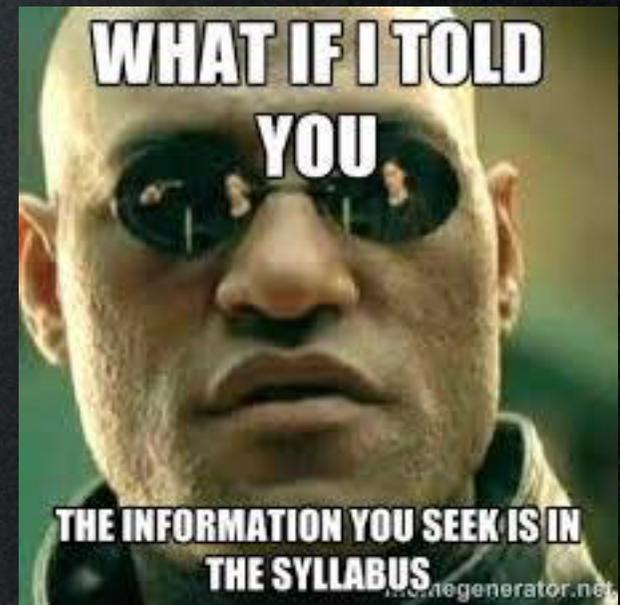


Plan

- Questions?
- Syllabus; administrative details
- Some Definitions
- An Idea of Scale



