Survey of the Solar System

The Sun

Giant Planets

Terrestrial Planets

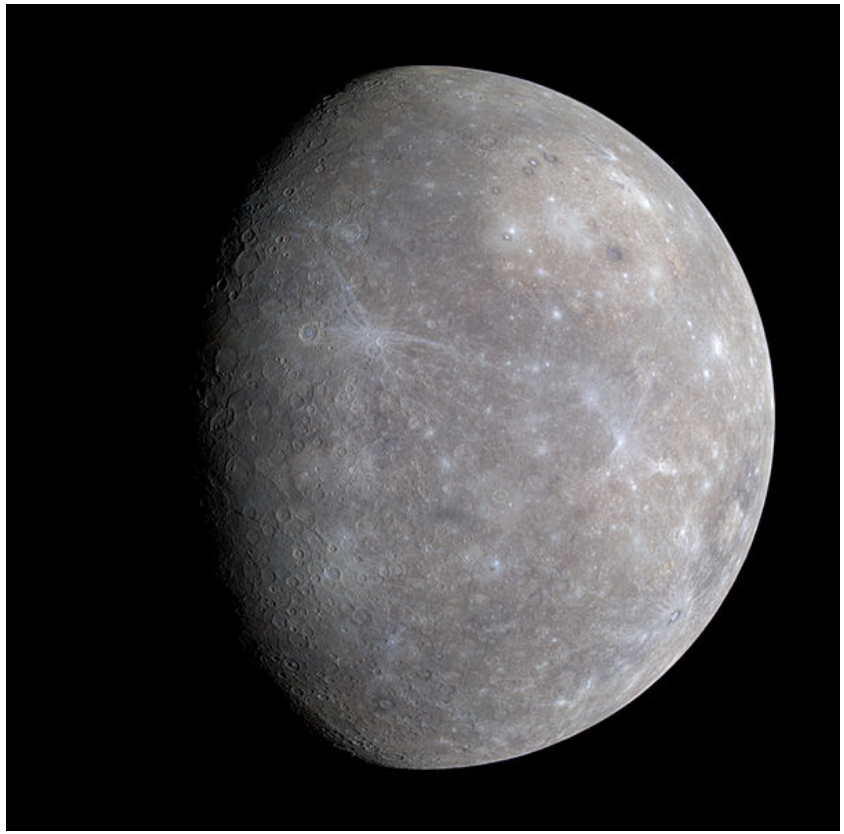
Minor Planets

Satellite/Ring Systems

Terrestrial Planets

Mercury

Mass	~ 3.3×10^{23} kg
Radius	~ 2440 km
Orbit	~ .39 AU
Rotation	~ 58.6 days



New false color image from the Messenger mission

Terrestrial Planets

Mercury

Rocky surface → 4-5x higher density than giant planets, iron rich

Diffuse 'heavy' Atmosphere

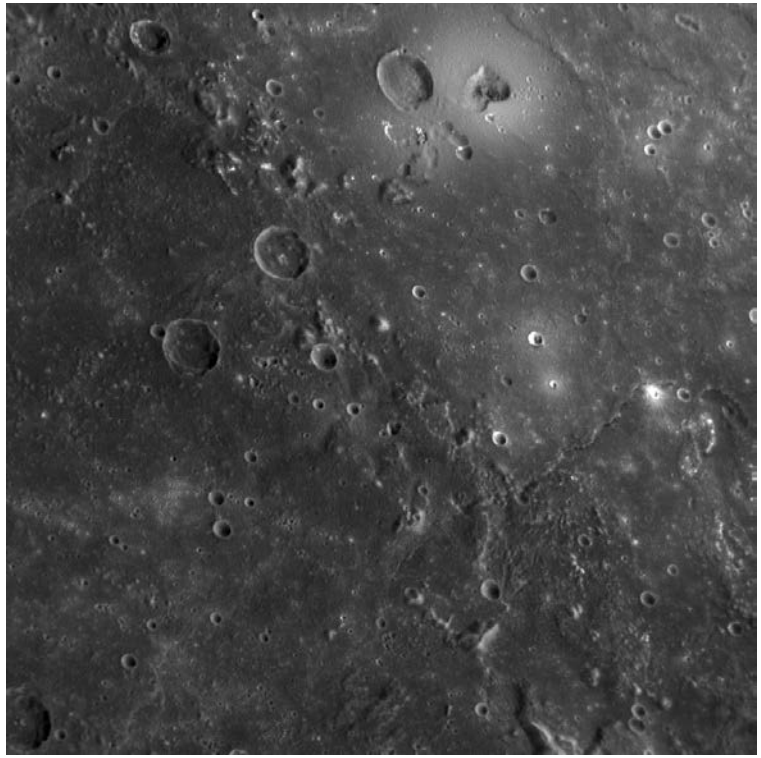
No satellites

Internal magnetic field

Slow rotation

No Rings

Aurora ??

