

# This is ASTR430

Syllabus Stuff

Chapter 1

Contents of the Solar System

# ASTR430 in the News!

## The New York Times

Founded 1851 by New York Times

THE NEW YORK TIMES, SUNDAY, JUNE 14, 2003

### Fearless U. Maryland Astronomy Students Save Beloved Professor from Rabid Tick Attack



#### SPORTS

For serious bowlers, junior clubs are now into the thousands of dollars, though beginners can start for a few hundred. The costs are mainly for club memberships, leases, equipment and travel to tournaments. Here is how some expenses may break down:

#### Club membership

There can vary widely. At the Pineson Club in Manhattan, the cost is \$200 a year, as well as a one-time initiation fee of \$200. Membership at the Chicago Athletic

# How Much Do You Remember?

1. Giant Planets

6. Moons of Jupiter

2. Mercury and Mars

7. Moons of Saturn

3. Venus and Earth

8. Moons of Uranus/Neptune

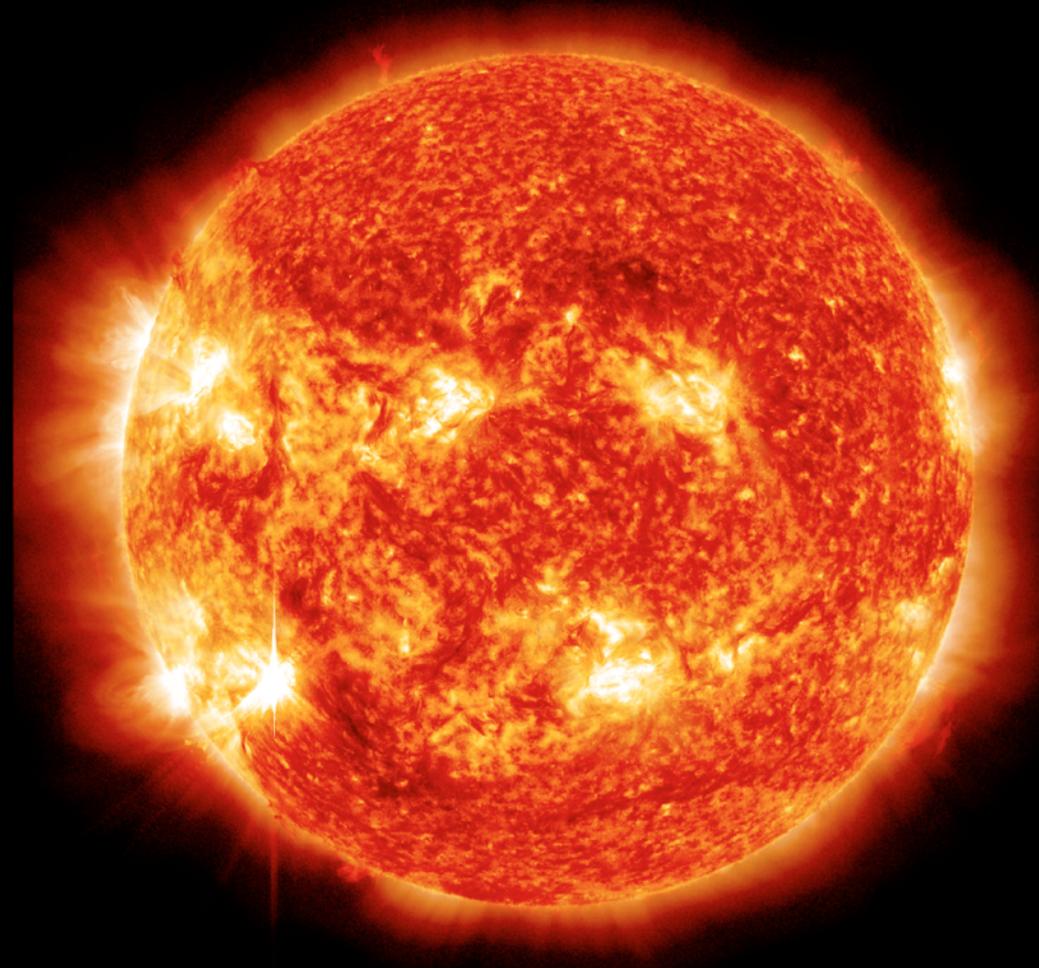
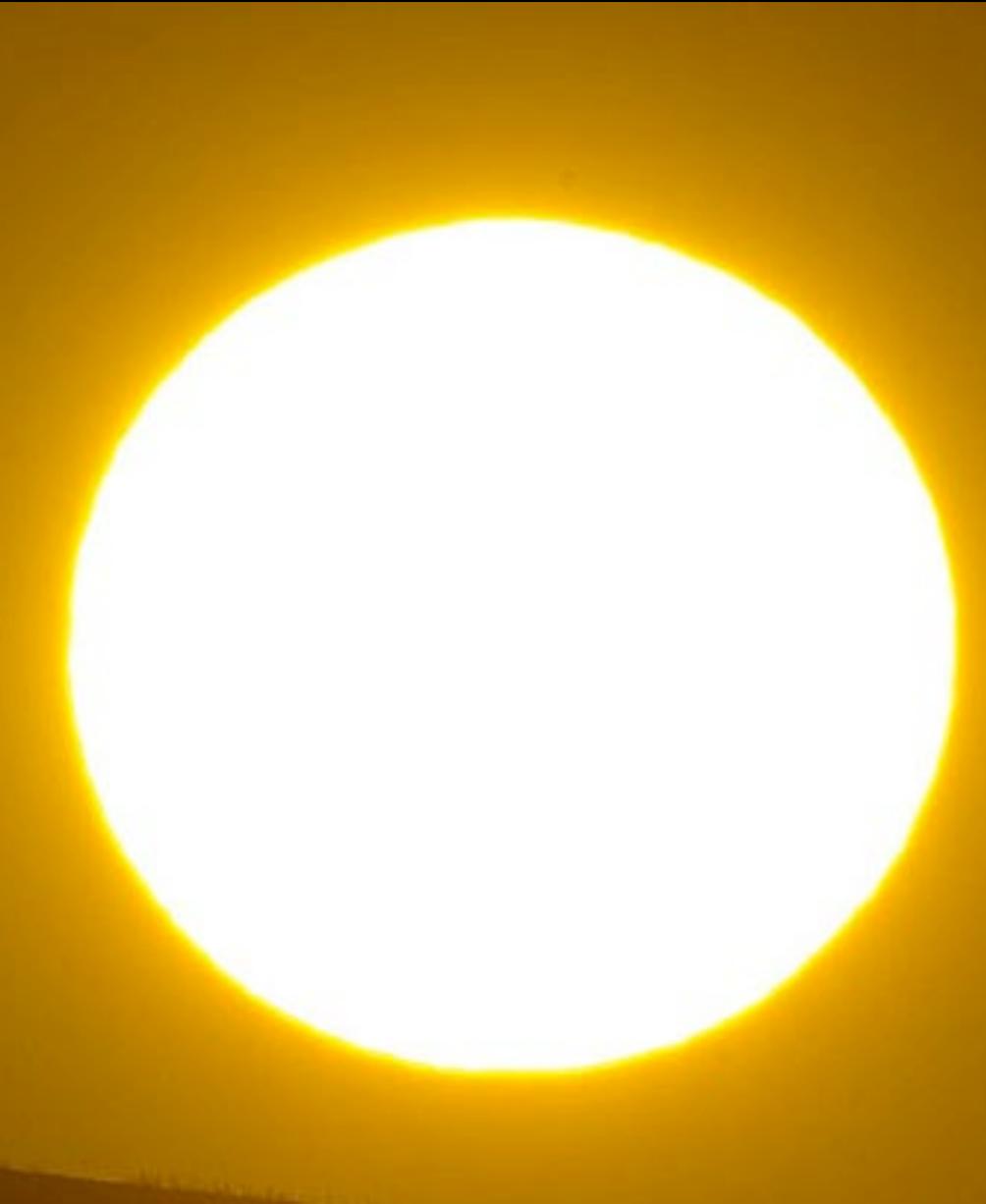
4. Pluto

