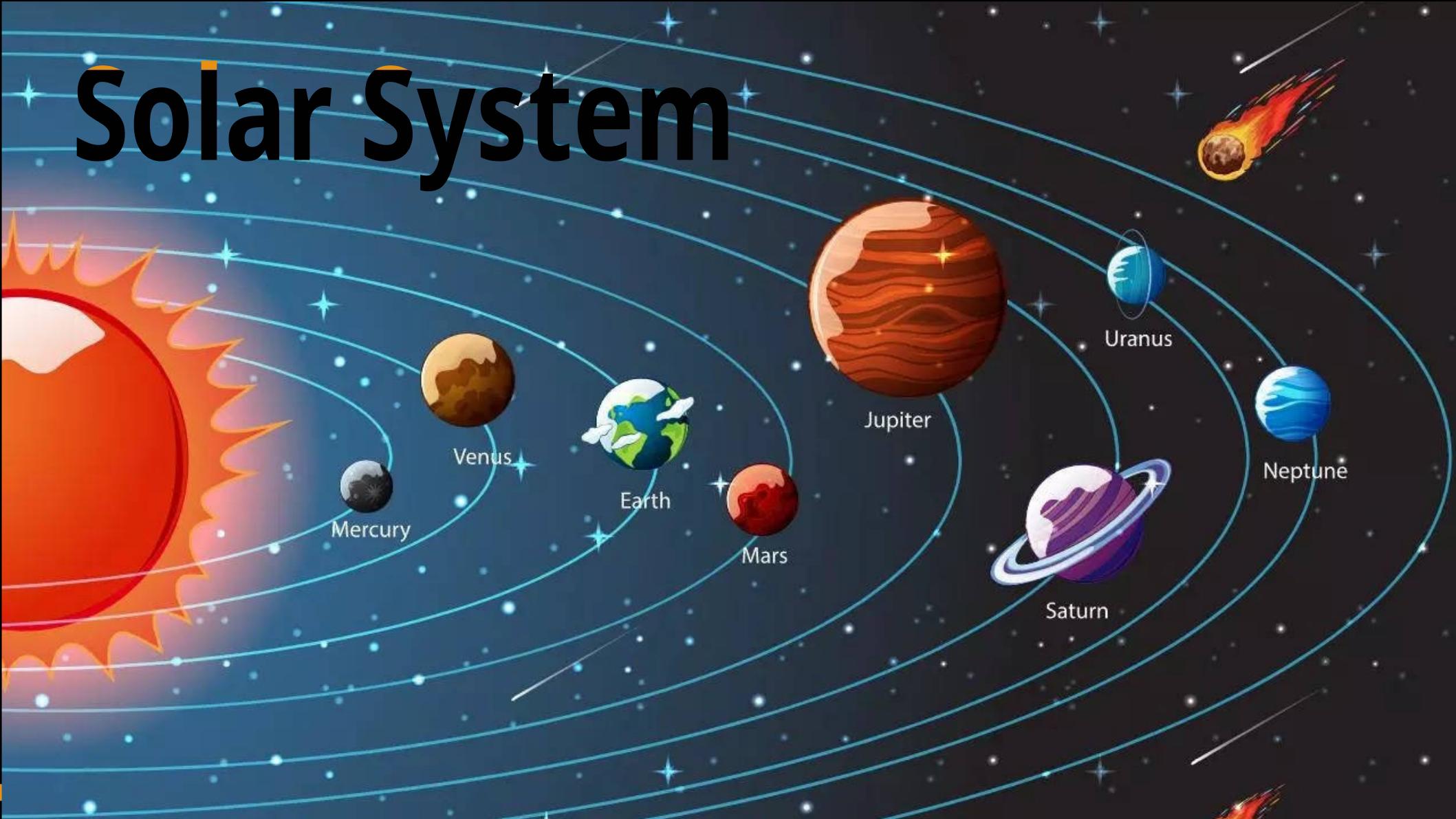


Solar System



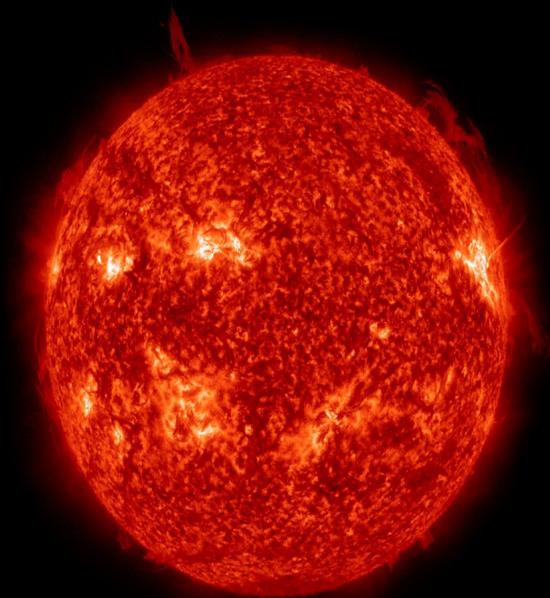
- Solar System => “Solar” =>” Solis” (Sun in Latin)
- Situated in Milky-way Galaxy’s Orion Arm / Orion Spur, between two major arm Sagittarius & Perseus.
- Orion arm is of 2 to 4 light years in diameter.
- Orbit around center of galaxy at 8,28,000km/h for about 230million years.
- 27,000 light years away from galactic center.
- [Solar system live](#)



Where are we in galaxy.....



Bonding Manager



- ★ Center of our system.
- ★ Sun's gravity field holds our system which is about 274m/s^2 .
- ★ Heliophysics => study of sun.
- ★ G2V => scientific name of our sun.
- ★ Radius of 7,00,000km.
- ★ The fact that our Sun and the stars all have similar compositions and are made up of mostly hydrogen and helium was first shown in a brilliant thesis in 1925 by **Cecilia Payne-Gaposchkin**, the first woman to get a PhD in astronomy in the United States



Element	Abundance (pct. of total number of atoms)	Abundance (pct. of total mass)
Hydrogen	91.2	71.0
Helium	8.7	27.1
Oxygen	0.078	0.97
Carbon	0.043	0.40
Nitrogen	0.0088	0.096
Silicon	0.0045	0.099
Magnesium	0.0038	0.076
Neon	0.0035	0.058
Iron	0.030	0.014
Sulfur	0.015	0.040



Speedster



- Closest to Sun.
- Roman God Mercury who was swift messenger.
- Radius of 2,440km; Mass 3.30×10^{23} kg.
- 88 days for; 57.91 million km from sun.
- Day length of 58 earth days.
- Temp: -173°C at night; 427°C at day.
- Around 47.87 km/s orbital speed.
