

PLANETS OF OUR SOLAR SYSTEM

MARS

SPACE PHYSICS

Lecture 7

J. Sahraei

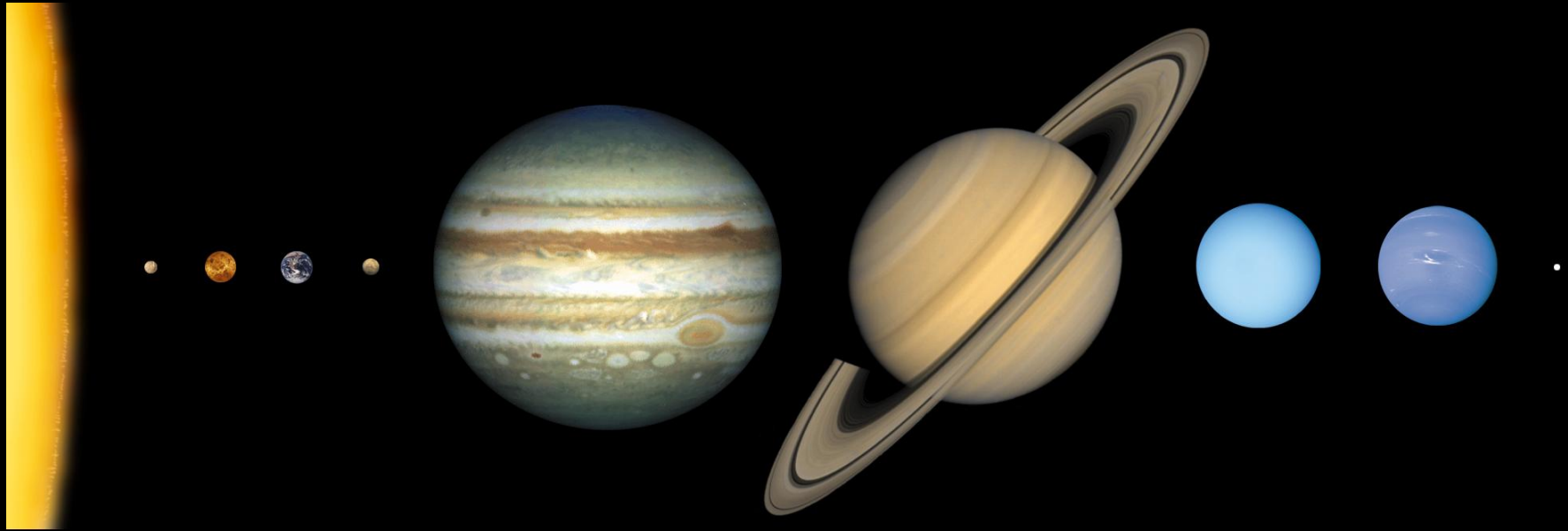
*Physics Department,
Razi University*

<http://www.razi.ac.ir/sahraei>

PLANETS OF OUR SOLAR SYSTEM

MARS

information of mars



Mars is the fourth planet from the Sun and is commonly referred to as the Red Planet. The rocks and soil have a red or pink hue due to the iron oxide (rust) they contain.

PLANETS OF OUR SOLAR SYSTEM

MARS



One day on Mars lasts 24 hours 37 minutes with temperatures ranging from -83°C in the daytime to -33°C at night. A year on Mars lasts about 687 Earth days.

PLANETS OF OUR SOLAR SYSTEM

MARS

Hubble Telescope Picture of Mars



This NASA Hubble Space Telescope view provides the most detailed complete global coverage of the red planet Mars ever seen from Earth. This picture was taken on February 25, 1995, when Mars was at a distance of 104 million Km.