9. Kuiper Belt and Oort Cloud

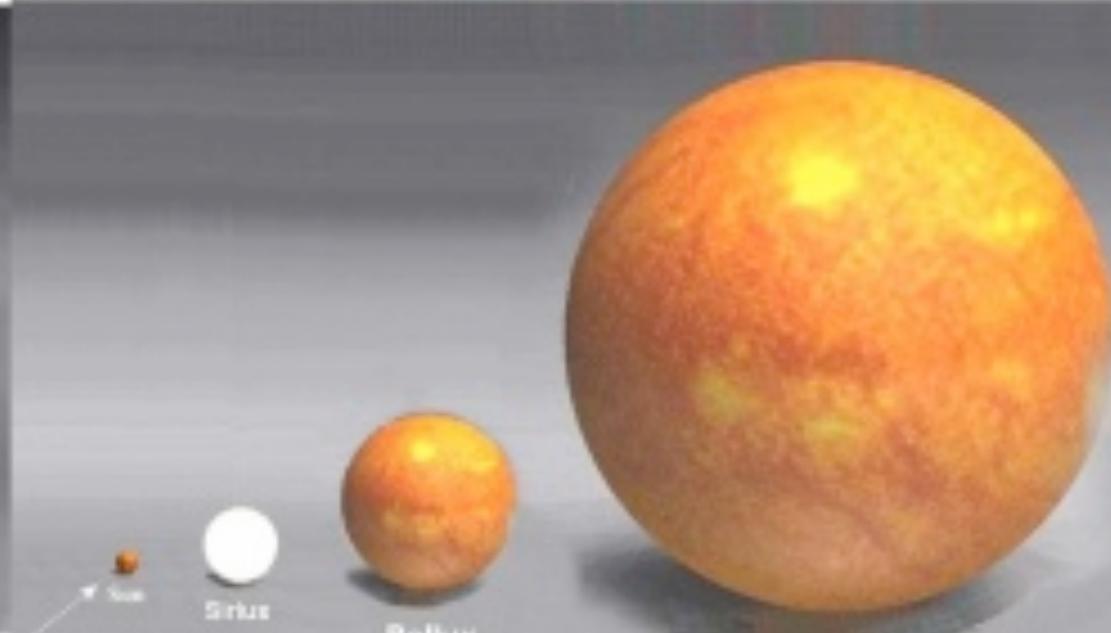
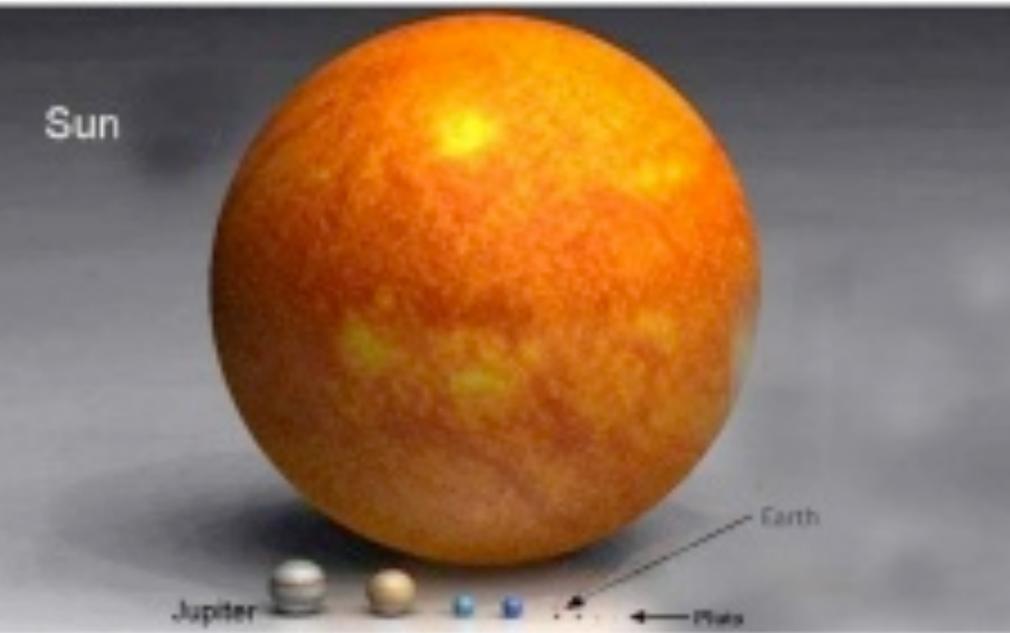
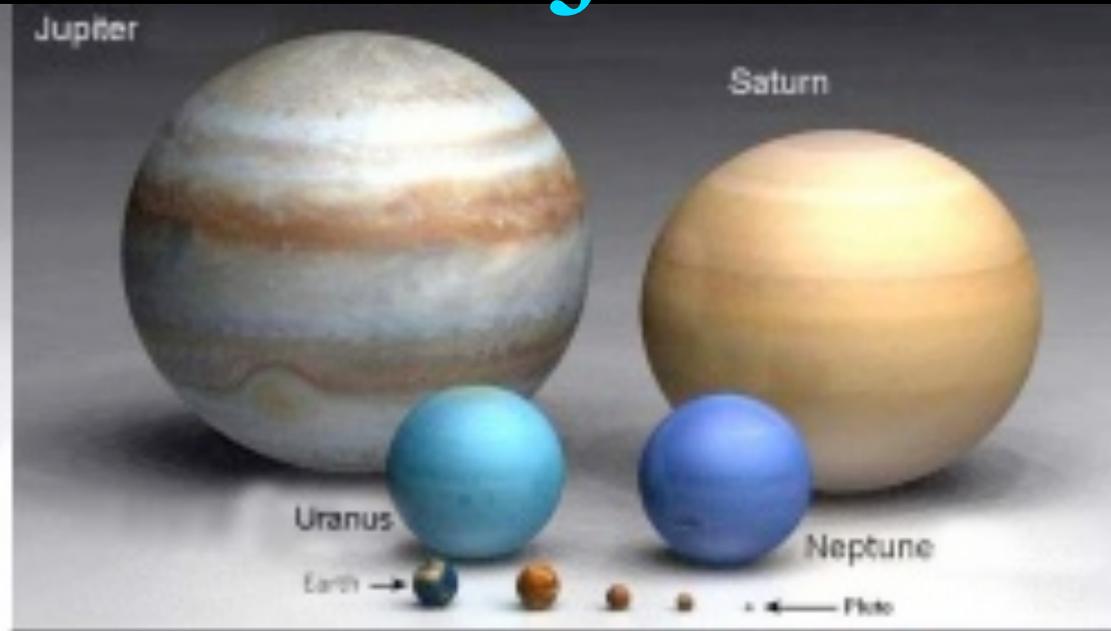
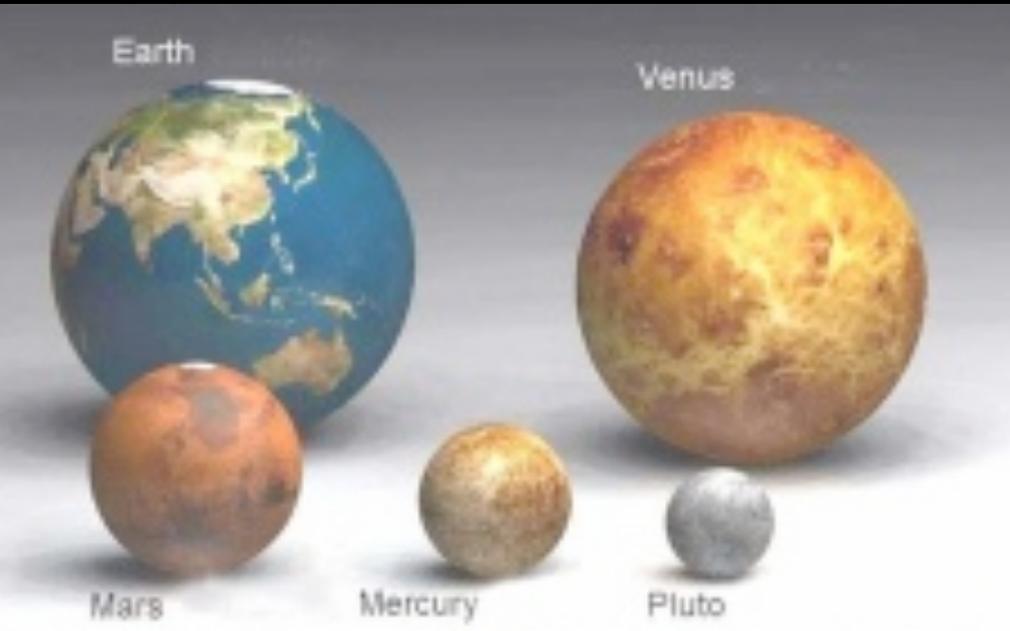
5. Asteroids and Comets

