
1,300

Note: Asteroid designation uses numbers & letters for cataloging objects (excluding i,l,o, and z).
Example: A/2223(White Sun)3a45b The current numbering is able to catalog up to 33,554,432 different objects per year per region.

**Halo
Primary:****Asteroid Belt
White Sun**

Inner Boundary: 5,983,914,800km (40 AU)
Outer Boundary: 6,432,708,410km (43 AU)
Average Width: 448,793,610km (3 AU)
**Number of
Cataloged objects:** 78,472,112

Regions of Halo

REGION: Unspecified

49'er	A/2262(White Sun)31y0b
Asteroid Wu	A/2260(White Sun)01a00
Bolton	A/2264(White Sun)65013
Burton's Ferry	A/2260(White Sun)360a2
Emul	A/2264(White Sun)6501d
Kasmodan	A/2263(White Sun)3p12f
L'Oubliette Prison	A/2260(White Sun)002a3
Long Mu - Alpha	A/2260(White Sun)01b24
Long Mu - Beta	A/2260(White Sun)01b25
Majist	A/2260(White Sun)3p12d
McCuller's Crossroads	A/2260(White Sun)360a3
Merlin	A/2263(White Sun)3p1ax
Misenheimer	A/2264(White Sun)6501c
Mordred	A/2263(White Sun)3p1ay
Morgana	A/2263(White Sun)3p1b0
Mount Airy	A/2261(White Sun)123er
Mount Gilead	A/2261(White Sun)123et
Mount Holy	A/2261(White Sun)123eu
Mount Olive	A/2261(White Sun)123ev
Mount Pleasant	A/2261(White Sun)123ew
Nao Sun Shang	A/2261(White Sun)123en
New Melbourne Station	A/2265(White Sun)7c1d4
Nimue	A/2263(White Sun)3p1b1
Polk	A/2264(White Sun)6501m
Ramseur	A/2264(White Sun)6501e
REX	A/2262(White Sun)31y0a
Roper	A/2264(White Sun)6500v
Satterwhite Point	A/2260(White Sun)360a1
St. Pauls	A/2260(White Sun)01f85
St. Stephens	A/2260(White Sun)01f86
Sylva	A/2264(White Sun)65018
Troy	A/2264(White Sun)65014
Vaslyn	A/2263(White Sun)3p12e

REGION: Devil's Garden

Anir	A/2260(White Sun)003ay
Asantar	A/2260(White Sun)003ak
Atlartano	A/2260(White Sun)003a0
Austror	A/2260(White Sun)003ap
Cesibium	A/2260(White Sun)003ah
Disintegration	A/2264(White Sun)4a3c0
East Arcadia	A/2260(White Sun)003n2
Escion	A/2260(White Sun)003ax
Estius	A/2260(White Sun)003a2
Florinion	A/2260(White Sun)003an
Freesoup	A/2264(White Sun)4a3c2
Hollister	A/2260(White Sun)003n6
Leland	A/2260(White Sun)003n4
Myrillion	A/2260(White Sun)003au

REGION: Devil's Garden

Naomi	A/2260(White Sun)003na
Olano	A/2260(White Sun)003aa
Ruth	A/2260(White Sun)003n8
Zombieland	A/2260(White Sun)003p6

REGION: DR-C

Candor	A/2260(White Sun)0077a
Oh Please Be Mine	A/2260(White Sun)00770

REGION: Goblin Valley

Tora 371	A/2260(White Sun)0010b
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REGION: Hawaiki

Speck 7K453	A/2266(White Sun)7k453
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REGION: Hehm

Goldhome	A/2260(White Sun)007a3
Heart o' Gold	A/2260(White Sun)007a4
Ogend	A/2260(White Sun)007a0
Shiny	A/2260(White Sun)007a2

REGION: Hippolyta's Belt

Cindy R	A/2264(White Sun)4ea1d
Judith-N	A/2260(White Sun)00500
Lullaby	A/2264(White Sun)4ea1e

REGION: Ikhlass

Abu Omar	A/2260(White Sun)006b1
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REGION: Kuàng yún mí

ID3052	A/2264(White Sun)51rn8
SL4913	A/2264(White Sun)51rn6

REGION: Pinos Altos Field

Dover	A/2260(White Sun)00007
Shepherd	A/2260(White Sun)00001

REGION: The Rockpile

Birchwood	A/2260(White Sun)008u5
Black Rock	A/2260(White Sun)0072c
Continued	on the following page.

REGION: The Rockpile - Cont.

Dalton	A/2260(White Sun)008u6
Diamond Rock	A/2260(White Sun)0072d
Fallston	A/2260(White Sun)008w5
Harrison	A/2260(White Sun)008u7
High Shoals	A/2260(White Sun)008w6
Mars Hill	A/2260(White Sun)008w4
Reliance	A/2260(White Sun)008u8
Sedgefield	A/2260(White Sun)008w3
Whiteside	A/2260(White Sun)008u9
Whitwell	A/2260(White Sun)008ua

REGION: Santiam

Archangel Station	A/2260(White Sun)009a1
Pembroke	A/2260(White Sun)009a6

REGION: The Scattering

Kisin	A/2260(White Sun)0049a
Nitebox	A/2260(White Sun)004bc

REGION: Serēnitās

Barringer	A/2260(White Sun)00ff4
Catoe	A/2260(White Sun)00ff9
Frankonis	A/2260(White Sun)00ff1
Mooney	A/2260(White Sun)00ff5
Nelson	A/2260(White Sun)00ff3
Pace	A/2260(White Sun)00ff6
Pike	A/2260(White Sun)00ff2

REGION: Shí Zhuàng Dào Lù

Jarren	A/2260(White Sun)007d5
Starwen	A/2260(White Sun)007d4
Unformed Rock	A/2260(White Sun)007qq
With a Destiny	
Venefica	A/2260(White Sun)007qr
Zui hao de Zhangfu	A/2260(White Sun)007dp

REGION: Stone's Throw

JAC 1937	A/2260(White Sun)006b3
Magor's Hammer	A/2260(White Sun)006b4
Murray	A/2260(White Sun)006b5

REGION: Tai Dong

Caregis	A/2261(White Sun)1101c
Cyrellian	A/2261(White Sun)1101b

REGION: Tai Dong

Grifton	A/2261(White Sun)11b3c
Hampstead	A/2261(White Sun)11b3a
Moyok	A/2261(White Sun)11b39
Onslow	A/2261(White Sun)11b38
Tytress	A/2264(White Sun)57hct
Weldon	A/2261(White Sun)11b3b

REGION: Tau Yuan

Deadwood	A/2261(White Sun)123cq
Haven	A/2261(White Sun)123cr
J. Paul	A/2261(White Sun)123cu
Mairi	A/2261(White Sun)123ct
Swannanoa	A/2261(White Sun)123dm
Tramway	A/2261(White Sun)123dn
Waxhaw	A/2261(White Sun)123dp

REGION: Tungsten Keys

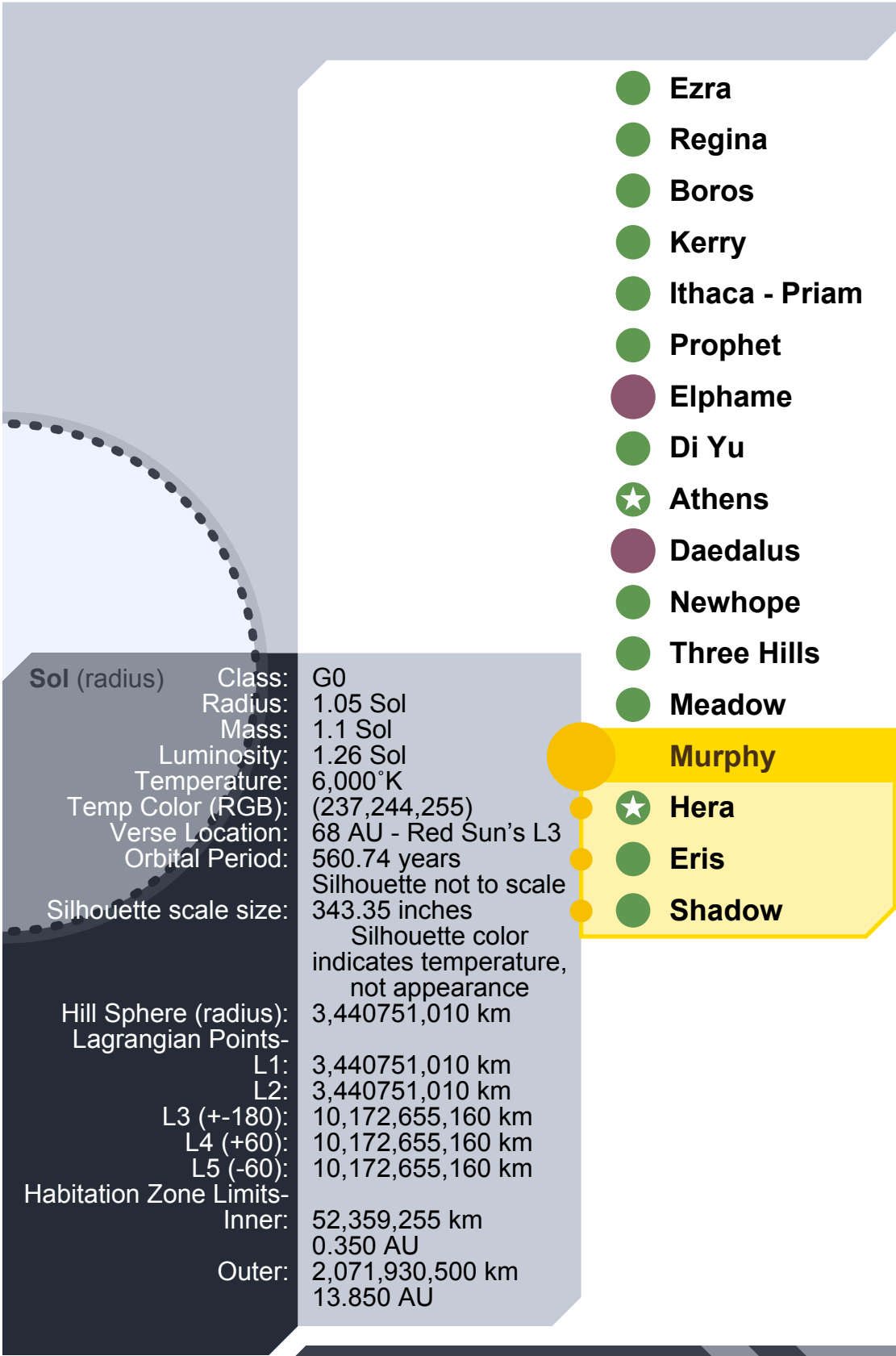
Shattuck Stronghold	A/2260(White Sun)32cc3
Thompson's Haven	A/2260(White Sun)32cc4

REGION: Verilian

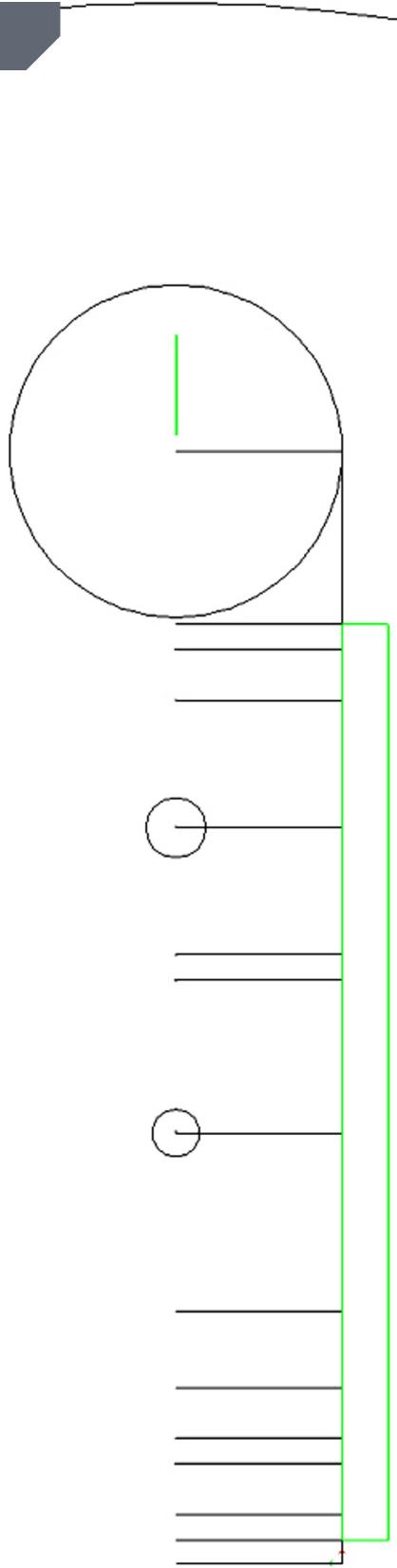
Adriano	A/2265(White Sun)7717e
Cherryh	A/2265(White Sun)77185
Jace	A/2265(White Sun)7717c
Juni	A/2265(White Sun)7717b
Kadin	A/2265(White Sun)7717f
Kenly	A/2265(White Sun)77174
Lucian	A/2265(White Sun)7717d
Stanfield	A/2265(White Sun)7718b
Yancey	A/2265(White Sun)77173

REGION: Xu lì shì

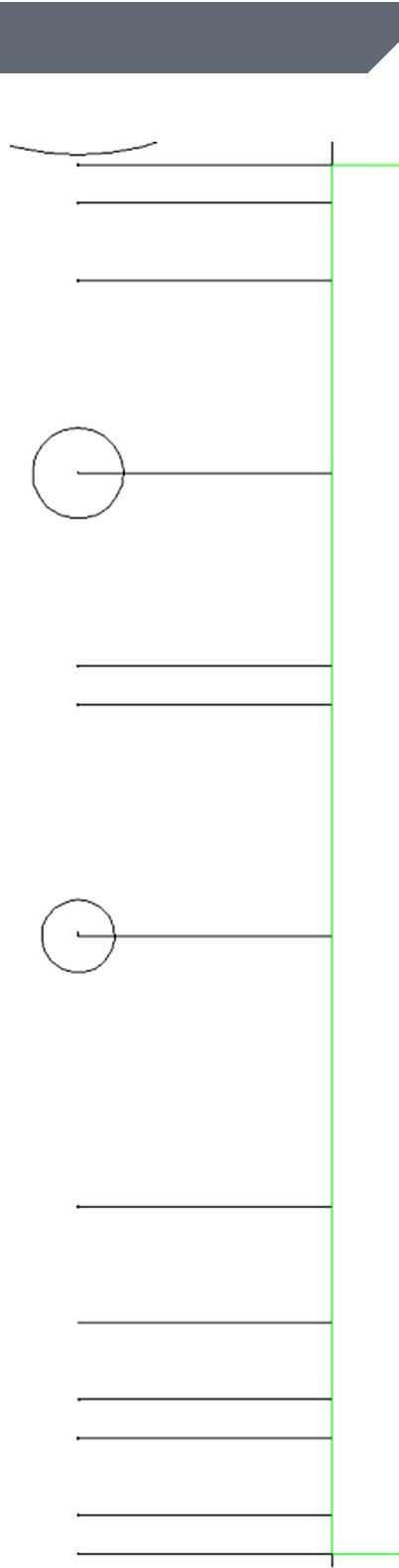
Apex	A/2264(White Sun)62d3r
Chocky	A/2264(White Sun)62d31
Enka	A/2264(White Sun)62d3b
Gamewell	A/2264(White Sun)62d3g
Gwangi	A/2264(White Sun)62c15
Mao Fen	A/2264(White Sun)62c14
Newport	A/2264(White Sun)62d3u
Old Fort	A/2264(White Sun)62d3f
Swain	A/2264(White Sun)62d3h
Wuding xiyi	A/2264(White Sun)62c18
Ying Guang	A/2264(White Sun)62d3a

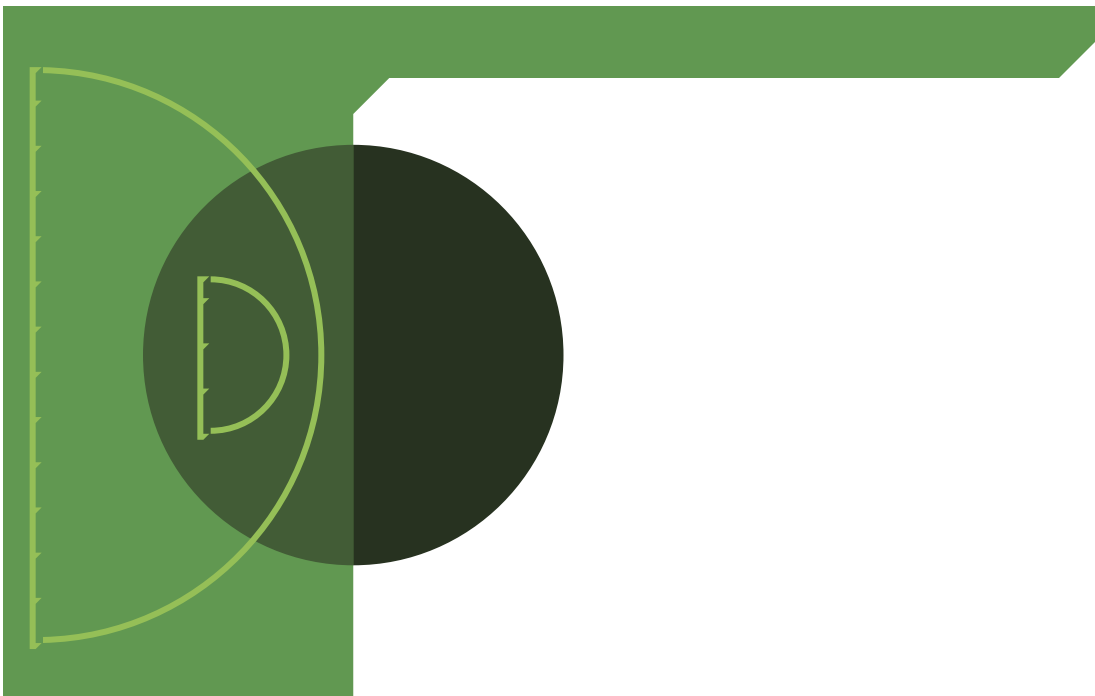


Georgia Gravity Map. Vertical line at extreme left is the star, Georgia. Small circles are Hill Spheres for Elphame and Daedalus. Large circle is Murphy's Hill Sphere. Arc at extreme right is limit of Georgia's Hill Sphere.



Georgia's Habitation Zone starts with Ezra at the innermost end, and ends with Meadow at the outermost position.





Ezra
Orbit:
Period:

P/2030(Georgia)11
52,359,255 km - 0.350 AU
76.00 days - 0.21 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

9,287 km
270,957,242 km²
89,415,890 km²
28,613,085 km²
3.973 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

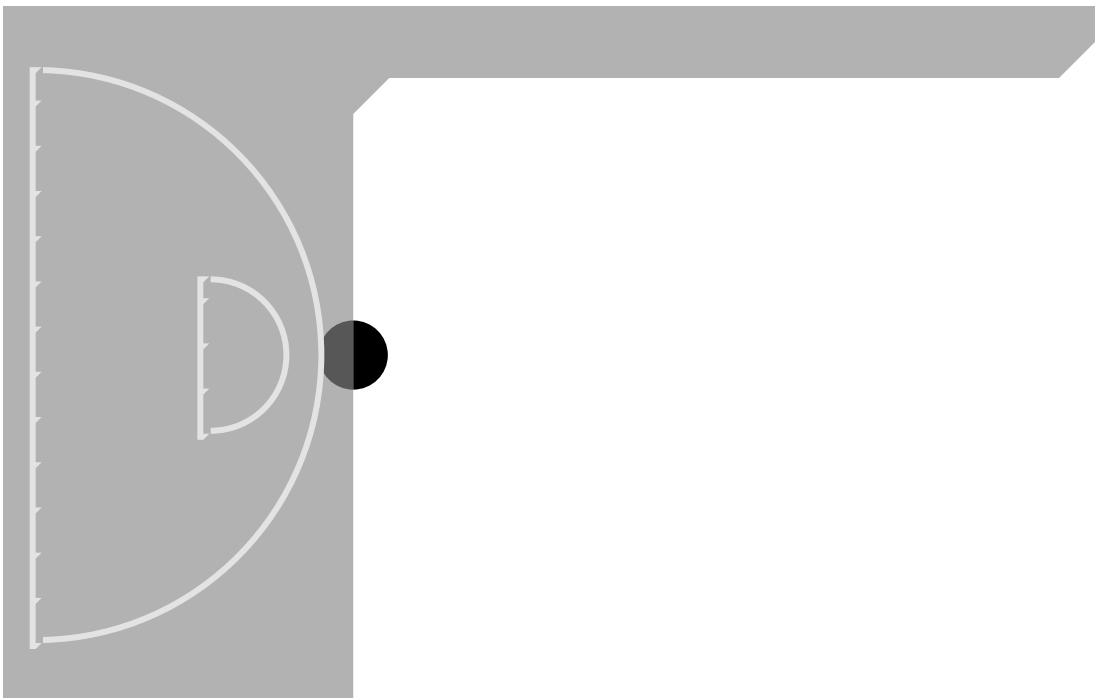
3,110,609,649,065,100,000,000 metric tonnes
0.9798 g_n
9.4430 km/s
714 km
14,283 km
25,556 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,046,431 km
1,046,431 km
1,046,431 km
52,359,255 km
52,359,255 km
52,359,255 km
6,825 km
12,739 km

Terraformed (year):
Population:

2350
200,000,000



Herschel
Orbit:
Period:

S/2176(Ezra)01
207,576 km
14.74 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,527 km
7,325,343 km²
3,882,432 km²
1,242,378 km²
1.611 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

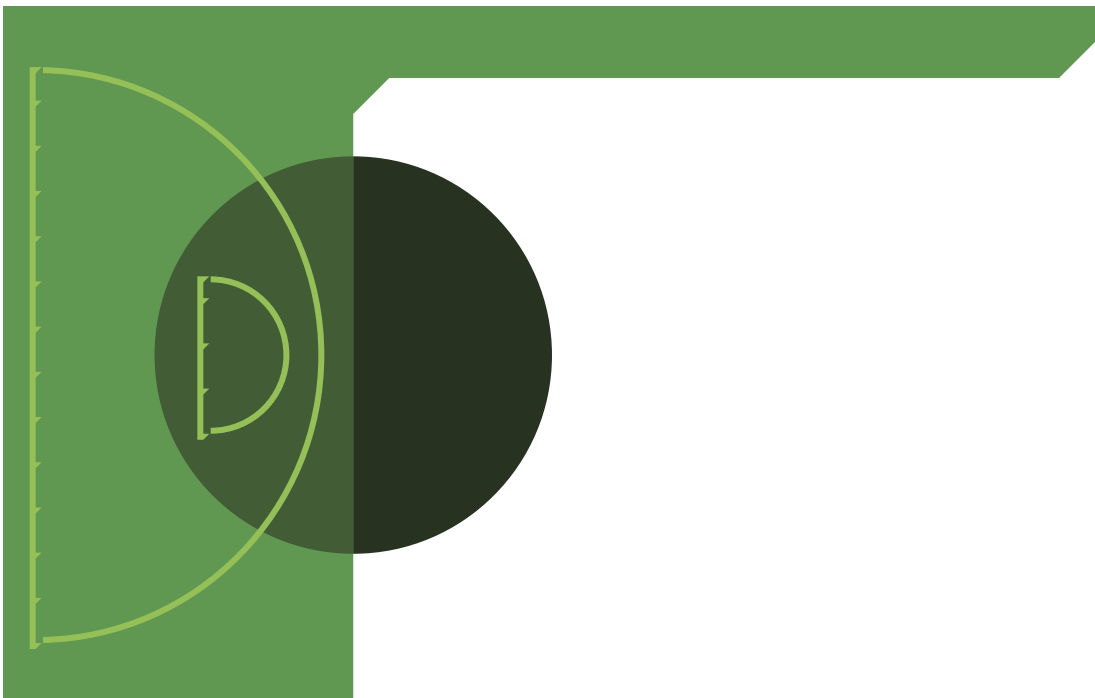
83,700,674,034,869,800,000 metric tonnes
0.9752 g_n
3.8200 km/s
117 km
2,337 km
4,182 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

26,362 km
26,362 km
26,362 km
207,576 km
207,576 km
207,576 km
1,117 km
2,085 km

Terraformed (year):
Population:

2350
67,000,000



Regina
Orbit:
Period:

P/2031(Georgia)12
108,458,456 km - 0.725 AU
225.00 days - 0.62 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

8,809 km
243,782,818 km²
92,637,471 km²
29,643,991 km²
3.870 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

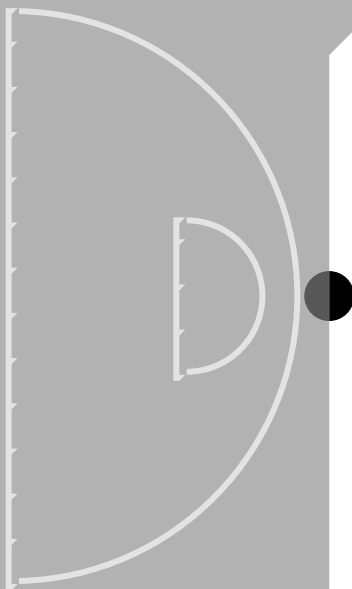
2,976,309,753,508,580,000,000 metric tonnes
1.0420 g_n
9.4840 km/s
720 km
14,407 km
25,779 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,055,582 km
1,055,582 km
1,055,582 km
108,458,456 km
108,458,456 km
108,458,456 km
6,884 km
12,851 km

Terraformed (year):
Population:

2352
250,000,000



Alexandria Orbit:
Period:

S/2174(Regina)01
415,152 km
29.48 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,089 km
3,725,681 km²
2,123,638 km²
679,564 km²
1.361 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

43,535,021,891,020,600,000 metric tonnes
0.9973 g_n
3.2620 km/s
85 km
1,705 km
3,050 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

19,226 km
19,226 km
19,226 km
415,152 km
415,152 km
415,152 km
815 km
1,520 km

Terraformed (year):
Population:

2352
50,000,000



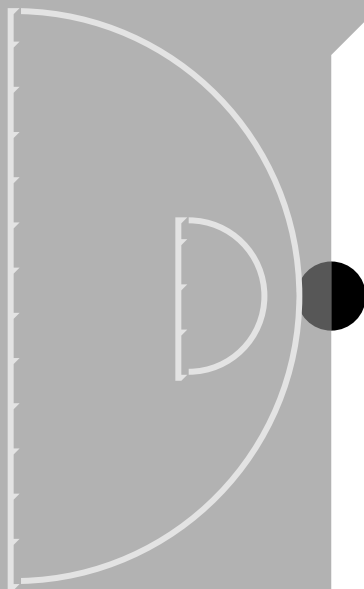
Boros
Orbit: 220,656,858 km - 1.475 AU
Period: 654.00 days - 1.79 years

Diameter: 12,500 km
Surface Area: 490,873,852 km²
Land Area: 196,349,541 km²
Arable Land: 62,831,853 km²
Horizon: 4.610 km

Mass: 5,916,514,789,713,250,000,000 metric tonnes
Surface Gravity: 1.0287 g_n
Escape Velocity: 11.2260 km/s
LEO (alt): 1,009 km
MEO (alt): 20,183 km
GEO (alt): 36,114 km

Hill Sphere (radius): 1,478,756 km
LaGrangian Points
L1: 1,478,756 km
L2: 1,478,756 km
L3 (+-180): 220,656,858 km
L4 (+60): 220,656,858 km
L5 (-60): 220,656,858 km
Inner Roche Limit 9,644 km
Outer Roche Limit 18,002 km

Terraformed (year): 2350
Population: 550,000,000



Ares
Orbit:
Period:

S/2177(Boros)01
284,456 km
20.20 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,824 km
10,452,003 km²
5,435,042 km²
1,739,213 km²
1.761 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

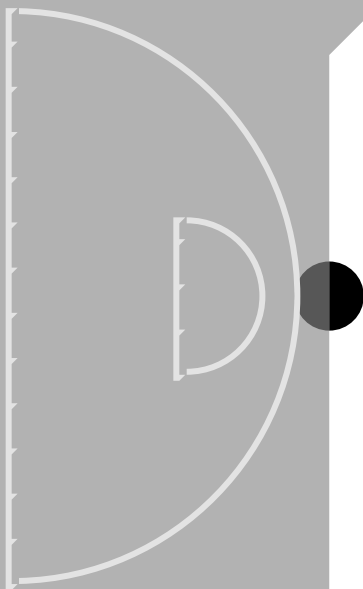
119,010,081,151,755,000,000 metric tonnes
0.9718 g_n
4.1680 km/s
139 km
2,782 km
4,978 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

31,380 km
31,380 km
31,380 km
284,456 km
284,456 km
284,456 km
1,329 km
2,482 km

Terraformed (year):
Population:

2350
34,000,000



Turrent's Moon
Orbit:
Period:

S/2177(Boros)02
353,648 km
25.12 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,168 km
4,285,836 km²
2,400,068 km²
768,022 km²
1.409 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

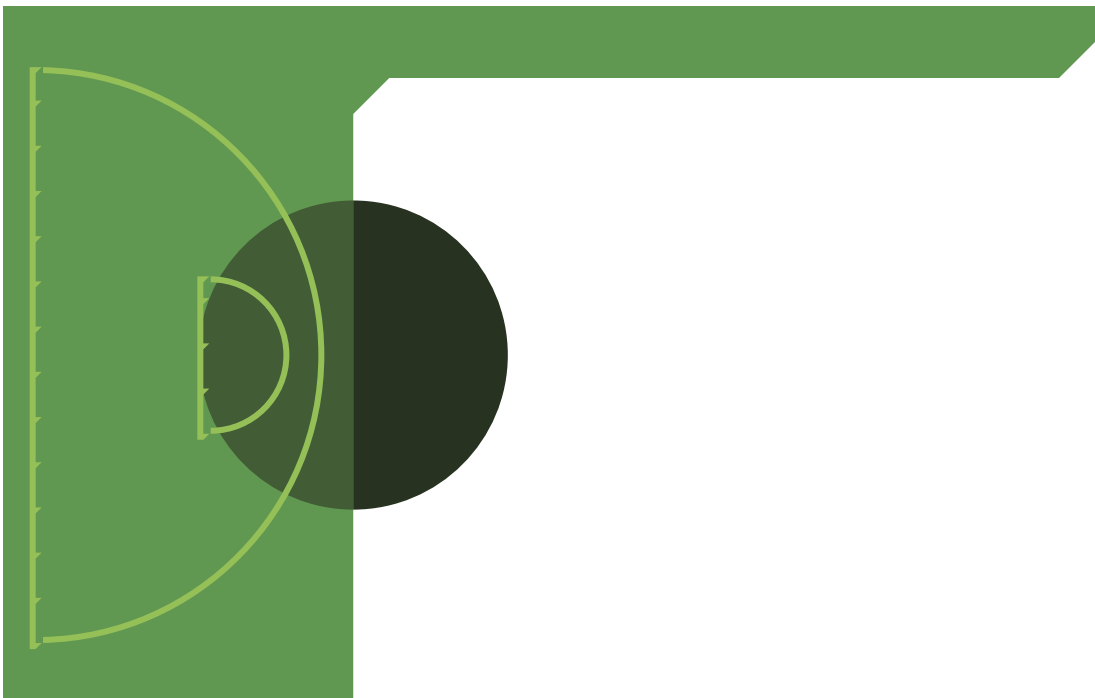
50,457,124,927,693,200,000 metric tonnes
1.0048 g_n
3.3910 km/s
92 km
1,842 km
3,296 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

20,776 km
20,776 km
20,776 km
353,648 km
353,648 km
353,648 km
880 km
1,643 km

Terraformed (year):
Population:

2350
1,000,000



Kerry
Orbit:
Period:

P/2030(Georgia)10
276,756,060 km - 1.850 AU
919.00 days - 2.52 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

6,825 km
146,337,349 km²
43,901,205 km²
14,048,386 km²
3.406 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

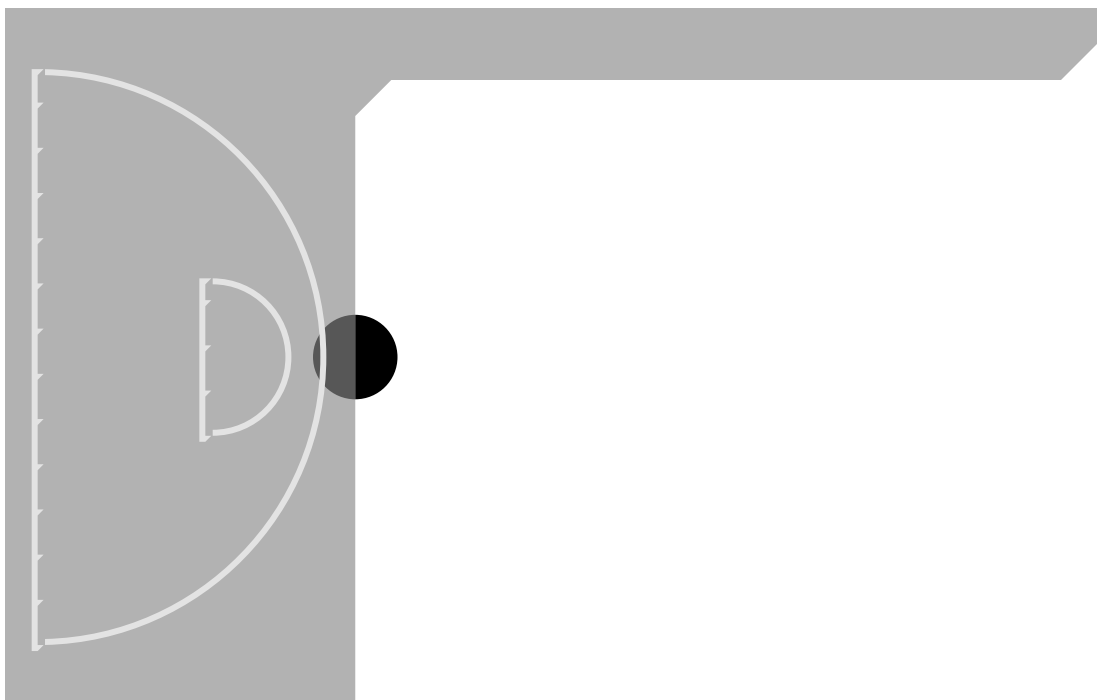
1,713,741,439,864,520,000,000 metric tonnes
0.9995 g_n
8.1760 km/s
535 km
10,707 km
19,158 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

784,483 km
784,483 km
784,483 km
276,756,060 km
276,756,060 km
276,756,060 km
5,116 km
9,550 km

Terraformed (year):
Population:

2335
550,000,000



Madcap Orbit:
Period:

S/2180(Kerry)01
246,016 km
17.47 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,862 km
10,892,040 km²
5,772,781 km²
1,847,290 km²
1.779 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

133,987,559,761,287,000,000 metric tonnes
1.0499 g_n
4.3770 km/s
153 km
3,068 km
5,490 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

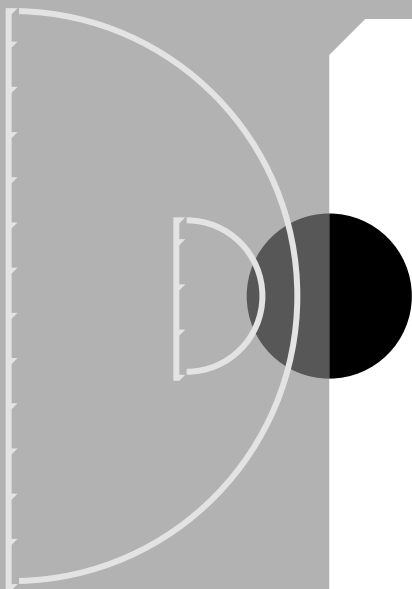
34,608 km
34,608 km
34,608 km
246,016 km
246,016 km
246,016 km
1,466 km
2,737 km

Terraformed (year):
Population:

2335
1,250,000

Note: Ithaca and Priam are close enough in size and mass to be a double-planet, orbiting around a barycenter about 33,700km above the surface of Ithaca.

Ithaca Orbit: Period:	P/2031(Georgia)13 388,954,462 km - 2.600 AU 1,531.00 days - 4.19 years
Diameter: Surface Area: Land Area: Arable Land: Horizon:	5,117 km 82,258,485 km ² 27,145,300 km ² 8,686,496 km ² 2.949 km
Mass: Surface Gravity: Escape Velocity: LEO (alt): MEO (alt): GEO (alt):	968,139,553,485,258,000,000 metric tonnes 1.0045 g _n 7.0970 km/s 403 km 8,068 km 14,436 km
Hill Sphere (radius): LaGrangian Points L1: L2: L3 (+-180): L4 (+60): L5 (-60): Inner Roche Limit Outer Roche Limit	591,103 km 591,103 km 591,103 km 388,954,462 km 388,954,462 km 388,954,462 km 3,855 km 7,196 km
Terraformed (year): Population:	2348 800,000,000



Priam
Orbit:
Period:

S/2172(Ithaca)01
99,944 km
7.10 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

3,640 km
41,624,846 km²
20,812,423 km²
6,659,975 km²
2.488 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

492,585,166,684,865,000,000 metric tonnes
1.0100 g_n
6.0020 km/s
289 km
5,771 km
10,325 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

65,083 km
65,083 km
65,083 km
99,944 km
99,944 km
99,944 km
2,757 km
5,147 km

Terraformed (year):
Population:

2348
250,000,000



Prophet
Orbit:
Period:

P/2031(Georgia)14
557,252,066 km - 3.725 AU
2,626.00 days - 7.19 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

10,521 km
347,747,418 km²
107,801,700 km²
34,496,544 km²
4.229 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

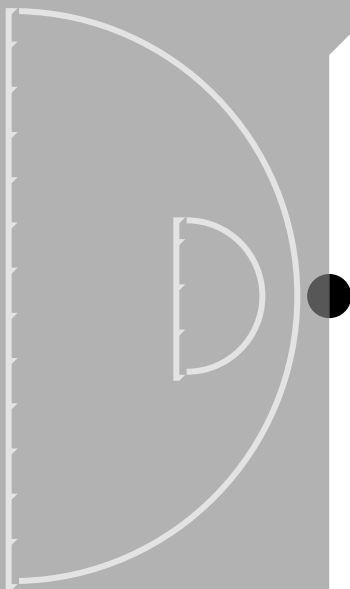
4,075,285,882,566,970,000,000 metric tonnes
1.0002 g_n
10.1550 km/s
826 km
16,517 km
29,554 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,210,157 km
1,210,157 km
1,210,157 km
557,252,066 km
557,252,066 km
557,252,066 km
7,892 km
14,732 km

Terraformed (year):
Population:

Scheduled
5,000



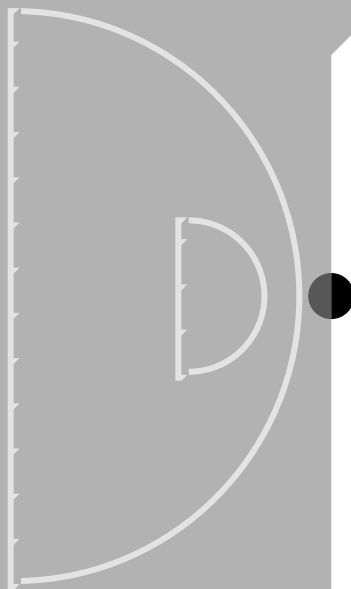
Perdido
Orbit: 123,008 km
Period: 8.74 days

Diameter: 992 km
Surface Area: 3,091,528 km²
Land Area: 1,824,002 km²
Arable Land: 583,681 km²
Horizon: 1.299 km

Mass: 35,302,620,165,037,900,000 metric tonnes
Surface Gravity: 0.9746 g_n
Escape Velocity: 3.0780 km/s
LEO (alt): 76 km
MEO (alt): 1,518 km
GEO (alt): 2,715 km

Hill Sphere (radius): 17,115 km
LaGrangian Points
L1: 17,115 km
L2: 17,115 km
L3 (+-180): 123,008 km
L4 (+60): 123,008 km
L5 (-60): 123,008 km
Inner Roche Limit: 725 km
Outer Roche Limit: 7,354 km

Terraformed (year): Scheduled
Population: 5,000



Dunny
Orbit:
Period:

S/2176(Prophet)01
242,172 km
17.20 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,014 km
3,230,173 km²
1,873,500 km²
599,520 km²
1.313 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

36,976,658,498,764,500,000 metric tonnes
0.9770 g_n
3.1160 km/s
78 km
1,555 km
2,782 km

Hill Sphere (radius):
LaGrangian Points

17,538 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

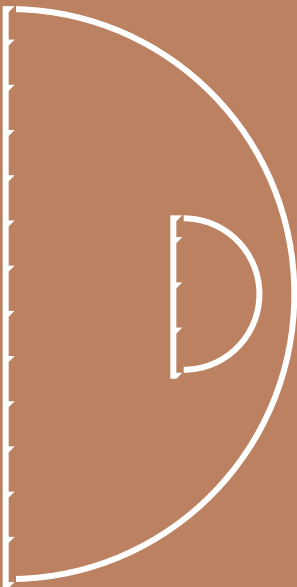
17,538 km
17,538 km
242,172 km
242,172 km
242,172 km

Inner Roche Limit
Outer Roche Limit

743 km
1,387 km

Terraformed (year):
Population:

Scheduled
5,000



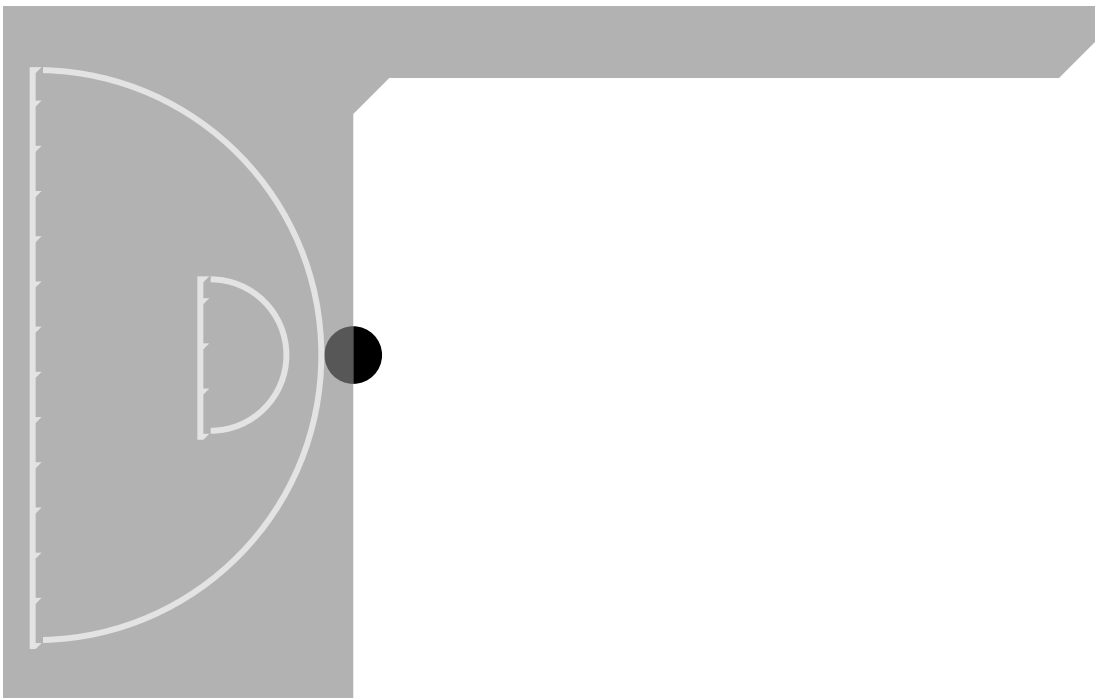
Elphame
Orbit: 949,946,475 km - 6.350 AU
Period: 5,845.00 days - 16.00 years

Diameter: 143,749 km
Surface Area: N/A
Land Area: N/A
Arable Land: N/A
Horizon: N/A

Mass: 2,074,146,282,623,690,000,000,000 metric tonnes
Surface Gravity: 2.5415 g_n
Escape Velocity: N/A
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 52,921,024 km
LaGrangian Points
L1: 52,921,024 km
L2: 52,921,024 km
L3 (+-180): 949,946,475 km
L4 (+60): 949,946,475 km
L5 (-60): 949,946,475 km
Inner Roche Limit 91,999 km
Outer Roche Limit 176,811 km

Terraformed (year): N/A
Population: N/A



Summerhome
Orbit:
Period:

S/2173(Elphame)01
1,249,300 km
88.73 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,294 km
5,260,396 km²
2,893,218 km²
925,830 km²
1.483 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

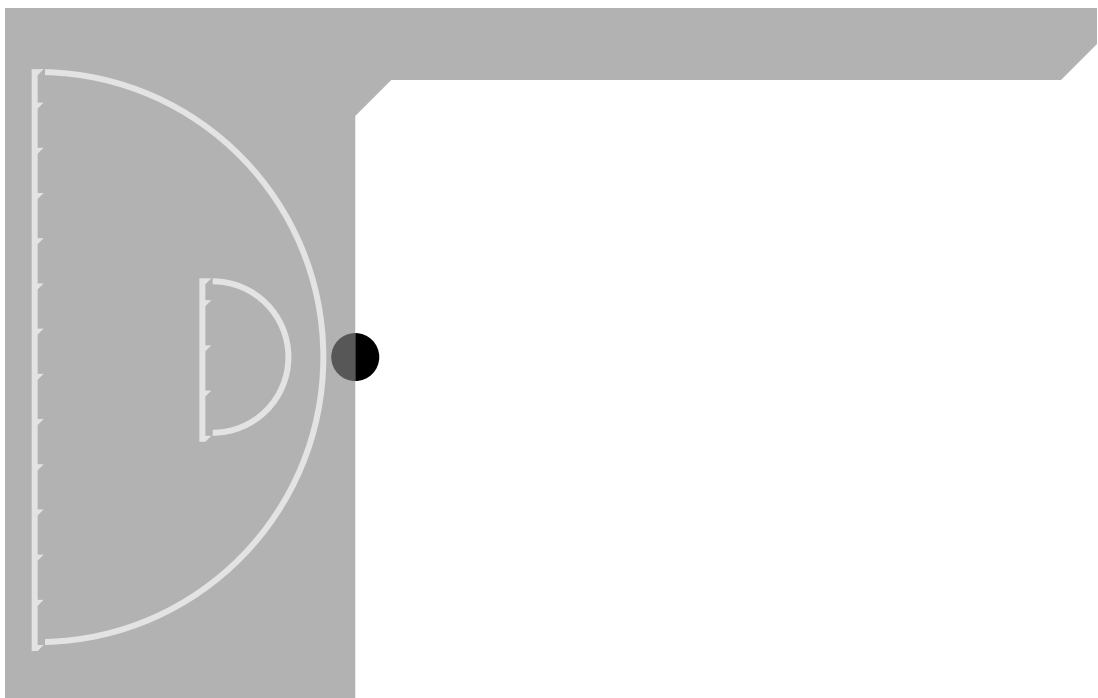
58,867,363,622,964,100,000 metric tonnes
0.9551 g_n
3.4800 km/s
97 km
1,940 km
3,471 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

21,879 km
21,879 km
21,879 km
1,249,300 km
1,249,300 km
1,249,300 km
927 km
1,730 km

Terraformed (year):
Population:

2355
75,000,000



Fiddler's Green
Orbit:
Period:

S/2173(Elphame)02
2,690,800 km
191.10 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,073 km
3,617,007 km²
2,061,694 km²
659,742 km²
1.351 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

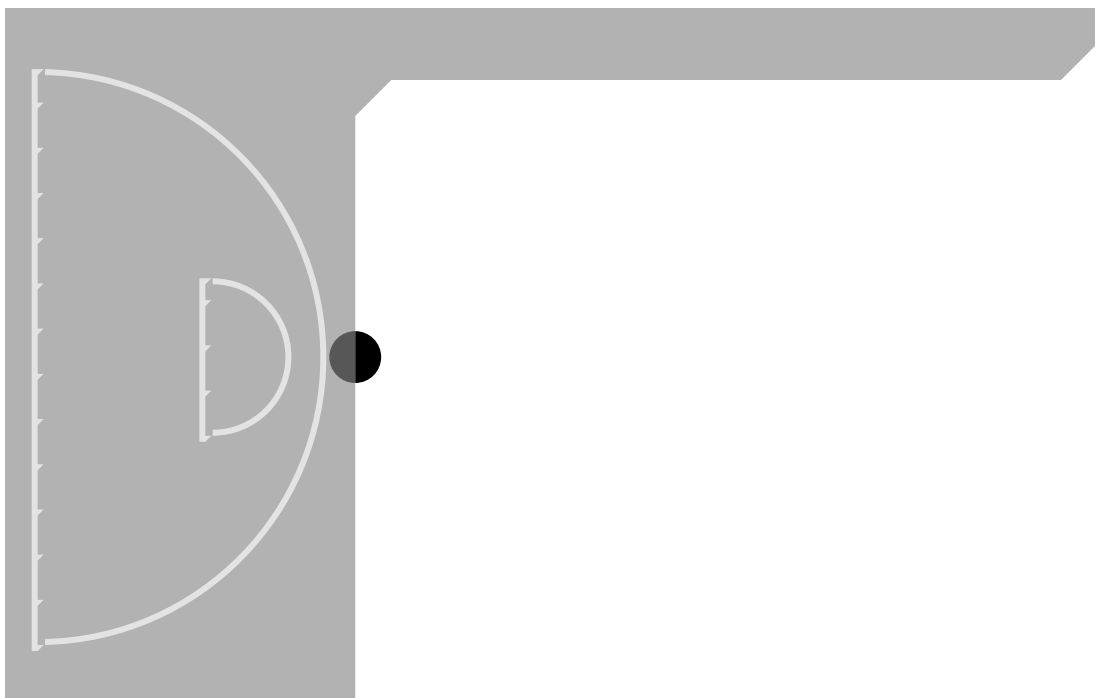
41,413,324,069,860,900,000 metric tonnes
0.9772 g_n
3.2060 km/s
82 km
1,646 km
2,945 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

18,562 km
18,562 km
18,562 km
2,690,800 km
2,690,800 km
2,690,800 km
786 km
1,468 km

Terraformed (year):
Population:

2355
16,000,000



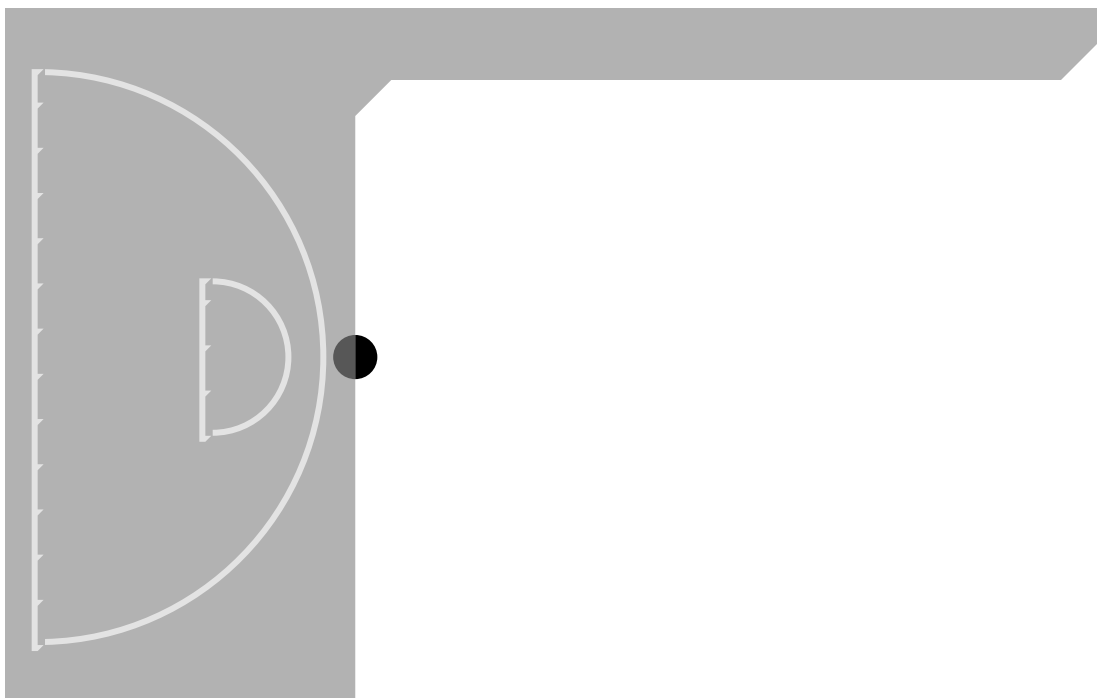
Ithendra
Orbit: 4,420,600 km
Period: 313.95 days

Diameter: 1,161 km
Surface Area: 4,234,619 km²
Land Area: 2,371,386 km²
Arable Land: 758,844 km²
Horizon: 1.405 km

Mass: 51,620,472,042,476,400,000 metric tonnes
Surface Gravity: 1.0404 g_n
Escape Velocity: 3.4410 km/s
LEO (alt): 95 km
MEO (alt): 1,896 km
GEO (alt): 3,392 km

Hill Sphere (radius): 21,383 km
LaGrangian Points
L1: 21,383 km
L2: 21,383 km
L3 (+-180): 4,420,600 km
L4 (+60): 4,420,600 km
L5 (-60): 4,420,600 km
Inner Roche Limit: 906 km
Outer Roche Limit: 1,691 km

Terraformed (year): 2355
Population: 19,000,000



Sweethome
Orbit:
Period:

S/2176(Elphame)04
5,766,000 km
409.50 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

980 km
3,017,186 km²
1,810,311 km²
579,300 km²
1.291 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

36,033,907,902,765,600,000 metric tonnes
1.0193 g_n
3.1290 km/s
78 km
1,568 km
2,805 km

Hill Sphere (radius):
LaGrangian Points

17,684 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

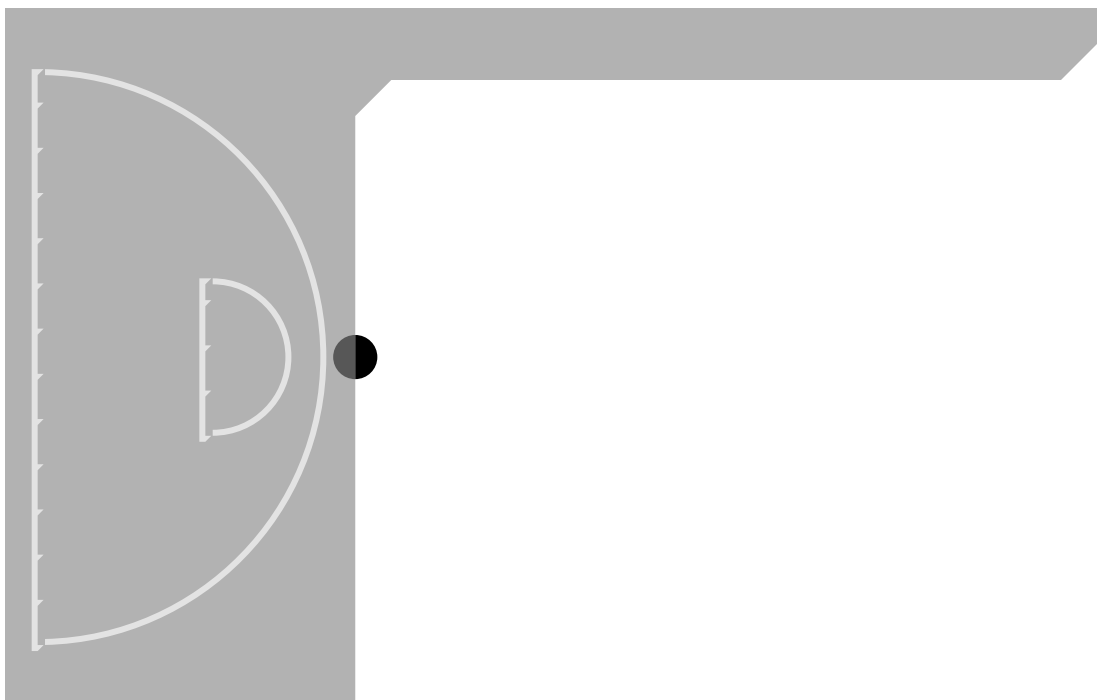
17,684 km
17,684 km
5,766,000 km
5,766,000 km
5,766,000 km

Inner Roche Limit
Outer Roche Limit

749 km
1,398 km

Terraformed (year):
Population:

2355
4,500,000



New Vienna
Orbit:
Period:

S/2195(Elphame)05
6,173,464 km
26.21 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

970 km
2,955,925 km²
1,773,555 km²
567,538 km²
1.284 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

34,571,499,953,653,600,000 metric tonnes
0.9982 g_n
3.0800 km/s
76 km
1,520 km
2,719 km

Hill Sphere (radius):
LaGrangian Points

17,141 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

17,141 km
17,141 km
6,173,464 km
6,173,464 km
6,173,464 km

Inner Roche Limit
Outer Roche Limit

726 km
1,356 km

Terraformed (year):
Population:

2361
1,850,000

Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2225(Georgia)3b47b**
The current numbering is able to catalog up to 33,554,432 objects per year per region.

• L5

• L2

• L1

• L3

• L4

REGION: L1

REGION: L2

REGION: L3

Fedallah A/2275(Georgia)k37a3

REGION: L4 'The Poets'

Bethke	A/2278(Georgia)mkc6h
Bledsoe	A/2277(Georgia)kb415
Bridges	A/2272(Georgia)e2808
Buchanan	A/2274(Georgia)g20ah
Burns	A/2277(Georgia)kb417
Card	A/2279(Georgia)mm016
Clifton	A/2273(Georgia)e4t03
Conrad	A/2271(Georgia)e0j8e
Davidson	A/2278(Georgia)mkc6j
Debrandt	A/2275(Georgia)k37ax
DeCandido	A/2272(Georgia)e2803
Dixon	A/2276(Georgia)ka0ce
Edlund	A/2271(Georgia)e0j8f
Espenson	A/2273(Georgia)e4s8r
Fillion	A/2273(Georgia)e4t08
Giardina	A/2279(Georgia)mm019
Goldsmith	A/2272(Georgia)e280d
Goltz	A/2278(Georgia)mkc6k
Greene	A/2272(Georgia)e2804
Haynes	A/2274(Georgia)g20ad
Holder	A/2274(Georgia)g20am
Huff	A/2279(Georgia)mm01f
Klock	A/2273(Georgia)e4s8w
Lackey	A/2271(Georgia)e0j8g
Marano	A/2275(Georgia)k37a4
Minear	A/2275(Georgia)k37au
Molina	A/2273(Georgia)e4t0e
Peristere	A/2279(Georgia)mm01c

REGION: L4 'The Poets'

Rich	A/2274(Georgia)g2oaf
Staite	A/2272(Georgia)e2807
Sullivan	A/2274(Georgia)g20aj
Swendson	A/2275(Georgia)k37ay
Taylor	A/2275(Georgia)k37a5
Vaughn	A/2276(Georgia)ka0cb
Watt-Evans	A/2271(Georgia)e0j8m
West	A/2277(Georgia)kb414
Wharton	A/2278(Georgia)mkc6m
Whedon	A/2271(Georgia)e0j8k
Wright	A/2276(Georgia)ka0cd
Yeffeth	A/2277(Georgia)kb416
Zynda	A/2276(Georgia)ka0cc

REGION: L5 'The Minstrels'

Call	A/2278(Georgia)mkc6n
Cedric	A/2271(Georgia)e0j94
Darkseid	A/2276(Georgia)ka0cg
De Lorenzo	A/2272(Georgia)e280g
Edmonson	A/2278(Georgia)mkc6q
Freya	A/2276(Georgia)ka0cf
Hawke	A/2272(Georgia)e280k
Jones	A/2277(Georgia)kb419
Julesong	A/2273(Georgia)e4t0n
L'Ecuier	A/2275(Georgia)k47b1
Marshall	A/2279(Georgia)mm01j
Mason	A/2273(Georgia)e4t0k
Mezentsev	A/2277(Georgia)kb41a
Miller	A/2278(Georgia)mkc6p
Moerke	A/2274(Georgia)g20ap
Moore	A/2279(Georgia)mm029
Newman	A/2277(Georgia)kb418
Orr	A/2279(Georgia)mm024
Oscar	A/2274(Georgia)g20ar
Rhodes	A/2271(Georgia)e0j93
Sehane	A/2276(Georgia)ka0ch
Smith	A/2275(Georgia)k47b0



Di Yu
Orbit:
Period:

P/2030(Georgia)09
1,286,541,682 km - 8.600 AU
9,212.00 days - 25.22 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

12,250 km
471,435,248 km²
141,430,574 km²
45,257,784 km²
4.563 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

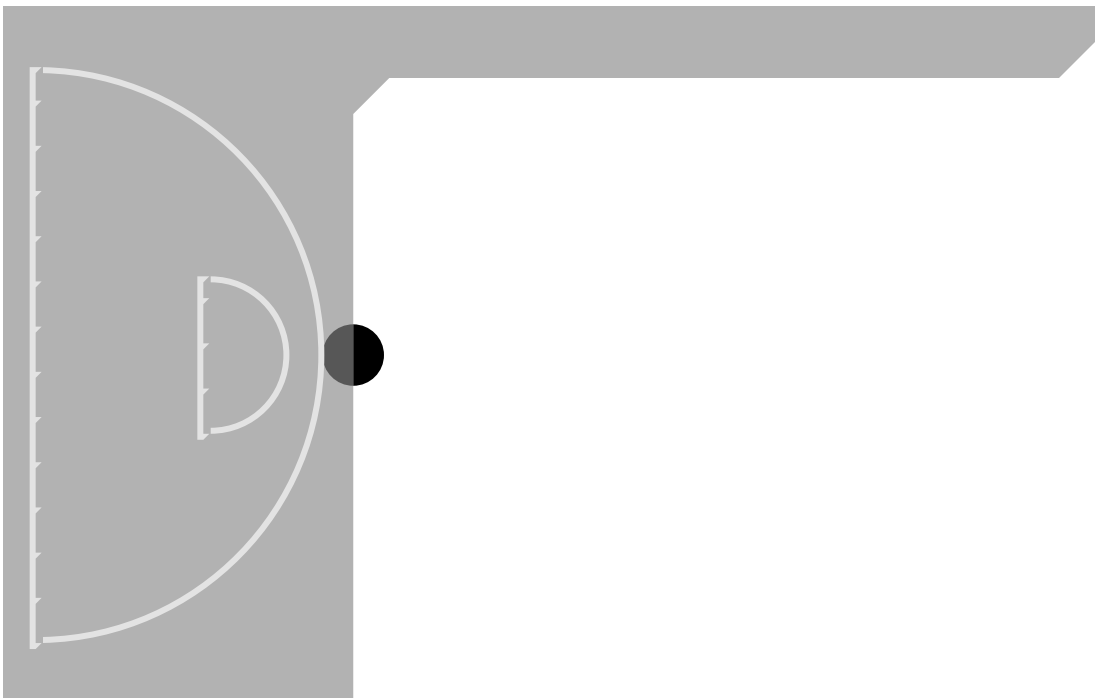
5,555,175,913,894,860,000,000 metric tonnes
1.0057 g_n
10.9880 km/s
967 km
19,337 km
34,600 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,416,780 km
1,416,780 km
1,416,780 km
1,286,541,682 km
1,286,541,682 km
1,286,541,682 km
9,240 km
17,248 km

Terraformed (year):
Population:

Scheduled
5,000



Yama
Orbit:
Period:

S/2180(Di Yu)01
73,036 km
5.19 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,371 km
5,905,066 km²
3,247,786 km²
1,039,292 km²
1.527 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

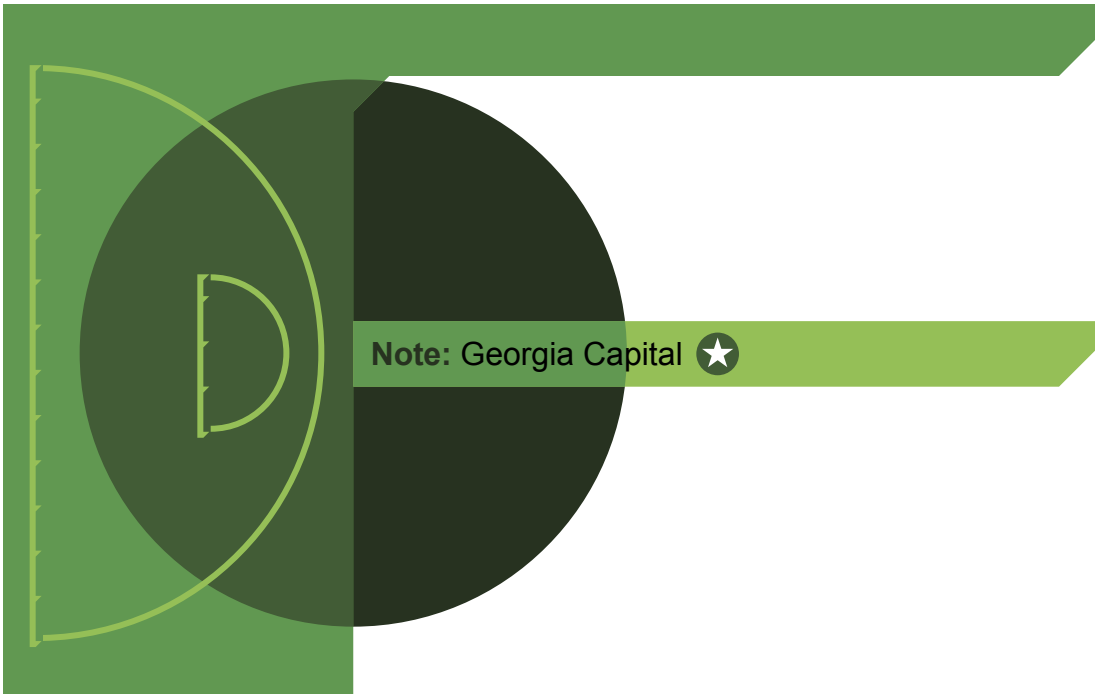
69,264,317,555,002,400,000 metric tonnes
1.0011 g_n
3.6680 km/s
108 km
2,154 km
3,855 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

24,297 km
24,297 km
24,297 km
73,036 km
73,036 km
73,036 km
1,029 km
1,922 km

Terraformed (year):
Population:

Scheduled
5,000



Note: Georgia Capital

Athens
Orbit:
Period:

P/2027(Georgia)04
1,342,640,883 km - 8.975 AU
9,821.00 days - 26.89 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

12,103 km
460,188,688 km²
184,075,475 km²
58,904,152 km²
4.536 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

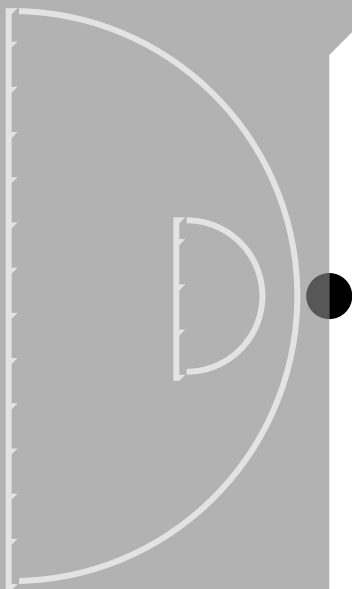
5,344,468,830,550,660,000,000 metric tonnes
0.9912 g_n
10.8430 km/s
941 km
18,830 km
33,692 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,379,597 km
1,379,597 km
1,379,597 km
1,342,640,883 km
1,342,640,883 km
1,342,640,883 km
8,997 km
16,795 km

Terraformed (year):
Population:

2360
775,000,000



Ahnooie
Orbit:
Period:

S/2176(Athens)03
86,490 km
6.14 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,000 km
3,141,593 km²
1,853,540 km²
593,133 km²
1.304 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

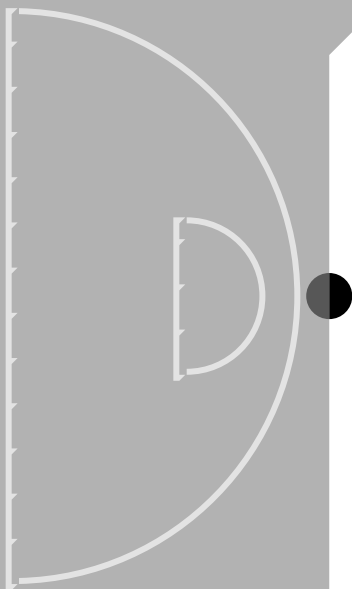
36,750,373,814,249,200,000 metric tonnes
0.9948 g_n
3.1280 km/s
78 km
1,567 km
2,804 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

17,675 km
17,675 km
17,675 km
86,490 km
86,490 km
86,490 km
749 km
1,398 km

Terraformed (year):
Population:

2360
525,000



Argabuthon
Orbit:
Period:

S/2172(Athens)01
172,980 km
12.29 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,500 km
7,068,583 km²
3,746,349 km²
1,198,832 km²
1.597 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

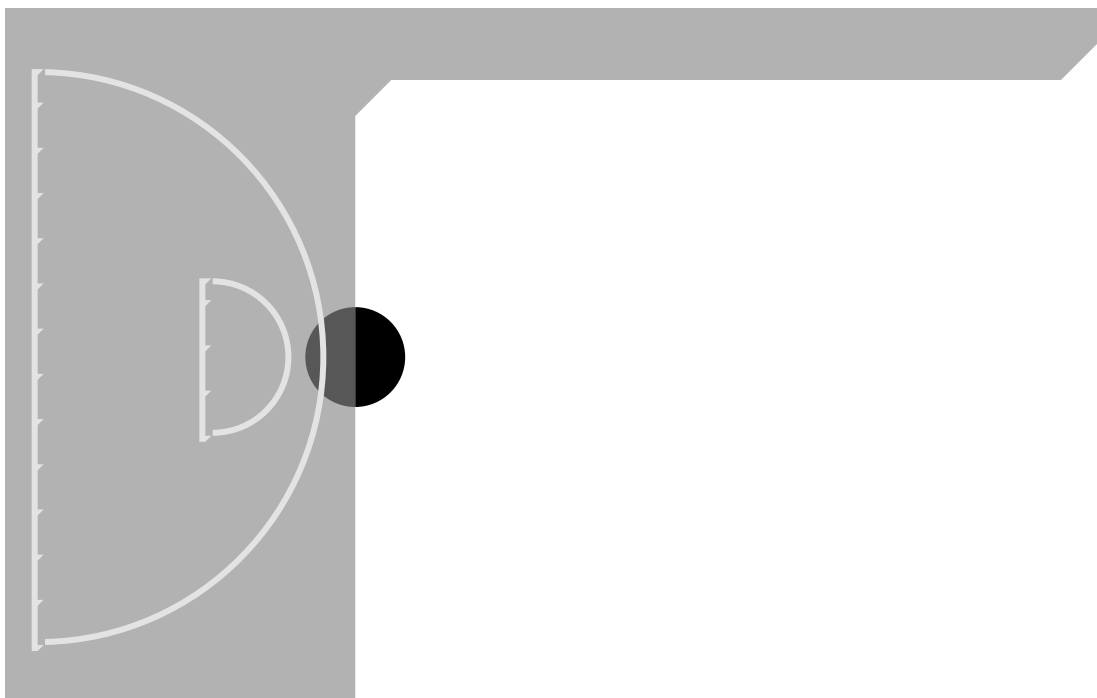
80,874,564,369,623,700,000 metric tonnes
0.9765 g_n
3.7890 km/s
115 km
2,299 km
4,114 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