The Sun and its Planets

ASTR 201 - Fall 2015

Prof. Stacy McGaugh

stacy.mcgaugh [at] case.edu

Sears 573

368-1808

TA Jakub Prchlik

jjp137 [at] case.edu

Sears 561

368-3896

Time: TR 10:0-11:15 AM

Room: Sears 480

Textbook

The Cosmic Perspective

The Solar System

Seventh edition

Bennett, Donahue, Schneider, & Voit



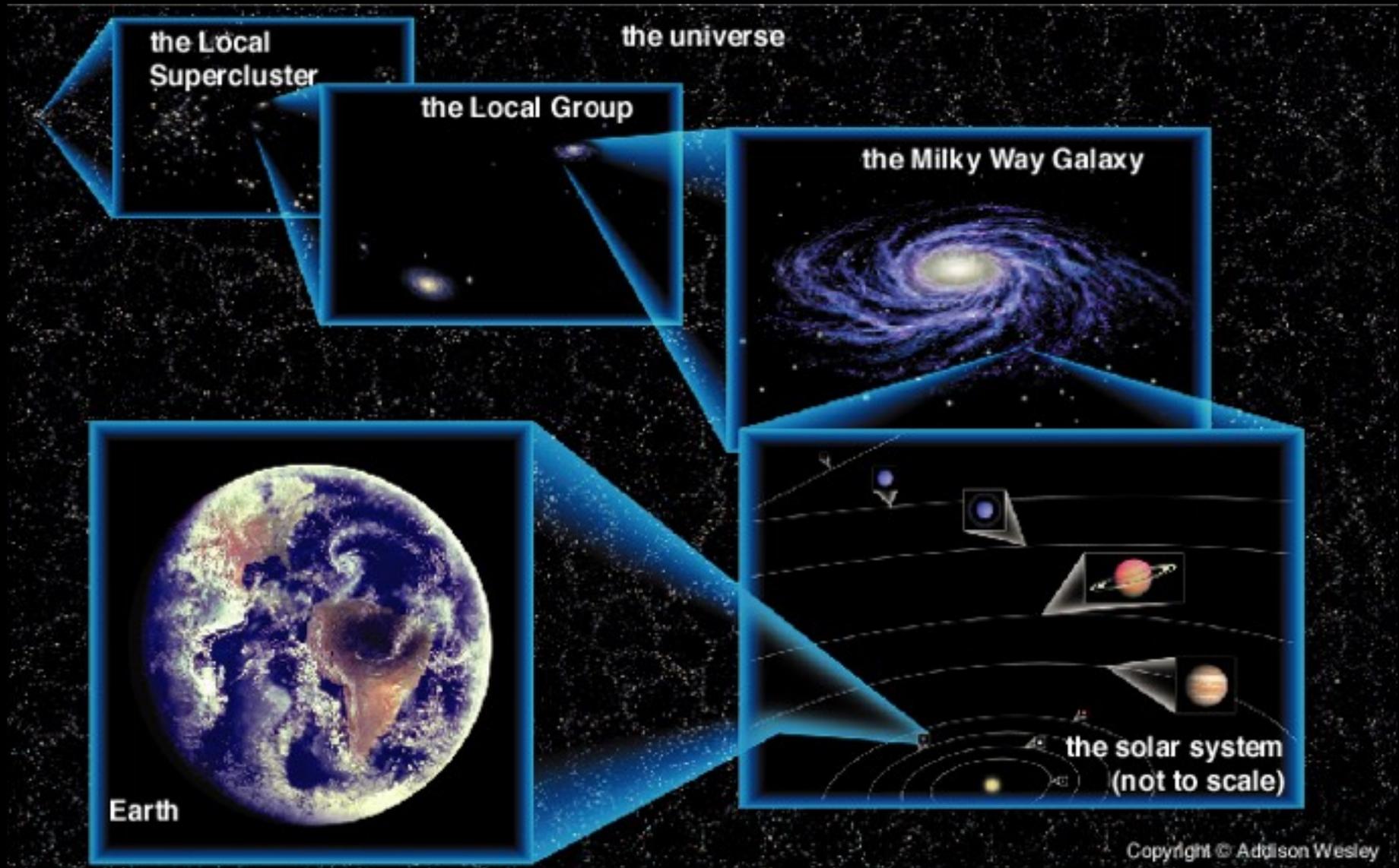
Syllabus

- [Course Description](#)
- [Lecture Schedule](#) including links to pdf files of lecture slides
- [Grades](#)
- [Assignemnts and Exams](#)
- [Homework](#)
- [PDF syllabus](#)

<http://astroweb.case.edu/ssm/astr201/>

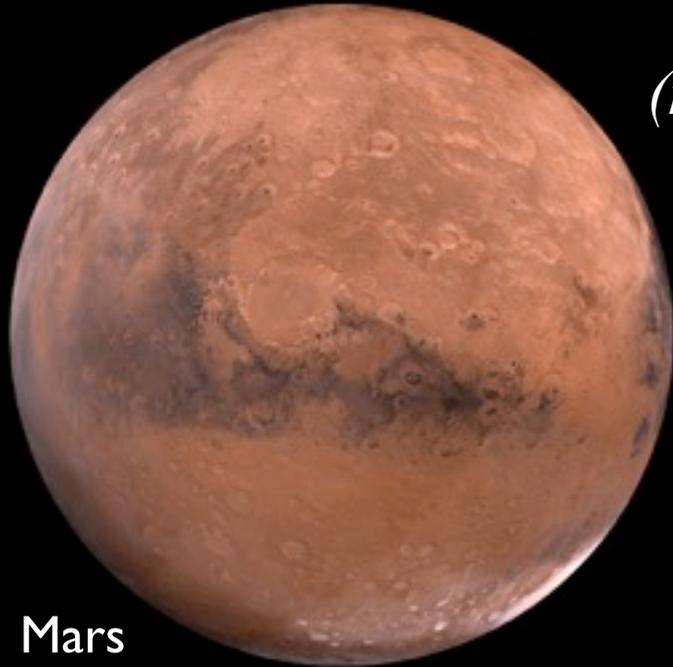
What is our place in the universe?

Our “Cosmic Address”



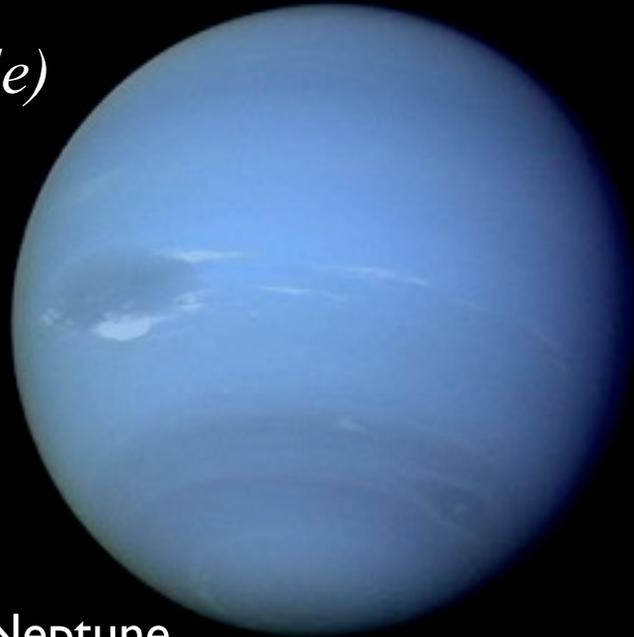


Planet



Mars

(not to scale)

