

# Sun

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## Bulk parameters

Classification: Star, yellow dwarf  
Spectral class: G2V  
Radius: 175,750 km  
Mass:  $1.25719 \times 10^{29}$  kg  
Gravitational parameter:  $8.39056 \times 10^{18} \text{ m}^3/\text{s}^2$   
Mean density:  $5,530 \text{ kg/m}^3$   
Surface gravity: 27.7 g  
Escape velocity: 309,003 m/s  
Luminosity:  $2.40661 \times 10^{25} \text{ W}$   
Absolute magnitude: +4.7  
Surface temperature: 5,750 K

## Rotational parameters

Sidereal rotation period: 25 days  
Synchronous orbit altitude: 6,106,178 km  
Sphere of influence: infinity

## Atmosphere

Overall height: 1,600,000 m  
Pressure: 0.1 atm datum  
Temperature range: 4,175-7,200 K  
Mean molecular weight: 1.25 g/mol  
Composition: 92% H, 8% He

# Moho

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## Bulk parameters

Classification: Planet, terrestrial  
Radius: 650 km datum, 652.3 km mean  
Mass:  $1.80034 \times 10^{22}$  kg  
Gravitational parameter:  $1.20156 \times 10^{12}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 15,480 kg/m<sup>3</sup>  
Surface gravity: 0.29 g datum  
Escape velocity: 1,923 m/s  
Bond albedo: 0.1  
Solar irradiance: 9,081 W/m<sup>2</sup>  
Black-body temperature: 436 K  
Natural satellites: none

## Orbital & rotational parameters

Semi-major axis: 14,522,400 km  
Perihelion: 11,617,920 km  
Aphelion: 17,426,880 km  
Orbit eccentricity: 0.2  
Orbit inclination: 7°  
Longitude of ascending node: 70°  
Argument of periapsis: 15°  
Sidereal orbit period: 87.874 days  
Synodic period: 115.74 days  
Mean orbital velocity: 24,037 m/s  
Sidereal rotation period: 58.582 days  
Solar day: 175.75 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 26,572 km

# Eve

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## Bulk parameters

Classification: Planet, terrestrial  
Radius: 2,050 km sea level, 2,052.0 km mean  
Mass:  $8.64500 \times 10^{23}$  kg  
Gravitational parameter:  $5.76974 \times 10^{13}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 23,890 kg/m<sup>3</sup>  
Surface gravity: 1.4 g sea level  
Escape velocity: 7,503 m/s  
Bond albedo: 0.45  
Solar irradiance: 2,602 W/m<sup>2</sup>  
Black-body temperature: 282 K  
Natural satellites: Gilly

## Orbital & rotational parameters

Semi-major axis: 27,131,000 km  
Perihelion: 26,859,690 km  
Aphelion: 27,402,310 km  
Orbit eccentricity: 0.01  
Orbit inclination: 2.1°  
Longitude of ascending node: 15°  
Argument of periapsis: 45°  
Sidereal orbit period: 224.39 days  
Synodic period: 582.46 days  
Mean orbital velocity: 17,586 m/s  
Sidereal rotation period: 22.5 hours  
Solar day: 22.690 hours  
Synchronous orbit altitude: 19,195 km  
Sphere of influence: 233,567 km

## Atmosphere

Overall height: 60,000 m  
Pressure: 10 atm sea level, 1 atm @ 10.6 km  
Mean temperature: 410 K sea level  
Mean molecular weight: 40.8 g/mol  
Composition: 80% CO<sub>2</sub>, 20% N<sub>2</sub>

# Gilly

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## Bulk parameters

Classification: Moon (Eve)  
Radius: 30 km datum, 33.0 km mean  
Mass:  $9.91820 \times 10^{17}$  kg  
Gravitational parameter:  $6.61949 \times 10^7$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 6,580 kg/m<sup>3</sup>  
Surface gravity: 0.0075 g datum  
Escape velocity: 66 m/s  
Bond albedo: 0.25  
Solar irradiance: 2,602 W/m<sup>2</sup>  
Black-body temperature: 305 K

## Orbital & rotational parameters

Semi-major axis: 86,920 km  
Periapsis: 39,114 km  
Apoapsis: 134,726 km  
Orbit eccentricity: 0.55  
Orbit inclination: 12°  
Longitude of ascending node: 80°  
Argument of periapsis: 10°  
Sidereal orbit period: 15.517 days  
Synodic period: 16.669 days  
Mean orbital velocity: 815 m/s  
Sidereal rotation period: 15.517 days  
Solar day: 16.669 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 366 km