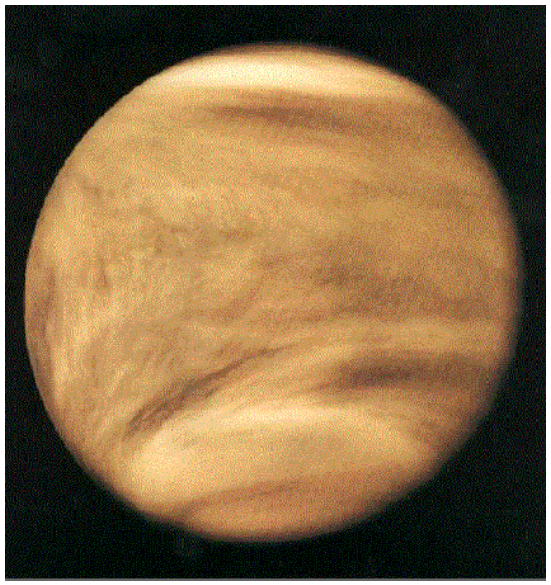


Messenger image of volcanic vent

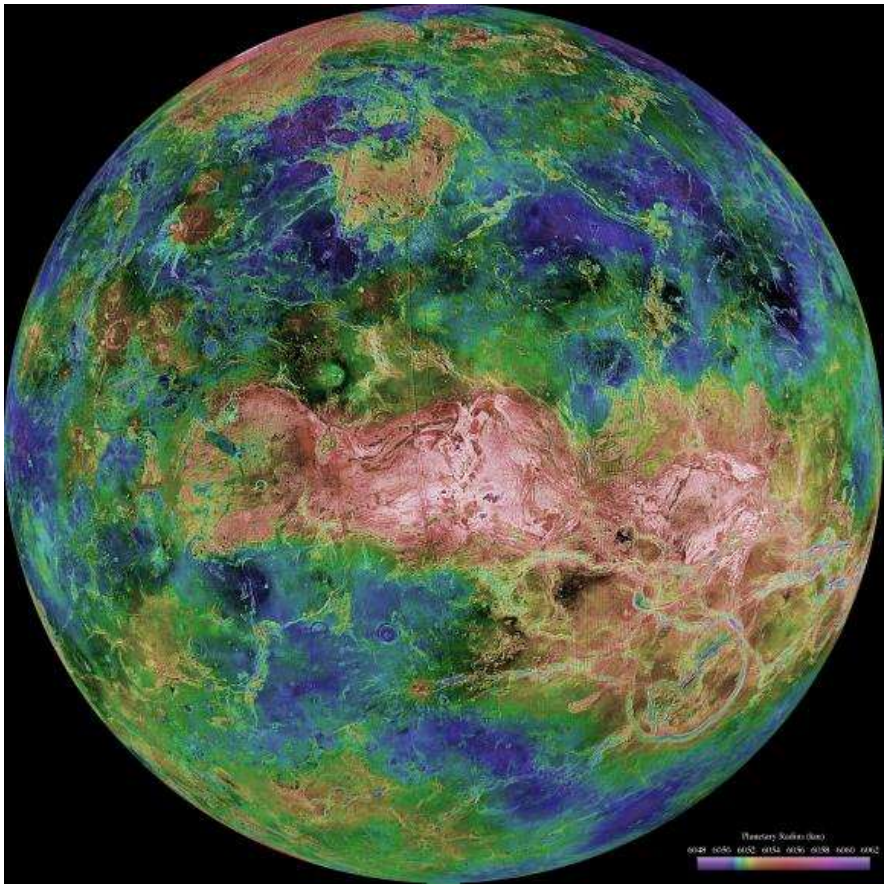
Terrestrial Planets

Venus

Mass	~ 4.9×10^{24} kg
Radius	~ 6052 km
Orbit	~ .72 AU
Rotation	~ -243 days



From the Pioneer Venus Orbiter, 1979