10. The Sun

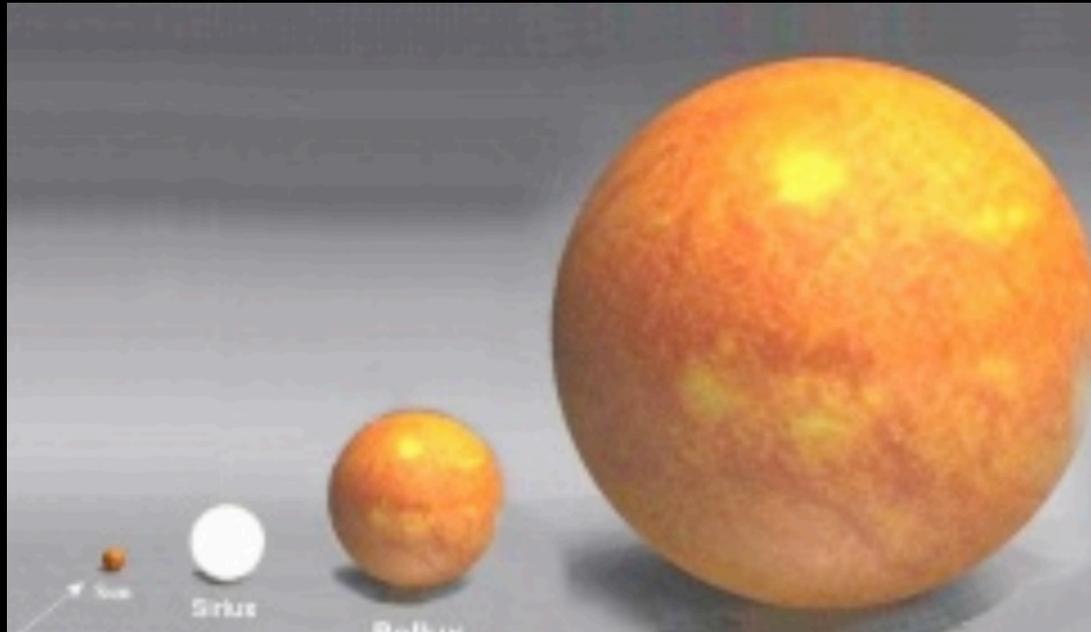
# The Sun



# Relative Sizes of Objects



# Which of these stars are more massive than the Sun?



1. Sirius, a blue giant
2. Next one, a red giant
3. Next one, a bigger red giant



**EARTH (DIA. = 12,756.2 KM)**



**VENUS**



**MARS**



**GANYMEDE**



**TITAN**



**MERCURY**



**CALLISTO**



**IO**