# Kerbin

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## Bulk parameters

Classification: Planet, terrestrial  
Radius: 1,600 km sea level, 1,600.4 km mean  
Mass:  $3.76157 \times 10^{23}$  kg  
Gravitational parameter:  $2.51050 \times 10^{13}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 21,910 kg/m<sup>3</sup>  
Surface gravity: 1 g sea level (9.80665 m/s<sup>2</sup>)  
Escape velocity: 5,602 m/s  
Bond albedo: 0.3  
Solar irradiance: 1,360 W/m<sup>2</sup>  
Black-body temperature: 254.5 K  
Natural satellites: Mun, Minmus

## Orbital & rotational parameters

Semi-major axis: 37,525,648 km (1 au)  
Perihelion: 36,775,135 km  
Aphelion: 38,276,161 km  
Orbit eccentricity: 0.02  
Orbit inclination: 0°  
Longitude of ascending node: 0°  
Argument of periapsis: 0°  
Sidereal orbit period: 365 days (1 year)  
Mean orbital velocity: 14,953 m/s  
Sidereal rotation period: 11.967 hours  
Solar day: 12 hours (1 day)  
Synchronous orbit altitude: 8,968.110 km  
Sphere of influence: 231,588 km

## Atmosphere

Overall height: 85,000 m  
Pressure: 1 atm sea level (101.325 kPa)  
Mean temperature: 288 K sea level  
Mean molecular weight: 28.9644 g/mol  
Composition: 78.08% N<sub>2</sub>, 20.95% O<sub>2</sub>, 0.93% Ar

# Mun

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## Bulk parameters

Classification: Moon (Kerbin)  
Radius: 400 km datum, 401.1 km mean  
Mass:  $3.40892 \times 10^{21}$  kg  
Gravitational parameter:  $2.27514 \times 10^{11}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 12,610 kg/m<sup>3</sup>  
Surface gravity: 0.145 g datum  
Escape velocity: 1,067 m/s  
Bond albedo: 0.2  
Solar irradiance: 1,360 W/m<sup>2</sup>  
Black-body temperature: 263 K

## Orbital & rotational parameters

Semi-major axis: 90,960 km  
Periapsis: 90,505 km  
Apoapsis: 91,415 km  
Orbit eccentricity: 0.005  
Orbit inclination: 0.5°  
Longitude of ascending node: 45°  
Argument of periapsis: 165°  
Sidereal orbit period: 25.182 days  
Synodic period: 27.048 days  
Mean orbital velocity: 525 m/s  
Sidereal rotation period: 25.182 days  
Solar day: 27.048 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 13,860 km

# Minmus

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## Bulk parameters

Classification: Moon (Kerbin)  
Radius: 160 km datum, 160.3 km mean  
Mass:  $1.88079 \times 10^{20}$  kg  
Gravitational parameter:  $1.25525 \times 10^{10}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 10,910 kg/m<sup>3</sup>  
Surface gravity: 0.05 g datum  
Escape velocity: 396 m/s  
Bond albedo: 0.2  
Solar irradiance: 1,360 W/m<sup>2</sup>  
Black-body temperature: 263 K

## Orbital & rotational parameters

Semi-major axis: 146,970 km  
Periapsis: 142,561 km  
Apoapsis: 151,379 km  
Orbit eccentricity: 0.03  
Orbit inclination: 6°  
Longitude of ascending node: 75°  
Argument of periapsis: 315°  
Sidereal orbit period: 51.720 days  
Synodic period: 60.259 days  
Mean orbital velocity: 413 m/s  
Sidereal rotation period: 9 hours  
Solar day: 9.0185 hours  
Synchronous orbit altitude: 534 km  
Sphere of influence: 7,028 km

# Duna

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## Bulk parameters

Classification: Planet, terrestrial  
Radius: 800 km datum, 801.5 km mean  
Mass:  $3.19734 \times 10^{22}$  kg  
Gravitational parameter:  $2.13393 \times 10^{12}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 14,830 kg/m<sup>3</sup>  
Surface gravity: 0.34 g datum  
Escape velocity: 2,310 m/s  
Bond albedo: 0.25  
Solar irradiance: 586 W/m<sup>2</sup>  
Black-body temperature: 210 K  
Natural satellites: Ike

## Orbital & rotational parameters

Semi-major axis: 57,189,100 km  
Perihelion: 54,272,456 km  
Aphelion: 60,105,744 km  
Orbit eccentricity: 0.051  
Orbit inclination: 0.06°  
Longitude of ascending node: 135.5°  
Argument of periapsis: 345°  
Sidereal orbit period: 686.71 days  
Synodic period: 779.12 days  
Mean orbital velocity: 12,113 m/s  
Sidereal rotation period: 14 hours  
Solar day: 14.024 hours  
Synchronous orbit altitude: 4,359 km  
Sphere of influence: 131,664 km