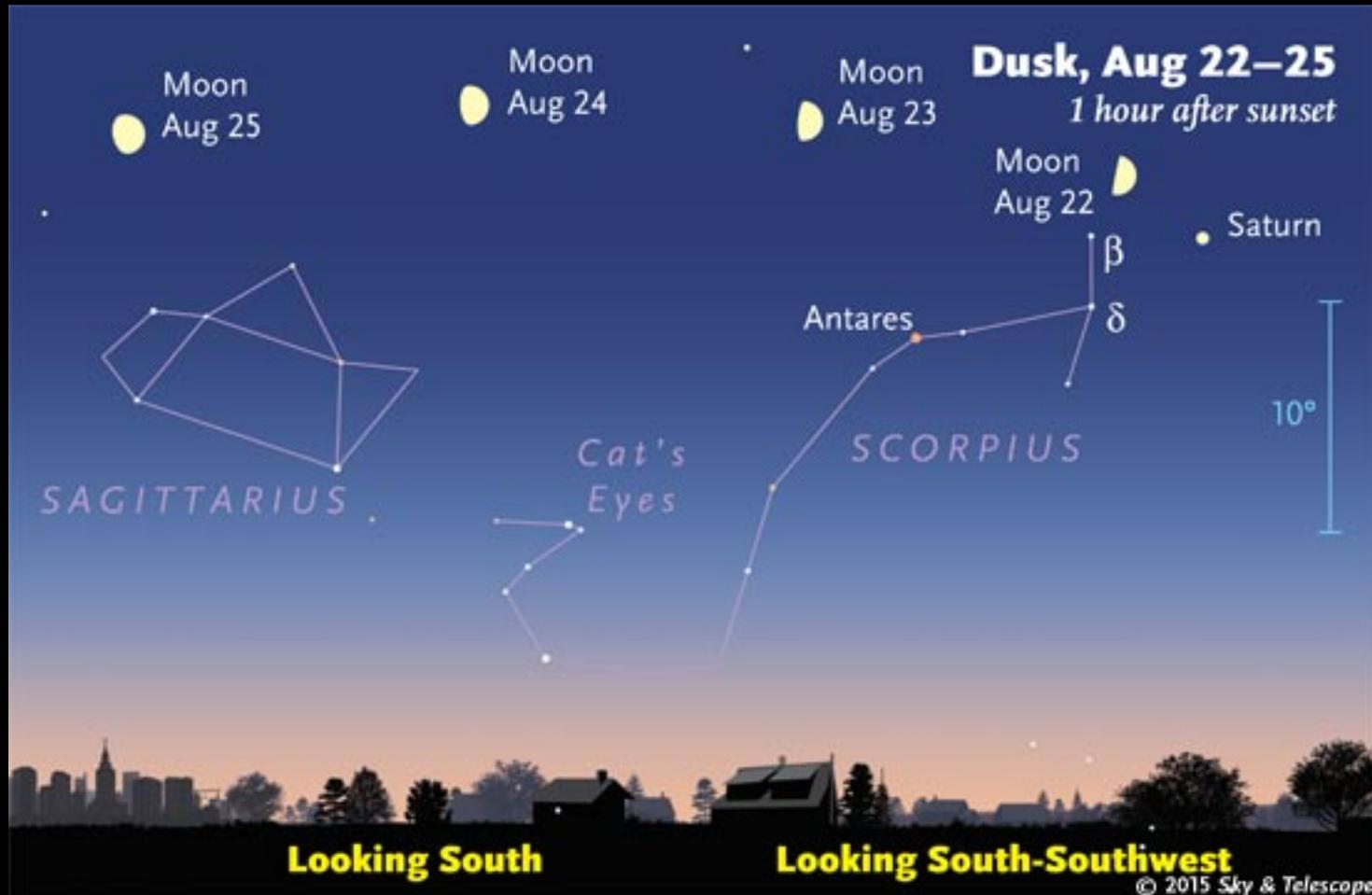


Neptune

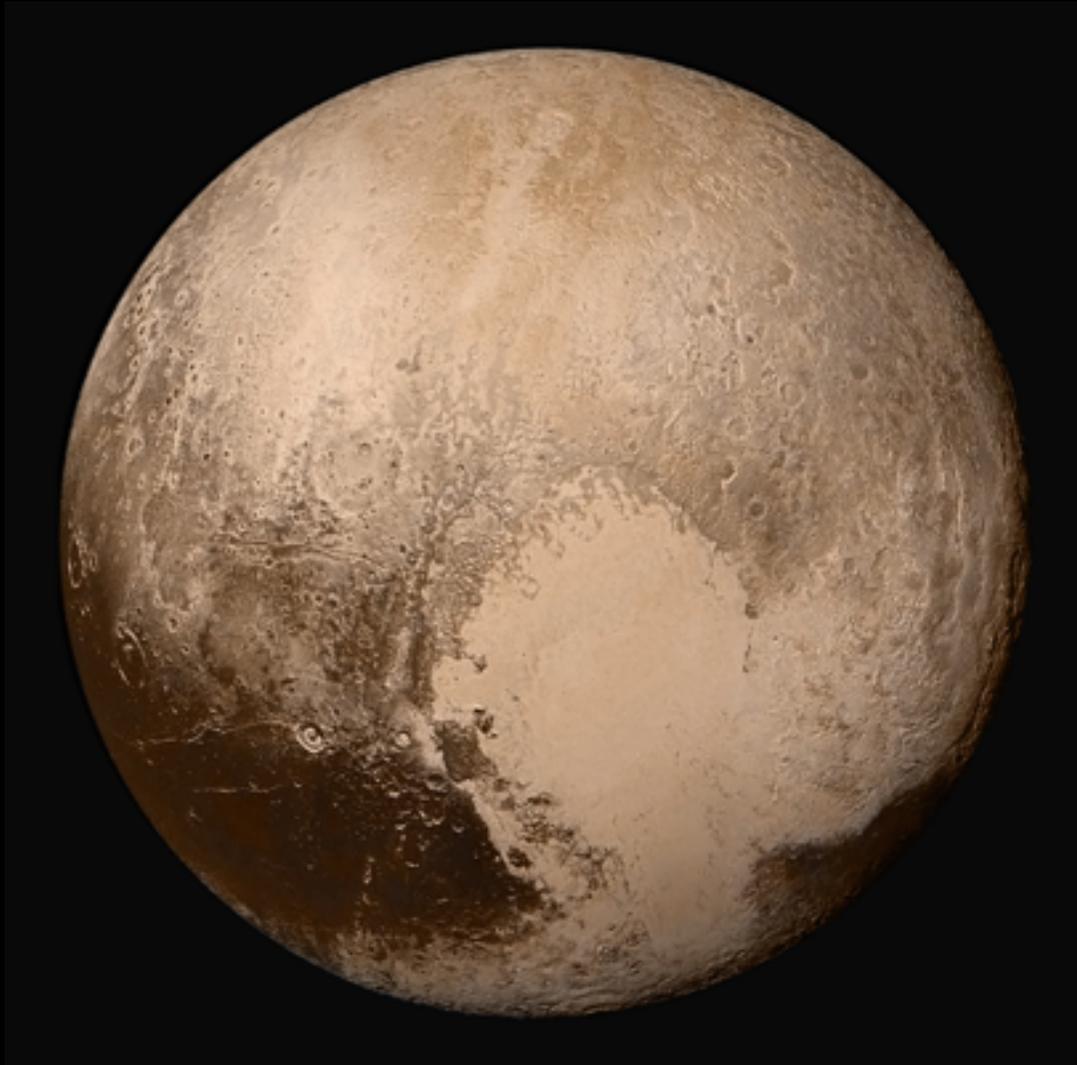
A moderately large object that orbits a star that has cleared its orbit of similar objects.

It shines by reflected light. Planets may be rocky, icy, or gaseous in composition.

Sky to South-Southwest after sunset this week



Dwarf Planet



A moderately small object that orbits a star.
It has not cleared similar objects out its orbit.

