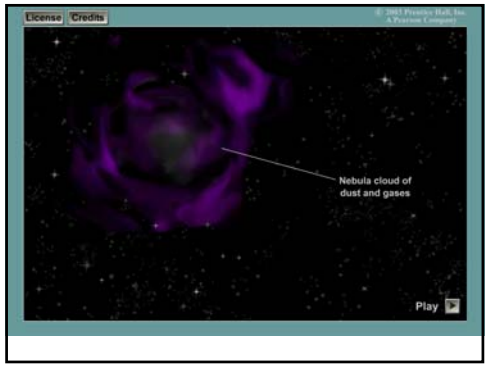
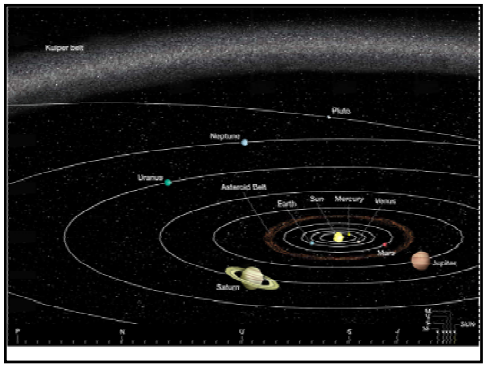
The Solar System





Planets drawn to scale

- Distances not to scale
- Earth approximately 12,800 km diameter
- Earth is about 150,000,000 km from Sun

Composition of planets

- Rocky material
  - Silicate minerals
  - Metal compounds—mostly iron
- Ices—note the ‘s’
  - Ammonia, methane, carbon dioxide, water
- Gases
  - Predominantly hydrogen and helium

Types of planets

- Terrestrial planets
  - Mostly silica and metallic compounds
  - Very little amount of gases and ices
- Jovian planets—‘like Jupiter’
  - Lots of gases and ices
  - Substantial amounts of rocky material in their core—silica and metal

http://cnr2.kent.edu/~manley/copernicus_crater_area.jpg

Mercury

http://seds.lpl.arizona.edu/nineplanets/nineplanets/mercury.html

Mariner 10

- 1973 launch
- Venus and Mercury in 1974

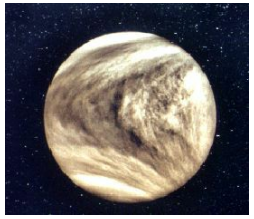
http://pds.jpl.nasa.gov/planets/captions/mar10/m1004.htm

Venus

http://www.solarviews.com/raw/venus/venusvis.gif

Venus Clouds

- Ultraviolet light photograph



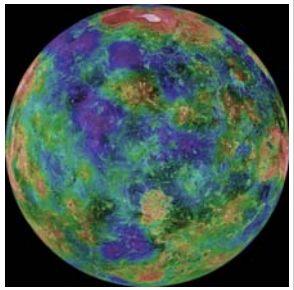
http://seds.lpl.arizona.edu/nineplanets/nineplanets/gif/Venus.jpg

Venus surface features

- Magellan radar image mosaic

Venus surface features

- False color Magellan mosaic



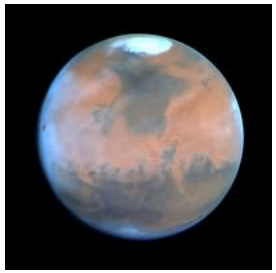
http://www.solarviews.com/browse/venus/venus1.jpg