## Atmosphere

Overall height: 70,000 m  
Pressure: 0.04 atm datum  
Mean temperature: 230 K datum  
Mean molecular weight: 42.4 g/mol  
Composition: 90% CO<sub>2</sub>, 10% N<sub>2</sub>



# Ike

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## Bulk parameters

Classification: Moon (Duna)  
Radius: 210 km datum, 211.1 km mean  
Mass:  $3.88794 \times 10^{20}$  kg  
Gravitational parameter:  $2.59484 \times 10^{10}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 9,860 kg/m<sup>3</sup>  
Surface gravity: 0.06 g datum  
Escape velocity: 497 m/s  
Bond albedo: 0.3  
Solar irradiance: 586 W/m<sup>2</sup>  
Black-body temperature: 206 K

## Orbital & rotational parameters

Semi-major axis: 36,680 km  
Perihelion: 35,580 km  
Aphelion: 37,780 km  
Orbit eccentricity: 0.03  
Orbit inclination: 0.2°  
Longitude of ascending node: 90°  
Argument of periapsis: 345°  
Sidereal orbit period: 22.118 days  
Synodic period: 22.854 days  
Mean orbital velocity: 241 m/s  
Sidereal rotation period: 22.118 days  
Solar day: 22.854 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 6,286 km

# Edna

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## Bulk parameters

Classification: Dwarf planet  
Radius: 260 km datum, 261.0 km mean  
Mass:  $7.94632 \times 10^{20}$  kg  
Gravitational parameter:  $5.30344 \times 10^{10}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 10,670 kg/m<sup>3</sup>  
Surface gravity: 0.08 g datum  
Escape velocity: 639 m/s  
Bond albedo: 0.15  
Solar irradiance: 216 W/m<sup>2</sup>  
Black-body temperature: 169 K  
Natural satellites: Dak

## Orbital & rotational parameters

Semi-major axis: 94,080,000 km  
Perihelion: 87,494,400 km  
Aphelion: 100,665,600 km  
Orbit eccentricity: 0.07  
Orbit inclination: 3°  
Longitude of ascending node: 30°  
Argument of periapsis: 310°  
Sidereal orbit period: 3.9697 years  
Synodic period: 487.91 days  
Mean orbital velocity: 9,444 m/s  
Sidereal rotation period: 3 hours  
Solar day: 3.0005 hours  
Synchronous orbit altitude: 279 km  
Sphere of influence: 49,409 km

# Dak

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## Bulk parameters

Classification: Moon (Edna)  
Radius: 20 km datum, 26.1 km mean  
Mass:  $4.70196 \times 10^{17}$  kg  
Gravitational parameter:  $3.13813 \times 10^7$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 6,320 kg/m<sup>3</sup>  
Surface gravity: 0.008 g datum  
Escape velocity: 56 m/s  
Bond albedo: 0.1  
Solar irradiance: 216 W/m<sup>2</sup>  
Black-body temperature: 171 K

## Orbital & rotational parameters

Semi-major axis: 4,770 km  
Periapsis: 4,722 km  
Apoapsis: 4,818 km  
Orbit eccentricity: 0.01  
Orbit inclination: 10°  
Longitude of ascending node: 120°  
Argument of periapsis: 90°  
Sidereal orbit period: 6.5795 days  
Synodic period: 6.6095 days  
Mean orbital velocity: 105 m/s  
Sidereal rotation period: 6.5795 days  
Solar day: 6.6095 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 244 km

# Dres

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## Bulk parameters

Classification: Dwarf planet  
Radius: 360 km datum, 361.6 km mean  
Mass:  $2.28515 \times 10^{21}$  kg  
Gravitational parameter:  $1.52513 \times 10^{11}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 11,540 kg/m<sup>3</sup>  
Surface gravity: 0.12 g datum  
Escape velocity: 920 m/s  
Bond albedo: 0.2  
Solar irradiance: 151 W/m<sup>2</sup>  
Black-body temperature: 152 K  
Natural satellites: none

## Orbital & rotational parameters

Semi-major axis: 112,687,000 km  
Perihelion: 96,347,385 km  
Aphelion: 129,026,615 km  
Orbit eccentricity: 0.145  
Orbit inclination: 5°  
Longitude of ascending node: 280°  
Argument of periapsis: 90°  
Sidereal orbit period: 5.2038 years  
Synodic period: 451.83 days  
Mean orbital velocity: 8,629 m/s  
Sidereal rotation period: 4.5 hours  
Solar day: 4.5009 hours  
Synchronous orbit altitude: 645 km  
Sphere of influence: 90,298 km