Recent false color image of Venus' surface structure from Magellan

Terrestrial Planets

Venus

Dense dynamic atmosphere, mostly CO_2 (~96%)

Strongest Greenhouse effect in the S.S. (733 K)

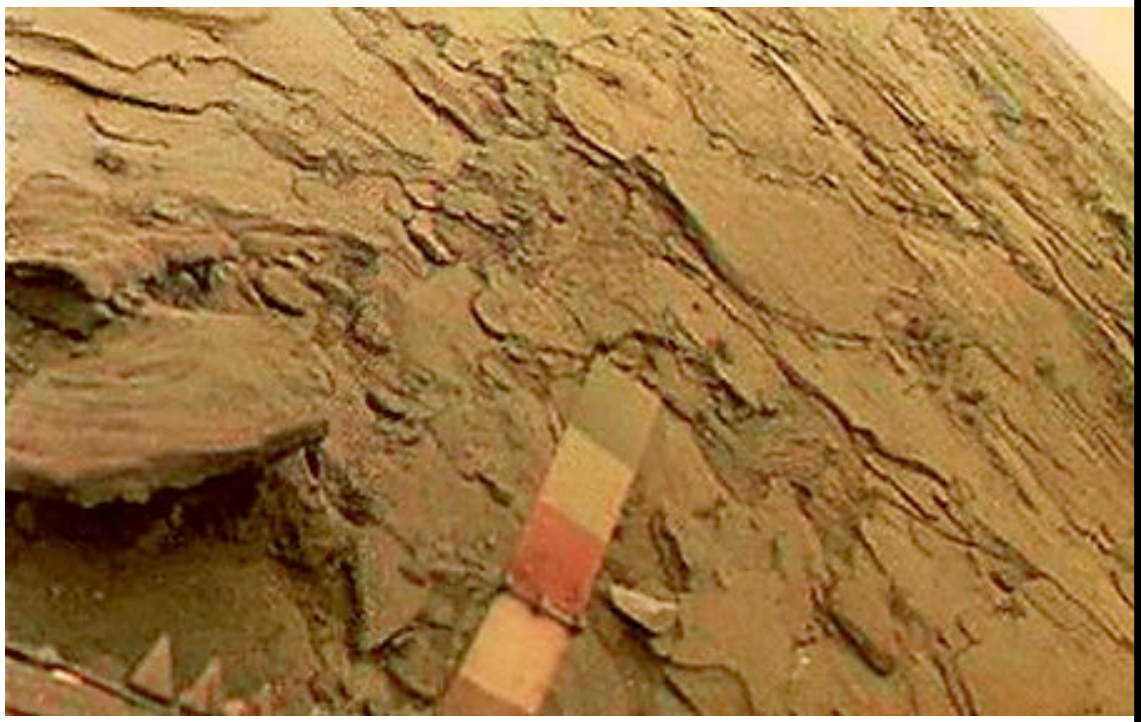
No satellites

No magnetic field

Retrograde rotation

No Rings

Aurora ??