A few dwarf planets to scale

Makemake



Dysnomia



Eris



Luna

Charon



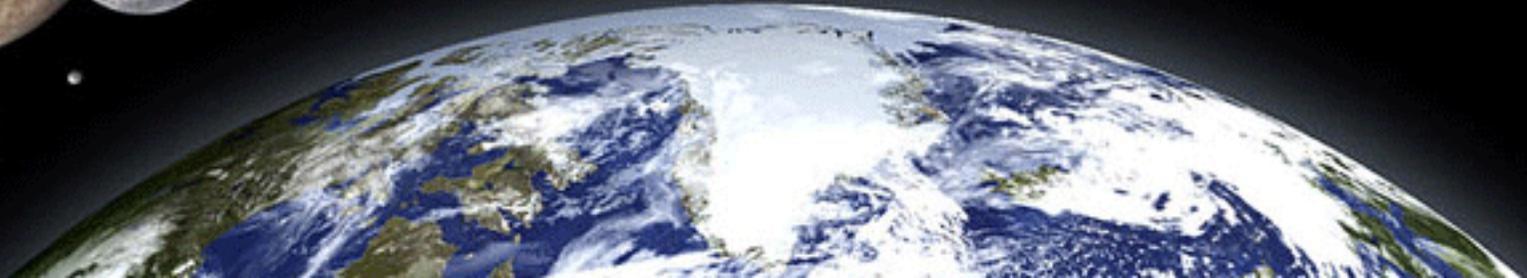
Ceres



Earth



Pluto



Moon (or satellite)

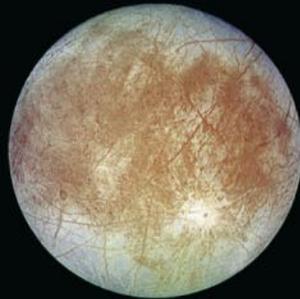
An object that orbits a planet.