Venera 9 Photos

http://nssdc.gsfc.nasa.gov/image/planetary/venus/venera9-10.jpg

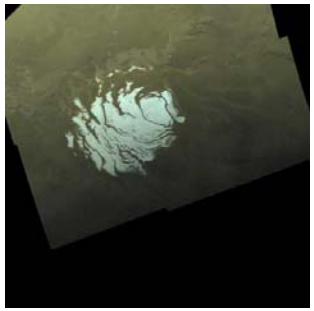
Mars

- Photo by Hubble



http://hubblesite.org/newscenter/newsdesk/archive/releases/1995/16/image/b

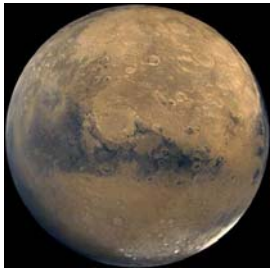
Mars South Polar Ice-cap



http://pds.jpl.nasa.gov/planets/captions/mars/marssp.htm

Schiaparelli Crater

- 461 km diameter
- CO_2 frost at lower right
- Mosaic from Viking



http://pds.jpl.nasa.gov/planets/captions/mars/schiap.htm

Volcanoes on Left

http://pds.jpl.nasa.gov/planets/captions/mars/valmar.htm

Clouds over peaks

- Mosaic by Mars Global Surveyor MOC

http://pds.jpl.nasa.gov/planets/captions/mars/global.htm

Olympus Mons

- 624 km diameter
- 25 km high

http://pds.jpl.nasa.gov/planets/captions/mars/olympus.htm

Valles Marineris

http://pds.jpl.nasa.gov/planets/captions/mars/valmar.htm

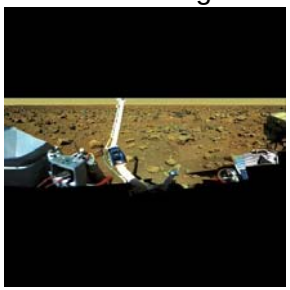
Water Features on Mars

http://www.solarviews.com/raw/mars/network.gif

Evidence of water seeps on Mars?

http://pds.jpl.nasa.gov/planets/captions/mars/water.htm

View from Viking Lander

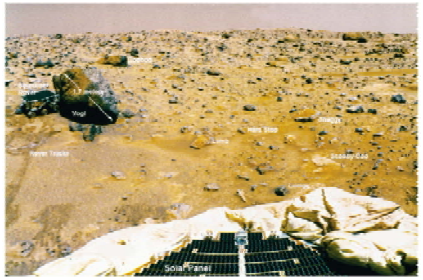


http://pds.jpl.nasa.gov/planets/captions/mars/vfmos21.htm

View from Viking Lander

http://pds.jpl.nasa.gov/planets/captions/mars/vlpan22.htm

View from Sojourner Lander

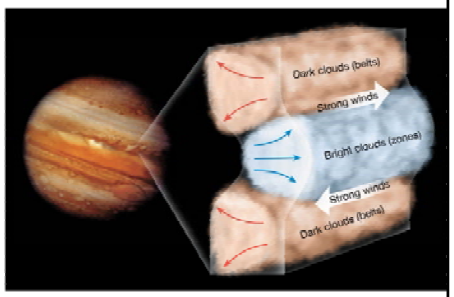


- Deimos

http://pds.jpl.nasa.gov/planets/captions/mars/phobos.htm

Jupiter (Earth for Scale)

Jupiter's cloud belts



Hubble view of Jupiter

- Arrow shows entry point of Galileo probe, Dec. 1995

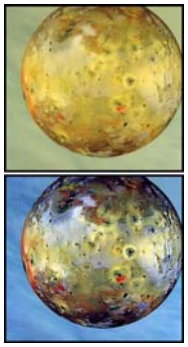
- http://www2.jpl.nasa.gov/galileo/hstimages.html

Link to rotating view of Jupiter http://www.solarviews.com/raw/jup/vjupitr5.mpg

- http://photojournal.jpl.nasa.gov/catalog/PIA00743

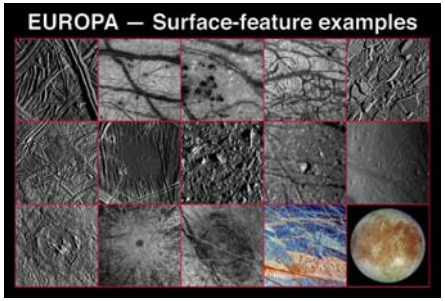
Io

- True color on top
- Enhanced color on bottom
- Surface covered with calderas (like Crater Lake…without the water!)