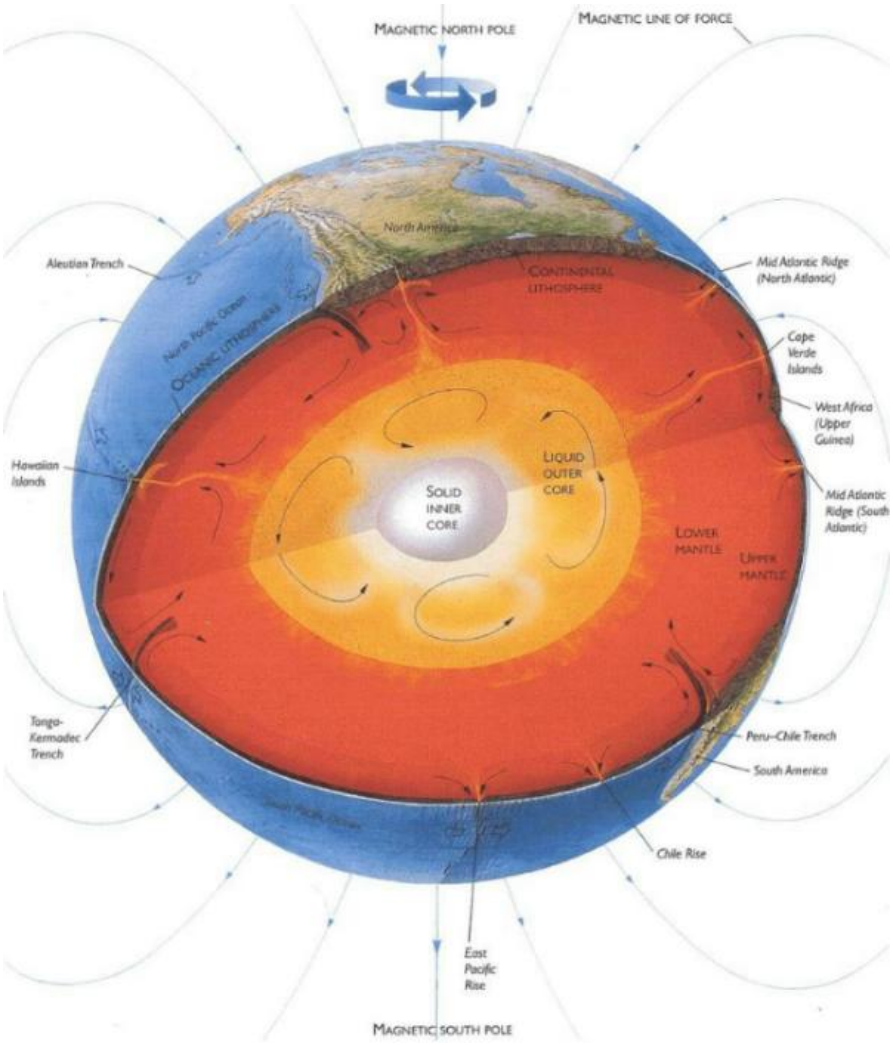


Venera 14

Terrestrial Planets

Earth

Mass	~ 6.0×10^{24} kg
Radius	~ 6371 km
Orbit	~ 1 AU
Rotation	~ 23.9 hr



Terrestrial Planets

Earth

Composed mostly of iron, oxygen & silicon by mass

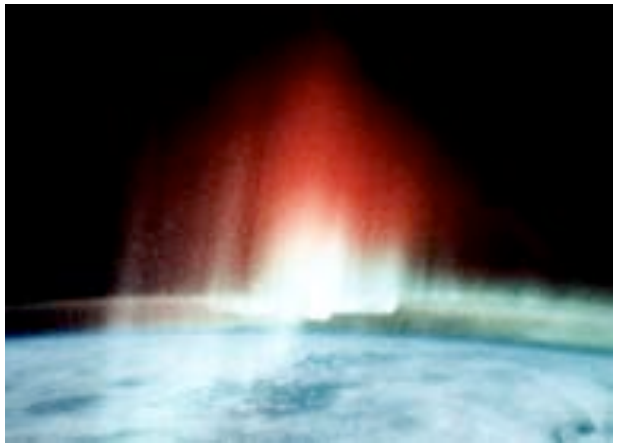
Atmosphere is N_2 & O_2 (78%, 21%), dynamic