- Terrestrial planet; Core => Iron (liquid & solid); Mantle => Silicon; Crust => Silicon.
- Water in ice form as low atmospheric pressure.
- Weak magnetic and gravity field.



Hottest



- Densest planet; 108.2 million km from sun.
- Diameter of 12,104km; Temperature of 462°C.
- Day length of 243 earth days.
- Orbital time of 225 earth days in the speed of 35.02km/s in opposite direction.
- Name from Roman god of love and beauty.
- Atmosphere 96.5% of CO₂.



A high-resolution photograph of Earth as seen from space. The planet is shown in a three-quarter view, with the left side illuminated by the sun and the right side in shadow. The curvature of the Earth is visible at the top. The surface features are clearly discernible, including the Amazon River basin in South America, the Sahara Desert in Africa, and various landmasses and cloud formations across the globe.

Home

- Fifth largest. Earth => English word mean soil or ground.
- Habitable Planet; Three Layers – Core, Mantel, Lithosphere.
- Geoid shape; 12,760 km of radius; 150 million km from sun (1AU)
- Atmosphere: 78% nitrogen, 21% oxygen, 1% others.
- Strong magnetic field and perfect gravity field.
- About 1 to 1.5 billion years earth become inhabitable planet.
- [Live earth](#)



Goldilocks Zone

- ✓ Habitable zone.
- ✓ Water stay as liquid in this planet.
- ✓ 0.95AU to 1.7AU in our solar system.
- ✓ Earth lies in the zone where Venus in inner edge and mars at outer edge.
- ✓ Habitable Zone not fixed.
- ✓ Expand or Compress with star property of luminous and heat.