**MOON**



**EUROPA**



**TRITON**



**PLUTO**



**TITANIA**



**RHEA**



**OBERON**



**IAPETUS**



**CHARON**



**UMBRIEL**



**ARIEL**



**DIONE**



**TETHYS**

**ENCLADEUS**

**PROTEUS**



**MIRANDA**

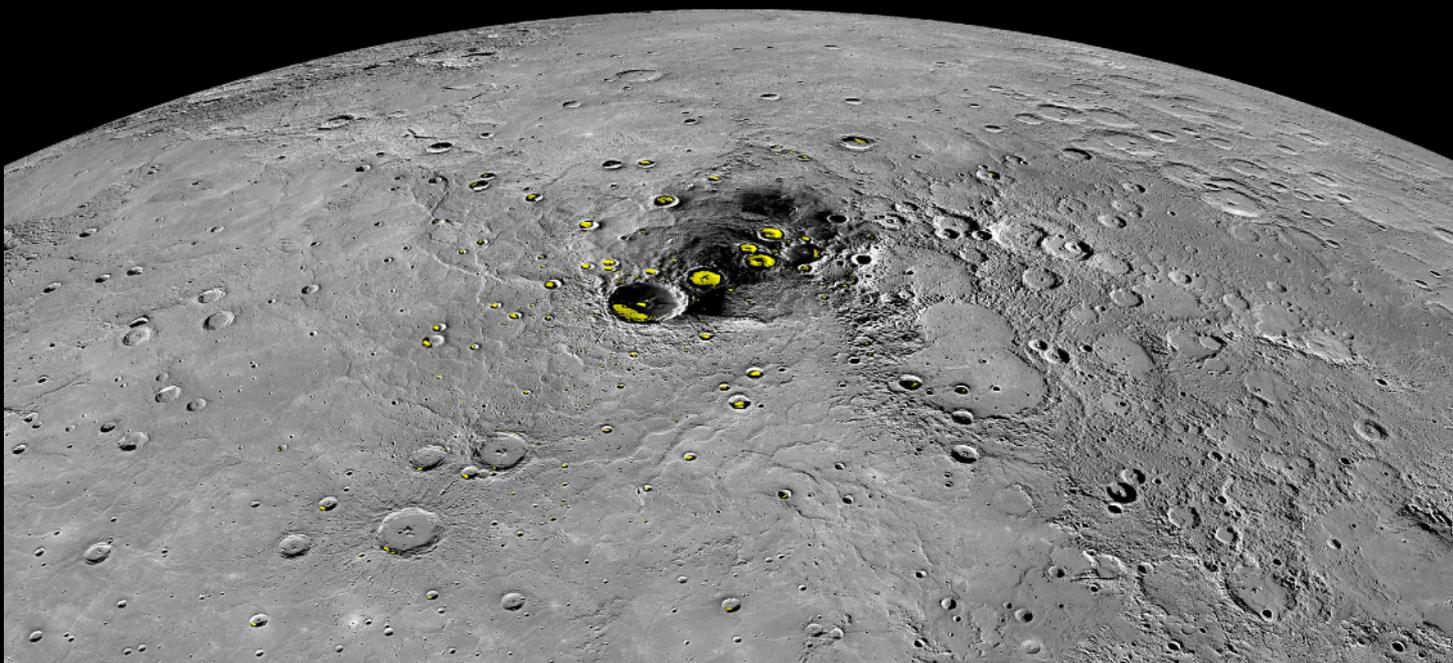
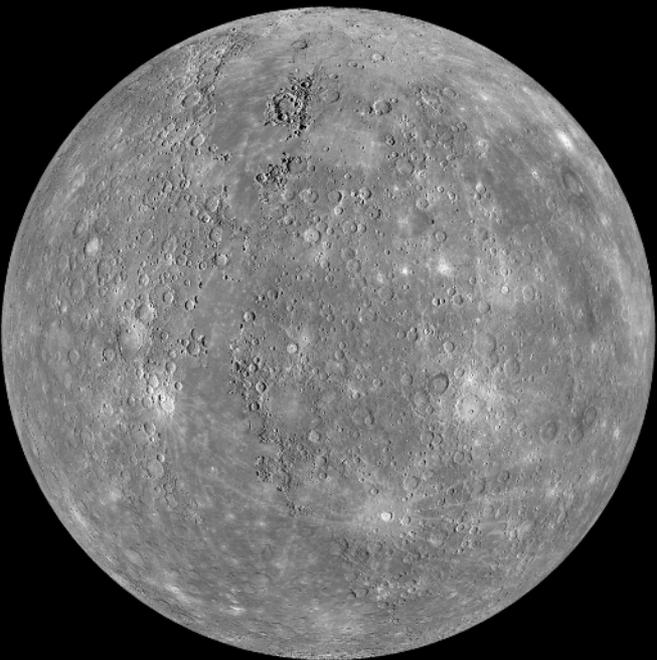


**MIMAS**

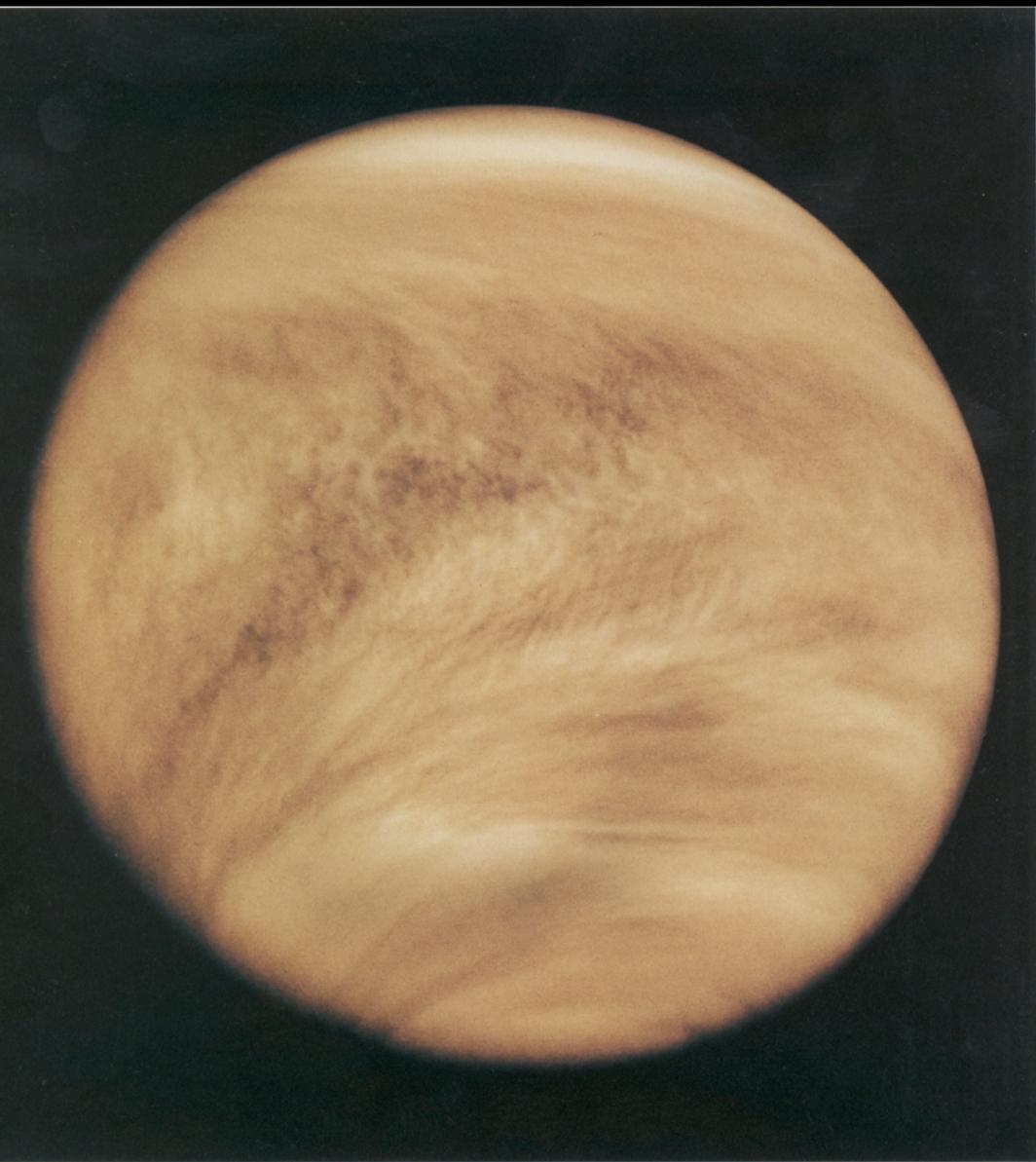
(DIA. = 392 KM)