PLANETS OF OUR SOLAR SYSTEM

MARS

Atmosphere on mars

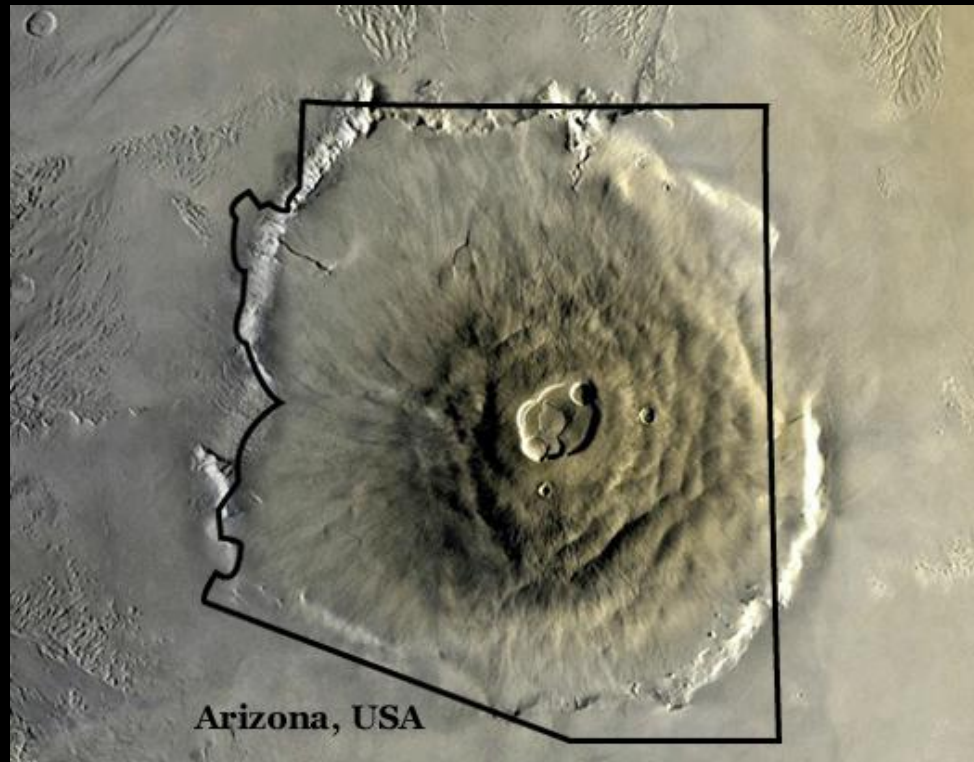
Solid carbon dioxide is found at the poles

Mars has a rocky, dry terrain with huge volcanoes and deep valleys. The atmosphere is much thinner than Earth's and is comprised primarily of carbon dioxide and nitrogen. It's gravity is about one-third of our own.