- http://www.nineplanets.org/io.html

Volcanic Plume on Io



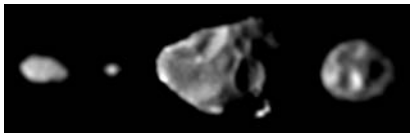
- http://photojournal.jpl.nasa.gov/catalog/PIA00746

Ganymede

Callisto

- http://www.solarviews.com/cap/jup/callist1.htm

Four Inner moons of Jupiter



- http://www2.jpl.nasa.gov/galileo/ganymede/PIA01076.html

- Metis, Adrastea, Amalthea, Thebe
- Amalthea is 247 km across
- Photos by Galileo probe, 1996-97

Jupiter's outermost ring

- http://www2.jpl.nasa.gov/galileo/callisto/p48188.html

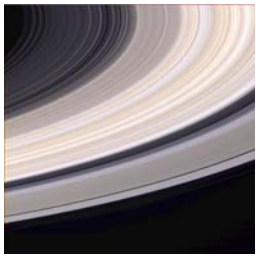
- Discovered by Voyager I
- This photo by Galileo space probe--November 9, 1996

Saturn

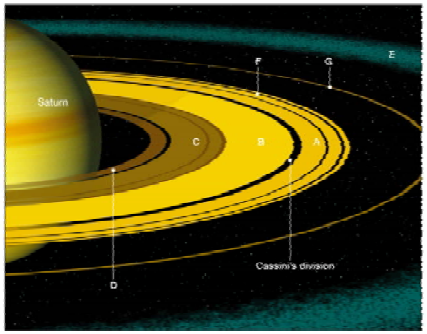
- http://saturn.jpl.nasa.gov/overview/index.cfm
- http://www.nineplanets.org/saturn.html

- Voyager I, II went there in 1980, 81
- This photo by Cassini in 2004

True-color image of Saturn's rings

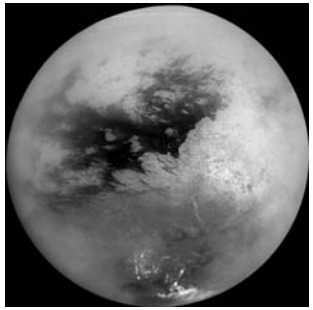


http://saturn.jpl.nasa.gov/multimedia/images/image-details.cfm?path=../multimedia/images/rings/images/PIA05421.jpg&type=image

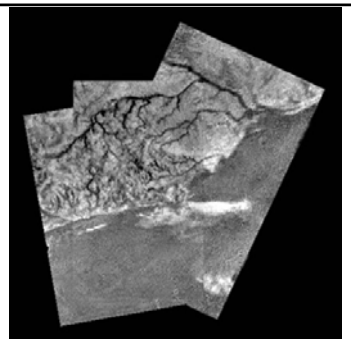


Saturn and some of its moons

Titan

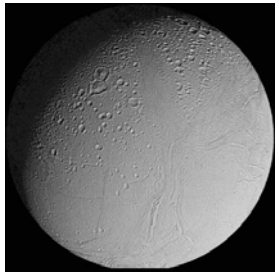


- http://ciclops.lpl.arizona.edu/view.php?id=575



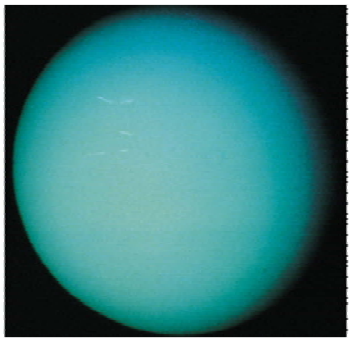
- http://www.esa.int/SPECIALS/Cassini-Huygens/SEMHB881Y3E_1.html

Enceladus

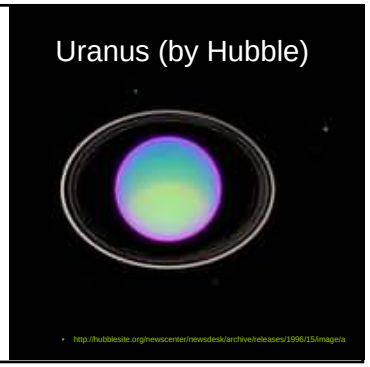
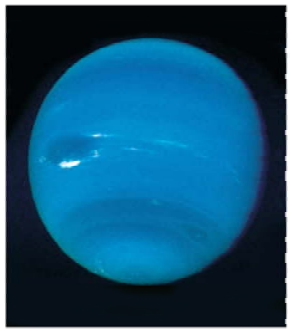


- http://pds.jpl.nasa.gov/planets/captions/saturn/encelads.htm

Uranus



Uranus (by Hubble)



Neptune