Moons of Jupiter

1000 km



Io



Europa



Ganymede



Callisto

Selected Moons of the Solar System, with Earth for Scale

Earth

Mars

**Asteroid
Ida**

Jupiter

Saturn

Uranus

Neptune

Pluto

Eris



Moon

Phobos

Deimos

Dactyl



Io



Europa



Ganymede



Callisto

Mimas

Enceladus



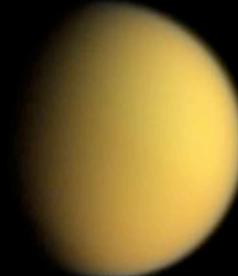
Tethys



Dione



Rhea



Titan

Hyperion



Iapetus

Phoebe

Puck

Miranda



Ariel



Umbriel



Titania



Oberon

Proteus



Triton

Nereid



Charon

Dysnomia



Earth

Scale: 1 pixel = 25 km

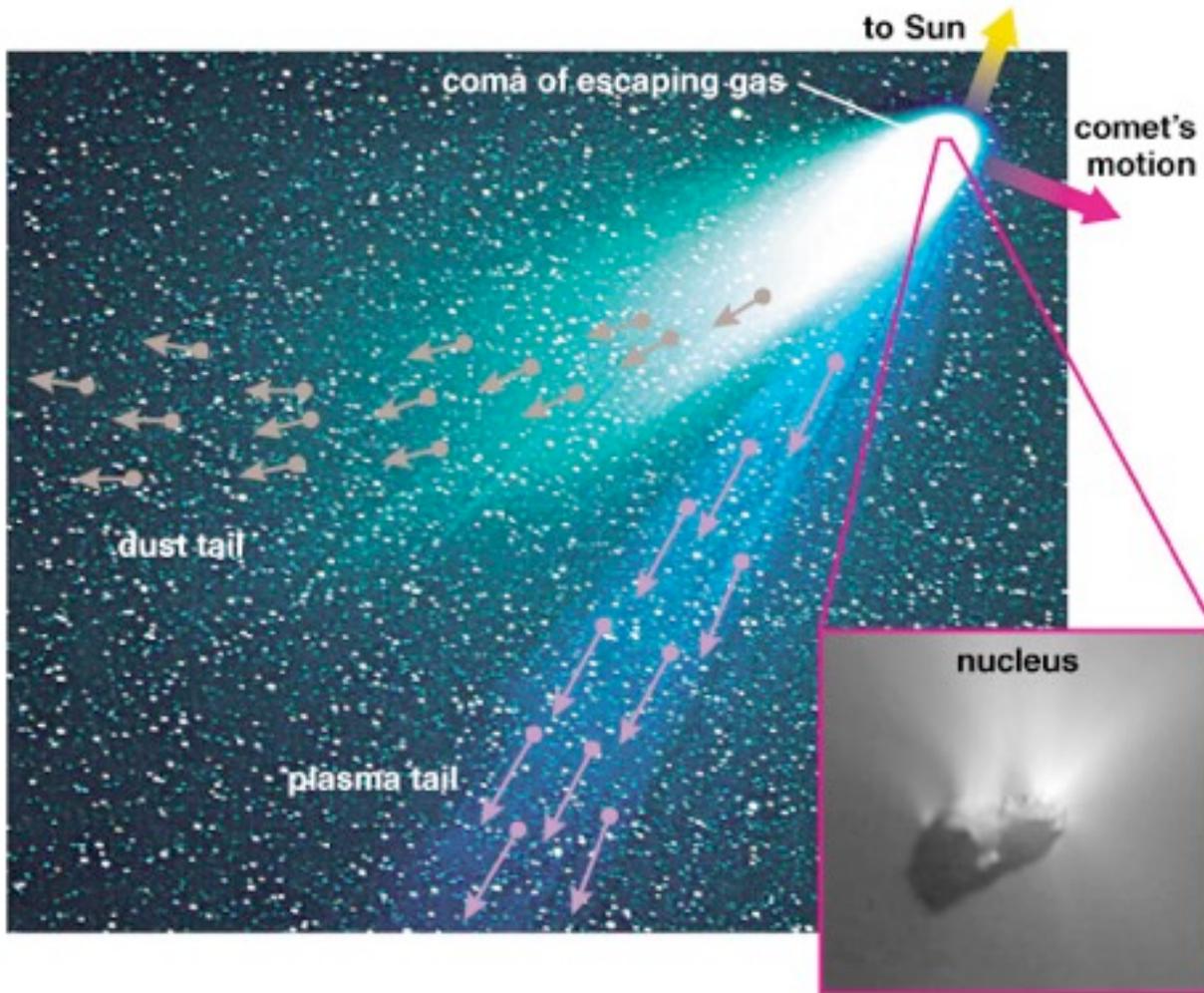
Asteroid

A relatively small
and rocky object
that orbits a star.

Ida



Comet



A relatively small and icy object that orbits a star.