# Jool

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## Bulk parameters

Classification: Planet, gas giant  
Radius: 14,000 km datum  
Mass:  $2.99515 \times 10^{25}$  kg  
Gravitational parameter:  $1.99899 \times 10^{15}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 2,610 kg/m<sup>3</sup>  
Surface gravity: 1.04 g datum  
Escape velocity: 16,899 m/s  
Bond albedo: 0.35  
Solar irradiance: 53.2 W/m<sup>2</sup>  
Black-body temperature: 111 K  
Natural satellites: Laythe, Vall, Tylo, Bop, Pol

## Orbital & rotational parameters

Semi-major axis: 189,765,000 km  
Perihelion: 180,276,750 km  
Aphelion: 199,253,250 km  
Orbit eccentricity: 0.05  
Orbit inclination: 1.304°  
Longitude of ascending node: 52°  
Argument of periapsis: 30°  
Sidereal orbit period: 11.372 years  
Synodic period: 400.19 days  
Mean orbital velocity: 6,649 m/s  
Sidereal rotation period: 5.5 hours  
Solar day: 5.5006 hours  
Synchronous orbit altitude: 13,077 km  
Sphere of influence: 6,745,648 km

## Atmosphere

Overall height: 700,000 m  
Pressure: 100 atm datum, 1 atm @ 161 km  
Mean temperature: 600 K datum, 145 K @ 161 km  
Mean molecular weight: 2.22 g/mol  
Composition: 90% H<sub>2</sub>, 10% He

# Laythe

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## Bulk parameters

Classification: Moon (Jool)  
Radius: 1,100 km sea level, 1,100.1 km mean  
Mass:  $1.03120 \times 10^{23}$  kg  
Gravitational parameter:  $6.88231 \times 10^{12}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 18,490 kg/m<sup>3</sup>  
Surface gravity: 0.58 g datum  
Escape velocity: 3,537 m/s  
Bond albedo: 0.25  
Solar irradiance: 53.2 W/m<sup>2</sup>  
Black-body temperature: 115 K

## Orbital & rotational parameters

Semi-major axis: 87,640 km  
Periapsis: 86,764 km  
Apoapsis: 88,516 km  
Orbit eccentricity: 0.01  
Orbit inclination: 0.2°  
Longitude of ascending node: 120°  
Argument of periapsis: 120°  
Sidereal orbit period: 2.6690 days  
Synodic period: 2.6707 days  
Mean orbital velocity: 4,776 m/s  
Sidereal rotation period: 2.6690 days  
Solar day: 2.6707 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 9,067 km

## Atmosphere

Overall height: 75,000 m  
Pressure: 0.6 atm sea level  
Mean temperature: 280 K sea level  
Mean molecular weight: 28.4 g/mol  
Composition: 90% N<sub>2</sub>, 10% O<sub>2</sub>

# Vall

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## Bulk parameters

Classification: Moon (Jool)  
Radius: 550 km datum, 552.3 km mean  
Mass:  $8.00068 \times 10^{21}$  kg  
Gravitational parameter:  $5.33972 \times 10^{11}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 11,340 kg/m<sup>3</sup>  
Surface gravity: 0.18 g datum  
Escape velocity: 1,393 m/s  
Bond albedo: 0.4  
Solar irradiance: 53.2 W/m<sup>2</sup>  
Black-body temperature: 109 K

## Orbital & rotational parameters

Semi-major axis: 160,230 km  
Periapsis: 155,423 km  
Apoapsis: 165,037 km  
Orbit eccentricity: 0.03  
Orbit inclination: 0.3°  
Longitude of ascending node: 90°  
Argument of periapsis: 270°  
Sidereal orbit period: 6.5979 days  
Synodic period: 6.6084 days  
Mean orbital velocity: 3,532 m/s  
Sidereal rotation period: 6.5979 days  
Solar day: 6.6084 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 5,962 km

# Tylo

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## Bulk parameters

Classification: Moon (Jool)  
Radius: 900 km datum, 903.0 km mean  
Mass:  $3.80859 \times 10^{22}$  kg  
Gravitational parameter:  $2.54188 \times 10^{12}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 12,350 kg/m<sup>3</sup>  
Surface gravity: 0.32 g datum  
Escape velocity: 2,377 m/s  
Bond albedo: 0.35  
Solar irradiance: 53.2 W/m<sup>2</sup>  
Black-body temperature: 111 K

## Orbital & rotational parameters

Semi-major axis: 292,950 km  
Periapsis: 290,021 km  
Apoapsis: 295,880 km  
Orbit eccentricity: 0.01  
Orbit inclination: 0.1°  
Longitude of ascending node: 150°  
Argument of periapsis: 285°  
Sidereal orbit period: 16.311 days  
Synodic period: 16.375 days  
Mean orbital velocity: 2,612 m/s  
Sidereal rotation period: 16.311 days  
Solar day: 16.375 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 20,348 km