25,930 km
25,930 km
25,930 km
172,980 km
172,980 km
172,980 km
1,099 km
2,051 km

Terraformed (year):
Population:

2360
1,500,000



Ormuzd
Orbit:
Period:

S/2173(Athens)02
295,988 km
21.02 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,200 km
15,205,308 km²
7,754,707 km²
2,481,506 km²
1.934 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

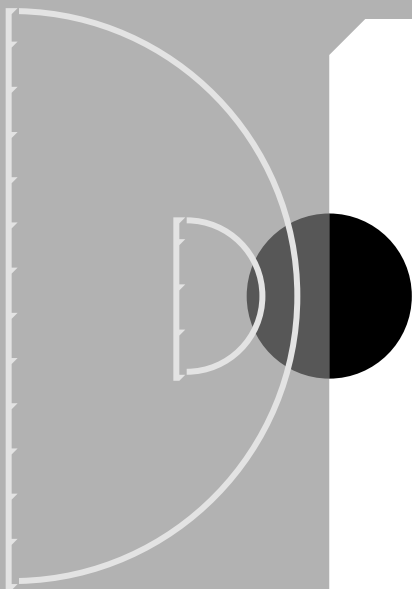
179,225,801,398,770,000,000 metric tonnes
1.0060 g_n
4.6570 km/s
174 km
3,474 km
6,216 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

39,180 km
39,180 km
39,180 km
295,988 km
295,988 km
295,988 km
1,660 km
3,098 km

Terraformed (year):
Population:

2360
2,225,000



Whitefall
Orbit:
Period:

S/2177(Athens)04
407,464 km
28.94 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

3,600 km
40,715,041 km²
20,357,520 km²
6,514,407 km²
2.474 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

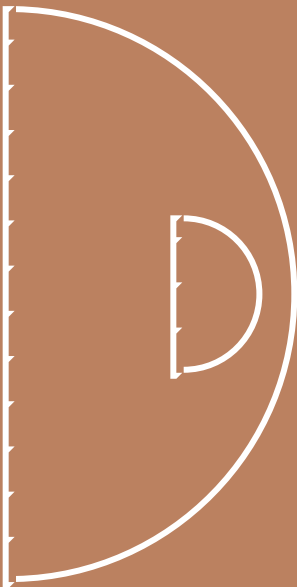
462,927,497,227,106,000,000 metric tonnes
0.9704 g_n
5.8510 km/s
274 km
5,483 km
9,811 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

61,844 km
61,844 km
61,844 km
407,464 km
407,464 km
407,464 km
2,620 km
4,891 km

Terraformed (year):
Population:

2360
2,500,000



Daedalus
Orbit: 1,623,136,890 km - 10.850 AU
Period: 13,054.00 days - 35.74 years

Diameter: 160,465 km
Surface Area: N/A
Land Area: N/A
Arable Land: N/A
Horizon: N/A

Mass: 3,220,633,719,371,380,000,000,000 metric tonnes
Surface Gravity: 2.8371 g_n
Escape Velocity: N/A
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 65,944,596 km
LaGrangian Points
L1: 65,944,596 km
L2: 65,944,596 km
L3 (+-180): 1,623,136,890 km
L4 (+60): 1,623,136,890 km
L5 (-60): 1,623,136,890 km
Inner Roche Limit: 102,698 km
Outer Roche Limit: 197,372 km

Terraformed (year):
Population:



Arvad's Helm
Orbit:
Period:

S/2176(Daedalus)04
576,600 km
40.95 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

5,262 km
86,986,441 km²
47,842,542 km²
15,309,614 km²
2.991 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

975,169,350,017,599,000,000 metric tonnes
0.9568 g_n
7.0240 km/s
395 km
7,902 km
14,140 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

89,129 km
89,129 km
89,129 km
576,600 km
576,600 km
576,600 km
3,776 km
7,049 km

Terraformed (year):
Population:

2360
275,000,000



Notterdam
Orbit:
Period:

S/2173(Daedalus)03
864,900 km
61.43 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

5,151 km
83,355,253 km²
45,011,836 km²
14,403,788 km²
2.959 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

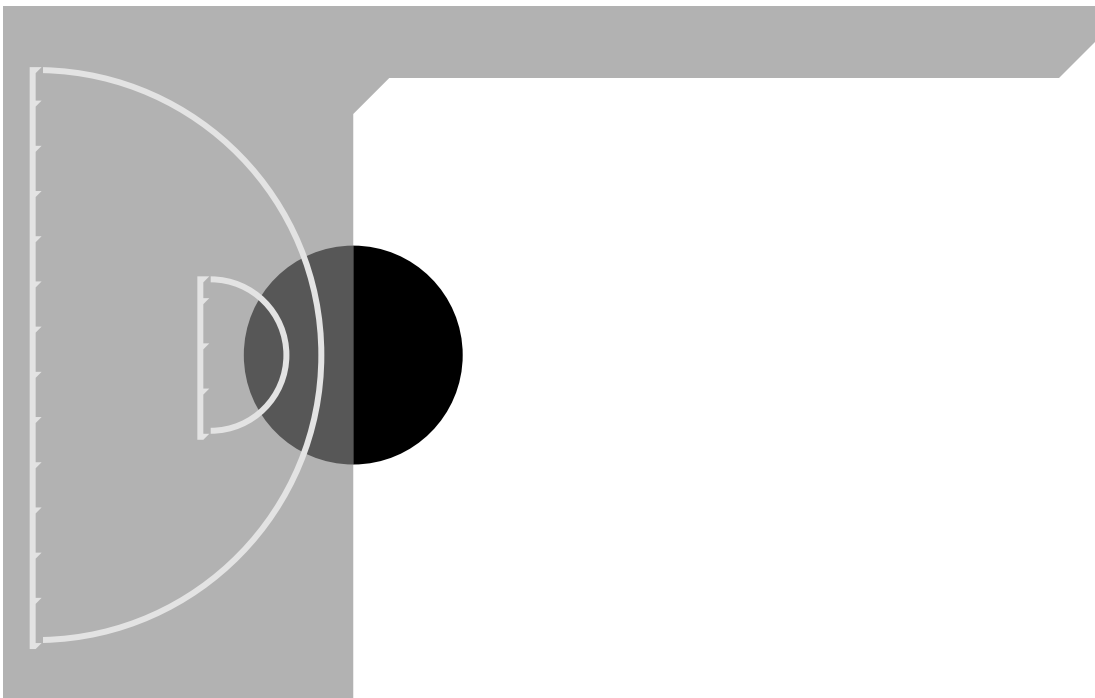
988,861,162,387,518,000,000 metric tonnes
1.0125 g_n
7.1490 km/s
409 km
8,186 km
14,647 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

92,328 km
92,328 km
92,328 km
864,900 km
864,900 km
864,900 km
3,912 km
7,302 km

Terraformed (year):
Population:

2360
115,000,000



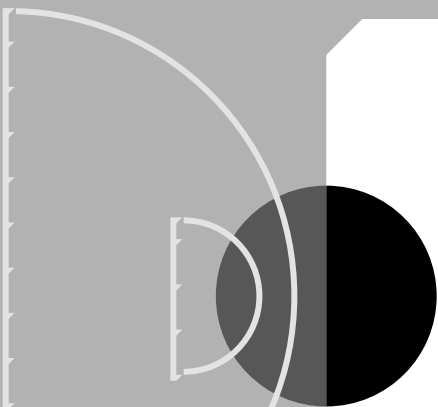
Rea Orbit: S/2172(Daedalus)01
Period: 1,153,200 km
81.90 days

Diameter: 4,821 km
Surface Area: 73,017,025 km²
Land Area: 36,508,513 km²
Arable Land: 11,682,724 km²
Horizon: 2.863 km

Mass: 837,471,005,601,495,000,000 metric tonnes
Surface Gravity: 0.9787 g_n
Escape Velocity: 6.8010 km/s
LEO (alt): 370 km
MEO (alt): 7,407 km
GEO (alt): 13,254 km

Hill Sphere (radius): 83,545 km
LaGrangian Points
L1: 83,545 km
L2: 83,545 km
L3 (+-180): 1,153,200 km
L4 (+60): 1,153,200 km
L5 (-60): 1,153,200 km
Inner Roche Limit: 3,539 km
Outer Roche Limit: 6,607 km

Terraformed (year): 2360
Population: 200,000,000



Box Orbit:
Period:

S/2172(Daedalus)02
2,344,840 km
166.53 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

4,887 km
75,029,932 km²
37,514,966 km²
12,004,789 km²
2.882 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

871,019,473,292,713,000,000 metric tonnes
0.9908 g_n
6.8890 km/s
380 km
7,600 km
13,599 km

Hill Sphere (radius):
LaGrangian Points

85,718 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

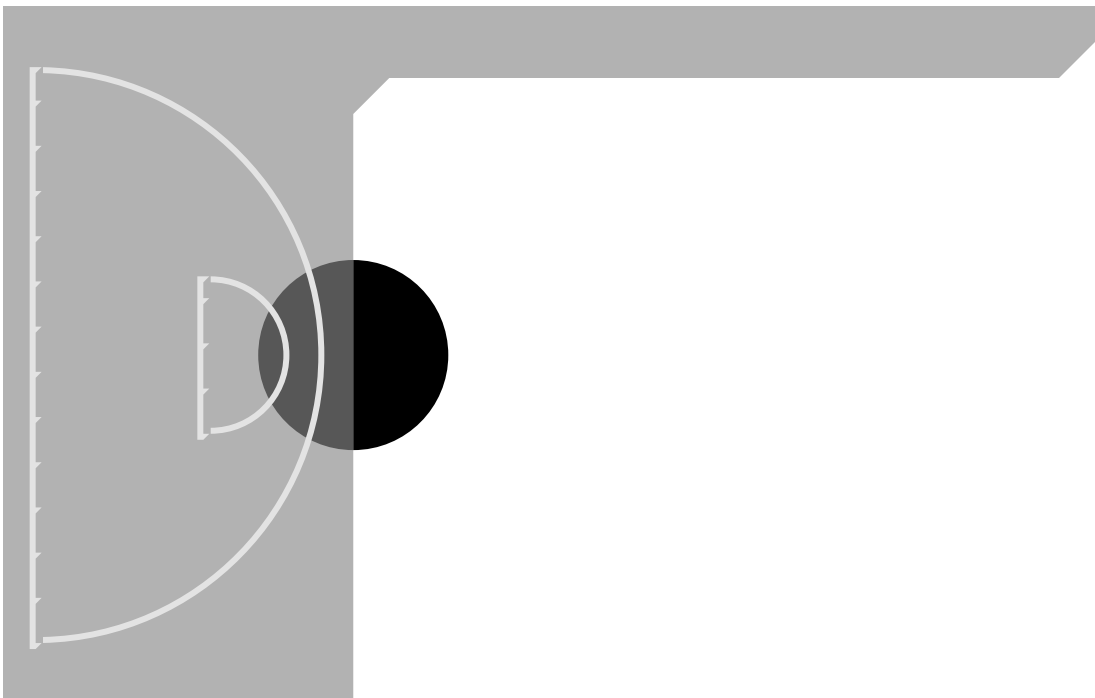
85,718 km
85,718 km
2,344,840 km
2,344,840 km
2,344,840 km

Inner Roche Limit
Outer Roche Limit

3,632 km
6,779 km

Terraformed (year):
Population:

2360
152,500,000



Illyria
Orbit:
Period:

S/2176(Daedalus)05
2,979,100 km
211.58 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

4,186 km
55,048,859 km²
27,524,429 km²
8,807,817 km²
2.668 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

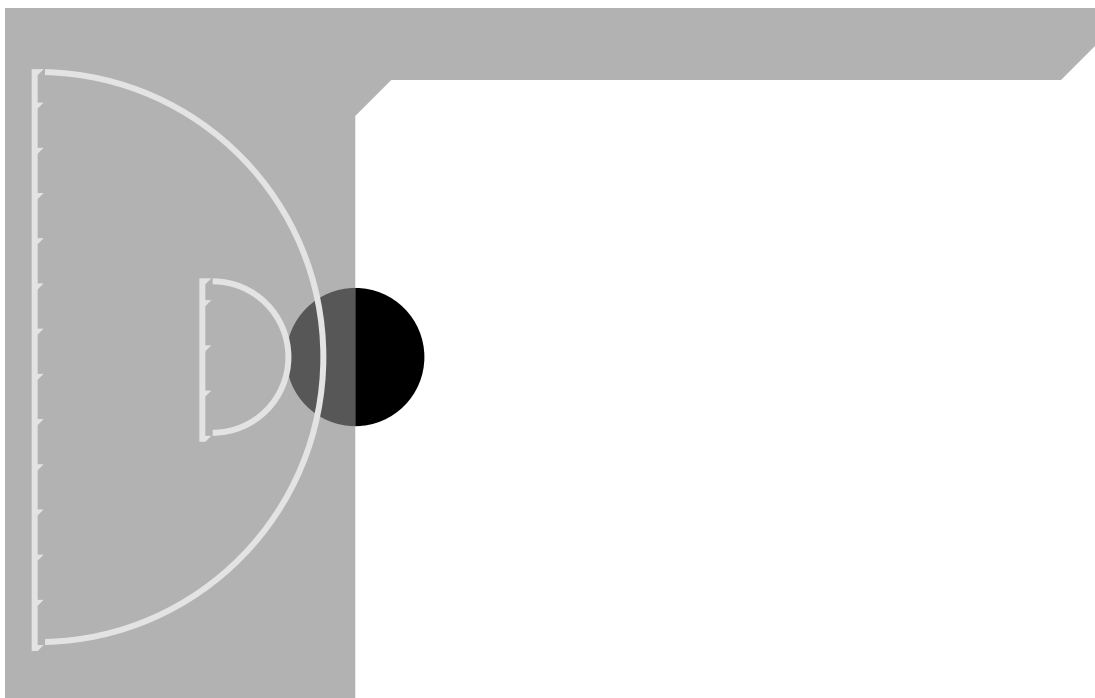
645,703,436,843,533,000,000 metric tonnes
1.0011 g_n
6.4084 km/s
329 km
6,578 km
11,769 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

74,186 km
74,186 km
74,186 km
2,979,100 km
2,979,100 km
2,979,100 km
3,143 km
5,867 km

Terraformed (year):
Population:

2361
125,050,000



Shenandoah
Orbit:
Period:

S/2177(Daedalus)08
3,236,648 km
229.87 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

3,052 km
29,263,006 km²
15,216,763 km²
4,869,364 km²
2.278 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

339,335,907,224,760,000,000 metric tonnes
0.9897 g_n
5.4407 km/s
237 km
4,741 km
8,483 km

Hill Sphere (radius):
LaGrangian Points

53,473 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

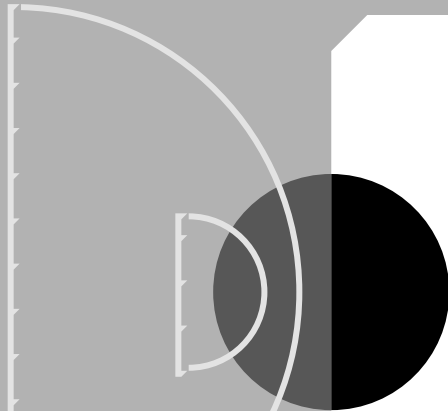
53,473 km
53,473 km
3,236,648 km
3,236,648 km
3,236,648 km

Inner Roche Limit
Outer Roche Limit

2,265 km
4,229 km

Terraformed (year):
Population:

2360
114,500,000



Dakhla
Orbit:
Period:

S/2177(Daedalus)07
3,824,780 km
271.64 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

5,204 km
85,079,406 km²
47,644,467 km²
15,246,230 km²
2.974 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

1,046,398,146,249,200,000,000 metric tonnes
1.0497 g_n
7.3167 km/s
429 km
8,574 km
15,342 km

Hill Sphere (radius):
LaGrangian Points

96,705 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

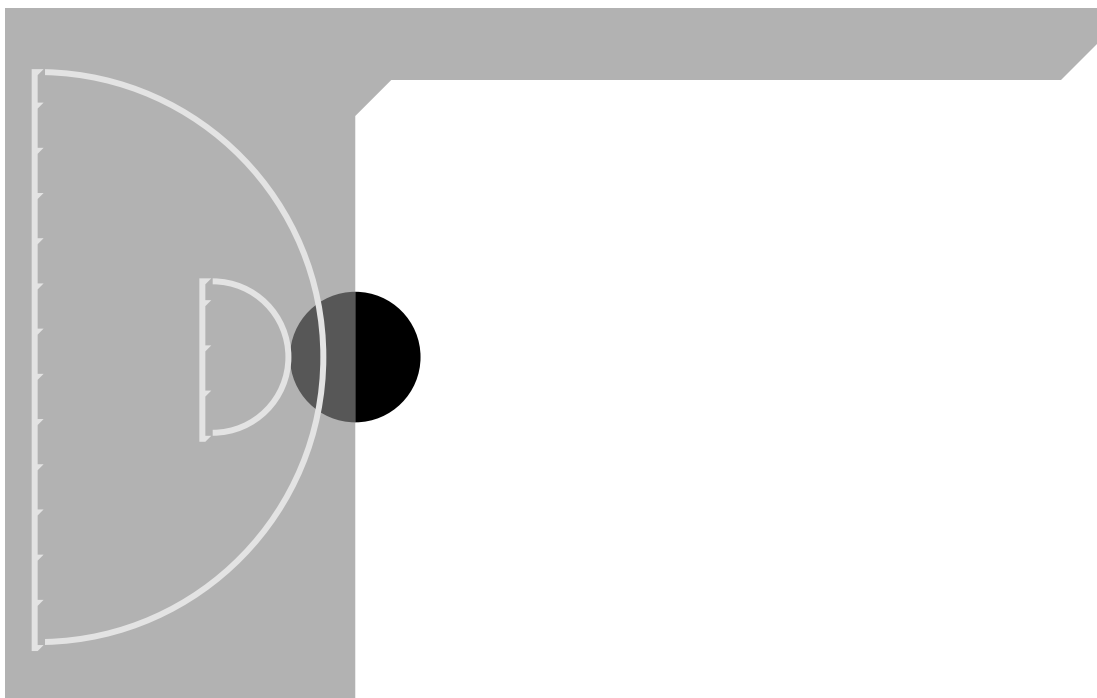
96,705 km
96,705 km
3,824,780 km
3,824,780 km
3,824,780 km

Inner Roche Limit
Outer Roche Limit

4,097 km
7,648 km

Terraformed (year):
Population:

2361
75,000,000



Sault Orbit: 4,382,160 km
Period: 311.22 days

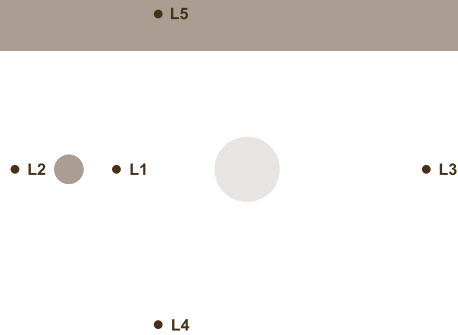
Diameter: 2,890 km
Surface Area: 26,238,896 km²
Land Area: 13,381,837 km²
Arable Land: 4,282,188 km²
Horizon: 2.217 km

Mass: 300,855,590,219,675,000,000 metric tonnes
Surface Gravity: 0.9786 g_n
Escape Velocity: 5.2646 km/s
LEO (alt): 222 km
MEO (alt): 4,439 km
GEO (alt): 7,943 km

Hill Sphere (radius): 50,067 km
LaGrangian Points
L1: 50,067 km
L2: 50,067 km
L3 (+-180): 4,382,160 km
L4 (+60): 4,382,160 km
L5 (-60): 4,382,160 km
Inner Roche Limit: 2,121 km
Outer Roche Limit: 3,959 km

Terraformed (year): Scheduled
Population: 5,000

Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2271(Georgia)ef3tr**
The current numbering is able to catalog up to 33,554,432 objects per year per region.



REGION: L1

Curran's Berth A/2272(Georgia)j4c6b

REGION: L2

REGION: L3 'Peléshseth'

Ashkelon A/2272(Georgia)e23bq

Caesarea A/2272(Georgia)e23br

Hebron A/2272(Georgia)e23ju

Jaffa A/2272(Georgia)e23cd

Joppa A/2272(Georgia)e23a5

Qumran A/2272(Georgia)e23ca

Sidon A/2272(Georgia)e23a4

Tyre A/2272(Georgia)e23cg

REGION: L4

REGION: L5

Samogon A/2272(Georgia)e27un



Newhope
Orbit:
Period:

P/2027(Georgia)05
1,903,632,896 km - 12.725 AU
16,580.00 days - 45.39 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

11,784 km
436,249,900 km²
161,412,463 km²
51,651,988 km²
4.476 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

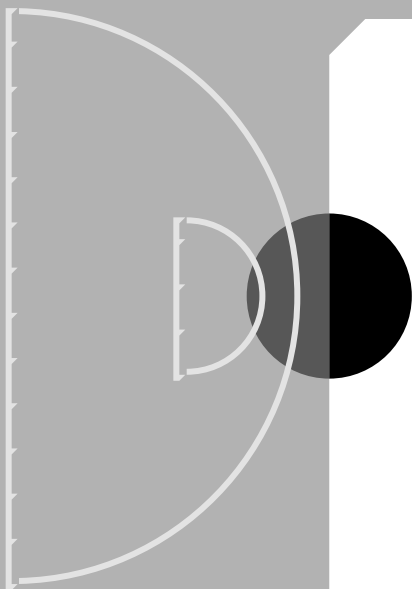
5,213,661,465,521,120,000,000 metric tonnes
1.0200 g_n
10.8530 km/s
943 km
18,866 km
33,757 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,382,263 km
1,382,263 km
1,382,263 km
1,903,632,896 km
1,903,632,896 km
1,903,632,896 km
9,015 km
16,828 km

Terraformed (year):
Population:

2358
500,000,000



The Commons

Orbit:

Period:

S/2174(Newhope)01

180,668 km

12.83 days

Diameter:

Surface Area:

Land Area:

Arable Land:

Horizon:

3,640 km

41,624,846 km²

20,812,423 km²

6,659,975 km²

2.488 km

Mass:

Surface Gravity:

Escape Velocity:

LEO (alt):

MEO (alt):

GEO (alt):

497,754,872,394,627,000,000 metric tonnes

1.0206 g_n

6.0340 km/s

292 km

5,831 km

10,434 km

Hill Sphere (radius):

LaGrangian Points

L1:

L2:

L3 (+-180):

L4 (+60):

L5 (-60):

Inner Roche Limit

Outer Roche Limit

65,766 km

65,766 km

65,766 km

180,668 km

180,668 km

180,668 km

2,786 km

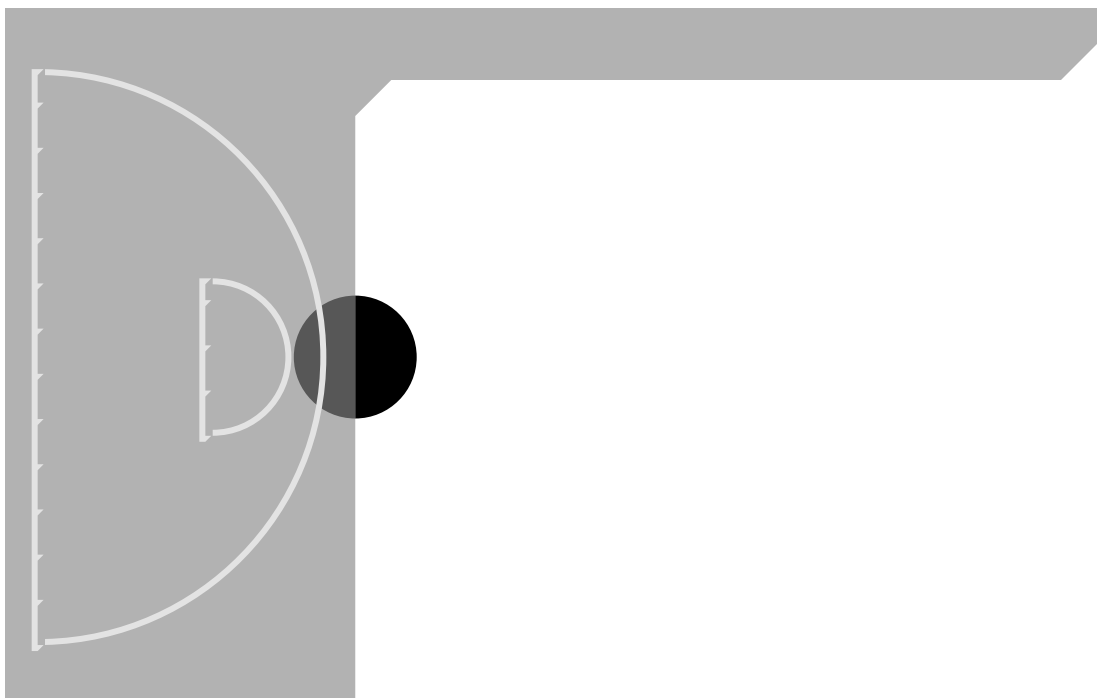
5,201 km

Terraformed (year):

Population:

2358

75,000,000



Splendor Orbit:
Period:

S/2176(Newhope)02
303,676 km
21.57 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,705 km
22,987,112 km²
11,723,427 km²
3,751,497 km²
2.144 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

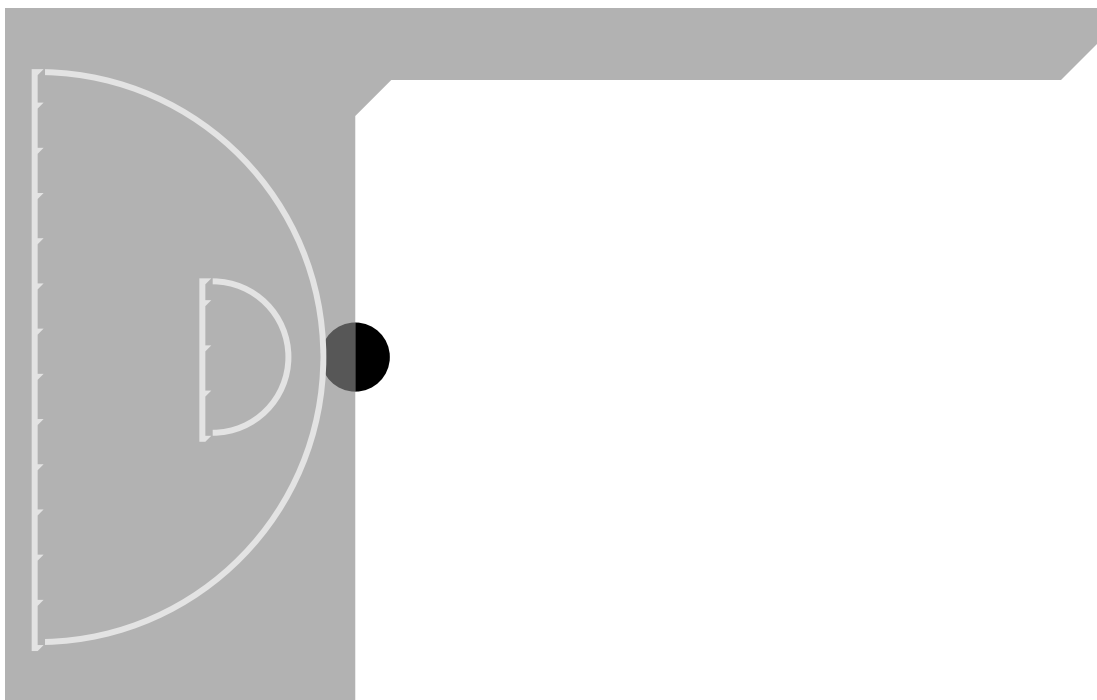
280,565,580,832,596,000,000 metric tonnes
1.0417 g_n
5.2550 km/s
221 km
4,423 km
7,914 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

49,883 km
49,883 km
49,883 km
303,676 km
303,676 km
303,676 km
2,113 km
3,945 km

Terraformed (year):
Population:

2358
50,000,000



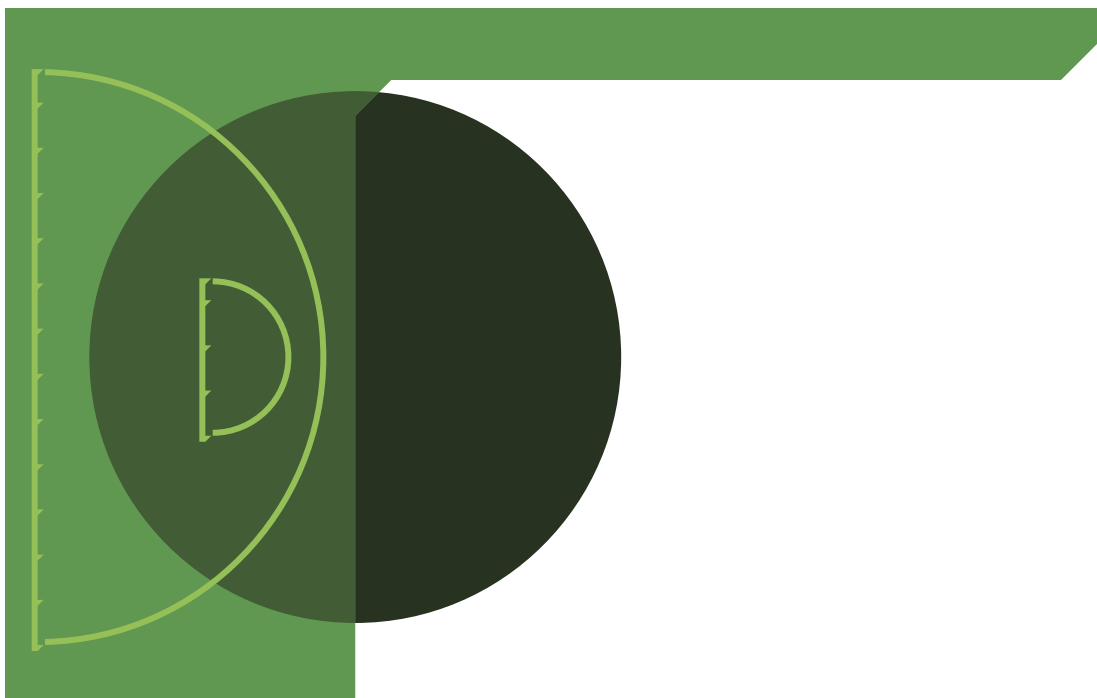
Godforsaken
Orbit: 445,904 km
Period: 31.67 days

Diameter: 1,530 km
Surface Area: 7,354,154 km²
Land Area: 3,897,702 km²
Arable Land: 1,247,265 km²
Horizon: 1.613 km

Mass: 83,021,728,149,560,400,000 metric tonnes
Surface Gravity: 0.9635 g_n
Escape Velocity: 3.8010 km/s
LEO (alt): 116 km
MEO (alt): 2,314 km
GEO (alt): 4,140 km

Hill Sphere (radius): 26,097 km
LaGrangian Points
L1: 26,097 km
L2: 26,097 km
L3 (+-180): 445,904 km
L4 (+60): 445,904 km
L5 (-60): 445,904 km
Inner Roche Limit: 1,106 km
Outer Roche Limit: 2,064 km

Terraformed (year): Scheduled
Population: 5,000



Three Hills
Orbit:
Period:

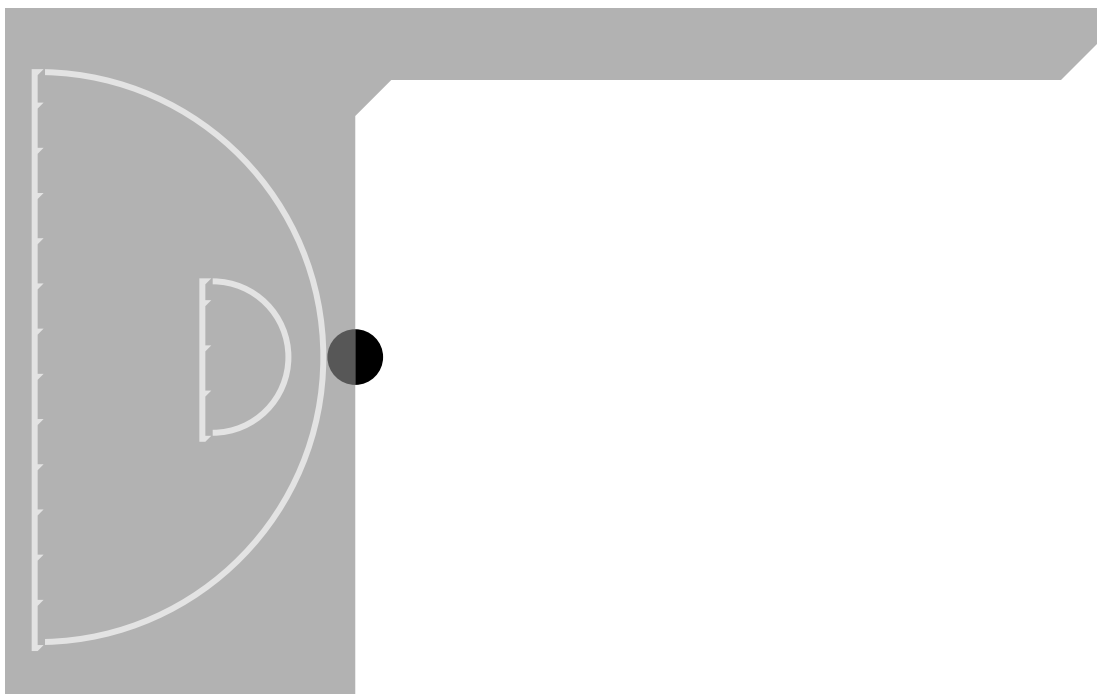
P/2030(Georgia)08
2,015,831,298 km - 13.475 AU
18,067.00 days - 49.46 years

Diameter: 12,640 km
Surface Area: 501,931,002 km²
Land Area: 190,733,781 km²
Arable Land: 61,034,810 km²
Horizon: 4.636 km

Mass: 5,750,443,880,325,390,000,000 metric tonnes
Surface Gravity: 0.9778 g_n
Escape Velocity: 11.0060 km/s
LEO (alt): 970 km
MEO (alt): 19,399 km
GEO (alt): 34,711 km

Hill Sphere (radius): 1,421,330 km
LaGrangian Points
L1: 1,421,330 km
L2: 1,421,330 km
L3 (+-180): 2,015,831,298 km
L4 (+60): 2,015,831,298 km
L5 (-60): 2,015,831,298 km
Inner Roche Limit: 9,270 km
Outer Roche Limit: 17,303 km

Terraformed (year): 2370
Population: 175,000,000



New Lafayette
Orbit:
Period:

S/2164(Three Hills)01
69,192 km
4.91 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,213 km
4,622,442 km²
2,588,568 km²
828,342 km²
1.436 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

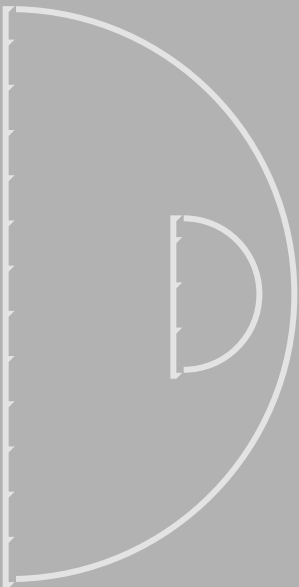
54,143,768,790,532,300,000 metric tonnes
0.9997 g_n
3.4470 km/s
95 km
1,903 km
3,406 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

21,467 km
21,467 km
21,467 km
69,192 km
69,192 km
69,192 km
909 km
1,698 km

Terraformed (year):
Population:

2370
27,500,000



Note: Conrad boasts the highest population density in the Verse. 2510 census showed 33.47 people per square kilometer. The mild climate, low gravity, and abundance of small islands peppering Conrad's shallow oceans have made the moon a popular vacation and retirement destination.

Conrad
Orbit:
Period:

S/2164(Three Hills)02
126,852 km
9.01 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,180 km
4,374,354 km²
2,449,638 km²
783,884 km²
1.416 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

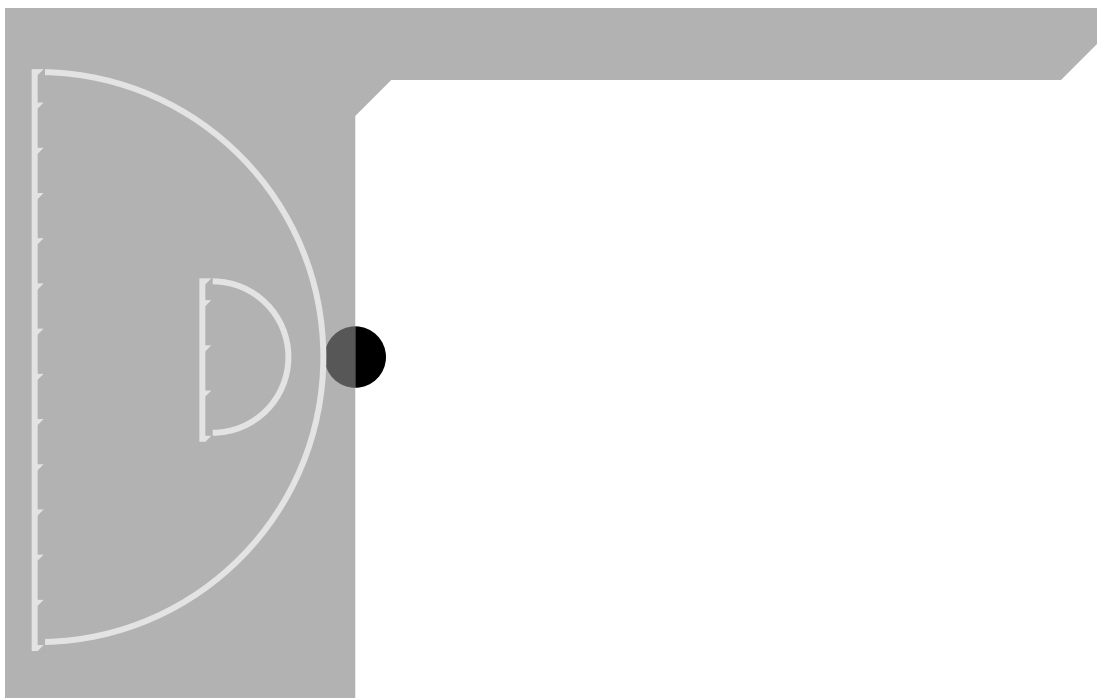
49,674,626,309,688,100,000 metric tonnes
0.9692 g_n
3.3480 km/s
90 km
1,795 km
3,212 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

20,246 km
20,246 km
20,246 km
126,852 km
126,852 km
126,852 km
858 km
1,601 km

Terraformed (year):
Population:

2370
82,000,000



Bob
Orbit:
Period:

S/2164(Three Hills)03
196,044 km
13.92 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,345 km
5,683,220 km²
3,125,771 km²
1,000,247 km²
1.512 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

68,579,894,936,401,100,000 metric tonnes
1.0299 g_n
3.6840 km/s
109 km
2,174 km
3,890 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

24,522 km
24,522 km
24,522 km
196,044 km
196,044 km
196,044 km
1,039 km
1,939 km

Terraformed (year):
Population:

2370
16,000,000



Meadow
Orbit:
Period:

P/2027(Georgia)07
2,071,930,500 km - 13.850 AU
18,826.00 days - 51.54 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

11,000 km
380,132,711 km²
148,251,757 km²
47,440,562 km²
4.324 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

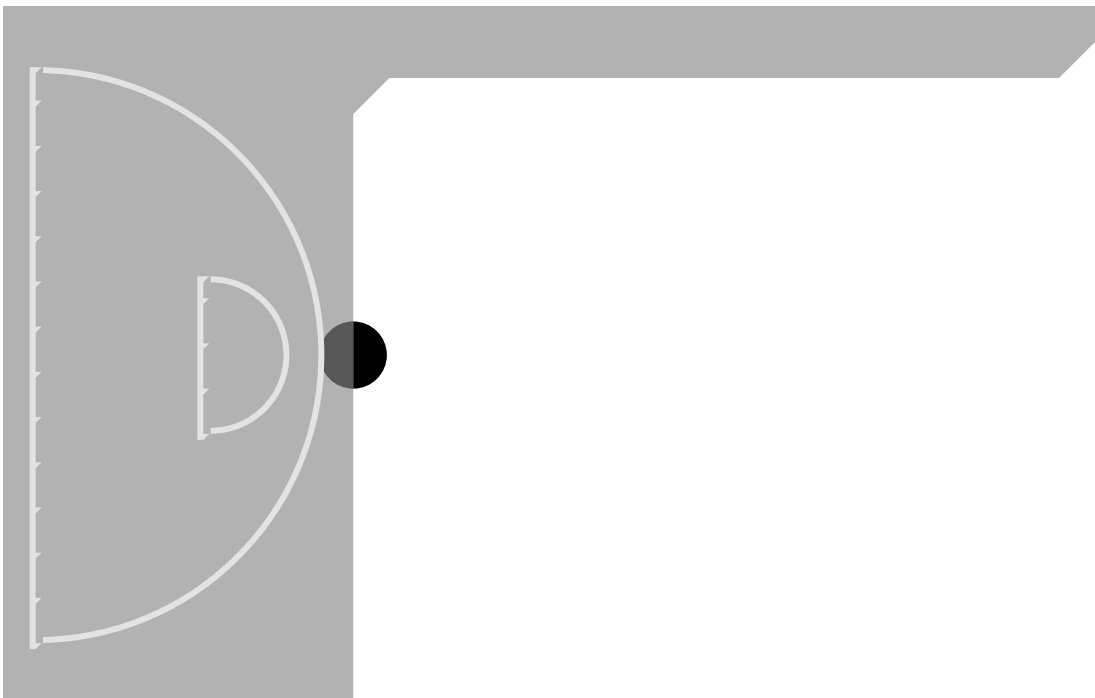
4,435,660,427,759,320,000,000 metric tonnes
0.9959 g_n
10.3610 km/s
860 km
17,195 km
30,767 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,259,814 km
1,259,814 km
1,259,814 km
2,071,930,500 km
2,071,930,500 km
2,071,930,500 km
8,216 km
15,337 km

Terraformed (year):
Population:

Scheduled
5,000



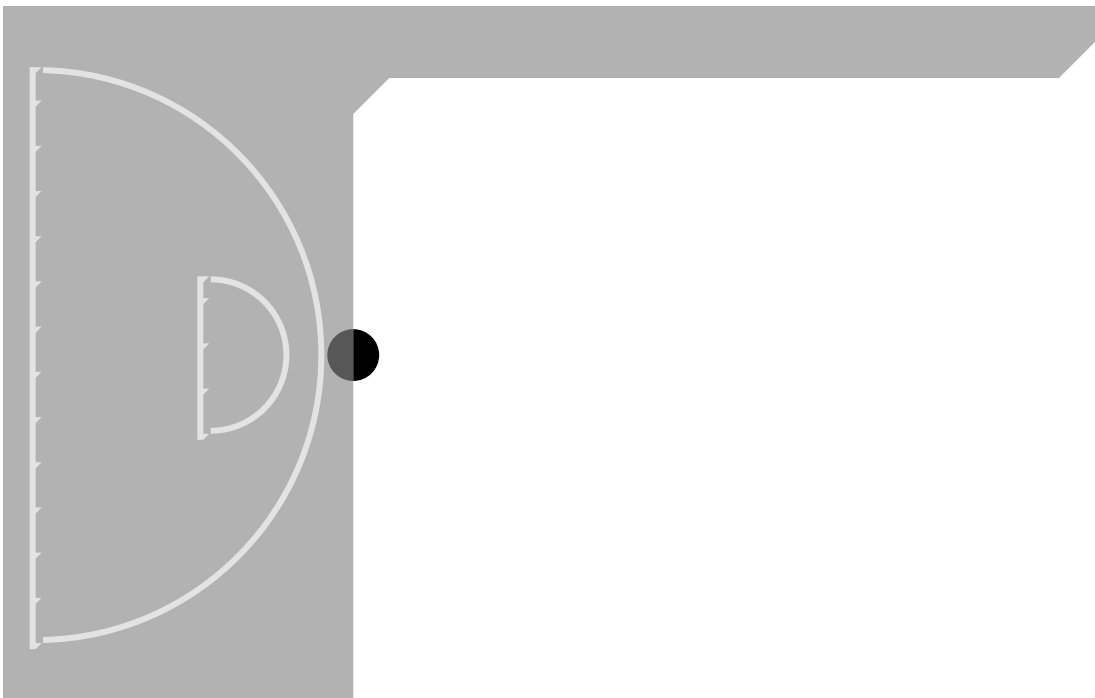
Salyut S/2176(Meadow)01
Orbit: 92,256 km
Period: 6.55 days

Diameter: 1,469 km
Surface Area: 6,779,434 km²
Land Area: 3,660,895 km²
Arable Land: 1,171,486 km²
Horizon: 1.580 km

Mass: 79,115,234,307,757,100,000 metric tonnes
Surface Gravity: 0.9960 g_n
Escape Velocity: 3.7870 km/s
LEO (alt): 115 km
MEO (alt): 2,297 km
GEO (alt): 4,109 km

Hill Sphere (radius): 25,902 km
LaGrangian Points
L1: 25,902 km
L2: 25,902 km
L3 (+-180): 92,256 km
L4 (+60): 92,256 km
L5 (-60): 92,256 km
Inner Roche Limit: 1,097 km
Outer Roche Limit: 2,048 km

Terraformed (year): Scheduled
Population: 5,000



Mir
Orbit:
Period:

S/2177(MEADOW)02
357,492 km
25.39 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,161 km
4,234,619 km²
2,371,386 km²
758,844 km²
1.405 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

49,442,330,248,296,600,000 metric tonnes
0.9965 g_n
3.3670 km/s
91 km
1,816 km
3,249 km

Hill Sphere (radius):
LaGrangian Points

20,481 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

20,481 km
20,481 km
357,492 km
357,492 km
357,492 km

Inner Roche Limit
Outer Roche Limit

868 km
1,620 km

Terraformed (year):
Population:

Scheduled
5,000

- ★ Hera
- Aphrodite
- Shadow

Murphy
(Protostar)

Sol (radius)

Murphy
(Brown Dwarf)

Class: Artificial Star
Helioformed: 2260
Radius: 0.36 Sol - Brown Dwarf (117.72 inches scale)
Radius: 0.22 Sol - Protostar (70.63 inches scale)
Mass: 0.36 Sol
Orbit: 2,453,565,920 km (16.401 AU)
Period (years): 64.00

Hill Sphere (radius): 367,009,873 km

Lagrangian Points

L1: 367,009,873 km
L2: 367,009,873 km
L3 (+-180): 2,453,565,920 km
L4 (+60): 2,453,565,920 km
L5 (-60): 2,453,565,920 km

Habitation Zone Limits:

Inner: 36,700,987 km
Outer: 256,906,909 km

Diagram of the gravity limit and habitation zone for the protostar, Murphy. The tiny circle on the left is Murphy. The blank area between Murphy and the green rectangle is the area of space where the protostar's heat makes terraforming impossible. The green rectangle is Murphy's habitation zone. The arc on the right is the limit of Murphy's gravitational influence, or Hill Sphere. The blank area to the right of the habitation zone is too cold to support terraformed planets. The tiny circles at the left edge of the green rectangle are the Hill Spheres of Hera, Eris, and Shadow. The actual planets and their moons are too small to be seen at this scale.

Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** A/2271(Georgia)e3byu
The current numbering is able to catalog up to 33,554,432 objects per year per region.

REGION: L1

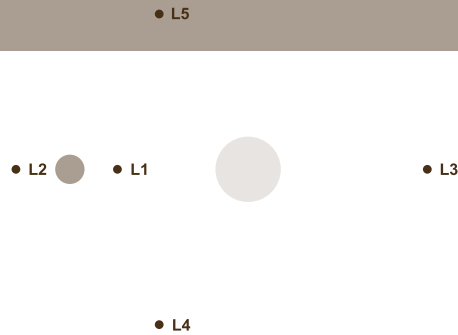
REGION: L2

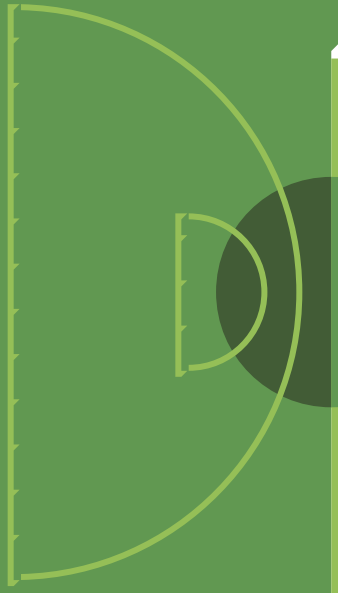
REGION: L3

Elwin's Relay A/2264(Georgia)4bdqp

REGION: L4

REGION: L5





Note: Georgia Capital ★

Hera and Persephone were known as the Gateway to the Border. During the Unification War, Hera was held firmly in the hands of the Independents. While Aphrodite supported a significant Alliance presence, Hera was the jumping-off point to the rest of the Border, and to the Rim. While some continue to argue the strategic importance of Hera from the standpoint of military value and commerce, it remained the “center” of Independent consciousness after the loss of Shadow.

The Battle of Serenity Valley concluded the bloodiest engagement in the Unification War, and has been described by historians as “Gettysburg and Vicksburg all rolled into one place.” At the culmination of that battle, the Independents suffered their most crushing defeat, and lost their most strategic asset. While there were a few small skirmishes on other worlds, the Unification War effectively ended in Serenity Valley.

Hera Orbit: Period:	S/2041(Murphy)03 53,837,251 km - 0.360 AU 1,184.00 days - 3.24 years
Diameter: Surface Area: Land Area: Arable Land: Horizon:	10,881 km 371,952,510 km² 130,183,378 km² 41,658,681 km² 4.301 km
Mass: Surface Gravity: Escape Velocity: LEO (alt): MEO (alt): GEO (alt):	4,407,322,356,569,160,000,000 metric tonnes 1.0113 g _n 10.3850 km/s 864 km 17,272 km 30,905 km
Hill Sphere (radius): LaGrangian Points L1: L2: L3 (+-180): L4 (+60): L5 (-60): Inner Roche Limit Outer Roche Limit	1,265,455 km 1,265,455 km 1,265,455 km 53,837,251 km 53,837,251 km 53,837,251 km 8,253 km 15,406 km
Terraformed (year): Population:	2407 377,000,000

GEORGIA (HUANG LONG)

太阳

MURPHY

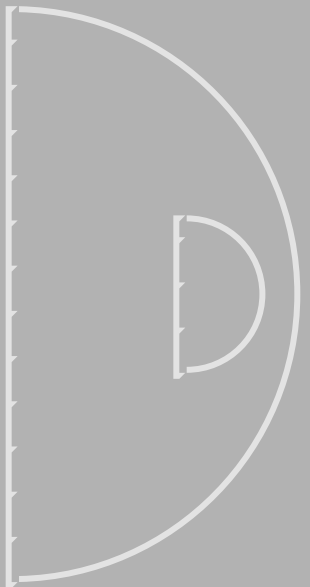
HERA



卫星

BULLET

S/2177(HERA)02



Bullet
Orbit:
Period:

S/2177(Hera)02
40,362 km
2.87 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

175 km
N/A
N/A
N/A
N/A

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

63,353,352,495,041,700 metric tonnes
0.0562 g_n
0.3100 km/s
1 km
15 km
28 km

Hill Sphere (radius):
LaGrangian Points

174 km

L1:

174 km

L2:

174 km

L3 (+-180):

40,362 km

L4 (+60):

40,362 km

L5 (-60):

40,362 km

Inner Roche Limit

7 km

Outer Roche Limit

14 km

Terraformed (year):
Population:

N/A
0 (Restricted)

卫星

3.5G

GEORGIA (HUANG LONG)

太阳

MURPHY

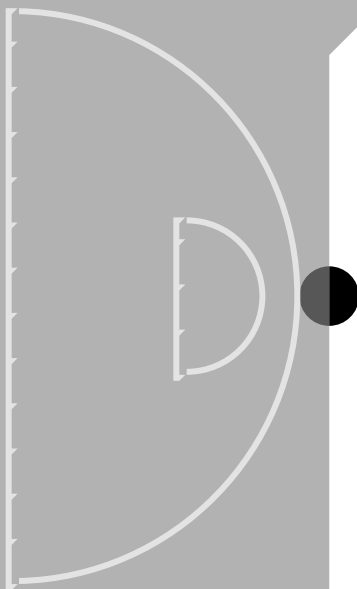
HERA



卫星

ERIS

S/2176(HERA)01



Eris
Orbit:
Period:

S/2176(Hera)01
103,788 km
7.37 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,321 km
5,482,208 km²
3,015,214 km²
964,869 km²
1.499 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

62,891,198,989,987,300,000 metric tonnes
0.9791 g_n
3.5600 km/s
102 km
2,030 km
3,632 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

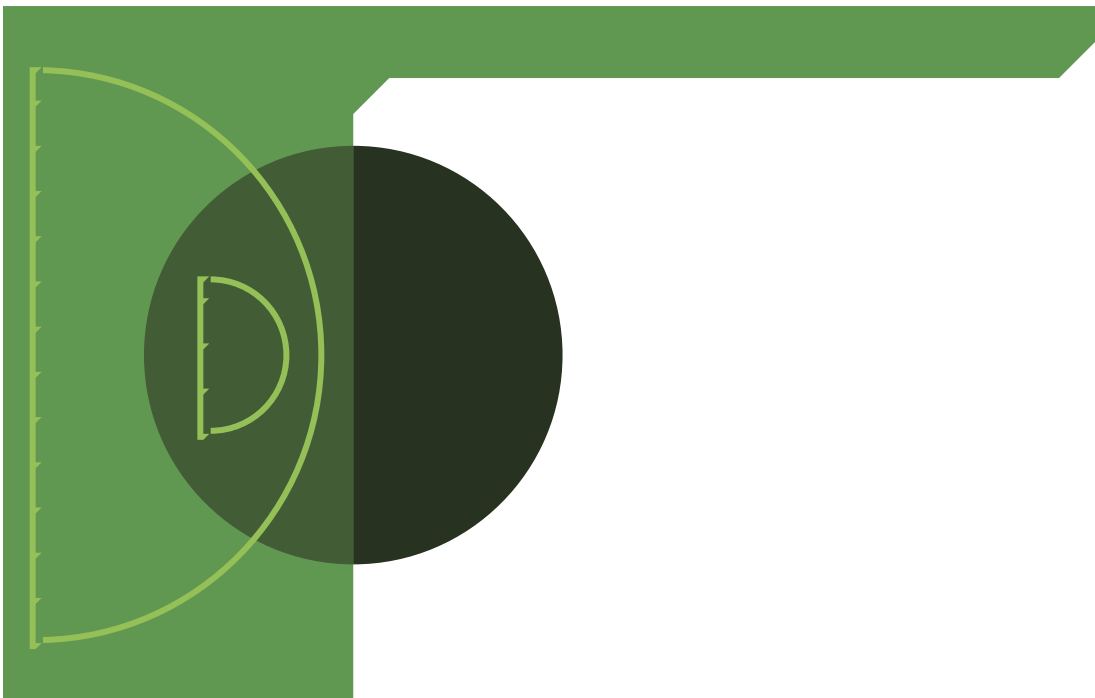
22,897 km
22,897 km
22,897 km
103,788 km
103,788 km
103,788 km
970 km
1,811 km

Terraformed (year):
Population:

2407
38,000

卫星

3.57



Aphrodite
Orbit:
Period:

S/2037(Murphy)01
56,844,176 km - 0.380 AU
1,251.00 days - 3.42 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

9,256 km
269,151,351 km²
91,511,459 km²
29,283,667 km²
3.967 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

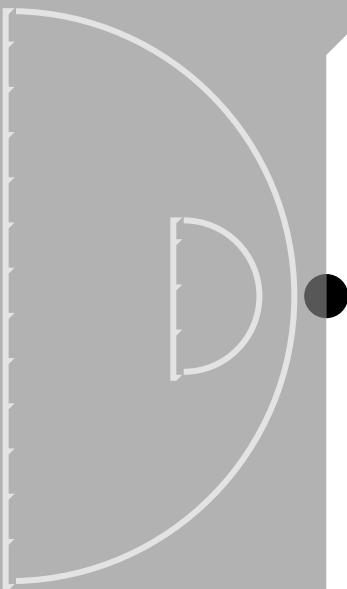
3,175,024,547,687,960,000,000 metric tonnes
1.0068 g_n
9.5560 km/s
731 km
14,627 km
26,172 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,071,678 km
1,071,678 km
1,071,678 km
56,844,176 km
56,844,176 km
56,844,176 km
6,989 km
13,047 km

Terraformed (year):
Population:

2405
280,000,000



Sturges
Orbit:
Period:

S/2164(Aphrodite)01
269,080 km
19.11 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

998 km
3,129,039 km²
1,846,133 km²
590,763 km²
1.303 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

37,465,080,522,442,000,000 metric tonnes
1.0219 g_n
3.1610 km/s
80 km
1,601 km
2,864 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

18,054 km
18,054 km
18,054 km
269,080 km
269,080 km
269,080 km
765 km
1,428 km

Terraformed (year):
Population:

2405
12,575,000

GEORGIA (HUANG LONG)

太阳

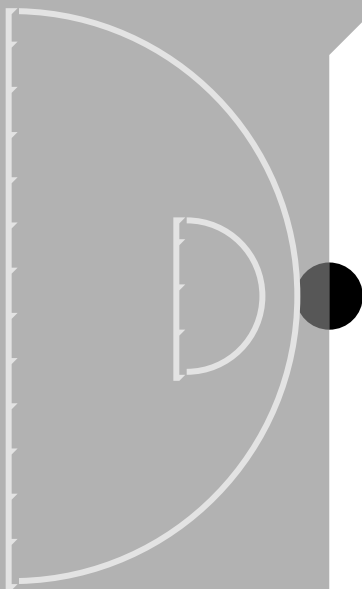
MURPHY

APHRODITE

卫星

HILL

S/2164(Aphrodite)02



Hill Orbit:
Period:

S/2164(Aphrodite)02
361,336 km
25.66 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,498 km
7,049,746 km²
3,736,366 km²
1,195,637 km²
1.596 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

83,839,148,265,505,300,000 metric tonnes
1.0150 g_n
3.8600 km/s
119 km
2,387 km
4,270 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

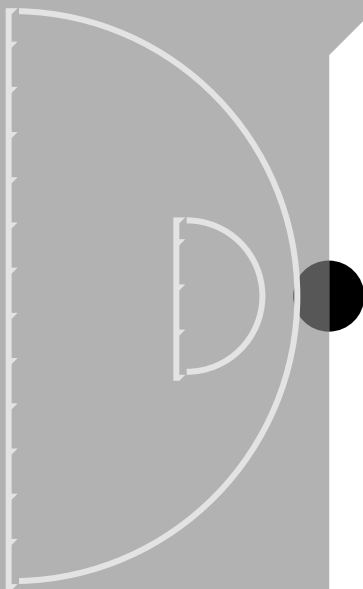
26,917 km
26,917 km
26,917 km
361,336 km
361,336 km
361,336 km
1,140 km
2,129 km

Terraformed (year):
Population:

2405
3,500,000

卫星

3.60



Thornley
Orbit:
Period:

S/2164(Aphrodite)03
422,840 km
30.03 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,586 km
7,902,350 km²
4,188,245 km²
1,340,238 km²
1.642 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

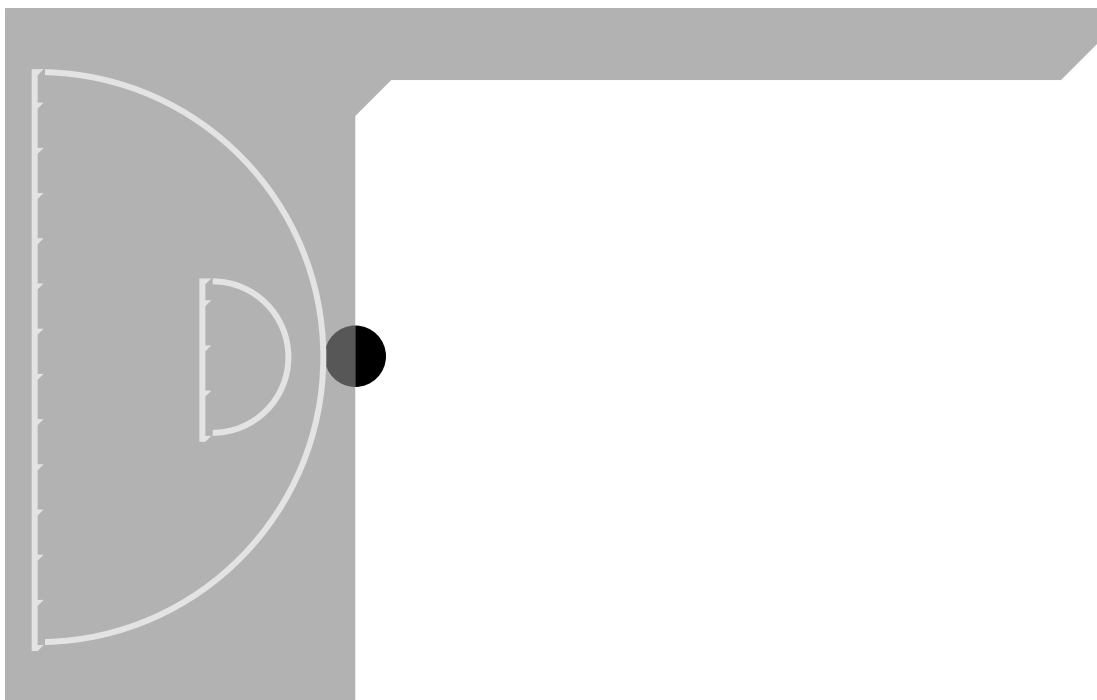
92,682,476,997,353,800,000 metric tonnes
1.0010 g_n
3.9440 km/s
125 km
2,492 km
4,459 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

28,105 km
28,105 km
28,105 km
422,840 km
422,840 km
422,840 km
1,191 km
2,223 km

Terraformed (year):
Population:

2405
2,750,000



Anton
Orbit:
Period:

S/2164(Aphrodite)04
480,500 km
34.13 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,379 km
5,974,181 km²
3,285,800 km²
1,051,456 km²
1.531 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

67,093,096,834,602,200,000 metric tonnes
0.9585 g_n
3.5990 km/s
104 km
2,075 km
3,712 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

23,399 km
23,399 km
23,399 km
480,500 km
480,500 km
480,500 km
991 km
1,850 km

Terraformed (year):
Population:

2405
7,500,000



Shadow
Orbit:
Period:

S/2037(Murphy)02
61,240,521 km - 0.409 AU
1,347.00 days - 3.69 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

10,973 km
378,268,895 km²
151,307,558 km²
48,418,419 km²
4.319 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

4,527,373,432,453,700,000,000 metric tonnes
1.0215 g_n
10.4810 km/s
880 km
17,594 km
31,480 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,289,026 km
1,289,026 km
1,289,026 km
61,240,521 km
61,240,521 km
61,240,521 km
8,407 km
15,692 km

Terraformed (year):
Population:

2404
13,300

GEORGIA (HUANG LONG)

太阳

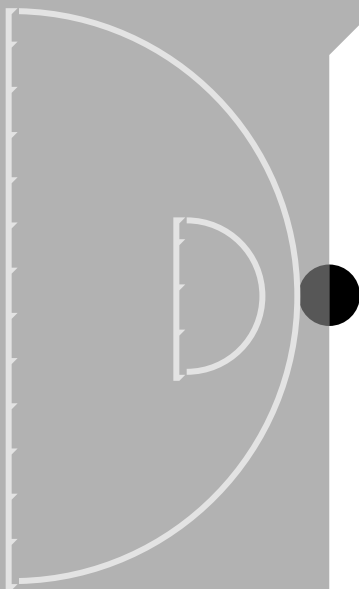
MURPHY

SHADOW

卫星

BRANSON'S MARK

S/2172(Shadow)01



Branson's Mark
Orbit: 129,389 km
Period: 9.19 days

Diameter: 1,397 km
Surface Area: 6,131,160 km²
Land Area: 3,310,827 km²
Arable Land: 1,059,465 km²
Horizon: 1.541 km

Mass: 70,443,656,349,801,200,000 metric tonnes
Surface Gravity: 0.9806 g_n
Escape Velocity: 3.6640 km/s
LEO (alt): 108 km
MEO (alt): 2,150 km
GEO (alt): 3,847 km

Hill Sphere (radius): 24,251 km
LaGrangian Points
L1: 24,251 km
L2: 24,251 km
L3 (+-180): 129,389 km
L4 (+60): 129,389 km
L5 (-60): 129,389 km
Inner Roche Limit: 1,027 km
Outer Roche Limit: 1,918 km

Terraformed (year): 2404
Population: 1,317

卫星

3.64

GEORGIA (HUANG LONG)

太阳

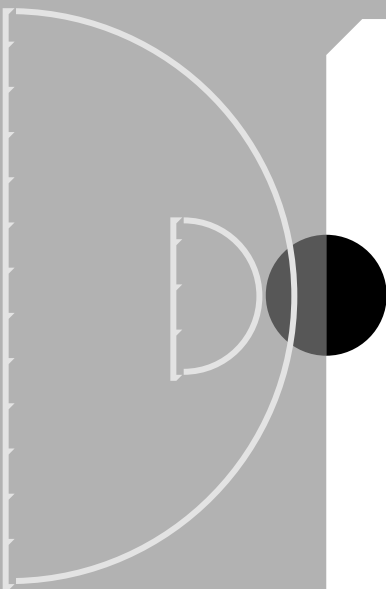
MURPHY

SHADOW

卫星

OSSOLAMBRIA

S/2172(Shadow)02



Ossolambria S/2172(Shadow)02
Orbit: 215,264 km
Period: 15.29 days

Diameter: 2,684 km
Surface Area: 22,631,581 km²
Land Area: 11,542,106 km²
Arable Land: 3,693,474 km²
Horizon: 2.136 km

Mass: 276,570,923,620,688,000,000 metric tonnes
Surface Gravity: 1.0430 g_n
Escape Velocity: 5.2380 km/s
LEO (alt): 220 km
MEO (alt): 4,394 km
GEO (alt): 7,862 km

Hill Sphere (radius): 49,558 km
LaGrangian Points
L1: 49,558 km
L2: 49,558 km
L3 (+-180): 215,264 km
L4 (+60): 215,264 km
L5 (-60): 215,264 km
Inner Roche Limit: 2,100 km
Outer Roche Limit: 3,919 km

Terraformed (year): 2404
Population: 38,450

卫星

3.65

GEORGIA (HUANG LONG)

太阳

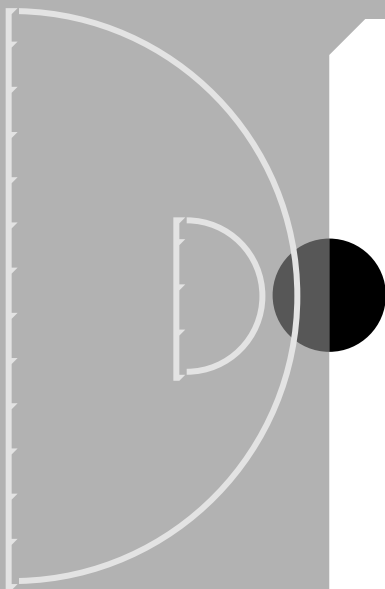
MURPHY

SHADOW

卫星

SUMMERFAIR

S/2172(Shadow)03



Summerfair
Orbit:
Period:

S/2172(Shadow)03
430,528 km
30.58 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,486 km
19,415,658 km²
9,901,986 km²
3,168,635 km²
2.056 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

225,782,331,125,789,000,000 metric tonnes
0.9925 g_n
4.9170 km/s
194 km
3,873 km
6,930 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

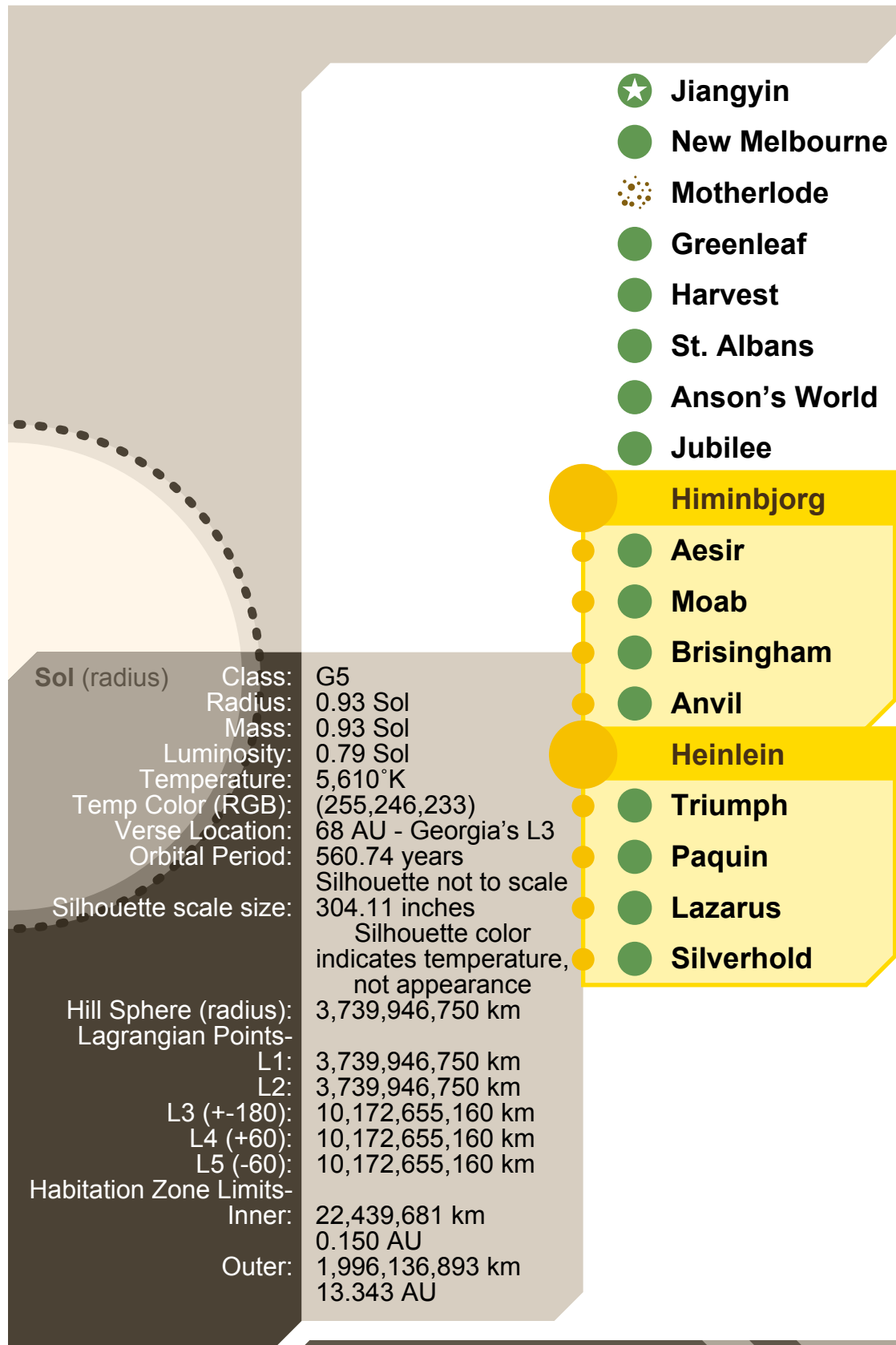
43,679 km
43,679 km
43,679 km
430,528 km
430,528 km
430,528 km
1,851 km
3,454 km

Terraformed (year):
Population:

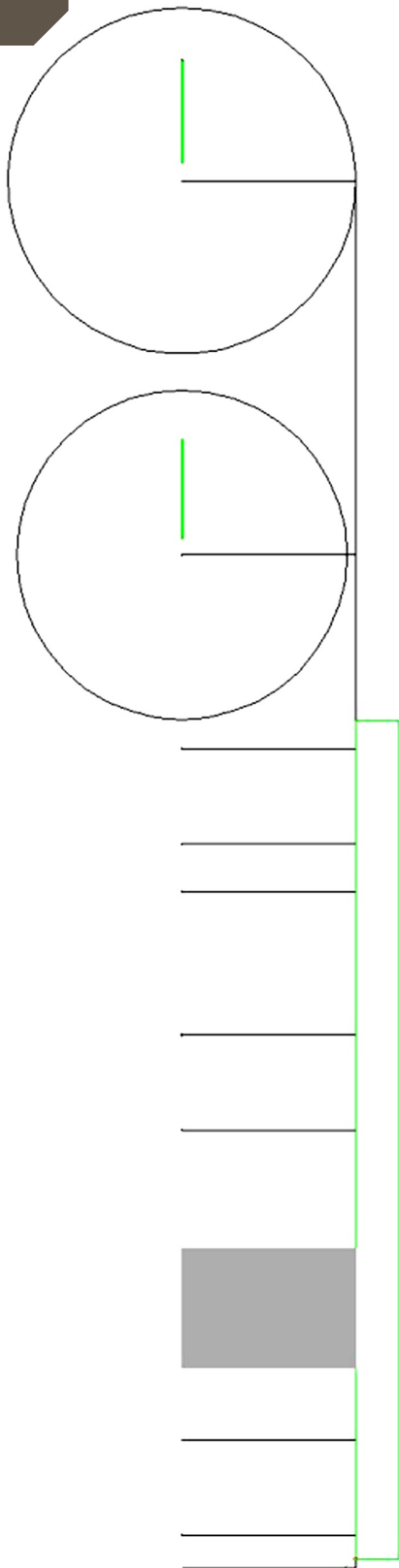
2404
167,000

卫星

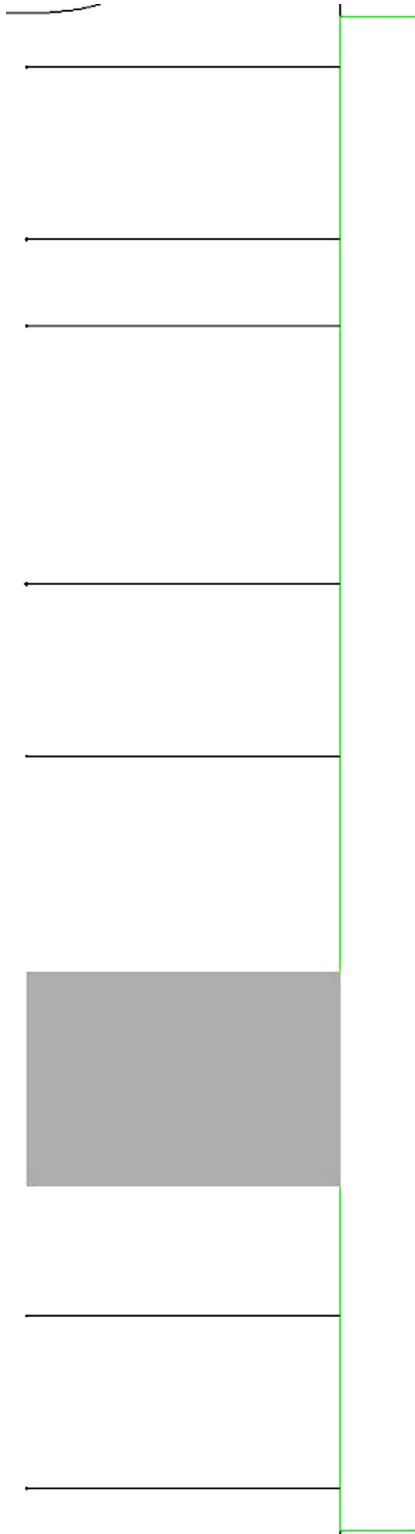
3.66

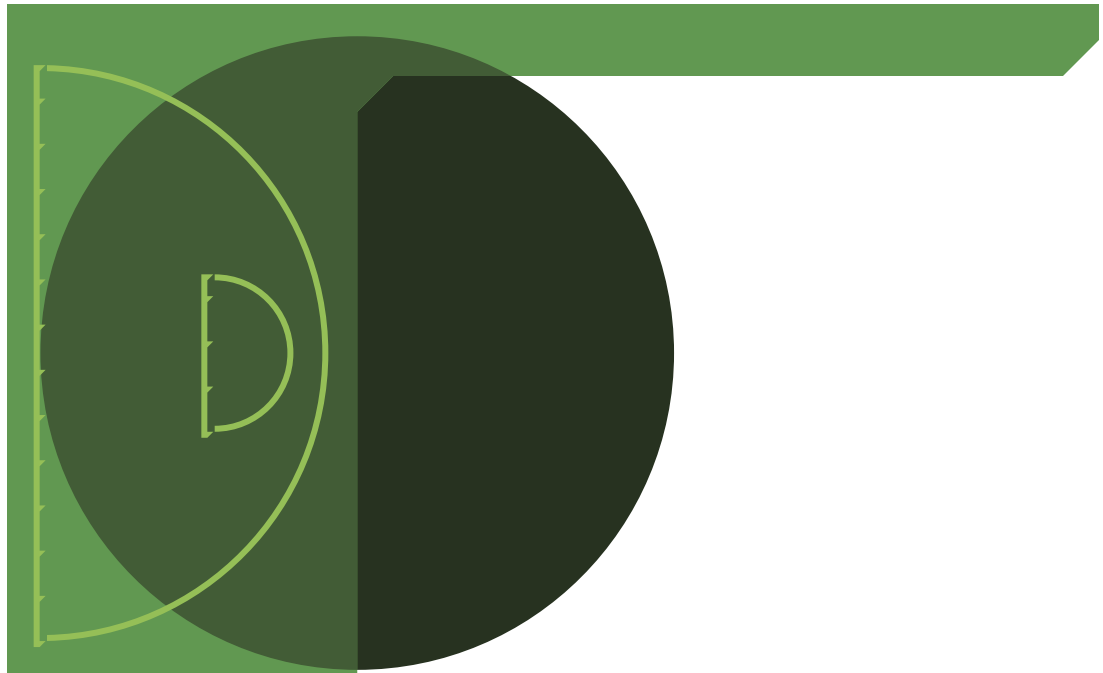


Red Sun Gravity Map. Red Sun is at extreme left. Gray rectangle is asteroid belt, Motherlode (no terraformed planets in an asteroid belt). Large circles are Hill Spheres of Himinbjorg and Heinlein.