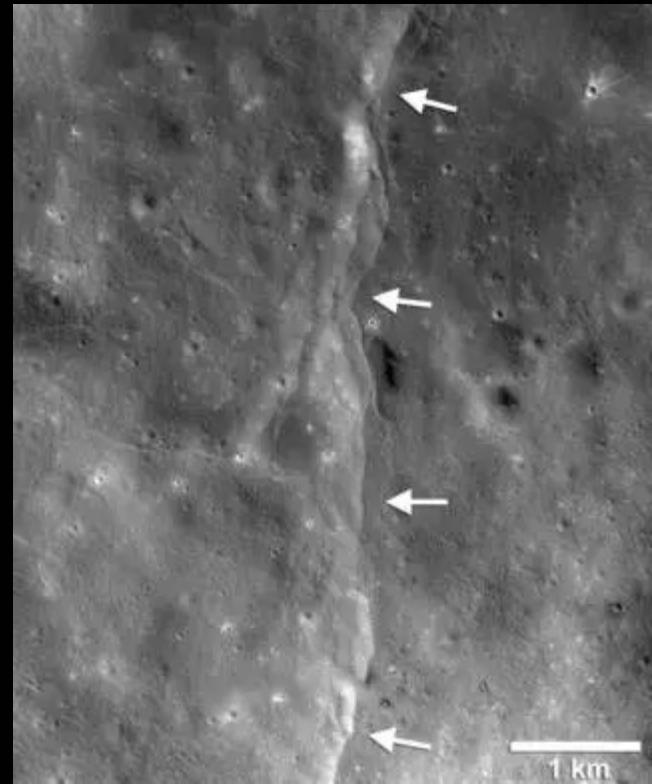




Shiny



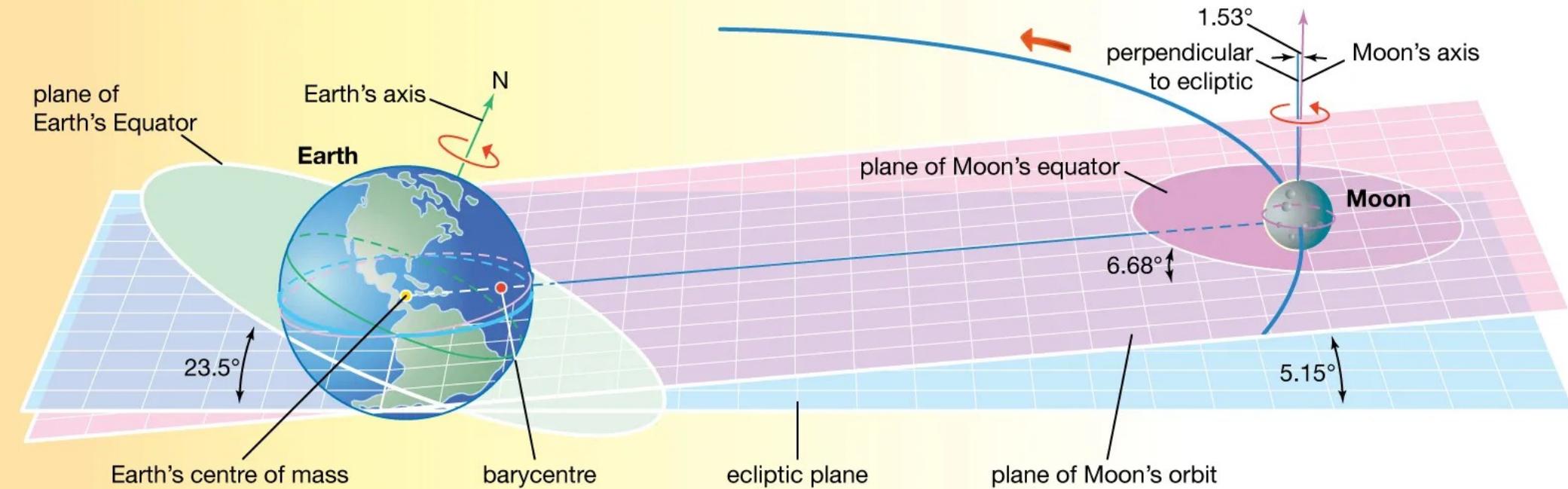
- Closest to us; 3475km of diameter; 3,82,500km distance.
- Gravity of 1.6 m/s^2 .
- Temperature: day 273°F (134°C) and night 243°F (-153°C).
- Control Water motion and Climate and Angle of drift.
- Moon View.