## Atmosphere

Overall height: 85,000 m  
Pressure: 0.2 atm datum  
Mean temperature: 125 K datum  
Mean molecular weight: 28.0 g/mol  
Composition: 100% N<sub>2</sub>



# Bop

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## Bulk parameters

Classification: Moon (Jool)  
Radius: 190 km datum, 190.8 km mean  
Mass:  $2.65220 \times 10^{20}$  kg  
Gravitational parameter:  $1.77010 \times 10^{10}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 9,120 kg/m<sup>3</sup>  
Surface gravity: 0.05 g datum  
Escape velocity: 432 m/s  
Bond albedo: 0.35  
Solar irradiance: 53.2 W/m<sup>2</sup>  
Black-body temperature: 111 K

## Orbital & rotational parameters

Semi-major axis: 582,970 km  
Periapsis: 445,972 km  
Apoapsis: 719,968 km  
Orbit eccentricity: 0.235  
Orbit inclination: 15°  
Longitude of ascending node: 10°  
Argument of periapsis: 25°  
Sidereal orbit period: 45.789 days  
Synodic period: 46.300 days  
Mean orbital velocity: 1,852 m/s  
Sidereal rotation period: 45.789 days  
Solar day: 46.300 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 5,553 km

# Pol

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## Bulk parameters

Classification: Moon (Jool)  
Radius: 130 km datum, 130.5 km mean  
Mass:  $7.44967 \times 10^{19}$  kg  
Gravitational parameter:  $4.97197 \times 10^9$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 8,000 kg/m<sup>3</sup>  
Surface gravity: 0.03 g datum  
Escape velocity: 277 m/s  
Bond albedo: 0.45  
Solar irradiance: 53.2 W/m<sup>2</sup>  
Black-body temperature: 107 K

## Orbital & rotational parameters

Semi-major axis: 739,460 km  
Periapsis: 613,123 km  
Apoapsis: 865,797 km  
Orbit eccentricity: 0.17085  
Orbit inclination: 4.25°  
Longitude of ascending node: 2°  
Argument of periapsis: 15°  
Sidereal orbit period: 65.413 days  
Synodic period: 66.460 days  
Mean orbital velocity: 1,644 m/s  
Sidereal rotation period: 5 hours  
Solar day: 5.0005 hours  
Synchronous orbit altitude: 214 km  
Sphere of influence: 4,238 km

# Lindor

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## Bulk parameters

Classification: Planet, ice giant  
Radius: 8,000 km datum  
Mass:  $8.83969 \times 10^{24}$  kg  
Gravitational parameter:  $5.89968 \times 10^{14}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 4,120 kg/m<sup>3</sup>  
Surface gravity: 0.94 g datum  
Escape velocity: 12,145 m/s  
Bond albedo: 0.3  
Solar irradiance: 14.8 W/m<sup>2</sup>  
Black-body temperature: 82 K  
Natural satellites: Krel, Aden, Huygen, Riga, Talos

## Orbital & rotational parameters

Semi-major axis: 359,571,000 km  
Perihelion: 348,783,870 km  
Aphelion: 370,358,130 km  
Orbit eccentricity: 0.03  
Orbit inclination: 1.7°  
Longitude of ascending node: 80°  
Argument of periapsis: 75°  
Sidereal orbit period: 29.661 years  
Synodic period: 377.74 days  
Mean orbital velocity: 4,831 m/s  
Sidereal rotation period: 7 hours  
Solar day: 7.0004 hours  
Synchronous orbit altitude: 13,172 km  
Sphere of influence: 7,845,120 km

## Atmosphere

Overall height: 540,000 m  
Pressure: 100 atm datum, 1 atm @ 138 km  
Mean temperature: 500 K datum, 116 K @ 138 km  
Mean molecular weight: 2.42 g/mol  
Composition: 86% H<sub>2</sub>, 13% He, 1% CH<sub>4</sub>

# Krel

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## Bulk parameters

Classification: Moon (Lindor)  
Radius: 150 km datum, 150.8 km mean  
Mass:  $9.91820 \times 10^{19}$  kg  
Gravitational parameter:  $6.61949 \times 10^9$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 6,910 kg/m<sup>3</sup>  
Surface gravity: 0.03 g datum  
Escape velocity: 297 m/s  
Bond albedo: 0.6  
Solar irradiance: 14.8 W/m<sup>2</sup>  
Black-body temperature: 71 K

## Orbital & rotational parameters

Semi-major axis: 58,600 km  
Periapsis: 57,428 km  
Apoapsis: 59,772 km  
Orbit eccentricity: 0.02  
Orbit inclination: 1.5°  
Longitude of ascending node: 60°  
Argument of periapsis: 180°  
Sidereal orbit period: 2.6861 days  
Synodic period: 2.6868 days  
Mean orbital velocity: 3,173 m/s  
Sidereal rotation period: 2.6861 days  
Solar day: 2.6868 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 614 km