# Mercury



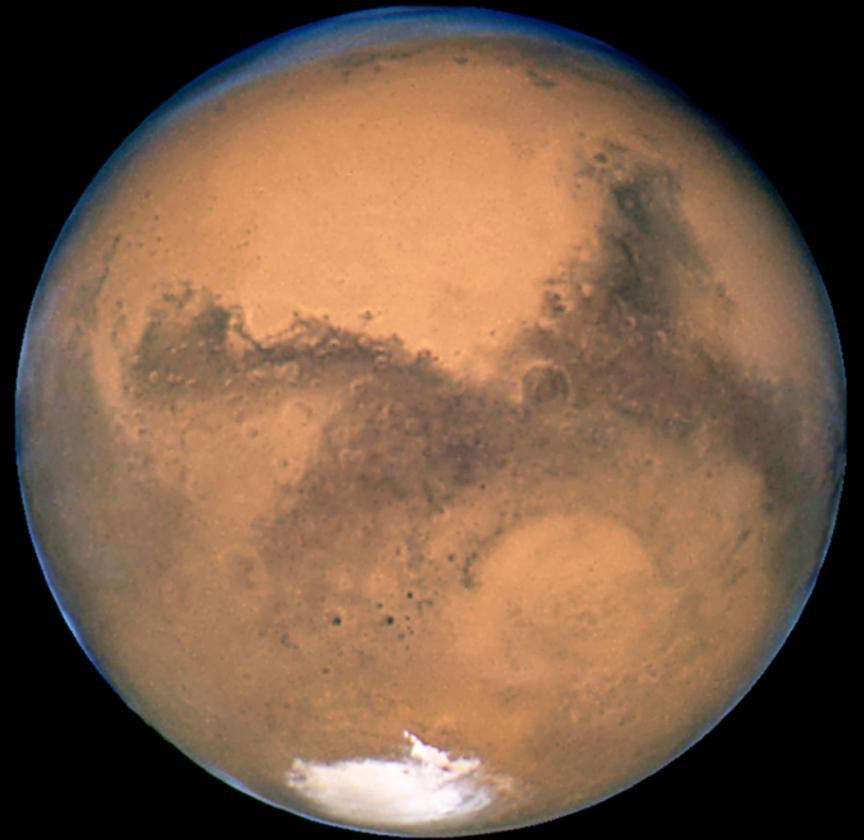
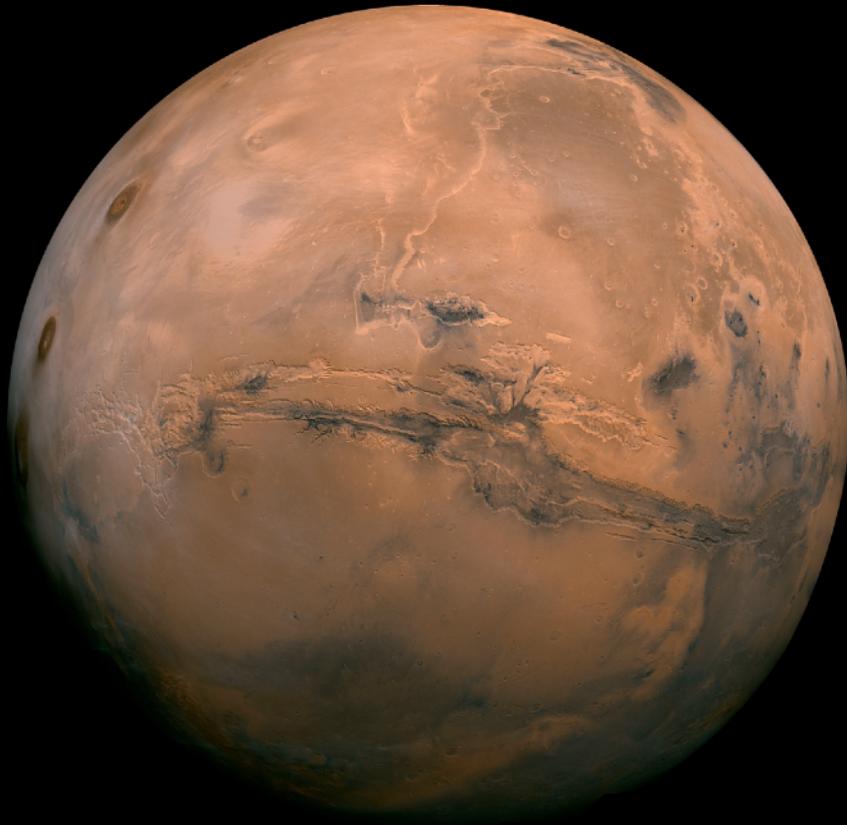
# Venus