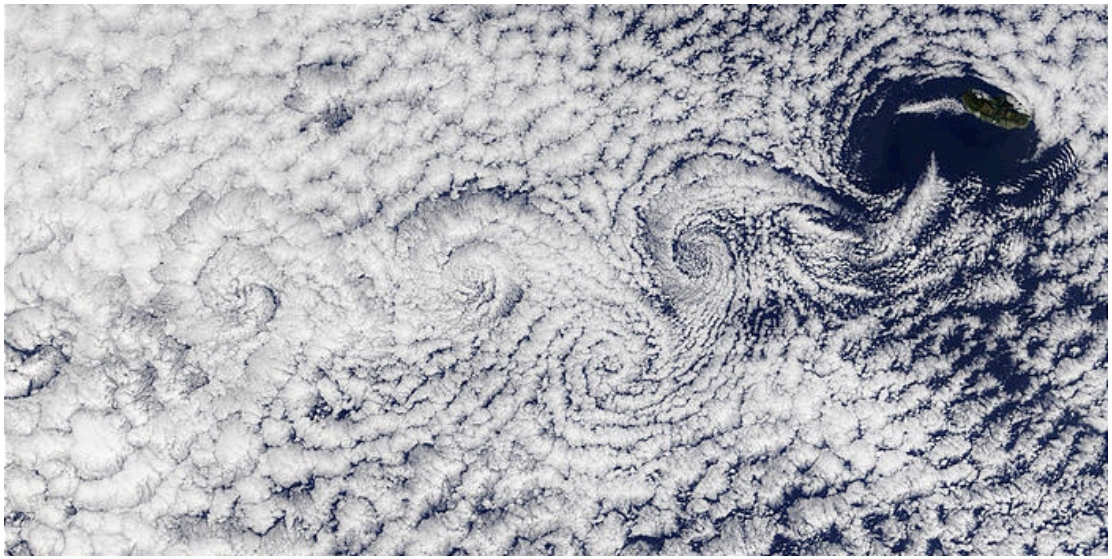
Internal magnetic field

1 Satellite: Moon

No Rings

Aurora



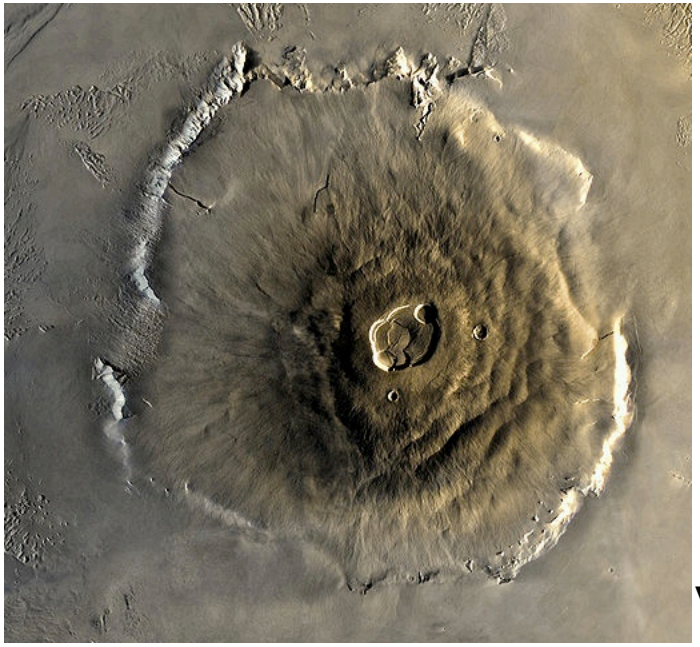


Aurora observed from the space shuttle, and cloud vortices over Madeira Island from MODIS.

