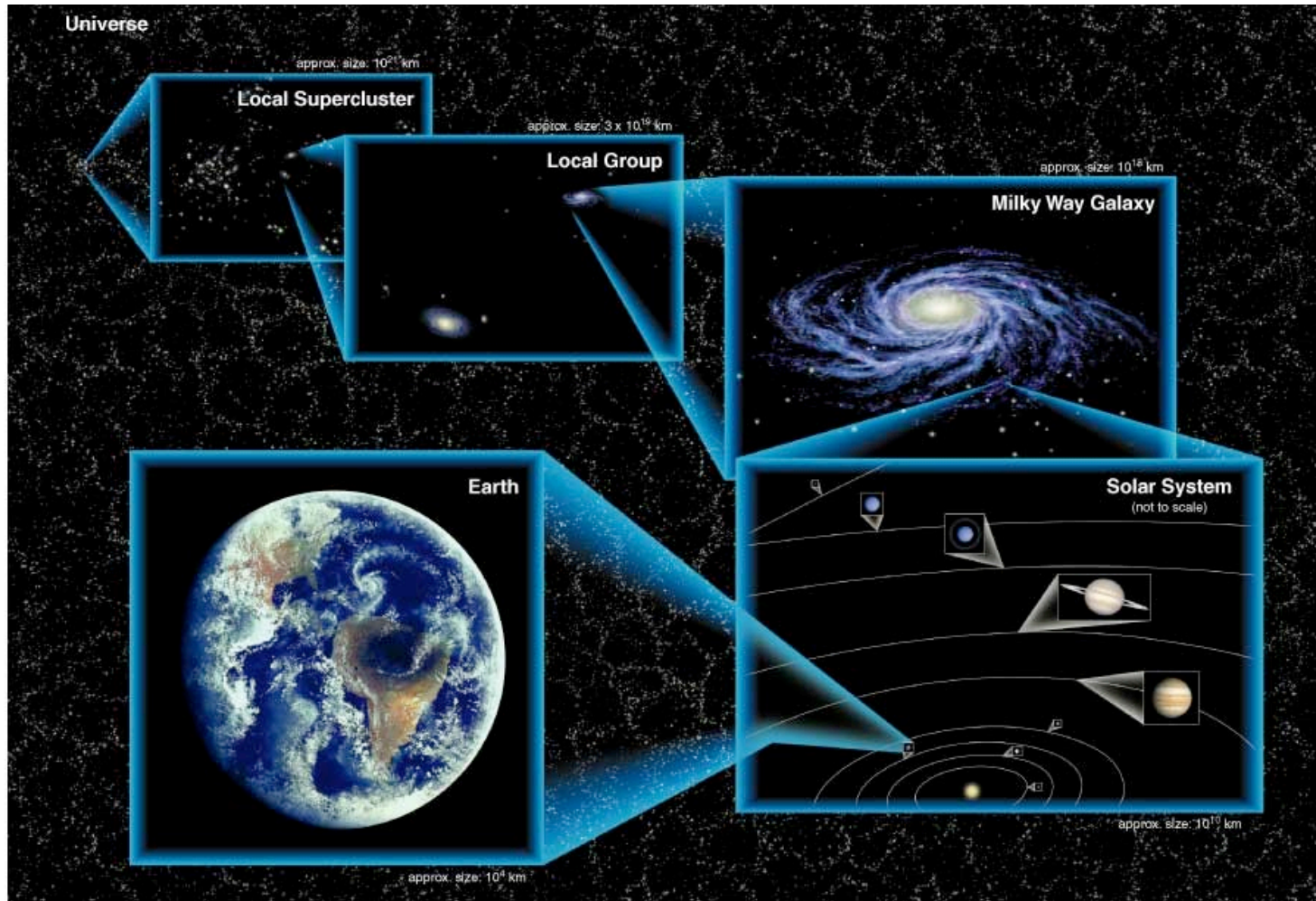


Chapter 1

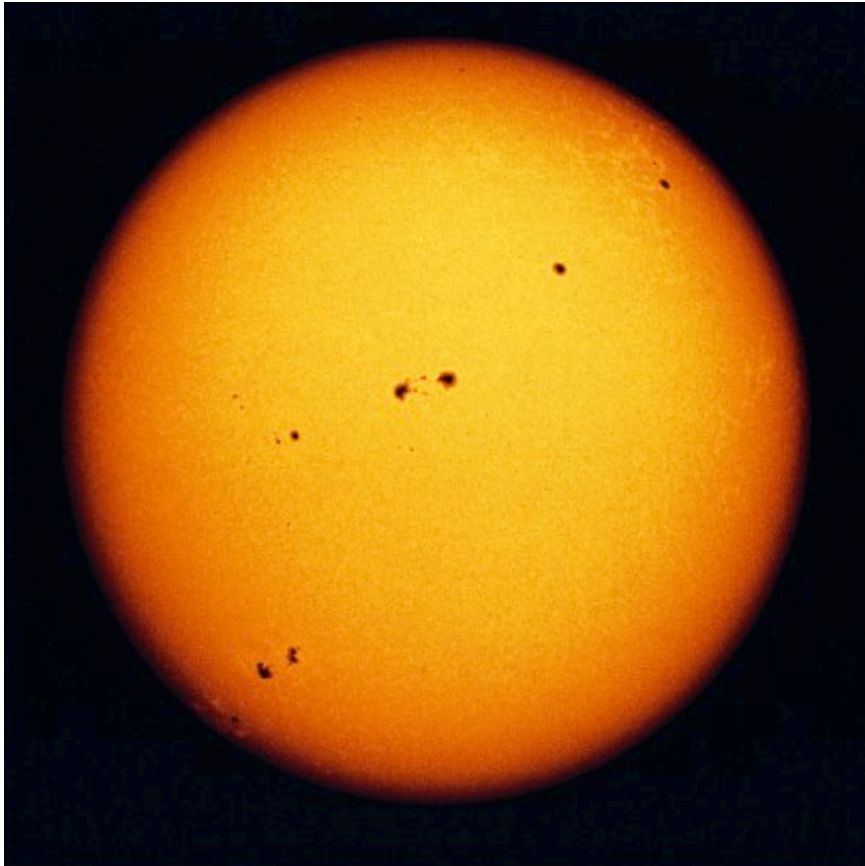
Our Place in the Universe



What is our place in the universe?

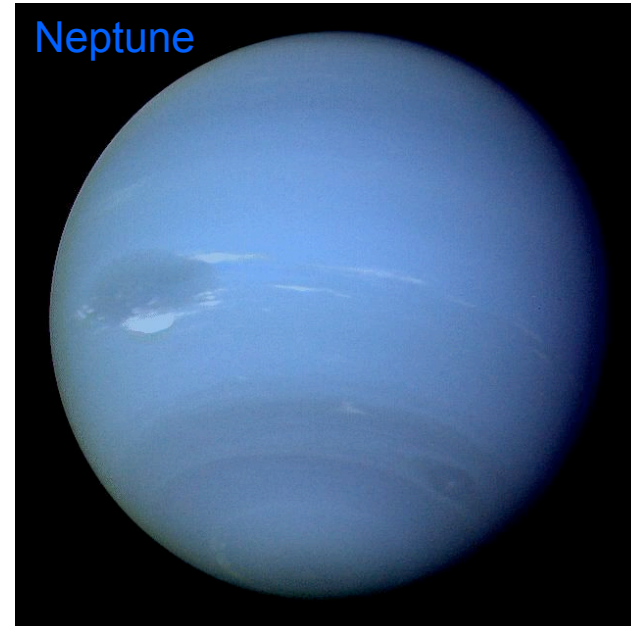


Star



- (Usually:) A large, glowing ball of gas that generates heat and light through nuclear fusion.
- The energy generated in a star is in equilibrium with the gravity of the star.
- As we will see later, there are end stages of stars (White Dwarfs, Neutron Stars) that are not balls of gas, and that are not supported by nuclear energy.