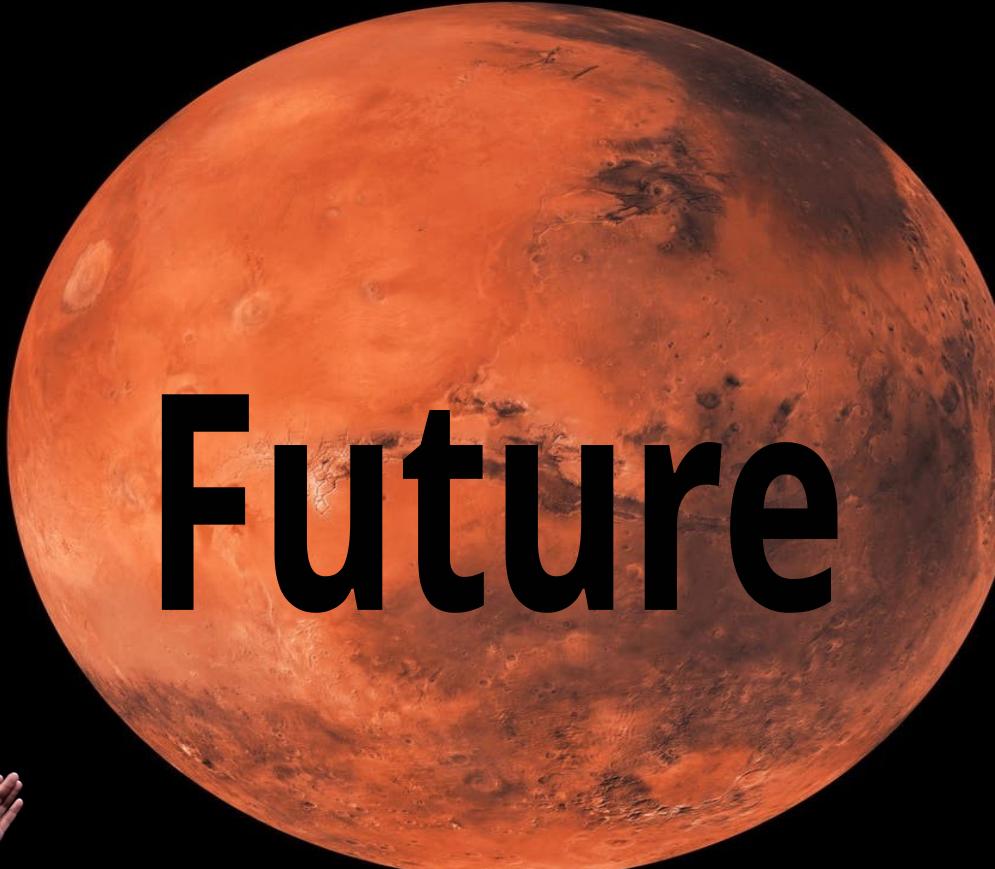
Elements	Percentage %
Oxygen	43
Silicon	20
Magnesium	19
Iron	10
Aluminum	3
Chromium	0.42
Titanium	0.18
Manganese	0.12



Geometry and motions of the Earth-Moon system



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Future



- Little twin with 2 moons (phobos & deimos); 6,779km of diameter.
- 22.9million km from sun with orbital speed 24.077km/s.
- Temp: -130°C to 27°C.
- Day length of 24hr 37min; Year length 687 Earth days.
- Seasonal change.