# Aden

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## Bulk parameters

Classification: Moon (Lindor)  
Radius: 300 km datum, 300.8 km mean  
Mass:  $9.25699 \times 10^{20}$  kg  
Gravitational parameter:  $6.17819 \times 10^{10}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 8,120 kg/m<sup>3</sup>  
Surface gravity: 0.07 g datum  
Escape velocity: 642 m/s  
Bond albedo: 0.4  
Solar irradiance: 14.8 W/m<sup>2</sup>  
Black-body temperature: 79 K

## Orbital & rotational parameters

Semi-major axis: 107,140 km  
Periapsis: 106,069 km  
Apoapsis: 108,211 km  
Orbit eccentricity: 0.01  
Orbit inclination: 0.25°  
Longitude of ascending node: 120°  
Argument of periapsis: 30°  
Sidereal orbit period: 6.6406 days  
Synodic period: 6.6447 days  
Mean orbital velocity: 2,347 m/s  
Sidereal rotation period: 6.6406 days  
Solar day: 6.6447 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 2,741 km

# Huygen

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## Bulk parameters

Classification: Moon (Lindor)  
Radius: 670 km datum, 670.9 km mean  
Mass:  $9.89396 \times 10^{21}$  kg  
Gravitational parameter:  $6.60331 \times 10^{11}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 7,820 kg/m<sup>3</sup>  
Surface gravity: 0.15 g datum  
Escape velocity: 1,404 m/s  
Bond albedo: 0.3  
Solar irradiance: 14.8 W/m<sup>2</sup>  
Black-body temperature: 82 K

## Orbital & rotational parameters

Semi-major axis: 187,500 km  
Periapsis: 182,813 km  
Apoapsis: 192,188 km  
Orbit eccentricity: 0.025  
Orbit inclination: 0.75°  
Longitude of ascending node: 150°  
Argument of periapsis: 60°  
Sidereal orbit period: 15.374 days  
Synodic period: 15.396 days  
Mean orbital velocity: 1,774 m/s  
Sidereal rotation period: 15.374 days  
Solar day: 15.396 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 12,376 km

## Atmosphere

Overall height: 180,000 m  
Pressure: 1.5 atm datum  
Mean temperature: 91 K datum  
Mean molecular weight: 27.5 g/mol  
Composition: 96% N<sub>2</sub>, 4% CH<sub>4</sub>

# Riga

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## Bulk parameters

Classification: Moon (Lindor)  
Radius: 750 km datum, 751.4 km mean  
Mass:  $1.48773 \times 10^{22}$  kg  
Gravitational parameter:  $9.92923 \times 10^{11}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 8,370 kg/m<sup>3</sup>  
Surface gravity: 0.18 g datum  
Escape velocity: 1,627 m/s  
Bond albedo: 0.45  
Solar irradiance: 14.8 W/m<sup>2</sup>  
Black-body temperature: 77 K

## Orbital & rotational parameters

Semi-major axis: 309,380 km  
Periapsis: 300,099 km  
Apoapsis: 318,661 km  
Orbit eccentricity: 0.03  
Orbit inclination: 0.5°  
Longitude of ascending node: 90°  
Argument of periapsis: 105°  
Sidereal orbit period: 32.585 days  
Synodic period: 32.684 days  
Mean orbital velocity: 1,381 m/s  
Sidereal rotation period: 32.585 days  
Solar day: 32.684 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 24,040 km

## Atmosphere

Overall height: 90,000 m  
Pressure: 0.06 atm datum  
Mean temperature: 80 K datum  
Mean molecular weight: 28.0 g/mol  
Composition: 100% N<sub>2</sub>

# Talos

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## Bulk parameters

Classification: Moon (Lindor)  
Radius: 500 km datum, 501.3 km mean  
Mass:  $4.04075 \times 10^{21}$  kg  
Gravitational parameter:  $2.69683 \times 10^{11}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 7,660 kg/m<sup>3</sup>  
Surface gravity: 0.11 g datum  
Escape velocity: 1,039 m/s  
Bond albedo: 0.4  
Solar irradiance: 14.8 W/m<sup>2</sup>  
Black-body temperature: 79 K

## Orbital & rotational parameters

Semi-major axis: 575,680 km  
Periapsis: 552,653 km  
Apoapsis: 598,707 km  
Orbit eccentricity: 0.04  
Orbit inclination: 1°  
Longitude of ascending node: 180°  
Argument of periapsis: 285°  
Sidereal orbit period: 82.709 days  
Synodic period: 83.346 days  
Mean orbital velocity: 1,012 m/s  
Sidereal rotation period: 82.709 days  
Solar day: 83.346 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 26,558 km