Close-up of Red Sun's Habitation Zone.





Jiangyin
Orbit:
Period:

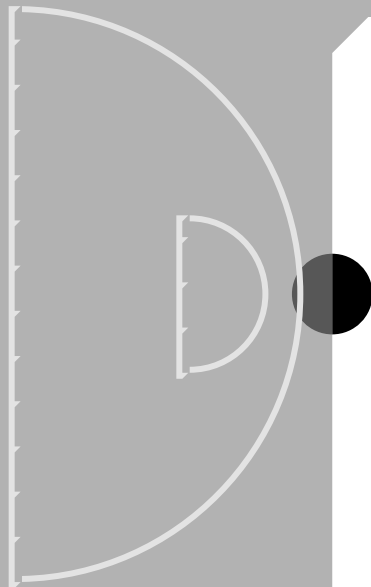
P/2027(RED SUN)03
78,538,882 km - 0.525 AU
139.00 days - 0.38 years

Diameter: 14,007 km
Surface Area: 616,368,066 km²
Land Area: 209,565,143 km²
Arable Land: 67,060,846 km²
Horizon: 4.880 km

Mass: 7,226,888,357,700,210,000,000 metric tonnes
Surface Gravity: 1.0007 g_n
Escape Velocity: 11.7200 km/s
LEO (alt): 1,100 km
MEO (alt): 22,001 km
GEO (alt): 39,366 km

Hill Sphere (radius): 1,611,933 km
LaGrangian Points
L1: 1,611,933 km
L2: 1,611,933 km
L3 (+-180): 78,538,882 km
L4 (+60): 78,538,882 km
L5 (-60): 78,538,882 km
Inner Roche Limit: 10,513 km
Outer Roche Limit: 19,624 km

Terraformed (year): 2280
Population: 1,400,000,000



Tongyi
Orbit:
Period:

S/2176(Jiangyin)01
128,121 km
9.10 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,793 km
10,099,746 km²
5,251,868 km²
1,680,598 km²
1.746 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

114,584,981,667,582,000,000 metric tonnes
0.9683 g_n
4.1250 km/s
136 km
2,725 km
4,876 km

Hill Sphere (radius):
LaGrangian Points

30,735 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

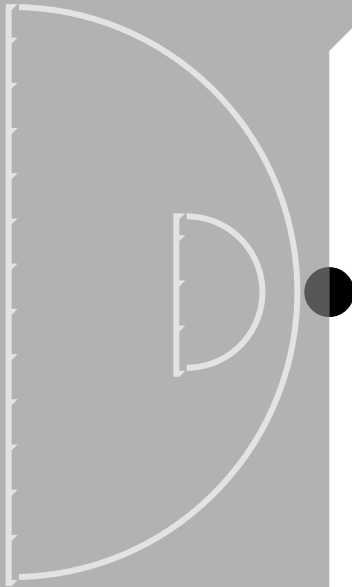
30,735 km
30,735 km
128,121 km
128,121 km
128,121 km

Inner Roche Limit
Outer Roche Limit

1,302 km
2,431 km

Terraformed (year):
Population:

2280
124,000,000



Dangun
Orbit:
Period:

S/2176(Jiangyin)02
257,548 km
18.29 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,123 km
3,961,954 km²
2,258,314 km²
722,660 km²
1.382 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

45,511,379,927,185,200,000 metric tonnes
0.9804 g_n
3.2850 km/s
86 km
1,728 km
3,092 km

Hill Sphere (radius):
LaGrangian Points

19,491 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

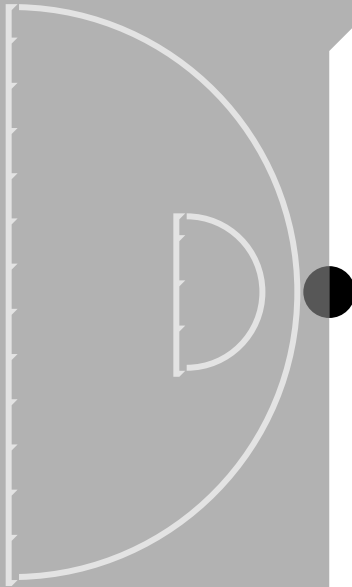
19,491 km
19,491 km
257,548 km
257,548 km
257,548 km

Inner Roche Limit
Outer Roche Limit

826 km
1,541 km

Terraformed (year):
Population:

2280
64,500,000



Rhilidore
Orbit:
Period:

S/2176(Jiangyin)03
403,620 km
28.67 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,158 km
4,212,763 km²
2,359,147 km²
754,927 km²
1.403 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

50,505,053,893,578,300,000 metric tonnes
1.0232 g_n
3.4080 km/s
93 km
1,860 km
3,328 km

Hill Sphere (radius):
LaGrangian Points

20,976 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

20,976 km
20,976 km
403,620 km
403,620 km
403,620 km

Inner Roche Limit
Outer Roche Limit

889 km
1,659 km

Terraformed (year):
Population:

2280
17,500,000



New Melbourne
Orbit:
Period:

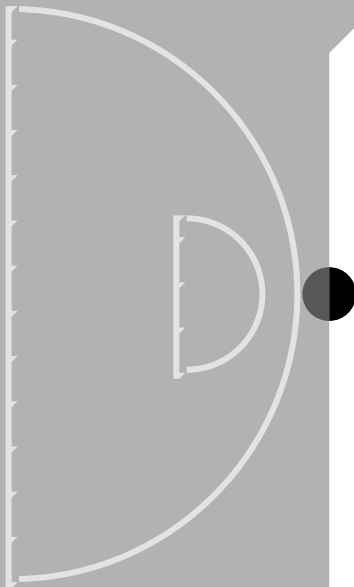
P/2029(Red Sun)07
302,935,687 km - 2.025 AU
1,053.00 days - 2.88 years

Diameter: 9,713 km
Surface Area: 296,385,293 km²
Land Area: 88,915,588 km²
Arable Land: 28,452,988 km²
Horizon: 4.064 km

Mass: 3,502,885,865,403,750,000,000 metric tonnes
Surface Gravity: 1.0087 g_n
Escape Velocity: 9.7990 km/s
LEO (alt): 769 km
MEO (alt): 15,378 km
GEO (alt): 27,516 km

Hill Sphere (radius): 1,126,713 km
LaGrangian Points
L1: 1,126,713 km
L2: 1,126,713 km
L3 (+-180): 302,935,687 km
L4 (+60): 302,935,687 km
L5 (-60): 302,935,687 km
Inner Roche Limit: 7,348 km
Outer Roche Limit: 13,717 km

Terraformed (year): 2280
Population: 27,000,000



Maria
Orbit:
Period:

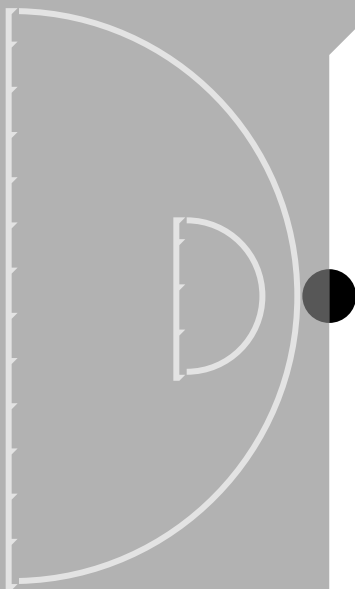
S/2173(New Melbourne)01
253,704 km
18.02 days

Diameter: 1,169 km
Surface Area: 4,293,178 km²
Land Area: 2,404,180 km²
Arable Land: 769,337 km²
Horizon: 1.410 km

Mass: 51,182,397,909,453,900,000 metric tonnes
Surface Gravity: 1.0175 g_n
Escape Velocity: 3.4140 km/s
LEO (alt): 93 km
MEO (alt): 1,867 km
GEO (alt): 3,341 km

Hill Sphere (radius): 21,057 km
LaGrangian Points
L1: 21,057 km
L2: 21,057 km
L3 (+-180): 253,704 km
L4 (+60): 253,704 km
L5 (-60): 253,704 km
Inner Roche Limit: 892 km
Outer Roche Limit: 1,665 km

Terraformed (year): 2280
Population: 26,000,000



Destiny
Orbit: 461,280 km
Period: 32.76 days

Diameter: 1,207 km
Surface Area: 4,576,826 km²
Land Area: 2,563,023 km²
Arable Land: 820,167 km²
Horizon: 1.432 km

Mass: 51,743,289,542,717,400,000 metric tonnes
Surface Gravity: 0.9649 g_n
Escape Velocity: 3.3780 km/s
LEO (alt): 91 km
MEO (alt): 1,828 km
GEO (alt): 3,271 km

Hill Sphere (radius): 20,617 km
LaGrangian Points
L1: 20,617 km
L2: 20,617 km
L3 (+-180): 461,280 km
L4 (+60): 461,280 km
L5 (-60): 461,280 km
Inner Roche Limit: 873 km
Outer Roche Limit: 1,630 km

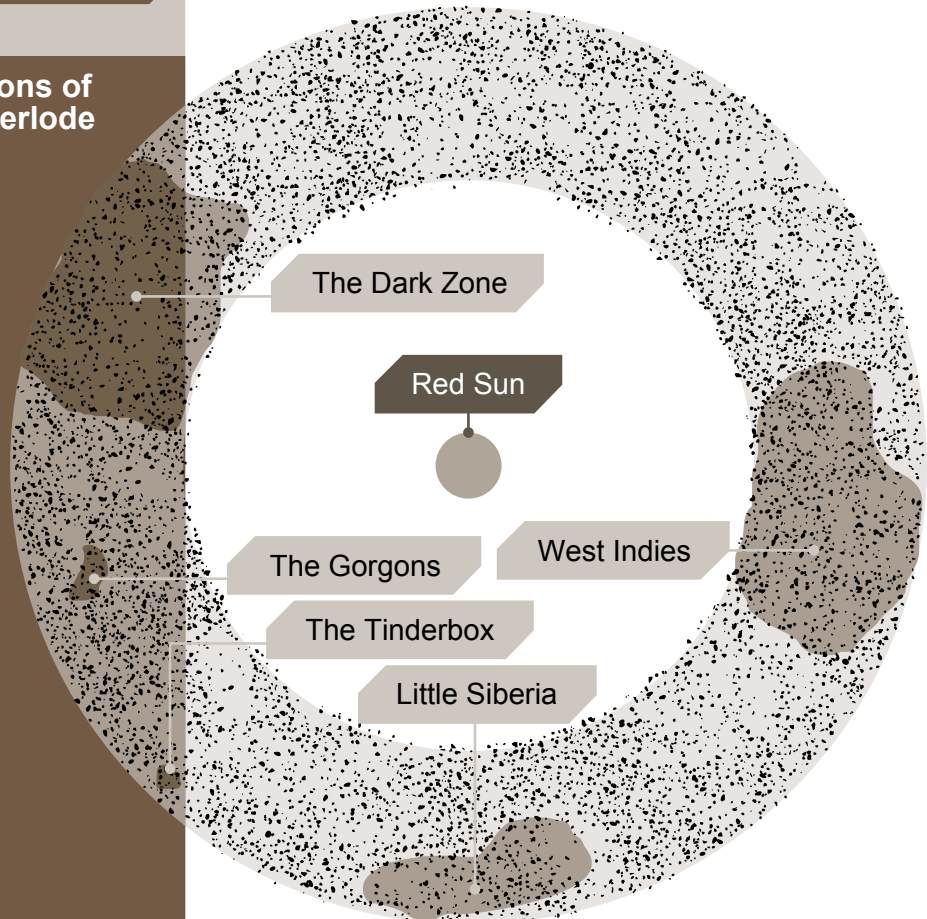
Terraformed (year): 2280
Population: 17,500,000

Motherlode
Primary:

Inner Boundary: 471,233,291km (3.150 AU)
Outer Boundary: 751,729,297km (5.025 AU)
Average Width: 280,496,006km (1.875 AU)
Number of
Cataloged objects: 476,915

Asteroid Belt
Red Sun

Note: Asteroid designation uses numbers & letters for cataloging objects (excluding i,l,o, and z).
Example: A/2227(Red Sun)mm02b The current numbering is able to catalog up to 33,554,432 different objects per year per region.

Regions of
Motherlode

REGION: Unspecified

Ankanseki	A/2262(Red Sun)2rva6
Backbreaker	A/2261(Red Sun)2gbdn
Bashful Sapphire	A/2262(Red Sun)30a4a
Blue Sun - Red 01	A/2264(Red Sun)5bd7v
Blue Sun - Red 02	A/2268(Red Sun)a88yg
Blue Sun - Red 03	A/2266(Red Sun)8q88b
Blue Sun - Red 04	A/2265(Red Sun)74t0k
Blue Sun - Red 05	A/2267(Red Sun)9gryd
Blue Sun - Red 06	A/2264(Red Sun)5be48
Blue Sun - Red 07	A/2264(Red Sun)5be4t
Blue Sun - Red 08	A/2264(Red Sun)610c9
Blue Sun - Red 09	A/2264(Red Sun)610cd
Blue Sun - Red 10	A/2264(Red Sun)610ch
Blue Sun - Red 11	A/2262(Red Sun)30b67
Blue Sun - Red 12	A/2265(Red Sun)74t0m
Blue Sun - Red 13	A/2263(Red Sun)45ng8
Blue Sun - Red 14	A/2262(Red Sun)30b68
Blue Sun - Red 15	A/2264(Red Sun)610cm
Blue Sun - Red 16	A/2261(Red Sun)2gbr1
Blue Sun - Red 17	A/2265(Red Sun)74v8r
Blue Sun - Red 18	A/2265(Red Sun)77gu0
Blue Sun - Red 19	A/2265(Red Sun)77hu1
Bourdier	A/2269(Red Sun)bt38v
Cathen	A/2262(Red Sun)30c52
Chameleon	A/2269(Red Sun)bt440
CMC 01	A/2267(Red Sun)9gt7a
CMC 02	A/2269(Red Sun)bu59q
CMC 03	A/2263(Red Sun)49cy3
CMC 04	A/2261(Red Sun)2gfa0
CMC 16	A/2269(Red Sun)bu706
CMC 17	A/2269(Red Sun)e00er
CMC 18	A/2268(Red Sun)a89hb
Deborah	A/2261(Red Sun)2n1q8
Easthollow	A/2268(Red Sun)ac7y7
Farigiss	A/2261(Red Sun)2n1q9
Fat Sal	A/2262(Red Sun)30d00
Goodwolf	A/2264(Red Sun)674r7
Hope's Rest	A/2265(Red Sun)7dx8p
Huffman-Purrrington	A/2261(Red Sun)2n1rf
Kayenta Mine	A/2267(Red Sun)9m04s
Kinza	A/2264(Red Sun)674r9
Lanier	A/2265(Red Sun)7dy4e
Lupus A	A/2262(Red Sun)3504a
Mayyadah	A/2268(Red Sun)aqj5x
Mund	A/2263(Red Sun)49eb9
Niflheim	A/2265(Red Sun)7dy4g
Orichalcum Horizon	A/2263(Red Sun)49gm7
Pipestem	A/2262(Red Sun)3504b
Prospector Station	A/2267(Red Sun)9ms77
Red Ruth 07	A/2263(Red Sun)49j7y
Robinson Run No.95	A/2266(Red Sun)8q88y

REGION: Unspecified

Romani 1	A/2266(Red Sun)8qa22
Romani2	A/2266(Red Sun)8qa23
Shems	A/2266(Red Sun)8w4pw
Stardust 12	A/2265(Red Sun)7e51w
Stoketown Station	A/2268(Red Sun)b2d4m
Sumra	A/2269(Red Sun)e068g
Survivor's Eye	A/2261(Red Sun)2n1rr
Thales	A/2267(Red Sun)9r50p
Three Little Boys: 1	A/2265(Red Sun)790a9
2	A/2265(Red Sun)790af
3	A/2265(Red Sun)790aq
Trask	A/2263(Red Sun)49h1b
Tong Xi Own	A/2264(Red Sun)679gt
Wamsutter	A/2261(Red Sun)2h112
YE-DOB 1119	A/2268(Red Sun)b2d77
Yuir Gagarin	A/2263(Red Sun)4a05a

REGION: The Dark Zone

Antwaris	A/2268(Red Sun)b2d8e
CMC N-1	A/2262(Red Sun)3506t
CMC N-2	A/2263(Red Sun)4a05m
Eve	A/2264(Red Sun)679gu
Hihujio	A/2261(Red Sun)2n27y
K4JE-475	A/2266(Red Sun)8wgmf
Le Cratere de la Tortue	A/2261(Red Sun)2n280
Mad Dog	A/2266(Red Sun)8wgmX
Marcus	A/2262(Red Sun)3507r
New Comstock	A/2269(Red Sun)e098g
Oxnard	A/2268(Red Sun)aa0fg
Ra'Sahra	A/2265(Red Sun)7e56q
Raphael	A/2265(Red Sun)7e56t
Roman	A/2268(Red Sun)b0138
S-Bar Ranch	A/2267(Red Sun)a14yt
Vortis M	A/2263(Red Sun)4a06y

REGION: The Gorgons

Euryale: 1	A/2261(Red Sun)2p01u
2	A/2262(Red Sun)382ff
3	A/2267(Red Sun)a17d8
Medusa: 1	A/2262(Red Sun)382fg
2	A/2264(Red Sun)67fb5
3	A/2268(Red Sun)b2r0q
4	A/2269(Red Sun)e0cyr
Stheno: 1	A/2263(Red Sun)4a3u4
2	A/2265(Red Sun)7e8s4
3	A/2269(Red Sun)e0f05

REGION: Little Siberia

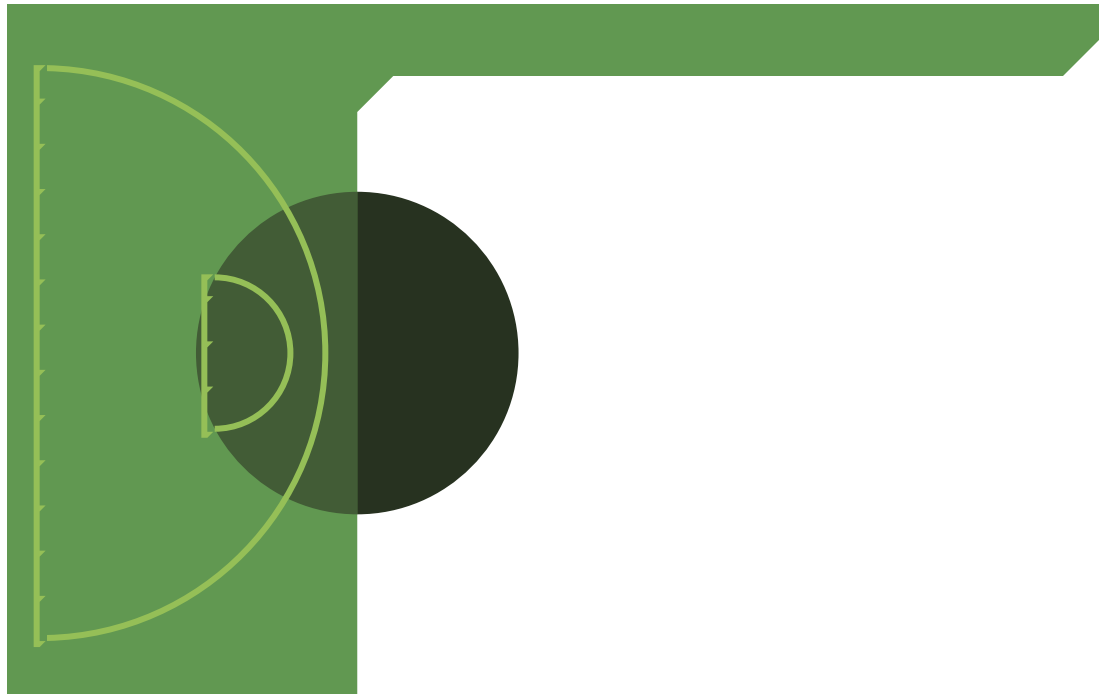
Bix	A/2264(Red Sun)561r7
CMC 05	A/2266(Red Sun)8at8r
CMC 06	A/2264(Red Sun)561rh
CMC 07	A/2262(Red Sun)2rg40
CMC 08	A/2269(Red Sun)bd9ut
CMC 09	A/2267(Red Sun)9cynf
CMC 10	A/2265(Red Sun)72rs2
CMC 11	A/2263(Red Sun)452um
CMC 12	A/2261(Red Sun)2egvf
CMC 13	A/2264(Red Sun)561sy
CMC 14	A/2267(Red Sun)9g568
CMC 15	A/2266(Red Sun)8aw7v
Gogol	A/2263(Red Sun)45bby
Muramets: 1	A/2262(Red Sun)2rv00
2	A/2265(Red Sun)72st1
Park Pobiyedi: 1	A/2264(Red Sun)5bd0r
2	A/2265(Red Sun)74qr5
3	A/2267(Red Sun)9gab4
4	A/2267(Red Sun)9geg3
Pryeispodnyaya Moe	A/2261(Red Sun)2g37r
TY	A/2269(Red Sun)bt38s

REGION: The Tinderbox

Grooble	A/2263(Red Sun)49m05
LC-JC	A/2262(Red Sun)31a14
Lector-Ramses	A/2266(Red Sun)8ba42
Nickel & Dime	A/2263(Red Sun)46006
Shift	A/2266(Red Sun)8b103
Solo	A/2263(Red Sun)47b12

REGION: West Indies

Brand	A/2264(Red Sun)610yt
CMC 19	A/2266(Red Sun)8q88n
CMC 20	A/2262(Red Sun)30c77
CMC 21	A/2268(Red Sun)a90g2
CMC 22	A/2265(Red Sun)7dwh7
CMC 23	A/2261(Red Sun)2gfa8
CMC 24	A/2269(Red Sun)e0378
CMC 25	A/2263(Red Sun)45yb1
Crowsnest	A/2265(Red Sun)7dx8n
Le Chain de Garde	A/2264(Red Sun)67gh4
Little Lucifer	A/2264(Red Sun)679gg
Madden	A/2266(Red Sun)8wgy2
New Mercury	A/2267(Red Sun)9ma62
Potter's Pitfall	A/2267(Red Sun)a19b3
Sadeema	A/2265(Red Sun)7e8v6
Sevda	A/2267(Red Sun)9mw8n
Tradewinds - 1	A/2262(Red Sun)382rm
Tradewinds - 2	A/2268(Red Sun)b2r0m



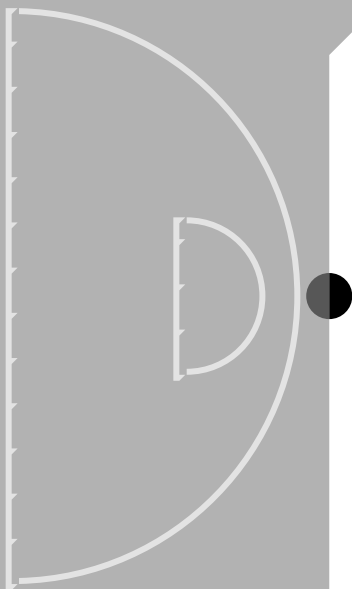
Greenleaf
Orbit: 1,032,225,303 km - 6.900 AU
Period: 6,620.00 days - 18.12 years

Diameter: 7,139 km
Surface Area: 160,112,278 km²
Land Area: 62,443,788 km²
Arable Land: 19,982,012 km²
Horizon: 3.484 km

Mass: 1,856,861,031,060,110,000,000 metric tonnes
Surface Gravity: 0.9898 g_n
Escape Velocity: 8.3220 km/s
LEO (alt): 555 km
MEO (alt): 11,091 km
GEO (alt): 19,845 km

Hill Sphere (radius): 812,611 km
LaGrangian Points
L1: 812,611 km
L2: 812,611 km
L3 (+-180): 1,032,225,303 km
L4 (+60): 1,032,225,303 km
L5 (-60): 1,032,225,303 km
Inner Roche Limit: 5,300 km
Outer Roche Limit: 9,893 km

Terraformed (year): 2281
Population: 220,000,000



Dyton
Orbit:
Period:

S/2172(Greenleaf)01
118,395 km
8.41 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,040 km
3,397,947 km²
1,936,830 km²
619,785 km²
1.330 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

41,214,319,220,220,000,000 metric tonnes
1.0352 g_n
3.2480 km/s
84 km
1,690 km
3,024 km

Hill Sphere (radius):
LaGrangian Points

19,059 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

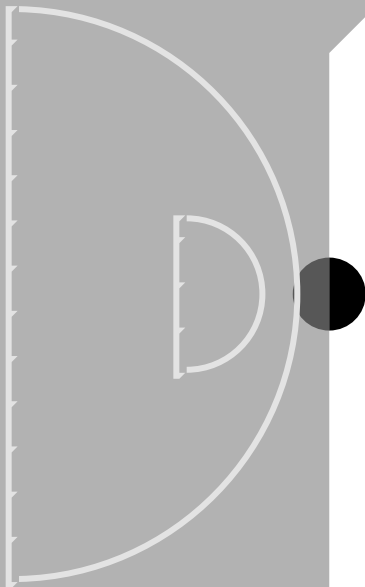
19,059 km
19,059 km
118,395 km
118,395 km
118,395 km

Inner Roche Limit
Outer Roche Limit

807 km
1,507 km

Terraformed (year):
Population:

2281
6,000,000



Agyar
Orbit:
Period:

S/2172(Greenleaf)02
203,732 km
14.47 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,598 km
8,022,384 km²
4,171,639 km²
1,334,925 km²
1.648 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

96,496,597,110,796,000,000 metric tonnes
1.0266 g_n
4.01 km/s
129 km
2,575 km
4,607 km

Hill Sphere (radius):
LaGrangian Points

29,042 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

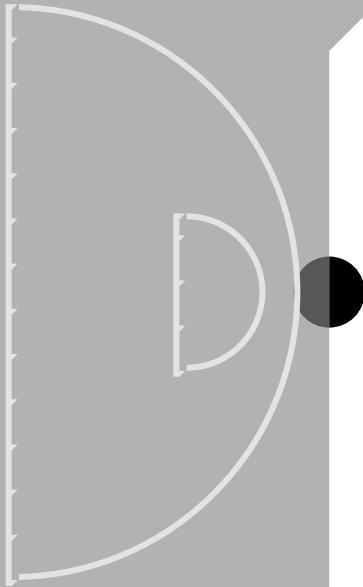
29,042 km
29,042km
203,732 km
203,732 km
203,732 km

Inner Roche Limit
Outer Roche Limit

1,230 km
2,297 km

Terraformed (year):
Population:

2281
2,000,000



Bryson's Rock
Orbit: 365,180 km
Period: 25.94 days

S/2172(Greenleaf)03

Diameter: 1,573 km
Surface Area: 7,773,334 km²
Land Area: 4,119,867 km²
Arable Land: 1,318,357 km²
Horizon: 1.635 km

Mass: 95,113,006,945,592,400,000 metric tonnes
Surface Gravity: 1.0443 g_n
Escape Velocity: 4.0120 km/s
LEO (alt): 129 km
MEO (alt): 2,578 km
GEO (alt): 4,613 km

Hill Sphere (radius): 29,080 km
LaGrangian Points
L1: 29,080 km
L2: 29,080 km
L3 (+-180): 365,180 km
L4 (+60): 365,180 km
L5 (-60): 365,180 km
Inner Roche Limit: 1,232 km
Outer Roche Limit: 2,300 km

Terraformed (year): 2281
Population: 1,750,000

Note: Harvest has become known as the Verse' Breadbasket, producing more natural and manufactured foodstuffs than any other world.

Harvest
Orbit: 1,256,622,108 km - 8.400 AU
Period: 8,892.00 days - 24.35 years

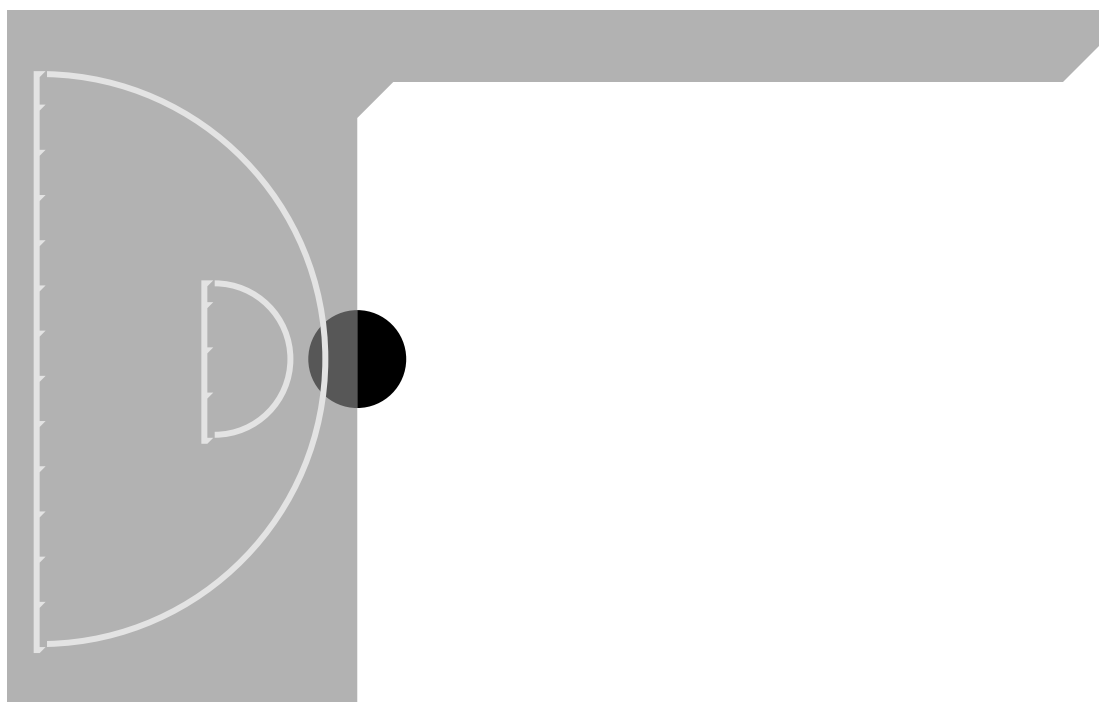
P/2030(RED SUN)08

Diameter: 17,984 km
Surface Area: 1,016,067,267 km²
Land Area: 406,426,907 km²
Arable Land: 130,056,610 km²
Horizon: 5.529 km

Mass: 12,196,683,078,080,900,000,000 metric tonnes
Surface Gravity: 1.0245 g_n
Escape Velocity: 13.4370 km/s
LEO (alt): 1,446 km
MEO (alt): 28,919 km
GEO (alt): 51,746 km

Hill Sphere (radius): 2,118,830 km
LaGrangian Points
L1: 2,118,830 km
L2: 2,118,830 km
L3 (+-180): 1,256,622,108 km
L4 (+60): 1,256,622,108 km
L5 (-60): 1,256,622,108 km
Inner Roche Limit 13,818 km
Outer Roche Limit 25,794 km

Terraformed (year): 2251
Population: 66,000,000



Farraday
Orbit:
Period:

S/2174(Harvest)01
292,144 km
20.75 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,158 km
14,630,284 km²
7,461,445 km²
2,387,662 km²
1.915 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

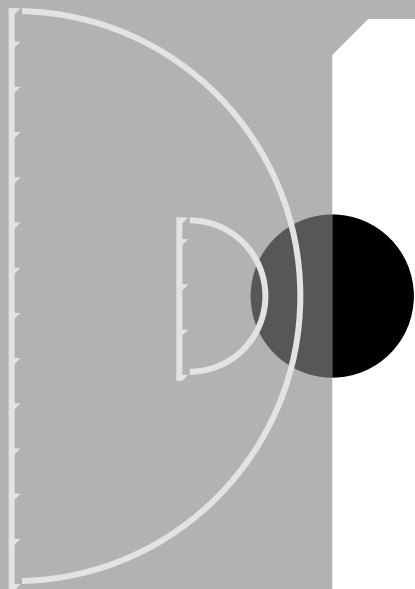
164,596,945,271,924,000,000 metric tonnes
0.9602 g_n
4.5060 km/s
163 km
3,252 km
5,820 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

36,682 km
36,682 km
36,682 km
292,144 km
292,144 km
292,144 km
1,554 km
2,901 km

Terraformed (year):
Population:

2251
200,000



Higgins' Moon
Orbit:
Period:

S/2178(Harvest)02
676,544 km
48.05 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

3,590 km
40,489,160 km²
20,244,580 km²
6,478,266 km²
2.470 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

465,719,987,117,389,000,000 metric tonnes
0.9817 g_n
5.8770 km/s
277 km
5,532 km
9,898 km

Hill Sphere (radius):
LaGrangian Points

62,391 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

62,391 km
62,391 km
676,544 km
676,544 km
676,544 km

Inner Roche Limit
Outer Roche Limit

2,643 km
4,934 km

Terraformed (year):
Population:

2251
640,000



St. Albans

Orbit:

Period:

P/2027(Red Sun)04

1,593,217,316 km - 10.650 AU

12,694.00 days - 34.76 years

Diameter:

12,500 km

Surface Area:

490,873,852 km²

Land Area:

157,079,633 km²

Arable Land:

50,265,482 km²

Horizon:

4.610 km

Mass:

5,883,156,390,004,560,000,000 metric tonnes

Surface Gravity:

1.0229 g_n

Escape Velocity:

11.1940 km/s

LEO (alt):

1,003 km

MEO (alt):

20,069 km

GEO (alt):

35,910 km

Hill Sphere (radius):

1,470,419 km

LaGrangian Points

L1:

1,470,419 km

L2:

1,470,419 km

L3 (+-180):

1,593,217,316 km

L4 (+60):

1,593,217,316 km

L5 (-60):

1,593,217,316 km

Inner Roche Limit

9,590 km

Outer Roche Limit

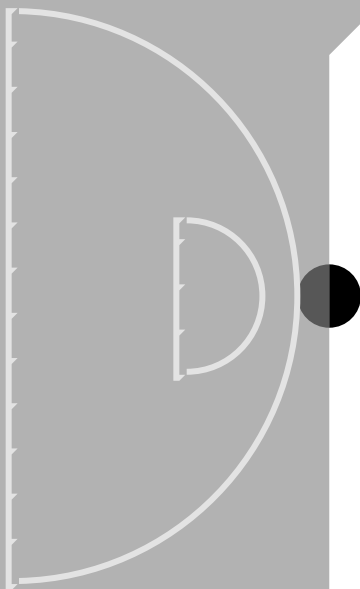
17,901 km

Terraformed (year):

2290

Population:

30,000,000



Pi Gu
Orbit:
Period:

S/2172(St. Albans)01
78,802 km
5.60 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,389 km
6,061,141 km²
3,333,627 km²
1,066,761 km²
1.537 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

71,201,538,916,637,700,000 metric tonnes
1.0026 g_n
3.6940 km/s
109 km
2,186 km
3,911 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

24,653 km
24,653 km
24,653 km
78,802 km
78,802 km
78,802 km
1,044 km
1,950 km

Terraformed (year):
Population:

2290
4,000,000



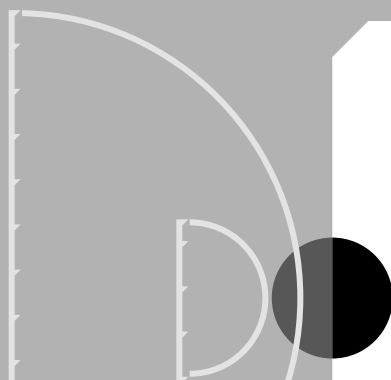
Anson's World
Orbit: 1,705,415,718 km - 11.400 AU
Period: 14,059.00 days - 38.49 years

Diameter: 13,802 km
Surface Area: 598,458,333 km²
Land Area: 191,506,667 km²
Arable Land: 61,282,133 km²
Horizon: 4.844 km

Mass: 7,066,682,654,732,440,000,000 metric tonnes
Surface Gravity: 1.0078 g_n
Escape Velocity: 11.6750 km/s
LEO (alt): 1,092 km
MEO (alt): 21,833 km
GEO (alt): 39,065 km

Hill Sphere (radius): 1,599,610 km
LaGrangian Points
L1: 1,599,610 km
L2: 1,599,610 km
L3 (+-180): 1,705,415,718 km
L4 (+60): 1,705,415,718 km
L5 (-60): 1,705,415,718 km
Inner Roche Limit: 10,432 km
Outer Roche Limit: 19,474 km

Terraformed (year): 2290
Population: 125,000,000



Spider
Orbit:
Period:

S/2176(Anson's World)02
180,668 km
12.83 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,707 km
23,021,117 km²
11,740,769 km²
3,757,046 km²
2.145 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

260,966,447,645,463,000,000 metric tonnes
0.9675 g_n
5.0660 km/s
206 km
4,111 km
7,356 km

Hill Sphere (radius):
LaGrangian Points

46,364 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

46,364 km
46,364 km
180,668 km
180,668 km
180,668 km

Inner Roche Limit
Outer Roche Limit

1,964 km
3,667 km

Terraformed (year):
Population:

2290
40,000,000



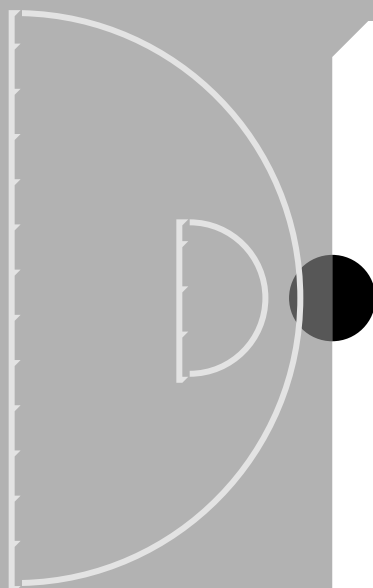
Varley
Orbit: S/2174(Anson's World)01
Period: 303,676 km
21.57 days

Diameter: 2,390 km
Surface Area: 17,945,091 km²
Land Area: 9,151,997 km²
Arable Land: 2,928,639 km²
Horizon: 2.016 km

Mass: 206,536,652,867,281,000,000 metric tonnes
Surface Gravity: 0.9823 g_n
Escape Velocity: 4.7970 km/s
LEO (alt): 184 km
MEO (alt): 3,685 km
GEO (alt): 6,594 km

Hill Sphere (radius): 41,561 km
LaGrangian Points
L1: 41,561 km
L2: 41,561 km
L3 (+-180): 303,676 km
L4 (+60): 303,676 km
L5 (-60): 303,676 km
Inner Roche Limit 1,761 km
Outer Roche Limit 3,287 km

Terraformed (year): 2290
Population: 33,500,000



Steele
Orbit:
Period:

S/2176(Anson's World)03
538,160 km
38.22 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,896 km
11,293,448 km²
5,872,593 km²
1,879,230 km²
1.795 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

131,555,077,092,390,000,000 metric tonnes
0.9942 g_n
4.2980 km/s
148 km
2,959 km
5,294 km

Hill Sphere (radius):
LaGrangian Points

33,370 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

33,370 km
33,370 km
538,160 km
538,160 km
538,160 km

Inner Roche Limit
Outer Roche Limit

1,414 km
2,639 km

Terraformed (year):
Population:

2290
21,575,000



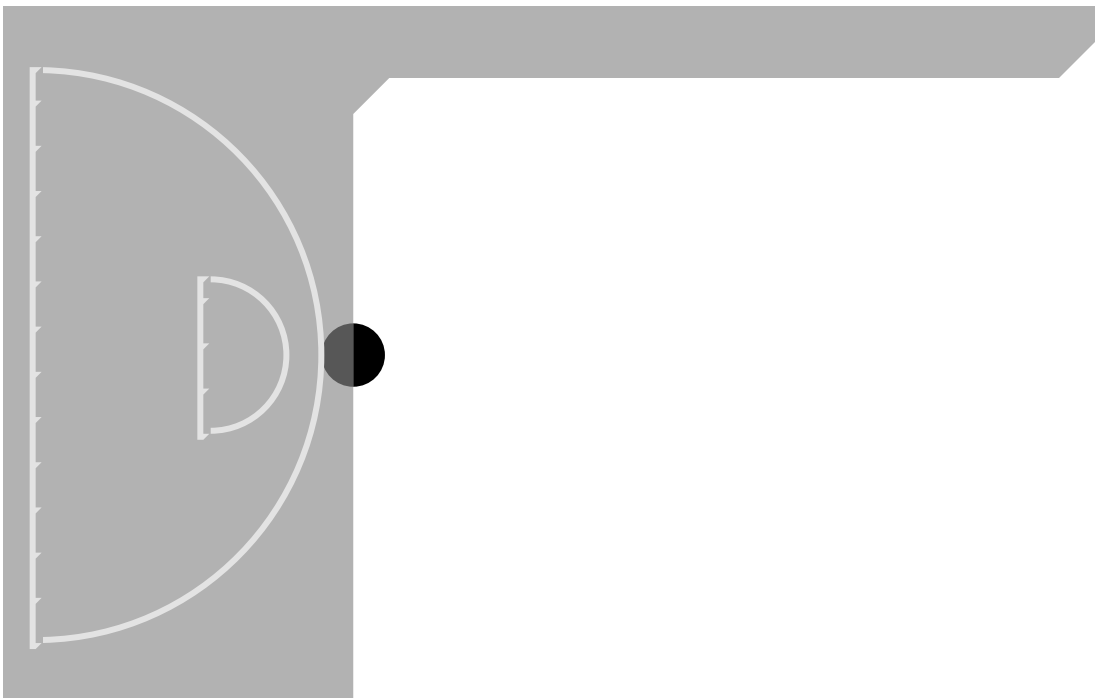
Jubilee
Orbit: 1,929,812,523 km - 12.900 AU
Period: 16,923.00 days - 46.33 years

Diameter: 11,952 km
Surface Area: 448,777,466 km²
Land Area: 161,559,888 km²
Arable Land: 51,699,164 km²
Horizon: 4.508 km

Mass: 5,310,271,546,461,120,000,000 metric tonnes
Surface Gravity: 1.0099 g_n
Escape Velocity: 10.8760 km/s
LEO (alt): 947 km
MEO (alt): 18,946 km
GEO (alt): 33,900 km

Hill Sphere (radius): 1,388,087 km
LaGrangian Points
L1: 1,388,087 km
L2: 1,388,087 km
L3 (+-180): 1,929,812,523 km
L4 (+60): 1,929,812,523 km
L5 (-60): 1,929,812,523 km
Inner Roche Limit 9,053 km
Outer Roche Limit 16,898 km

Terraformed (year): Scheduled
Population: 5,000



Covenant Orbit:
Period:

S/2173(Jubilee)01
261,392 km
18.56 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,421 km
6,343,633 km²
3,425,562 km²
1,096,180 km²
1.554 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

74,512,601,387,205,500,000 metric tonnes
1.0025 g_n
3.7360 km/s
112 km
2,236 km
4,001 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

25,219 km
25,219 km
25,219 km
261,392 km
261,392 km
261,392 km
1,068 km
1,994 km

Terraformed (year):
Population:

Scheduled
5,000

- Aesir
- Moab
- Brisingham
- Anvil

Himinbjorg
(Protostar)

Sol (radius)

Himinbjorg
(Brown Dwarf)

Class: Artificial Star
Helioformed: 2259
Radius: 0.38 Sol - Brown Dwarf (124.26 inches scale)
Radius: 0.23 Sol - Protostar (74.56 inches scale)
Mass: 0.38 Sol
Orbit: 2,386,536,204 km (15.953 AU)
Period (years): 63.72

Hill Sphere (radius): 387,399,311 km

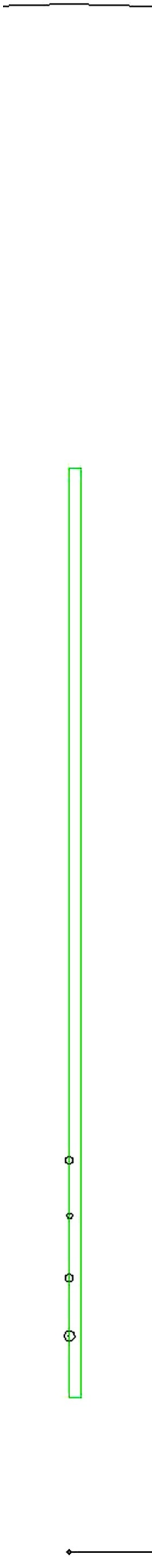
Lagrangian Points

L1: 387,399,311 km
L2: 387,399,311 km
L3 (+-180): 2,386,536,204 km
L4 (+60): 2,386,536,204 km
L5 (-60): 2,386,536,204 km

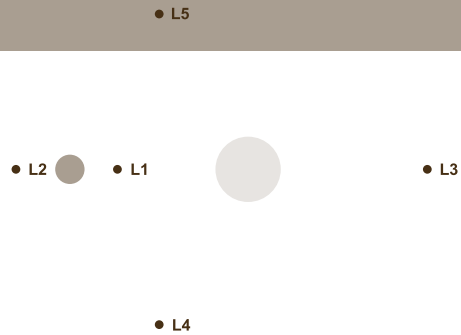
Habitation Zone Limits:

Inner: 38,739,931 km
Outer: 271,179,517 km

Diagram of the gravity limit and habitation zone for the protostar, Himinbjorg. The tiny circle on the left is Himinbjorg. The blank area between Himinbjorg and the green rectangle is the area of space where the protostar's heat makes terraforming impossible. The green rectangle is Himinbjorg's habitation zone. The arc on the right is the limit of Himinbjorg's Hill Sphere. The blank area to the right of the habitation zone is too cold to support terraformed planets. The tiny circles are the Hill Spheres of Aesir, Moab, Brisingamen, and Anvil. The actual planets and their moons are too small to be seen at this scale.



Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2225(Georgia)3b47ab**
The current numbering is able to catalog up to 33,554,432 objects per year per region.



REGION: L1

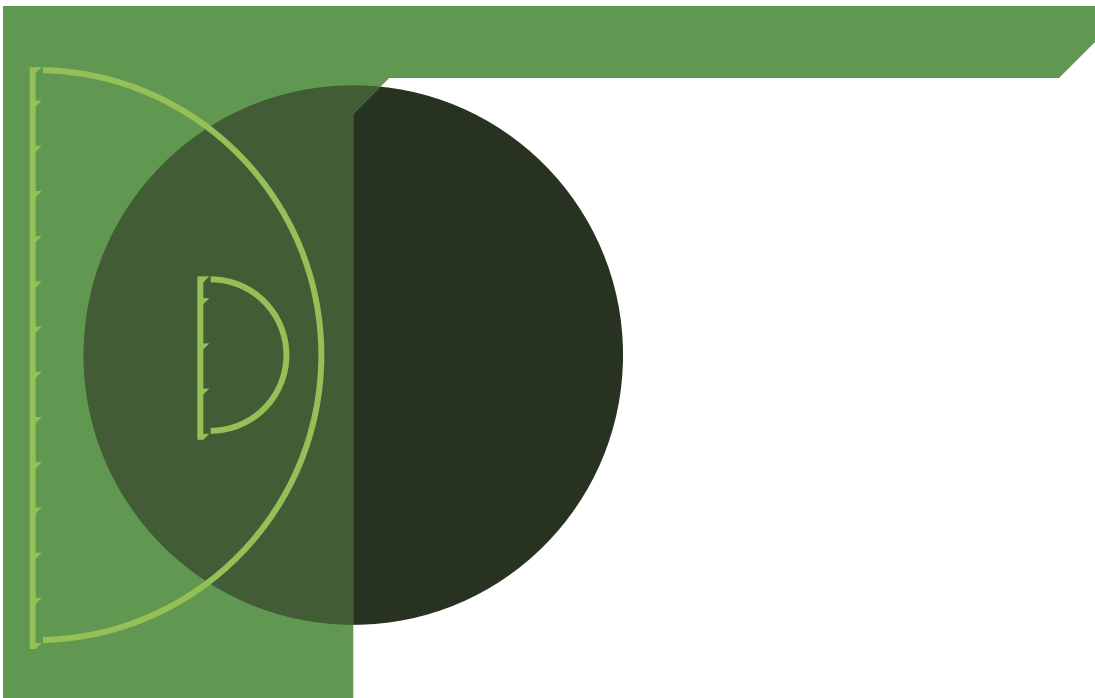
REGION: L2

REGION: L3 'The Peers'

Anseis	A/2274(Red Sun)g8qxu
Berenger	A/2274(Red Sun)g8q xv
Engeler	A/2274(Red Sun)g8qxw
Gerard	A/2274(Red Sun)g8qxx
Gerer	A/2274(Red Sun)g8qxy
Gerin	A/2274(Red Sun)g8qy0
Oliver	A/2274(Red Sun)g8qy1
Oton	A/2274(Red Sun)g8qy2
Roland	A/2274(Red Sun)g8qy3
Samson	A/2274(Red Sun)g8qy4
Yvoire	A/2274(Red Sun)g8qy5
Yvon	A/2275(Red Sun)k6m5b

REGION: L4

REGION: L5



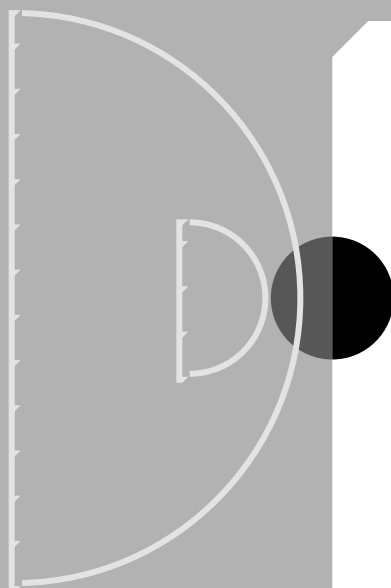
Aesir
Orbit: 54,158,342 km - 0.362 AU
Period: 1,191.00 days - 3.26 years

Diameter: 11,925 km
Surface Area: 446,752,147 km²
Land Area: 138,317,813 km²
Arable Land: 44,317,813 km²
Horizon: 4.502 km

Mass: 5,339,174,754,390,750,000,000 metric tonnes
Surface Gravity: 1.0200 g_n
Escape Velocity: 10.9180 km/s
LEO (alt): 955 km
MEO (alt): 19,092 km
GEO (alt): 34,161 km

Hill Sphere (radius): 1,398,803 km
LaGrangian Points
L1: 1,398,803 km
L2: 1,398,803 km
L3 (+-180): 54,158,342 km
L4 (+60): 54,158,342 km
L5 (-60): 54,158,342 km
Inner Roche Limit 9,123 km
Outer Roche Limit 17,029 km

Terraformed (year): 2295
Population: 110,000,000



Bestla
Orbit:
Period:

S/2172(Aesir)01
115,320 km
8.19 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,707 km
23,021,117 km²
11,740,769 km²
3,757,046 km²
2.145 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

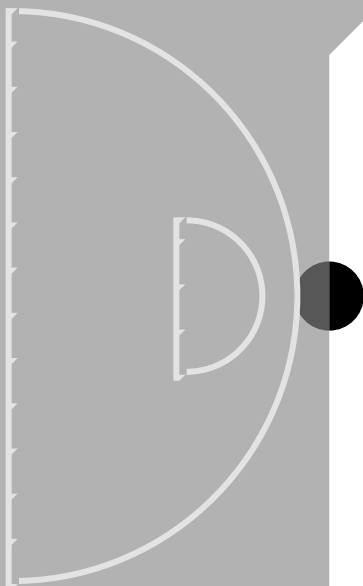
260,453,955,396,857,000,000 metric tonnes
0.9656 g_n
5.0610 km/s
205 km
4,103 km
7,341 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

46,273 km
46,273 km
46,273 km
115,320 km
115,320 km
115,320 km
1,960 km
3,659 km

Terraformed (year):
Population:

2295
18,500,000



Borr Orbit: S/2172(Aesir)02
Period: 234,484 km
 16.65 days

Diameter: 1,529 km
Surface Area: 7,344,544 km²
Land Area: 3,892,608 km²
Arable Land: 1,245,635 km²
Horizon: 1.612 km

Mass: 88,274,416,225,480,500,000 metric tonnes
Surface Gravity: 1.0258 g_n
Escape Velocity: 3.9210 km/s
LEO (alt): 123 km
MEO (alt): 2,462 km
GEO (alt): 4,405 km

Hill Sphere (radius): 27,766 km
LaGrangian Points
L1: 27,766 km
L2: 27,766 km
L3 (+-180): 234,484 km
L4 (+60): 234,484 km
L5 (-60): 234,484 km
Inner Roche Limit: 1,176 km
Outer Roche Limit: 2,196 km

Terraformed (year): 2295
Population: 790,000

RED SUN (ZHU QUE)

太阳

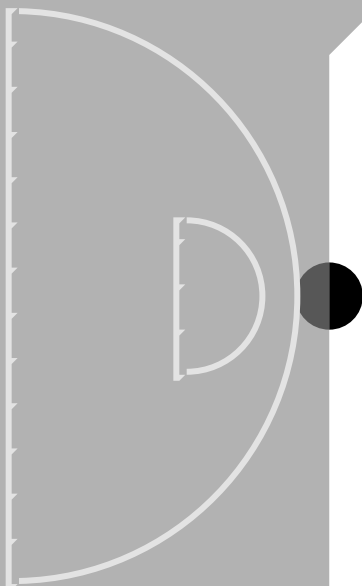
HIMINBJORG

AESIR

卫星

ODIN

S/2174(AESIR)03



Odin
Orbit:
Period:

S/2174(Aesir)03
353,648 km
25.12 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,472 km
6,807,153 km²
3,675,862 km²
1,176,276 km²
1.582 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

78,401,852,865,748,800,000 metric tonnes
0.9830 g_n
3.7660 km/s
114 km
2,271 km
4,064 km

Hill Sphere (radius):
LaGrangian Points

25,616 km

L1:
L2:
L3 (+180):
L4 (+60):
L5 (-60):

25,616 km
25,616 km
353,648 km
353,648 km
353,648 km

Inner Roche Limit
Outer Roche Limit

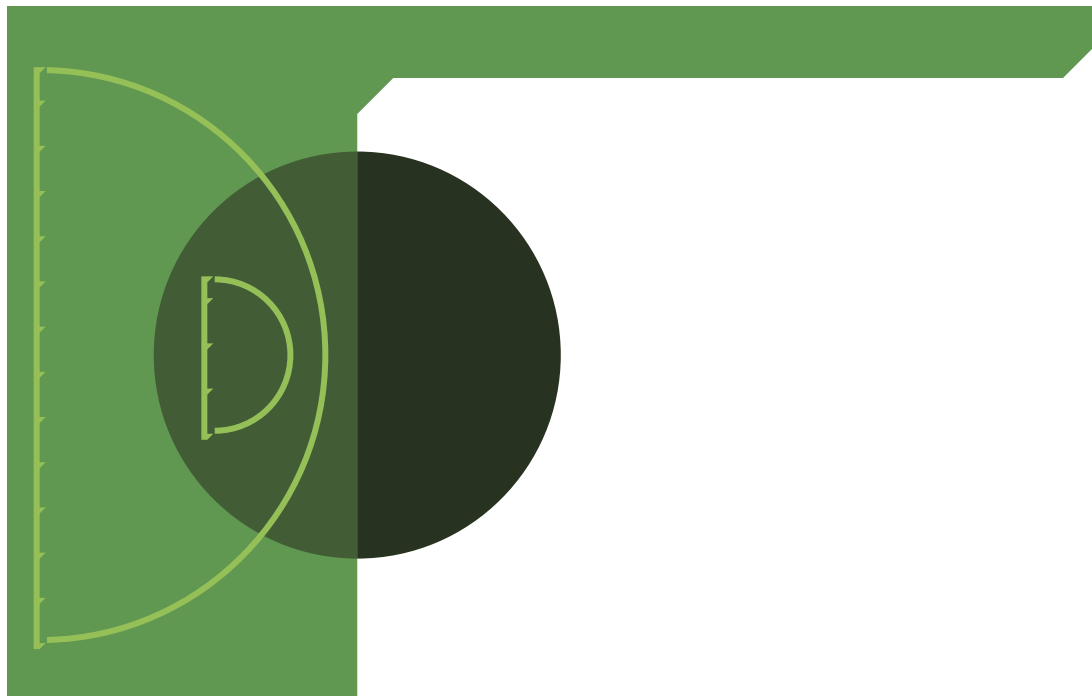
1,085 km
2,026 km

Terraformed (year):
Population:

2295
17,450,000

卫星

4.34



Moab
Orbit: 68,536,299 km - 0.458 AU
Period: 1,508.00 days - 4.13 years

S/2035(Himinbjorg)02

Diameter: 9,001 km
Surface Area: 254,525,557 km²
Land Area: 81,448,178 km²
Arable Land: 26,063,417 km²
Horizon: 3.912 km

Mass: 2,984,897,355,842,750,000,000 metric tonnes
Surface Gravity: 1.0009 g_n
Escape Velocity: 9.3960 km/s
LEO (alt): 707 km
MEO (alt): 14,141 km
GEO (alt): 25,302 km

Hill Sphere (radius): 1,036,047 km
LaGrangian Points
L1: 1,036,047 km
L2: 1,036,047 km
L3 (+-180): 68,536,299 km
L4 (+60): 68,536,299 km
L5 (-60): 68,536,299 km
Inner Roche Limit: 6,757 km
Outer Roche Limit: 12,613 km

Terraformed (year): Scheduled
Population: 5,000

RED SUN (ZHU QUE)

太阳

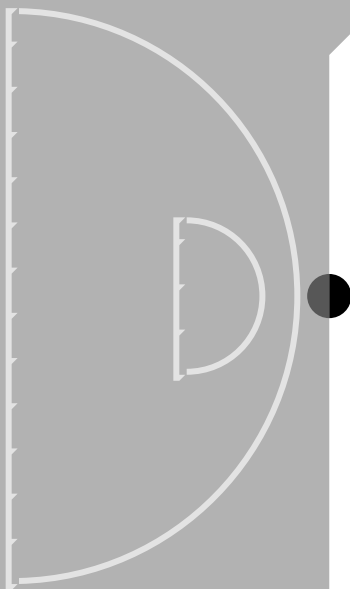
HIMINBJORAG

MOAB

卫星

RED ROCK

S/2175(MOAB)01



Red Rock
Orbit:
Period:

S/2175(Moab)01
80,724 km
5.73 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

975 km
2,986,477 km²
1,791,886 km²
573,403 km²
1.287 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

34,487,928,926,309,500,000 metric tonnes
0.9856 g_n
3.0690 km/s
75 km
1,508 km
2,699 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

17,012 km
17,012 km
17,012 km
80,724 km
80,724 km
80,724 km
721 km
1,345 km

Terraformed (year):
Population:

Scheduled
5,000

卫星

4.36

RED SUN (ZHU QUE)

太阳

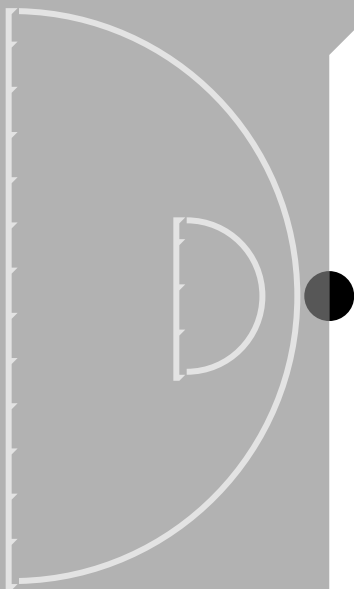
HIMINBJORAG

MOAB

卫星

MESA

S/2175(MOAB)02



Mesa Orbit:
Period:

S/2175(Moab)02
169,136 km
12.01 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,086 km
3,705,182 km²
2,111,954 km²
675,825 km²
1.359 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

43,199,981,951,164,500,000 metric tonnes
0.9951 g_n
3.2540 km/s
85 km
1,696 km
3,035 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

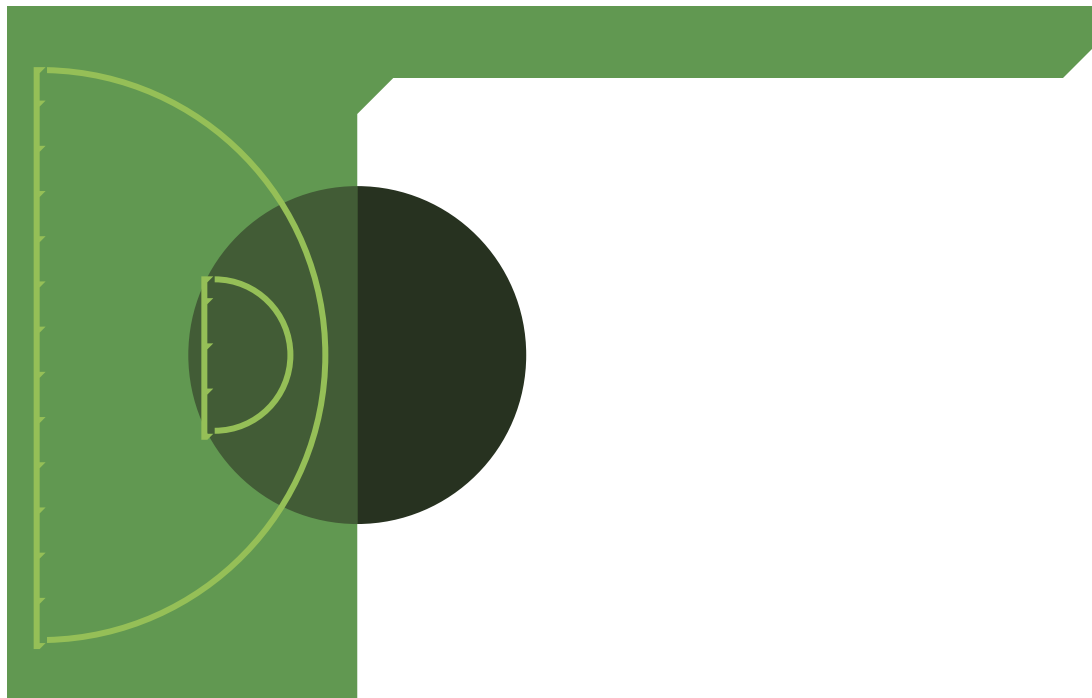
19,131 km
19,131 km
19,131 km
169,136 km
169,136 km
169,136 km
811 km
1,513 km

Terraformed (year):
Population:

Scheduled
5,000

卫星

4.37



Brisingamen
Orbit: 84,159,758 km - 0.563 AU
Period: 1,852.00 days - 5.07 years

S/2035(Himinbjorg)03

Diameter: 7,458 km
Surface Area: 174,740,925 km²
Land Area: 64,654,142 km²
Arable Land: 20,689,326 km²
Horizon: 3.561 km

Mass: 2,055,381,299,702,380,000,000 metric tonnes
Surface Gravity: 1.0039 g_n
Escape Velocity: 8.5660 km/s
LEO (alt): 588 km
MEO (alt): 11,752 km
GEO (alt): 21,028 km

Hill Sphere (radius): 861,015 km
LaGrangian Points
L1: 861,015 km
L2: 861,015 km
L3 (+-180): 84,159,758 km
L4 (+60): 84,159,758 km
L5 (-60): 84,159,758 km
Inner Roche Limit: 5,615 km
Outer Roche Limit: 10,482 km