Comet Lovejoy



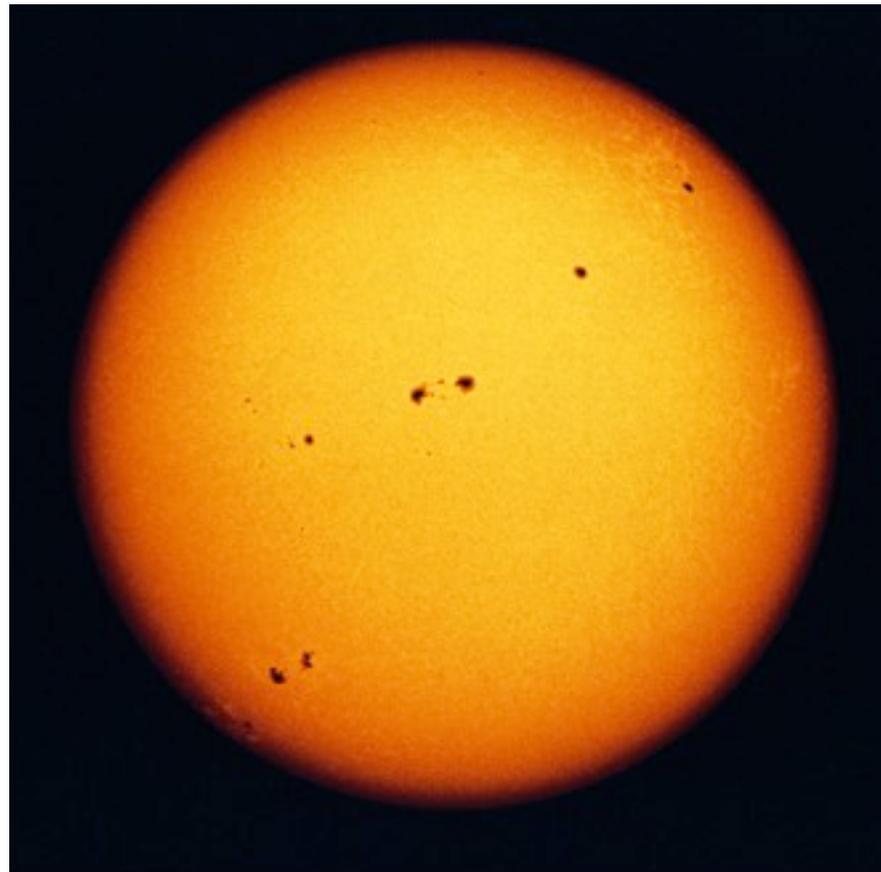


Comet 67P

Imaged by Rosetta from 331 km on 16 August 2015,
just a few days after perihelion (closest approach to the sun).