# Earth



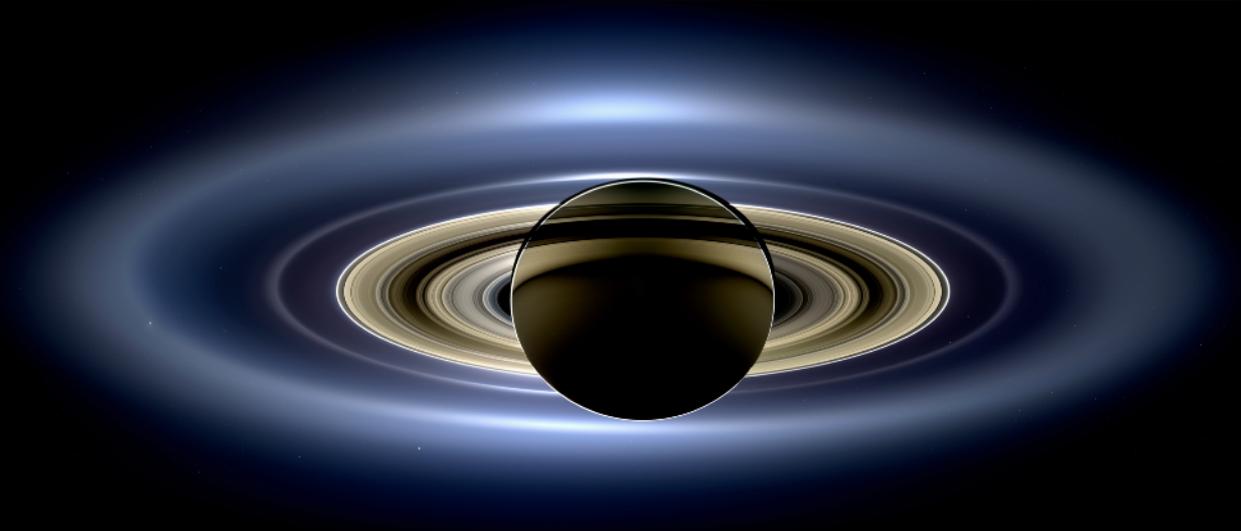
# Mars



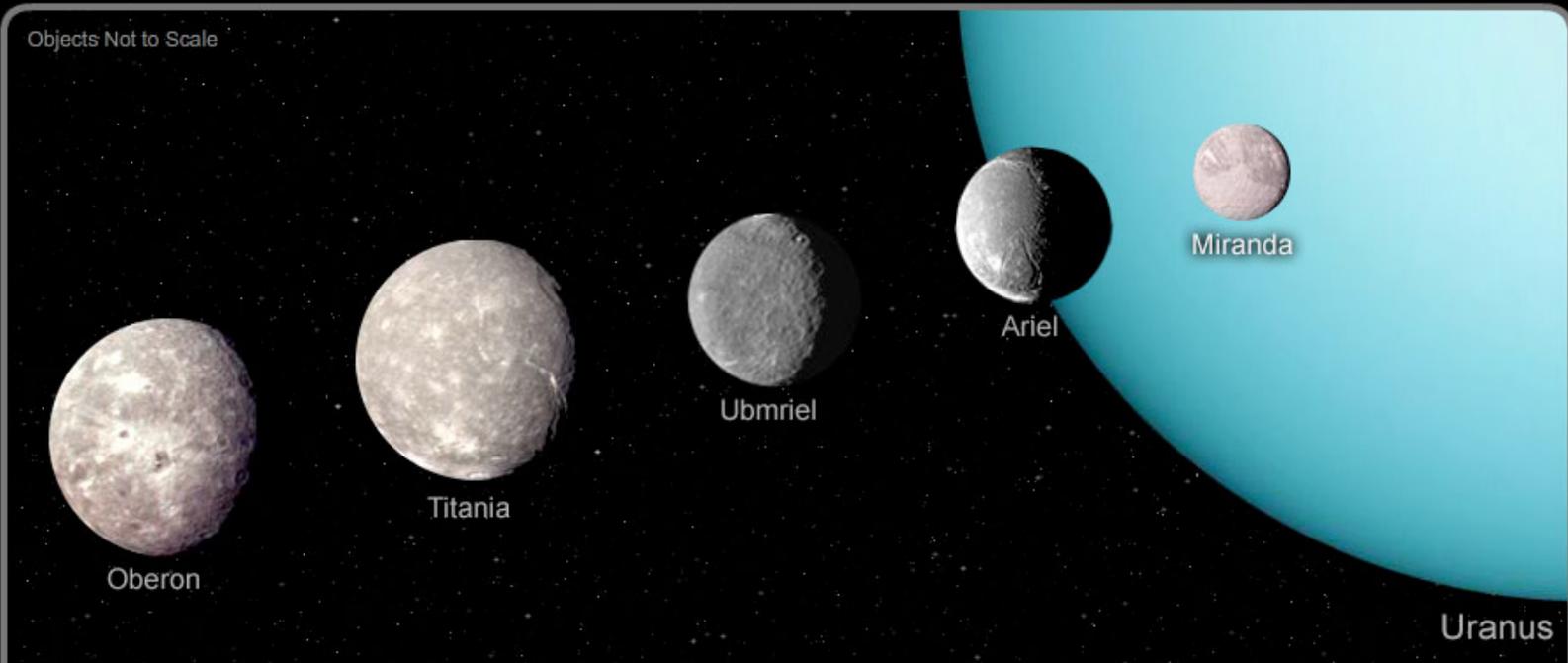
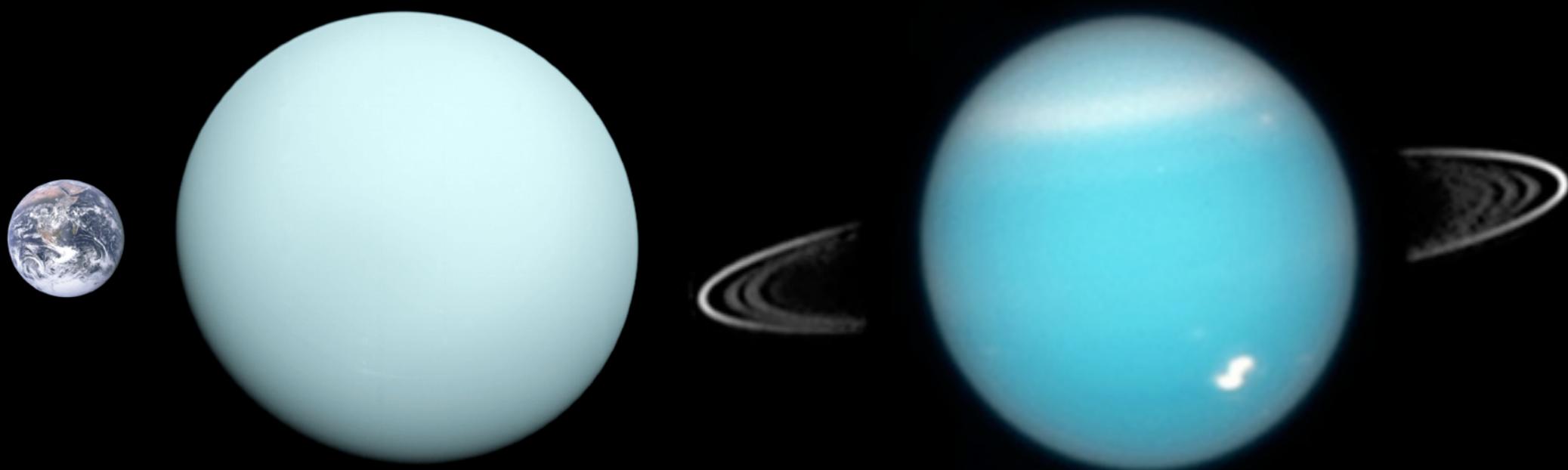
# Jupiter