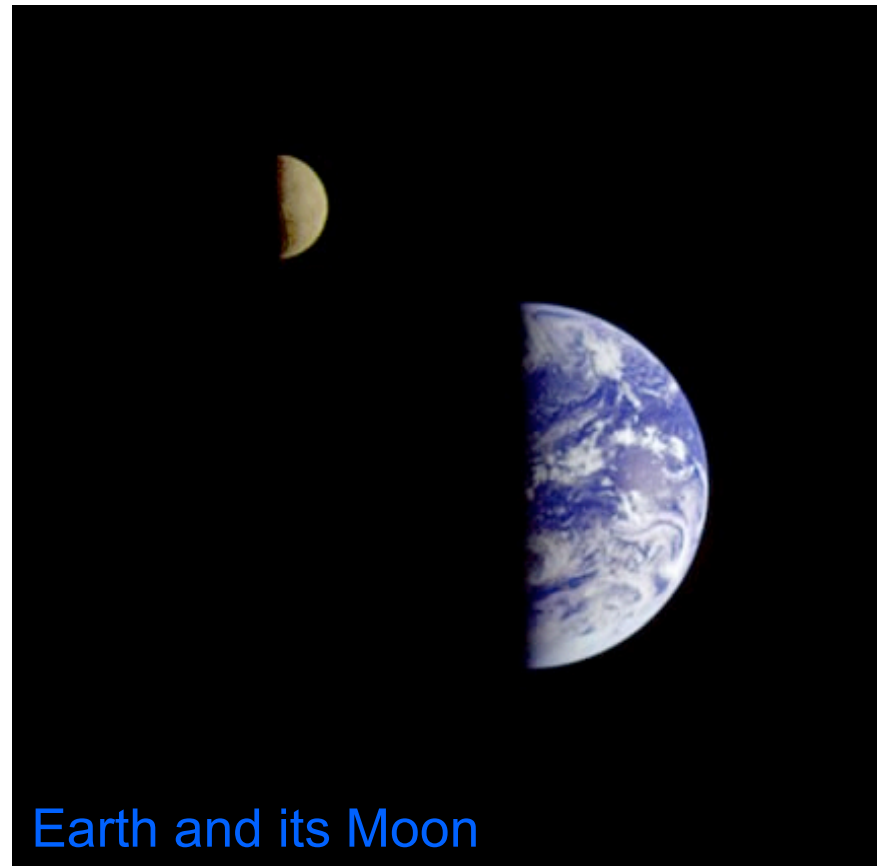
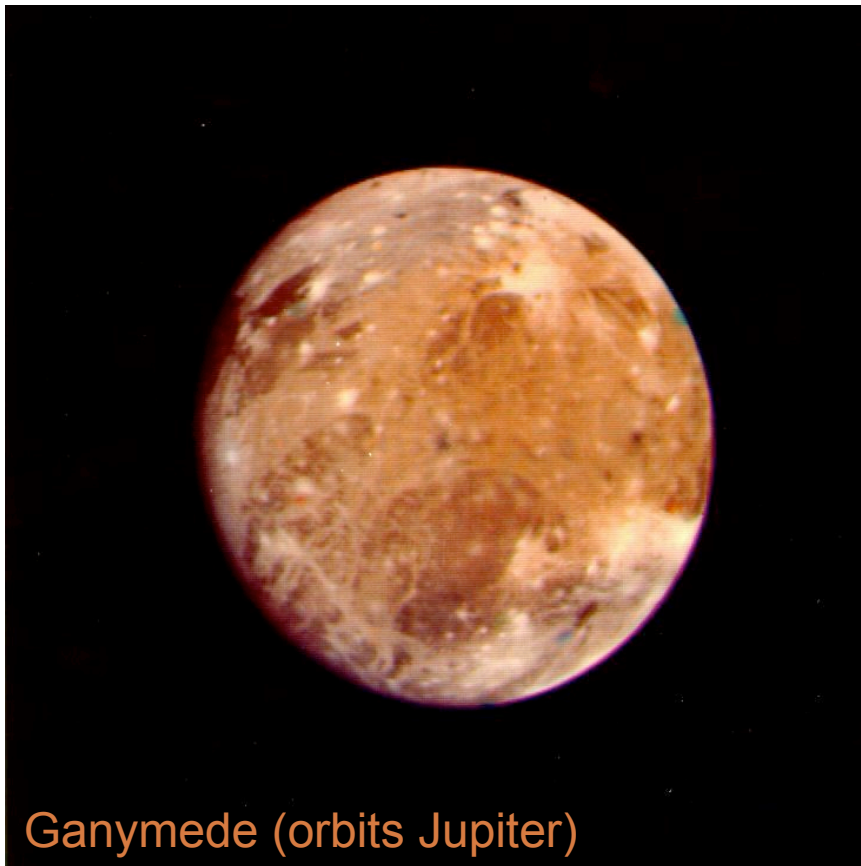
Planet