Big Bro



- Largest of all; Gravity of 24.79m/s².
- Diameter of 1,39,322km.
- Over 200 moons only 67 are named.
- Fourth brightest object to us.
- Orbital period of 11.86 earth years.
- Atmosphere: 89.9% hydrogen 10.2% helium.



Beauty



- Second largest of 1,20,536km diameter;
- Gravity of 10.44 m/s^2 .
- At least 145 moons confirmed.
- 7 main rings.
- Atmosphere: 96% hydrogen, 3% helium.
- Temp: -139°C .
- Life possible on some of its moons.





Ice planet



- ◆ Third largest of 31,763km diameter.
- ◆ Sunlight takes 2hr 40min to reach as 19 AU distance.
- ◆ Day length 17 earth hr. orbit period of 84 earth years.
- ◆ 28 moons; 13 rings.
- ◆ Unusual Magnetic field tilt at 60°



Math Explore



- ◆ Diameter of 30,775km.
- ◆ 30AU from sun. Sun light takes 4hr to reach.
- ◆ Day length of 16hr; Orbital period of 165 earth years.
- ◆ 16 moons; 9 rings.
- ◆ Strong magnetic field.



According to International Astronomical Unit planet possess

1. Orbit around its host star.
2. Be mostly round.
3. Be big enough that its gravity cleared away any other objects in it path.





Forgotten One



Diameter of 2,377km.

5 moons.

Orbital period of 248 earth years and rotation of 6.4 earth days.