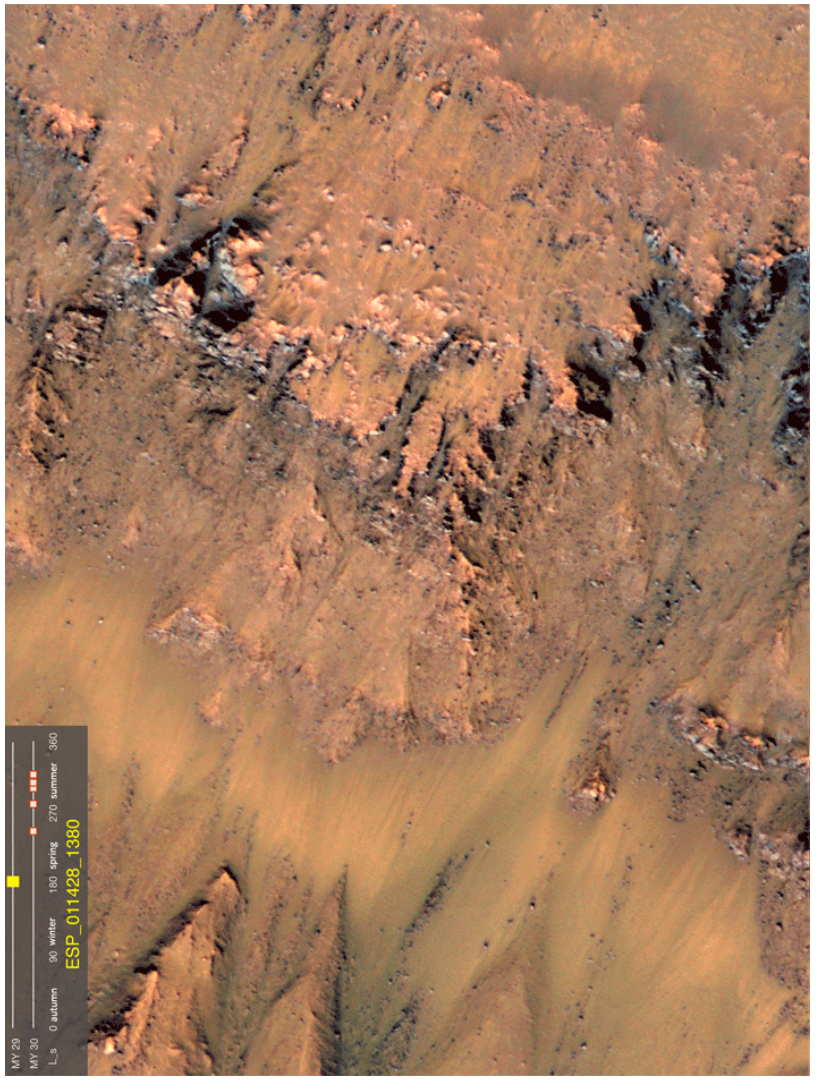
Terrestrial Planets

Mars

Mass	~ 6.4 x 10^{23} kg
Radius	~ 3390 km
Orbit	~ 1.5 AU
Rotation	~ 24.6 hrs



Viking mosaic of Olympus Mons



Slope flows on crater wall

Terrestrial Planets

Mars

Dynamic surface, extreme geologic features

Thin atmosphere (~7 mbar)