- A moderately large celestial body that orbits a star.
- A planet may be rocky, icy, or gaseous in composition.
- A planet is massive enough to be approximately spherical under its own gravity.
- A planet is not massive enough to have significant nuclear fusion; it shines by reflected light.
- A planet has cleared the neighborhood around its orbit. (IAU 2006)
... Pluto is no longer considered a planet but a *dwarf planet*, along with Eris and Ceres.

Moon (or Satellite)

- A celestial body that orbits a planet.



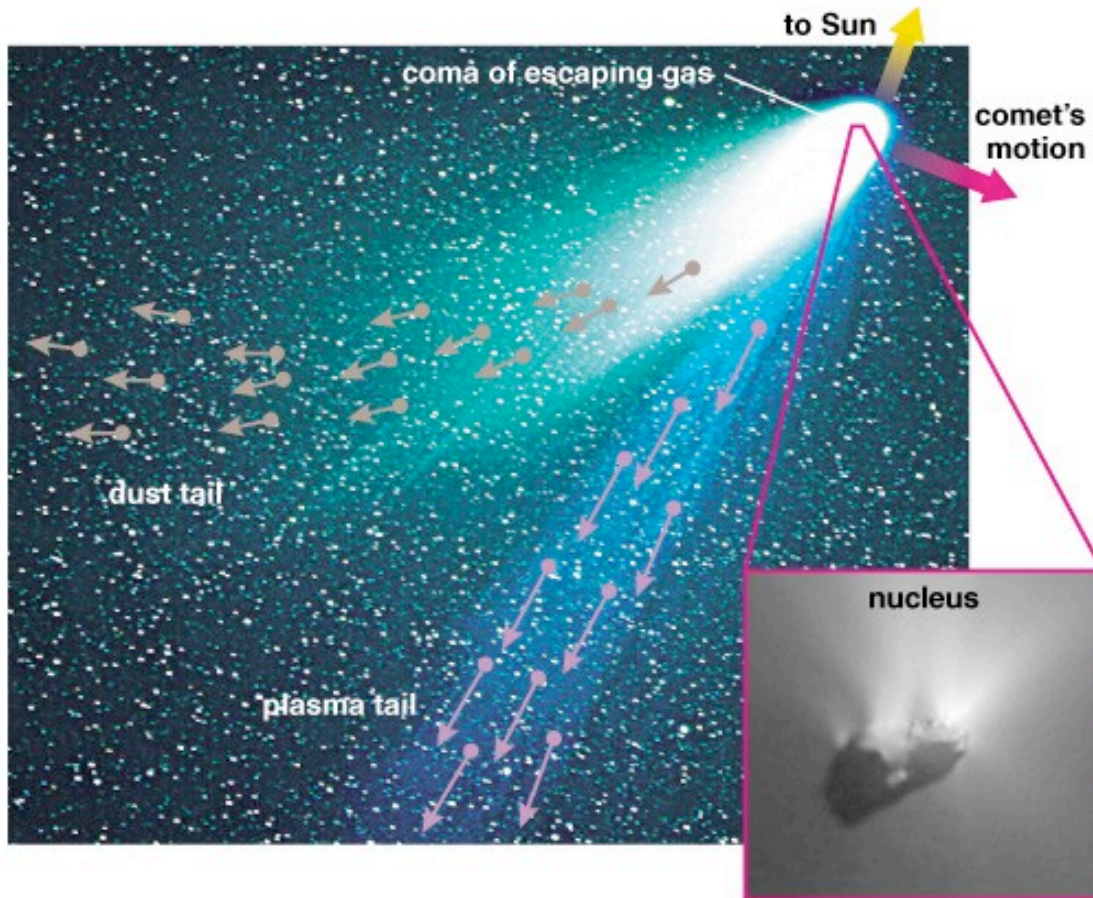
Asteroid

- A relatively small and rocky object that orbits a star.
- Gravity is too small to form a sphere.