# Eeloo

---

## Bulk parameters

Classification: Dwarf planet  
Radius: 600 km datum, 602.6 km mean  
Mass:  $7.93456 \times 10^{21}$  kg  
Gravitational parameter:  $5.29559 \times 10^{11}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 8,660 kg/m<sup>3</sup>  
Surface gravity: 0.15 g datum  
Escape velocity: 1,329 m/s  
Bond albedo: 0.6  
Solar irradiance: 8.6 W/m<sup>2</sup>  
Black-body temperature: 62 K  
Natural satellites: Celes, Tam

## Orbital & rotational parameters

Semi-major axis: 471,171,300 km  
Perihelion: 348,666,762 km  
Aphelion: 593,675,838 km  
Orbit eccentricity: 0.26  
Orbit inclination: 6.15°  
Longitude of ascending node: 50°  
Argument of periapsis: 260°  
Sidereal orbit period: 44.491 years  
Synodic period: 373.39 days  
Mean orbital velocity: 4,220 m/s  
Sidereal rotation period: 8 hours  
Solar day: 8.0003 hours  
Synchronous orbit altitude: 1,632 km  
Sphere of influence: 621,195 km

## Atmosphere

Overall height: 80,000 m  
Pressure: 0.02 atm datum  
Mean temperature: 65 K datum  
Mean molecular weight: 28.0 g/mol  
Composition: 100% N<sub>2</sub>

# Celes

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## Bulk parameters

Classification: Moon (Eeloo)  
Radius: 200 km datum, 200.9 km mean  
Mass:  $2.35098 \times 10^{20}$  kg  
Gravitational parameter:  $1.56906 \times 10^{10}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 6,920 kg/m<sup>3</sup>  
Surface gravity: 0.04 g datum  
Escape velocity: 396 m/s  
Bond albedo: 0.45  
Solar irradiance: 8.6 W/m<sup>2</sup>  
Black-body temperature: 68 K

## Orbital & rotational parameters

Semi-major axis: 31,800 km  
Periapsis: 30,210 km  
Apoapsis: 33,390 km  
Orbit eccentricity: 0.05  
Orbit inclination: 10°  
Longitude of ascending node: 100°  
Argument of periapsis: 270°  
Sidereal orbit period: 35.841 days  
Synodic period: 35.920 days  
Mean orbital velocity: 129 m/s  
Sidereal rotation period: 35.841 days  
Solar day: 35.920 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 7,782 km

# Tam

---

## Bulk parameters

Classification: Moon (Eeloo)  
Radius: 10 km datum, 13.6 km mean  
Mass:  $5.14277 \times 10^{16}$  kg  
Gravitational parameter:  $3.43233 \times 10^6$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 4,900 kg/m<sup>3</sup>  
Surface gravity: 0.0035 g datum  
Escape velocity: 26 m/s  
Bond albedo: 0.2  
Solar irradiance: 8.6 W/m<sup>2</sup>  
Black-body temperature: 74 K

## Orbital & rotational parameters

Semi-major axis: 64,670 km  
Periapsis: 63,053 km  
Apoapsis: 66,287 km  
Orbit eccentricity: 0.025  
Orbit inclination: 9.5°  
Longitude of ascending node: 105°  
Argument of periapsis: 210°  
Sidereal orbit period: 103.94 days  
Synodic period: 104.61 days  
Mean orbital velocity: 90 m/s  
Sidereal rotation period: 103.94 days  
Solar day: 104.61 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 544 km

# Hamek

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## Bulk parameters

Classification: Dwarf planet  
Radius: 450 km datum, 451.3 km mean  
Mass:  $2.97546 \times 10^{21}$  kg  
Gravitational parameter:  $1.98585 \times 10^{11}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 7,730 kg/m<sup>3</sup>  
Surface gravity: 0.1 g datum  
Escape velocity: 939 m/s  
Bond albedo: 0.45  
Solar irradiance: 6.9 W/m<sup>2</sup>  
Black-body temperature: 64 K  
Natural satellites: none

## Orbital & rotational parameters

Semi-major axis: 527,129,000 km  
Perihelion: 474,416,100 km  
Aphelion: 579,841,900 km  
Orbit eccentricity: 0.1  
Orbit inclination: 4°  
Longitude of ascending node: 165°  
Argument of periapsis: 175°  
Sidereal orbit period: 52.648 years  
Synodic period: 372.07 days  
Mean orbital velocity: 3,990 m/s  
Sidereal rotation period: 4 hours  
Solar day: 4.0001 hours  
Synchronous orbit altitude: 564 km  
Sphere of influence: 469,439 km