Pluto



Eris



Haumea



Makemake

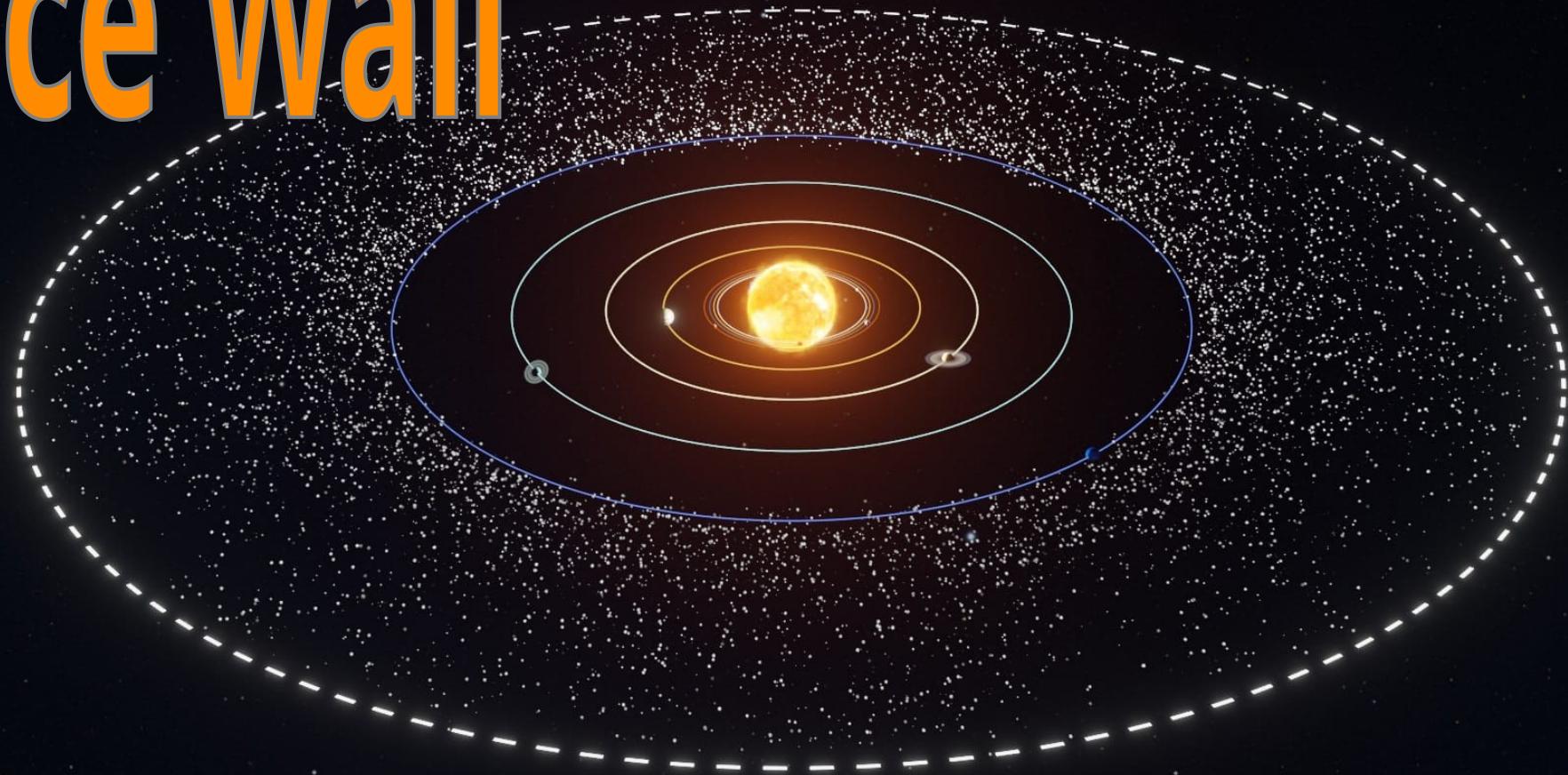


Ceres

scienconotes.org



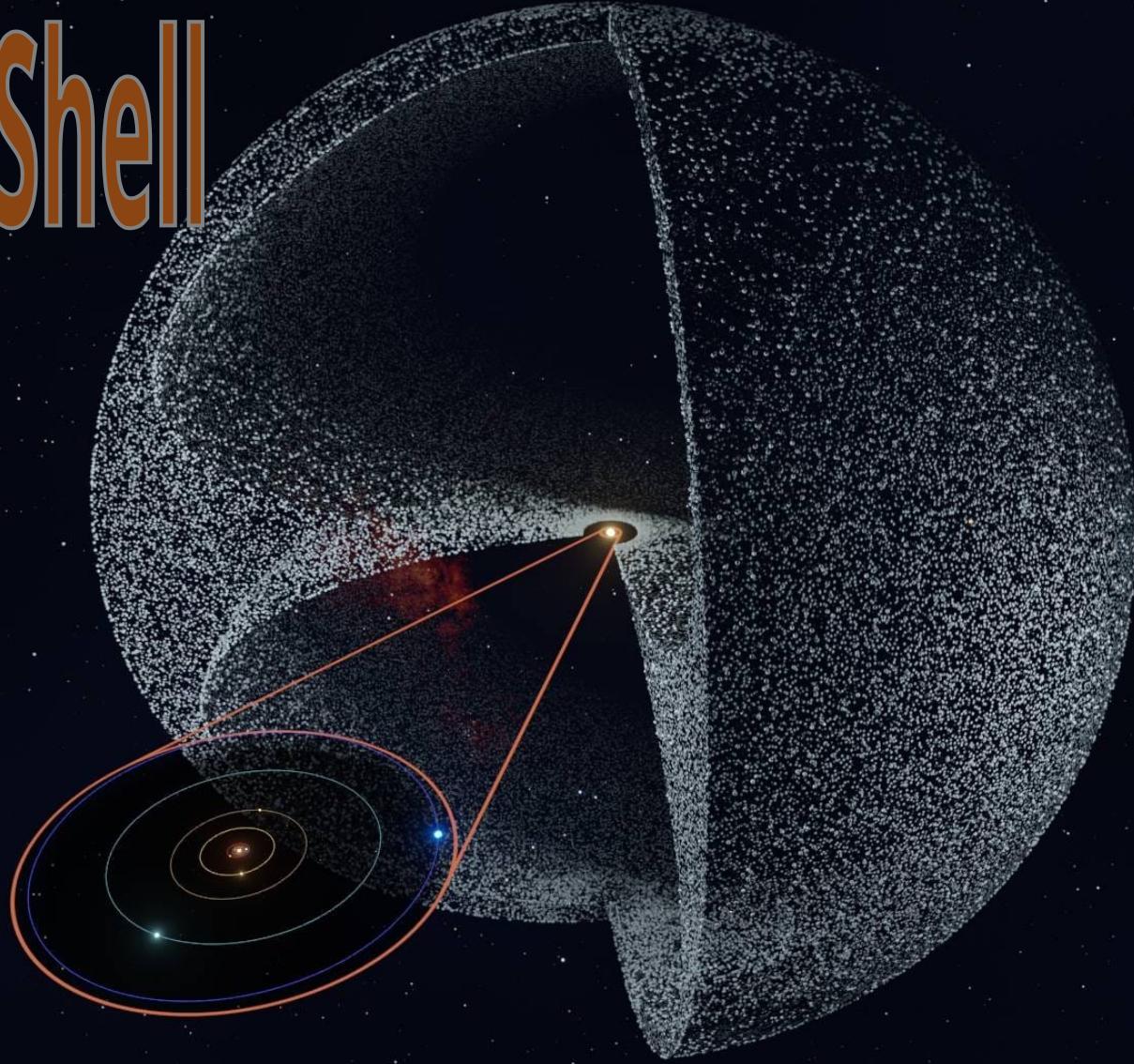
Ice Wall



- Belt of icy objects
- Dwarf planet, ice stone, frozen compounds of ammonia & methane.
- 30AU from sun; wider around 20AU.