Terraformed (year): 2300
Population: 74,500,000

RED SUN (ZHU QUE)

太阳

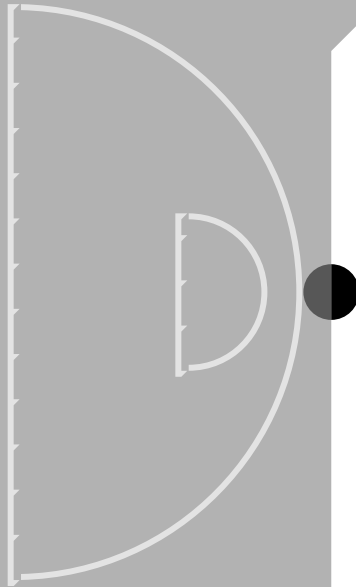
HIMINBJORG

BRISINGAMEN

卫星

FREYA

S/2172(BRISINGAMEN)01



Freya
Orbit:
Period:

S/2172(Brisingamen)01
57,660 km
4.10 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,236 km
4,799,399 km²
2,639,669 km²
844,694 km²
1.450 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

54,090,880,979,360,500,000 metric tonnes
0.9619 g_n
3.4130 km/s
93 km
1,866 km
3,339 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

21,047 km
21,047 km
21,047 km
57,660 km
57,660 km
57,660 km
892 km
1,664 km

Terraformed (year):
Population:

2300
2,541,000

卫星

4.39

RED SUN (ZHU QUE)

太阳

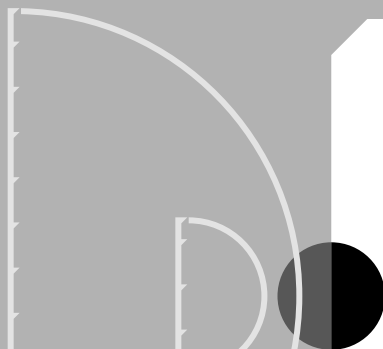
HIMINBJORG

BRISINGAMEN

卫星

ALBERICH

S/2173(BRISINGAMEN)03



Alberich
Orbit:
Period:

S/2173(Brisingamen)03
123,008 km
8.74 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,369 km
17,631,124 km²
8,991,873 km²
2,877,399 km²
2.007 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

203,274,269,252,062,000,000 metric tonnes
0.9840 g_n
4.7800 km/s
183 km
3,659 km
6,547 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

41,267 km
41,267 km
41,267 km
123,008 km
123,008 km
123,008 km
1,748 km
3,264 km

Terraformed (year):
Population:

2300
1,478,000

卫星

4.40

RED SUN (ZHU QUE)

太阳

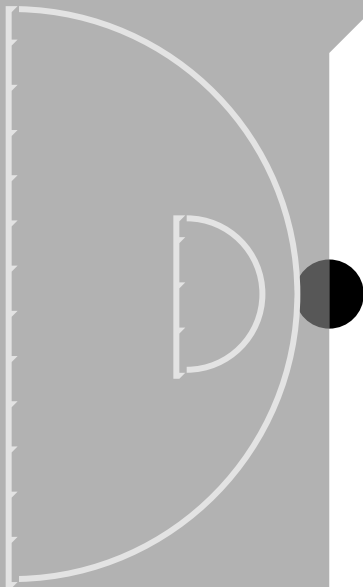
HIMINBJORAG

BRISINGAMEN

卫星

BEOWULF

S/2172(BRISINGAMEN)02



Beowulf Orbit:
Period:

S/2172(Brisingamen)02
226,796 km
16.11 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,478 km
6,862,759 km²
3,637,262 km²
1,163,924 km²
1.585 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

84,075,920,587,947,900,000 metric tonnes
1.0456 g_n
3.8920 km/s
121 km
2,426 km
4,340 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

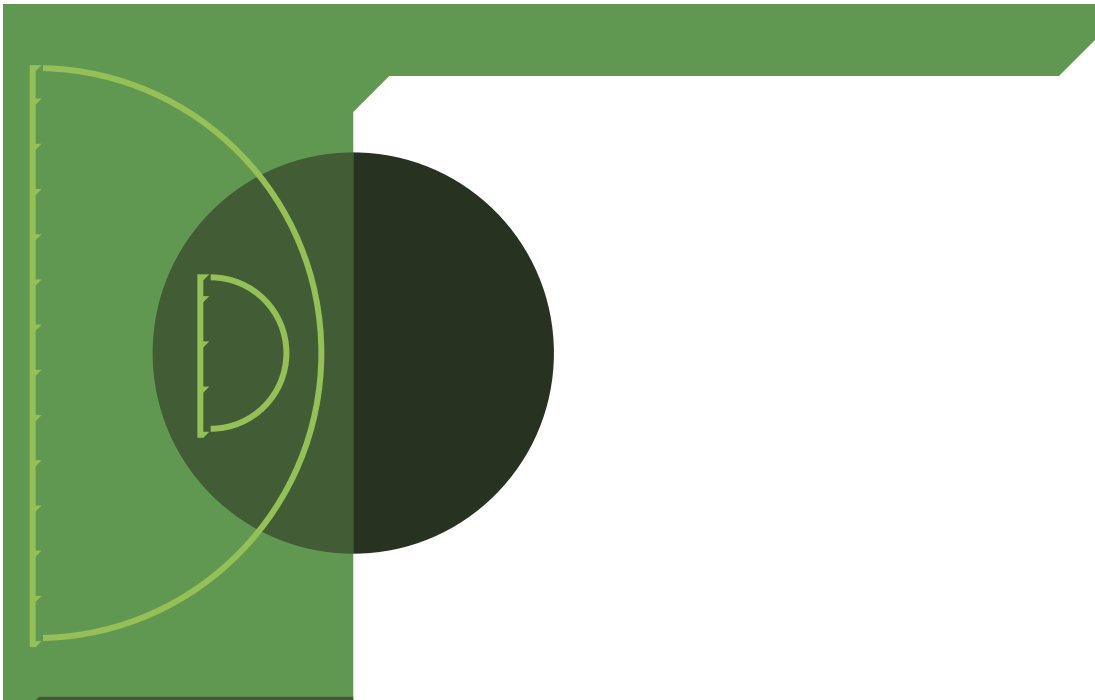
27,358 km
27,358 km
27,358 km
226,796 km
226,796 km
226,796 km
1,159 km
2,164 km

Terraformed (year):
Population:

2300
1,239,000

卫星

4.41



Anvil
Orbit:
Period:

S/2035(Himinbjorg)04
97,984,185 km - 0.655 AU
2,156.00 days - 5.90 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

8,880 km
247,728,404 km²
94,136,793 km²
30,123,774 km²
3.885 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

2,844,811,594,779,700,000,000 metric tonnes
0.9801 g_n
9.2350 km/s
683 km
13,661 km
24,443 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,000,878 km
1,000,878 km
1,000,878 km
97,984,185 km
97,984,185 km
97,984,185 km
6,527 km
12,185 km

Terraformed (year):
Population:

Scheduled
5,000

RED SUN (ZHU QUE)

太阳

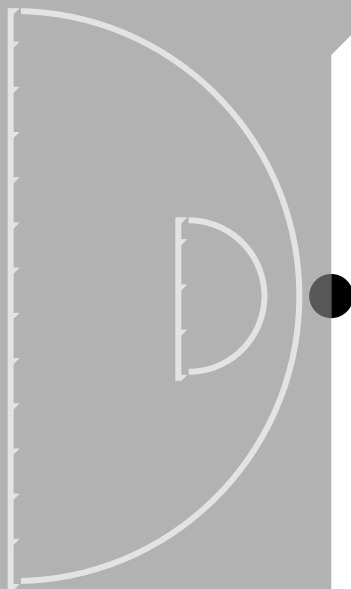
HIMINBJORAG

ANVIL

卫星

HAMMER

S/2174(Anvil)01



Hammer
Orbit:
Period:

S/2174(Anvil)01
138,384 km
9.83 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

972 km
2,968,126 km²
1,780,876 km²
569,880 km²
1.285 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

35,128,053,828,101,200,000 metric tonnes
1.0101 g_n
3.1020 km/s
77 km
1,541 km
2,757 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

17,381 km
17,381 km
17,381 km
138,384 km
138,384 km
138,384 km
736 km
1,375 km

Terraformed (year):
Population:

Scheduled
5,000

卫星

4.43

- Triumph
- Paquin
- Lazarus
- Silverhold

Heinlein
(Protostar)

Sol (radius)

Heinlein
(Brown Dwarf)

Class: Artificial Star
Helioformed: 2258
Radius: 0.40 Sol - Brown Dwarf (130.80 inches scale)
Radius: 0.24 Sol - Protostar (78.48 inches scale)
Mass: 0.40 Sol
Orbit: 3,267,621,342 km (21.843 AU)
Period (years): 102.08

Hill Sphere (radius): 407,788,748 km

Lagrangian Points

L1: 407,788,748 km
L2: 407,788,748 km
L3 (+-180): 3,267,621,342 km
L4 (+60): 3,267,621,342 km
L5 (-60): 3,267,621,342 km

Habitation Zone Limits:

Inner: 40,778,874 km
Outer: 285,452,118 km

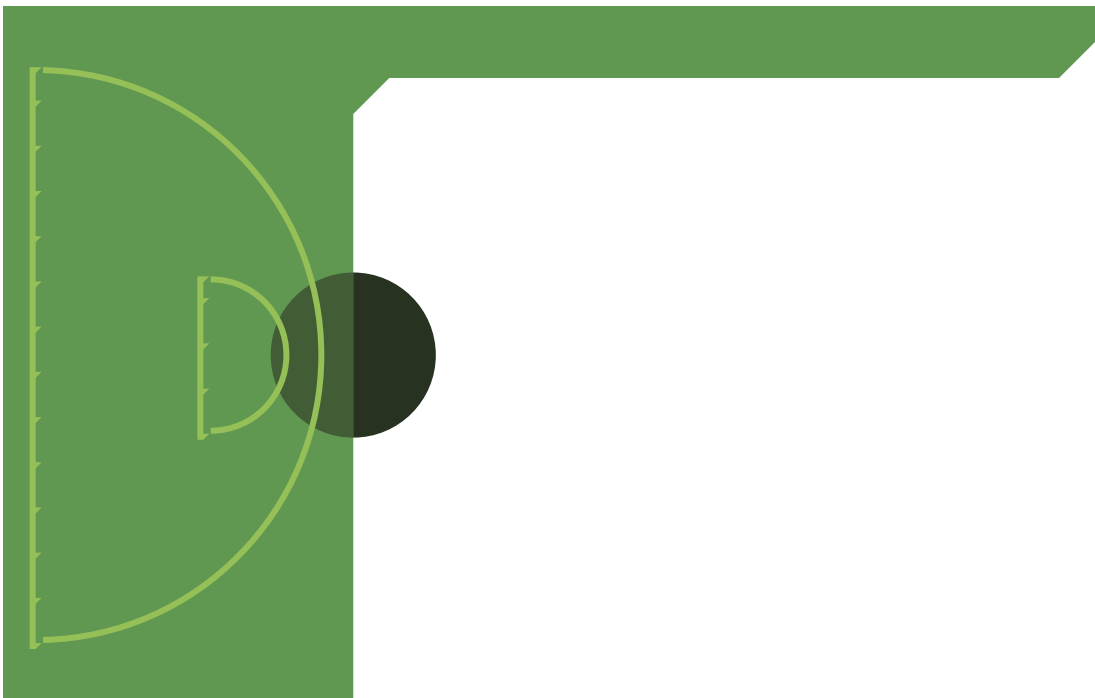
太阳

HEINLEIN

太阳

Diagram of the gravity limit and habitation zone for the protostar, Heinlein. The tiny circle on the left is Heinlein. The blank area between Heinlein and the green rectangle is the area of space where the protostar's heat makes terraforming impossible. The green rectangle is Heinlein's habitation zone. The arc on the right is the limit of Heinlein's Hill Sphere. The blank area to the right of the habitation zone is too cold to support terraformed planets. The tiny circles are the Hill Spheres of Triumph, Paquin, Lazarus, and Silverhold (far right). The actual planets and their moons are too small to be seen at this scale.





Triumph
Orbit: 67,643,865 km - 0.452 AU
Period: 1,488.00 days - 4.07 years

Diameter: 3,640 km
Surface Area: 41,624,846 km²
Land Area: 12,903,702 km²
Arable Land: 4,129,185 km²
Horizon: 2.488 km

Mass: 492,926,562,344,943,000,000 metric tonnes
Surface Gravity: 1.0107 g_n
Escape Velocity: 6.0040 km/s
LEO (alt): 289 km
MEO (alt): 5,775 km
GEO (alt): 10,332 km

Hill Sphere (radius): 423,079 km
LaGrangian Points
L1: 423,079 km
L2: 423,079 km
L3 (+-180): 67,643,865 km
L4 (+60): 67,643,865 km
L5 (-60): 67,643,865 km
Inner Roche Limit: 2,759 km
Outer Roche Limit: 5,151 km

Terraformed (year): 2360
Population: 32,500,000

RED SUN (ZHU QUE)

太阳

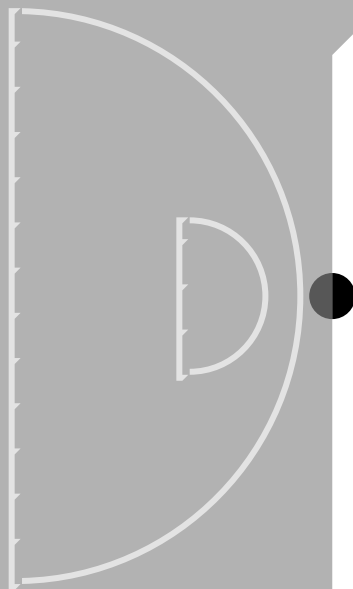
HEINLEIN

TRIUMPH

卫星

MYCROFT

S/2164(TRIUMPH)01



Mycroft
Orbit:
Period:

S/2164(Triumph)01
342,116 km
24.30 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,040 km
3,397,947 km²
1,936,830 km²
619,785 km²
1.330 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

38,495,097,811,080,700,000 metric tonnes
0.9669 g_n
3.1390 km/s
79 km
1,578 km
2,824 km

Hill Sphere (radius):
LaGrangian Points

17,802 km

L1:

17,802 km

L2:

17,802 km

L3 (+-180):

342,116 km

L4 (+60):

342,116 km

L5 (-60):

342,116 km

Inner Roche Limit

754 km

Outer Roche Limit

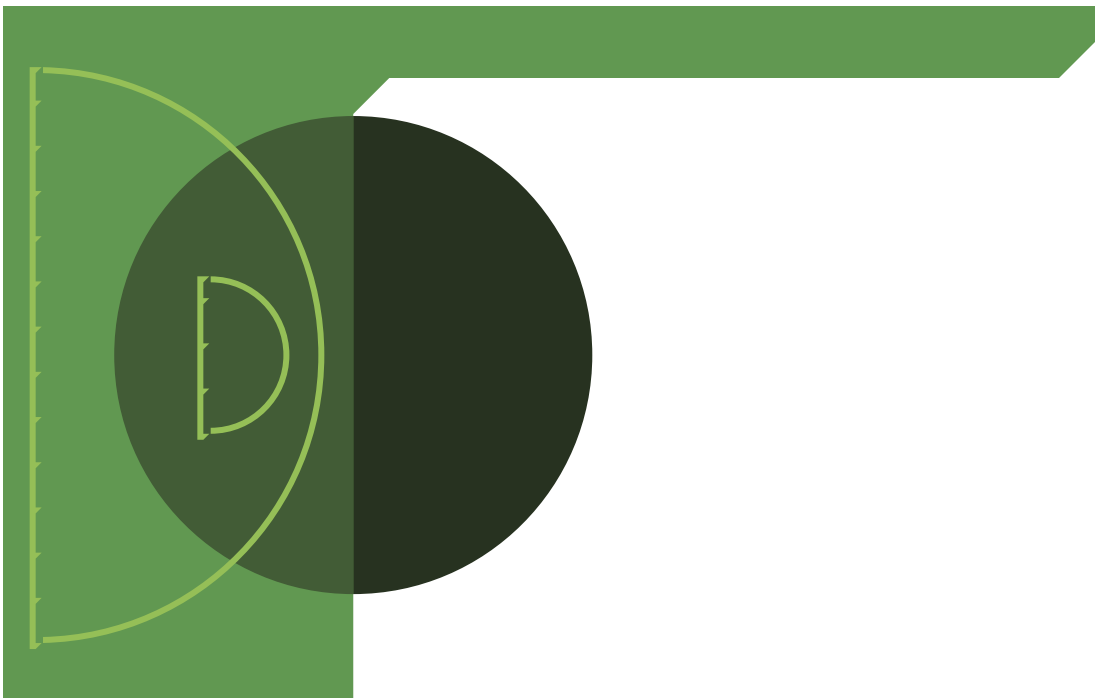
1,408 km

Terraformed (year):
Population:

2360
12,000,000

卫星

4.47



Paquin
Orbit: 87,644,339 km - 0.586 AU
Period: 1,928.00 days - 5.28 years

Diameter: 10,579 km
Surface Area: 351,592,099 km²
Land Area: 140,636,840 km²
Arable Land: 45,003,789 km²
Horizon: 4.241 km

Mass: 4,231,157,113,779,130,000,000 metric tonnes
Surface Gravity: 1.0271 g_n
Escape Velocity: 10.319 km/s
LEO (alt): 853 km
MEO (alt): 17,055 km
GEO (alt): 30,516 km

Hill Sphere (radius): 1,249,554 km
LaGrangian Points
L1: 1,249,554 km
L2: 1,249,554 km
L3 (+-180): 87,644,339 km
L4 (+60): 87,644,339 km
L5 (-60): 87,644,339 km
Inner Roche Limit: 8,149 km
Outer Roche Limit: 15,212 km

Terraformed (year): 2415
Population: 175,000,000

RED SUN (ZHU QUE)

太阳

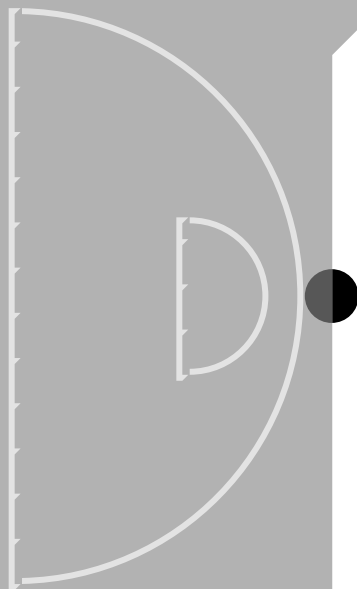
HEINLEIN

PAQUIN

卫星

SHINBONE

S/2176(Paquin)02



Shinbone
Orbit: 111,476 km
Period: 7.92 days

Diameter: 1,210 km
Surface Area: 4,599,606 km²
Land Area: 2,575,779 km²
Arable Land: 824,249 km²
Horizon: 1.434 km

Mass: 55,148,144,311,965,000,000 metric tonnes
Surface Gravity: 1.0233 g_n
Escape Velocity: 3.4830 km/s
LEO (alt): 97 km
MEO (alt): 1,943 km
GEO (alt): 3,477 km

Hill Sphere (radius): 21,920 km
LaGrangian Points
L1: 21,920 km
L2: 21,920 km
L3 (+-180): 111,476 km
L4 (+60): 111,476 km
L5 (-60): 111,476 km
Inner Roche Limit: 929 km
Outer Roche Limit: 1,733 km

Terraformed (year): 2415
Population: 3,000,000

卫星

4.49

RED SUN (ZHU QUE)

太阳

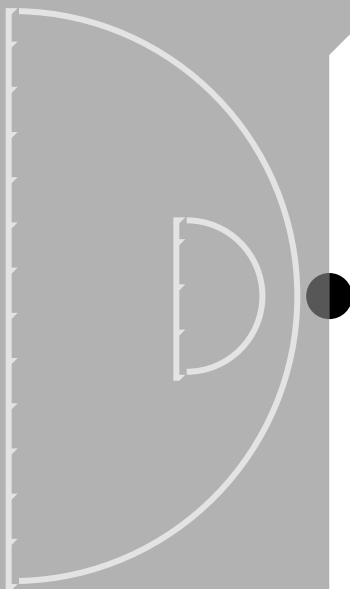
HEINLEIN

PAQUIN

卫星

CLAWTHORN

S/2174(Paquin)01



Clawthorn
Orbit:
Period:

S/2174(Paquin)01
161,448 km
11.47 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,002 km
3,154,172 km²
1,860,961 km²
595,508 km²
1.305 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

35,711,213,751,122,500,000 metric tonnes
0.9663 g_n
3.0800 km/s
76 km
1,520 km
2,719 km

Hill Sphere (radius):
LaGrangian Points

17,141 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

17,141 km
17,141 km
161,448 km
161,448 km
161,448 km

Inner Roche Limit
Outer Roche Limit

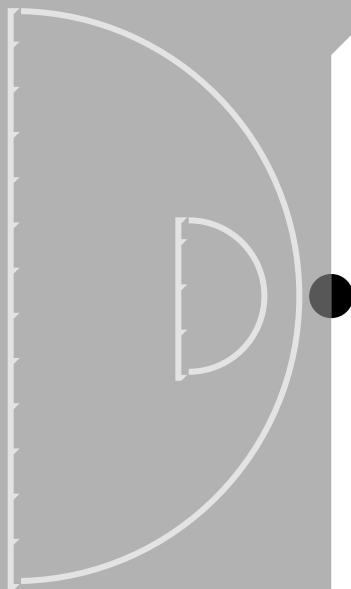
726 km
1,356 km

Terraformed (year):
Population:

2415
750,000

卫星

4.50



Port Chester
Orbit:
Period:

S/2191(Paquin)03
376,712 km
26.75 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

974 km
2,980,354 km²
N/A
N/A
1.287 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

33,177,558,260,155,400,000.00 metric tonnes
0.9501 g_n
3.0110 km/s
73 km
1,453 km
2,599 km

Hill Sphere (radius):
LaGrangian Points

16,382 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

16,382 km
16,382 km
376,712 km
376,712 km
376,712 km

Inner Roche Limit
Outer Roche Limit

694 km
1,296 km

Terraformed (year):
Population:

N/A
~1,200 (Corporate Mining Facility)



Lazarus
Orbit: 98,642,778 km - 0.659 AU
Period: 2,170.00 days - 5.94 years

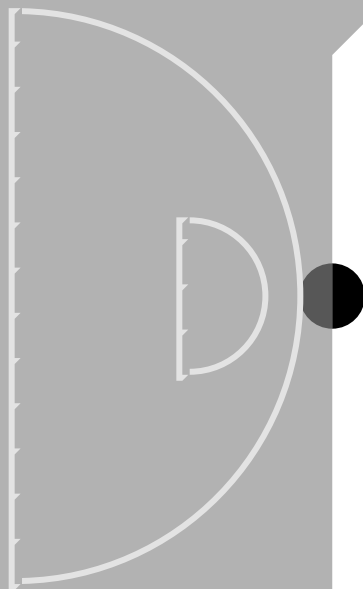
S/2038(Heinlein)04

Diameter: 8,962 km
Surface Area: 252,324,692 km²
Land Area: 100,929,877 km²
Arable Land: 32,297,561 km²
Horizon: 3.903 km

Mass: 3,029,154,461,777,670,000,000 metric tonnes
Surface Gravity: 1.0246 g_n
Escape Velocity: 9.4860 km/s
LEO (alt): 721 km
MEO (alt): 14,413 km
GEO (alt): 25,789 km

Hill Sphere (radius): 1,055,983 km
LaGrangian Points
L1: 1,055,983 km
L2: 1,055,983 km
L3 (+-180): 98,642,778 km
L4 (+60): 98,642,778 km
L5 (-60): 98,642,778 km
Inner Roche Limit: 6,887 km
Outer Roche Limit: 12,855 km

Terraformed (year): 2410
Population: 143,000,000



Dora Orbit:
Period: 20.48 days

Diameter: 1,430 km
Surface Area: 6,424,243 km²
Land Area: 3,469,091 km²
Arable Land: 1,110,109 km²
Horizon: 1.559 km

Mass: 74,089,514,457,109,200,000 metric tonnes
Surface Gravity: 0.9843 g_n
Escape Velocity: 3.7140 km/s
LEO (alt): 110 km
MEO (alt): 2,209 km
GEO (alt): 3,953 km

Hill Sphere (radius): 24,918 km
LaGrangian Points
L1: 24,918 km
L2: 24,918 km
L3 (+-180): 288,300 km
L4 (+60): 288,300 km
L5 (-60): 288,300 km
Inner Roche Limit: 1,056 km
Outer Roche Limit: 1,971 km

Terraformed (year): 2410
Population: 250,000



Silverhold
Orbit:
Period:

S/2036(Heinlein)02
284,299,201 km - 1.900 AU
6,255 days - 17.12 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

9,887 km
307,099,381 km²
92,129,814 km²
29,481,541 km²
4.100 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

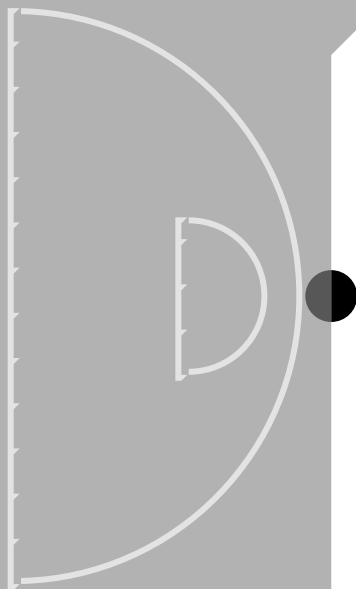
3,616,918,616,084,750,000,000 metric tonnes
1.0052 g_n
9.8690 km/s
780 km
15,599 km
27,912 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,142,917 km
1,142,917 km
1,142,917 km
284,299,201 km
284,299,201 km
284,299,201 km
7,454 km
13,914 km

Terraformed (year):
Population:

2417
744,000,000



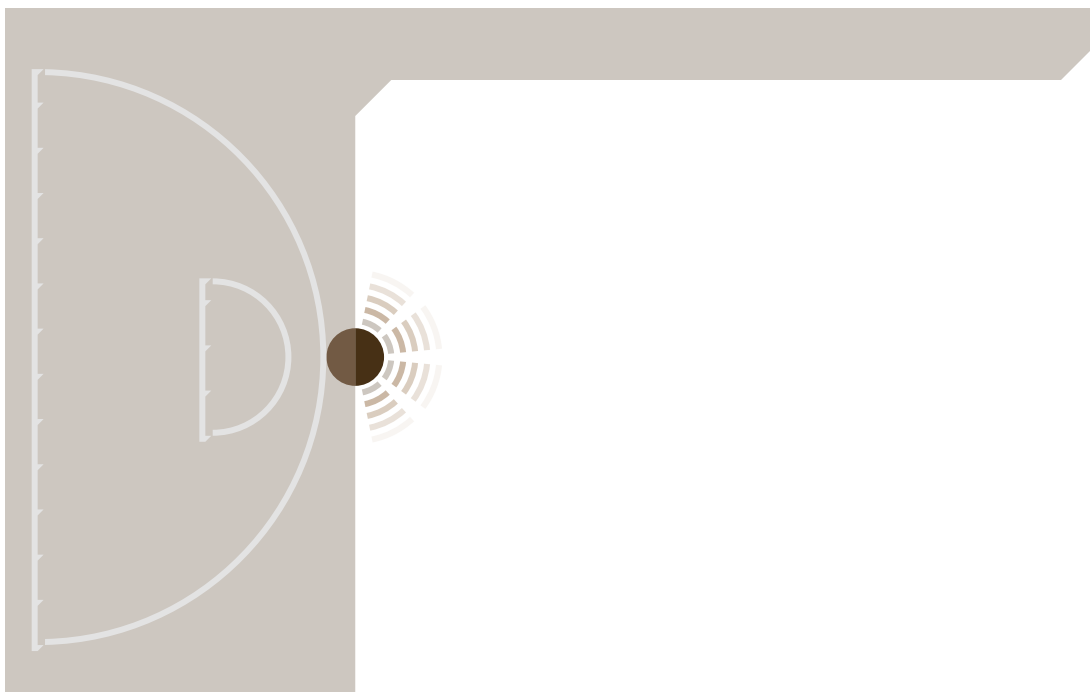
Beggar's Tin
Orbit: 330,584 km
Period: 23.48 days

Diameter: 1,147 km
Surface Area: 4,133,108 km²
Land Area: 2,314,540 km²
Arable Land: 740,653 km²
Horizon: 1.396 km

Mass: 46,663,876,685,508,000,000 metric tonnes
Surface Gravity: 0.9636 g_n
Escape Velocity: 3.2910 km/s
LEO (alt): 87 km
MEO (alt): 1,735 km
GEO (alt): 3,104 km

Hill Sphere (radius): 19,566 km
LaGrangian Points
L1: 19,566 km
L2: 19,566 km
L3 (+-180): 330,584 km
L4 (+60): 330,584 km
L5 (-60): 330,584 km
Inner Roche Limit: 829 km
Outer Roche Limit: 1,547 km

Terraformed (year): 2417
Population: 377,000



Georgia L4 Asteroid
Orbit:
Period:

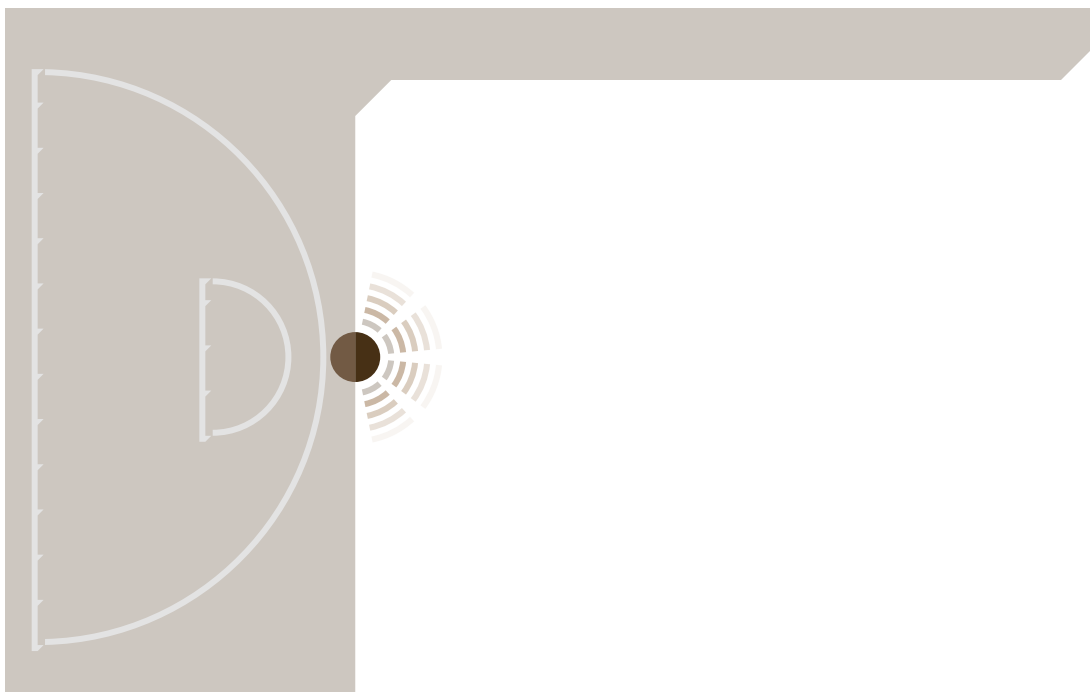
A/2260(White Sun)r24g4
10,172,655,160,000 km - 68.000 AU
204,811.00 days - 560.74 years

Diameter: 1,294 km
Surface Area: 5,260,396 km²
Land Area: 5,102,584 km²
Arable Land: Negligible
Horizon: 1.483 km

Mass: 61,647,091,504,228,500,000 metric tonnes
Surface Gravity: 1.0002 g_n
Escape Velocity: 3.5610 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 22,912 km
LaGrangian Points
L1: 22,912 km
L2: 22,912 km
L3 (+-180): 10,172,655,160,000 km
L4 (+60): 10,172,655,160,000 km
L5 (-60): 10,172,655,160,000 km
Inner Roche Limit: 971 km
Outer Roche Limit: 1,812 km

Terraformed (year): 2290
Population: Unmanned



Georgia L5 Asteroid
Orbit:
Period:

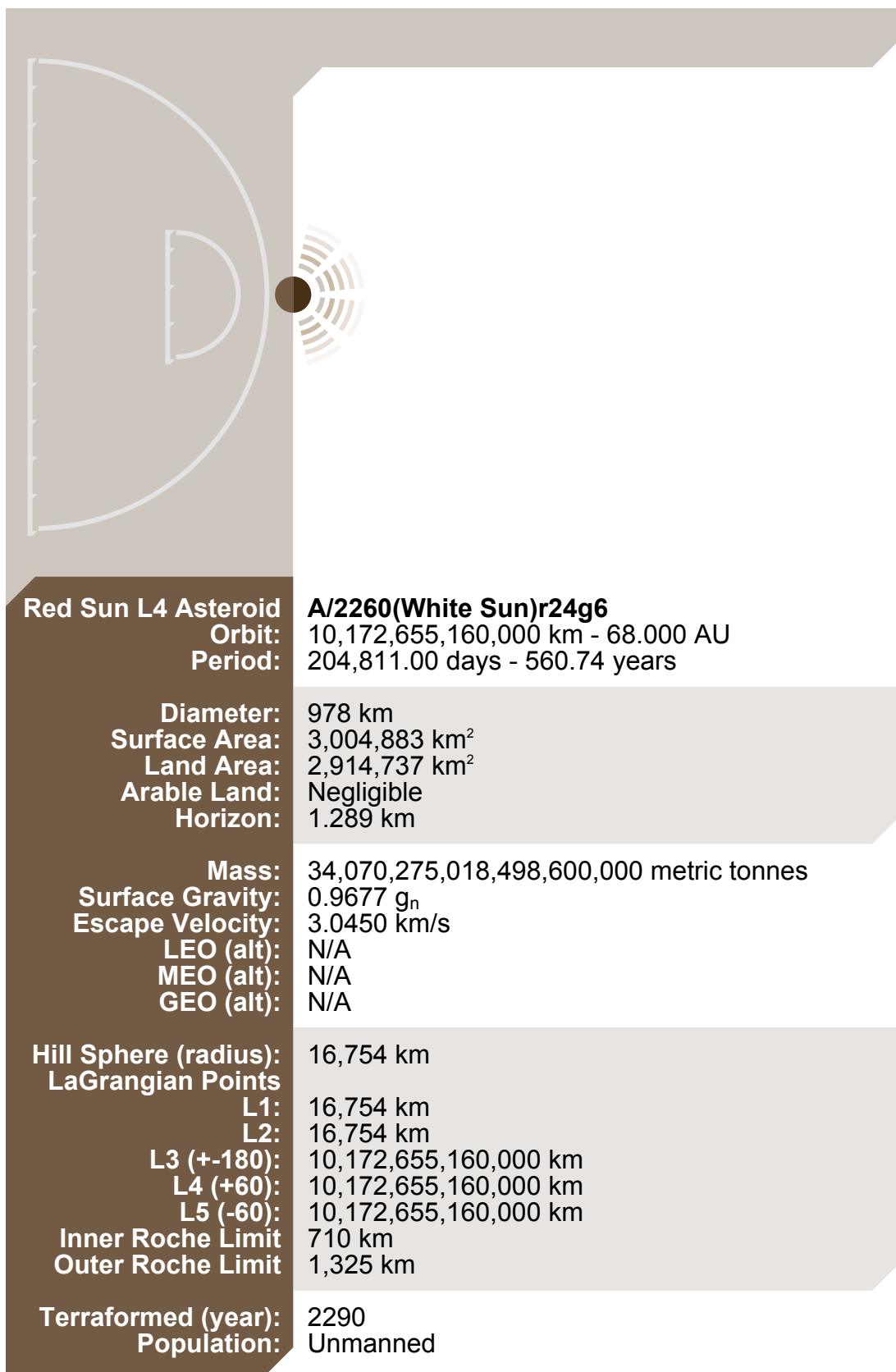
A/2260(White Sun)r24g5
10,172,655,160,000 km - 68.000 AU
204,811.00 days - 560.74 years

Diameter: 1,084 km
Surface Area: 3,691,547 km²
Land Area: 3,617,716 km²
Arable Land: Negligible
Horizon: 1.357 km

Mass: 41,726,122,771,090,700,000 metric tonnes
Surface Gravity: 0.9647 g_n
Escape Velocity: 3.2010 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 18,513 km
LaGrangian Points
L1: 18,513 km
L2: 18,513 km
L3 (+-180): 10,172,655,160,000 km
L4 (+60): 10,172,655,160,000 km
L5 (-60): 10,172,655,160,000 km
Inner Roche Limit: 784 km
Outer Roche Limit: 1,464 km

Terraformed (year): 2290
Population: Unmanned





Red Sun L5 Asteroid
Orbit:
Period:

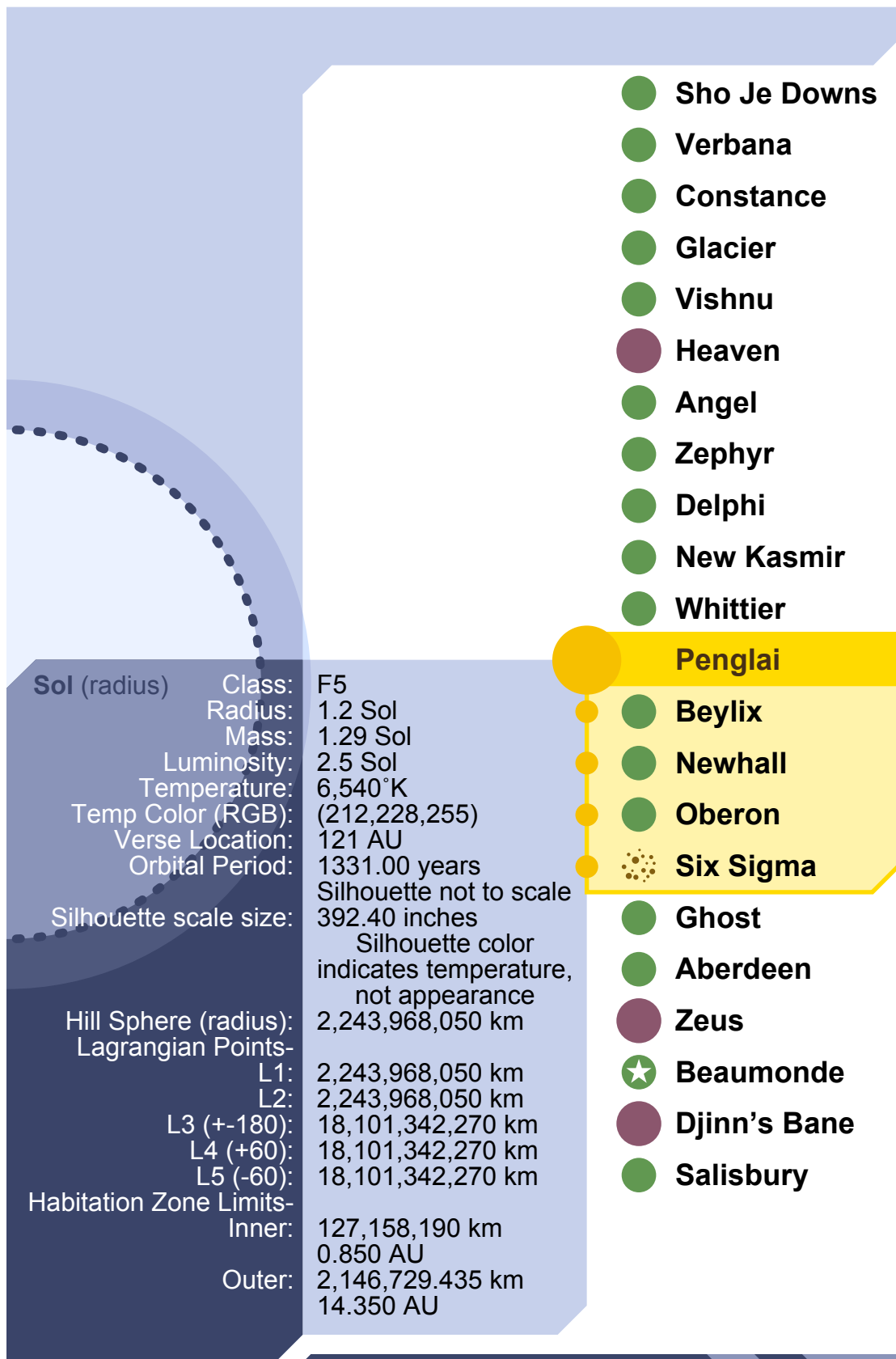
A/2260(White Sun)r24g7
10,172,655,160,000 km - 68.000 AU
204,811 days - 560.74 years

Diameter: 1,004 km
Surface Area: 3,166,776 km²
Land Area: 3,040,105 km²
Arable Land: Negligible
Horizon: 1.306 km

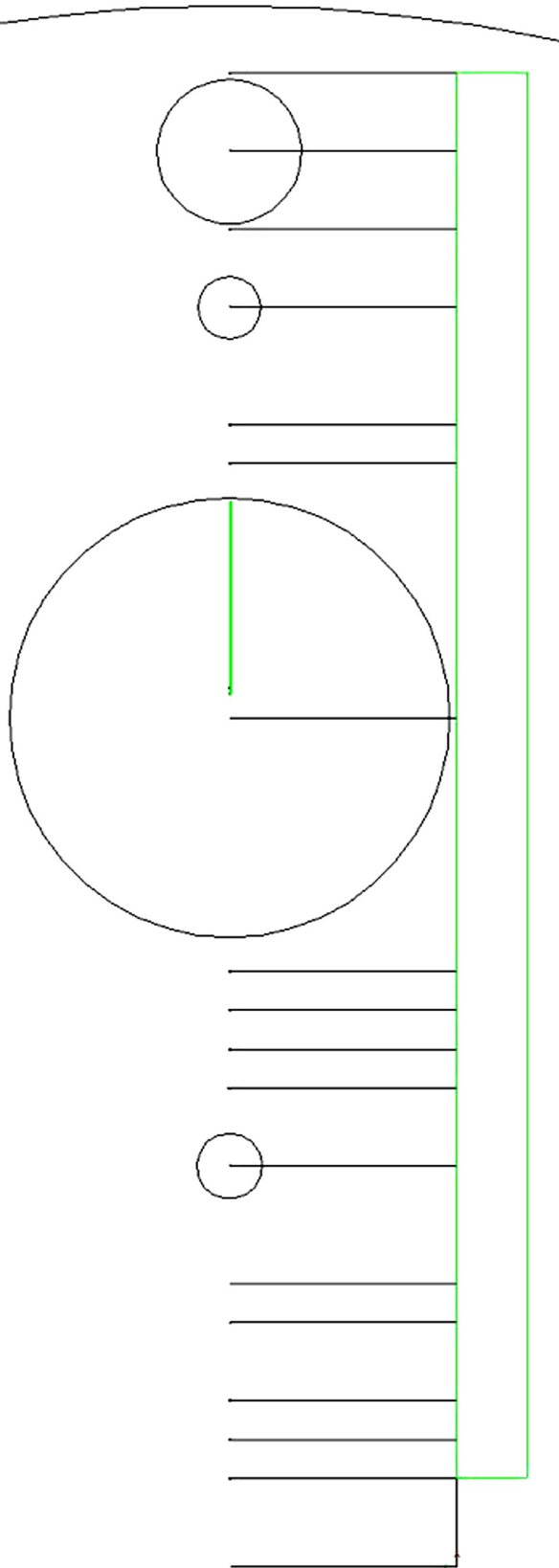
Mass: 36,636,817,161,587,400,000 metric tonnes
Surface Gravity: 0.9874 g_n
Escape Velocity: 3.1170 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 17,550 km
LaGrangian Points
L1: 17,550 km
L2: 17,550 km
L3 (+-180): 10,172,655,160,000 km
L4 (+60): 10,172,655,160,000 km
L5 (-60): 10,172,655,160,000 km
Inner Roche Limit: 744 km
Outer Roche Limit: 1,388 km

Terraformed (year): 2290
Population: Unmanned



Kalidasa Gravity Map & Habitation Zone. Kalidasa is at extreme left. Sho-Je Downs at innermost limit of Habitation Zone. Circles are Hill Spheres for Heaven, Penglai, Zeus, and Djinn's Bane. Salisbury a outmost edge of Habitation Zone. Arc at extreme right is limit of Kalidasa's Hill Sphere.





Sho-Je Downs
Orbit:
Period:

P/2028(Kalidasa)10
127,158,190 km - 0.850 AU
286.00 days - 0.78 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

8,057 km
203,937,269 km²
77,496,162 km²
24,798,772 km²
3.701 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

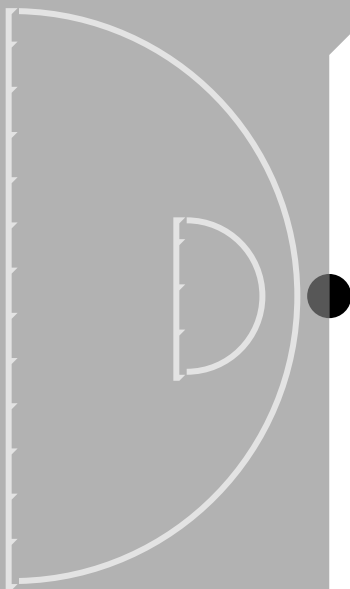
2,444,679,893,131,660,000,000 metric tonnes
1.0231 g_n
8.9880 km/s
647 km
12,938 km
23,151 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

947,958 km
947,958 km
947,958 km
127,158,190 km
127,158,190 km
127,158,190 km
6,182 km
11,540 km

Terraformed (year):
Population:

2410
114,750,000



Miyazaki
Orbit:
Period:

S/2176(Sho-Je Downs)02
119,164 km
8.46 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

970 km
2,955,925 km²
1,773,555 km²
567,538 km²
1.284 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

33,425,119,820,948,800,000 metric tonnes
0.9651 g_n
3.0290 km/s
73 km
1,469 km
2,629 km

Hill Sphere (radius):
LaGrangian Points

16,573 km

L1:

16,573 km

L2:

16,573 km

L3 (+-180):

119,164 km

L4 (+60):

119,164 km

L5 (-60):

119,164 km

Inner Roche Limit

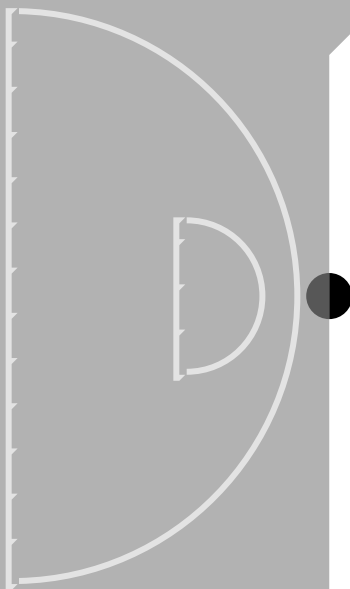
702 km

Outer Roche Limit

1,311 km

Terraformed (year):
Population:

2410
215,000



Kuan Lo
Orbit:
Period:

S/2174(SHO-Je Downs)01
165,292 km
11.74 days

Diameter: 1,030 km
Surface Area: 3,332,916 km²
Land Area: 1,899,762 km²
Arable Land: 607,924 km²
Horizon: 1.323 km

Mass: 38,488,619,379,799,300,000 metric tonnes
Surface Gravity: 0.9856 g_n
Escape Velocity: 3.1540 km/s
LEO (alt): 80 km
MEO (alt): 1,593 km
GEO (alt): 2,851 km

Hill Sphere (radius): 17,971 km
LaGrangian Points
L1: 17,971 km
L2: 17,971 km
L3 (+-180): 165,292 km
L4 (+60): 165,292 km
L5 (-60): 165,292 km
Inner Roche Limit: 761 km
Outer Roche Limit: 1,421 km

Terraformed (year): 2410
Population: 75,000



Verbena
Orbit:
Period:

P/2030(Kalidasa)14

183,257,391 km - 1.225 AU
495.00 days - 1.36 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

11,538 km
418,225,917 km²
163,108,108 km²
52,194,594 km²
4.429 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

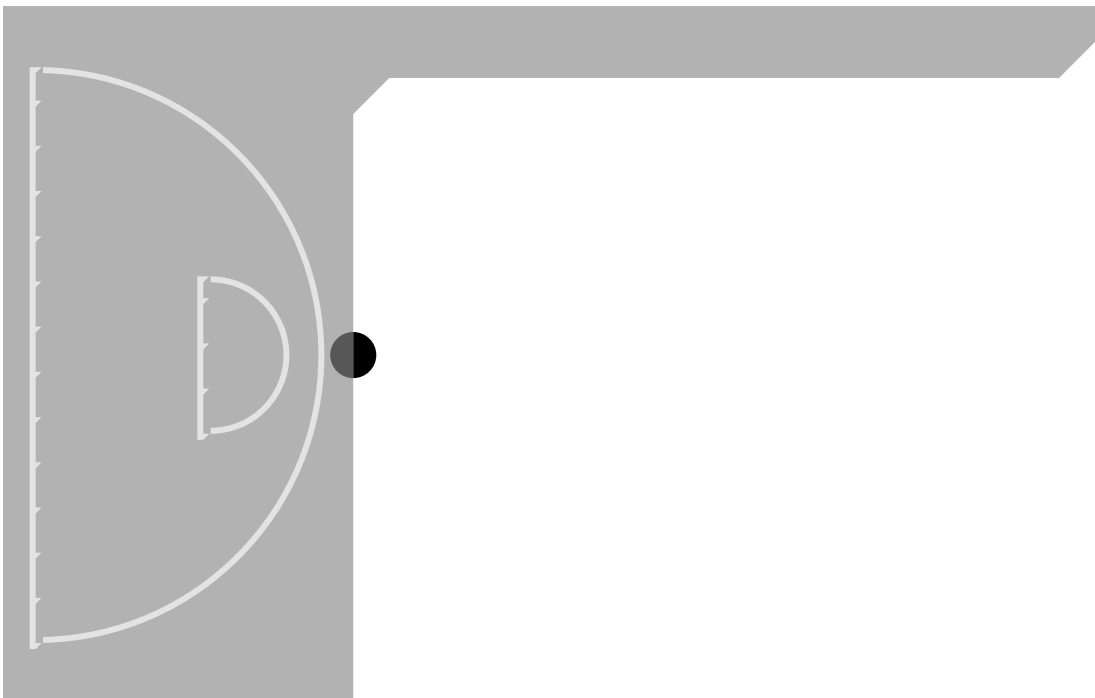
4,798,325,026,741,980,000,000 metric tonnes
0.9792 g_n
10.5220 km/s
887 km
17,733 km
31,731 km

Hill Sphere (radius):
LaGrangian Points
 L1:
 L2:
 L3 (+-180):
 L4 (+60):
 L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,299,271 km
1,299,271 km
1,299,271 km
183,257,391 km
183,257,391 km
183,257,391 km
8,474 km
15,817 km

Terraformed (year):
Population:

2415
78,500,000



Lassek

Orbit:

Period:

S/2172(Verbena)01

184,512 km

13.10 days

Diameter:

Surface Area:

Land Area:

Arable Land:

Horizon:

1,465 km

6,742,565 km²

3,640,985 km²

1,165,115 km²

1.578 km

Mass:

Surface Gravity:

Escape Velocity:

LEO (alt):

MEO (alt):

GEO (alt):

76,393,940,499,983,900,000 metric tonnes

0.9670 g_n

3.7260 km/s

111 km

2,224 km

3,979 km

Hill Sphere (radius):

LaGrangian Points

L1:

L2:

L3 (+-180):

L4 (+60):

L5 (-60):

Inner Roche Limit

Outer Roche Limit

25,079 km

25,079 km

25,079 km

184,512 km

184,512 km

184,512 km

1,062 km

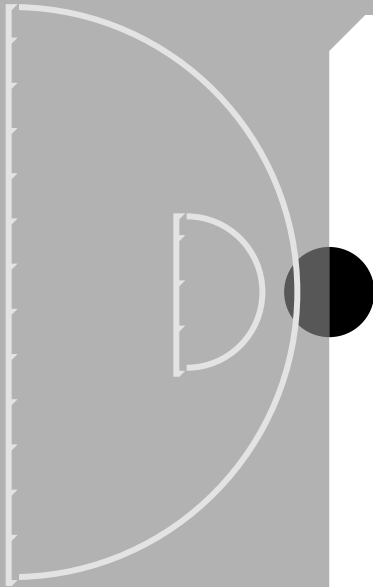
1,983 km

Terraformed (year):

Population:

2415

1,200,000



Barrimend Orbit:
Period:

S/2172(Verbena)02
265,236 km
18.84 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,009 km
12,679,722 km²
6,593,456 km²
2,109,906 km²
1.848 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

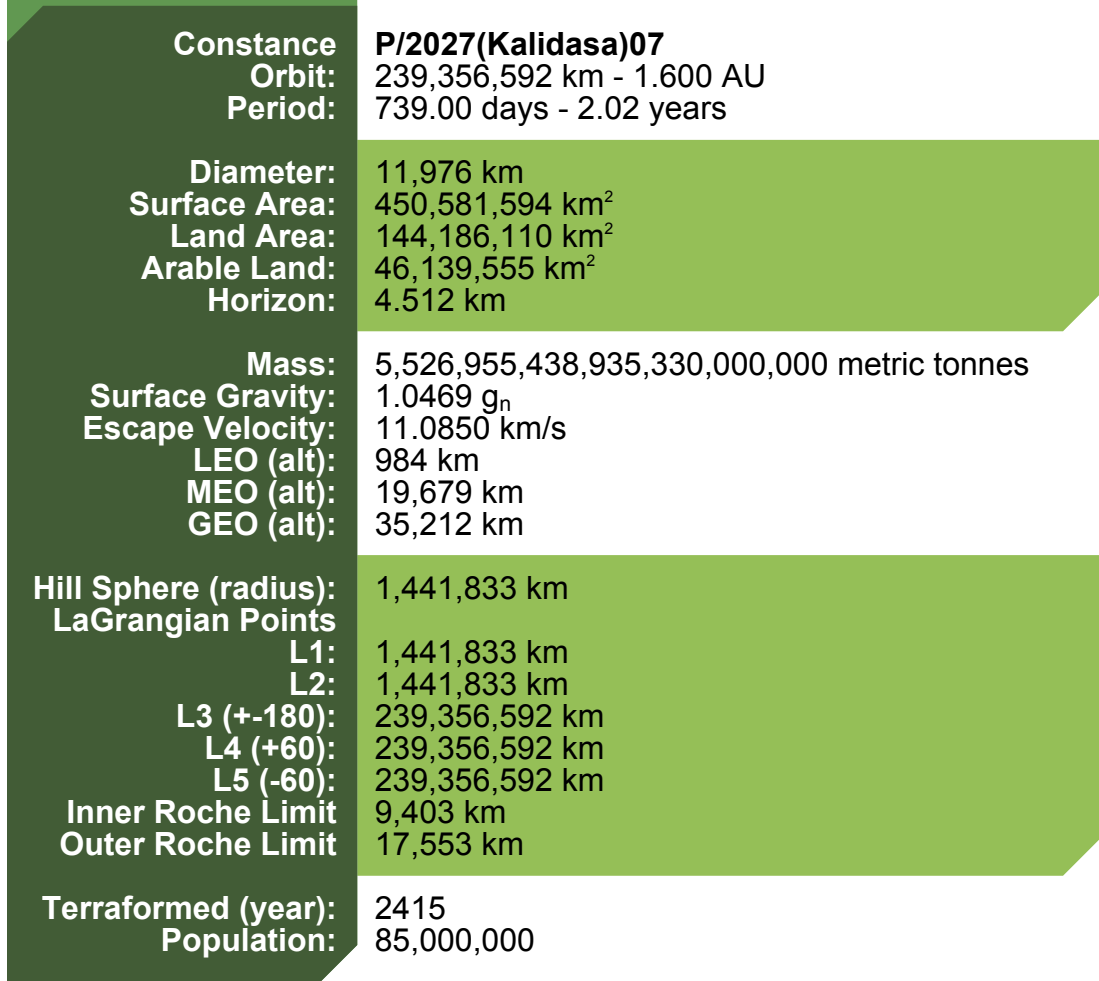
152,784,441,188,537,000,000 metric tonnes
1.0284 g_n
4.5000 km/s
162 km
3,243 km
5,803 km

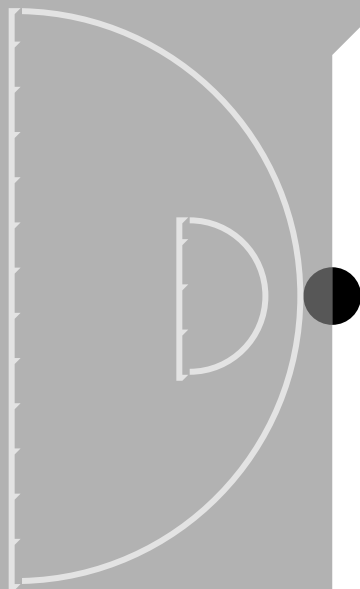
Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

36,575 km
36,575 km
36,575 km
265,236 km
265,236 km
265,236 km
1,550 km
2,892 km

Terraformed (year):
Population:

2415
3,000,000





Barrowclough
Orbit:
Period:

S/2173(Constance)01
142,228 km
10.10 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,278 km
5,131,113 km²
2,822,112 km²
903,076 km²
1.474 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

60,510,769,460,009,600,000 metric tonnes
1.0065 g_n
3.5500 km/s
101 km
2,019 km
3,613 km

Hill Sphere (radius):
LaGrangian Points

22,771 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

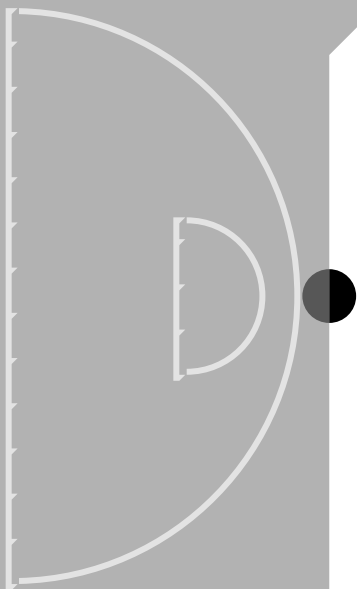
22,771 km
22,771 km
142,228 km
142,228 km
142,228 km

Inner Roche Limit
Outer Roche Limit

965 km
1,801 km

Terraformed (year):
Population:

2415
250,000



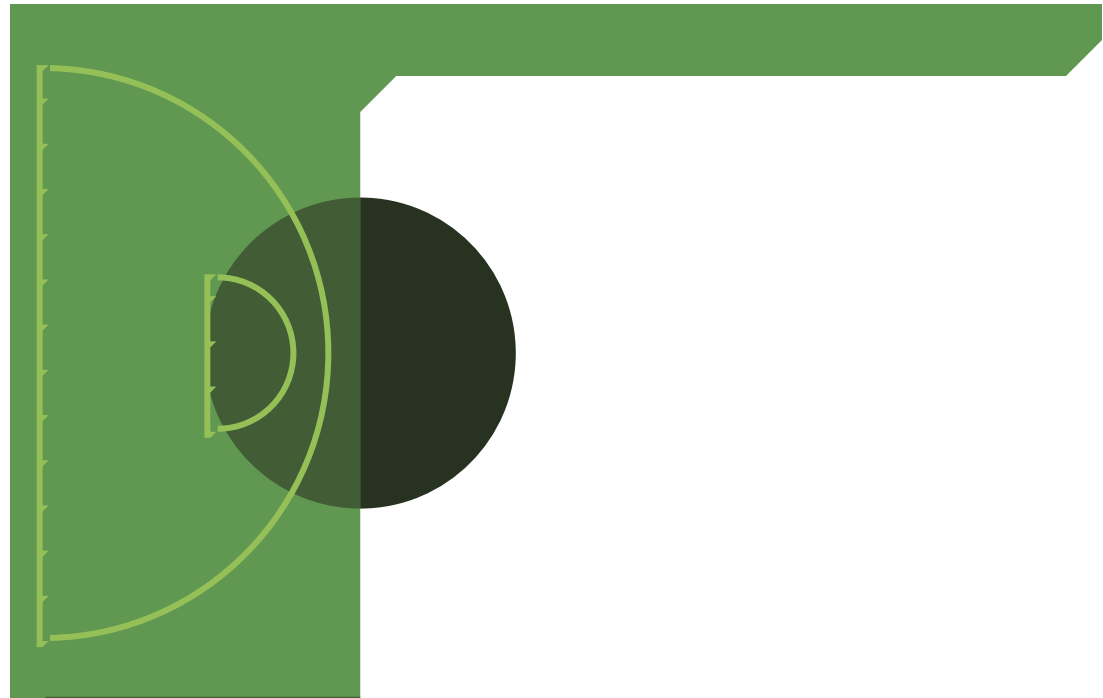
Disraeli
Orbit: 280,612 km
Period: 19.93 days

Diameter: 1,169 km
Surface Area: 4,293,178 km²
Land Area: 2,404,180 km²
Arable Land: 769,337 km²
Horizon: 1.410 km

Mass: 48,556,627,716,949,200,000 metric tonnes
Surface Gravity: 0.9653 g_n
Escape Velocity: 3.3250 km/s
LEO (alt): 89 km
MEO (alt): 1,771 km
GEO (alt): 3,169 km

Hill Sphere (radius): 19,977 km
LaGrangian Points
L1: 19,977 km
L2: 19,977 km
L3 (+-180): 280,612 km
L4 (+60): 280,612 km
L5 (-60): 280,612 km
Inner Roche Limit: 846 km
Outer Roche Limit: 1,580 km

Terraformed (year): 2415
Population: 600,000



**Glacier
Orbit:
Period:**

P/2028(Kalidasa)09

351,554,995 km - 2.350 AU
1,316.00 days - 3.60 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

6,890 km
149,138,001 km²
50,706,920 km²
16,226,214 km²
3.422 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

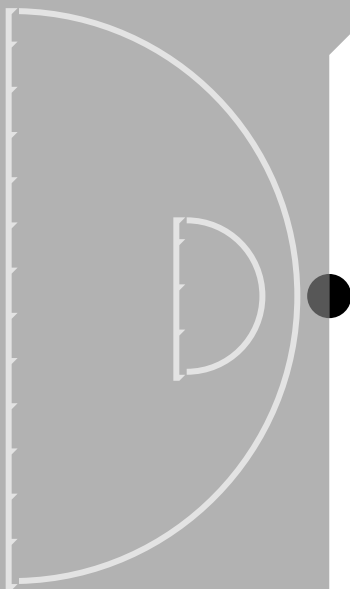
1,752,131,297,860,010,000,000 metric tonnes
1.0027 g_n
8.2280 km/s
542 km
10,844 km
19,403 km

Hill Sphere (radius):
LaGrangian Points
 L1:
 L2:
 L3 (+-180):
 L4 (+60):
 L5 (-60):
Inner Roche Limit
Outer Roche Limit

794,489 km
794,489 km
794,489 km
351,554,995 km
351,554,995 km
351,554,995 km
5,181 km
9,672 km

Terraformed (year):
Population:

Scheduled
5,000



Denali
Orbit:
Period:

S/2178(Glacier)01
157,604 km
11.19 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

996 km
3,116,510 km²
1,838,741 km²
588,397 km²
1.301 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

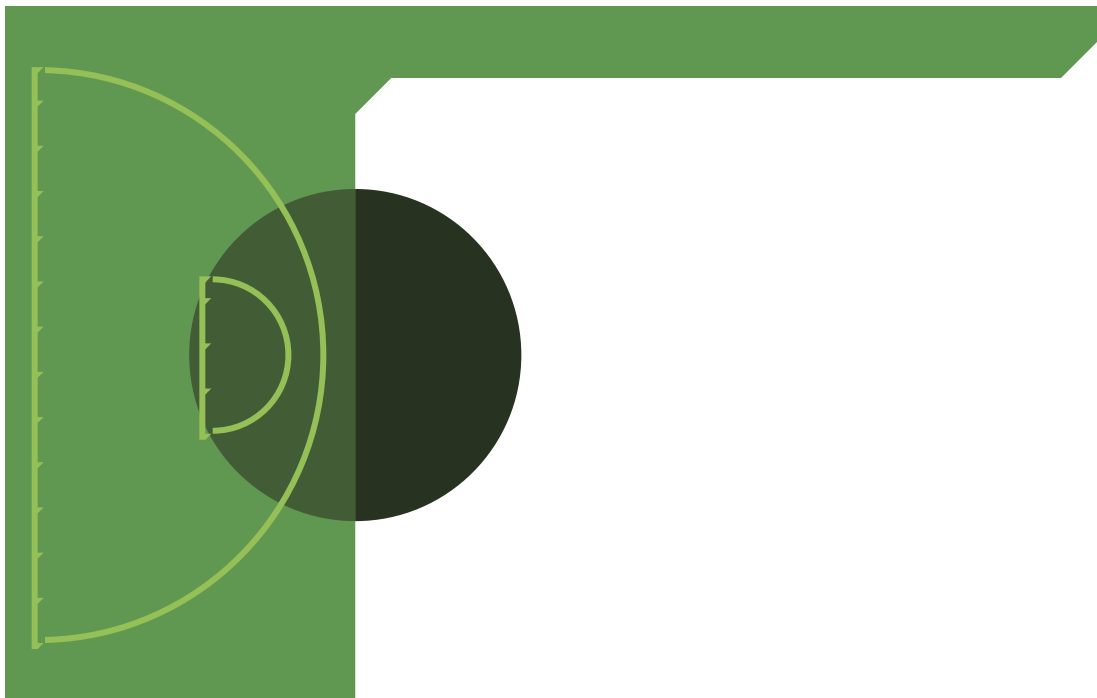
36,697,960,360,441,500,000 metric tonnes
1.0050 g_n
3.1320 km/s
79 km
1,571 km
2,811 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

17,720 km
17,720 km
17,720 km
157,604 km
157,604 km
157,604 km
751 km
1,401 km

Terraformed (year):
Population:

Scheduled
5,000



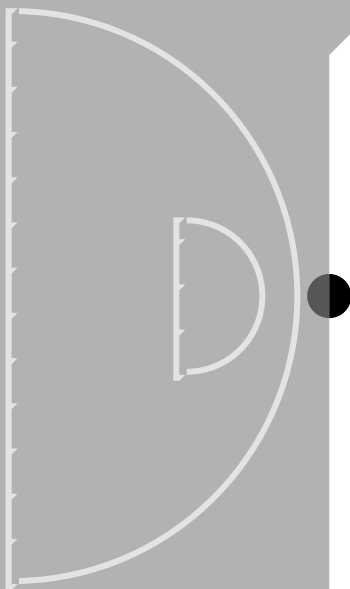
Vishnu
Orbit: 407,654,196 km - 2.725 AU
Period: 1,643.00 days - 4.50 years

Diameter: 7,342 km
Surface Area: 169,347,439 km²
Land Area: 62,658,552 km²
Arable Land: 20,050,737 km²
Horizon: 3.533 km

Mass: 2,008,211,148,969,060,000,000 metric tonnes
Surface Gravity: 1.0121 g_n
Escape Velocity: 8.5320 km/s
LEO (alt): 583 km
MEO (alt): 11,664 km
GEO (alt): 20,870 km

Hill Sphere (radius): 854,546 km
LaGrangian Points
L1: 854,546 km
L2: 854,546 km
L3 (+-180): 407,654,196 km
L4 (+60): 407,654,196 km
L5 (-60): 407,654,196 km
Inner Roche Limit: 5,573 km
Outer Roche Limit: 10,403 km

Terraformed (year): Scheduled
Population: 5,000



Ganesha
Orbit:
Period:

S/2179(Vishnu)02
146,072 km
10.37 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

984 km
3,041,866 km²
1,825,120 km²
584,038 km²
1.293 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

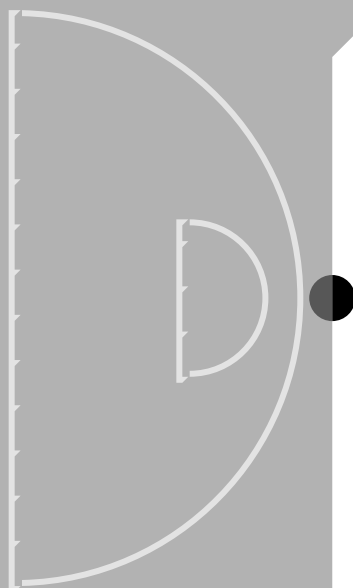
34,532,366,488,892,500,000 metric tonnes
0.9689 g_n
3.0570 km/s
75 km
1,496 km
2,678 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

16,878 km
16,878 km
16,878 km
146,072 km
146,072 km
146,072 km
715 km
1,335 km

Terraformed (year):
Population:

Scheduled
5,000



Rama
Orbit:
Period:

S/2177(Vishnu)01
315,208 km
22.39 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,006 km
3,179,405 km²
1,844,055 km²
590,098 km²
1.308 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

36,134,735,851,435,500,000 metric tonnes
0.9700 g_n
3.0920 km/s
77 km
1,532 km
2,741 km

Hill Sphere (radius):
LaGrangian Points

17,275 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

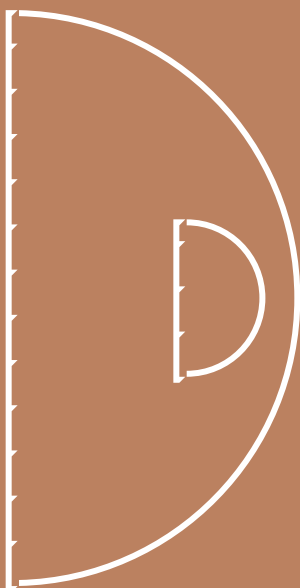
17,275 km
17,275 km
315,208 km
315,208 km
315,208 km

Inner Roche Limit
Outer Roche Limit

732 km
1,366 km

Terraformed (year):
Population:

Scheduled
5,000



Heaven Orbit:
Period:

P/2020(Kalidasa)02
575,951,800 km - 3.850 AU
2,759.00 days - 7.55 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

135,709 km
N/A
N/A
N/A
N/A

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

1,647,610,894,799,050,000,000 metric tonnes
2.3994 g_n
N/A
N/A
N/A
N/A

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

47,166,742 km
47,166,742 km
47,166,742 km
575,951,800 km
575,951,800 km
575,951,800 km
86,854 km
166,922 km

Terraformed (year):
Population:

N/A
N/A



Urvasi
Orbit:
Period:

S/2170(Heaven)03
 691,920 km
 49.14 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

4,281 km
 57,575,846 km²
 28,787,923 km²
 9,212,135 km²
 2.698 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

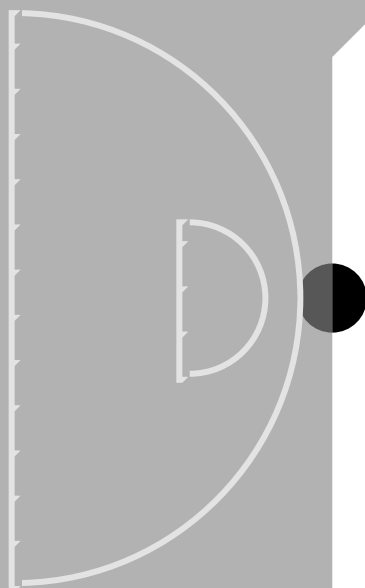
665,764,744,274,063,000,000 metric tonnes
 0.9869 g_n
 6.4350 km/s
 332 km
 6,631 km
 11,866 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

74,793 km
 74,793 km
 74,793 km
 691,920 km
 691,920 km
 691,920 km
 3,169 km
 5,915 km

Terraformed (year):
Population:

2420
 77,500,000



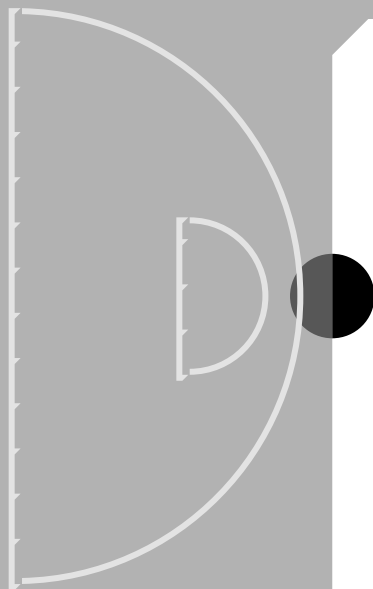
Menaka
Orbit: 853,368 km
Period: 60.61 days

Diameter: 1,535 km
Surface Area: 7,402,299 km²
Land Area: 3,923,219 km²
Arable Land: 1,255,430 km²
Horizon: 1.615 km

Mass: 83,868,798,683,537,200,000 metric tonnes
Surface Gravity: 0.9670 g_n
Escape Velocity: 3.8140 km/s
LEO (alt): 116 km
MEO (alt): 2,330 km
GEO (alt): 4,169 km

Hill Sphere (radius): 26,277 km
LaGrangian Points
L1: 26,277 km
L2: 26,277 km
L3 (+-180): 853,368 km
L4 (+60): 853,368 km
L5 (-60): 853,368 km
Inner Roche Limit: 1,113 km
Outer Roche Limit: 2,078 km

Terraformed (year): 2420
Population: 1,450,000



Rambha
Orbit:
Period:

S/2164(Heaven)02
1,441,500 km
102.38 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,872 km
10,486,413 km²
5,452,935 km²
1,744,939 km²
1.762 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

121,109,731,104,420,000,000 metric tonnes
0.9857 g_n
4.2010 km/s
141 km
2,827 km
5,058 km

Hill Sphere (radius):
LaGrangian Points

31,881 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

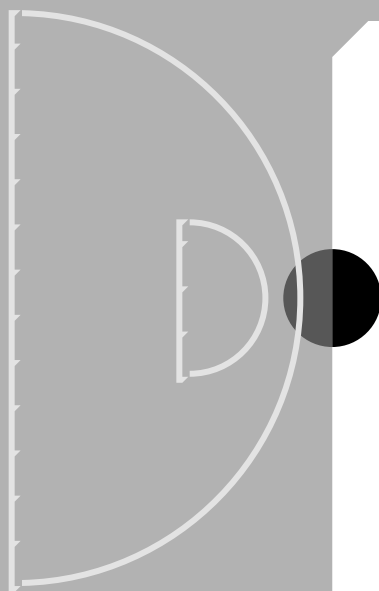
31,881 km
31,881 km
1,441,500 km
1,441,500 km
1,441,500 km

Inner Roche Limit
Outer Roche Limit

1,351 km
2,521 km

Terraformed (year):
Population:

2420
962,000



Tilottama
Orbit: 1,633,700 km
Period: 116.03 days

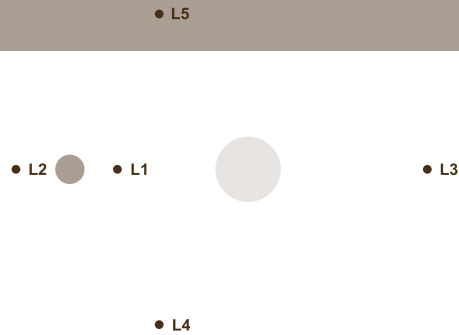
Diameter: 2,154 km
Surface Area: 14,576,098 km²
Land Area: 7,433,810 km²
Arable Land: 2,378,819 km²
Horizon: 1.914 km

Mass: 164,772,936,422,032,000,000 metric tonnes
Surface Gravity: 0.9648 g_n
Escape Velocity: 4.5130 km/s
LEO (alt): 163 km
MEO (alt): 3,262 km
GEO (alt): 5,837 km

Hill Sphere (radius): 36,790 km
LaGrangian Points
L1: 36,790 km
L2: 36,790 km
L3 (+-180): 1,633,700 km
L4 (+60): 1,633,700 km
L5 (-60): 1,633,700 km
Inner Roche Limit: 1,559 km
Outer Roche Limit: 2,909 km

Terraformed (year): 2420
Population: 5,210,000

Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2273(Kalidasa)e3b47**
The current numbering is able to catalog up to 33,554,432 objects per year per region.