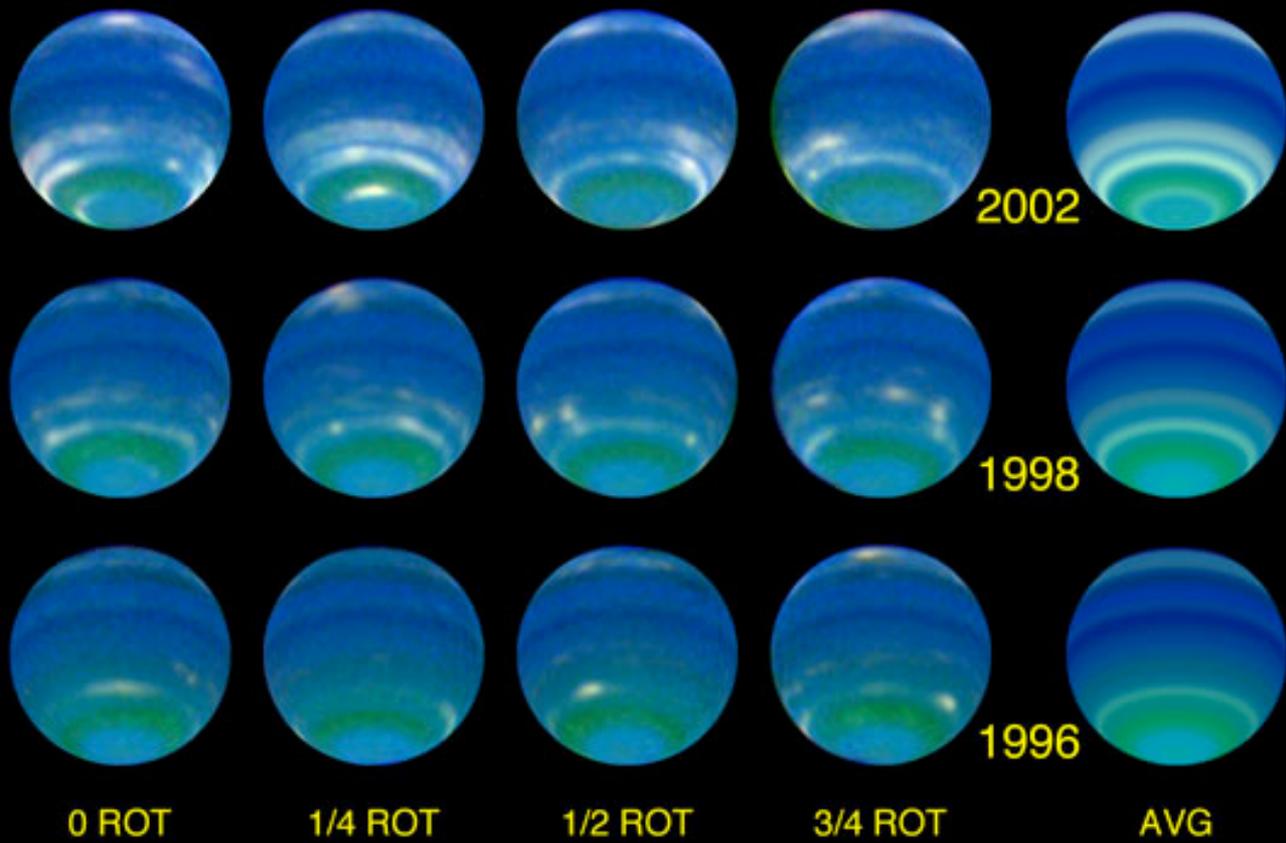
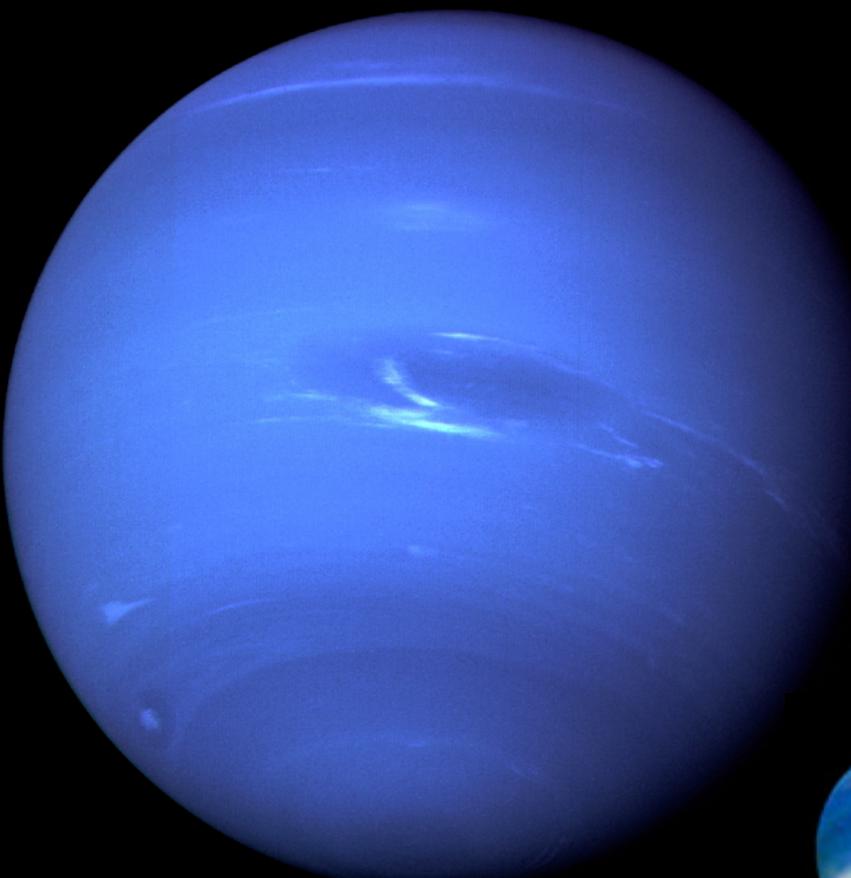
# Saturn