PLANETS OF OUR SOLAR SYSTEM

MARS

Largest volcano on mars

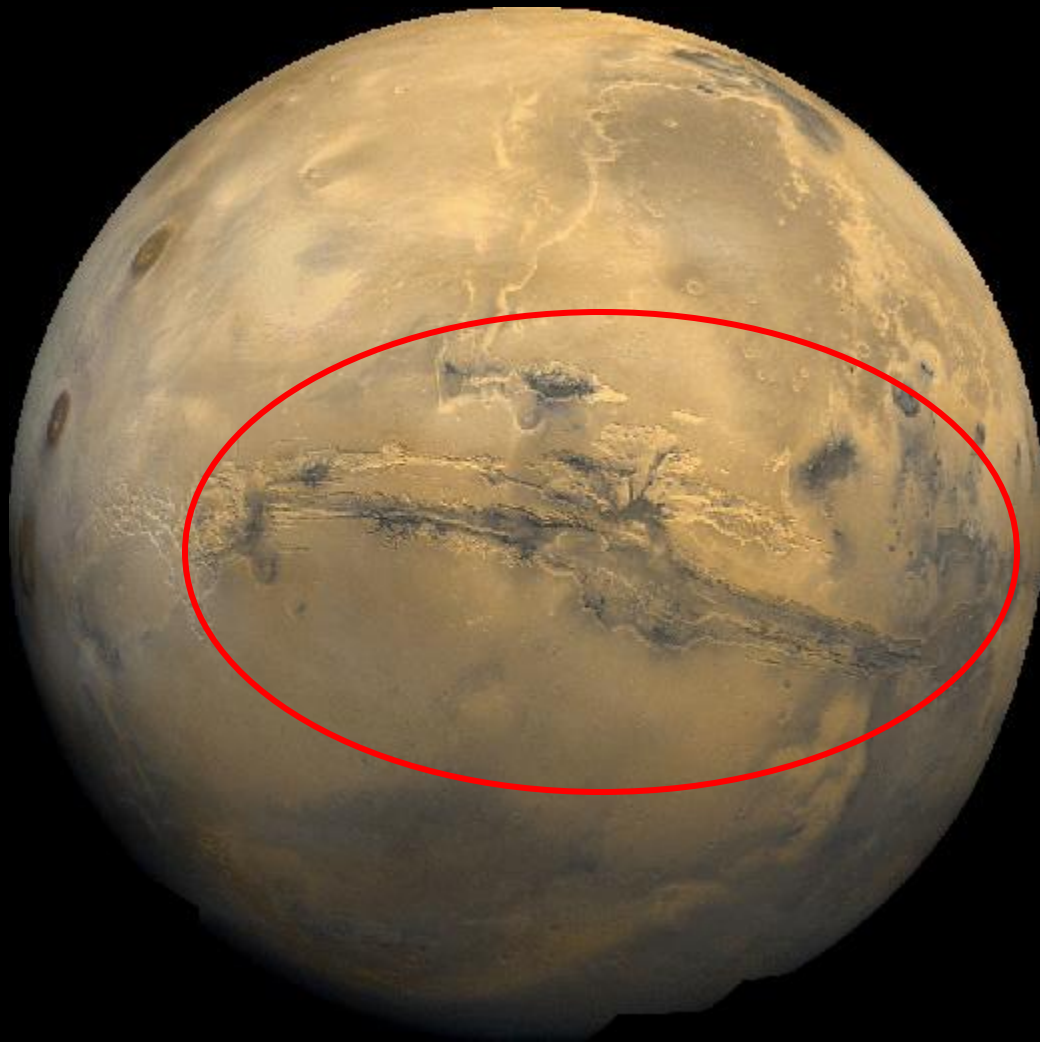


The largest volcano in the solar system is Olympus Mons. It is 624 km (374 miles) in diameter; about the same size as Arizona. The altitude of Olympus Mons is three times the altitude of the largest peak on Earth, Mt. Everest.

PLANETS OF OUR SOLAR SYSTEM

MARS

gigantic canyon

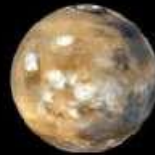


Valles Marineris, or Mariner Valley, is a vast canyon system that runs along the Martian equator. Valles Marineris is 4000 Km long and reaches depths of up to 6.5 Km.

PLANETS OF OUR SOLAR SYSTEM

MARS

earth/mars comparison



Mars



Earth

Distance from Sun

226 Million Km

150 Million Km

Diameter

6791 Km

127565 Km

Length of Year

687 Earth Days

365.25 Days

Length of Day

24 hours 37 minutes

23 hours 56 minutes

Gravity

3.7 ms⁻²

2.66 times that of Mars

Temperature

Average -62 degrees C

Average 15 degrees C

Number of Moons

2

1

PLANETS OF OUR SOLAR SYSTEM

MARS

mars, the god of war

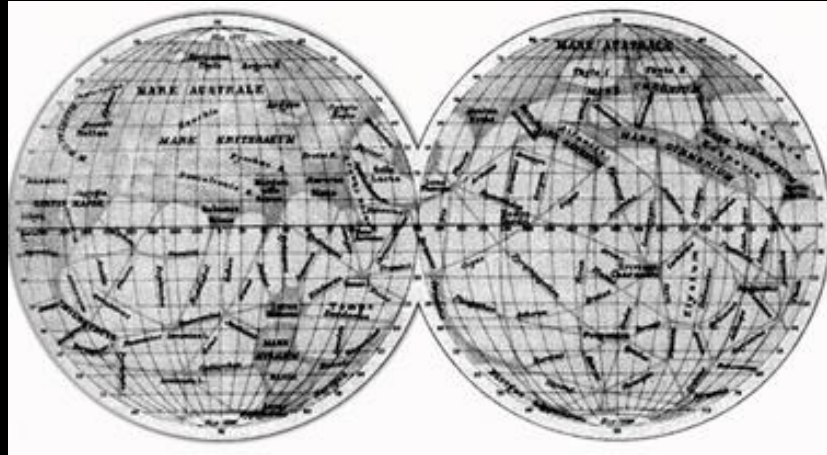


The planet was named after Mars, the Roman God of War, who was one of the most worshipped and revered gods in ancient Rome.

PLANETS OF OUR SOLAR SYSTEM

MARS

early concepts



Before space exploration, Mars was considered the best candidate for harboring extraterrestrial life. Italian astronomer, Giovanni Schiaparelli thought he saw straight lines crisscrossing its surface. This led to the popular belief that irrigation canals on the planet had been constructed by intelligent beings.

PLANETS OF OUR SOLAR SYSTEM

MARS

viking landers



According to scientists, Mars is self-sterilizing. They believe the combination of solar ultraviolet radiation that saturates the surface, the extreme dryness of the soil and the oxidizing nature of the soil chemistry prevent the formation of living organisms in the Martian soil. The question of life on Mars at some time in the distant past remains open.