REGION: L1

REGION: L2

REGION: L3

Cowan's Folly	A/2272(Kalidasa)e2b55
Kuru	A/2272(Kalidasa)e2b5a
Terra	A/2272(Kalidasa)e2b5d

REGION: L4

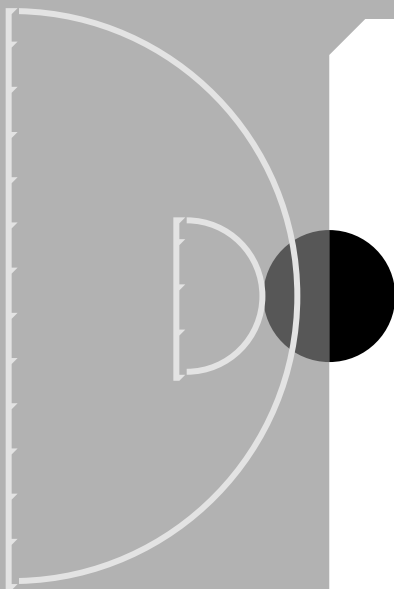
Albay	A/2273(Kalidasa)e4uyt
Leyte	A/2273(Kalidasa)e4uyu
Samar	A/2273(Kalidasa)e7054

REGION: L5

Apayao	A/2277(Kalidasa)ke9ac
Ilocos	A/2277(Kalidasa)ke9ad
Kalinga	A/2277(Kalidasa)ke9ae
Tarlac	A/2277(Kalidasa)ke9af

Note: Angel & Zephyr share the same orbit around Kalidasa. Zephyr was originally thought to be Angel's moon, and was classified as such, but Zephyr leads Angel by 60°, in her L4 position.

Angel Orbit: Period:	P/2027(Kalidasa)06 688,150,202 km - 4.600 AU 3,604.00 days - 9.87 years
Diameter: Surface Area: Land Area: Arable Land: Horizon:	10,739 km 362,307,695 km ² 123,184,616 km ² 39,419,077 km ² 4.273 km
Mass: Surface Gravity: Escape Velocity: LEO (alt): MEO (alt): GEO (alt):	4,354,592,979,943,520,000,000 metric tonnes 1.0258 g _n 10.3900 km/s 865 km 17,291 km 30,939 km
Hill Sphere (radius): LaGrangian Points L1: L2: L3 (+-180): L4 (+60): L5 (-60): Inner Roche Limit Outer Roche Limit	1,266,848 km 1,266,848 km 1,266,848 km 688,150,202 km 688,150,202 km 688,150,202 km 8,262 km 15,422 km
Terraformed (year): Population:	2410 62,000,000



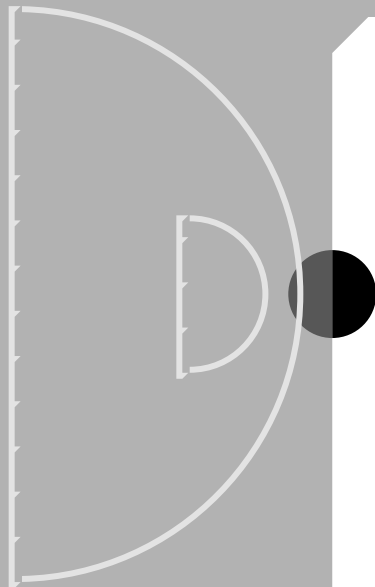
Lincoln S/2170(Angel)01
Orbit: 295,988 km
Period: 21.02 days

Diameter: 2,920 km
Surface Area: 26,786,476 km²
Land Area: 14,732,562 km²
Arable Land: 4,714,420 km²
Horizon: 2.228 km

Mass: 312,344,065,535,600,000,000 metric tonnes
Surface Gravity: 0.9952 g_n
Escape Velocity: 5.3365 km/s
LEO (alt): 228 km
MEO (alt): 4,561 km
GEO (alt): 8,161 km

Hill Sphere (radius): 51,444 km
LaGrangian Points
L1: 51,444 km
L2: 51,444 km
L3 (+-180): 295,988 km
L4 (+60): 295,988 km
L5 (-60): 295,988 km
Inner Roche Limit: 2,179 km
Outer Roche Limit: 4,068 km

Terraformed (year): 2410
Population: 4,995,000



Jasper
Orbit:
Period:

S/2171(ANGEL)02
399,776 km
28.39 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,945 km
11,884,724 km²
6,655,445 km²
2,129,742 km²
1.818 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

137,913,579,830,552,000,000 metric tonnes
0.9904 g_n
4.3449 km/s
151 km
3,024 km
5,410 km

Hill Sphere (radius):
LaGrangian Points

34,102 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

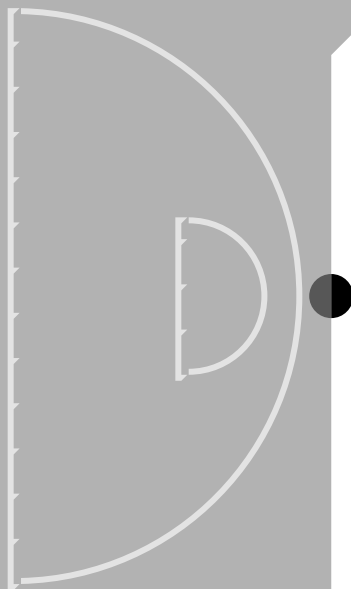
34,102 km
34,102 km
399,776 km
399,776 km
399,776 km

Inner Roche Limit
Outer Roche Limit

1,445 km
2,697 km

Terraformed (year):
Population:

2410
2,487,100



Jackson
Orbit:
Period:

S/2172(Angel)03
457,436 km
32.49 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

975 km
2,986,477 km²
1,762,021 km²
563,847 km²
1.287 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

34,750,367,508,845,300,000 metric tonnes
0.9931 g_n
3.0804 km/s
76 km
1,520 km
2,719 km

Hill Sphere (radius):
LaGrangian Points

17,141 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

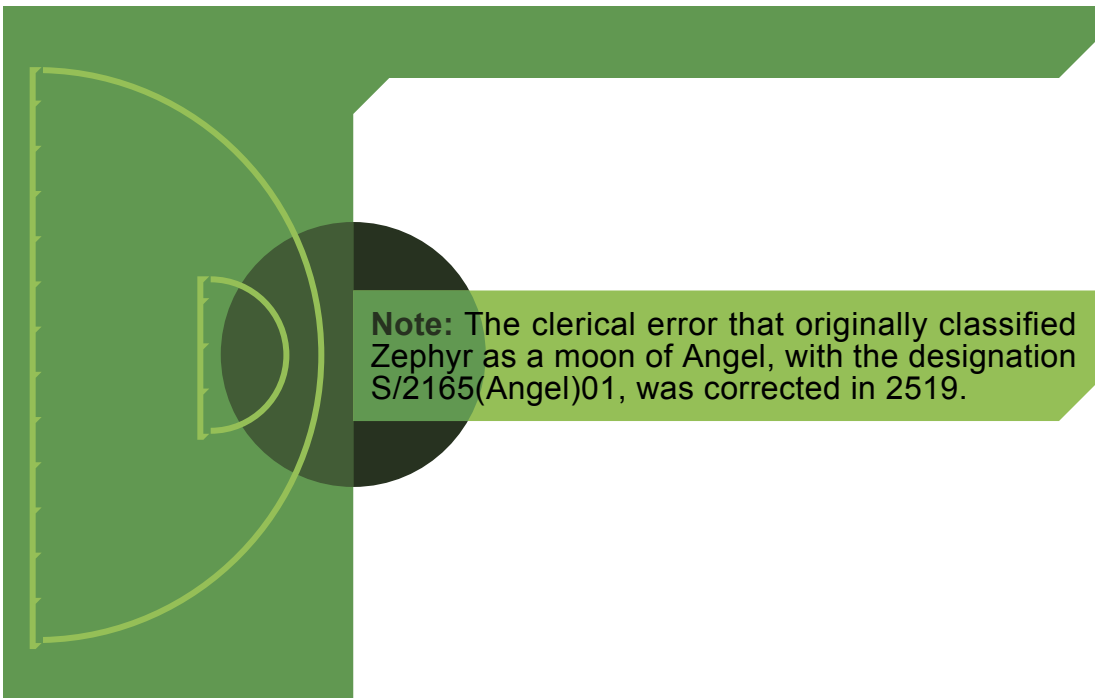
17,141 km
17,141 km
457,436 km
457,436 km
457,436 km

Inner Roche Limit
Outer Roche Limit

726 km
1,356 km

Terraformed (year):
Population:

2410
95,700



Note: The clerical error that originally classified Zephyr as a moon of Angel, with the designation S/2165(Angel)01, was corrected in 2519.

Zephyr
Orbit:
Period:

P/2165(Kalidasa)18
688,150,202 km - 4.600 AU
3,604.00 days - 9.87 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

5,870 km
108,249,544 km²
61,702,240 km²
19,744,717 km²
3.159 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

1,278,226,288,394,380,000,000 metric tonnes
1.0078 g_n
7.6140 km/s
464 km
9,285 km
16,615 km

Hill Sphere (radius):
LaGrangian Points

104,727 km

L1:

104,727 km

L2:

104,727 km

L3 (+-180):

688,150,202 km

L4 (+60):

688,150,202 km

L5 (-60):

688,150,202 km

Inner Roche Limit

4,437 km

Outer Roche Limit

8,282 km

Terraformed (year):
Population:

2410
19,500,000



Delphi
Orbit:
Period:

P/2029(Kalidasa)13
744,249,403 km - 4.975 AU
4,053.00 days - 11.10 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

11,946 km
448,326,999 km²
138,981,370 km²
44,474,038 km²
4.506 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

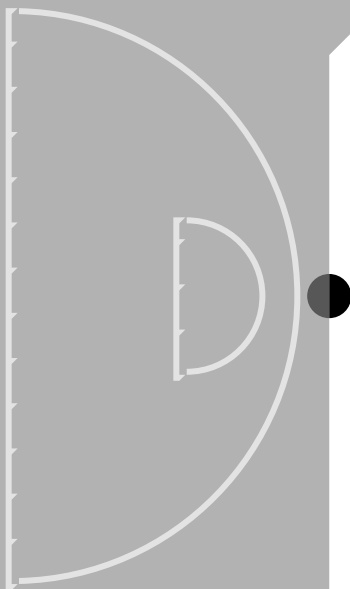
5,131,594,358,897,800,000,000 metric tonnes
0.9769 g_n
10.6940 km/s
916 km
18,317 km
32,775 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,342,055 km
1,342,055 km
1,342,055 km
744,249,403 km
744,249,403 km
744,249,403 km
8,753 km
16,338 km

Terraformed (year):
Population:

Scheduled
5,000



Clio
Orbit:
Period:

S/2176(Delphi)02
69,129 km
4.91 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

994 km
3,104,007 km²
1,831,364 km²
586,036 km²
1.300 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

36,368,882,554,022,000,000 metric tonnes
1.0000 g_n
3.1210 km/s
78 km
1,560 km
2,792 km

Hill Sphere (radius):
LaGrangian Points

17,597 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

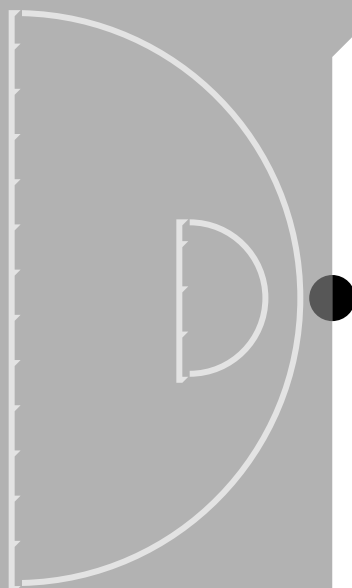
17,597 km
17,597 km
69,129 km
69,129 km
69,129 km

Inner Roche Limit
Outer Roche Limit

746 km
1,392 km

Terraformed (year):
Population:

Scheduled
5,000



Thalia
Orbit:
Period:

S/2174(Delphi)01
188,356 km
13.38 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,020 km
3,268,513 km²
1,895,738 km²
606,636 km²
1.317 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

8,330,829,824,088,100,000 metric tonnes
1.0009 g_n
3.1630 km/s
80 km
1,602 km
2,867 km

Hill Sphere (radius):
LaGrangian Points

18,073 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

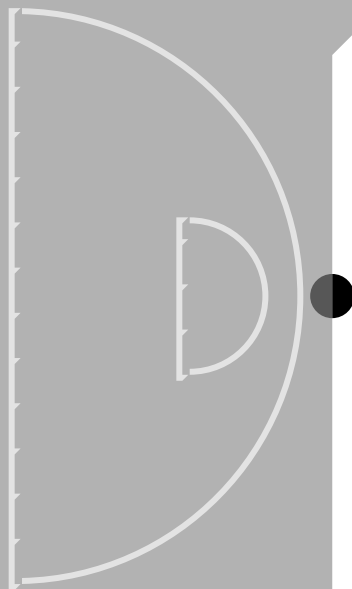
18,073 km
18,073 km
188,356 km
188,356 km
188,356 km

Inner Roche Limit
Outer Roche Limit

766 km
1,429 km

Terraformed (year):
Population:

Scheduled
5,000



Calliope
Orbit:
Period:

S/2176(Delphi)03
303,676 km
21.57 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

994 km
3,023,346 km²
1,814,008 km²
580,482 km²
1.300 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

36,368,882,554,022,000,000 metric tonnes
1.0000 g_n
3.1210 km/s
77 km
1,538 km
2,753 km

Hill Sphere (radius):
LaGrangian Points

17,597 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

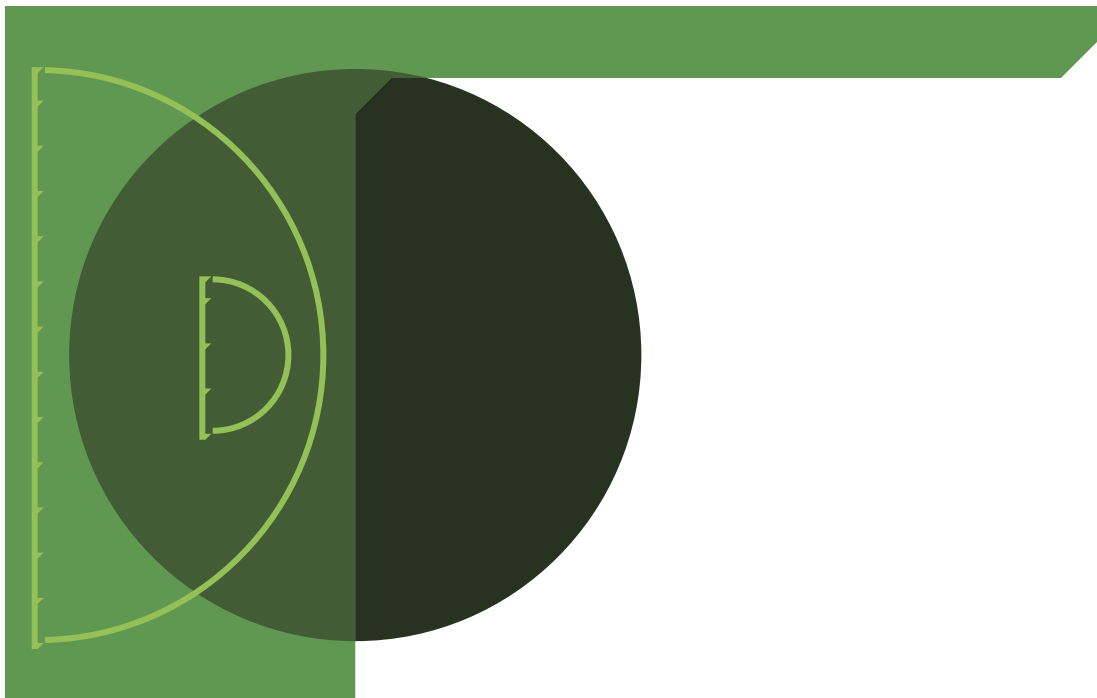
17,597 km
17,597 km
303,676 km
303,676 km
303,676 km

Inner Roche Limit
Outer Roche Limit

746 km
1,392 km

Terraformed (year):
Population:

Scheduled
5,000



New Kasmir
Orbit:
Period:

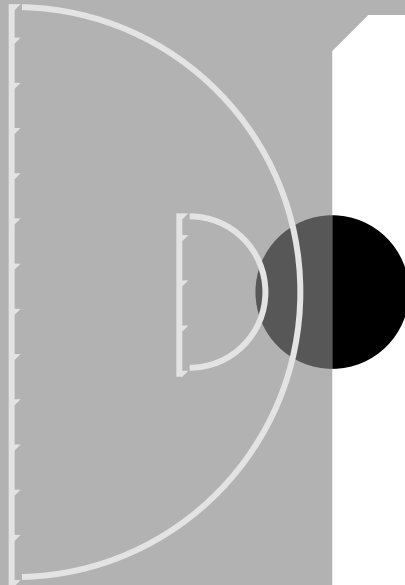
P/2028(Kalidasa)08
800,348,605 km - 5.350 AU
4,520.00 days - 12.37 years

Diameter: 12,670 km
Surface Area: 504,316,413 km²
Land Area: 171,467,580 km²
Arable Land: 54,869,626 km²
Horizon: 4.641 km

Mass: 5,917,223,937,205,950,000,000 metric tonnes
Surface Gravity: 1.0014 g_n
Escape Velocity: 11.1510 km/s
LEO (alt): 996 km
MEO (alt): 19,915 km
GEO (alt): 35,634 km

Hill Sphere (radius): 1,459,090 km
LaGrangian Points
L1: 1,459,090 km
L2: 1,459,090 km
L3 (+-180): 800,348,605 km
L4 (+60): 800,348,605 km
L5 (-60): 800,348,605 km
Inner Roche Limit: 9,516 km
Outer Roche Limit: 17,763 km

Terraformed (year): 2410
Population: 68,500,000



Skardu
Orbit:
Period:

S/2170(New Kasmir)01
269,080 km
19.11 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

3,400 km
36,316,811 km²
19,247,910 km²
6,159,331 km²
2.404 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

425,813,006,127,430,000,000 metric tonnes
1.0007 g_n
5.7744 km/s
267 km
5,340 km
9,556 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

60,232 km
60,232 km
60,232 km
269,080 km
269,080 km
269,080 km
2,552 km
4,763 km

Terraformed (year):
Population:

2410
11,000,000



Whittier
Orbit:
Period:

P/2030(Kalidasa)15

856,447,806 km - 5.725 AU
5,003.00 days - 13.70 years

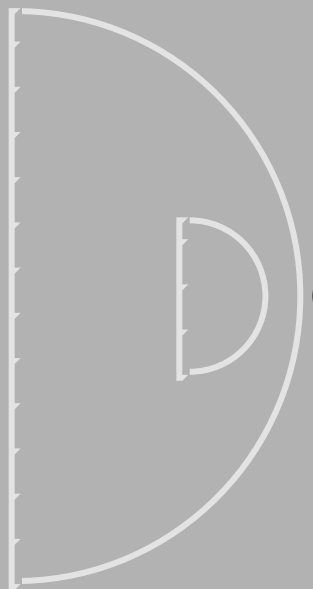
Diameter:	11,468 km
Surface Area:	413,166,633 km ²
Land Area:	148,739,988 km ²
Arable Land:	47,596,796 km ²
Horizon:	4.415 km

11,468 km
413,166,633 km²
148,739,988 km²
47,596,796 km²
4.415 km
4,984,748,713,068,310,000,000 metric tonnes
1.0297 g_n
10.7580 km/s
927 km
18,535 km
33,165 km

Hill Sphere (radius):	1,357,989 km
LaGrangian Points	
L1:	1,357,989 km
L2:	1,357,989 km
L3 (+-180):	856,447,806 km
L4 (+60):	856,447,806 km
L5 (-60):	856,447,806 km
Inner Roche Limit	8,856 km
Outer Roche Limit	16,532 km

Terraformed (year): 2410
Population: 36,500,000

Note: Ita is the smallest body in the Verse to undergo terraforming. As a result, the terraforming efforts have not been successful. Ita has become a test bed for experimental terraforming techniques. In 2470, Ita was chosen as a location for a secondary Alliance orbital dry-dock facility. However budget restructuring has left the Ita facility as little more than a holding facility and scrap yard. **"Towed to Ita"** has become a euphemism for permanent impound. While there is a small used spaceship business at Ita, most ships leave Ita in pieces. The scrap yards at Ita's L4 and L5 positions are havens for small-time salvagers, both legitimate and otherwise.



Ita
Orbit:
Period:

S/2176(Whittier)01
968,688 km
68.80 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

900 km
2,544,360 km²
1,526,814 km²
488,580 km²
1.237 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

27,442,193,196,608,900,000 metric tonnes
0.9204 g_n
2.8490 km/s
65 km
1,300 km
2,326 km

Hill Sphere (radius):
LaGrangian Points

14,664 km

L1:

14,664 km

L2:

14,664 km

L3 (+-180):

968,688 km

L4 (+60):

968,688 km

L5 (-60):

968,688 km

Inner Roche Limit

621 km

Outer Roche Limit

1,160 km

Terraformed (year):
Population:

Ongoing
~8,000+ (Terraform Crew + Depot Crew + other)

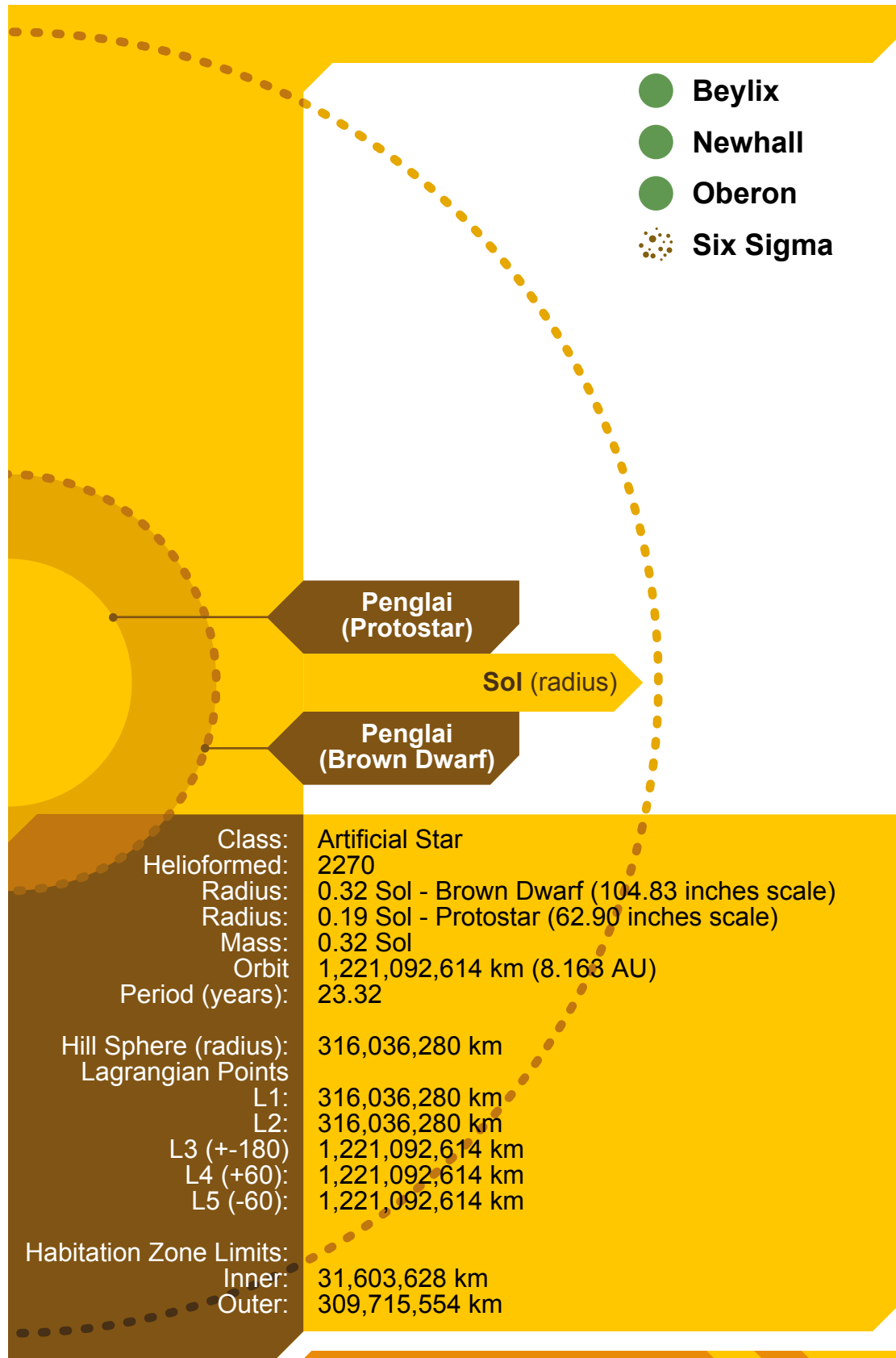
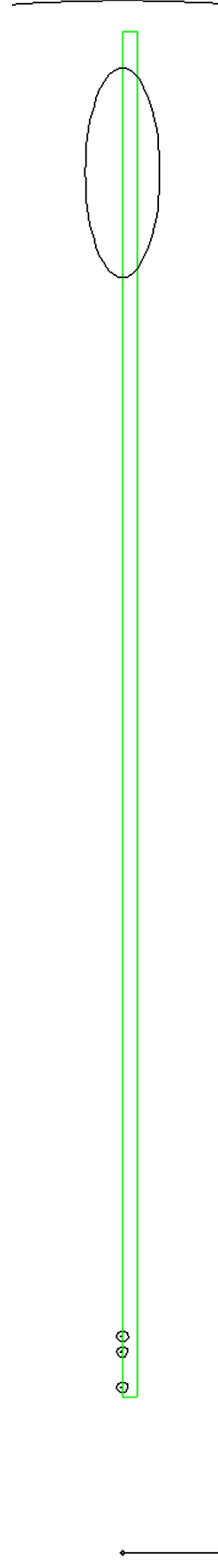
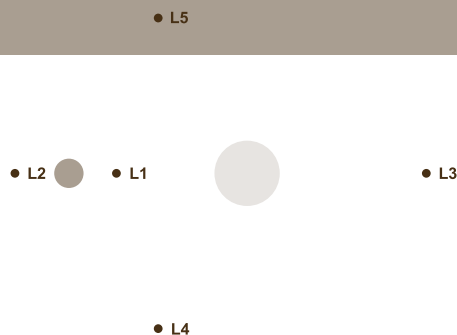


Diagram of the gravity limit and habitation zone for the protostar, Penglai. The tiny circle on the left is Penglai. The blank area between Penglai and the green rectangle is the area of space where the protostar's heat makes terraforming impossible. The green rectangle is Penglai's habitation zone. The arc on the right is the limit of Penglai's Hill Sphere. The blank area to the right of the habitation zone is too far from the gravitational center of Penglai's Hill Sphere to support stable orbits. The tiny circles are the Hill Spheres of Beylix, Newhall, and Oberon. The actual planets and their moons are too small to be seen at this scale. Large ellipse on far right is the approximate boundary of the Six Sigma Asteroid Swarm. The swarm covers roughly 120 degrees of the original orbit of "Pacifica."



Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2273(Kalidasa)a0e51**
The current numbering is able to catalog up to 33,554,432 objects per year per region.



REGION: L1

REGION: L2

REGION: L3

Pendulum A/2271(Kalidasa)e0m42

REGION: L4

Genoa A/2273(Kalidasa)e7055

MH-CA A/2273(Kalidasa)e7056

REGION: L5

Adso A/2274(Kalidasa)g50n8

Heraklion A/2274(Kalidasa)g50n9



Beylix
Orbit: 33,599,425 km - 0.225 AU
Period: 739.00 days - 2.02 years

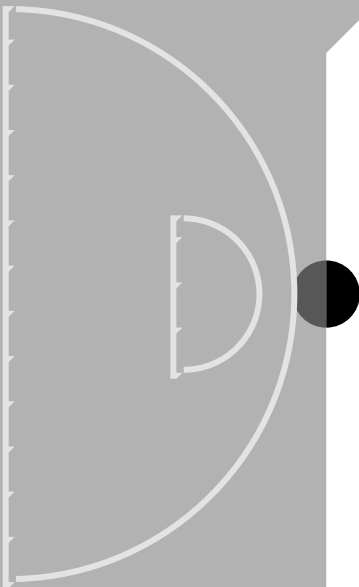
Diameter: 10,300 km
Surface Area: 333,291,565 km²
Land Area: 126,650,795 km²
Arable Land: 40,528,254 km²
Horizon: 4.184 km

Mass: 3,778,960,731,922,870,000,000 metric tonnes
Surface Gravity: 0.9677 g_n
Escape Velocity: 9.8830 km/s
LEO (alt): 782 km
MEO (alt): 15,645 km
GEO (alt): 27,993 km

Hill Sphere (radius): 1,146,241 km
LaGrangian Points
L1: 1,146,241 km
L2: 1,146,241 km
L3 (+-180): 33,599,425 km
L4 (+60): 33,599,425 km
L5 (-60): 33,599,425 km
Inner Roche Limit: 7,475 km
Outer Roche Limit: 13,954 km

Planetary Ring
Inner Boundary: 7,150 km
Outer Boundary: 13,900 km

Terraformed (year): 2425
Population: 23,000,000



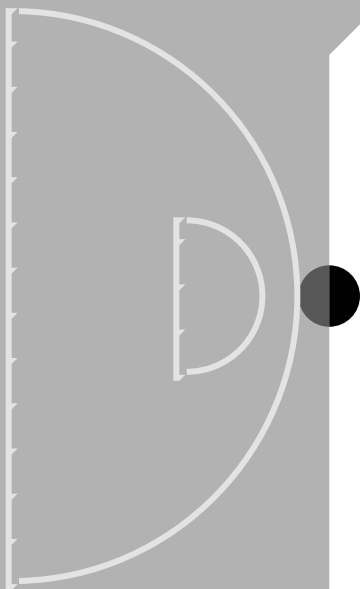
Charity Orbit:
Period: S/2165(Beylix)01
246,016 km
17.47 days

Diameter: 1,470 km
Surface Area: 6,788,668 km²
Land Area: 3,665,880 km²
Arable Land: 1,173,082 km²
Horizon: 1.581 km

Mass: 77,051,510,661,405,200,000 metric tonnes
Surface Gravity: 0.9687 g_n
Escape Velocity: 3.7360 km/s
LEO (alt): 112 km
MEO (alt): 2,235 km
GEO (alt): 3,999 km

Hill Sphere (radius): 25,209 km
LaGrangian Points
L1: 25,209 km
L2: 25,209 km
L3 (+-180): 246,016 km
L4 (+60): 246,016 km
L5 (-60): 246,016 km
Inner Roche Limit: 1,068 km
Outer Roche Limit: 1,994 km

Terraformed (year): 2425
Population: 750,000



Cinote
Orbit:
Period:

S/2165(Beylix)02
392,088 km
27.85 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,358 km
5,793,612 km²
3,186,487 km²
1,019,676 km²
1.519 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

65,458,928,986,579,900,000 metric tonnes
0.9643 g_n
3.5820 km/s
103 km
2,055 km
3,678 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

23,182 km
23,182 km
23,182 km
392,088 km
392,088 km
392,088 km
982 km
1,833 km

Terraformed (year):
Population:

2425
400,000

HALIDASA (HUAH SHU)

太阳

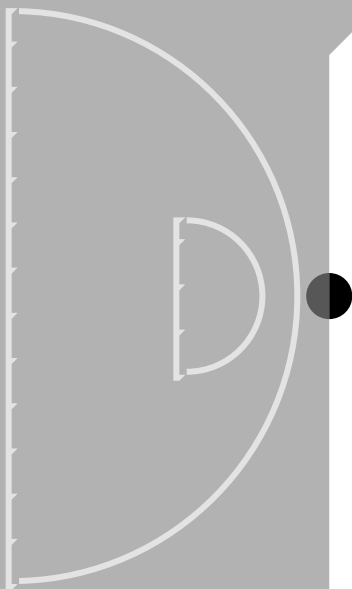
PENGLIA

BEYLIH

卫星

ST. LUCIUS

S/2165(Beylix)03



St. Lucius
Orbit:
Period:

S/2165(Beylix)03
438,216 km
31.12 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,029 km
3,326,447 km²
1,929,339 km²
617,389 km²
1.323 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

38,515,255,899,085,700,000 metric tonnes
0.9882 g_n
3.1570 km/s
80 km
1,596 km
2,856 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

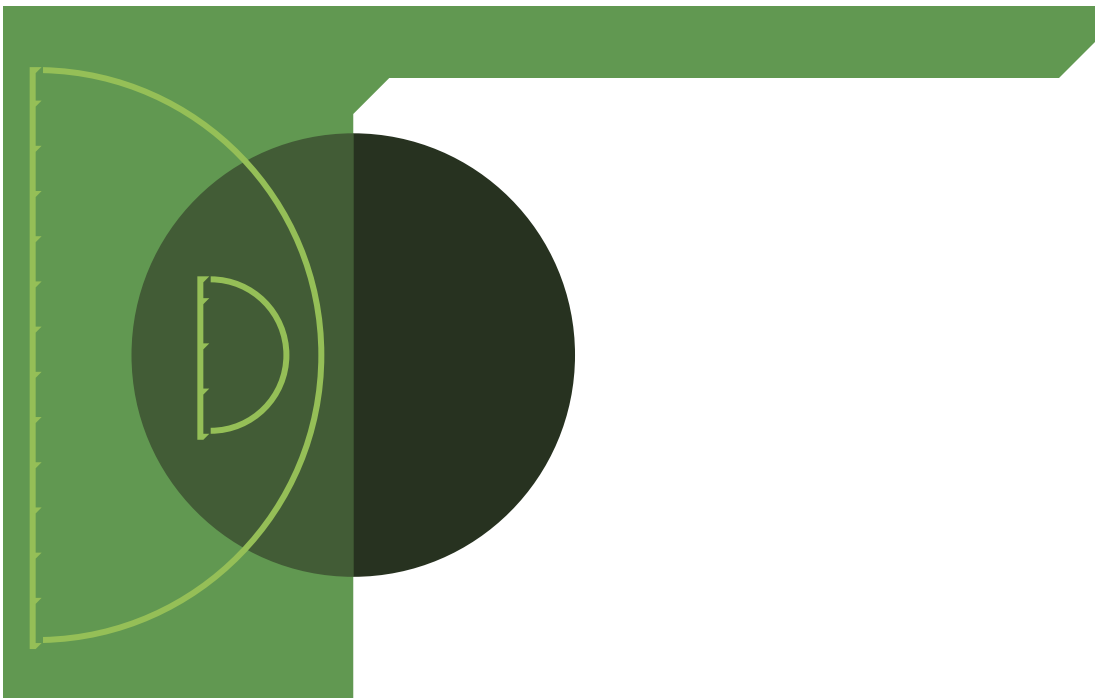
18,001 km
18,001 km
18,001 km
438,216 km
438,216 km
438,216 km
763 km
1,424 km

Terraformed (year):
Population:

2425
330,000

卫星

5.42



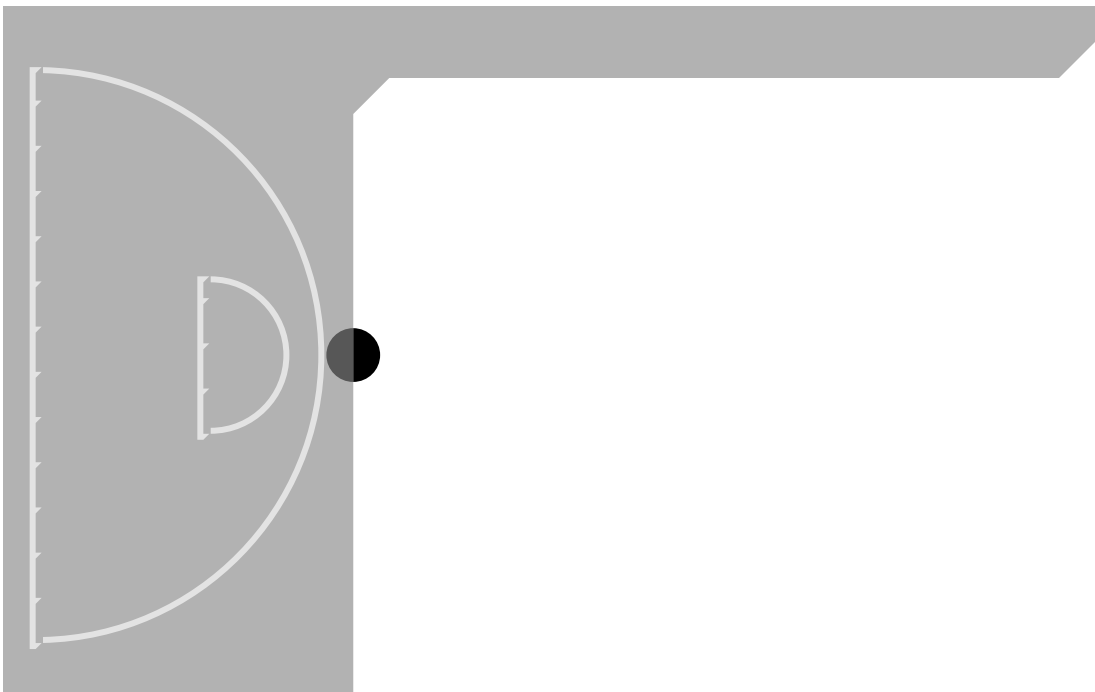
Newhall
Orbit: 40,918,416 km - 0.274 AU
Period: 900.00 days - 2.46 years

Diameter: 9,806 km
Surface Area: 302,088,123 km²
Land Area: 117,814,368 km²
Arable Land: 37,700,598 km²
Horizon: 4.083 km

Mass: 3,590,814,893,411,330,000,000 metric tonnes
Surface Gravity: 1.0145 g_n
Escape Velocity: 9.8740 km/s
LEO (alt): 781 km
MEO (alt): 15,615 km
GEO (alt): 27,940 km

Hill Sphere (radius): 1,144,042 km
LaGrangian Points
L1: 1,144,042 km
L2: 1,144,042 km
L3 (+-180): 40,918,416 km
L4 (+60): 40,918,416 km
L5 (-60): 40,918,416 km
Inner Roche Limit: 7,461 km
Outer Roche Limit: 13,927 km

Terraformed (year): 2425
Population: 8,000,000



Severance S/2165(Newhall)01

Orbit: 176,824 km

Period: 12.56 days

Diameter: 1,172 km

Surface Area: 4,315,241 km²

Land Area: 2,416,535 km²

Arable Land: 773,291 km²

Horizon: 1.412 km

Mass: 51,020,724,125,606,600,000 metric tonnes

Surface Gravity: 1.0091 g_n

Escape Velocity: 3.4040 km/s

LEO (alt): 93 km

MEO (alt): 1,856 km

GEO (alt): 3,322 km

Hill Sphere (radius): 20,937 km

LaGrangian Points

L1: 20,937 km

L2: 20,937 km

L3 (+-180): 176,824 km

L4 (+60): 176,824 km

L5 (-60): 176,824 km

Inner Roche Limit: 887 km

Outer Roche Limit: 1,656 km

Terraformed (year): 2425

Population: 400,000

HALIDASA (HUAN WU)

太阳

PENGSLIA

NEWHALL

卫星

DARCKE

S/2165(Newhall)02



Darcke
Orbit:
Period:

S/2165(Newhall)02
299,832 km
21.29 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,183 km
14,971,225 km²
7,635,325 km²
2,443,304 km²
1.926 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

183,869,127,565,799,000,000 metric tonnes
1.0482 g_n
4.7350 km/s
180 km
3,592 km
6,426 km

Hill Sphere (radius):
LaGrangian Points

40,508 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

40,508 km
40,508 km
299,832 km
299,832 km
299,832 km

Inner Roche Limit
Outer Roche Limit

1,716 km
3,204 km

Terraformed (year):
Population:

2425
2,000,000

卫星

5.45

HALIDASA (HUAN WU)

太阳

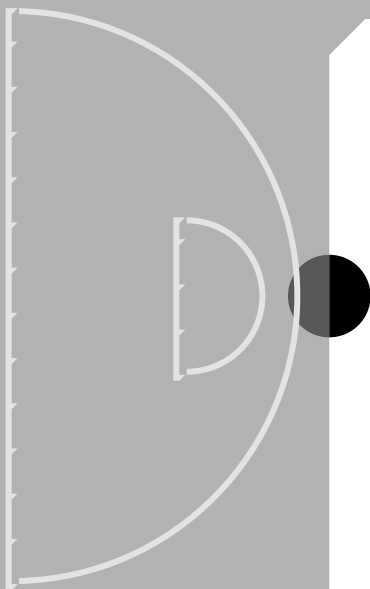
PENGGLIA

NEWHALL

卫星

MOHENRICHIA

S/2165(Newhall)03



Mohenrichia
Orbit:
Period:

S/2165(Newhall)03
388,244 km
27.57 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,846 km
10,705,656 km²
5,566,941 km²
1,781,421 km²
1.771 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

123,855,045,982,024,000,000 metric tonnes
0.9874 g_n
4.2260 km/s
143 km
2,861 km
5,119 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

32,268 km
32,268 km
32,268 km
388,244 km
388,244 km
388,244 km
1,367 km
2,552 km

Terraformed (year):
Population:

2425
500,000

卫星

5.46



Oberon	
Orbit:	S/2042(Penglai)03
Period:	44,058,005 km - 0.295 AU
	969.00 days - 2.65 years
Diameter:	10,155 km
Surface Area:	323,973,679 km²
Land Area:	113,390,788 km²
Arable Land:	36,285,052 km²
Horizon:	4.155 km
Mass:	3,913,593,458,020,190,000,000 metric tonnes
Surface Gravity:	1.0310 g _n
Escape Velocity:	10.1290 km/s
LEO (alt):	822 km
MEO (alt):	16,434 km
GEO (alt):	29,405 km
Hill Sphere (radius):	1,204,028 km
LaGrangian Points	
L1:	1,204,028 km
L2:	1,204,028 km
L3 (+-180):	44,058,005 km
L4 (+60):	44,058,005 km
L5 (-60):	44,058,005 km
Inner Roche Limit	7,852 km
Outer Roche Limit	14,658 km
Terraformed (year):	Scheduled
Population:	5,000

HALIDASA (HUAN WU)

太阳

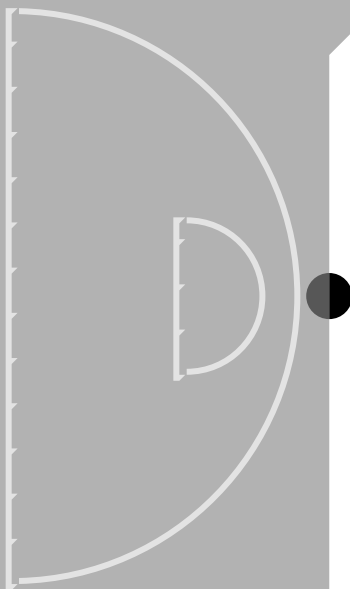
PENGLIA

OBERON

卫星

PUCK

S/2170(OBERON)01



Puck Orbit:
Period: 8.05 days

Diameter: 1,007 km
Surface Area: 3,185,729 km²
Land Area: 1,847,723 km²
Arable Land: 591,271 km²
Horizon: 1.308 km

Mass: 38,072,930,100,445,600,000 metric tonnes
Surface Gravity: 1.0200 g_n
Escape Velocity: 3.1730 km/s
LEO (alt): 81 km
MEO (alt): 1,612 km
GEO (alt): 2,885 km

Hill Sphere (radius): 18,183 km
LaGrangian Points
L1: 18,183 km
L2: 18,183 km
L3 (+-180): 113,398 km
L4 (+60): 113,398 km
L5 (-60): 113,398 km
Inner Roche Limit: 770 km
Outer Roche Limit: 1,438 km

Terraformed (year): Scheduled
Population: 5,000

卫星

5.48

HALIDASA (HUAH SHU)

太阳

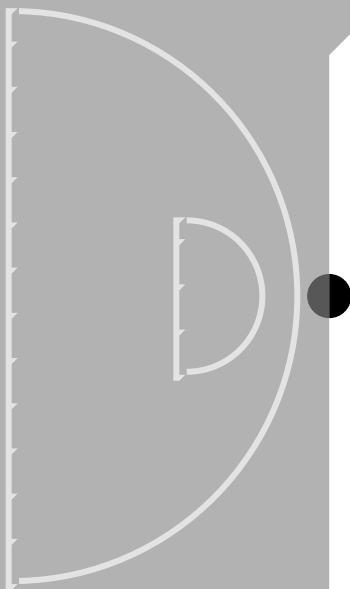
PENGLIA

OBERON

卫星

QUINCE

S/2171(OBERON)03



Quince Orbit:
Period:

S/2171(OBERON)03
292,144 km
20.75 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

990 km
3,079,075 km²
1,816,654 km²
581,329 km²
1.297 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

36,112,840,962,260,600,000 metric tonnes
1.0010 g_n
3.1160 km/s
78 km
1,555 km
2,783 km

Hill Sphere (radius):
LaGrangian Points

17,543 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

17,543 km
17,543 km
292,144 km
292,144 km
292,144 km

Inner Roche Limit
Outer Roche Limit

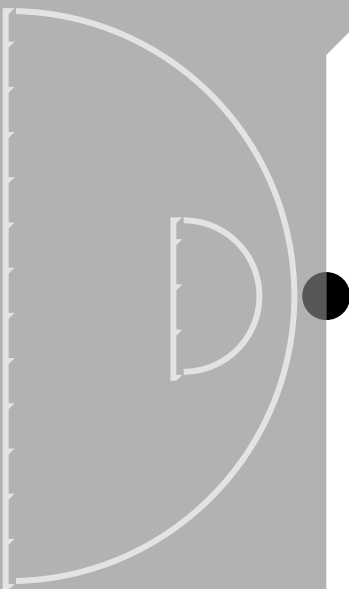
743 km
1,387 km

Terraformed (year):
Population:

Scheduled
5,000

卫星

5.49



Bottom Orbit:
Period:

S/2170(OBERON)02
376,712 km
26.75 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,050 km
3,463,606 km²
1,974,255 km²
631,762 km²
1.336 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

40,663,383,117,458,100,000 metric tonnes
1.0020 g_n
3.2110 km/s
83 km
1,651 km
2,955 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

18,625 km
18,625 km
18,625 km
376,712 km
376,712 km
376,712 km
789 km
1,473 km

Terraformed (year):
Population:

Scheduled
5,000

Original
SillhouetteTerraform Project:
Target:Six Sigma
S/2042(Penglai)04 -- "Pacifica"Diameter:
Surface Gravity:
Mass:25,484 km
3 G
71,715,599,987,316,100,000,000 metric tonnes

The "Pacifica Project" was well outside the norm for terraforming, but the prospect of having twice the land area of Londinium or Harvest was too good to pass up. A special team was tasked to find ways to reduce Pacifica's crushing surface gravity.

The end of a terraforming effort is the most sensitive. The rotation is adjusted to Earth standard and a second axis of rotation is added to simulate the seasonal changes of Earth-That-Was. These changes create a period of increased seismic activity as the planet adjusts to the new rotation.

There is no record of what happened to Pacifica when this adjustment was made. Increased seismic activity (common to all terraforming) may have been too much for the planet's thin, brittle crust. No one had ever attempted even a moon-sized gravity dampening field, much less a planet-sized field. The assumption going into the project was that a uniform field would be needed. However, when the gravity screens were being set up, it was discovered that some areas of Pacifica required stronger or weaker fields to accomplish the same level of gravity reduction. The entire effort may simply have been too complex. The terraformer, Ecotopia, was lost with all hands and all records for the final six months of terraforming efforts before those records could be sent with the semi-annual status report. Only the most distant moon, S/2207(Six Sigma)05 "Lear," survived the event.

While Lear's terraforming is still in place, it suffers under the regular bombardment of debris as the remains of Pacifica slowly spread into an asteroid belt along the planet's original orbit. All settlements on Lear are underground. A hundred years after a completed terraforming effort should see the world's atmosphere processor in maintenance mode, making minor adjustments to the world's atmosphere as the new environment seeks a new equilibrium. Lear's atmosphere processor is still running at nearly 30% capacity to help clear dust and debris from the moon's atmosphere. Waste dumps near the processor have some of the moon's richest mineral deposits, all filtered from the remains of Pacifica that have fallen from the sky.

The asteroid swarm has stretched over time to fill an arc-shaped region along the old orbit of Pacifica. The swarm covers roughly 120° of the old orbit, and completes one orbit around Penglai every two and a half years. Odd gravitational surges are slowly stretching the swarm into an actual belt, but that won't happen for another 1,000 years or so.

The Six Sigma Asteroid Swarm is a Class III navigation hazard

After the disaster, Blue Sun's PR division determined that "Pacifica" was too good a name to be officially applied to a terraforming failure. The asteroid swarm was rechristened the Six Sigma Asteroid Swarm, and "Pacifica" was returned to the list of available world names. Lear's catalog designation was adjusted appropriately.



太阳

PENGLAI



Swarm asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** A/2274(Kalidasa)k7f1y
The current numbering is able to catalog up to 33,554,432 objects per year per region.

While Pacifica is forever lost as a habitable world, the desimated remnants of the planet lay stretched out in close proximity to the surviving moon Lear and the other worlds orbiting Penglai. This has created an unforeseen mining boom and one of the fastest growing areas outside the Core.

Six Sigma Primary:

Asteroid Swarm
Penglai

Inner Boundary:

259,678,926 km (1.736 AU)

Outer Boundary:

302,266,386 km (2.021 AU)

Cloud Length:

588,467,755 km (120 degrees of arc around Penglai)

Number of

Cataloged objects:

17,492 at present

REGION: Unspecified

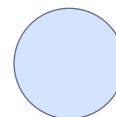
Bonnie Prince Charlie A/2431(Penglai)r8c0d

Curran A/2431(Penglai)r8c38

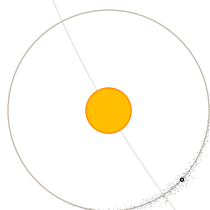
Kaenie A/2431(Penglai)r8c39

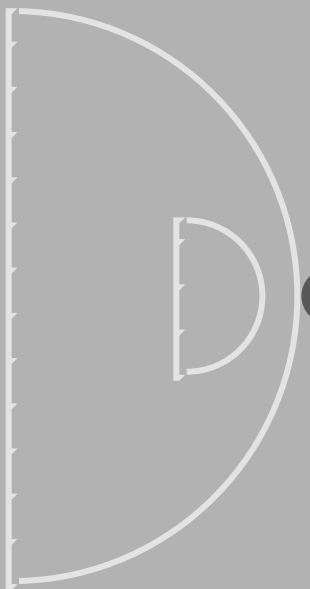
Scotty A/2431(Penglai)r8c37

Kalidasa



Penglai





Note: Despite clearing out most of the debris along its corridor around Penglai in the 200 years since Pacifica's destruction, there are still substantial meteor showers that make Lear's surface an unhealthy place to be.

Lear
Orbit:
Period:

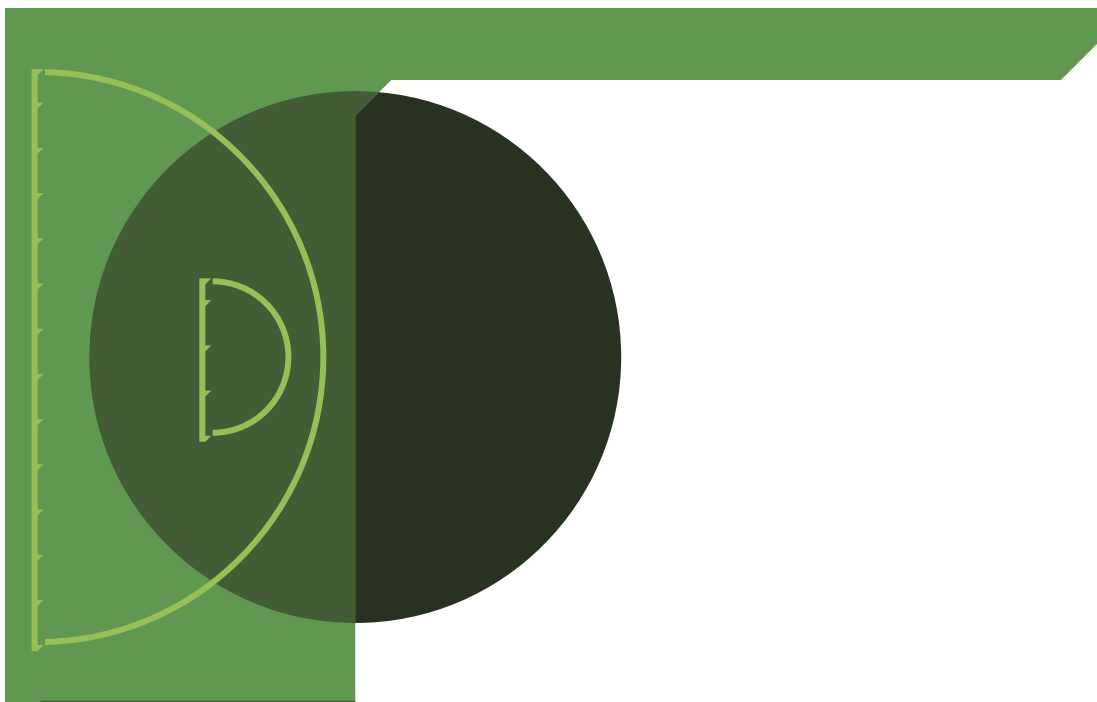
S/2207(Six Sigma)05
280,972,656 km - 1.878 AU
940.00 days - 2.57 years

Diameter: 971 km
Surface Area: 2,962,022 km²
Land Area: 1,777,213 km²
Arable Land: 568,708 km²
Horizon: 1.285 km

Mass: 36,402,376,224,112,000,000 metric tonnes
Surface Gravity: 1.0489 g_n
Escape Velocity: 3.1593 km/s
LEO (alt): 80 km
MEO (alt): 1,599 km
GEO (alt): 2,860 km

Hill Sphere (radius): 18,030 km
LaGrangian Points
L1: 18,030 km
L2: 18,030 km
L3 (+-180): 280,972,656 km
L4 (+60): 280,972,656 km
L5 (-60): 280,972,656 km
Inner Roche Limit: 764 km
Outer Roche Limit: 1,426 km

Terraformed (year): 2320
Population: 157,000



Ghost
Orbit:
Period:

P/2032(Kalidasa)17
1,585,737,422 km - 10.600 AU
12,605.00 days - 34.51 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

11,750 km
433,736,136 km²
147,470,286 km²
47,190,492 km²
4.469 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

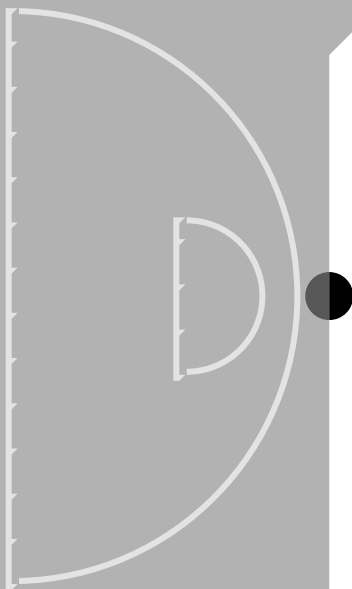
5,267,471,909,477,580,000,000 metric tonnes
1.0365 g_n
10.9250 km/s
956 km
19,116 km
34,204 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,400,571 km
1,400,571 km
1,400,571 km
1,585,737,422 km
1,585,737,422 km
1,585,737,422 km
9,134 km
17,050 km

Terraformed (year):
Population:

Scheduled
5,000



Inferno
Orbit:
Period:

S/2173(Ghost)01
65,348 km
4.64 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,057 km
3,509,941 km²
2,000,667 km²
640,213 km²
1.340 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

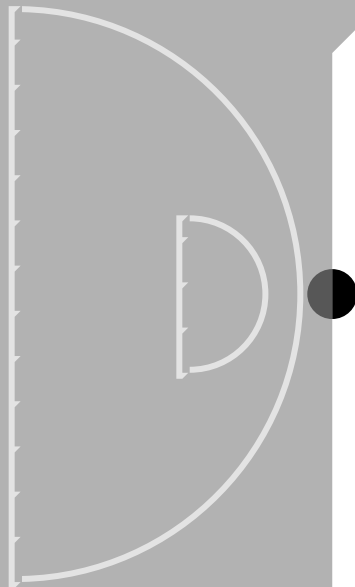
41,371,869,294,829,400,000 metric tonnes
1.0060 g_n
3.2280 km/s
83 km
1,669 km
2,986 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

18,824 km
18,824 km
18,824 km
65,348 km
65,348 km
65,348 km
798 km
1,489 km

Terraformed (year):
Population:

Scheduled
5,000



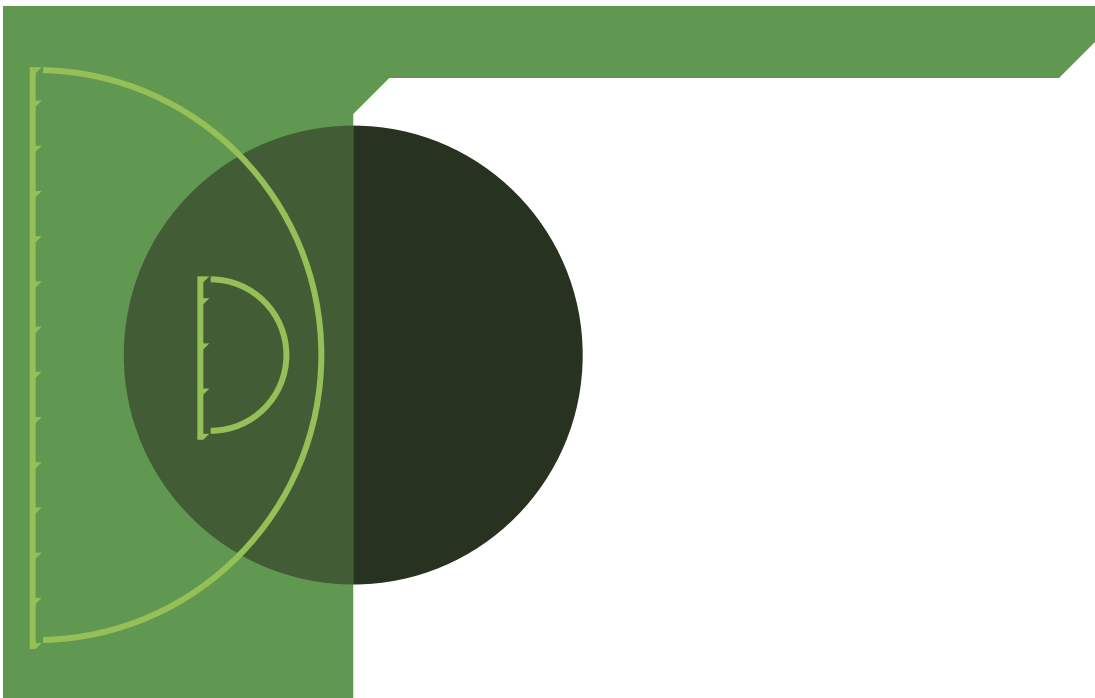
Xibalia
Orbit: 149,916 km
Period: 10.65 days

Diameter: 1,101 km
Surface Area: 3,808,242 km²
Land Area: 2,170,698 km²
Arable Land: 694,623 km²
Horizon: 1.368 km

Mass: 44,713,934,747,367,300,000 metric tonnes
Surface Gravity: 1.0021 g_n
Escape Velocity: 3.2880 km/s
LEO (alt): 87 km
MEO (alt): 1,732 km
GEO (alt): 3,099 km

Hill Sphere (radius): 19,532 km
LaGrangian Points
L1: 19,532 km
L2: 19,532 km
L3 (+-180): 149,916 km
L4 (+60): 149,916 km
L5 (-60): 149,916 km
Inner Roche Limit: 827 km
Outer Roche Limit: 1,545 km

Terraformed (year): Scheduled
Population: 5,000



Aberdeen

Orbit:

Period:

1,641,836,623 km - 10.975 AU

13,280 days - 36.36 years

Diameter:

Surface Area:

Land Area:

Arable Land:

Horizon:

9,931 km

309,838,825 km²

96,050,035 km²

30,736,011 km²

4.109 km

Mass:

Surface Gravity:

Escape Velocity:

LEO (alt):

MEO (alt):

GEO (alt):

3,733,405,993,769,200,000,000 metric tonnes

1.0284 g_n

10.004 km/s

802 km

16,031 km

28,683 km

Hill Sphere (radius):

LaGrangian Points

L1:

L2:

L3 (+-180):

L4 (+60):

L5 (-60):

Inner Roche Limit

Outer Roche Limit

1,174,500 km

1,174,500 km

1,174,500 km

1,641,836,623 km

1,641,836,623 km

1,641,836,623 km

7,660 km

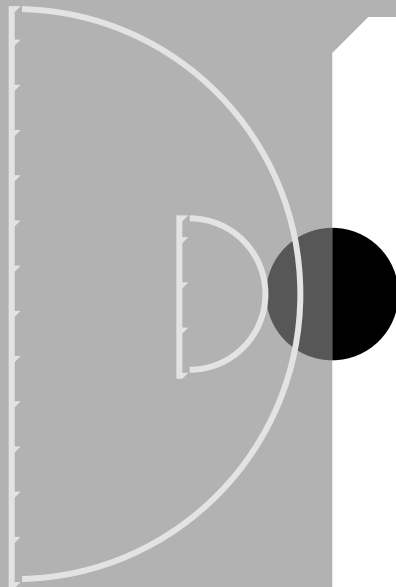
14,298 km

Terraformed (year):

Population:

2430

12,000,000



Vesta
Orbit:
Period:

S/2166(Aberdeen)01
292,144 km
20.75 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,946 km
27,265,619 km²
14,178,122 km²
4,536,999 km²
2.238 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

325,885,788,050,128,000,000 metric tonnes
1.0201 g_n
5.4269 km/s
236 km
4,717 km
8,440 km

Hill Sphere (radius):
LaGrangian Points

53,201 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

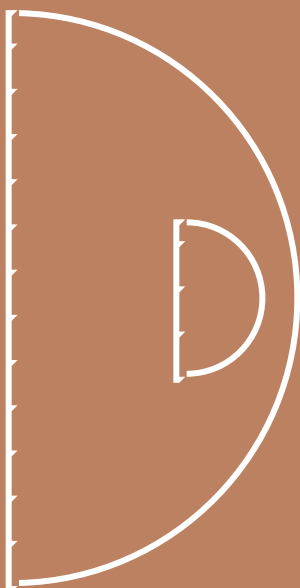
53,201 km
53,201 km
292,144 km
292,144 km
292,144 km

Inner Roche Limit
Outer Roche Limit

2,254 km
4,207 km

Terraformed (year):
Population:

2430
2,000,000



Zeus
Orbit: 1,810,134,227 km - 12.100 AU
Period: 15,373.00 days - 42.09 years

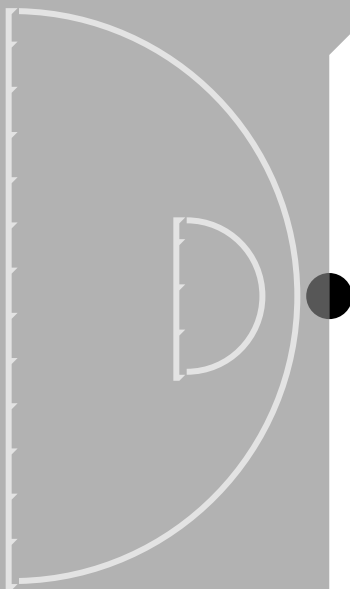
P/2020(Kalidasa)03

Diameter: 132,741 km
Surface Area: N/A
Land Area: N/A
Arable Land: N/A
Horizon: N/A

Mass: 1,508,135,608,026,140,000,000,000 metric tonnes
Surface Gravity: 2.3469 g_n
Escape Velocity: N/A
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 45,126,198 km
LaGrangian Points
L1: 45,126,198 km
L2: 45,126,198 km
L3 (+-180): 1,810,134,227 km
L4 (+60): 1,810,134,227 km
L5 (-60): 1,810,134,227 km
Inner Roche Limit: 84,954 km
Outer Roche Limit: 163,271 km

Terraformed (year): N/A
Population: N/A



Isabel
Orbit:
Period:

S/2178(ZeUS)05
634,260 km
45.05 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,000 km
3,141,593 km²
1,853,540 km²
593,133 km²
1.304 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

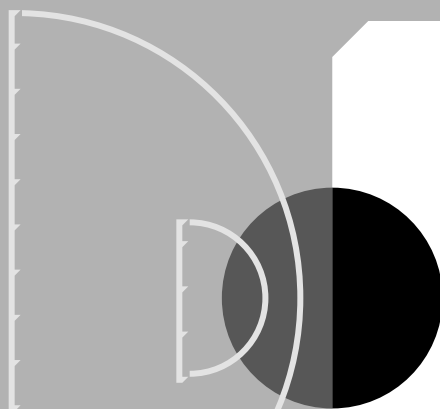
35,646,095,754,926,800,000 metric tonnes
0.9684 g_n
3.0810 km/s
76 km
1,520 km
2,720 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

17,144 km
17,144 km
17,144 km
634,260 km
634,260 km
634,260 km
726 km
1,356 km

Terraformed (year):
Population:

2420
60,000



Sophie
Orbit:
Period:

S/2166(Zeus)01
757,268 km
53.78 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

4,892 km
75,183,540 km²
38,343,605 km²
12,269,954 km²
2.884 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

881,699,865,620,200,000,000 metric tonnes
1.0009 g_n
6.9270 km/s
384 km
7,685 km
13,752 km