NASA:
http://nssdc.gsfc.nasa.gov/photo_gallery/photogallery-asteroids.html

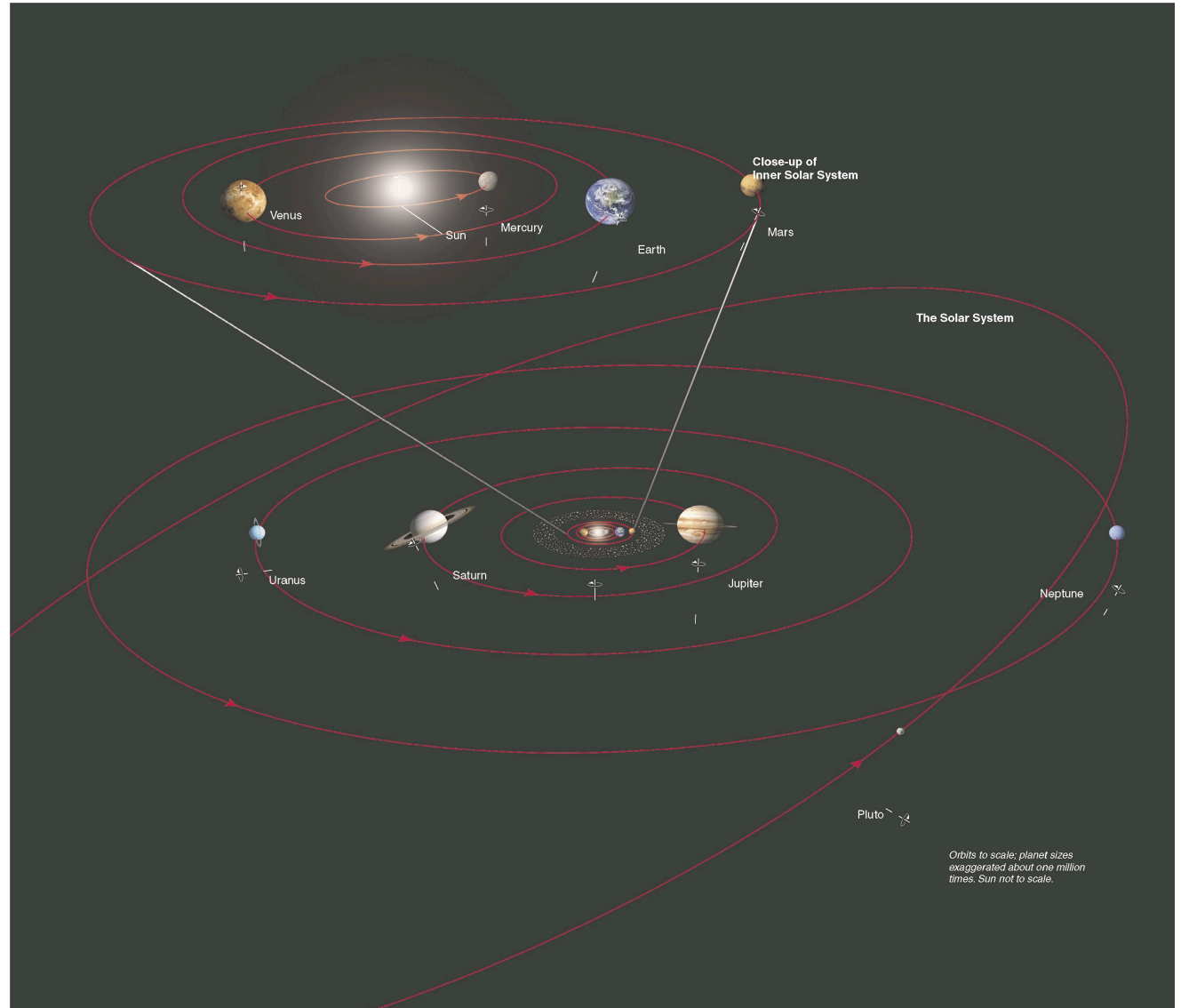
Comet



- A relatively small and icy object that orbits a star.
- Comets are very dim and cold during most of their orbit far away from the Sun. They get their spectacular tails only when they get heated up close to the Sun.
- The plasma tail points away from the Sun, being carried by the Solar Wind.