PLANETS OF OUR SOLAR SYSTEM

MARS

mars exploration rovers



Artist's Concept Image: NASA



The Mars Exploration Rovers, Spirit and Opportunity, are currently studying how past water activity on Mars has influenced the red planet's environment over time.

PLANETS OF OUR SOLAR SYSTEM

MARS

future exploration of mars



Though no concrete plans are underway for a manned Mars visit early in the next century, several studies have been launched to investigate possibilities for such visits following possible unmanned missions.

PLANETS OF OUR SOLAR SYSTEM

MARS



Phobos (Fear)



Deimos (Terror)

PLANETS OF OUR SOLAR SYSTEM

MARS

Top 10
Mars Pictures of All Time*

Name This Martian Robot



PLANETS OF OUR SOLAR SYSTEM

MARS

SEASONS ON MARS

Mars • Global Dust Storm



June 26, 2001

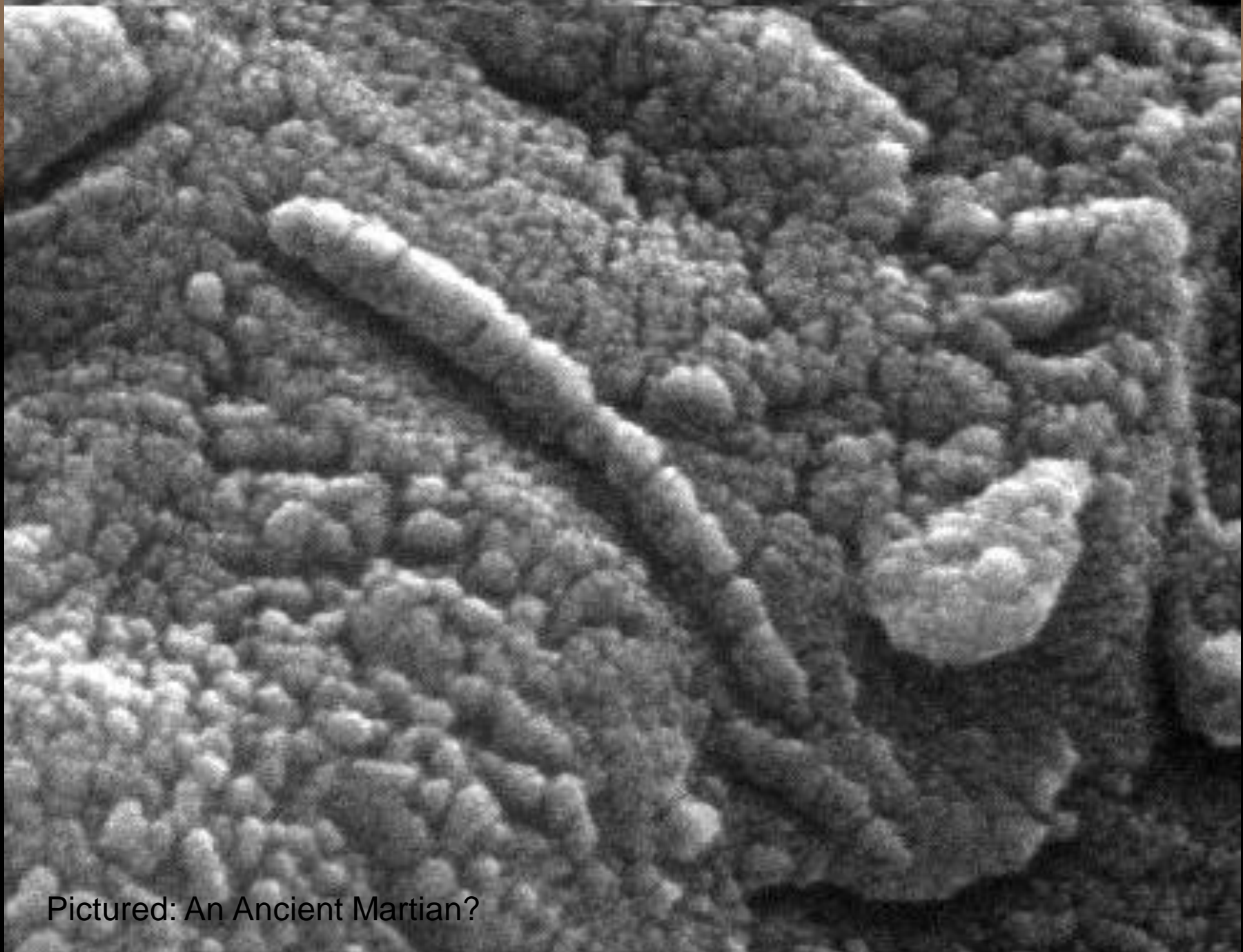


September 4, 2001

Hubble Space Telescope • WFPC2

NASA, J. Bell (Cornell), M. Wolff (SSI), and the Hubble Heritage Team (STScI/AURA) • STScI-PRC01-31