Hill Sphere (radius):
LaGrangian Points

86,681 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

86,681 km
86,681 km
757,268 km
757,268 km
757,268 km

Inner Roche Limit
Outer Roche Limit

3,672 km
6,855 km

Terraformed (year):
Population:

2420
22,000,000



Victoria
Orbit:
Period:

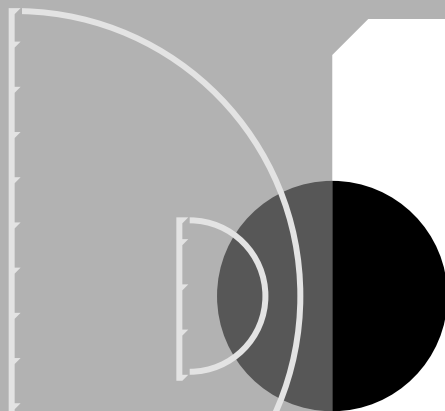
S/2166(Zeus)02
957,156 km
67.98 days

Diameter: 5,310 km
Surface Area: 88,580,661 km²
Land Area: 49,605,170 km²
Arable Land: 15,873,654 km²
Horizon: 3.004 km

Mass: 1,040,680,089,728,300,000,000 metric tonnes
Surface Gravity: 1.0027 g_n
Escape Velocity: 7.2230 km/s
LEO (alt): 418 km
MEO (alt): 8,357 km
GEO (alt): 14,953 km

Hill Sphere (radius): 94,256 km
LaGrangian Points
L1: 94,256 km
L2: 94,256 km
L3 (+-180): 957,156 km
L4 (+60): 957,156 km
L5 (-60): 957,156 km
Inner Roche Limit 3,993 km
Outer Roche Limit 7,454 km

Terraformed (year): 2420
Population: 50,000,000



Delynn
Orbit:
Period:

S/2166(Zeus)03
1,241,612 km
88.18 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

5,111 km
82,065,692 km²
43,494,817 km²
13,918,341 km²
2.948 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

965,870,477,186,717,000,000 metric tonnes
1.0045 g_n
7.0930 km/s
403 km
8,058 km
14,419 km

Hill Sphere (radius):
LaGrangian Points

90,887 km

L1:
L2:

90,887 km
90,887 km

L3 (+-180):
L4 (+60):
L5 (-60):

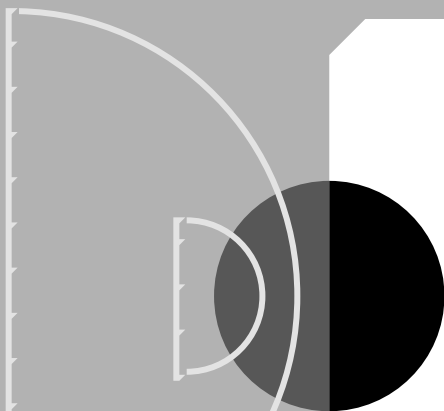
1,241,612 km
1,241,612 km
1,241,612 km

Inner Roche Limit
Outer Roche Limit

3,850 km
7,188 km

Terraformed (year):
Population:

2420
35,000,500



Theophrastus
Orbit:
Period:

S/2178(Zeus)07
1,633,700 km
116.03 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,713.00 km
23,123,281 km²
11,561,641 km²
3,699,725 km²
2.148 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

271,769,682,220,062,000,000 metric tonnes
1.0031 g_n
5.1643 km/s
214 km
4,272 km
7,643 km

Hill Sphere (radius):
LaGrangian Points

48,177 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

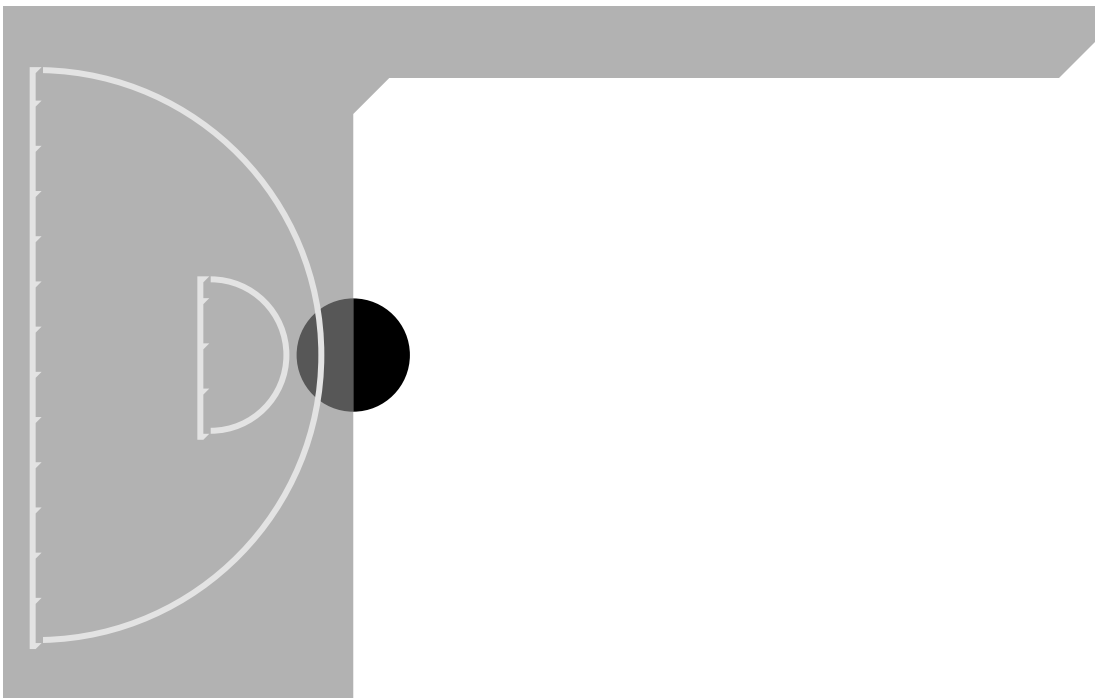
48,177 km
48,177 km
1,633,700 km
1,633,700 km
1,633,700 km

Inner Roche Limit
Outer Roche Limit

2,041km
3,810 km

Terraformed (year):
Population:

2420
250,100



Gayle

Orbit:

Period:

S/2169(Zeus)04

1,918,156 km

136.23 days

Diameter:

Surface Area:

Land Area:

Arable Land:

Horizon:

2,486 km

19,415,658 km²

9,901,986 km²

3,168,635 km²

2.056 km

Mass:

Surface Gravity:

Escape Velocity:

LEO (alt):

MEO (alt):

GEO (alt):

228,307,453,418,480,000,000 metric tonnes

1.0036 g_n

4.9450 km/s

196 km

3,916 km

7,007 km

Hill Sphere (radius):

LaGrangian Points

L1:

L2:

L3 (+-180):

L4 (+60):

L5 (-60):

Inner Roche Limit

Outer Roche Limit

44,168 km

44,168 km

44,168 km

1,918,156 km

1,918,156 km

1,918,156 km

1,871 km

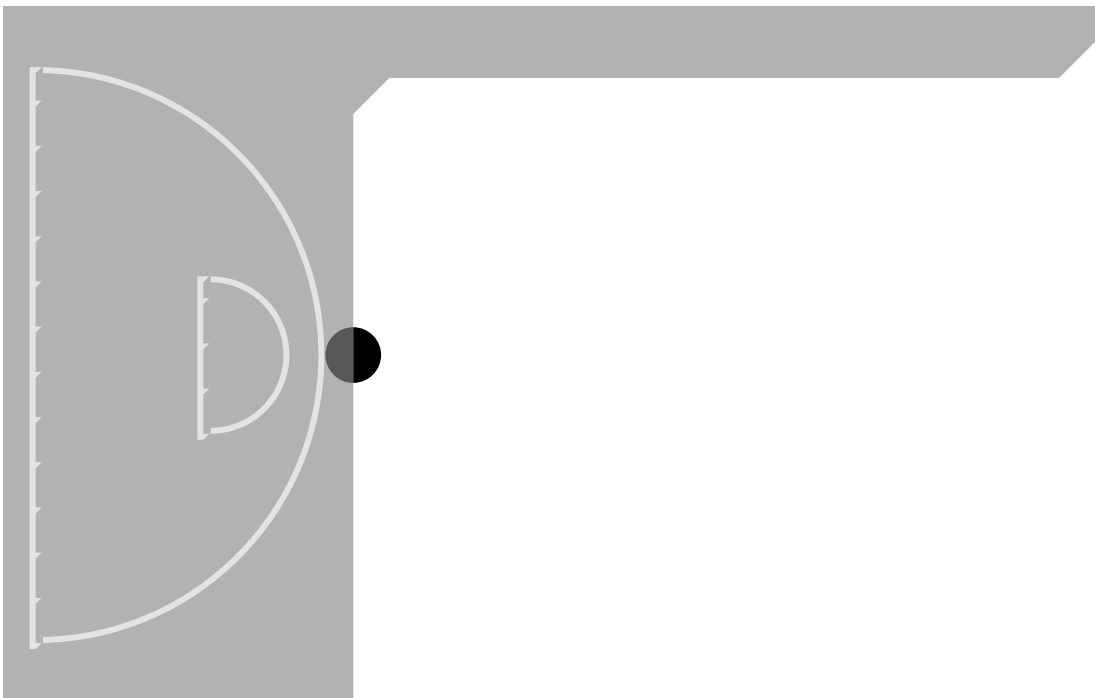
3,493 km

Terraformed (year):

Population:

2420

250,000



Betty

Orbit:

Period:

S/2178(Zeus)06

2,210,300 km

156.98 days

Diameter:

Surface Area:

Land Area:

Arable Land:

Horizon:

1,234 km

4,783,879 km²

2,631,133 km²

841,963 km²

1.448 km

Mass:

Surface Gravity:

Escape Velocity:

LEO (alt):

MEO (alt):

GEO (alt):

56,152,427,445,814,400,000 metric tonnes

1.0018 g_n

3.4810 km/s

97 km

1,940 km

3,472 km

Hill Sphere (radius):

LaGrangian Points

L1:

L2:

L3 (+-180):

L4 (+60):

L5 (-60):

Inner Roche Limit

Outer Roche Limit

21,885 km

21,885 km

21,885 km

2,210,300 km

2,210,300 km

2,210,300 km

927 km

1,731 km

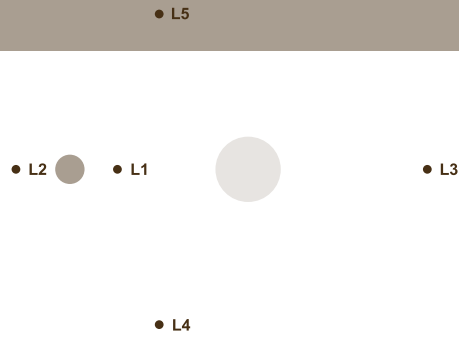
Terraformed (year):

Population:

Scheduled

5,000

Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2274(Kalidasa)k7f1y**
The current numbering is able to catalog up to 33,554,432 objects per year per region.



REGION: L1

Agamemnon	A/2272(Kalidasa)e4r17
Hespirion	A/2272(Kalidasa)e4r15
Timarion	A/2272(Kalidasa)e4r16

REGION: L2

Cork	A/2275(Kalidasa)k6k04
Hector	A/2272(Kalidasa)k6k0b
Illirium	A/2275(Kalidasa)k6k07
Le Creuset	A/2275(Kalidasa)k6k09

REGION: L3

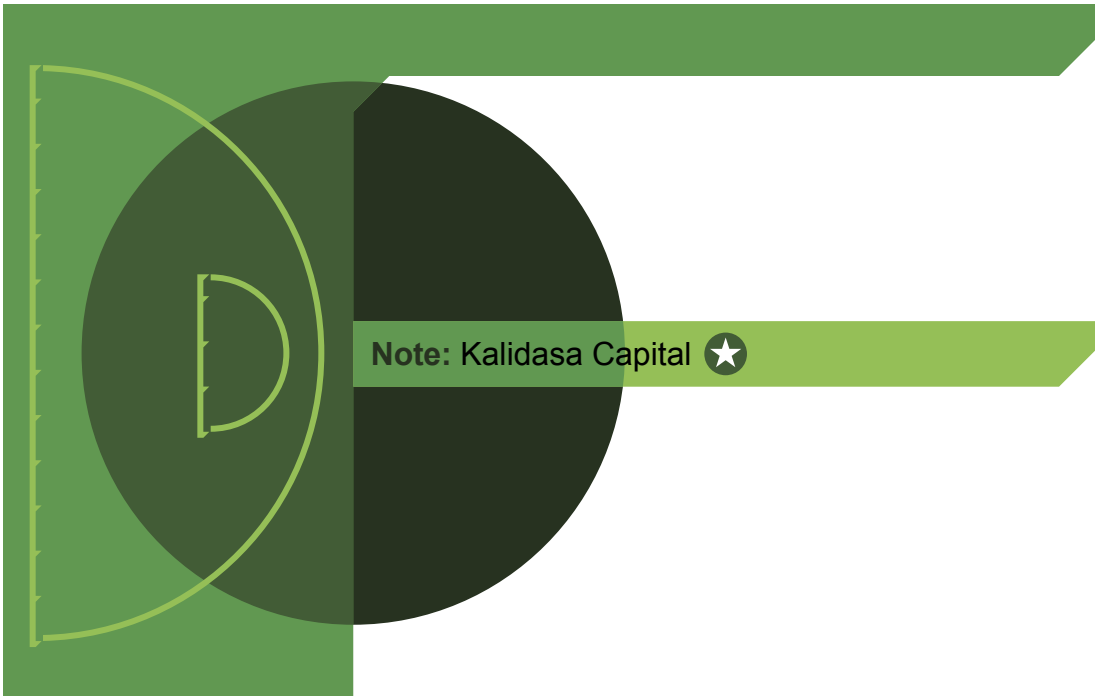
Achilles	A/2272(Kalidasa)e4r09
Herat	A/2272(Kalidasa)e4r08

REGION: L4

Lemuria	A/2276(Kalidasa)ka2qq
Orohena	A/2276(Kalidasa)ka2qr
Roniu	A/2276(Kalidasa)ka2qs

REGION: L5

Titan	A/2275(Kalidasa)k6f1t
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Beaumonde

Orbit:

Period:

P/2031(Kalidasa)16

1,922,332,630 km - 12.850 AU

16,825.00 days - 46.06 years

Diameter:

Surface Area:

Land Area:

Arable Land:

Horizon:

12,026 km

454,351,820 km²

159,023,137 km²

50,887,404 km²

4.522 km

Mass:

Surface Gravity:

Escape Velocity:

LEO (alt):

MEO (alt):

GEO (alt):

5,338,966,784,246,190,000,000 metric tonnes

1.0029 g_n

10.8720 km/s

947 km

18,931 km

33,873 km

Hill Sphere (radius):

LaGrangian Points

L1:

L2:

L3 (+-180):

L4 (+60):

L5 (-60):

Inner Roche Limit

Outer Roche Limit

1,387,001 km

1,387,001 km

1,387,001 km

1,922,332,630 km

1,922,332,630 km

1,922,332,630 km

9,046 km

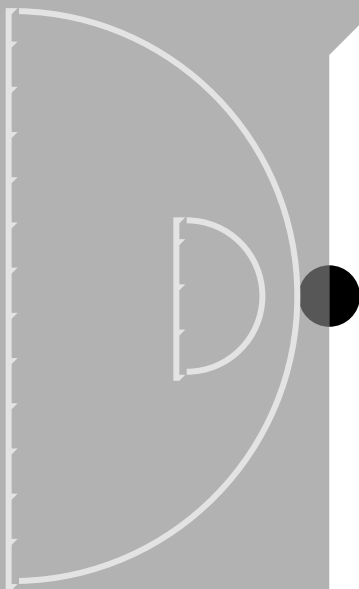
16,885 km

Terraformed (year):

Population:

2433

184,000,000



Hastur
Orbit:
Period:

S/2164(Beaumont)01
116,089 km
8.24 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,340 km
5,641,044 km²
3,102,574 km²
992,824 km²
1.509 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

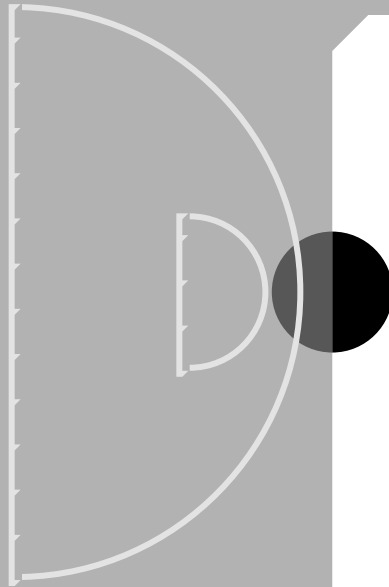
64,006,129,537,546,600,000 metric tonnes
0.9684 g_n
3.5660 km/s
102 km
2,037 km
3,644 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

22,972 km
22,972 km
22,972 km
116,089 km
116,089 km
116,089 km
973 km
1,817 km

Terraformed (year):
Population:

2433
1,100,000



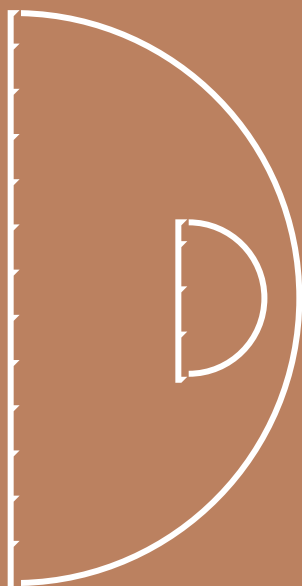
Geneva
Orbit: 357,492 km
Period: 25.39 days

Diameter: 2,680 km
Surface Area: 22,564,175 km²
Land Area: 11,507,729 km²
Arable Land: 3,682,473 km²
Horizon: 2.134 km

Mass: 267,683,627,248,104,000,000 metric tonnes
Surface Gravity: 1.0125 g_n
Escape Velocity: 5.1568 km/s
LEO (alt): 213 km
MEO (alt): 4,259 km
GEO (alt): 7,621 km

Hill Sphere (radius): 48,037 km
LaGrangian Points
L1: 48,037 km
L2: 48,037 km
L3 (+-180): 357,492 km
L4 (+60): 357,492 km
L5 (-60): 357,492 km
Inner Roche Limit: 2,035 km
Outer Roche Limit: 3,799 km

Terraformed (year): 2433
Population: 8,600,000



Djinn's Bane
Orbit:
Period:

P/2020 (Kalidasa)04
2,034,531,032 km - 13.600 AU
18,319.00 days - 50.15 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

201,568 km
N/A
N/A
N/A
N/A

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

8,018,744,954,695,410,000,000,000 metric tonnes
3.5638 g_n
N/A
N/A
N/A
N/A

Hill Sphere (radius):
LaGrangian Points

104,054,711 km

L1:

104,054,711 km

L2:

104,054,711 km

L3 (+-180):

2,034,531,032 km

L4 (+60):

2,034,531,032 km

L5 (-60):

2,034,531,032 km

Inner Roche Limit

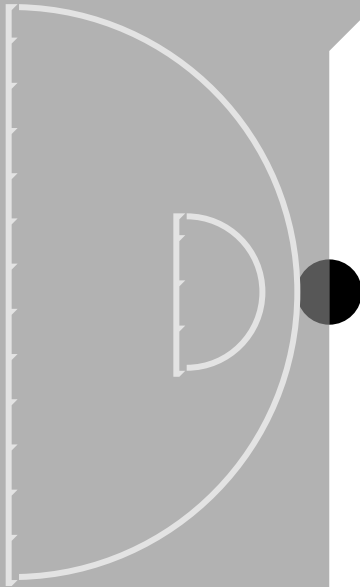
129,004 km

Outer Roche Limit

247,929 km

Terraformed (year):
Population:

N/A
N/A



Illat
Orbit:
Period:

S/2170(Djinn's Bane)01
1,499,160 km
106.47 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,450 km
6,605,199 km²
3,566,807 km²
1,141,378 km²
1.570 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

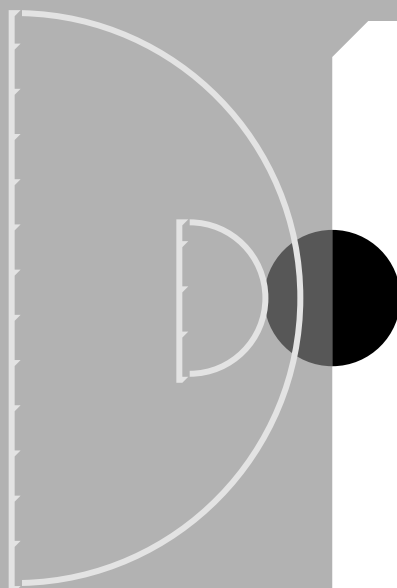
76,578,876,707,273,800,000 metric tonnes
0.9895 g_n
3.7500 km/s
113 km
2,252 km
4,030 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

25,400 km
25,400 km
25,400 km
1,499,160 km
1,499,160 km
1,499,160 km
1,076 km
2,009 km

Terraformed (year):
Population:

2420
47,000



Hilal
Orbit:
Period:

S/2170(Djinn's Bane)02
1,672,140 km
118.76 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

3,004 km
28,349,782 km²
14,174,891 km²
4,535,965 km²
2.260 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

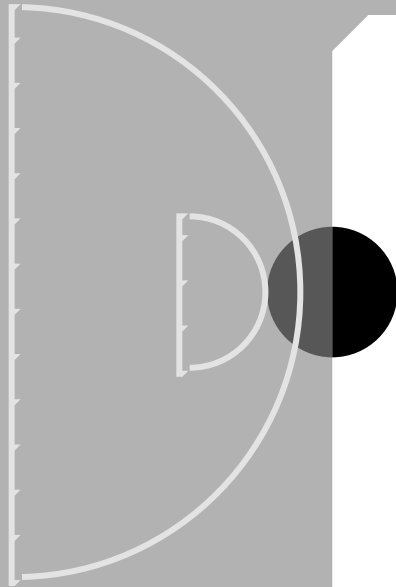
320,043,318,026,949,000,000 metric tonnes
0.9635 g_n
5.3260 km/s
227 km
4,543 km
8,129 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

51,239 km
51,239 km
51,239 km
1,672,140 km
1,672,140 km
1,672,140 km
2,171 km
4,052 km

Terraformed (year):
Population:

2420
250,000



Hubal
Orbit:
Period:

S/2170(Djinn's Bane)03
1,845,120 km
131.04 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,870 km
25,876,985 km²
13,197,262 km²
4,223,124 km²
2.209 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

318,141,742,153,715,000,000 metric tonnes
1.0493 g_n
5.4330 km/s
236 km
4,727 km
8,458 km

Hill Sphere (radius):
LaGrangian Points

53,312 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

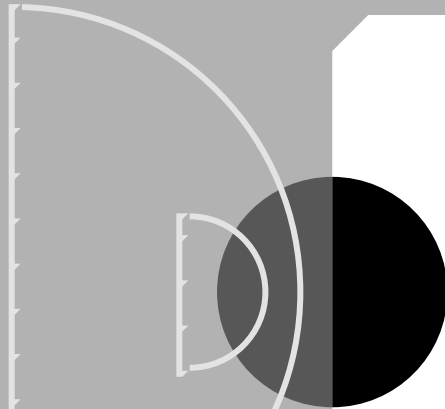
53,312 km
53,312 km
1,845,120 km
1,845,120 km
1,845,120 km

Inner Roche Limit
Outer Roche Limit

2,259 km
4,216 km

Terraformed (year):
Population:

2420
6,000,000



Sin
Orbit:
Period:

S/2170(Djinn's Bane)04
2,114,200 km
150.15 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

5,100 km
81,712,825 km²
42,490,669 km²
13,597,014 km²
2.944 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

929,069,768,740,511,000,000 metric tonnes
0.9704 g_n
6.9640 km/s
388 km
7,768 km
13,899 km

Hill Sphere (radius):
LaGrangian Points

87,613 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

87,613 km
87,613 km
2,114,200 km
2,114,200 km
2,114,200 km

Inner Roche Limit
Outer Roche Limit

3,712 km
6,929 km

Terraformed (year):
Population:

2420
16,500,000



Ta'lab
Orbit:
Period:

S/2170(Djinn's Bane)05
2,460,160 km
174.72 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

4,270 km
57,280,345 km²
28,640,172 km²
9,164,855 km²
2.694 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

692,817,527,031,260,000,000 metric tonnes
1.0323 g_n
6.5720 km/s
346 km
6,919 km
12,380 km

Hill Sphere (radius):
LaGrangian Points

78,033 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

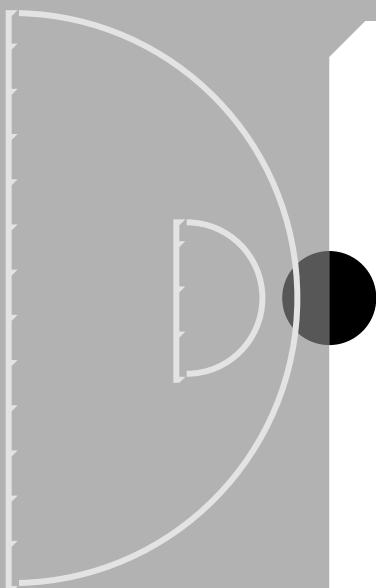
78,033 km
78,033 km
2,460,160 km
2,460,160 km
2,460,160 km

Inner Roche Limit
Outer Roche Limit

3,306 km
6,171 km

Terraformed (year):
Population:

2420
12,000,000



Wadd
Orbit:
Period:

S/2170(Djinn's Bane)06
3,113,640 km
221.13 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,905 km
11,400,918 km²
5,928,478 km²
1,897,113 km²
1.800 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

134,944,290,053,720,000,000 metric tonnes
1.0102 g_n
4.3430 km/s
151 km
3,021 km
5,405 km

Hill Sphere (radius):
LaGrangian Points

34,068 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

34,068 km
34,068 km
3,113,640 km
3,113,640 km
3,113,640 km

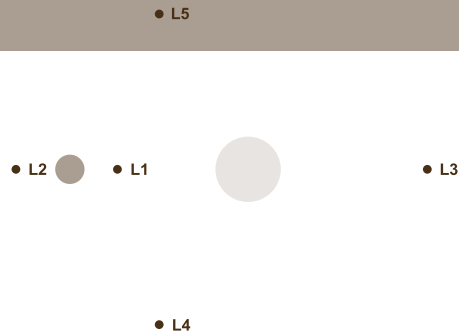
Inner Roche Limit
Outer Roche Limit

1,443 km
2,694 km

Terraformed (year):
Population:

2420
20,000

Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2277(Kalidasa)a31tt**
The current numbering is able to catalog up to 33,554,432 objects per year per region.



REGION: L1

Raksasha A/2278(Kalidasa)mke12

REGION: L2

Surat al Nas A/2278(Kalidasa)mkf06

REGION: L3

Duke A/2278(Kalidasa)mkr45

Ticalock A/2278(Kalidasa)mkr46

REGION: L4

Qarin A/2278(Kalidasa)mkv11

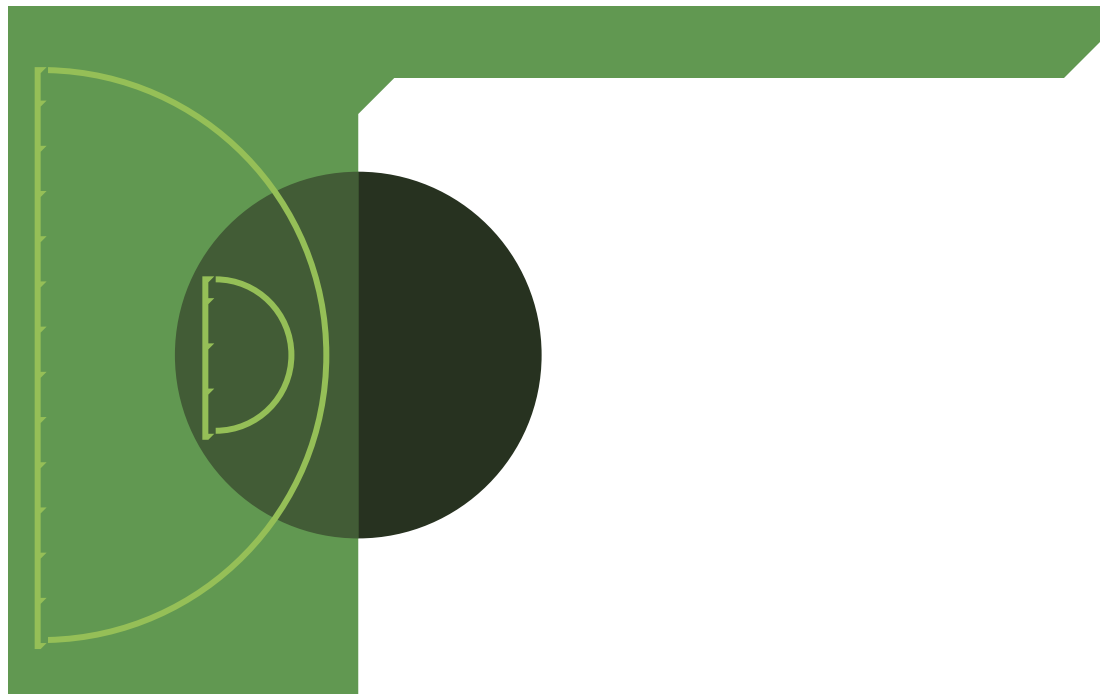
REGION: L5

CMC A/2277(Kalidasa)kc608

Djinn A A/2277(Kalidasa)kc609

Djinn B A/2277(Kalidasa)kc60a

Djinn C A/2277(Kalidasa)kc60b



**Salisbury
Orbit:
Period:**

P/2027(Kalidasa)05

2,146,729,435 km - 14.350 AU
19,855.00 days - 54.36 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

8,094 km

205,814,644 km²

Land Area: 72,035,126 km²

23,051,240 km²

Horizon: 3.709 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

2,446,928,329,784,940,000,000 metric tonnes

 1.0147 g_n

Escape Velocity: 8.9710 km/s

645 km

MEO (alt): 12,891 km

23,066 km

Hill Sphere (radius): LaGrangian Points

944,493 km

L1:

944,493 km

L2:

944,493 km

L3 (+-180):

2,146,729,435 km

L4 (+60):

2,146,729,435 km

L5 (-60):

2,146,729,435 km

Inner Roche Limit

6,160 km

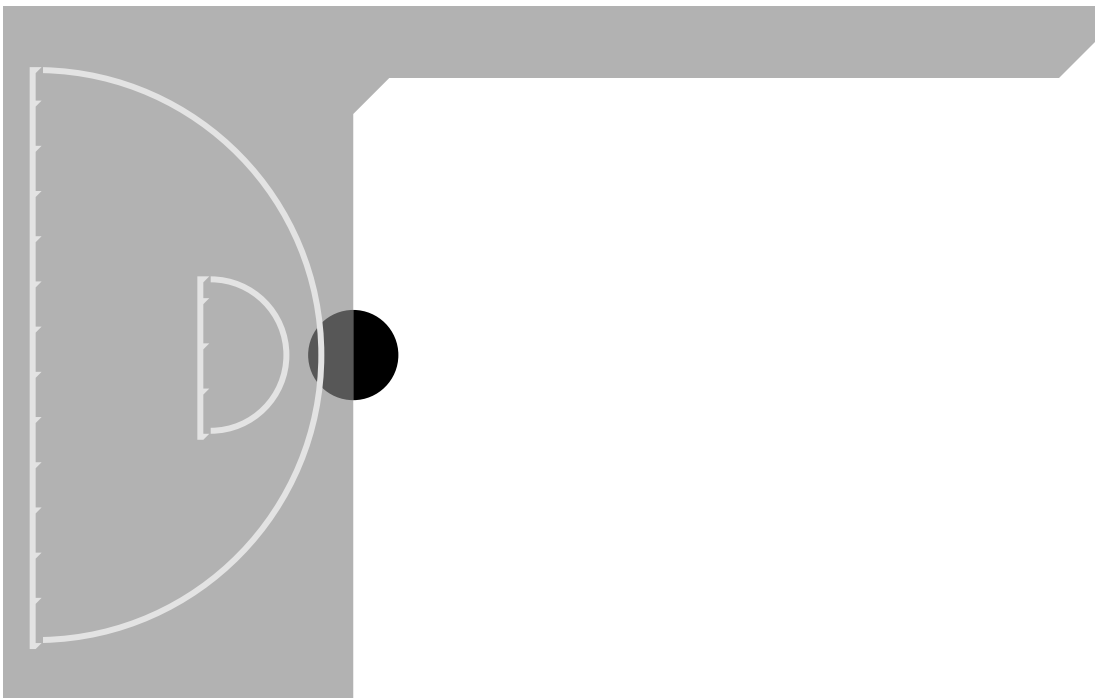
Outer Roche Limit

11,498 km

Terraformed (year):
Population:

2430

Population: 2,000,000



Lennox

Orbit:

Period:

S/2172(Salisbury)01

203,732 km

14.47 days

Diameter:

Surface Area:

Land Area:

Arable Land:

Horizon:

2,012 km

12,717,619 km²

N/A

N/A

1.849 km

Mass:

Surface Gravity:

Escape Velocity:

LEO (alt):

MEO (alt):

GEO (alt):

148,219,471,139,888,000,000 metric tonnes

0.9947 g_n

4.4287 km/s

157 km

3,141 km

5,621 km

Hill Sphere (radius):

LaGrangian Points

L1:

L2:

L3 (+-180):

L4 (+60):

L5 (-60):

Inner Roche Limit

Outer Roche Limit

35,430 km

35,430 km

35,430 km

203,732 km

203,732 km

203,732 km

1,501 km

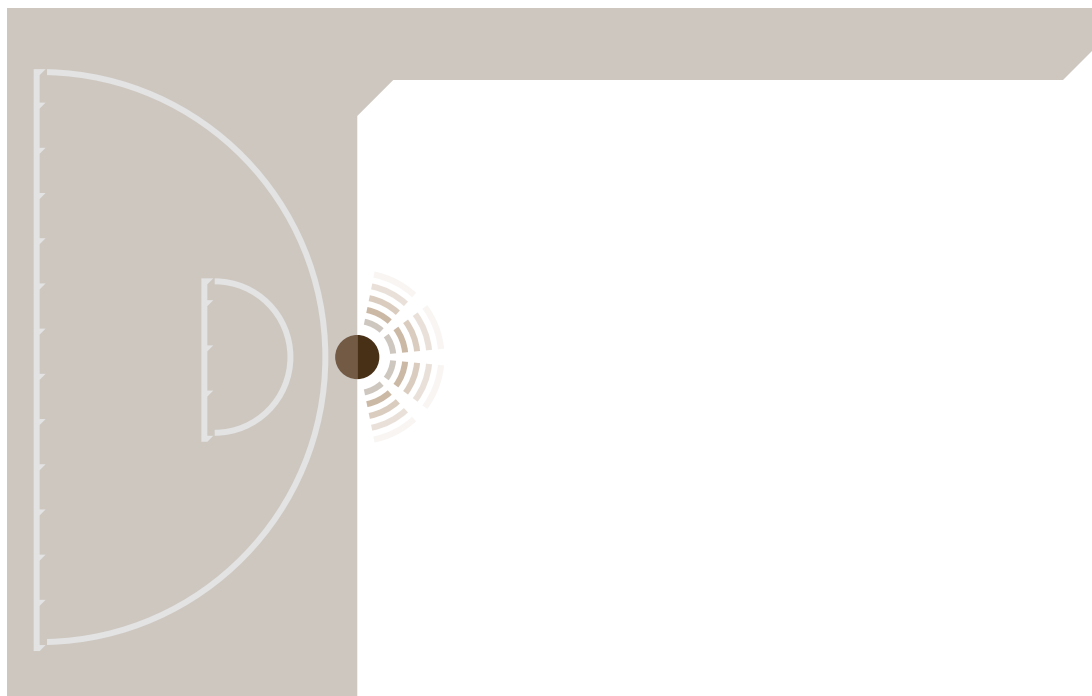
2,802 km

Terraformed (year):

Population:

N/A

16,000



Kalidasa + 30°
Orbit:
Period:

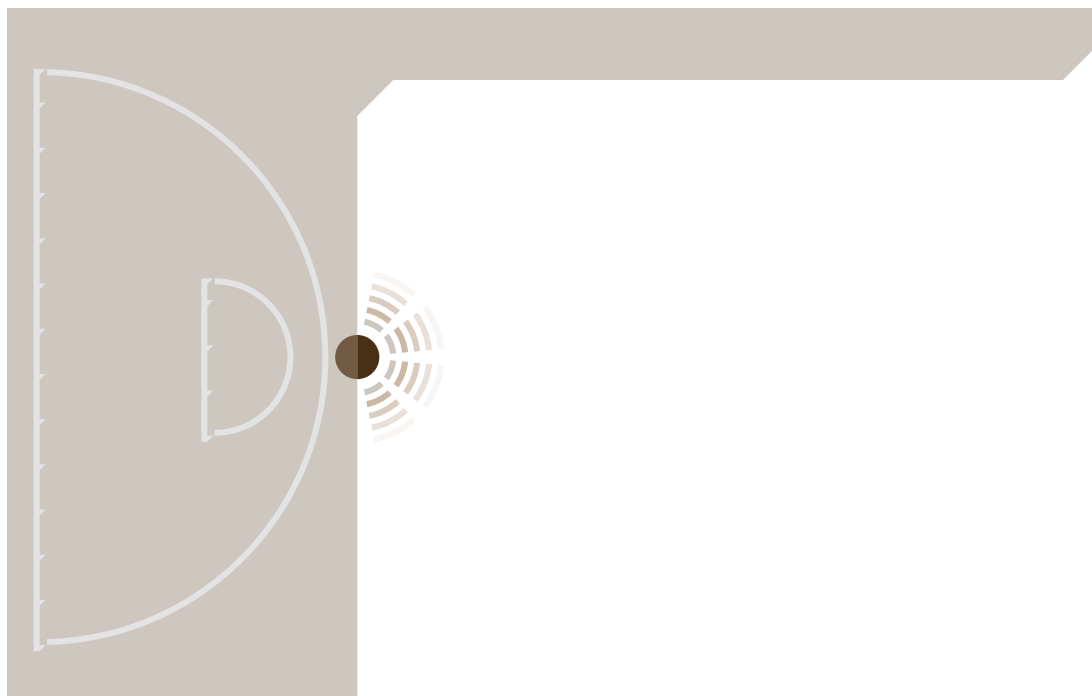
A/2260(White Sun)r25m5
18,101,342,270,000 km - 121.000 AU
486,148.00 days - 1331.00 years

Diameter: 970 km
Surface Area: 2,955,925 km²
Land Area: 2,926,365 km²
Arable Land: Negligible
Horizon: 1.284 km

Mass: 34,599,207,026,347,400,000 metric tonnes
Surface Gravity: 0.9990 g_n
Escape Velocity: 3.0820 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 17,155 km
LaGrangian Points
L1: 17,155 km
L2: 17,155 km
L3 (+-180): 18,101,342,270,000 km
L4 (+60): 18,101,342,270,000 km
L5 (-60): 18,101,342,270,000 km
Inner Roche Limit: 727 km
Outer Roche Limit: 1,357 km

Terraformed (year): 2305
Population: Unmanned



Kalidasa L4
Orbit:
Period:

A/2260(White Sun)r25m6

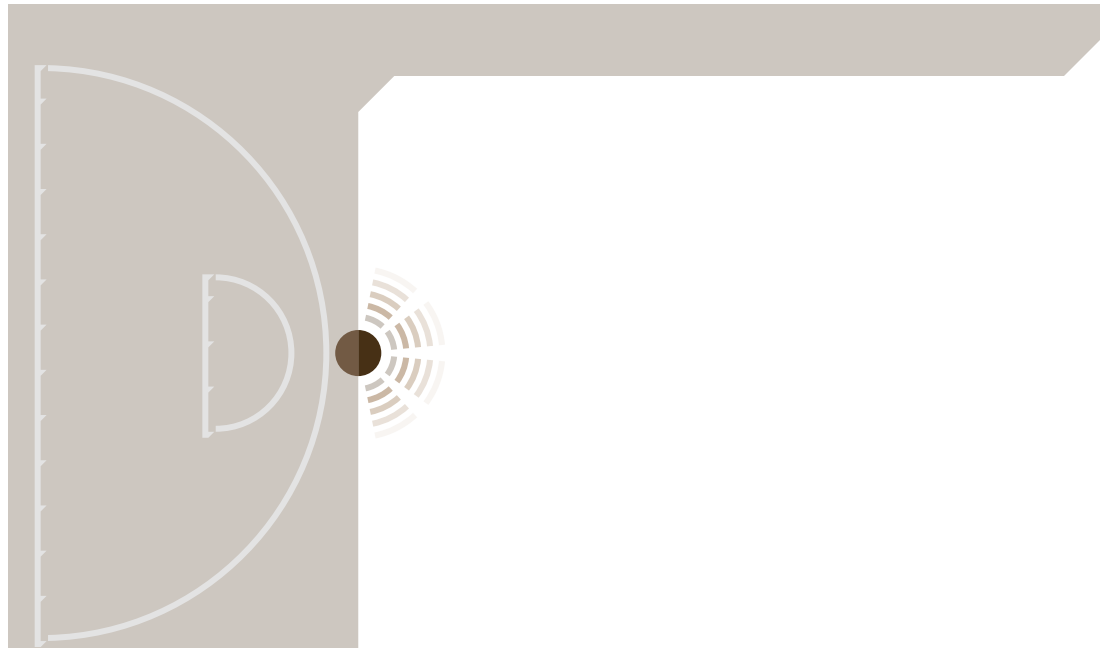
18,101,342,270,000 km - 121.000 AU
486,148.00 days - 1331.00 years

Diameter: 985 km
Surface Area: 3,048,052 km²
Land Area: 3,017,571 km²
Arable Land: Negligible
Horizon: 1.294 km

Mass: 35,516,849,670,516,100,000 metric tonnes
Surface Gravity: 0.9945 g_n
Escape Velocity: 3.0980 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 17,341 km
LaGrangian Points
L1: 17,341 km
L2: 17,341 km
L3 (+-180): 18,101,342,270,000 km
L4 (+60): 18,101,342,270,000 km
L5 (-60): 18,101,342,270,000 km
Inner Roche Limit: 735 km
Outer Roche Limit: 1,371 km

Terraformed (year): 2305
Population: Unmanned



Kalidasa + 90°
Orbit:
Period:

A/2260(White Sun)r25m7
18,101,342,270,000 km - 121.000 AU
486,148.00 days - 1331.00 years

Diameter: 1,003 km
Surface Area: 3,160,470 km²
Land Area: 3,097,261 km²
Arable Land: Negligible
Horizon: 1.306 km

Mass: 36,741,617,986,155,000,000 metric tonnes
Surface Gravity: 0.9922 g_n
Escape Velocity: 3.1230 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 17,618 km
LaGrangian Points
L1: 17,618 km
L2: 17,618 km
L3 (+-180): 18,101,342,270,000 km
L4 (+60): 18,101,342,270,000 km
L5 (-60): 18,101,342,270,000 km
Inner Roche Limit: 746 km
Outer Roche Limit: 1,393 km

Terraformed (year): 2305
Population: Unmanned



Kalidasa + 120°

Orbit:

Period:

A/2260(White Sun)r25m8

18,101,342,270,000 km - 121.000 AU

486,148.00 days - 1331.00 years

Diameter:

Surface Area:

Land Area:

Arable Land:

Horizon:

1,018 km

3,255,708 km²3,158,037 km²

Negligible

1.316 km

Mass:

Surface Gravity:

Escape Velocity:

LEO (alt):

MEO (alt):

GEO (alt):

37,764,865,233,124,200,000 metric tonnes

0.9900 g_n

3.1430 km/s

N/A

N/A

N/A

Hill Sphere (radius):

LaGrangian Points

L1:

L2:

L3 (+-180):

L4 (+60):

L5 (-60):

Inner Roche Limit

Outer Roche Limit

17,841 km

17,841 km

17,841 km

18,101,342,270,000 km

18,101,342,270,000 km

18,101,342,270,000 km

756 km

1,411 km

Terraformed (year):

Population:

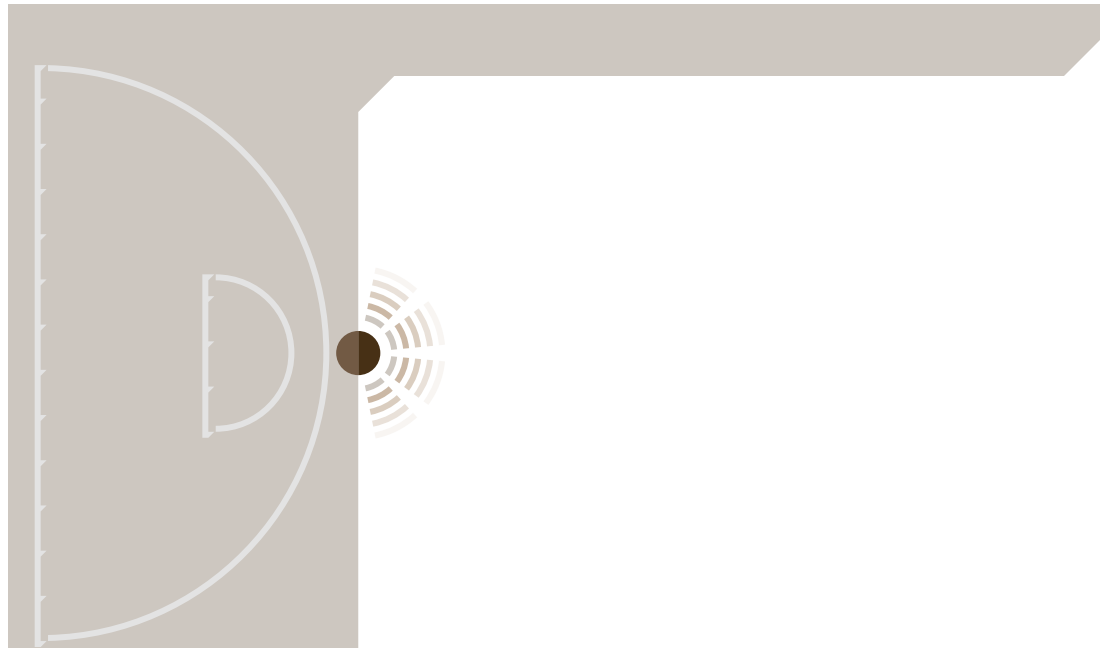
2305

Unmanned

WHITE SUN (BAI HU)

HALIDASA + 150°

CORTEX RELAY STATION RING 2 ○



Kalidasa + 150°
Orbit:
Period:

A/2260(White Sun)r25m9
18,101,342,270,000 km - 121.000 AU
486,148.00 days - 1331.00 years

Diameter: 992 km
Surface Area: 3,091,528 km²
Land Area: 2,936,952 km²
Arable Land: Negligible
Horizon: 1.299 km

Mass: 34,418,786,867,247,100,000 metric tonnes
Surface Gravity: 0.9502 g_n
Escape Velocity: 3.0390 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 16,687 km
LaGrangian Points
L1: 16,687 km
L2: 16,687 km
L3 (+-180): 18,101,342,270,000 km
L4 (+60): 18,101,342,270,000 km
L5 (-60): 18,101,342,270,000 km
Inner Roche Limit: 707 km
Outer Roche Limit: 1,320 km

Terraformed (year): 2305
Population: Mr. Universe (deceased)

Kalidasa L3

Orbit:

Period:

Diameter:

Surface Area:

Land Area:

Arable Land:

Horizon:

Mass:

Surface Gravity:

Escape Velocity:

LEO (alt):

MEO (alt):

GEO (alt):

Hill Sphere (radius):

LaGrangian Points

L1:

L2:

L3 (+-180):

L4 (+60):

L5 (-60):

Inner Roche Limit

Outer Roche Limit

Terraformed (year):

Population:

A/2260(White Sun)r25ma

18,101,342,270,000 km - 121.000 AU

486,148.00 days - 1331.00 years

993 km

3,097,764 km²

3,066,787 km²

Negligible

1.299 km

34,909,245,172,304,100,000 metric tonnes

0.9618 g_n

3.0590 km/s

N/A

N/A

N/A

16,907 km

16,907 km

16,907 km

18,101,342,270,000 km

18,101,342,270,000 km

18,101,342,270,000 km

716 km

1,337 km

2305

Unmanned



Kalidasa - 30°
Orbit:
Period:

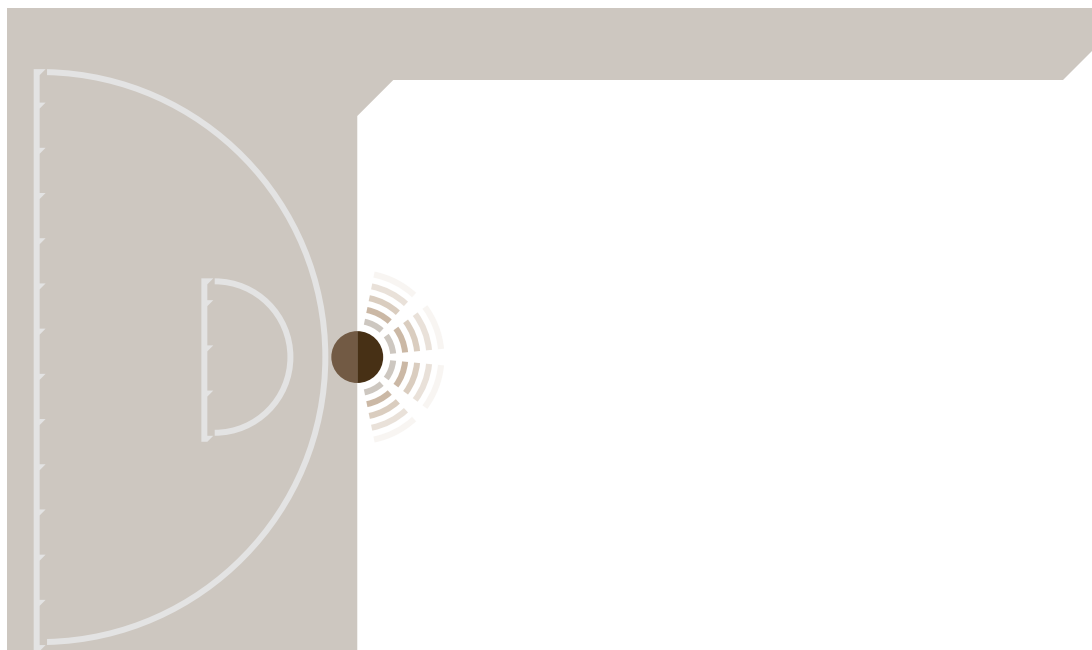
A/2260(White Sun)r25mf
18,101,342,270,000 km - 121.000 AU
486,148.00 days - 1331.00 years

Diameter: 1,089 km
Surface Area: 3,725,681 km²
Land Area: 3,651,167 km²
Arable Land: Negligible
Horizon: 1.361 km

Mass: 42,884,593,909,293,700,000 metric tonnes
Surface Gravity: 0.9824 g_n
Escape Velocity: 3.2380 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 18,939 km
LaGrangian Points
L1: 18,939 km
L2: 18,939 km
L3 (+-180): 18,101,342,270,000 km
L4 (+60): 18,101,342,270,000 km
L5 (-60): 18,101,342,270,000 km
Inner Roche Limit: 802 km
Outer Roche Limit: 1,498 km

Terraformed (year): 2305
Population: Unmanned



Kalidasa L5
Orbit:
Period:

A/2260(White Sun)r25me
18,101,342,270,000 km - 121.000 AU
486,148.00 days - 1331.00 years

Diameter: 1,168 km
Surface Area: 4,285,836 km²
Land Area: 4,114,403 km²
Arable Land: Negligible
Horizon: 1.409 km

Mass: 49,000,858,384,198,900,000 metric tonnes
Surface Gravity: 0.9758 g_n
Escape Velocity: 3.3420 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 20,177 km
LaGrangian Points
L1: 20,177 km
L2: 20,177 km
L3 (+-180): 18,101,342,270,000 km
L4 (+60): 18,101,342,270,000 km
L5 (-60): 18,101,342,270,000 km
Inner Roche Limit: 855 km
Outer Roche Limit: 1,596 km

Terraformed (year): 2305
Population: Unmanned



Kalidasa - 90°
Orbit:
Period:

A/2260(White Sun)r25md
18,101,342,270,000 km - 121.000 AU
486,148.00 days - 1331.00 years

Diameter: 1,073 km
Surface Area: 3,617,007 km²
Land Area: 3,544,667 km²
Arable Land: Negligible
Horizon: 1.351 km

Mass: 42,133,776,903,659,100,000 metric tonnes
Surface Gravity: 0.9942 g_n
Escape Velocity: 3.2330 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 18,885 km
LaGrangian Points
L1: 18,885 km
L2: 18,885 km
L3 (+-180): 18,101,342,270,000 km
L4 (+60): 18,101,342,270,000 km
L5 (-60): 18,101,342,270,000 km
Inner Roche Limit: 800 km
Outer Roche Limit: 1,493 km

Terraformed (year): 2305
Population: Unmanned



Kalidasa - 120°
Orbit:
Period:

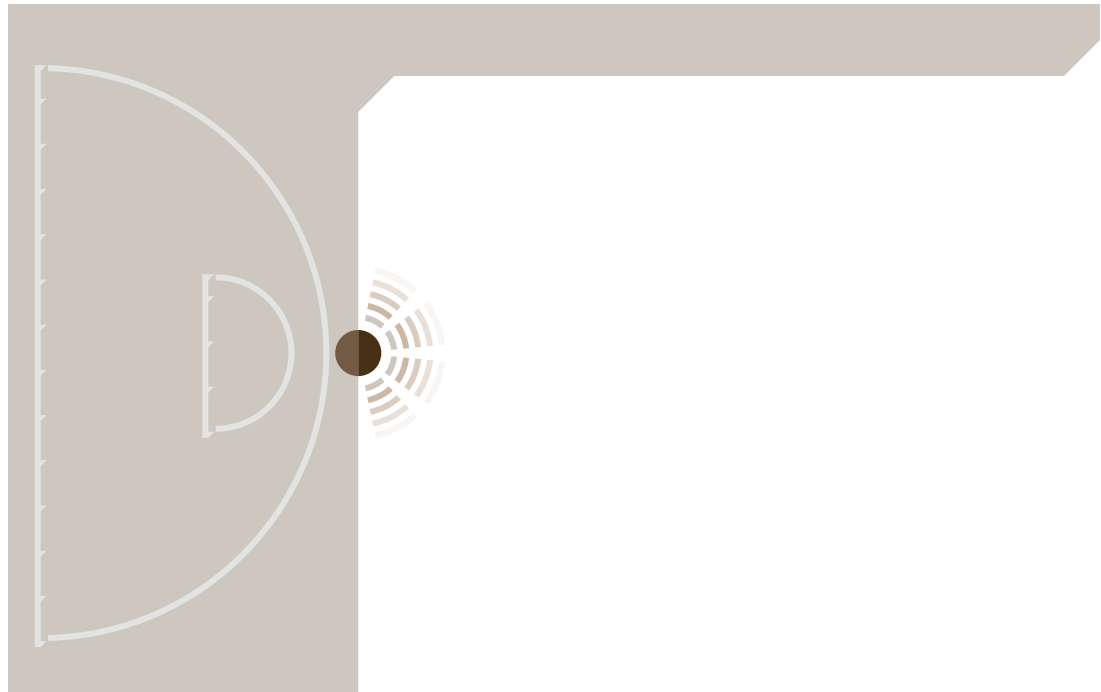
A/2260(White Sun)r25mc
18,101,342,270,000 km - 121.000 AU
486,148.00 days - 1331.00 years

Diameter: 1,161 km
Surface Area: 4,234,619 km²
Land Area: 4,192,273 km²
Arable Land: Negligible
Horizon: 1.405 km

Mass: 49,174,403,922,816,600,000 metric tonnes
Surface Gravity: 0.9911 g_n
Escape Velocity: 3.3580 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 20,370 km
LaGrangian Points
L1: 20,370 km
L2: 20,370 km
L3 (+-180): 18,101,342,270,000 km
L4 (+60): 18,101,342,270,000 km
L5 (-60): 18,101,342,270,000 km
Inner Roche Limit: 863 km
Outer Roche Limit: 1,611 km

Terraformed (year): 2305
Population: Unmanned



Kalidasa - 150°
Orbit:
Period:

A/2260(White Sun)r25mb
18,101,342,270,000 km - 121.000 AU
486,148.00 days - 1331.00 years

Diameter: 1,000 km
Surface Area: 3,141,593 km²
Land Area: 3,047,345 km²
Arable Land: Negligible
Horizon: 1.304 km

Mass: 36,275,534,248,740,600,000 metric tonnes
Surface Gravity: 0.9855 g_n
Escape Velocity: 3.1080 km/s
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

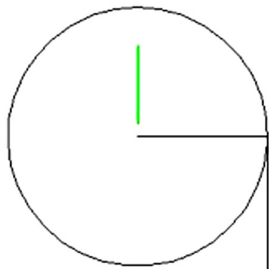
Hill Sphere (radius): 17,446 km
LaGrangian Points
L1: 17,446 km
L2: 17,446 km
L3 (+-180): 18,101,342,270,000 km
L4 (+60): 18,101,342,270,000 km
L5 (-60): 18,101,342,270,000 km
Inner Roche Limit: 739 km
Outer Roche Limit: 1,380 km

Terraformed (year): 2305
Population: Unmanned

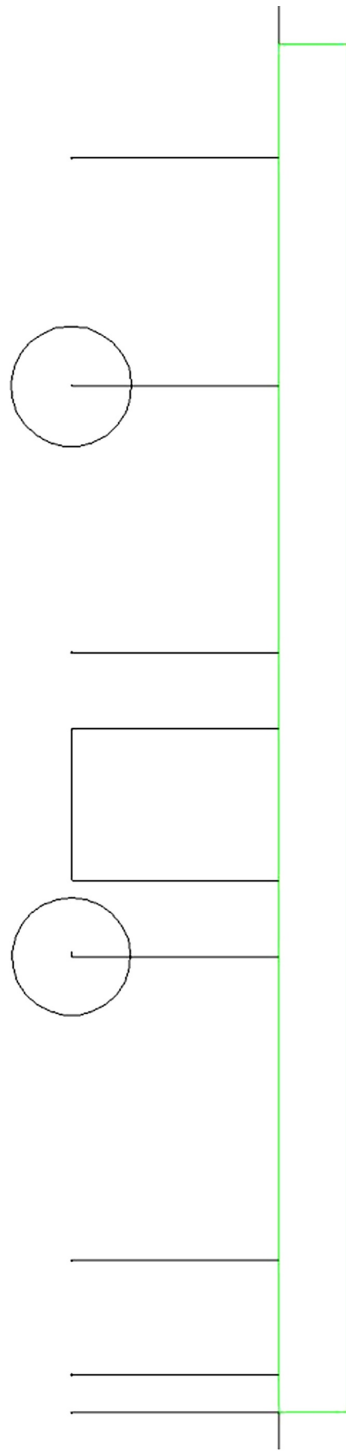
- ★ Meridian
- New Canaan
- Muir
- Fury
- Uroborus
- Highgate
- Dragon's Egg
- Deadwood
- Shenzhou
- Burnham
- Miranda

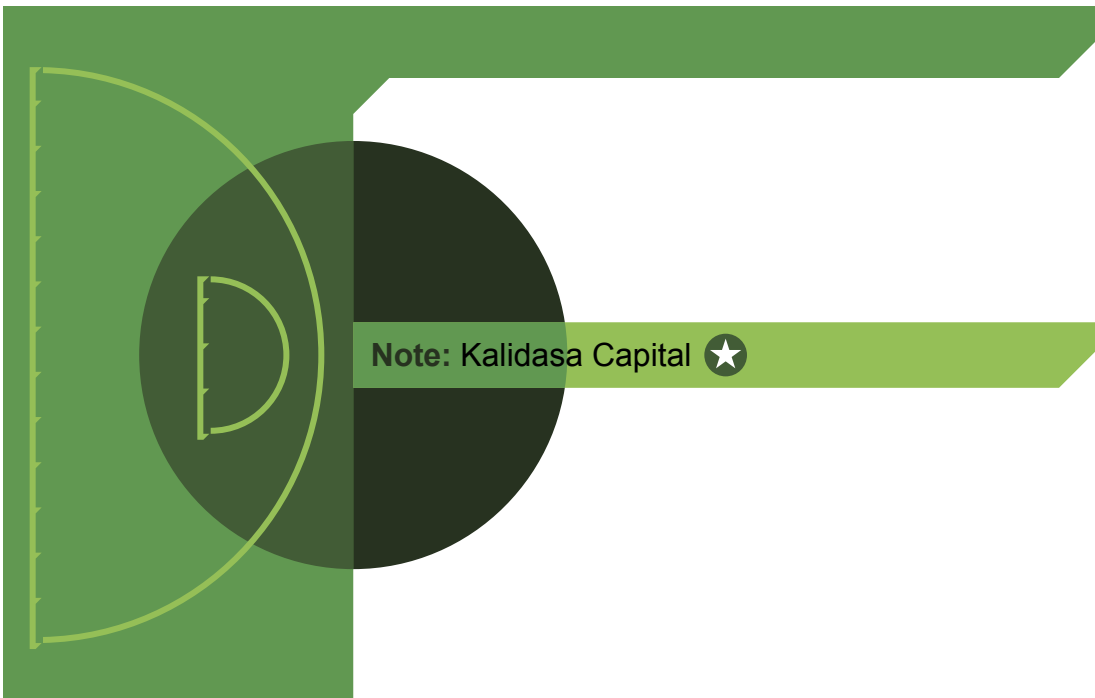
Sol (radius) Class: F0
Radius: 1.4 Sol
Mass: 1.7 Sol
Luminosity: 6 Sol
Temperature: 7,240°K
Temp Color (RGB): (177,204,255)
Verse Location: 180 AU
Orbital Period: 2,414.95 years
Silhouette scale size: 457.80 inches
Hill Sphere (radius): 3,889,544,620 km
Lagrangian Points-
L1: 3,889,544,620 km
L2: 3,889,544,620 km
L3 (+-180): 26,927,616,600 km
L4 (+60): 26,927,616,600 km
L5 (-60): 26,927,616,600 km
Habitation Zone Limits-
Inner: 246,836,486 km
Outer: 2,266,407,731 km

Blue Sun Gravity Map. Blue Sun at extreme left. Meridian at innermost edge of Habitation Zone. Circles are Hill Spheres of Fury, Dragon's Egg, and Burnham. Rectangle is Uroborus asteroid belt.



Close-up of Blue Sun's Habitation Zone.