# Uranus



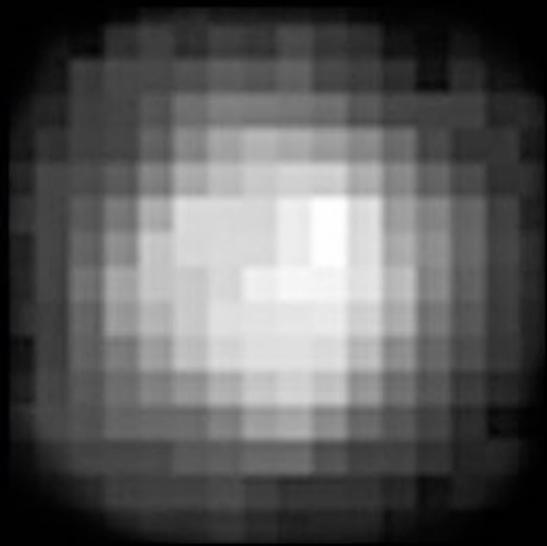
# Neptune



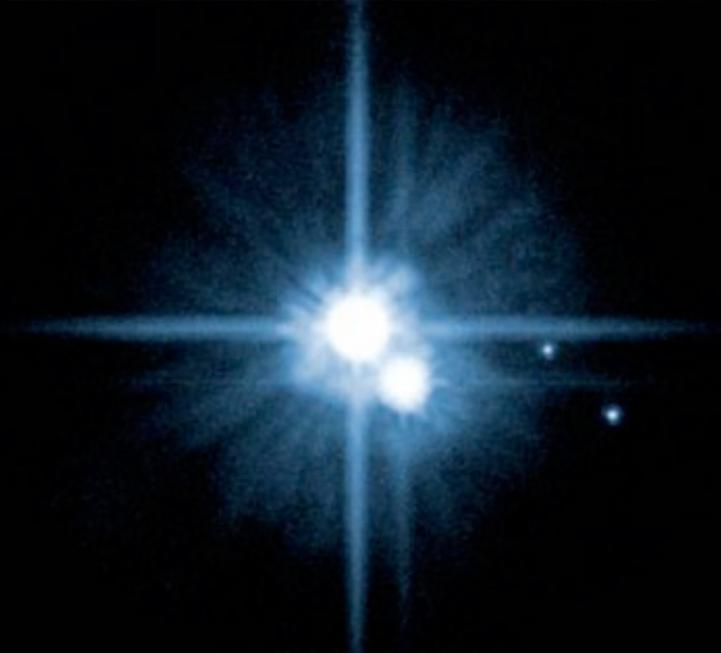
# Pluto



REUTERS/SCIENCE PHOTO LIBRARY



1996

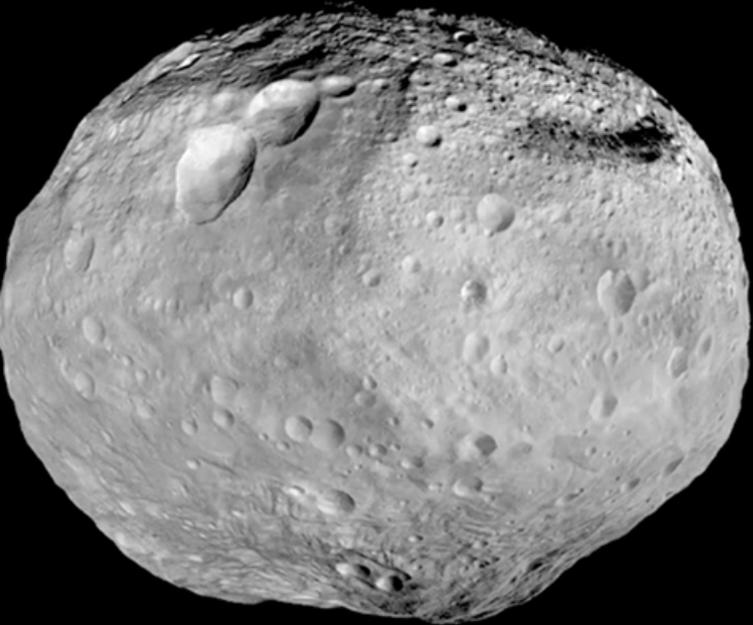


2005



2015

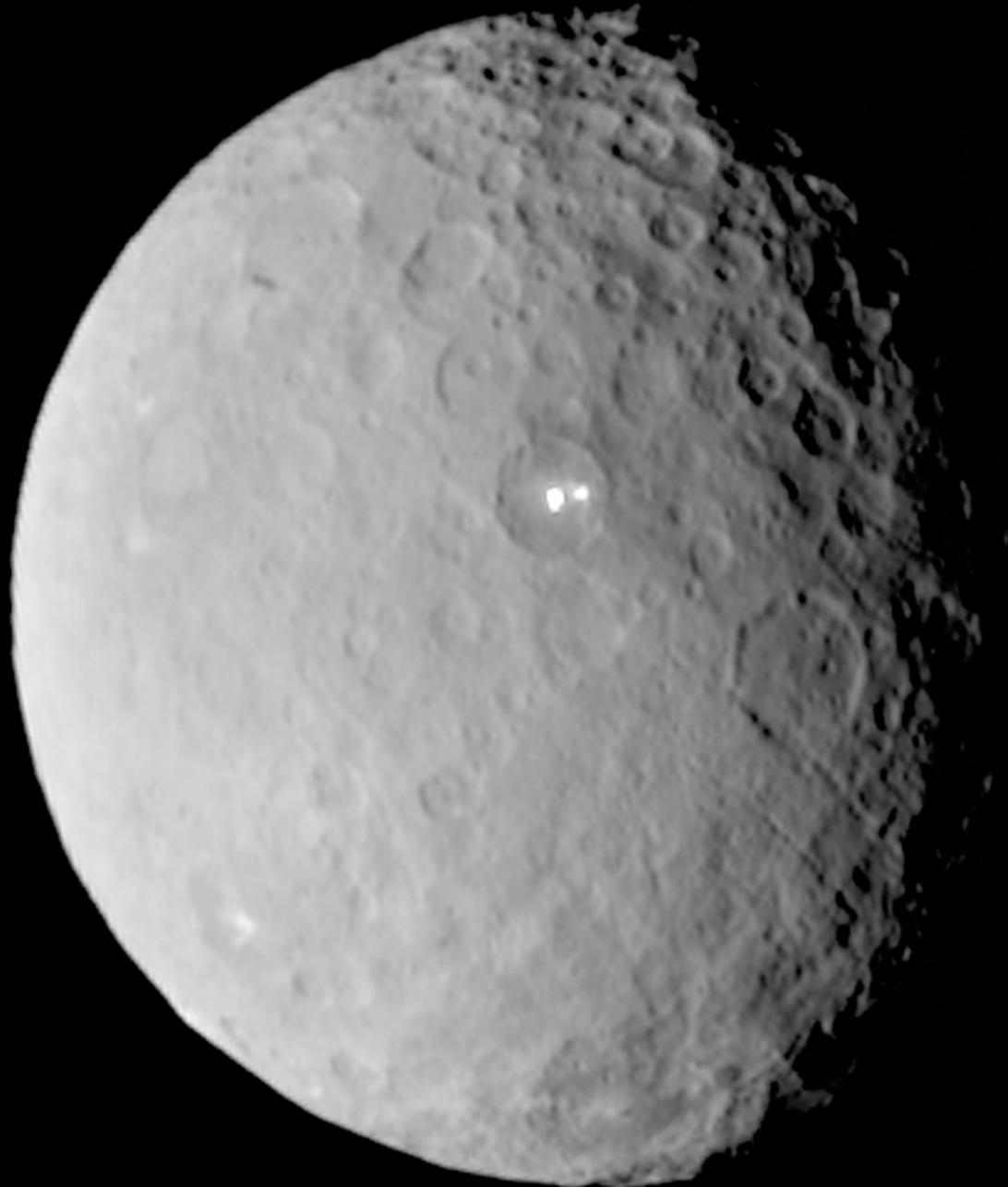
# Asteroids



Vesta



Eros



Ceres

# Comets



# Kepler's Laws

1. The planets move along elliptical orbits with the Sun at one focus.

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1. The planets move along elliptical orbits with the Sun at one focus.
2. The radius vector  $r$  sweeps out equal areas in equal time.
3. The period and semi major axis of a planet are related by  $P^2 = a^3$ .

# Question Generator

1. Ask one ASTR430 question of your group. Talk about the questions and choose an interesting one to bring forward.