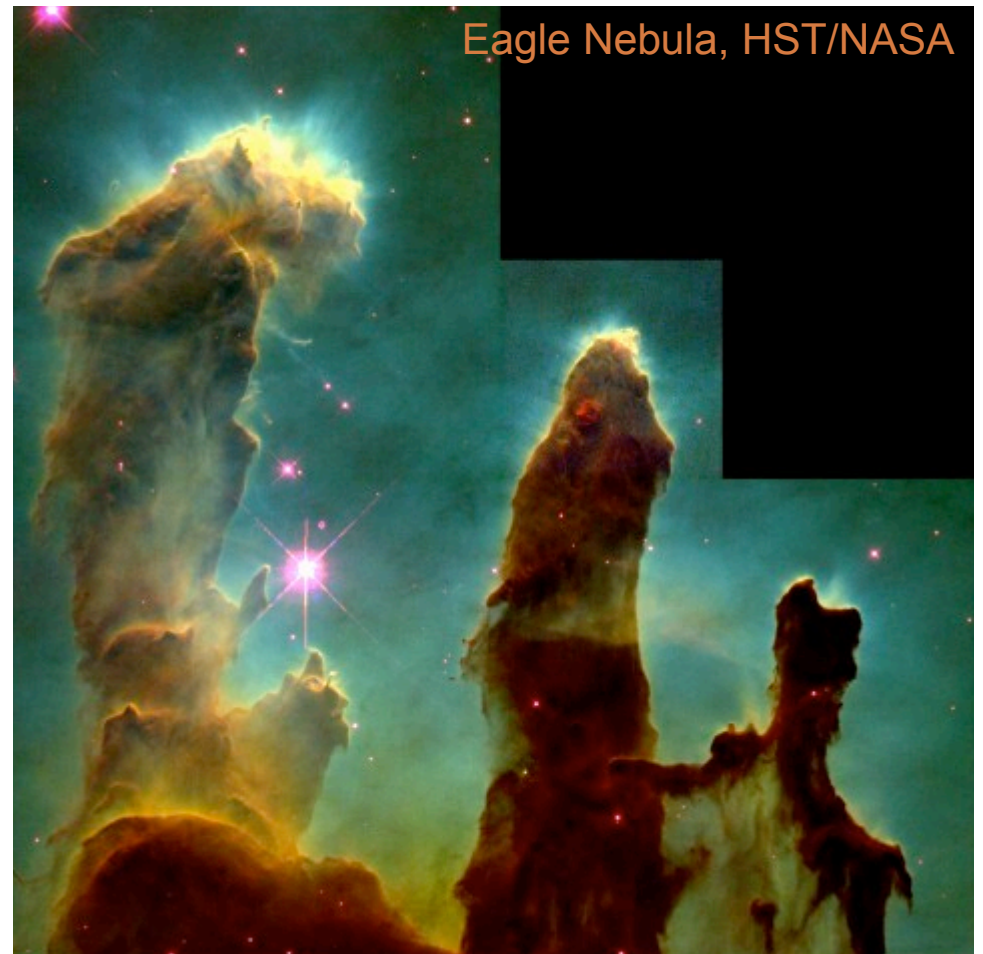
Solar System (Planetary System)

- A star and all the material that orbits it, including its planets and moons.