Note: Kalidasa Capital ★

Meridian
Orbit:
Period:

P/2031(Blue Sun)08
246,836,486 km - 1.650 AU
774.00 days - 2.12 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

9,476 km
282,097,980 km²
95,913,313 km²
30,692,260 km²
4.014 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

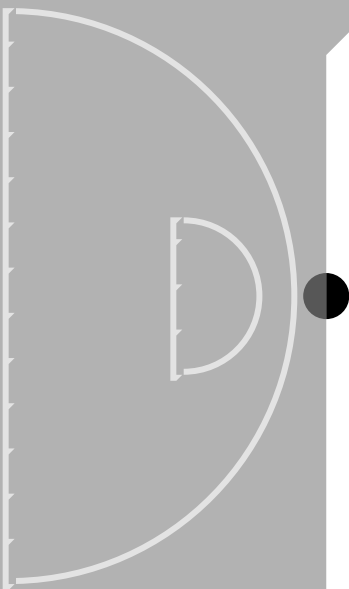
3,402,447,687,285,730,000,000 metric tonnes
1.0294 g_n
9.7770 km/s
766 km
15,311 km
27,396 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,121,778 km
1,121,778 km
1,121,778 km
246,836,486 km
246,836,486 km
246,836,486 km
7,316 km
13,656 km

Terraformed (year):
Population:

2430
7,500,000



Burnet
Orbit:
Period:

S/2179(Meridian)01
299,832 km
21.29 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,004 km
3,166,776 km²
1,836,730 km²
587,754 km²
1.306 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

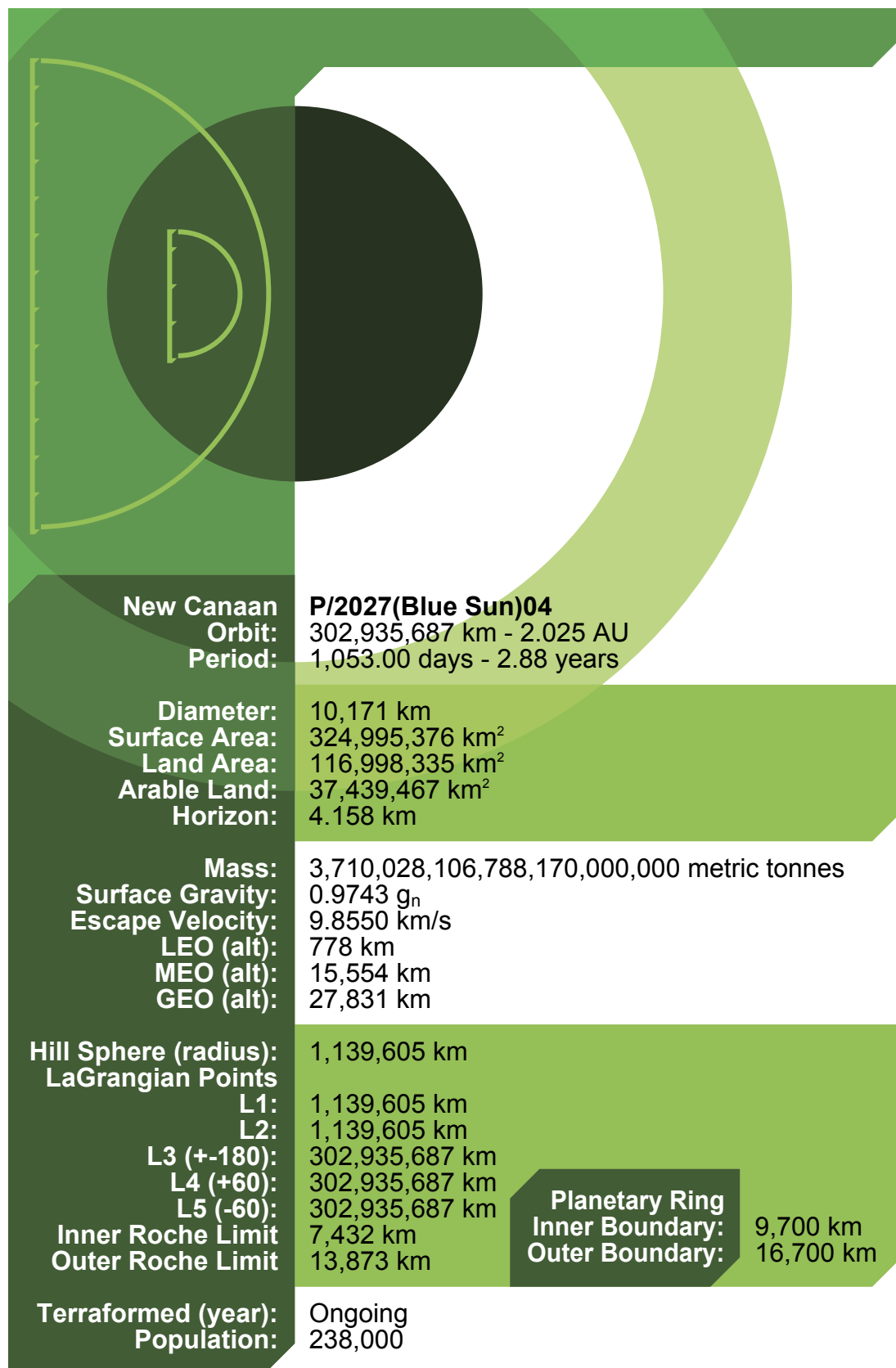
37,211,934,303,581,100,000 metric tonnes
1.0029 g_n
3.1410 km/s
79 km
1,580 km
2,828 km

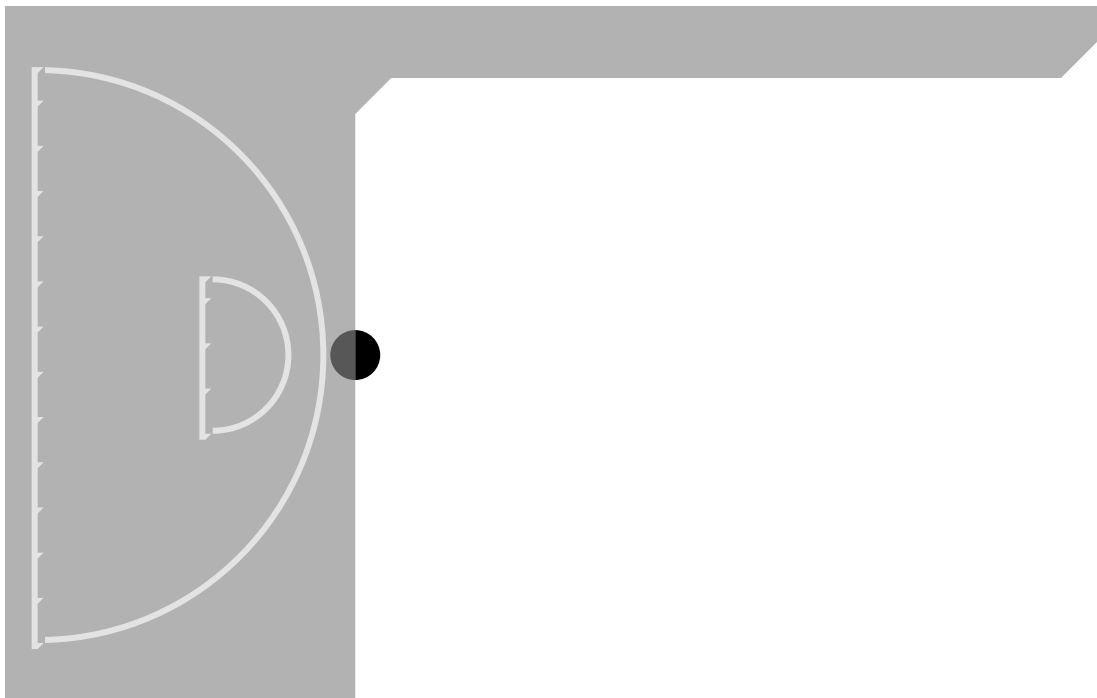
Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

17,825 km
17,825 km
17,825 km
299,832 km
299,832 km
299,832 km
755 km
1,410 km

Terraformed (year):
Population:

2430
750,000





Ugarit
Orbit:
Period:

S/2170(New Canaan)01
211,420 km
15.02 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,123 km
3,961,954 km²
2,258,314 km²
722,660 km²
1.382 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

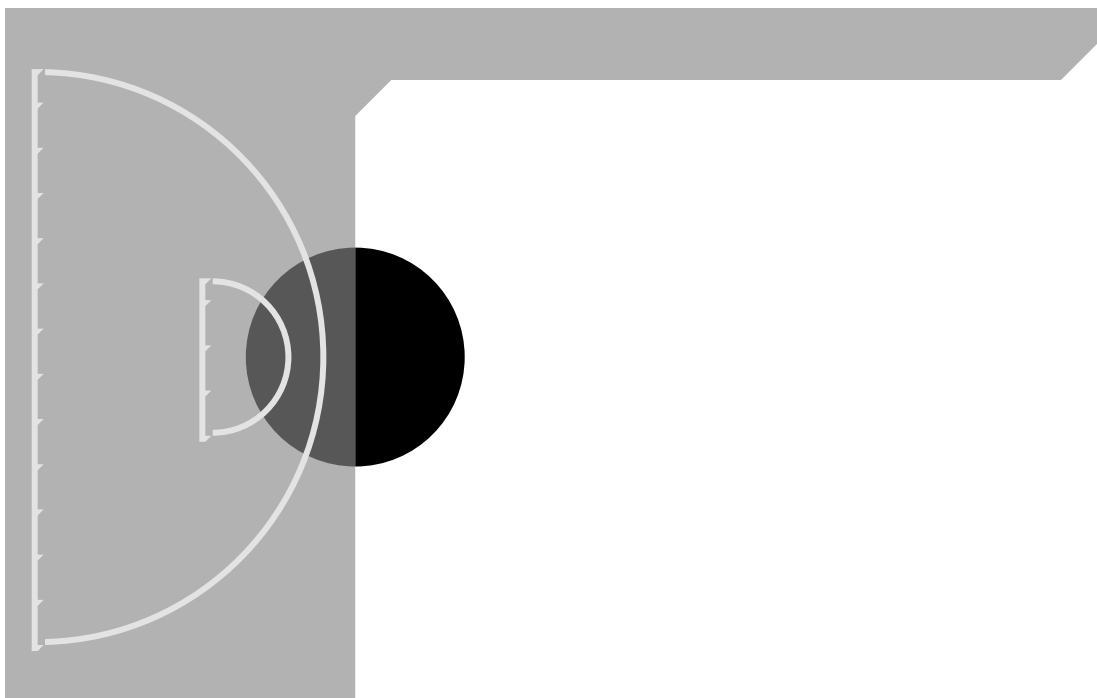
46,955,080,371,631,800,000 metric tonnes
1.0115 g_n
3.3360 km/s
89 km
1,783 km
3,190 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

20,109 km
20,109 km
20,109 km
211,420 km
211,420 km
211,420 km
852 km
1,590 km

Terraformed (year):
Population:

2435
46,000



Lilac
Orbit:
Period:

S/2170(New Canaan)02
365,180 km
25.94 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

4,830 km
73,289,901 km²
36,644,950 km²
11,726,384 km²
2.865 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

850,819,525,595,979,000,000 metric tonnes
0.9908 g_n
6.8480 km/s
376 km
7,511 km
13,440 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

84,719 km
84,719 km
84,719 km
365,180 km
365,180 km
365,180 km
3,589 km
6,700 km

Terraformed (year):
Population:

2435
150,000



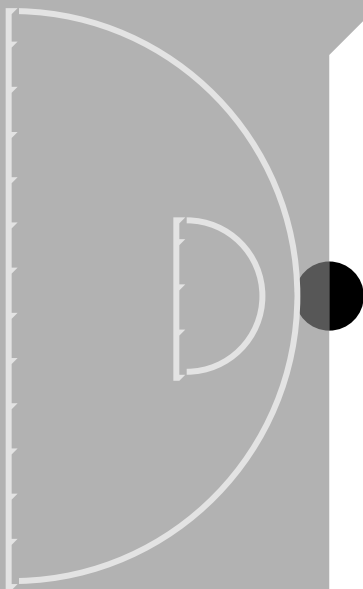
Muir
Orbit: 471,233,291 km - 3.150 AU
Period: 2,042.00 days - 5.59 years

Diameter: 8,649 km
Surface Area: 235,007,470 km²
Land Area: 72,852,316 km²
Arable Land: 23,312,741 km²
Horizon: 3.834 km

Mass: 2,649,716,856,901,090,000,000 metric tonnes
Surface Gravity: 0.9623 g_n
Escape Velocity: 9.0310 km/s
LEO (alt): 653 km
MEO (alt): 13,064 km
GEO (alt): 23,375 km

Hill Sphere (radius): 957,137 km
LaGrangian Points
L1: 957,137 km
L2: 957,137 km
L3 (+-180): 471,233,291 km
L4 (+60): 471,233,291 km
L5 (-60): 471,233,291 km
Inner Roche Limit: 6,242 km
Outer Roche Limit: 11,652 km

Terraformed (year): 2440
Population: 3,500,000



Arminius
Orbit:
Period:

S/2170(Muir)01
131,965 km
9.37 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,523 km
7,287,015 km²
3,862,118 km²
1,235,878 km²
1.609 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

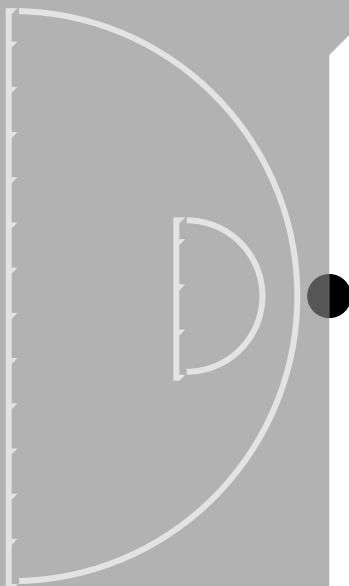
82,998,059,454,857,900,000 metric tonnes
0.9721 g_n
3.8090 km/s
116 km
2,324 km
4,158 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

26,209 km
26,209 km
26,209 km
131,965 km
131,965 km
131,965 km
1,110 km
2,073 km

Terraformed (year):
Population:

2440
450,000



Shepherd's Mission
Orbit:
Period:

S/2170(Muir)02
199,888 km
14.20 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

971 km
2,962,022 km²
1,777,213 km²
568,708 km²
1.285 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

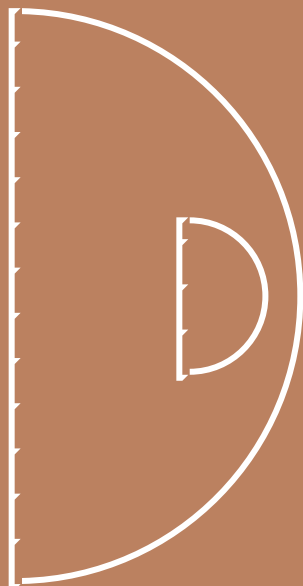
33,632,894,269,031,300,000 metric tonnes
0.9691 g_n
3.0370 km/s
74 km
1,477 km
2,643 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

16,658 km
16,658 km
16,658 km
199,888 km
199,888 km
199,888 km
706 km
1,317 km

Terraformed (year):
Population:

2440
175,000



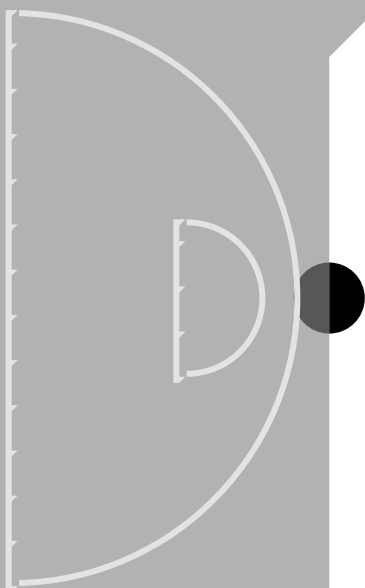
Fury
Orbit: 920,026,901 km - 6.150 AU
Period: 5,571.00 days - 15.25 years

Diameter: 368,970 km
Surface Area: N/A
Land Area: N/A
Arable Land: N/A
Horizon: N/A

Mass: 22,507,346,004,312,100,000,000,000 metric tonnes
Surface Gravity: 1.6309 g_n
Escape Velocity: N/A
LEO (alt): N/A
MEO (alt): N/A
GEO (alt): N/A

Hill Sphere (radius): 87,164,711 km
LaGrangian Points
L1: 87,164,711 km
L2: 87,164,711 km
L3 (+-180): 920,026,901 km
L4 (+60): 920,026,901 km
L5 (-60): 920,026,901 km
Inner Roche Limit: 236,141 km
Outer Roche Limit: 453,833 km

Terraformed (year): N/A
Population: N/A



Coldstone
Orbit:
Period:

S/2165(Fury)02
3,459,600 km
245.70 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,578 km
7,822,830 km²
4,146,100 km²
1,326,752 km²
1.638 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

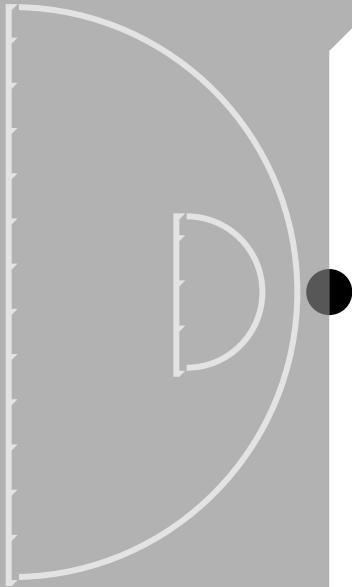
90,659,096,839,489,300,000 metric tonnes
0.9891 g_n
3.9110 km/s
122 km
2,450 km
4,384 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

27,631 km
27,631 km
27,631 km
3,459,600 km
3,459,600 km
3,459,600 km
1,171 km
2,185 km

Terraformed (year):
Population:

2420
89,000



Blackwood
Orbit:
Period:

S/2164(Fury)01
3,844,000 km
273.00 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,001 km
3,147,879 km²
1,857,249 km²
594,320 km²
1.304 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

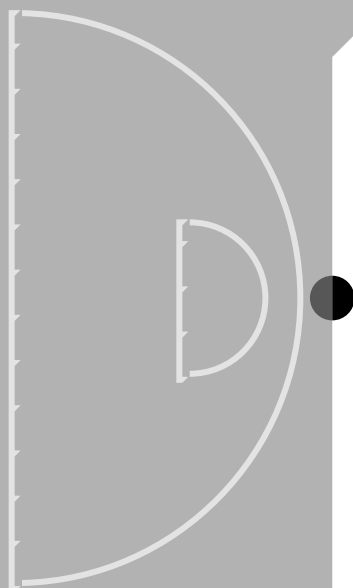
38,122,190,236,721,900,000 metric tonnes
1.0336 g_n
3.1840 km/s
81 km
1,624 km
2,906 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

18,316 km
18,316 km
18,316 km
3,844,000 km
3,844,000 km
3,844,000 km
776 km
1,448 km

Terraformed (year):
Population:

2420
48,750



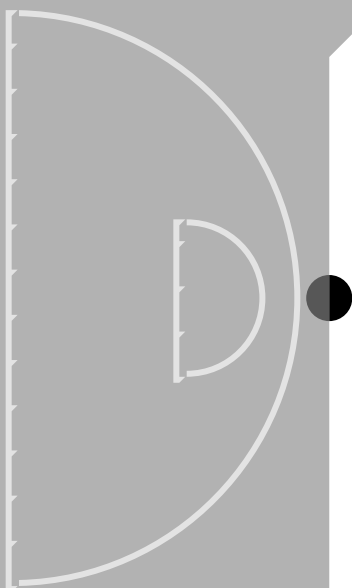
Ataraxia
Orbit: 5,650,680 km
Period: 401.31 days

Diameter: 987.00 km
Surface Area: 3,060,442 km²
Land Area: 1,836,265 km²
Arable Land: 587,605 km²
Horizon: 1.295 km

Mass: 35,112,592,698,479,200,000 metric tonnes
Surface Gravity: 0.9792 g_n
Escape Velocity: 3.0776 km/s
LEO (alt): 76 km
MEO (alt): 1,574 km
GEO (alt): 2,714 km

Hill Sphere (radius): 17,109 km
LaGrangian Points
L1: 17,109 km
L2: 17,109 km
L3 (+-180): 5,650,680 km
L4 (+60): 5,650,680 km
L5 (-60): 5,650,680 km
Inner Roche Limit: 725 km
Outer Roche Limit: 1,353 km

Terraformed (year): 2420
Population: 19,700



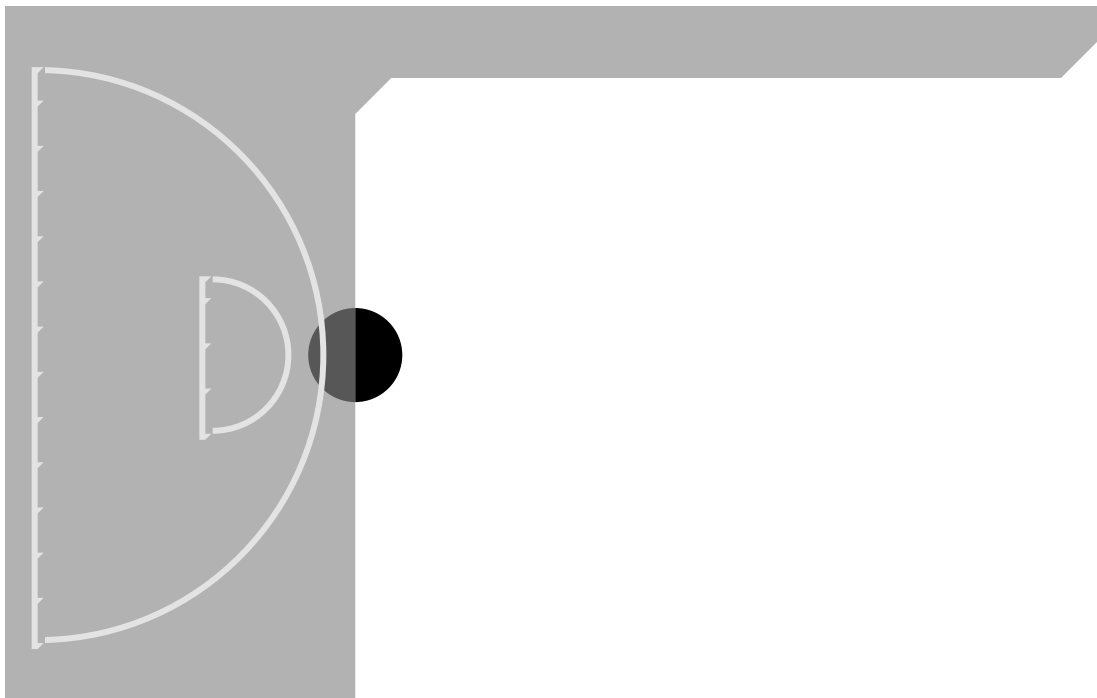
Seventh Circle
Orbit: 7,688,000 km
Period: 546.00 days

Diameter: 1,020 km
Surface Area: 3,268,513 km²
Land Area: 1,895,738 km²
Arable Land: 606,636 km²
Horizon: 1.317 km

Mass: 38,786,556,544,946,000,000 metric tonnes
Surface Gravity: 1.0128 g_n
Escape Velocity: 3.1820 km/s
LEO (alt): 81 km
MEO (alt): 1,621 km
GEO (alt): 2,901 km

Hill Sphere (radius): 18,288 km
LaGrangian Points
L1: 18,288 km
L2: 18,288 km
L3 (+-180): 7,688,000 km
L4 (+60): 7,688,000 km
L5 (-60): 7,688,000 km
Inner Roche Limit: 775 km
Outer Roche Limit: 1,446 km

Terraformed (year): Scheduled
Population: 5,000



Nipmuc
Orbit:
Period:

S/2165(Fury)04
8,153,124 km
579.03 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,102 km
13,880,826 km²
7,079,221 km²
2,265,351 km²
1.890 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

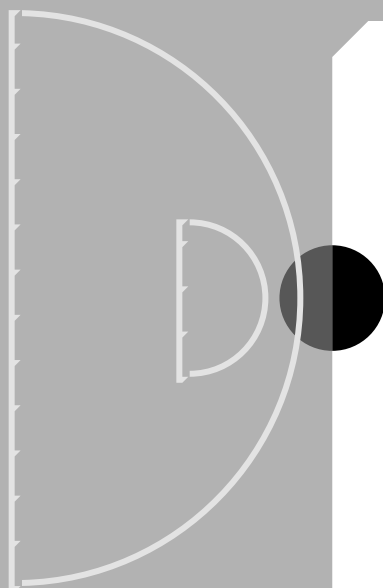
162,020,194,578,783,000,000 metric tonnes
0.9962 g_n
4.5300 km/s
164 km
3,287 km
5,881 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

37,070 km
37,070 km
37,070 km
8,153,124 km
8,153,124 km
8,153,124 km
1,571 km
2,932 km

Terraformed (year):
Population:

2420
27,000



Genae
Orbit:
Period:

S/2165(Fury)05
8,402,984 km
596.78 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,330 km
17,055,392 km²
9,892,128 km²
3,165,481 km²
1.990 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

200,053,655,764,240,000,000 metric tonnes
1.0011 g_n
4.7811 km/s
183 km
3,661 km
6,551 km

Hill Sphere (radius):
LaGrangian Points

41,293 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

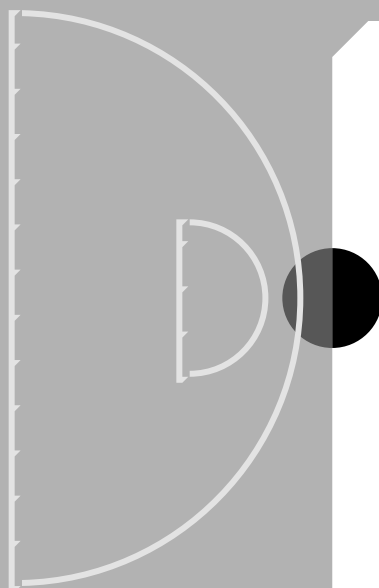
41,293 km
41,293 km
8,402,984 km
8,402,984 km
8,402,984 km

Inner Roche Limit
Outer Roche Limit

1,749 km
3,266 km

Terraformed (year):
Population:

Scheduled
5,000



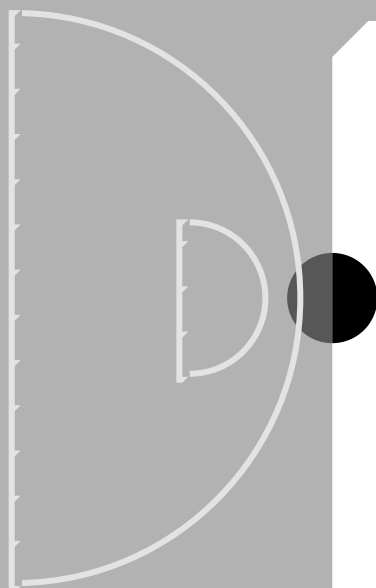
Iscariot **S/2165(Fury)06**
Orbit: 8,806,604 km
Period: 625.44 days

Diameter: 2,190 km
Surface Area: 15,067,393 km²
Land Area: 8,136,392 km²
Arable Land: 2,603,645 km²
Horizon: 1.930 km

Mass: 171,456,554,463,567,000,000 metric tonnes
Surface Gravity: 0.9712 g_n
Escape Velocity: 4.5655 km/s
LEO (alt): 167 km
MEO (alt): 3,338 km
GEO (alt): 5,973 km

Hill Sphere (radius): 37,653 km
LaGrangian Points
L1: 37,653 km
L2: 37,653 km
L3 (+-180): 8,806,604 km
L4 (+60): 8,806,604 km
L5 (-60): 8,806,604 km
Inner Roche Limit: 1,595 km
Outer Roche Limit: 2,978 km

Terraformed (year): 2421
Population: 23,500



Katarina
Orbit:
Period:

S/2167(Fury)08
8,983,428 km
638.00 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,007 km
12,654,489 km²
7,592,693 km²
2,429,662 km²
1.847 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

146,742,361,513,666,000,000 metric tonnes
0.9897 g_n
4.4120 km/s
156 km
3,118 km
5,579 km

Hill Sphere (radius):
LaGrangian Points

35,164 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

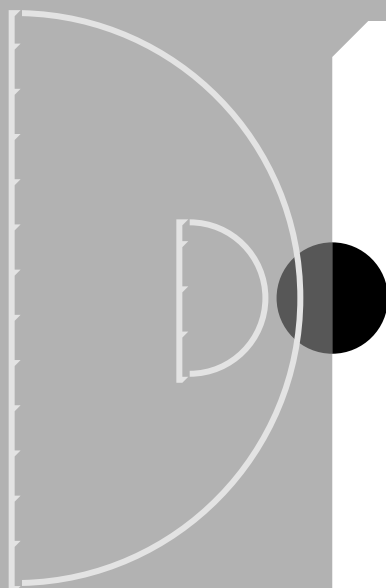
35,164 km
35,164 km
8,983,428 km
8,983,428 km
8,983,428 km

Inner Roche Limit
Outer Roche Limit

1,490 km
2,781 km

Terraformed (year):
Population:

Scheduled
5,000



Sakura S/2166(Fury)07
Orbit: 9,371,672 km
Period: 665.57 days

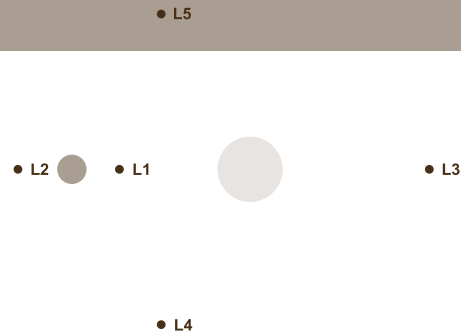
Diameter: 2,480 km
Surface Area: 19,322,051 km²
Land Area: 9,661,026 km²
Arable Land: 3,091,528 km²
Horizon: 2.053 km

Mass: 228,678,282,299,820,000,000 metric tonnes
Surface Gravity: 1.0101 g_n
Escape Velocity: 4.9547 km/s
LEO (alt): 197 km
MEO (alt): 3,932 km
GEO (alt): 7,035 km

Hill Sphere (radius): 44,347 km
LaGrangian Points
L1: 44,347 km
L2: 44,347 km
L3 (+-180): 9,371,672 km
L4 (+60): 9,371,672 km
L5 (-60): 9,371,672 km
Inner Roche Limit: 1,879 km
Outer Roche Limit: 3,507 km

Terraformed (year): Scheduled
Population: 5,000

Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2274(Blue Sun)e4c22**
The current numbering is able to catalog up to 33,554,432 objects per year per region.



REGION: L1

REGION: L2

REGION: L3

Shade A/2271(Blue Sun)e0j8b

REGION: L4

Cosmoline A/2276(Blue Sun)ka47v

Jason's Regret A/2276(Blue Sun)ka47r

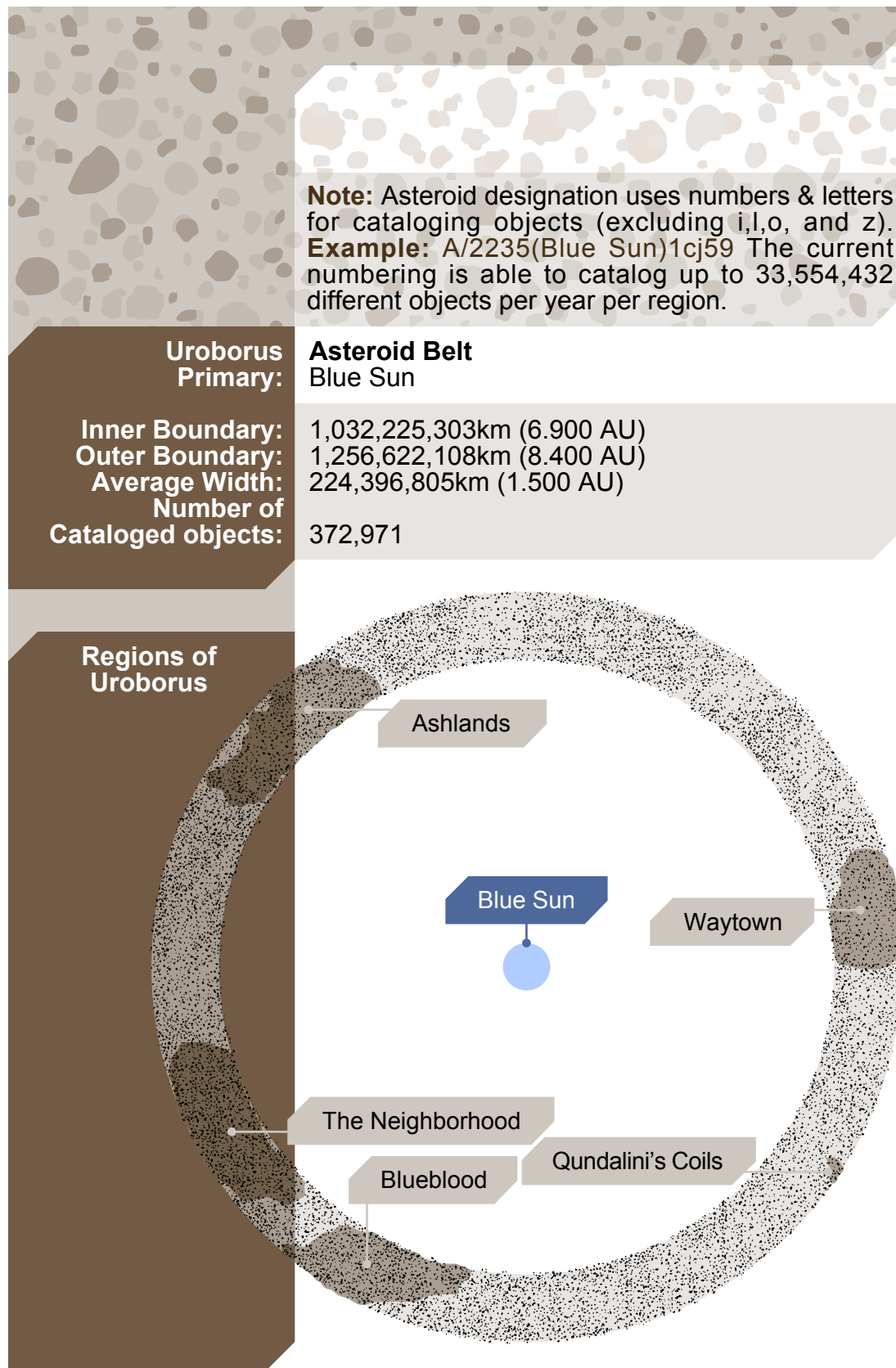
Pallis A/2276(Blue Sun)ka47w

REGION: L5

Baal A/2279(Blue Sun)mm015

Ife A/2279(Blue Sun)mm014

Negev A/2279(Blue Sun)mm013



REGION: Unspecified

Amaragosa	A/2264(Blue Sun)4fc40
Amaragosa	A/2266(Blue Sun)7m5f2
Amaragosa	A/2268(Blue Sun)a63te
Anderson	A/2263(Blue Sun)3d5x3
Anderson	A/2268(Blue Sun)a64f4
Bai Chen Dong - CMC	A/2264(Blue Sun)4h211
Bear	A/2263(Blue Sun)3n0a4
Blue Sun - Blue 05	A/2264(Blue Sun)506s7
Blue Sun - Blue 06	A/2263(Blue Sun)3n0a5
Blue Sun - Blue 07	A/2266(Blue Sun)7p0rg
Blue Sun - Blue 08	A/2263(Blue Sun)3n0a6
Blue Sun - Blue 09	A/2264(Blue Sun)506s8
Chaos	A/2261(Blue Sun)1a0q7
Chaos	A/2261(Blue Sun)1a0q8
Chaos	A/2266(Blue Sun)7u7v9
Chaos	A/2267(Blue Sun)90r07
Chin's Folly	A/2261(Blue Sun)1a5u1
Cooper	A/2261(Blue Sun)2e6rf
Crowley	A/2266(Blue Sun)8a4xe
Dalmation Consortium	A/2264(Blue Sun)509rd
Dostoevsky	A/2264(Blue Sun)509re
Fat Sal	A/2265(Blue Sun)6y01b
Frost-Wolf 14	A/2261(Blue Sun)1a7rj
Gefrorene Asteroiden	A/2263(Blue Sun)42f21
Geneseo	A/2263(Blue Sun)42a4f
Goor	A/2264(Blue Sun)52mua
Grafton	A/2265(Blue Sun)71g3g
Great Flying Mountain	A/2269(Blue Sun)b7p97
Iron Jon	A/2263(Blue Sun)42j0v
La Blanquilla	A/2268(Blue Sun)a65nv
Le Brigand	A/2262(Blue Sun)2r4b7
Le Trou du Diable	A/2267(Blue Sun)9c7f2
Lennox	A/2265(Blue Sun)71tu8
Longshaft	A/2261(Blue Sun)1cq00
Lost Lemon	A/2265(Blue Sun)70bau
MacRican	A/2264(Blue Sun)52mum
Mandel	A/2266(Blue Sun)8a7s4
Mt. Creek	A/2266(Blue Sun)8a8qa
Namebrand D5P	A/2269(Blue Sun)b7p9j
Navvayu	A/2262(Blue Sun)2pf10
Oliver	A/2268(Blue Sun)a70u3
Olympia	A/2264(Blue Sun)509rg
Pibox	A/2266(Blue Sun)8ar29
Pibox	A/2268(Blue Sun)a72g8
Pihua	A/2269(Blue Sun)bd80v
Pocket Money	A/2262(Blue Sun)2r4b8
Propitious Beginnings	A/2266(Blue Sun)8ad5g
Ravana	A/2269(Blue Sun)bd87h
Saga	A/2261(Blue Sun)1cq1t
Saga	A/2263(Blue Sun)42e8r
Shazadi	A/2261(Blue Sun)23rf9

REGION: Unspecified

SlagCorps	A/2262(Blue Sun)2r861
Solange	A/2267(Blue Sun)90t5n
Srinath	A/2261(Blue Sun)23rfb
St. Julien	A/2268(Blue Sun)a71kw
Sundowner	A/2262(Blue Sun)2r85t
Titus	A/2267(Blue Sun)90u42
Tolstoy	A/2262(Blue Sun)2r8d9
Tsars	A/2261(Blue Sun)23u56
Tsars	A/2261(Blue Sun)23u57
Tsars	A/2265(Blue Sun)70r4y
Tungsten Carbide UM-23	A/2261(Blue Sun)2e65h
Vernon	A/2269(Blue Sun)bs80w
Wildcard	A/2265(Blue Sun)717h2
Yukon Falls	A/2261(Blue Sun)2e6db

REGION: Ashlands

Ash Angel	A/2265(Blue Sun)67yk7
Big Blue - CMC - 01	A/2261(Blue Sun)10e48
Big Blue - CMC - 02	A/2262(Blue Sun)2p07a
Big Blue - CMC - 03	A/2262(Blue Sun)2p07b
Big Blue - CMC - 04	A/2264(Blue Sun)4a3u6
Big Blue - CMC - 05	A/2265(Blue Sun)6t082
Big Blue - CMC - 06	A/2265(Blue Sun)6t083
Big Blue - CMC - 07	A/2268(Blue Sun)a30k4
Black Syren	A/2269(Blue Sun)b76a8
Chien Courageux	A/2267(Blue Sun)8xe4w
Coffre-fort	A/2268(Blue Sun)a31mu
Colheita - CMC - 01	A/2264(Blue Sun)4b3b5
Colheita - CMC - 02	A/2264(Blue Sun)4b3b8
Colheita - CMC - 03	A/2266(Blue Sun)7eb47
Cul du Sac Obscurité	A/2265(Blue Sun)6td0j
Kobalt	A/2268(Blue Sun)a38ud
Mizpah	A/2267(Blue Sun)8xe4x
Outbound	A/2262(Blue Sun)2p37c
Sandman	A/2264(Blue Sun)4b3d4
São João Baptista	A/2263(Blue Sun)382rn
Whitemarch	A/2267(Blue Sun)8xf08

REGION: Blueblood

Blue Sun - Blue 10	A/2266(Blue Sun)7hk9n
Blue Sun - Blue 11	A/2262(Blue Sun)2p3j6
Blue Sun - Blue 12	A/2268(Blue Sun)a39nv
Blue Sun - Blue 13	A/2261(Blue Sun)145hh
Blue Sun - Blue 14	A/2267(Blue Sun)90b7a
Blue Sun - Blue 15	A/2263(Blue Sun)391g5
Blue Sun - Blue 16	A/2268(Blue Sun)a45tc
Blue Sun - Blue 17	A/2262(Blue Sun)2p3jf
Blue Sun - Blue 18	A/2265(Blue Sun)6tdpa
Continued	on the following page

REGION: Blueblood - Cont.

Blue Sun - Blue 19	A/2263(Blue Sun)393df
Blue Sun - Blue 20	A/2263(Blue Sun)397by
Blue Sun - Blue 21	A/2263(Blue Sun)399yn
Blue Sun - Blue 22	A/2263(Blue Sun)3b00f
Blue Sun - Blue 23	A/2267(Blue Sun)90b7c
Blue Sun - Blue 24	A/2264(Blue Sun)4byyy
Blue Sun - Blue 25	A/2267(Blue Sun)90b7f
Blue Sun - Blue 26	A/2268(Blue Sun)a4e31
Blue Sun - Blue 27	A/2269(Blue Sun)b76ar
Blue Sun - Blue 28	A/2266(Blue Sun)7hk9t
Blue Sun - Blue 29	A/2263(Blue Sun)3b245
Blue Sun - Blue 30	A/2262(Blue Sun)2p3jt
Blue Sun - Blue 31	A/2261(Blue Sun)157r2
Blue Sun - Blue 32	A/2264(Blue Sun)4c000
Blue Sun - Blue 33	A/2265(Blue Sun)6tdpb
Blue Sun - Blue 34	A/2264(Blue Sun)4c001
Blue Sun - Blue 35	A/2264(Blue Sun)4c002
Cortez 01	A/2265(Blue Sun)6v2at
Cortez 02	A/2265(Blue Sun)6v2au
Cortez 03	A/2268(Blue Sun)a4e3y
Decher Claim	A/2267(Blue Sun)90g52
DLR - 01	A/2269(Blue Sun)b76a4
DLR - 02	A/2267(Blue Sun)90g5b
DLR - 03	A/2264(Blue Sun)4c7c4
DLR - 04	A/2262(Blue Sun)2pa54
DLR - 05	A/2266(Blue Sun)7hka5
Jenny	A/2263(Blue Sun)3b401
The Castles - 01	A/2261(Blue Sun)15d3e
The Castles - 02	A/2263(Blue Sun)3b618
The Castles - 03	A/2265(Blue Sun)6v30v
Tongzhi Gongyuan	A/2261(Blue Sun)170ey

REGION: The Neighborhood

Bendan	A/2261(Blue Sun)175d4
Blue Mountain - CMC	A/2265(Blue Sun)6vah4
Blue Sun - Blue 01	A/2264(Blue Sun)4d28r
Blue Sun - Blue 02	A/2265(Blue Sun)6vc47
Blue Sun - Blue 03	A/2266(Blue Sun)7m40d
Blue Sun - Blue 04	A/2265(Blue Sun)6vc49
Cache Junction	A/2269(Blue Sun)b7p7w
Devil's Tower	A/2262(Blue Sun)2pa78
Jing 01	A/2264(Blue Sun)4d28s
Jing 02	A/2268(Blue Sun)a4e6g
Lucky - CMC	A/2264(Blue Sun)4d28t
New Loomis	A/2263(Blue Sun)3b870
Nomad 17	A/2264(Blue Sun)4fc3a
Pale Whores	A/2264(Blue Sun)4fc3b
Pale Whores	A/2265(Blue Sun)70b58
Paydirt	A/2263(Blue Sun)3d5b1
Rogue River	A/2262(Blue Sun)2r49m

REGION: The Neighborhood

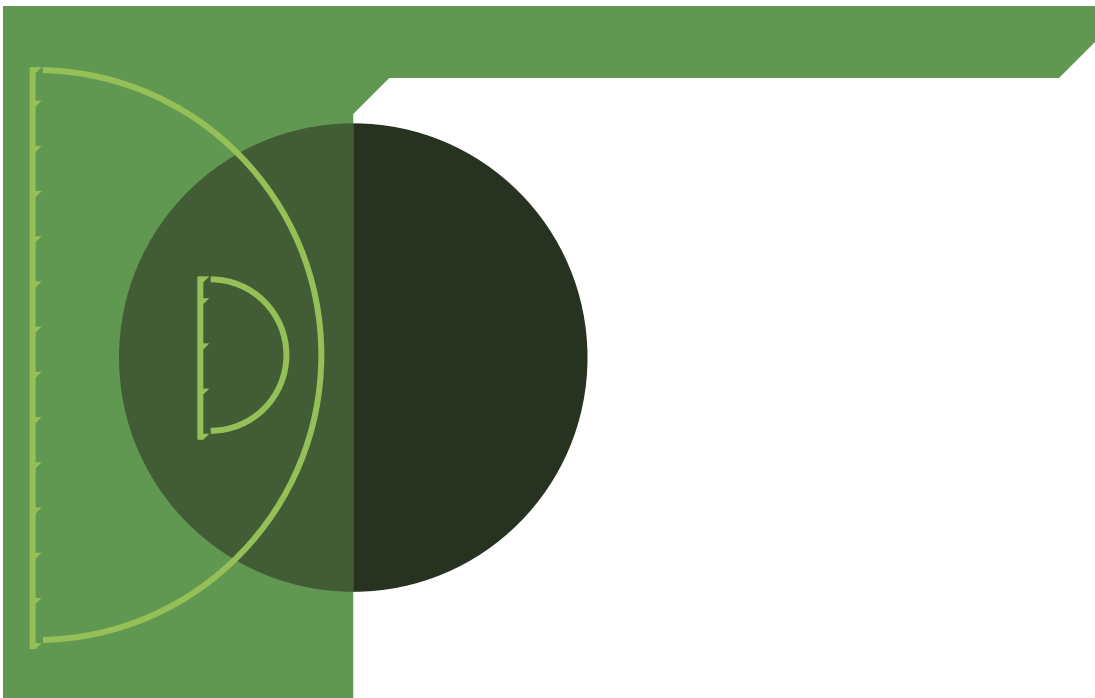
Slumbering Dragon	A/2267(Blue Sun)90g6b
Speck	A/2261(Blue Sun)17b7r
Tongzhi	A/2267(Blue Sun)90g6c
Walker Lake	A/2263(Blue Sun)3d5w2
Whistler's Cove	A/2266(Blue Sun)7m42t

REGION: Qundalini's Coils

Chrysopoeia	A/2267(Blue Sun)9k0d3
Jörmungandr	A/2261(Blue Sun)2a15b
Quetzalcoatl	A/2267(Blue Sun)9k01m

REGION: Waytown

Deegean 01	A/2264(Blue Sun)537a0
Deegean 02	A/2264(Blue Sun)537a1
Deegean 03	A/2264(Blue Sun)537a4
Deegean 04	A/2264(Blue Sun)551q3
Deegean 05	A/2264(Blue Sun)551q5
Deegean 06	A/2264(Blue Sun)551q6
Deegean 07	A/2264(Blue Sun)560m4
Deegean 08	A/2264(Blue Sun)560m5
Franklin	A/2269(Blue Sun)bd9u2
Governess	A/2261(Blue Sun)2ed4y
Hickman	A/2261(Blue Sun)2ee31
House of the Rising Sun	A/2268(Blue Sun)a720n
Hormigueros del Espacio	A/2263(Blue Sun)44a01
Ipswich Docks - 01	A/2261(Blue Sun)2edth
Ipswich Docks - 02	A/2267(Blue Sun)9c4fy
Jane	A/2266(Blue Sun)8ar4b
Maybelle	A/2264(Blue Sun)52mup
Shieh Lode	A/2268(Blue Sun)a80b2
Taisce Mora	A/2269(Blue Sun)bd9ua
Wales	A/2269(Blue Sun)bd9u9
Wayward 1	A/2263(Blue Sun)42p5d
Wayward 2	A/2267(Blue Sun)9cdhb



Highgate
Orbit:
Period:

P/2029(Blue Sun)05
1,368,820,511 km - 9.150 AU
10,109.00 days - 27.68 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

10,350 km
336,535,259 km²
100,960,578 km²
32,307,385 km²
4.195 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

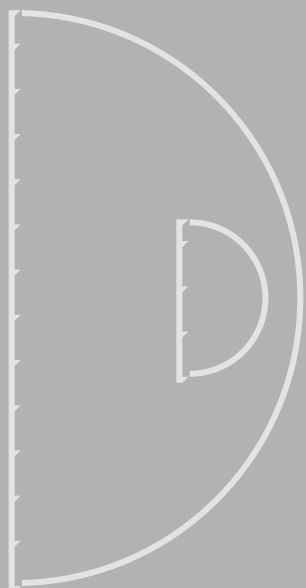
3,958,084,663,670,670,000,000 metric tonnes
1.0038 g_n
10.0900 km/s
815 km
16,307 km
29,179 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,194,773 km
1,194,773 km
1,194,773 km
1,368,820,511 km
1,368,820,511 km
1,368,820,511 km
7,792 km
14,545 km

Terraformed (year):
Population:

2435
2,750,000



Note: Stonewall boasts the only planet/moon space elevator, or “beanstalk,” in the Verse. Travelers on Highgate can “take the train to Stonewall.”

**Stonewall
Orbit:
Period:**

S/2200(Highgate)02
29,179 km
1 day (geostationary orbit)

**Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:**

1,110 km
3,870,756 km²
2,322,454 km²
743,185 km²
1.374 km (sea level)

**Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):**

44,051,077,409,344,800,000 metric tonnes
0.9713 g_n
3.251 km/s
85 km
1,692 km
3,028 km

**Hill Sphere (radius):
LaGrangian Points**

19,086 km

L1:

19,086 km

L2:

19,086 km

L3 (+-180):

29,179 km

L4 (+60):

29,179 km

L5 (-60):

29,179 km

Inner Roche Limit

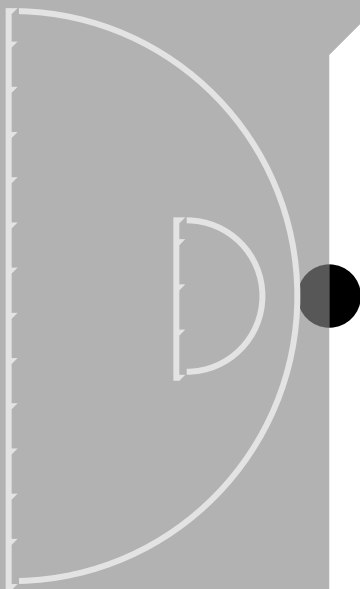
809 km

Outer Roche Limit

1509 km

**Terraformed (year):
Population:**

2435
275,000



Perth
Orbit:
Period:

S/2164(Highgate)01
222,952 km
15.83 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,400 km
6,157,522 km²
3,325,062 km²
1,064,020 km²
1.543 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

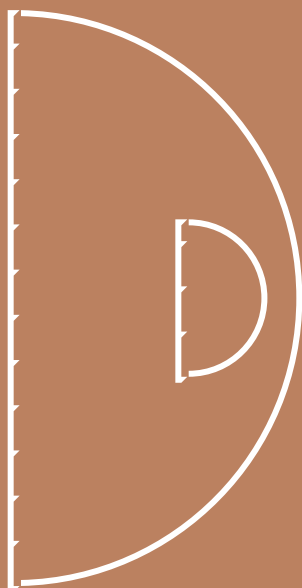
71,576,211,826,711,300,000 metric tonnes
0.9921 g_n
3.6890 km/s
109 km
2,180 km
3,901 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

24,588 km
24,588 km
24,588 km
222,952 km
222,952 km
222,952 km
1,042 km
1,945 km

Terraformed (year):
Population:

2435
250,000



Dragon's Egg
Orbit:
Period:

P/2020Blue Sun03
1,761,514,919 km - 11.775 AU
14,758.00 days - 40.41 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

186,300 km
N/A
N/A
N/A
N/A

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

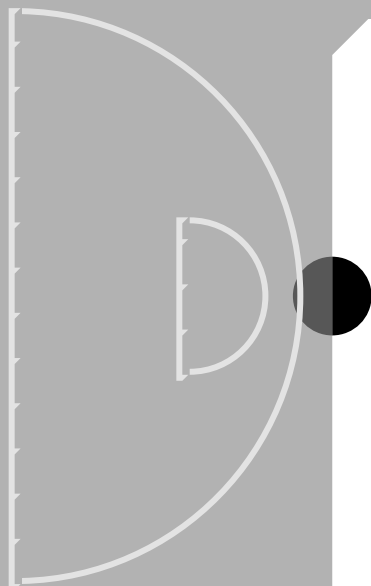
5,851,557,451,670,160,000,000,000 metric tonnes
3.2938 g_n
N/A
N/A
N/A
N/A

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

88,888,235 km
88,888,235 km
88,888,235 km
1,761,514,919 km
1,761,514,919 km
1,761,514,919 km
119,232 km
229,149 km

Terraformed (year):
Population:

N/A
N/A



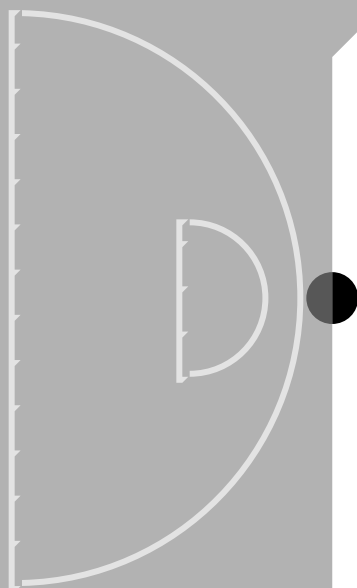
Yudhishtira
Orbit: 1,191,640 km
Period: 84.63 days

Diameter: 1,738 km
Surface Area: 9,489,633 km²
Land Area: 4,934,609 km²
Arable Land: 1,579,075 km²
Horizon: 1.719 km

Mass: 106,951,445,238,463,000,000 metric tonnes
Surface Gravity: 0.9619 g_n
Escape Velocity: 4.0480 km/s
LEO (alt): 131 km
MEO (alt): 2,624 km
GEO (alt): 4,695 km

Hill Sphere (radius): 29,595 km
LaGrangian Points
L1: 29,595 km
L2: 29,595 km
L3 (+-180): 1,191,640 km
L4 (+60): 1,191,640 km
L5 (-60): 1,191,640 km
Inner Roche Limit: 1,254 km
Outer Roche Limit: 2,340 km

Terraformed (year): 2420
Population: 200,000



Bhima
Orbit:
Period:

S/2165(Dragon's Egg)02
1,345,400 km
95.55 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,160 km
4,227,327 km²
2,367,303 km²
757,537 km²
1.404 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

51,402,806,748,820,200,000 metric tonnes
1.0378 g_n
3.4350 km/s
94 km
1,890 km
3,381 km

Hill Sphere (radius):
LaGrangian Points

21,312 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

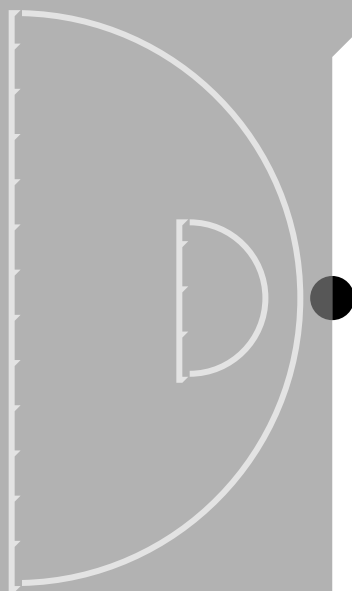
21,312 km
21,312 km
1,345,400 km
1,345,400 km
1,345,400 km

Inner Roche Limit
Outer Roche Limit

903 km
1,685 km

Terraformed (year):
Population:

2420
46,000



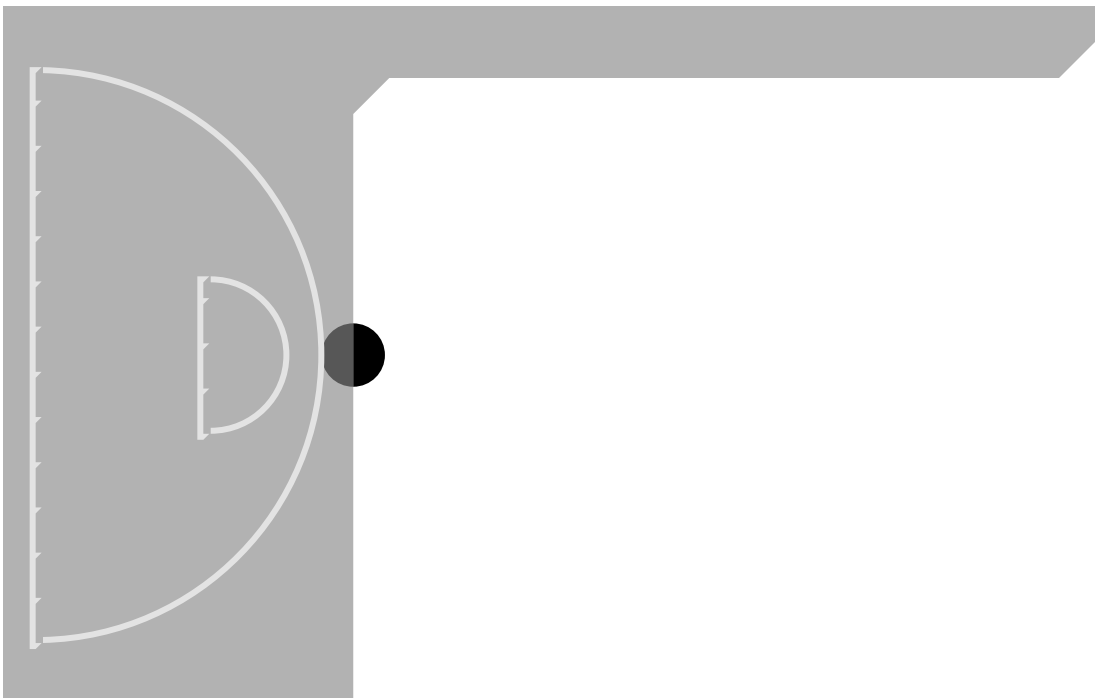
Nakula
Orbit: 1,537,600 km
Period: 109.20 days

Diameter: 988 km
Surface Area: 3,066,647 km²
Land Area: 1,839,988 km²
Arable Land: 588,796 km²
Horizon: 1.296 km

Mass: 34,989,750,686,946,300,000 metric tonnes
Surface Gravity: 0.9738 g_n
Escape Velocity: 3.0710 km/s
LEO (alt): 76 km
MEO (alt): 1,510 km
GEO (alt): 2,702 km

Hill Sphere (radius): 17,032 km
LaGrangian Points
L1: 17,032 km
L2: 17,032 km
L3 (+-180): 1,537,600 km
L4 (+60): 1,537,600 km
L5 (-60): 1,537,600 km
Inner Roche Limit: 722 km
Outer Roche Limit: 1,347 km

Terraformed (year): 2420
Population: 65,500



Sahadeva
Orbit:
Period:

S/2165(Dragon's Egg)04
1,729,800 km
122.85 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

1,392 km
6,087,351 km²
3,287,170 km²
1,051,894 km²
1.538 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

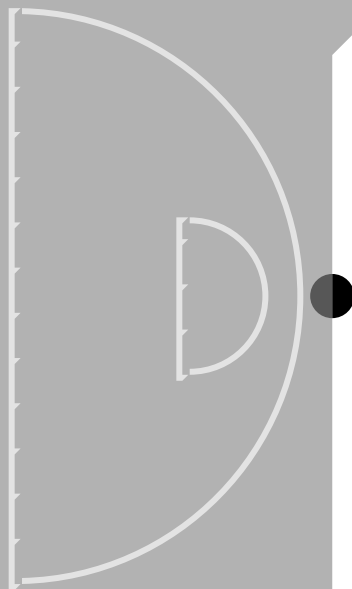
69,170,010,077,479,600,000 metric tonnes
0.9698 g_n
3.6370 km/s
106 km
2,119 km
3,791 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

23,898 km
23,898 km
23,898 km
1,729,800 km
1,729,800 km
1,729,800 km
1,012 km
1,890 km

Terraformed (year):
Population:

2420
8,000



Glynis
Orbit:
Period:

S/2165(Dragon's Egg)05
1,922,000 km
136.50 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

990 km
3,079,075 km²
1,847,445 km²
591,182 km²
1.297 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

37,335,843,268,574,900,000 metric tonnes
1.0349 g_n
3.1690 km/s
80 km
1,608 km
2,877 km

Hill Sphere (radius):
LaGrangian Points

18,138 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

18,138 km
18,138 km
1,922,000 km
1,922,000 km
1,922,000 km

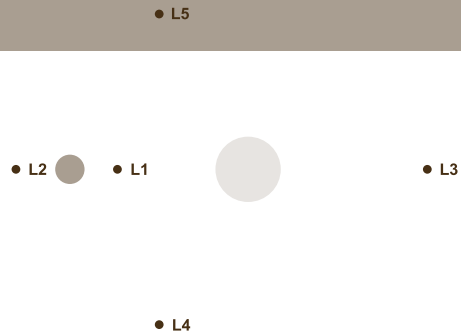
Inner Roche Limit
Outer Roche Limit

768 km
1,434 km

Terraformed (year):
Population:

2420
1,000

Lagrangian asteroids use the same number and letter designations for cataloging as other asteroids. **Example:** **A/2271(Blue Sun)506mt**
The current numbering is able to catalog up to 33,554,432 objects per year per region.



REGION: L1

REGION: L2

REGION: L3 'The Fleet'

Devil-dam	A/2278(Blue Sun)mkc5h
Jungfrau	A/2278(Blue Sun)mkc5j
Pequad	A/2278(Blue Sun)mkc5k
Rachel	A/2278(Blue Sun)mkc5m
Samuel Enderby	A/2278(Blue Sun)mkc5n
Tit-bit	A/2278(Blue Sun)mkc5p

REGION: L4 'Castaways'

Apollo	A/2274(Blue Sun)g1v3a
Big G	A/2274(Blue Sun)g1v3e
CB-01	A/2274(Blue Sun)g1v3f
FET-22	A/2274(Blue Sun)g1v3b
Fort Wiser	A/2276(Blue Sun)ka017
MHP-47	A/2275(Blue Sun)g1v3h
MWM	A/2275(Blue Sun)g1v3j
Kampf	A/2274(Blue Sun)g1v3c
SDS	A/2274(Blue Sun)g1v3g
VIN-01	A/2274(Blue Sun)g1v3d
KD-FA	A/2275(Blue Sun)g1v3k

REGION: L5



Deadwood
Orbit:
Period:

P/2030(Blue Sun)06
2,098,110,127 km - 14.025 AU
19,184.00 days - 52.52 years

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

9,930 km
309,776,429 km²
123,910,572 km²
39,651,383 km²
4.109 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

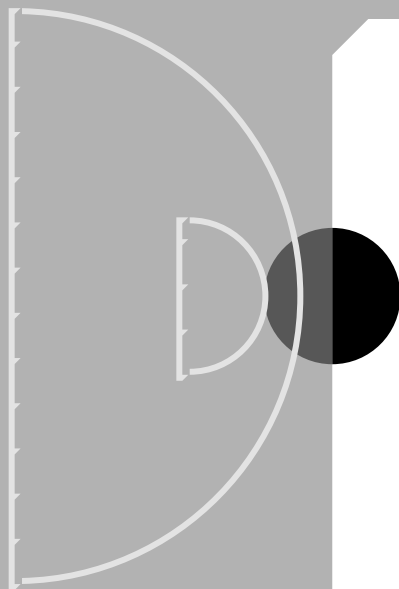
3,646,270,295,289,740,000,000 metric tonnes
1.0046 g_n
9.8870 km/s
783 km
15,658 km
28,017 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

1,147,203 km
1,147,203 km
1,147,203 km
2,098,110,127 km
2,098,110,127 km
2,098,110,127 km
7,482 km
13,966 km

Terraformed (year):
Population:

2400
1,570,000



Haven
Orbit:
Period:

S/2164(Deadwood)01
184,512 km
13.10 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

3,012 km
28,500,981 km²
14,250,490 km²
4,560,157 km²
2.263 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

338,647,525,371,776,000,000 metric tonnes
1.0141 g_n
5.4710 km/s
240 km
4,794 km
8,578 km

Hill Sphere (radius):
LaGrangian Points

54,073 km

L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):

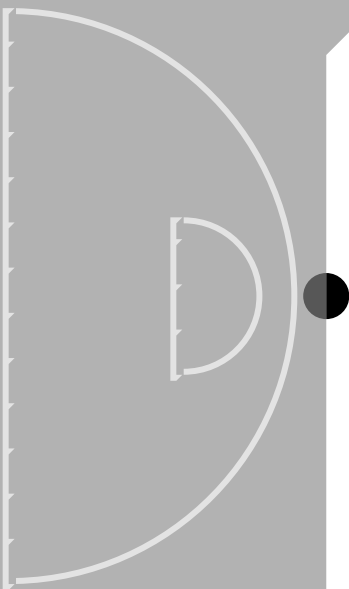
54,073 km
54,073 km
184,512 km
184,512 km
184,512 km

Inner Roche Limit
Outer Roche Limit

2,291 km
4,276 km

Terraformed (year):
Population:

2400
78,000



New Omaha
Orbit: 369,024 km
Period: 26.21 days

Diameter: 1,025 km
Surface Area: 3,300,636 km²
Land Area: 1,914,369 km²
Arable Land: 612,598 km²
Horizon: 1.320 km

Mass: 37,156,766,544,714,200,000 metric tonnes
Surface Gravity: 0.9608 g_n
Escape Velocity: 3.1070 km/s
LEO (alt): 77 km
MEO (alt): 1,546 km
GEO (alt): 2,766 km

Hill Sphere (radius): 17,434 km
LaGrangian Points
L1: 17,434 km
L2: 17,434 km
L3 (+-180): 369,024 km
L4 (+60): 369,024 km
L5 (-60): 369,024 km
Inner Roche Limit: 739 km
Outer Roche Limit: 1,379 km

Terraformed (year): 2400
Population: 50,000



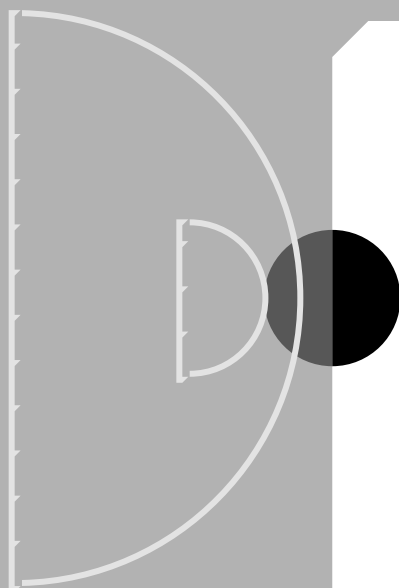
Shenzhou
Orbit: 2,154,209,328 km - 14.400 AU
Period: 19,958.78 days - 54.64 years

Diameter: 11,860 km
Surface Area: 441,895,166 km²
Land Area: 150,244,356 km²
Arable Land: 48,078,194 km²
Horizon: 4.490 km

Mass: 5,208,642,465,791,410,000,000 metric tonnes
Surface Gravity: 1.0060 g_n
Escape Velocity: 10.8132 km/s
LEO (alt): 936 km
MEO (alt): 18,727 km
GEO (alt): 33,509 km

Hill Sphere (radius): 211,217 km
LaGrangian Points
L1: 211,217 km
L2: 211,217 km
L3 (+-180): 2,154,209,328 km
L4 (+60): 2,154,209,328 km
L5 (-60): 2,154,209,328 km
Inner Roche Limit: 8,948 km
Outer Roche Limit: 16,704 km

Terraformed (year): 2502
Population: 250,000



Tiangong
Orbit: 422,840 km
Period: 30.03 days

Diameter: 3,020 km
Surface Area: 28,652,582 km²
Land Area: 16,905,023 km²
Arable Land: 5,409,607 km²
Horizon: 2.266 km

Mass: 335,681,682,216,091,000,000 metric tonnes
Surface Gravity: 0.9999 g_n
Escape Velocity: 5.4399 km/s
LEO (alt): 237 km
MEO (alt): 4,740 km
GEO (alt): 8,481 km

Hill Sphere (radius): 53,458 km
LaGrangian Points
L1: 53,458 km
L2: 53,458 km
L3 (+-180): 422,840 km
L4 (+60): 422,840 km
L5 (-60): 422,840 km
Inner Roche Limit: 2,265 km
Outer Roche Limit: 4,228 km

Terraformed (year): 2502
Population: 15,000

Miranda

Historical Note: Burnham was the first brown dwarf to be *Helioformed*, or compressed and ignited into an artificial sun, also called a “protostar.” It was determined that Burnham was the best candidate for this very experimental and dangerous procedure, due to its distance from the more populous core worlds, and its small size. After the process was refined at Burnham, it was then applied to the other six brown dwarfs in the Verse. The last brown dwarf to be helioformed was Qin Shi Huang, and only after the process was deemed as error-free as humanly possible.

Burnham
(Protostar)

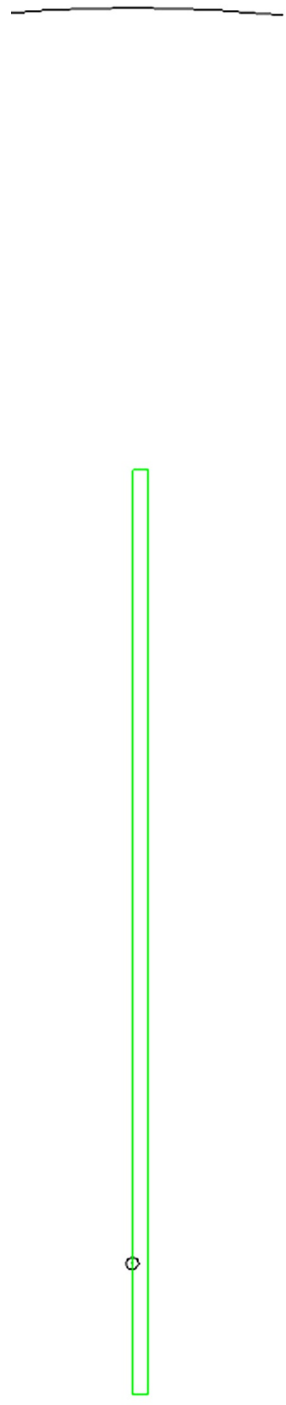
Sol (radius)

Burnham
(Brown Dwarf)

Class:	Artificial Star
Helioformed:	2253
Radius:	0.30 Sol - Brown Dwarf (98.10 inches scale)
Radius:	0.18 Sol - Protostar (58.86 inches scale)
Mass:	0.30 Sol
Orbit	3,440,751,010 km (23.000 AU)
Period (years):	110.30
Hill Sphere (radius):	305,841,561 km
Lagrangian Points	
L1:	305,841,561 km
L2:	305,841,561 km
L3 (+-180)	3,440,751,010 km
L4 (+60):	3,440,751,010 km
L5 (-60):	3,440,751,010 km
Habitation Zone Limits:	
Inner:	30,584,156 km
Outer:	214,089,092 km



Diagram of the gravity limit and habitation zone for the protostar, Burnham. The tiny circle on the left is Burnham. The blank area between Burnham and the green rectangle is the area of space where the protostar's heat makes terraforming impossible. The green rectangle is Burnham's habitation zone. The arc on the extreme right is the limit of Burnham's gravitational influence, or Hill Sphere. The blank area to the right of the habitation zone is too cold to support terraformed planets. The tiny circle at the left end of the green rectangle is the Hill Sphere of Miranda. The actual planet and its moon are too small to be seen at this scale.





Miranda
Orbit: 56,666,530 km - 0.379 AU
Period: 1,247.00 days - 3.41 years

S/2038(Burnham)01

Diameter: 11,023 km
Surface Area: 381,724,019 km²
Land Area: 114,517,206 km²
Arable Land: 36,645,506 km²
Horizon: 4.329 km

Mass: 4,473,013,724,617,460,000,000 metric tonnes
Surface Gravity: 1.0001 g_n
Escape Velocity: 10.3940 km/s
LEO (alt): 865 km
MEO (alt): 17,304 km
GEO (alt): 30,961 km

Hill Sphere (radius): 1,267,772 km
LaGrangian Points
L1: 1,267,772 km
L2: 1,267,772 km
L3 (+-180): 56,666,530 km
L4 (+60): 56,666,530 km
L5 (-60): 56,666,530 km
Inner Roche Limit: 8,268 km
Outer Roche Limit: 15,434 km

Terraformed (year): 2433
Population: 5,200 (Reavers)

BLUE SUN (qing long)

太阳

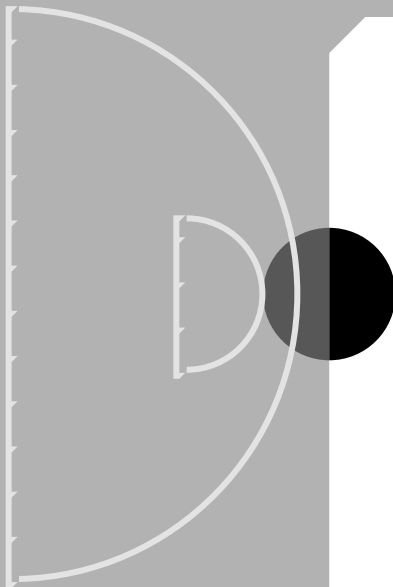
BURNHAM

MIRANDA

卫星

CALIBAN

S/2180(MIRANDA)01



Caliban
Orbit:
Period:

S/2180(Miranda)01
96,100 km
6.83 days

Diameter:
Surface Area:
Land Area:
Arable Land:
Horizon:

2,910 km
26,603,321 km²
13,301,660 km²
4,256,531 km²
2.224 km

Mass:
Surface Gravity:
Escape Velocity:
LEO (alt):
MEO (alt):
GEO (alt):

300,389,691,993,613,000,000 metric tonnes
0.9637 g_n
5.242 km/s
220 km
4,402 km
7,876 km

Hill Sphere (radius):
LaGrangian Points
L1:
L2:
L3 (+-180):
L4 (+60):
L5 (-60):
Inner Roche Limit
Outer Roche Limit

49,646 km
49,646 km
49,646 km
96,100 km
96,100 km
96,100 km
2,103 km
3,926 km

Terraformed (year):
Population:

Ongoing
7,000 (Terraform Crew + Military)

卫星

6.43

In the year 2020, an astronomer noted a new star cluster in the constellation of Taurus. He submitted his discovery and requested that the new cluster's designation be "34Tauri(2020)" in honor of his ancestor, John Flamsteed*. The name was approved. In the same year, a total of five stars were recorded in 34Tauri(2020), and listed as 34Tauri(2020)A through 34Tauri(2020)E. Also in that year, fourteen gas giants were also discovered. Seven were large enough to qualify as brown dwarfs, while the remaining seven were of Jovian size. As new bodies were discovered, they were added to the cluster's catalog with the following naming convention:

X/????(Y)Z

X = Celestial Body

P = Planet (gas giant or terrestrial)

S = Satellite (of any size, also satellites of satellites)

A = Asteroid

???? = Discovery Date (year)

Y = Primary

Z = Order of bodies discovered or cataloged for a particular primary

So, Londinium's designation is P/2027(White Sun)03, which means that Londinium is the third planet to be discovered orbiting White Sun, and was discovered in the year 2027. Londinium's full designation, without common names is P/2027(34Tauri(2020)A)03.

The full designation of New Luxor shows its place in the mapping of the Verse:

S/2176(S/2032(P/2020(34Tauri(2020)A)01)01)02

New Luxor, discovered in 2176, was the second satellite to be found orbiting Santo. Santo, discovered in 2032, is the first and only satellite of the gas giant Qin Shi Huang. The gas giant Qin Shi Huang, discovered in 2020, was the first planet to be discovered orbiting White Sun. Note that the number at the end of the designation, Z, shows the order of discovery, not the body's position in the system.

To simplify the full designation above:

34Tauri(2020)A = White Sun, Qin Shi Huang's primary

P/2020(White Sun)01 = Qin Shi Huang, the first planet to be discovered orbiting White Sun, and Santo's primary

S/2032(Qin Shi Huang)01 = Santo, the satellite orbiting Qin Shi Huang, and New Luxor's primary

S/2176(Santo)02 = New Luxor, the second of two satellites found to be orbiting, not Qin Shi Huang, but Santo instead.

Even though Santo is large enough to be considered a planet in its own right, it is classified as a satellite because it is orbiting Qin Shi Huang. Qin Shi Huang is a "protostar," or helioformed gas giant. It may be a star now, but its natural state is a gas giant, so its designation is that of a planet.

Asteroids follow the same designation format with one change: Due to the high number of bodies that would be cataloged in an asteroid belt, the catalog order number, Z, counts from 1 through 9, then continues with "a" through "y" (excluding I, l, o, and z) before continuing with 10. For example: 1, 2,..., 9, a, b,..., x, y, 10, 11, ...19, 1a, ...1y, 20, etc.

***Note:** To date, no one has been able to recover the astronomer's name or home observatory from any record, so the astronomer's relation to Mr. Flamsteed is highly suspect.

“Dozens of planets and hundreds of moons. Each one terraformed - a process taking decades - to support human life. To be new Earths.”

What gets terraformed? Terraforming can be performed on any body that meets the following criteria:

- ◆ It has to be large enough for Hydrostatic Equilibrium to form it into a sphere. For a rocky body with a composition that would be useful to settlers, the minimum size is 970km in diameter, or the size of the asteroid Ceres. Anything smaller would have an irregular shape that wouldn't hold an atmosphere all over.
- ◆ Its diameter cannot be greater than 1.4 times ETW (Earth That Was) due to limitations in terraforming technology.
- ◆ The target must lie in a 13.5 AU wide band around the star. The inner and outer boundaries for this band depend on the star's temperature. Currently, our technology is much better at warming cold places than cooling hot places.

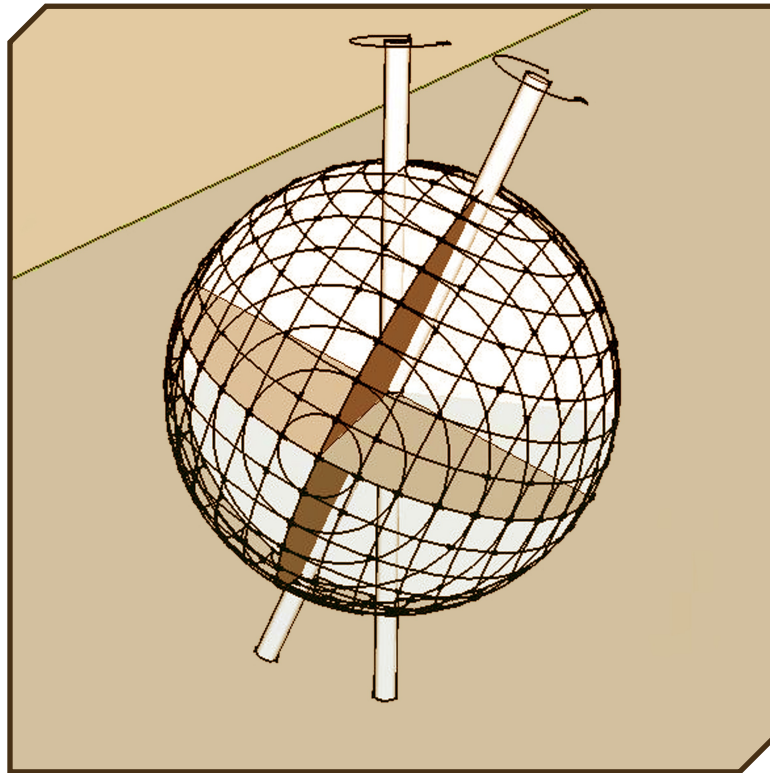
What needs to be done?