Active weather/seasons

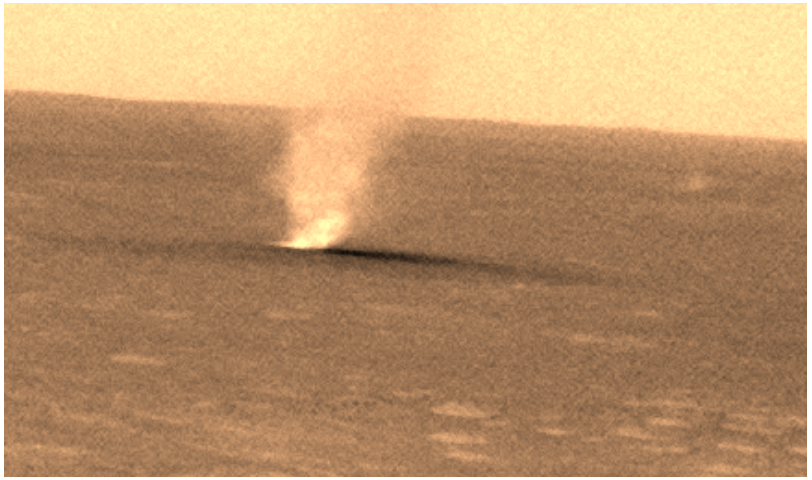
2 satellites

Remnant magnetic field

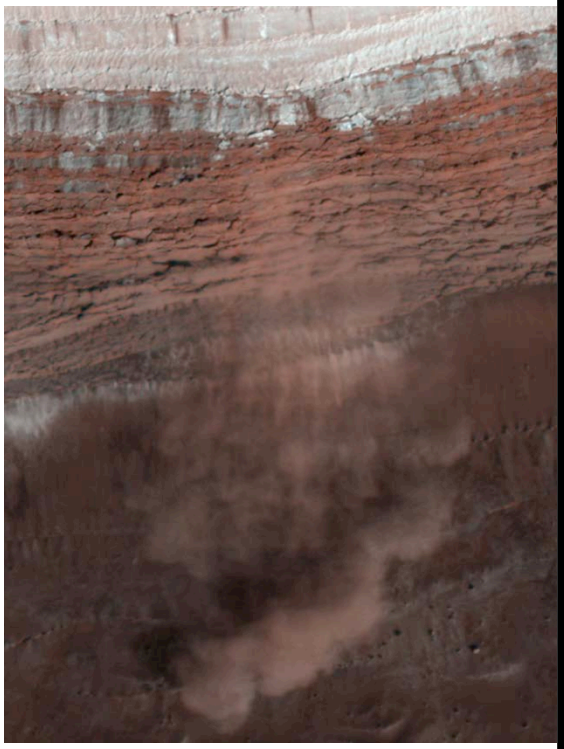
No rings

Aurora

History of water



Dust devil viewed by Spirit

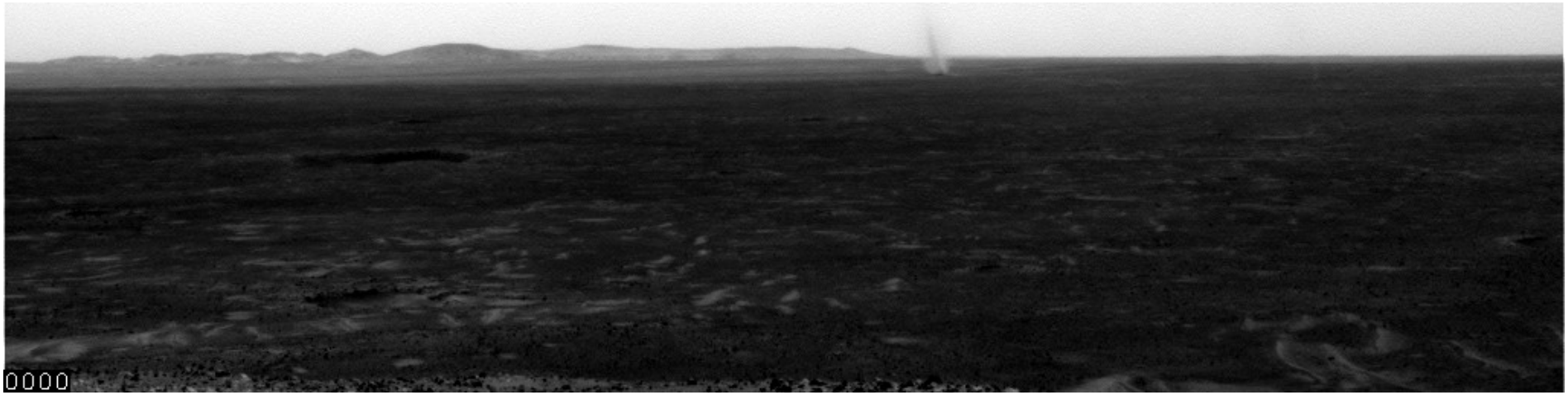


MRO: polar avalanche seen from orbit

Terrestrial Planets

Mars

Spirit dust devil movie



Survey of the Solar System

The Sun

Giant Planets

Terrestrial Planets

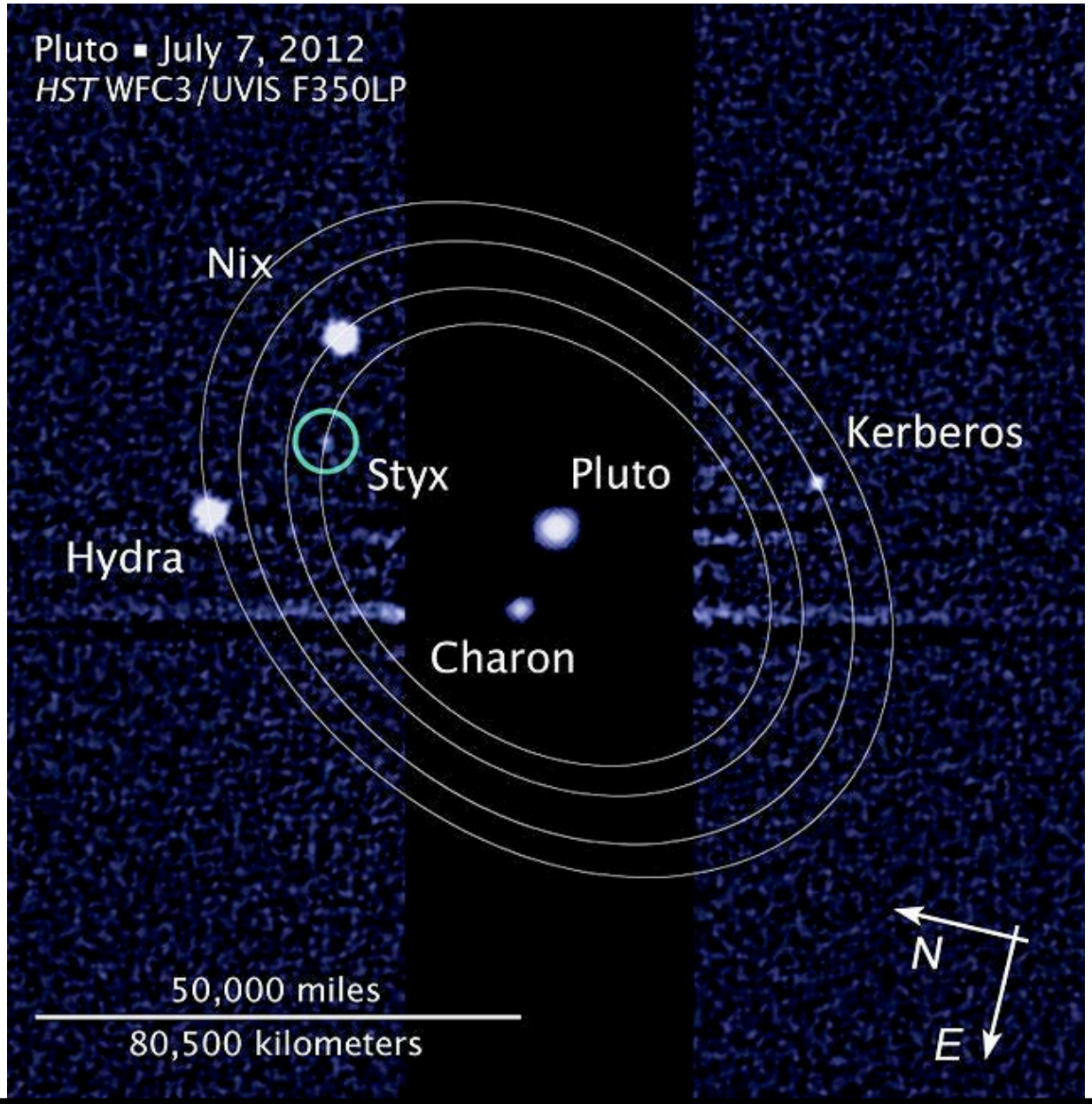
Minor Planets

Satellite/Ring Systems

Pluto


NH LORRI OPNAV CAMPAIGN 1
2014-07-19 02:30:00 UTC
Distance to Pluto: 429375336 Km
(Proper Motion)

Pluto


Pluto ▪ July 7, 2012
HST WFC3/UVIS F350LP
Nix
Styx
Pluto
Kerberos
Hydra
Charon
50,000 miles
80,500 kilometers
N
E

What Happened to Pluto?

A planet as defined in 2006 by the IAU (International Astronomical Union):

1. Orbits the sun
2. Is large enough to have become round due to the force of its own gravity
3. Is not a satellite
4. Must dominate the neighborhood around its orbit (cleared its orbital path)

What Happened to Pluto?