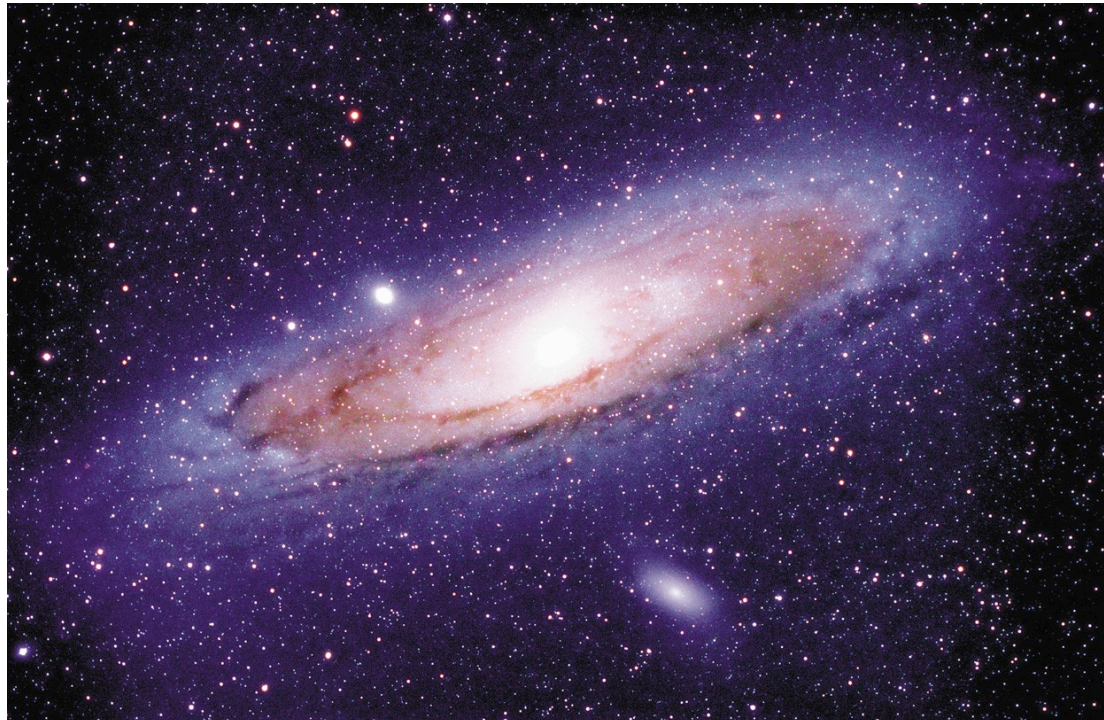
Nebula

- An interstellar cloud of gas and/or dust.



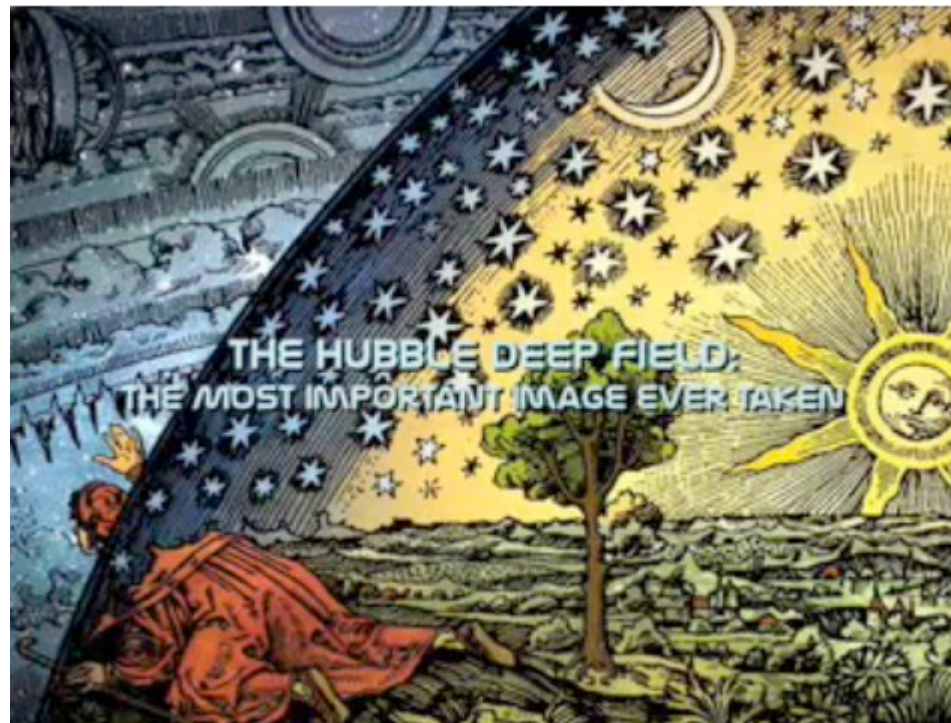
Galaxy

- A great island of stars in space, all held together by gravity and orbiting a common center



Universe

- The total of all matter and energy, including everything within and between all galaxies.



Video on the Hubble Deep Field

<http://www.deepastronomy.com/hubble-deep-field.html>