- ◆ The gravity needs to be adjusted to ETW-normal. Here's the reason for the upper size limit. It is much easier with our current technology to increase the gravity of a planet than it is to decrease the gravity. A less dense world can be compressed to increase its density and gravity. A world with more than twice the surface area of ETW (1.4 x the diameter) is too big to terraform.
- ◆ Continents and seabeds need to be sculpted.
- ◆ Atmospheric gases need to be released from the crust - water as well.
- ◆ What may well be lifeless rock needs to be processed into soil that will grow plants and crops.
- ◆ The planet's rotation and axial tilt need to be adjusted so that the planet has a 24 hour day and a standard 365-day seasonal year (see below).
- ◆ Plant and animal life needs to be introduced.
- ◆ Atmosphere processors are set to a maintenance mode to help maintain an ideal mixture of gases until the biosphere develops enough to handle that function.

The planet is now ready for colonization.

One of the biggest challenges faced by terraforming crews is the introduction of plant and animal life into a created environment on an alien world. How are plants and animals going to cope with seasons that will last for years? And how will colonists cope with calendars that are different for every world?

They won't have to. The terraforming crews will adjust the rotation period of the planet for a 24-hour day. They'll adjust the axial tilt to 23.439 degrees. Then they'll add a second rotational axis at 0 degrees (perpendicular to the plane of the system) with a rotation period of 365.25 days. This second axis will cause the planet to cycle through one complete seasonal year in 365.25 days, regardless of where the planet is in its orbit around its sun.



Summers will last just long enough to ripen crops, and not so long as to bake them in the fields. Animals with millions of years of migrations wired into their brains will know when to migrate away, and when to come home. The colonists' calendars will be aligned to the seasonal year instead of the planet's orbital revolution.

And Unification Day (along with every other holiday) will be celebrated on the same day on every world in the Verse.

In 2245, the Alliance council determined that as more people moved out into the Verse, long range communications would become a problem as the current Cortex satellites and planet based installations were overwhelmed by the increase in traffic and left behind as humanity expanded beyond the core. Many options were considered. Larger Cortex relay satellites were considered, but had limited long term upgradability. Planet and moon based transmission facilities were limited by the atmosphere and by the mass of the planet or moon creating a “shadow” behind the facility, requiring multiple facilities around the planet. Another drawback to the idea of basing a Cortex relay on a planet was that the Alliance would be dependent on the local government for administration of the facility. This wasn’t a problem in the Core, but became problematic outside of the Halo.

While this study was going on, the Department of Environmental Studies was encountering a problem dealing with high levels of terraforming “waste” in the form of large clouds of ionized particles and terraforming nanobots that were collecting in a planet’s Van Allen belts. At first, these clouds were seen as a benefit. In very low quantities, these clouds helped direct excess heat and light away from planets that were closer to the parent star than the inside boundary of the star’s habitation zone. In higher concentrations, they concentrated heat and light onto the planet’s surface, allowing planets well outside the habitation zone to be terraformed.

But as the concentration increased, it started having a detrimental effect on the planet’s environment. Concentration levels high enough to form a visible layer in the upper reaches of the atmosphere concentrated too much sunlight onto the surface, baking the landscape. The cloud blocked specific wavelengths of light. Plants that could survive the heat didn’t grow well. Migratory animals were listless and wandered aimlessly. No one was quite sure how, but the cloud seemed to interfere with the planet’s convection cycle. Surface water evaporated but seldom returned as rain, making the planet’s surface very arid. The cloud completely blocked incoming and outgoing transmission, isolating the planet from the Cortex.

These problems were seen as unrelated until one day when a Cortex engineer started talking shop over lunch with a technician from DES. A side project was created to see if there was some way the cloud could be tuned so that it would pass transmissions. Instead, they discovered that the ion cloud could act as a giant antenna. This solved the problem faced by those charged with expanding Cortex coverage to keep pace with outward expansion. A large asteroid or small moon could be terraformed to create the Van Allen belts that the ion cloud needed as a starting framework. With the cloud concentrations so high, the asteroid chosen could be away from any star. A body could be selected out in inter-cluster space. The cloud would amplify the weak solar radiation that reached it, making the surface barely habitable for the Cortex crews that would build the relay stations, antenna and server farms.

Four large asteroids of terraformable size were chosen to be the first of the new Cortex Relay Stations. They were located in the L4 and L5 Lagrangian points for Georgia and Red Sun.

The extremely high concentration of celestial bodies in the Verse, first seen as an incredible boon, also had a major drawback: The high number of usable bodies in the cluster also included a correspondingly high amount of junk. There were asteroid swarms in the L4 and L5 points of all the stars, protostars, and gas giants, and many of the larger terrestrial planets. Just about every celestial body with a significant gravity pull had at least clouds of dust and small debris in its associated Lagrangian points.

This drawback had its own advantage. Bodies suitable to be Cortex Relay Stations were found already in the places they needed to be, or near enough to be nudged into place.

Terraforming of the first four Cortex Relay Stations began in 2260. While there was some effort to get a living biosphere up and running, it was just enough to help maintain the environment. The stations were to be unmanned. The crew facilities left by the terraforming crews would be used by Cortex technicians to construct the server farms and antenna farms that would dot the surface of the asteroid. After the station was up and running, the facilities would be abandoned in place, with enough power to support the occasional maintenance crews. Asteroids were selected and placed (when necessary) for Comm Station Ring 2 in 2275, and terraforming was started. When complete, there would be complete Cortex coverage for all four inner systems, and coverage for Blue Sun that was considered adequate.

Formerly magnetically inert bodies had magnetic fields created. Interaction between the asteroid's new magnetic field and White Sun's solar wind created the needed Van Allen belts. The ion cloud particles were funneled into the Van Allen belts, and further strengthened by atmospheric processors tuned to produce more waste. The increased ion cloud density became a visible shell encasing the entire planet just outside the upper reaches of the atmosphere, and extending as far out as two asteroid radii. As the cloud density increased, patterns of "weather" can be seen in the form of shifting patterns of light and shadow. Cloud density ranges from 50 Pa to 500 Pa. If the human ear could tolerate the low pressure, sound could be heard in the cloud.

Down on the surface, Cortex server farms were constructed at various points around the asteroid, separated by long distances to reduce the chances of catastrophic damage affecting more than a single farm. Every active server farm has a dedicated Disaster Recovery farm 180° around the asteroid. Spaced equally across the surface are antenna farms to collect from and retransmit data into the ion cloud. The ion cloud acts as an omni-directional world-sized transceiver array. While all Cortex activity can be monitored from the operations center built around the terraformers facility, each server and antenna farm has its own dedicated automated power station and control facility. The operations center can accommodate a crew of several hundred, but is intended to be unmanned and fully automated. The surface of a Cortex Relay Station asteroid is restricted to authorized personnel only. Trespassing for any reason other than a craft emergency can result in fines or imprisonment. There are limited facilities for repair and refueling, but those are intended for maintenance crew use only.

The surface of the asteroid is livable, but not very. Under normal conditions, and atmosphere on a body that far away from its primary would be a layer of frozen gases on the surface. The ion cloud collects and amplifies the weak light of White Sun. The surface temperature varies from cold to cool, resembling late autumn on a cloudy day. The cloud distributes light and heat around the asteroid. There are no polar ice caps or tropics. Night is darker than day and resembles the light level under a heavy overcast.

Landing on a Cortex Relay Station asteroid presents difficulties to the ship as it approaches. The Cortex Relay cloud starts in upper atmosphere and continues into space as an immense cloud of sparking / sparkling vapor with indistinct flashes of lightning (like heat lightning). Visibility is severely limited until the ship reaches low orbit. The cloud severely disrupts communications and other instruments of the ship as it passes through. While the pressure is extremely low, the cloud behaves just like the asteroid's atmosphere, dragging on the ship, causing any orbit to decay rapidly. There is essentially no geosynchronous orbit. Even orbits that far out are not stable.

Planetary Drive

The planetary drive is a high performance mission-configurable jet engine that automatically changes its drive mode as the speed and altitude of the ship change. At take-off from the ground, the engine is in standard jet mode. Thrust is provided by mixing H_2 and air. If O_2 is added to increase thrust, this configuration is also called a turbo-rocket.

As speed increases to 0.8 Mach, the fan blades feather, turning the jet into a ramjet. At Mach 6, the engine enters scramjet mode. This takes the craft into the upper atmosphere.

At very high altitude, where an air-breathing engine ceases to function, the turbine fan blades feather again, this time sealing the engine. The engine has entered rocket mode. H_2 and O_2 combine and propel the craft to an altitude that is safe to use the pulse drive.

The purpose of the planetary drive is just to get the ship out of the atmosphere. Once the atmosphere thins enough to make the scramjet mode inefficient and the engine switches to rocket mode, the engine burns fuel at a frightening rate. The ship could conceivably burn its entire fuel supply accelerating to escape velocity. Instead, the pulse drive's safeties disengage once the ship breaks atmo, and the pulse drive takes over for interplanetary travel.

Interplanetary (Pulse) Drive

The pulse drive was first proposed in 1947. Later, in 1958, the United States initiated a secret project to create a nuclear pulse drive. Project Orion, as it was called, ran until the Partial Test Ban Treaty was signed in 1963. The idea was to create an “external combustion engine” that used tiny atomic bombs detonated behind a massive armor plate to propel a large spacecraft. The armor plate was connected to the ship by large shock absorbers that dampened the force of the blast into a level of acceleration that the crew could handle. The project was plagued with problems ranging from design to environmental to political. Despite the project team’s best efforts, the blast plate eroded under repeated detonations. The size and weight of the necessary components were almost beyond the United States’ heavy lift capabilities, which made building the ship in orbit difficult at best. The ship could easily be built on the ground, and then launched, but no country was happy with igniting such an engine while still in the atmosphere. The engine would require up to a thousand or more atomic bombs, and no country was comfortable with that many nuclear weapons in orbit overhead. Then the Partial Test Ban Treaty, signed in October of 1963, banned nuclear detonations in the atmosphere, underwater, and in space, and effectively killed the project.

The idea of a pulse drive surfaced a number of times in the next 50 years, but it wasn’t until it was discovered that gravity screens could create an effective “virtual” blast plate that would not only shield the craft from the blast and radiation, but that the virtual plate could be shaped into a virtual nozzle that would improve the efficiency of the engine. As an aside, the term “nozzle” in this case is inaccurate. Since the gravity rotors aren’t physically around the point of compression, but simply projecting a shaped gravity field behind the ship, the nozzle is more of a dish shape than an actual *de Laval* nozzle.

The nuclear pulse drive used atomic bombs as its propellant. Each was an entire device, consisting of explosive, detonator, nuclear fuel, outer casing, and reaction mass. The part of the bomb that did the actual work was quite small. Also, each bomb had to be manufactured at a significant cost. Even a small vessel would carry close to a thousand. Catastrophic damage would result from a premature detonation, even if the detonation was on the correct side of the blast shield.

The modern pulse drive uses fusing hydrogen to propel the ship¹. The amount of hydrogen used in a given pulse is quite small, and cannot fuse at all outside the specific point of compression. A ship as small as an ASREV carries enough fuel for hundreds of pulses; each one having the potential to be far more powerful than the nuclear variant.

The pulse drive is a space-only drive.

Use in an atmosphere is extremely hazardous for both the ship and the surrounding environment, and strictly prohibited by law. A pulse is essentially a miniature thermo-

1 - Serenity: The 10th Character - (Time Index 6:52) Loni Peristere “...this idea of a big fusion explosion behind the backside of the spaceship that would propel it inordinately faster than anything we have on the Earth...”

nuclear explosion. Under normal operation, the virtual blast shield created by the gravity drive protects the ship from the adverse effects of the explosion. Heat and radiation are directed away from the ship, while the blast wave is absorbed and converted into the high acceleration needed for interplanetary travel. "Going for full burn" in an atmosphere has the following adverse effects:

- ◆ The intense heat can ignite an area of the atmosphere large enough to overwhelm the blast shield and incinerate the ship. This is known as a "blow back²."
- ◆ Such extreme acceleration in an atmosphere can create a shock wave hot enough to exceed the ship's reentry shielding.
- ◆ Depending on the size of the pulse, the intense heat and shock wave can have a catastrophic effect on the surrounding environment, especially over a populated area. Because of this, safety measures are built into the engine hardware and software, measures that take exceptional mechanical ability to circumvent. All core worlds (planets and moons), and many outer worlds, have strict laws against the maneuver. On a core world, "full burn in atmo" frequently results in capital punishment.

Pulse Drive Operation Sequence - Engine Warm-Up:

- ◆ Reactor vent covers open to help dispense waste heat.
- ◆ The gravity drive creates the dish-shaped virtual blast shield behind the ship. The shield is connected to the ship via a semi-rigid gravity bubble that acts as a virtual shock absorber.
- ◆ Gravitic and electromagnetic containment fields form to create a conduit between a rear fuel port and the point of compression on the other side of the shield. In some ship designs, the primary thruster at the rear of the ship will turn off the igniter in its combustion chamber and allow the unburned fuel to pass through the nozzle, into the conduit.
- ◆ Containment fields form the point of compression.

Pulse Drive Operation Sequence - Pulse:

- ◆ Fuel is dispensed into the conduit, and collects at the compression point.
- ◆ The containment field flashes to full power, squeezing the hydrogen fuel until it fuses.

2 - Firefly "Serenity" - (Time Index 1:17:52) "Full burn in atmo? That will cause a blow back, burn us out."

- ◆ The fusing fuel becomes a tiny thermonuclear explosion.
- ◆ The blast wave impacts the blast shield. The impact is absorbed by the virtual shock absorber, and is converted to a sudden burst of high acceleration (5g to 10g on average - or more).
- ◆ Heat and radiation are redirected away from the ship.
- ◆ As the containment field cycles down from full power, residual burning prolongs the period of acceleration for another few seconds.
- ◆ Heat exchangers dispense any residual heat. In a short time, 1 to 3 seconds depending on the size of the pulse, the system is ready to generate another pulse.

Pulse Drive Operation Sequence - Engine Cool-Down:

- ◆ Virtual blast shield and conduit dissolve as the pulse drive powers down.
- ◆ Reactor vent covers close.

The Engine Warm-up and Engine Cool-down phases only occur at the beginning and end of the pulse drive operation. The Pulse phases repeat for each pulse.

What's the range of a ship equipped with a pulse drive? That's very difficult to determine. Ultimately, it's as much a question of food, water, and air, as it is one of fuel. There are many course possibilities between two points in the Verse, and a large number of variables to take into consideration. While the pulse drive is so much faster than old chemical rockets, there's still more to deciding on a course than just pointing the nose at the destination and banging away with the pulse drive. While that may work well for planet-to-moon runs, it will end up being very wasteful on longer voyages. Studies showed that it was very common for ships among the outer worlds to begin voyages with partially-full tanks. A careful pilot balances his fuel supply with his flight time. In space, a straight course is almost never the fastest journey or the most cost-effective. And finally, a good pilot can do more with two hundred pulses than a careless pilot can with five or six times as much.

The speed is also limited. This type of engine produces thrust by creating an explosion, and "bouncing off" of the blast wave. As the speed of the ship increases, even larger pulses are required to produce the same amount of thrust. Most spacecraft built today have top speeds in the 3%c-5%c range, with some military vessels reaching 8%c. The largest, most powerful engines are those of the giant Interplanetary Alliance Vessels, such as the IAV Dortmund. Those can reach 10% of the speed of light. The technology to produce the engines of the great arks that traveled from Earth-That-Was (34%c!) still exists, but is not economical for interplanetary travel within the Verse.

Gravity Drive

The so-called “gravity drive” isn’t an actual propulsion system. It’s a combination of an internal gravity environment and the external gravity screening.

Early spacecraft equipped with internal gravity showed that the internal gravity field has the effect of making the interior of the ship resistant to the forces of acceleration while the ship is in motion, allowing for higher levels of acceleration that would normally have an unhealthy effect on the crew. In addition, the gravity rotors angle the internal gravity to help compensate for acceleration. Gravity field realignment easily compensates for typical maneuvering. However, sudden changes in direction and speed can temporarily exceed the rotors’ speed at realigning the internal gravity. In some cases, the onboard computer’s attempts at matching gravity alignment with existing natural gravity, during hard maneuvering, can actually magnify the adverse effect of sudden changes in acceleration³. This is why almost all lockers and cabinets on a ship have latches, and most shelves have some sort of guardrail or lip to keep items from sliding off.

The external gravity screen system is composed of two primary elements: gravity dampeners at various places throughout the ship; and the primary gravity rotor assembly, consisting of the gravity wave amplifier and the primary gravity rotor. The primary gravity rotor is actually two counter-rotating rotors. This creates the effect of a “gravity gyroscope” that helps balance the forces of inertia and acceleration. The assembly creates a bubble of stabilized gravity around the ship. Its orientation to the design of the ship doesn’t matter and the rotor assembly isn’t always a visible part of the ship, but every ship in the Verse has one. The gravity rotor assembly is different from the smaller gravity rotors that provide the ship’s internal gravity.

In some ship designs, such as the Firefly design (all models) the primary gravity rotor assembly is visible as a rotating ring around the waist of the ship. The dampeners and rotor assembly work in concert to negate the force of gravity acting on the ship, and help dampen the effects of acceleration on the structure of the ship. One of the ways that gravity screening changes ship design has to do with weight.

On a firefly, for example, the outrigger engines are connected to the ship by a complex hinge-axle mount that allows a variety of motion. The hinge that allows the engines to fold down to parked and maintenance positions, is not strong enough to support the weight of the ship. Without gravity screening to reduce the weight of the ship, the engines would snap off of their mounts when lifting the ship. In fact, the hinge is rated for just the weight of the engine under typical stresses. The axle that allows the engine to rotate for Vertical Take-Off and Landing (VTOL) is strong enough to support the ship during take-off and landing, but only just. The axle would fail when the engine produced enough thrust to fly at speed. Without gravity screening, the engines would be directly connected to the axle, and it would be much thicker. With gravity screening, a firefly is quite nimble for a cargo transport. Without, it would be an ungainly hulk unable even able to lift itself while empty of any cargo. Additionally, the landing legs of a firefly cannot support the weight of the ship without gravity screening. The only time the gravity screening is entirely powered down is while the ship is supported by a maintenance gantry.

3 - Firefly “*The Message*” - (Time Index 29:16) “...when the gravity drive and actual gravity start working against each other, it tosses the lunch about a bit...”

In the early 1990's, a Russian scientist claimed to have created artificial gravity in the lab. However, his results were unverifiable, and his experiments could not be duplicated. Artificial gravity, as a serious endeavor, found itself mentioned with other less-than-noteworthy work, such as cold fusion. Then in 2006, a lab funded by the European Space Agency, created an artificial gravity pulse that measured 1/10,000th of a G. Unlike the previous claim, the experiments were successfully repeated, and gravity pulses were again created, but it wasn't until the late 2020's that artificial gravity fields were being produced of sufficient strength and duration to have commercial applications, and cheaply enough to be afforded by more than just governments. Artificial gravity was rushed into commercial use. There were many accidents, and deaths, but the technology was patched and re-patched in between uses, until finally, in 2035, artificial gravity was considered "safe." While there were many craft on the drawing boards that were designed to take maximum use of the new AG technology, it was found that many existing craft could be retrofitted. One of the first moon bases was a retrofitted ocean research vessel lifted from Earth and placed in a cradle that was also retrofitted from a decommissioned dry-dock.

Artificial Gravity technology split into four distinct applications: gravity generation and enhancement, gravity screening, propulsion, and containment.

All four applications started with an artificial gravity pulse (AGP) generator. This massive piece of equipment produced an unrefined gravity field. The term "field" suggests a continuous effect. However, an artificial gravity field is a series of pulses that occur very rapidly. The effect is continuous since the pulses are so close together that there is no discernable decrease between pulses. The longer the field is active, the longer the decay of a given pulse. After the field has been active for a few dozen hours, the decay between pulses virtually ceases to exist. Shutting down a gravity generator that has been in operation for months results in a decay of that last pulse that can last for weeks at near full strength. Without refinement, the field extended out in all directions, centered on the AGP, or the highest mass density in direct physical contact with the generator, and was virtually indistinguishable from a natural gravity field. All matter produces gravity pulses just as a gravity generator does. However, naturally occurring gravity pulses are unsynchronized. A natural gravity field appears as a uniform effect, much like the light from an incandescent bulb, while an artificial gravity field appears as a wave effect, similar to the light from a florescent bulb. The creation of an artificial gravity field was a linear effect. Doubling the power doubled the size of the field. As far as anyone could tell, the only limit to the size of the field was the output of the generator's power supply. When artificial gravity was first created, a tremendous amount of power produced a tiny amount of gravity. But as the technology was refined, along with a number of startling breakthroughs, a given gravity field required less and less power for its creation. A very noteworthy effect: A sustained gravity field would exist at nearly full strength for a period of time after the power to the generator was cut. The longer the field was maintained under power, the longer it lasted without power. Once a gravity field was created and stabilized, its maintenance power was an order of magnitude less.

The first few ships to include artificial gravity were spheres built around the generator, with decks arranged like the layers of an onion. Luckily, the invention of the gravity rotor came very quickly. A gravity rotor enables an artificial gravity field to be refined,

contained, and transmitted a short distance. The gravity rotors in a given vessel are linked by an encrypted frequency. This makes the gravity field in a ship unique, and keeps gravity rotors from nearby ships from interfering in the ship's gravity field. This also acts as a "fingerprint" for the ship, as no two artificial gravity fields have the same frequency.

While AGP improvements allowed for smaller and smaller generators, they were still too big to be placed under the deck plating and too expensive to be used in large quantities. A typical ship would have one primary AGP and one backup. Artificial gravity would be fed to gravity rotors for emission and refinement. The gravity rotor shaped the gravity field, allowing it to have a flat bottom and sides, and the rotor was inexpensive enough that a ship could hold enough to provide controllable gravity everywhere on the ship. Another benefit of the gravity rotor was that the gravity field could be stopped at a specific distance, such as the ceiling of that deck. An unrefined artificial gravity field extended indefinitely, until its effect was cancelled out by a larger surrounding field, in the same way that a planet's gravity extends until overpowered by a star's gravity.

In addition to refining and shaping a gravity field, a gravity rotor could be reversed to cancel a nearby gravity pull, effectively masking the weight of an object. While maintaining the effect of a normal earth gravity inside a ship was an important advancement in spacecraft production, it was gravity screening that truly opened up spaceflight - and any vehicular travel, for that matter - to all equally. Up to that time, tremendous resources were required just to get the spacecraft off of the planet's surface. After gravity screening was applied, the craft's engines only had to overcome the craft's inertia. Cancel out the gravity pull on any object, no matter how big, and the higher air pressure under the object will be enough to push it to the upper reaches of the atmosphere. Granted this would take a VERY long time on a massive object.

From that point on, there really was no limit to the size of a spacecraft or of its construction. Before gravity screening, spacecraft were wispy delicate constructs that could be easily damaged and had to be designed and constructed to prohibitive tolerances. After gravity screening, any material that could be made space worthy could be used. Ships could be built out of concrete and steel, and some were. The ship's weight was unimportant. All that mattered was that the drive system could overcome the ship's mass.

The one truly disappointing application of gravity technology was gravity propulsion. While gravity rotors excelled at refining gravity fields and cancelling interacting fields, they weren't at all efficient at pushing against a gravity field. A large amount of capital was invested in creating a gravity propulsion system, but it never worked well enough to be economical. The best application of gravity "propulsion" was to use just enough gravity screening to cancel the craft's weight, and let more conventional propulsion systems handle the pushing and pulling. In this way, a conventional hovercraft still has the lifting fans, but they can keep the hovercraft at a greater altitude, and the ground effect skirt is eliminated.

While all of the applications of artificial gravity have important uses, it is the application of containment that produced the most beneficial and lucrative effect: Gravity containment of hydrogen makes commercial fusion:

◆ **Safe:** The fusion reaction is maintained entirely by gravity constriction inside a vacuum chamber. Turning off the constriction simply ceases the compression of the atoms, which are pulled apart by the zero pressure around them. While there have been some instances in which the sudden expansion of hydrogen has caused a catastrophic breach of the reactor containment vessel, the resulting explosion was not of a thermonuclear nature, and the ship's shuttles and escape craft had no trouble clearing the blast.

◆ **Viable:** The invention of artificial gravity eliminates the need to pump massive amounts of energy into heating the reaction mass. While a significant amount of energy is required to produce the high gravity field necessary for fusion, that field is very small. The energy produced by the reaction far exceeds the amount required to create the gravity field.

◆ **Profitable:** The amount of hydrogen required to start a sustainable fusion reaction is one cubic foot of hydrogen gas at 30psi. That volume is compressed to a volume that is microscopic. Commercial generators use substantially more and fuel must be added continuously to maintain the reaction, but the fuel is still just ordinary liquid hydrogen.

The combination of conventional shielding, added to electromagnetic and gravitational containment produces fusion reactors small enough, and inexpensive enough, to be installed on privately owned spacecraft, and in small-to-medium sized installations. The power output of a fusion reactor is such that all other forms of power production become meaningless by comparison. While substantial consideration must be given to physical containment and shielding, an AGP fusion bottle can be made in any size and power output. Well, almost any size: While a tiny AGP fusion bottle could conceivably be generated for a personal vehicle, such as a family car, the physical containment housing would fill the trunk and back seat. Additionally, the fusion process would be so small that more energy would go into sustaining the reaction than the reaction produced. Personal vehicles are powered by high-performance batteries, charged from fixed power distribution points. Out on the rim, internal combustion engines can be found - along with an abundance of animal-powered transportation.

Typical frontier towns on newly colonized planets and moons would have a "pocket power plant" in a shed behind city hall or the town courthouse.

Designation	Name
34Tauri(2020)A	White Sun
P/2020(White Sun)01	Qin Shi Huang
P/2020(White Sun)02	Lux
34Tauri(2020)B	Georgia
P/2020(Georgia)01	Murphy
P/2020(Georgia)02	Elphame
P/2020(Georgia)03	Daedalus
34Tauri(2020)C	Red Sun
P/2020(Red Sun)01	Himinbjorg
P/2020(Red Sun)02	Heinlein
34Tauri(2020)D	Kalidasa
P/2020(Kalidasa)01	Penglai
P/2020(Kalidasa)02	Heaven
P/2020(Kalidasa)03	Zeus
P/2020(Kalidasa)04	Djinn's Bane
34Tauri(2020)E	Blue Sun
P/2020(Blue Sun)01	Burnham
P/2020(Blue Sun)02	Fury
P/2020(Blue Sun)03	Dragon's Egg
P/2027(White Sun)03	Londinium
P/2027(White Sun)04	Sihnon
P/2027(White Sun)05	Gonghe
P/2027(White Sun)06	Osiris
P/2027(White Sun)07	Ariel
P/2027(White Sun)08	Bellerophon
P/2027(Georgia)04	Athens
P/2027(Georgia)05	Newhope
P/2027(Georgia)06	Boros
P/2027(Georgia)07	Meadow
P/2027(Red Sun)03	Jiangyin
P/2027(Red Sun)04	St. Albans
P/2027(Kalidasa)05	Salisbury
P/2027(Kalidasa)06	Angel
P/2027(Kalidasa)07	Constance
P/2027(Blue Sun)04	New Canaan
P/2028(White Sun)09	Valentine
P/2028(White Sun)10	Rubicon
P/2028(White Sun)11	Albion
P/2028(White Sun)12	Liann Jiun
P/2028(White Sun)13	Bernadette
P/2028(Red Sun)05	Greenleaf
P/2028(Red Sun)06	Anson's World
P/2028(Kalidasa)08	New Kasmir
P/2028(Kalidasa)09	Glacier
P/2028(Kalidasa)10	Sho-Je Downs
P/2029(Red Sun)07	New Melbourne
P/2029(Kalidasa)11	Vishnu
P/2029(Kalidasa)12	Aberdeen
P/2029(Kalidasa)13	Delphi
P/2029(Blue Sun)05	Highgate
P/2030(Georgia)08	Three Hills

Designation	Name
P/2030(Georgia)09	Di Yu
P/2030(Georgia)10	Kerry
P/2030(Georgia)11	Ezra
P/2030(Red Sun)08	Harvest
P/2030(Red Sun)09	Jubilee
P/2030(Kalidasa)14	Verbena
P/2030(Kalidasa)15	Whittier
P/2030(Blue Sun)06	Deadwood
P/2030(Blue Sun)07	Muir
P/2031(Georgia)12	Regina
P/2031(Georgia)13	Ithaca
P/2031(Georgia)14	Prophet
P/2031(Kalidasa)16	Beaumonde
P/2031(Blue Sun)08	Meridian
S/2032(Qin Shi Huang)01	Santo
P/2032(Kalidasa)17	Ghost
P/2033(Blue Sun)09	Shenzhou
S/2035(Himinbjorg)01	Aesir
S/2035(Himinbjorg)02	Moab
S/2035(Himinbjorg)03	Brisingamen
S/2035(Himinbjorg)04	Anvil
S/2036(Heinlein)01	Triumph
S/2036(Heinlein)02	Silverhold
S/2037(Murphy)01	Aphrodite
S/2037(Murphy)02	Shadow
S/2038(Heinlein)03	Paquin
S/2038(Heinlein)04	Lazarus
S/2038(Burnham)01	Miranda
S/2040(Lux)01	Pelorum
S/2040(Lux)02	Persephone
S/2040(Penglai)01	Beylix
S/2040(Penglai)02	Newhall
S/2041(Murphy)03	Hera
S/2042(Penglai)03	Oberon
S/2042(Penglai)04	Six Sigma
S/2164(Sihnon)01	Xiaojie
S/2164(Three Hills)01	New Lafayette
S/2164(Three Hills)02	Conrad
S/2164(Three Hills)03	Bob
S/2164(Aphrodite)01	Sturges
S/2164(Aphrodite)02	Hill
S/2164(Aphrodite)03	Thornley
S/2164(Aphrodite)04	Anton
S/2164(Triumph)01	Mycroft
S/2164(Lazarus)01	Dora
S/2164(Heaven)01	Menaka
S/2164(Heaven)02	Rambha
S/2164(Beaumonde)01	Hastur
S/2164(Fury)01	Blackwood
S/2164(Highgate)01	Perth
S/2164(Deadwood)01	Haven

Designation	Name
S/2164(Deadwood)02	New Omaha
S/2165(Angel)01	Zephyr
S/2165(Beylix)01	Charity
S/2165(Beylix)02	Cinote
S/2165(Beylix)03	St. Lucius
S/2165(Newhall)01	Severance
S/2165(Newhall)02	Darcke
S/2165(Newhall)03	Mohenrichia
S/2165(Fury)02	Coldstone
S/2165(Fury)03	Seventh Circle
S/2165(Fury)04	Nipmuc
S/2165(Fury)05	Genae
S/2165(Fury)06	Iscariot
S/2165(Dragon's Egg)01	Yudhishtira
S/2165(Dragon's Egg)02	Bhima
S/2165(Dragon's Egg)03	Nakula
S/2165(Dragon's Egg)04	Sahadeva
S/2165(Dragon's Egg)05	Glynis
S/2166(Aberdeen)01	Vesta
S/2166(Zeus)01	Sophie
S/2166(Zeus)02	Victoria
S/2166(Zeus)03	Delynn
S/2166(Fury)07	Sakura
S/2167(Fury)08	Katarina
S/2169(Zeus)04	Gayle
P/2170(White Sun)14	Dukkha
S/2170(Dukkha)01	Samudaya
S/2170(Dukkha)02	Magga
S/2170(Dukkha)03	Nirodha
S/2170(Heaven)03	Urvasi
S/2170(Heaven)04	Tilottama
S/2170(Angel)01	Lincoln
S/2170(New Kashmir)01	Skardu
S/2170(Oberon)01	Puck
S/2170(Oberon)02	Bottom
S/2170(Djinn's Bane)01	Illat
S/2170(Djinn's Bane)02	Hilal
S/2170(Djinn's Bane)03	Hubal
S/2170(Djinn's Bane)04	Sin
S/2170(Djinn's Bane)05	Ta'lab
S/2170(Djinn's Bane)06	Wadd
S/2170(New Canaan)01	Ugarit
S/2170(New Canaan)02	Lilac
S/2170(Muir)01	Arminius
S/2170(Muir)02	Shepherd's Mission
S/2171(Angel)02	Jasper
S/2171(Oberon)03	Quince
S/2172(Londinium)01	Colchester
S/2172(Londinium)02	Balkerne
S/2172(Bellerophon)01	Tyrins
S/2172(Bellerophon)02	Xanthus

Designation	Name
S/2172(Bellerophon)03	Parth
S/2172(Albion)01	Avalon
S/2172(Ithaca)01	Priam
S/2172(Athens)01	Argabuthon
S/2172(Daedalus)01	Rea
S/2172(Daedalus)02	Box
S/2172(Shadow)01	Branson's Mark
S/2172(Shadow)02	Ossolambria
S/2172(Shadow)03	Summerfair
S/2172(Greenleaf)01	Dyton
S/2172(Greenleaf)02	Agyar
S/2172(Greenleaf)03	Bryson's Rock
S/2172(St. Albans)01	Pi Gu
S/2172(Aesir)01	Bestla
S/2172(Aesir)02	Borr
S/2172(Brisingamen)01	Freya
S/2172(Brisingamen)02	Beowulf
S/2172(Verbena)01	Lassek
S/2172(Verbena)02	Barrimend
S/2172(Angel)03	Jackson
S/2172(Salisbury)01	Lennox
S/2173(Sihnon)02	Airen
S/2173(Gonghe)01	Xing Yun
S/2173(Santo)01	Tethys
S/2173(Pelorum)01	Kaleidoscope
S/2173(Elphame)01	Summerhome
S/2173(Elphame)02	Fiddler's Green
S/2173(Athens)02	Ormuzd
S/2173(Daedalus)03	Notterdam
S/2173(New Melbourne)01	Maria
S/2173(New Melbourne)02	Destiny
S/2173(Jubilee)01	Covenant
S/2173(Brisingamen)03	Alberich
S/2173(Silverhold)01	Beggar's Tin
S/2173(Constance)01	Barrowclough
S/2173(Constance)02	Disraeli
S/2173(Ghost)01	Inferno
S/2173(Ghost)02	Xibalia
S/2174(Regina)01	Alexandria
S/2174(Newhope)01	The Commons
S/2174(Harvest)01	Farraday
S/2174(Anson's World)01	Varley
S/2174(Aesir)03	Odin
S/2174(Anvil)01	Hammer
S/2174(Paquin)01	Clawthorn
S/2174(Sho-Je Downs)01	Kuan Lo
S/2174(Delphi)01	Thalia
S/2175(Bernadette)01	Nautilus
S/2175(Bernadette)02	Spinrad
S/2175(Moab)01	Red Rock
S/2175(Moab)02	Mesa

Designation	Name
S/2176(Sihnon)03	Xiansheng
S/2176(Liann Jiun)01	Tiantan
S/2176(Liann Jiun)02	Fu
S/2176(Osiris)01	Epeuva
S/2176(Osiris)02	Tannhauser
S/2176(Santo)02	New Luxor
S/2176(Valentine)01	Selene
S/2176(Valentine)02	Chons
S/2176(Ariel)01	Ariopolis
S/2176(Ariel)02	Shiva
S/2176(Ariel)03	Poseidon
S/2176(Persephone)01	Hades
S/2176(Ezra)01	Herschel
S/2176(Prophet)01	Dunny
S/2176(Elphame)03	Ithendra
S/2176(Elphame)04	Sweethome
S/2176(Athens)03	Ahnooie
S/2176(Daedalus)04	Arvad's Helm
S/2176(Daedalus)05	Illyria
S/2176(Daedalus)06	Sault
S/2176(Newhope)02	Splendor
S/2176(Newhope)03	Godforsaken
S/2176(Hera)01	Eris
S/2176(Meadow)01	Salyut
S/2176(Jiangyin)01	Tongyi
S/2176(Jiangyin)02	Dangun
S/2176(Jiangyin)03	Rhilidore
S/2176(Anson's World)02	Spider
S/2176(Anson's World)03	Steele
S/2176(Paquin)02	Shinbone
S/2176(Sho-Je Downs)02	Miyazaki
S/2176(Delphi)02	Clio
S/2176(Delphi)03	Calliope
S/2176(Whittier)01	Ita
S/2177(Persephone)02	Renao
S/2177(Boros)01	Ares
S/2177(Boros)02	Turrent's Moon
S/2177(Daedalus)07	Dakhla
S/2177(Daedalus)08	Shenandoah
S/2177(Athens)04	Whitefall
S/2177(Meadow)02	Mir
S/2177(Hera)02	Bullet
S/2177(Vishnu)01	Rama
S/2178(Prophet)02	Perdido
S/2178(Harvest)02	Higgins' Moon
S/2178(Glacier)01	Denali
S/2178(Zeus)05	Isabel
S/2178(Zeus)06	Betty
S/2178(Zeus)07	Theophrastus
S/2179(Vishnu)02	Ganesha
S/2179(Meridian)01	Burnet

Designation	Name
S/2179(Shenzhou)01	Tiangong
S/2180(Kerry)01	Madcap
S/2180(Di Yu)01	Yama
S/2181(Sihnon)	Yunnan
04P/2190(White Sun)15	Ra Amiran
S/2190(Ra Amiran)01	Namira
S/2190(Miranda)01	Caliban
S/2191(Paquin)03	Port Chester
S/2195(Elphame)05	New Vienna
S/2200(Highgate)02	Stonewall
S/2207(Six Sigma)05	Lear
A/2260(White Sun)r24g4	Station 1a
A/2260(White Sun)r24g5	Station 1b
A/2260(White Sun)r24g6	Station 1c
A/2260(White Sun)r24g7	Station 1d
A/2260(White Sun)r25m5	Station 2a
A/2260(White Sun)r25m6	Station 2b
A/2260(White Sun)r25m7	Station 2c
A/2260(White Sun)r25m8	Station 2d
A/2260(White Sun)r25m9	Station 2e
A/2260(White Sun)r25ma	Station 2f
A/2260(White Sun)r25mf	Station 2g
A/2260(White Sun)r25me	Station 2h
A/2260(White Sun)r25md	Station 2i
A/2260(White Sun)r25mc	Station 2j
A/2260(White Sun)r25mb	Station 2k

Designation	Name	Terraform
S/2173(Sihnon)02	Airen	2220
S/2172(Londinium)02	Balkerne	2220
S/2172(Londinium)01	Colchester	2220
P/2027(White Sun)03	Londinium	2220
P/2027(White Sun)04	Sihnon	2220
S/2176(Sihnon)03	Xiansheng	2220
S/2164(Sihnon)01	Xiaojie	2220
S/2181(Sihnon)04	Yunnan	2220
P/2028(White Sun)13	Bernadette	2240
S/2175(Bernadette)01	Nautilus	2240
S/2175(Bernadette)02	Spinrad	2240
S/2174(Harvest)01	Farraday	2251
P/2030(Red Sun)08	Harvest	2251
S/2178(Harvest)02	Higgins' Moon	2251
P/2020(Blue Sun)01	Burnham	2253
S/2176(Liann Jiun)02	Fu	2255
P/2027(White Sun)05	Gonghe	2255
P/2028(White Sun)12	Liann Jiun	2255
S/2176(Liann Jiun)01	Tiantan	2255
S/2173(Gonghe)01	Xing Yun	2255
S/2176(Osiris)01	Epeuva	2256
P/2027(White Sun)06	Osiris	2256
S/2176(Osiris)02	Tannhauser	2256
P/2020(Red Sun)02	Heinlein	2258
P/2020(Red Sun)02	Heinlein	2259
P/2020(Red Sun)01	Himinbjorg	2259
P/2020(Red Sun)01	Himinbjorg	2260
P/2020(Georgia)01	Murphy	2260
P/2020(White Sun)02	Lux	2261
P/2020(Georgia)01	Murphy	2261
P/2020(Blue Sun)01	Burnham	2262
P/2020(White Sun)02	Lux	2262
P/2027(White Sun)07	Ariel	2266
S/2176(Ariel)01	Ariopolis	2266
P/2027(White Sun)08	Bellerophon	2266
S/2176(Valentine)02	Chons	2266
S/2172(Bellerophon)03	Parth	2266
S/2176(Ariel)03	Poseidon	2266
S/2176(Valentine)01	Selene	2266
S/2176(Ariel)02	Shiva	2266
S/2172(Bellerophon)01	Tyrins	2266
P/2028(White Sun)09	Valentine	2266
S/2172(Bellerophon)02	Xanthus	2266
P/2028(White Sun)11	Albion	2270
S/2172(Albion)01	Avalon	2270
P/2020(Kalidasa)01	Penglai	2270
P/2020(Kalidasa)01	Penglai	2271
P/2020(White Sun)01	Qin Shi Huang	2271
P/2020(White Sun)01	Qin Shi Huang	2273
S/2176(Jiangyin)02	Dangun	2280
S/2173(New Melbourne)02	Destiny	2280

Designation	Name	Terraform
P/2027(Red Sun)03	Jiangyin	2280
S/2173(New Melbourne)01	Maria	2280
P/2029(Red Sun)07	New Melbourne	2280
S/2176(Jiangyin)03	Rhildore	2280
S/2176(Jiangyin)01	Tongyi	2280
S/2172(Greenleaf)02	Agyar	2281
S/2172(Greenleaf)03	Bryson's Rock	2281
S/2172(Greenleaf)01	Dyton	2281
P/2028(Red Sun)05	Greenleaf	2281
P/2028(Red Sun)06	Anson's World	2290
S/2172(St. Albans)01	Pi Gu	2290
S/2176(Anson's World)02	Spider	2290
P/2027(Red Sun)04	St. Albans	2290
A/2260(White Sun)r24g4	Station 1a	2290
A/2260(White Sun)r24g5	Station 1b	2290
A/2260(White Sun)r24g6	Station 1c	2290
A/2260(White Sun)r24g7	Station 1d	2290
S/2176(Anson's World)03	Steele	2290
S/2174(Anson's World)01	Varley	2290
S/2035(Himinbjorg)01	Aesir	2295
S/2172(Aesir)01	Bestla	2295
S/2172(Aesir)02	Borr	2295
S/2174(Aesir)03	Odin	2295
S/2173(Brisingamen)03	Alberich	2300
S/2172(Brisingamen)02	Beowulf	2300
S/2035(Himinbjorg)03	Brisingamen	2300
S/2172(Brisingamen)01	Freya	2300
S/2176(Santo)02	New Luxor	2305
S/2032(Qin Shi Huang)01	Santo	2305
A/2260(White Sun)r25m5	Station 2a	2305
A/2260(White Sun)r25m6	Station 2b	2305
A/2260(White Sun)r25m7	Station 2c	2305
A/2260(White Sun)r25m8	Station 2d	2305
A/2260(White Sun)r25m9	Station 2e	2305
A/2260(White Sun)r25ma	Station 2f	2305
A/2260(White Sun)r25mf	Station 2g	2305
A/2260(White Sun)r25me	Station 2h	2305
A/2260(White Sun)r25md	Station 2i	2305
A/2260(White Sun)r25mc	Station 2j	2305
A/2260(White Sun)r25mb	Station 2k	2305
S/2173(Santo)01	Tethys	2305
S/2173(Pelorum)01	Kaleidoscope	2308
S/2040(Lux)01	Pelorum	2308
S/2040(Lux)02	Persephone	2308
S/2177(Persephone)02	Renao	2308
S/2207(Six Sigma)05	Lear	2320
P/2030(Georgia)10	Kerry	2335
S/2180(Kerry)01	Madcap	2335
P/2031(Georgia)13	Ithaca	2348
S/2172(Ithaca)01	Priam	2348
S/2177(Boros)01	Ares	2350

THE VERSE TERRAFORMED

Designation	Name	Terraform
P/2027(Georgia)06	Boros	2350
P/2030(Georgia)11	Ezra	2350
S/2176(Ezra)01	Herschel	2350
S/2177(Boros)02	Turrent's Moon	2350
S/2174(Regina)01	Alexandria	2352
P/2031(Georgia)12	Regina	2352
S/2173(Elphame)02	Fiddler's Green	2355
S/2176(Elphame)03	Ithendra	2355
S/2173(Elphame)01	Summerhome	2355
S/2176(Elphame)04	Sweethome	2355
P/2027(Georgia)05	Newhope	2358
S/2176(Newhope)02	Splendor	2358
S/2174(Newhope)01	The Commons	2358
S/2176(Athens)03	Ahnooie	2360
S/2172(Athens)01	Argabuthon	2360
S/2176(Daedalus)04	Arvad's Helm	2360
P/2027(Georgia)04	Athens	2360
S/2172(Daedalus)02	Box	2360
S/2164(Triumph)01	Mycroft	2360
S/2173(Daedalus)03	Notterdam	2360
S/2173(Athens)02	Ormuzd	2360
S/2172(Daedalus)01	Rea	2360
S/2177(Daedalus)08	Shenandoah	2360
S/2036(Heinlein)01	Triumph	2360
S/2177(Athens)04	Whitefall	2360
S/2177(Daedalus)07	Dakhla	2361
S/2176(Daedalus)05	Illyria	2361
S/2195(Elphame)05	New Vienna	2361
S/2164(Three Hills)03	Bob	2370
S/2164(Three Hills)02	Conrad	2370
S/2164(Three Hills)01	New Lafayette	2370
P/2030(Georgia)08	Three Hills	2370
P/2030(Blue Sun)06	Deadwood	2400
S/2164(Deadwood)01	Haven	2400
S/2164(Deadwood)02	New Omaha	2400
S/2172(Shadow)01	Branson's Mark	2404
S/2172(Shadow)02	Ossolambria	2404
S/2037(Murphy)02	Shadow	2404
S/2172(Shadow)03	Summerfair	2404
S/2164(Aphrodite)04	Anton	2405
S/2037(Murphy)01	Aphrodite	2405
S/2164(Aphrodite)02	Hill	2405
S/2164(Aphrodite)01	Sturges	2405
S/2164(Aphrodite)03	Thornley	2405
S/2176(Hera)01	Eris	2407
S/2041(Murphy)03	Hera	2407
P/2027 (Kalidasa)06	Angel	2410
S/2164(Lazarus)01	Dora	2410
S/2174(Sho-Je Downs)01	Kuan Lo	2410
S/2038(Heinlein)04	Lazarus	2410
S/2176(Sho-Je Downs)02	Miyazaki	2410

Designation	Name	Terraform
P/2028 (Kalidasa)08	New Kasmir	2410
P/2028 (Kalidasa)10	Sho-Je Downs	2410
S/2170(New Kasmir)01	Skardu	2410
P/2030 (Kalidasa)15	Whittier	2410
P/2165(Kalidasa)18	Zephyr	2410
S/2170(Angel)01	Lincoln	2410
S/2171(Angel)02	Jasper	2410
S/2172(Angel)03	Jackson	2410
S/2172(Verbena)02	Barrimend	2415
S/2173(Constance)01	Barrowclough	2415
S/2174(Paquin)01	Clawthorn	2415
P/2027 (Kalidasa)07	Constance	2415
S/2173(Constance)02	Disraeli	2415
S/2172(Verbena)01	Lassek	2415
S/2038(Heinlein)03	Paquin	2415
S/2176(Paquin)02	Shinbone	2415
P/2030 (Kalidasa)14	Verbena	2415
S/2173(Silverhold)01	Beggar's Tin	2417
S/2036(Heinlein)02	Silverhold	2417
S/2165(Dragon's Egg)02	Bhima	2420
S/2164(Fury)01	Blackwood	2420
S/2165(Fury)02	Coldstone	2420
S/2166(Zeus)03	Delynn	2420
S/2169(Zeus)04	Gayle	2420
S/2165(Dragon's Egg)05	Glynis	2420
S/2170(Djinn's Bane)02	Hilal	2420
S/2170(Djinn's Bane)03	Hubal	2420
S/2170(Djinn's Bane)01	Illat	2420
S/2178(Zeus)05	Isabel	2420
S/2164(Heaven)01	Menaka	2420
S/2165(Dragon's Egg)03	Nakula	2420
S.2165(Fury)04	Nipmuc	2420
S/2164(Heaven)02	Rambha	2420
S/2165(Dragon's Egg)04	Sahadeva	2420
S/2170(Djinn's Bane)04	Sin	2420
S/2166(Zeus)01	Sophie	2420
S/2170(Djinn's Bane)05	Ta'lab	2420
S/2170(Heaven)04	Tilottama	2420
S/2170(Heaven)03	Urvasi	2420
S/2166(Zeus)02	Victoria	2420
S/2170(Djinn's Bane)06	Wadd	2420
S/2165(Dragon's Egg)01	Yudhishtira	2420
S/2178(Zeus)07	Theophrastus	2420
S/2165(Fury)06	Iscariot	2421
S/2040(Penglai)01	Beylix	2425
S/2165(Beylix)01	Charity	2425
S/2165(Beylix)02	Cinote	2425
S/2165(Newhall)02	Darcke	2425
S/2165(Newhall)03	Mohenrichia	2425
S/2040(Penglai)02	Newhall	2425
S/2165(Newhall)01	Severance	2425

Designation	Name	Terraform
S/2165(Beylix)03	St. Lucius	2425
P/2029 (Kalidasa)12	Aberdeen	2430
S/2179(Meridian)01	Burnet	2430
P/2031(Blue Sun)08	Meridian	2430
P/2027 (Kalidasa)05	Salisbury	2430
S/2166(Aberdeen)01	Vesta	2430
P/2031 (Kalidasa)16	Beaumonde	2433
S/2164(Beaumonde)02	Geneva	2433
S/2164(Beaumonde)01	Hastur	2433
S/2038(Burnham)01	Miranda	2433
P/2029(Blue Sun)05	Highgate	2435
S/2170(New Canaan)02	Lilac	2435
S/2164(Highgate)01	Perth	2435
S/2200(Highgate)02	Stonewall	2435
S/2170(New Canaan)01	Ugarit	2435
S/2170(Muir)01	Arminius	2440
P/2030(Blue Sun)07	Muir	2440
S/2170(Muir)02	Shepherd's Mission	2440
P/2033(Blue Sun)09	Shenzhou	2502
S/?	Tiangong	2502
P/2028(White Sun)10	Rubicon	2519
S/2170(Dukkha)02	Magga	N/A
S/2177(Hera)02	Bullet	N/A
P/2170(White Sun)14	Dukkha	N/A
S/2172(Salisbury)01	Lennox	N/A
S/2190(Ra Amiran)01	Namira	N/A
S/2170(Dukkha)03	Nirodha	N/A
S/2191(Paquin)03	Port Chester	N/A
S/2170(Dukkha)01	Samudaya	N/A
S/2042(Penglai)01	Six Sigma	N/A
S/2190(Miranda)01	Caliban	Ongoing
S/2176(Whittier)01	Ita	Ongoing
P/2027(Blue Sun)04	New Canaan	Ongoing
P/2190(White Sun)15	Ra Amiran	Partial
S/2035(Himinbjorg)04	Anvil	Scheduled
S/2178(Zeus)06	Betty	Scheduled
S/2170(Oberon)02	Bottom	Scheduled
S/2176(Delphi)03	Calliope	Scheduled
S/2176(Delphi)02	Clio	Scheduled
S/2173(Jubilee)01	Covenant	Scheduled
P/2029 (Kalidasa)13	Delphi	Scheduled
S/2178(Glacier)01	Denali	Scheduled
P/2030(Georgia)09	Di Yu	Scheduled
S/2176(Prophet)01	Dunny	Scheduled
S/2179(Vishnu)02	Ganesha	Scheduled
S/2165(Fury)05	Genae	Scheduled
P/2032 (Kalidasa)17	Ghost	Scheduled
P/2028 (Kalidasa)09	Glacier	Scheduled
S/2176(Newhope)03	Godforsaken	Scheduled
S/2176(Persephone)01	Hades	Scheduled
S/2174(Anvil)01	Hammer	Scheduled

Designation	Name	Terraform
S/2173(Ghost)01	Inferno	Scheduled
P/2030(Red Sun)09	Jubilee	Scheduled
S/2167(Fury) 08	Katarina	Scheduled
P/2027(Georgia)07	Meadow	Scheduled
S/2175(Moab)02	Mesa	Scheduled
S/2177(Meadow)02	Mir	Scheduled
S/2035(Himinbjorg)02	Moab	Scheduled
S/2042(Penglai)03	Oberon	Scheduled
S/2178(Prophet)02	Perdido	Scheduled
P/2031(Georgia)14	Prophet	Scheduled
S/2170(Oberon)01	Puck	Scheduled
S/2171(Oberon)03	Quince	Scheduled
S/2177(Vishnu)01	Rama	Scheduled
S/2175(Moab)01	Red Rock	Scheduled
S/2166(Fury)07	Sakura	Scheduled
S/2176(Meadow)01	Salyut	Scheduled
S/2176(Daedalus)06	Sault	Scheduled
S/2165(Fury)03	Seventh Circle	Scheduled
S/2174(Delphi)01	Thalia	Scheduled
P/2029 (Kalidasa)11	Vishnu	Scheduled
S/2173(Ghost)02	Xibalia	Scheduled
S/2180(Di Yu)01	Yama	Scheduled

“Show Your Work!” - Virtually every math teacher in Creation

While some of the numbers herein were picked out of the blue, most are derived from some simple formulas applied to a baseline set of values. Most, if not all, of the planetary data is based on objects from our solar system. All terrestrial planets use Earth diameter (12,742km) and mass (5.9763×10^{24} kg, converted to 5.9763×10^{21} metric tonnes) as a starting point, scaled up or down, depending on the planet. I decided that any terraformed moon would either start or end with a generally earthlike composition. As a result, moons were defined compared to Earth numbers instead of being based on any existing moon. For Jovian gas giants, I used Jupiter's diameter (142,984km) and mass (1.8985×10^{27} kg) as my starting point. I used fractions of Sol's diameter (Sol=1) and mass (Sol=1) for the stars and brown dwarfs / protostars. The numbers given for the stars are accurate according to a chart describing stellar classes on Wikipedia. The starting numbers for the brown dwarfs / protostars are “best guess.” I decided that the helioform process (compression and ignition of a brown dwarf) would reduce the body's diameter to 60% of its original value while the mass remained constant.

Orbital periods are based on Earth for planets and stars, and the Moon for moons and planets around protostars. Since the protostars were originally super-massive gas giants, it made sense to treat the planets orbiting them as “very large moons” instead. So, their periods are listed in days instead of years. For those planets, their gas giant or protostar determines their orbital period.

A note about orbital periods and the standard Earth calendar: Any celestial body that orbits a star larger and hotter than Sol is going to orbit farther out, and have a longer orbital period. Currently, we define a year as one trip around the Sun, but a planet such as Londinium takes much longer. Londinium's orbital period is 8.61 years or 3,143 days. Every planet would have to rewrite the calendar to suit itself. But that would be a pain for writers (and our heroes) to deal with. So let's do this: Let's adjust the axial tilt to match the Earth, and then add a slower rotation axis perpendicular to the plane of the ecliptic, one that completes every 365.25 days. That will create a seasonal change that will mirror Earth. After that, it's a simple matter to ignore the planet's orbital period and go with the calendar. The same can be accomplished for any and all planets in the Verse. So, Dec 25th on Londinium is a winter day (northern hemisphere), regardless of where the planet is in its orbit. Also, Dec. 25th is the same day for every planet in the Verse at the same time.

“34Tauri(2020)”: I wanted to start somewhere plausible when creating a number designation for the planets in the Verse. Since there are something like five million cataloged objects in the sky (or is it five billion?), every random series of letters and/or numbers that I threw together, based on the various designations I found, came up with an existing body. While I was researching moons of gas giants to determine plausible distances for Verse moons, I came across an article about John Flamsteed and his mistaken designation for Uranus. It turned out that in the 300+ years since then, 34Tauri was never reissued to an actual star. So that gave me a plausible starting point. I placed the Verse in the constellation of Taurus, and set its distance at 40 light years. While I've never heard Joss or Tim say specifically, the most common assumption is that the voyage took roughly 120 years. That means an average cruising speed of just over 1/3 light speed. We can assume that the ships accelerated slowly over long periods to reach that speed.

I appended a discovery year of 2020 onto 34Tauri, giving 34Tauri(2020). Stars are capital letters after the date, so White Sun's designation is 34Tauri(2020)A. Protostars were originally gas giants that were artificially compressed and ignited, so they are listed as planets, with the “P/” designation. “Lux” becomes the name given to P/2020(34Tauri(2020)A)02, or simply P/2020(White Sun)02. Moons start with “S/” for satellite. Planets that orbit protostars are simply large moons, even if they have moons.

of their own, so those start with “S/” as well. Moons of moons also start with “S/”. Asteroids start with A/, and are numbered with 0-9 and a-y (lower case), excluding i, l, o, and z.

The dates used in the planet designations are an attempt to show a history of discovery. The five stars and 14 gas giants were discovered roughly at the same time, so they all show the year at 2020. More planets were discovered during the next few decades, so their dates reflect that. The large jump in the moon dates is my way of saying that the moons were first observed from the colony arks as they approached the cluster.

Planet Sizes: What is terraformable? What is too big, and what is too small? I’ve determined that in order for a body to be terraformed, it has to be large enough for Hydrostatic Equilibrium to take place. Hydrostatic Equilibrium occurs when the mass and gravity of a body will pull the shape of that body into a sphere. Current theory says that the minimum size is 900km in diameter for rocky bodies. That’s the minimum size for a “dwarf planet.” The asteroid, Ceres, at 970km in diameter is just above that. So, I’ve set Ceres as the smallest body suitable for terraforming. Since Joss has said that hundreds of moons were also made into “new earths,” then those terraformed moons had to be at least 970km in diameter. I’ve arbitrarily set the upper limit at 18,020km in diameter. That will give the world twice the surface area of the Earth. That seems to me to be big enough.

Under normal circumstances, a moon’s mass would be based on its volume. However, Jill Arroway of The Signal Podcast (which you all listen to regularly, right?) proposed that a moon would be compressed, increasing its density so that its surface gravity would increase to roughly Earth normal. So a moon’s mass is based on the square of its radius. Numbers given for moon diameter are after terraforming, even for those worlds not yet terraformed.

A note on mass: Typically, astronomical data is given in kilograms. For example, Earth’s mass is given as 5.9763×10^{24} kg. However, the other Verse material produced so far by QMx uses the metric tonne (including the European spelling). So mass numbers here have been converted for consistency. As a result, Earth’s mass becomes 5.9763×10^{21} metric tonnes.

Scale: The scale used in this pack is Earth=3 inches, and is accurate to the hundredth of an inch. To give an idea of the scale, here are some common numbers:

- ◆ Earth: 3.00"
- ◆ Moon: 0.82"
- ◆ Jupiter: 33.66"
- ◆ Sun: 327.74"

The maximum size that I can draw a silhouette in Word is 22", so the silhouette scale sizes for the gas giants, protostars, and stars are given numerically. The silhouettes are to scale with each other and/or to scale with Sol, but are not to scale with the planets and moons.

Quote: “Show your work!” is the bane of every math student hit with a sudden flash of inspiration on a test. It’s always followed by the equally grating “If I can’t see how you got the answer, then it’s wrong!”

Written with loads of advice & suggestions from Andy Gore, Ben Mund, Geoff Mandel, Jill Arroway, Nick Edwards, and Chris Bridges. And William T. Pace (2nd Edition).

Someone should have told me that each celestial body, including moons or any other named objects, should have its own page. Strike that. No one should have told me. I should have simply known it. Instead, I crowded moons in with their parent planets, creating a page format that not only made updates difficult, but it made adding new content almost impossible. How could this be a living document if its own format prevented its growth? Lunacy!

My sincere apology. The new format that I'd chosen wasn't as pretty as I'd imagined, but it made shuffling in new content much easier. Fortunately for all of us, William Pace (Yellowjacket) came up with a fantastic page design that helps the new content make sense, and is absolutely beautiful. I'll stick to the numbers

Speaking of new content, there needs to be a word or two about the different numbers. About a year and a half ago, I thought it would be cool to include gravity data, such as Hill Spheres and Lagrangian points. We've been talking about cluttering up our L4 and L5 positions with habitats, stations, and other hardware since the sixties. It made sense that some of you would have done so in your fiction or RPG scenarios. So, I wanted to make sure that they were clearly identified. I came up with equations that plotted those points and boundaries, based on Earth-That-Was, and plugged them in. But it wasn't until I decided to write Version 2 that I actually plotted them all out. It turned out that most of the planets were OK. But the moons, protostars Heinlein and Himinbjorg, and most of the planets orbiting those and other protostars, were a mess. Many orbits had to be shifted. The bad news is that some of the numbers herein no longer match the Atlas Vol. 1. As Andy said in the introduction, use or ignore, as you prefer. The good news is that if Geoff Mandel were to recreate the Map with my new numbers, the differences wouldn't show up on a new poster - until he added the fan-created content. More good news concerns fan-created and official new content: There's a lot of empty space in the Verse.

Wow. Where do I start? I began this Afterword with a quote from my math teachers. It's a good thing I didn't turn this in for a grade. My high school senior algebra teacher, Mrs. Jacobs, would have run out of red ink and started a new pen before she reached the end.

So, I'll start with the biggest error: The Moon (our moon). When I came up with the different silhouette sizes for planets based on Earth = 3", I somehow gave the Moon a size of 0.35" when it should have been 0.86". And since I came up with Verse moon sizes after that, the moons of the Verse tended to be small. There's still a tremendous amount of real estate on a tiny moon (more than enough for all of Firefly on the same tiny moon), but newer moons will tend to be larger.

Protostars: In the movie, "2010" the monoliths increase Jupiter's mass, compress, and ignite it. The actual ignition resulted in a one-time blast wave. Any star has a region closest to it where the temperature is too high to support life. It made sense to me that the protostars would have no moons or rings very close in because of that initial blast, and that the region close to the protostar would be uninhabitable because of the heat. So, all the planets and moons around the protostars were pushed outward. And once it was clear that the orbits would be different, especially after each body's gravity influence was determined, then it made sense that the amount of difference wouldn't matter. I hope that the result make the geography of the Verse more interesting and fun to play in.

And a bunch of typos and number corrections.

Whenever possible, I tried to use the same equations on all the worlds so that everything was consistent. But as I added more "scientific" content to the Verse, it became more and more apparent that the Verse could never actually exist. So, while there may be much more data added over time, relating to the planets themselves (climate, geology, wildlife, etc.), there probably won't be much more space data.

But there's enough, I think. I've indicated the habitation zones of the stars and protostars, and shown that there's a lot of empty usable space whether you're inside a zone or not. A real gas giant has a few moons of terraformable size (Jupiter = 4, Saturn = 5). So, a Verse gas giant should have a dozen or more. There are terraformed planets, such as Rubicon⁴, that don't have any official moons. That's an oddity in the Verse, and definite room for a fan-created moon or two.

J. Chris Bourdier "Electric Lion"
North Charleston, SC
November 2014

4 - Yes, I said Rubicon. It made sense to me that there would not be any untterraformed bodies in the Core without a very good reason, so I completed the terraforming of Rubicon in 2519.

I'm a fan of science fiction, and as a fan, I appreciate the canon of any given franchise. I'm also a fan of the fans. While the mechanism of science fiction as an entertainment genre runs upon the precise turnings of writers, artists, musicians and other contributing members of the entertainment industry, the fuel of the machine itself is its fandom. Were it not for the enthusiastic, excitable, crazy, sometimes *ravenous* fans, most sci-fi projects would never have found wings, let alone learned to crawl. And fans aren't just fuel. They're a prairie fire of enthusiasm. If you don't believe me, just spend a day or two searching the many writing forums, prop building sites, blogspots, and gaming circles spread across our very own cortex. If the entertainment industry is the body of science fiction, then fans are the blood, sweat and tears.

Most of what we call canon is created within a show itself. However, when a work with as much potential as *Firefly* is thrown from the train, it remains to the fans (private or professional) to delve, expound, revive and create what 'might have been'. Purists will tell you that anything outside of canon isn't canon at all and is therefore not to be recognized on any level. I beg to differ. Fan canon done correctly can produce some of the finest post-production materials to be found anywhere. I've seen fan props, stories, costumes and everything else that you might imagine that rival big budgets and production companies. Many fans, while unpaid or even unemployed, create works that surpass the 'hero props' of their obsession. Production houses make the machines of our worlds and (borrowing on the sci-fi cliché) we "teach them to love".

When the **Complete and Official Map of the Verse** was introduced by QMx, I was happy to plop down some cashy money. This purchase was made even easier since I'm a fan of Geoff Mandel's work and a long time astronomy enthusiast. It didn't hurt that Chris rounded up the map perfectly with his mathematical ruminations, which when added to my love of science fiction, my continued disappointment that we don't have passenger flights to the Moon, and my own restless desire to create with abandon, left me with little choice but to expound. Before *Firefly*, I had never obsessed upon a franchise, but the Verse spoke to me and there's too much left unsaid and too few sharable bits. The absence of the show, the creation of the 'Map' and the Verse in *Numbers* compelled me to create the *Astrogation Reference Charts* (ARC) of the Verse.

The ARC was my first, true contribution to the growing after-canon or new-canon surrounding the show. It serves as a synopsis and quick reference guide for the White Paper and the Map of the Verse. As an artist I can't help but diagram things. I'm a visual person, and to be perfectly honest...I failed at math. Failed like Jayne would at ballet. Fortunately for me, Chris appreciates my art as much as I appreciate his calculations. The Verse in *Numbers* is a pleasure to work on and I don't mind saying that I enjoy making Chris' numbers 'pretty'. Like any work of art it needs a good frame. It also continues to grow, and when Chris explained that he meant to expand on the VIN with roche limits, hill spheres and escape velocities, and when I explained to Chris that I was adding fan material such as asteroids, dwarf planets and lagrangian objects to the ARC, we found ourselves on the same page. After that the new VIN was inevitable as a growing, living document that embraces new contributions. It continues to recognize the canon and creations which came before, but fans just can't sit still, and a machine fueled by math and art might as well be nuclear. Simply put, you can't stop the signal.

William T. Pace "Yellowjacket"
Logan, Utah
November 2011



ARABLE LAND	Area of land that can be used for agricultural development. Average of ETW - 27%. Average of terraformed worlds in the Verse - 32%.
ESCAPE VELOCITY	Minimum speed that a ship needs to be traveling at sea level in order to escape the planet or moon's gravity. This number decreases with altitude.
GEO	Geosynchronous Earth Orbit. An object in GEO will complete one orbit in one day. An object in Geostationary Earth Orbit (GSO) will remain above a fixed point on the planet or moon. A geostationary orbit must be at the planet or moon's equator. IMPORTANT: The numbers given for LEO, MEO, and GEO are altitudes, with the world's sea level being zero. ALL OTHER numbers are from the world's center.
HELIOFORM	Process where a gas giant of sufficient mass is compressed and ignited to transform it into an artificial star. Any existing rings or close moons are typically destroyed by the ignition burst. Theoretical lifespan is 20-30 million years.
HILL SPHERE	Effective limit of a body's gravitational influence. The Hill Sphere of a world similar to Earth-That-Was is roughly three million kilometers in diameter.
HORIZON	The distance an observer can see before line of sight is blocked by the curvature of the world. Distance is of a person of average height looking out over flat ground or water at sea level.
INNER ROCHE LIMIT	Distance from a planet or moon's center of mass where a dense rocky body will be torn apart by the tides produced by that planet or moon. Many small planets and most moons have an inner Roche limit that is actually less than the radius of the planet or moon. This means that a dense or rocky body will not be torn apart by the tidal effect if it orbits too close to the world.
LAGRANGIAN POINTS	Points of gravitational stability around two bodies where one body orbits the other. Object at the Lagrangian points will tend to remain at those locations relative to the bodies. Lagrangian points given are for a specific body and its immediate primary. For example, Lagrangian points given for a moon are relative to the planet that it orbits, while a planet's Lagrangian points relate to its orbit around its host star. Since White Sun is the anchor star for the Verse, it has no Lagrangian points of its own.
LAND AREA	Total area of dry land on a planet or moon, includes the areas that can be made livable and those that cannot, such as polar regions, mountains, and deep desert. Planets have from 30% to 40% land area, while moons have 50% to 60% land area. Typically, the smaller the moon, the more land area and the dryer the climate.

LEO	Low Earth Orbit. Also referred to as a parking orbit. On a full-sized planet, LEO starts just above the planet's atmosphere, and is affected by the body's size and gravity. On a moon or smaller planet, the listed LEO is unusable due to being down inside the body's atmosphere. A typical earthlike atmosphere extends 120-160 km from the surface of the body.
MEO	Medium Earth Orbit. Also referred to as a standard orbit, or simply "orbit." Typically, a ship will orbit at roughly 20,000 km for an ETW-like body. In reality, LEO and MEO are altitude ranges. For a world the size of ETW, LEO covers from the upper limit of the atmosphere to about 2,000 km altitude. MEO is classified as the range from LEO to GEO. For ease of navigation, specific altitude levels have been programmed into navigation computers throughout the Verse.
NAVIGATION HAZARD RANKING	Class 1: Impassable Class II: Extreme Hazard - Ships suffer moderate to serious damage Class III: Serious Hazard - Ships may suffer light to moderate damage Class IV: Moderate Hazard - Asteroid Belt - Care is needed to pass safely Class V: Light Hazard - Lagrangian Asteroids - Use Caution Class VI: No Hazard - Open space
OUTER ROCHE LIMIT	Distance from a planet or moon's center of mass where a less dense or more fluid body, such as a comet, will be torn apart from the tidal forces produced by that planet or moon. The outer Roche limit of most small moons is so close to the moon's surface that any approaching body would impact the surface before being affected by the tidal forces. Most ring structures of larger planets will be found inside the outer Roche limit. While there may be some smaller, less visible rings outside the outer Roche limit, the denser, more visible rings will be inside that limit.
POPULATION	Total number of residents as of the 2518 census.
PROTOSTAR	An extremely large gas giant, also called a brown dwarf or a failed star, that has been transformed into an artificial sun by a the <i>helioform</i> process. So big that its size is measured in terms of fractions of a solar mass. The brown dwarf doesn't have enough mass or gravity to ignite and burn as a star on its own, but has enough to sustain such a reaction if it happens.
SURFACE AREA	Total surface area of a planet, moon, or asteroid, including all land and sea areas.
SURFACE GRAVITY	A world's gravity at sea level. Varies between .95 G and 1.05 G, depending on the world.
TERRAFORM	A process taking decades, where a moon or other lifeless body is transformed into a new earthlike world, complete with all the climates and environments of Earth-That-Was, ready for new families to colonize and build new lives.