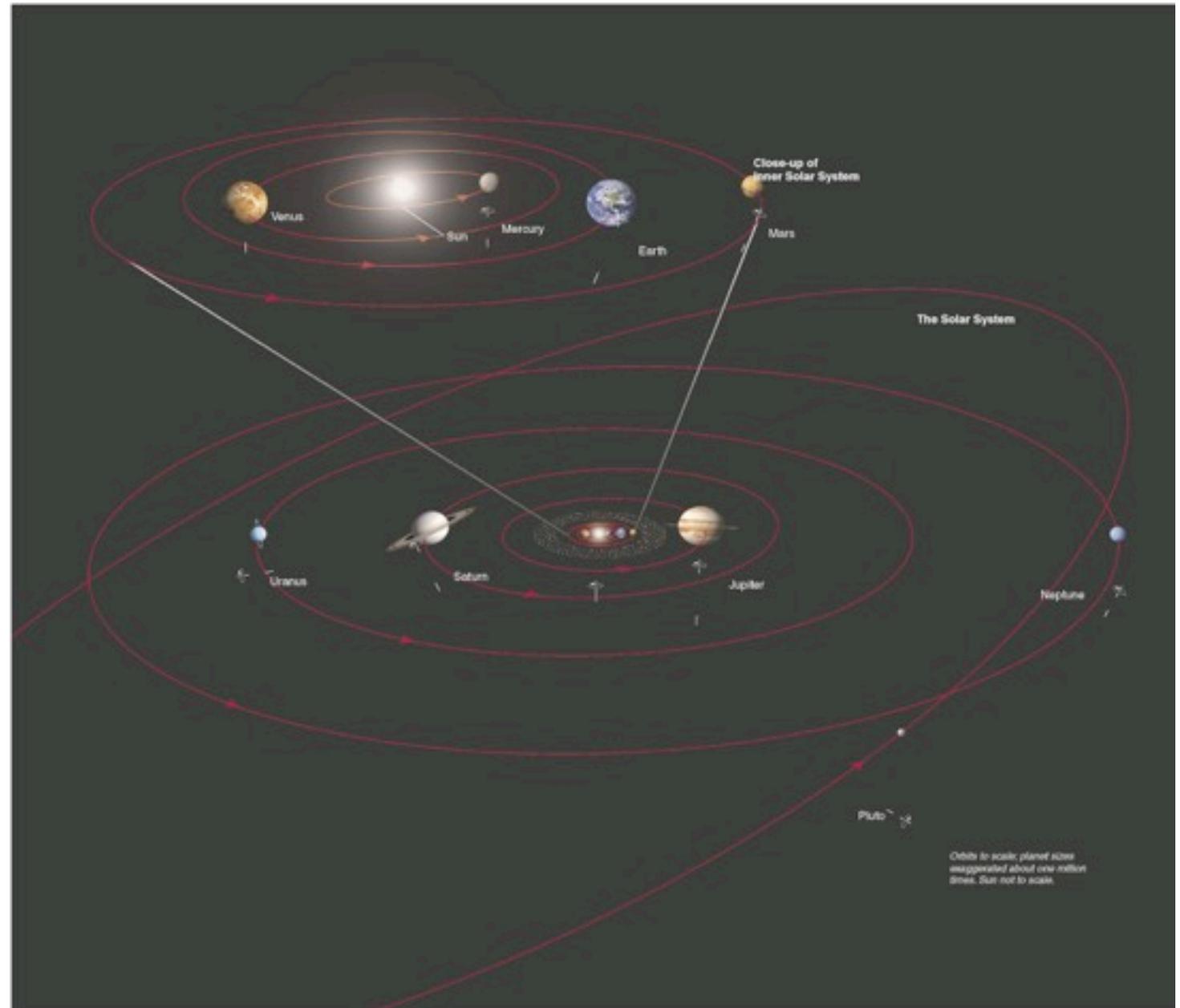
Star

A large, glowing ball of gas that generates heat and light through nuclear fusion



Solar (Star) System

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



Nebula

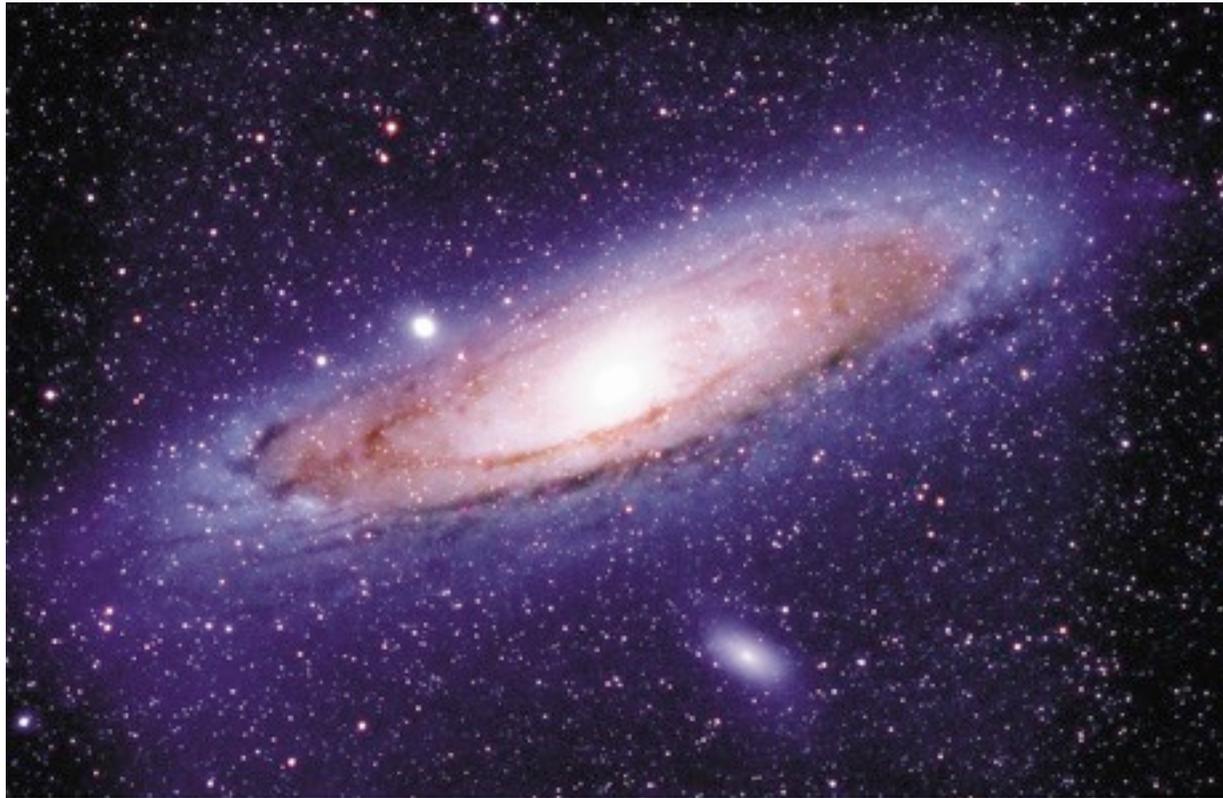


An interstellar cloud
of gas and/or dust

Typically larger than the solar system - may contain many stars

Galaxy

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



100s of billions of stars

Universe

The sum total of all matter and energy;
that is, everything within and between
all galaxies

100s of billions of galaxies...
in the observable portion of the universe

Powers of Ten video

<https://www.youtube.com/watch?v=0fKBhvDjuy0>