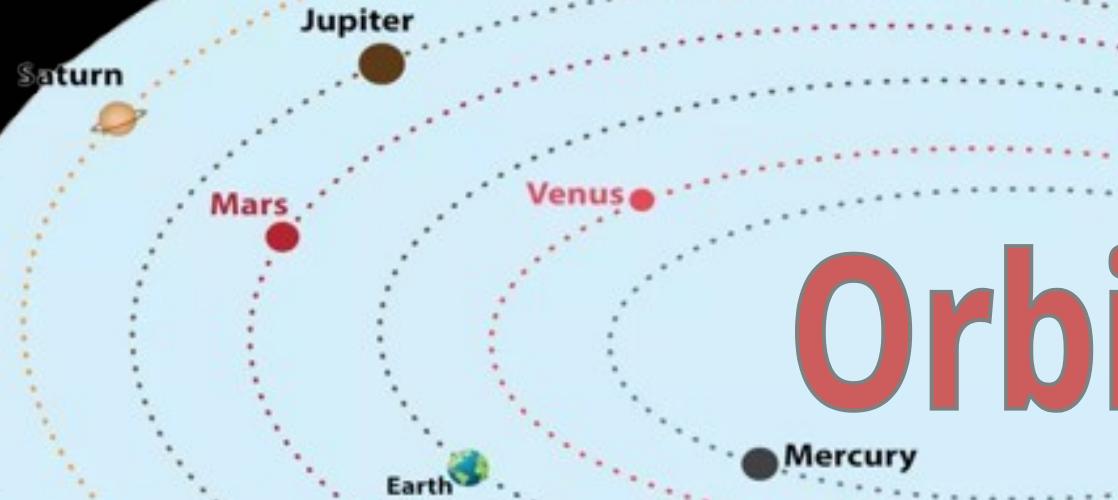
Oyster Shell

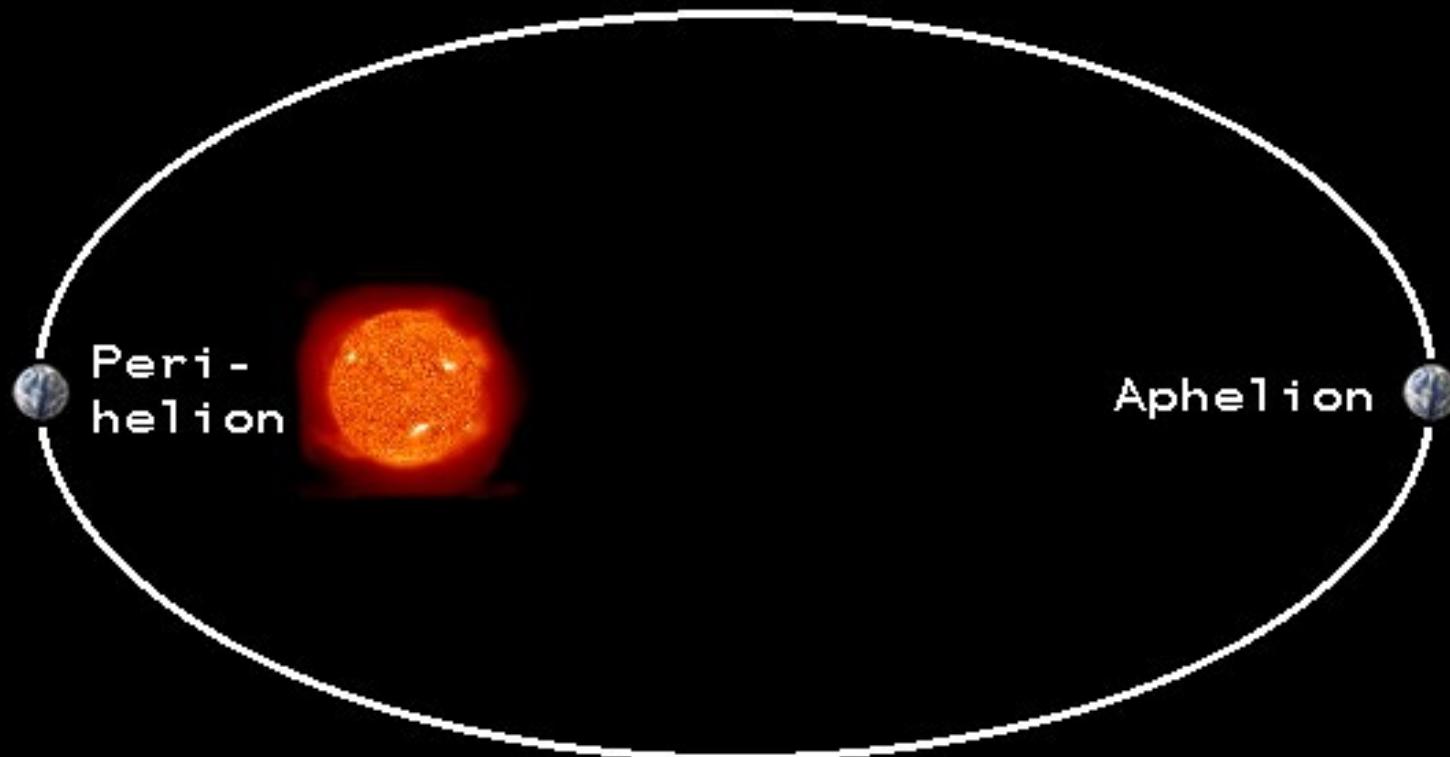


Comet originates.
2000AU from sun.



Orbit





- ★ Mostly planets orbit in elliptical.
- ★ Maintained by gravitational pull & velocity.
- ★ Inertia prevent from falling towards star.
- ★ Planet possess kinetic energy due it's motion & potential energy due to it's position.
- ★ Closer to sun potential energy decrease and kinetic energy increase; higher angular momentum
- ★ Far away to sun potential energy increase and kinetic energy decrease; lower angular momentum.



Planet	Radius (m)	Density (kg/cm^3)
Mercury	2.440e+6	5.43
Venus	6.052e+6	5.24
Earth	6.371e+6	5.514
Mars	3.390e+6	3.93
Jupiter	7.149e+7	1.33
Saturn	6.042e+7	0.69
Uranus	2.559e+7	1.27
Neptune	2.477e+7	1.64



Planet	Semi-major Axis (AU)	Orbital Period (years)
Mercury	0.387	0.067
Venus	0.723	0.241
Earth	1.000	1.000
Mars	1.524	1.881
Jupiter	5.203	11.86
Saturn	9.537	29.45
Uranus	19.23	84.02
Neptune	30.069	164.8



Thank You