# Nara

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## Bulk parameters

Classification: Planet  
Radius: 3,600 km datum, 3601.6 km mean  
Mass:  $1.90430 \times 10^{24}$  kg  
Gravitational parameter:  $1.27094 \times 10^{14}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 9,730 kg/m<sup>3</sup>  
Surface gravity: 1 g datum  
Escape velocity: 8,403 m/s  
Bond albedo: 0.3  
Solar irradiance: 0.65 W/m<sup>2</sup>  
Black-body temperature: 38 K  
Natural satellites: Amos, Enon, Prax

## Orbital & rotational parameters

Semi-major axis: 1,712,000,000 km  
Perihelion: 1,112,800,000 km  
Aphelion: 2,311,200,000 km  
Orbit eccentricity: 0.35  
Orbit inclination: 20°  
Longitude of ascending node: 90°  
Argument of periapsis: 150°  
Sidereal orbit period: 308.15 years  
Synodic period: 366.19 days  
Mean orbital velocity: 2,214 m/s  
Sidereal rotation period: 12 hours  
Solar day: 12.0001 hours  
Synchronous orbit altitude: 14,579 km  
Sphere of influence: 20,213,317 km

## Atmosphere

Overall height: 200,000 m  
Pressure: 40 atm datum, 1 atm @ 40.3 km  
Mean temperature: 40 K datum  
Mean molecular weight: 2.42 g/mol  
Composition: 80% H<sub>2</sub>, 20% He

# Amos

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## Bulk parameters

Classification: Moon (Nara)  
Radius: 320 km datum, 321.2 km mean  
Mass:  $9.02777 \times 10^{20}$  kg  
Gravitational parameter:  $6.02521 \times 10^{10}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 6,500 kg/m<sup>3</sup>  
Surface gravity: 0.06 g datum  
Escape velocity: 614 m/s  
Bond albedo: 0.25  
Solar irradiance: 0.65 W/m<sup>2</sup>  
Black-body temperature: 38 K

## Orbital & rotational parameters

Semi-major axis: 55,880 km  
Periapsis: 55,321 km  
Apoapsis: 56,439 km  
Orbit eccentricity: 0.01  
Orbit inclination: 0.5°  
Longitude of ascending node: 180°  
Argument of periapsis: 345°  
Sidereal orbit period: 5.3891 days  
Synodic period: 5.3894 days  
Mean orbital velocity: 1,508 m/s  
Sidereal rotation period: 5.3891 days  
Solar day: 5.3894 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 2,616 km

# Enon

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## Bulk parameters

Classification: Moon (Nara)  
Radius: 700 km datum, 702.0 km mean  
Mass:  $1.07998 \times 10^{22}$  kg  
Gravitational parameter:  $7.20789 \times 10^{11}$  m<sup>3</sup>/s<sup>2</sup>  
Mean density: 7,450 kg/m<sup>3</sup>  
Surface gravity: 0.15 g datum  
Escape velocity: 1,435 m/s  
Bond albedo: 0.35  
Solar irradiance: 0.65 W/m<sup>2</sup>  
Black-body temperature: 37 K

## Orbital & rotational parameters

Semi-major axis: 125,980 km  
Periapsis: 124,090 km  
Apoapsis: 127,870 km  
Orbit eccentricity: 0.015  
Orbit inclination: 0.2°  
Longitude of ascending node: 270°  
Argument of periapsis: 0°  
Sidereal orbit period: 18.243 days  
Synodic period: 18.246 days  
Mean orbital velocity: 1,004 m/s  
Sidereal rotation period: 18.243 days  
Solar day: 18.246 days  
Synchronous orbit altitude: not possible  
Sphere of influence: 15,914 km

# Prax

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## Bulk parameters

Classification: Moon (Nara)  
Radius: 110 km datum, 110.5 km mean  
Mass:  $3.55586 \times 10^{19}$  kg  
Gravitational parameter:  $2.37321 \times 10^9 \text{ m}^3/\text{s}^2$   
Mean density:  $6,290 \text{ kg/m}^3$   
Surface gravity: 0.02 g datum  
Escape velocity: 208 m/s  
Bond albedo: 0.45  
Solar irradiance:  $0.65 \text{ W/m}^2$   
Black-body temperature: 35 K

## Orbital & rotational parameters

Semi-major axis: 751,900 km  
Periapsis: 451,140 km  
Apoapsis: 1,052,660 km  
Orbit eccentricity: 0.4  
Orbit inclination:  $17^\circ$   
Longitude of ascending node:  $95^\circ$   
Argument of periapsis:  $100^\circ$   
Sidereal orbit period: 265.99 days  
Synodic period: 266.63 days  
Mean orbital velocity: 411 m/s  
Sidereal rotation period: 6 hours  
Solar day: 6.00003 hours  
Synchronous orbit altitude: 194 km  
Sphere of influence: 9,653 km