Like Earth, Mars has seasonal changes but the seasons last much longer. In Winter, Mars' polar ice cap can reach down to 45 degrees latitude and then rapidly shrink during Spring. Dust storms are seasonal, also, as witnessed in this Hubble image.

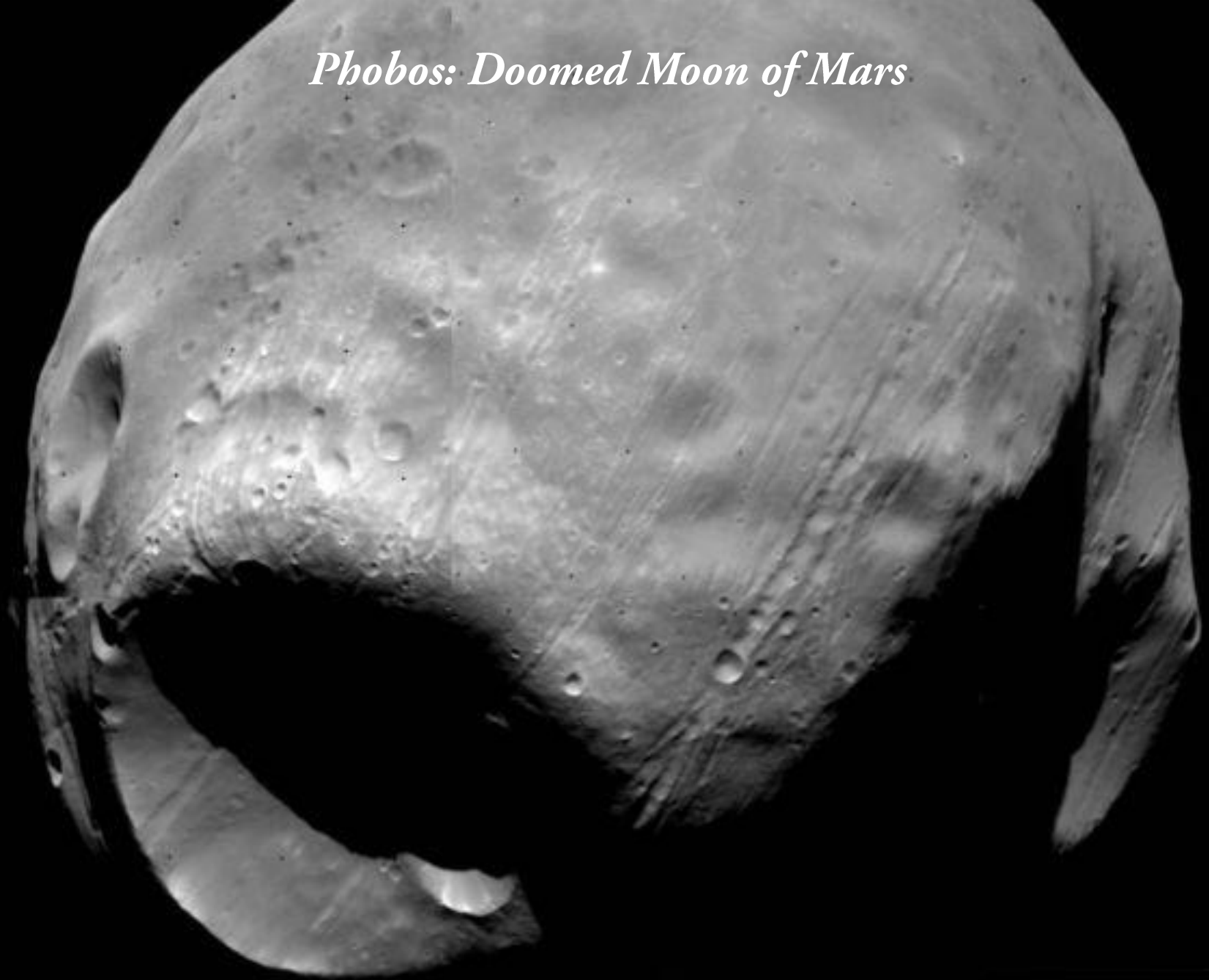


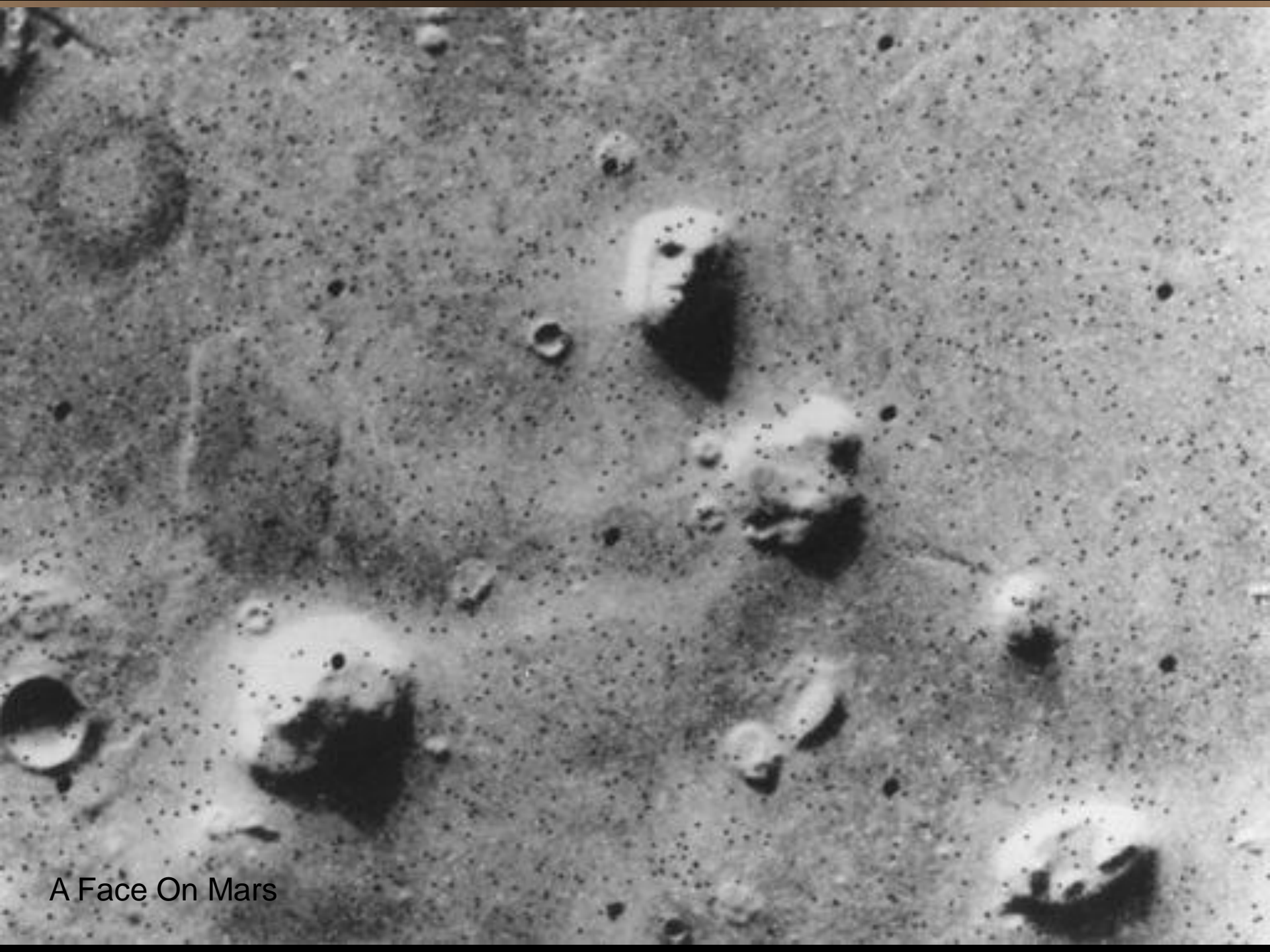
Pictured: An Ancient Martian?

Unusual Gullies and Channels on Mars



Phobos: Doomed Moon of Mars





A Face On Mars

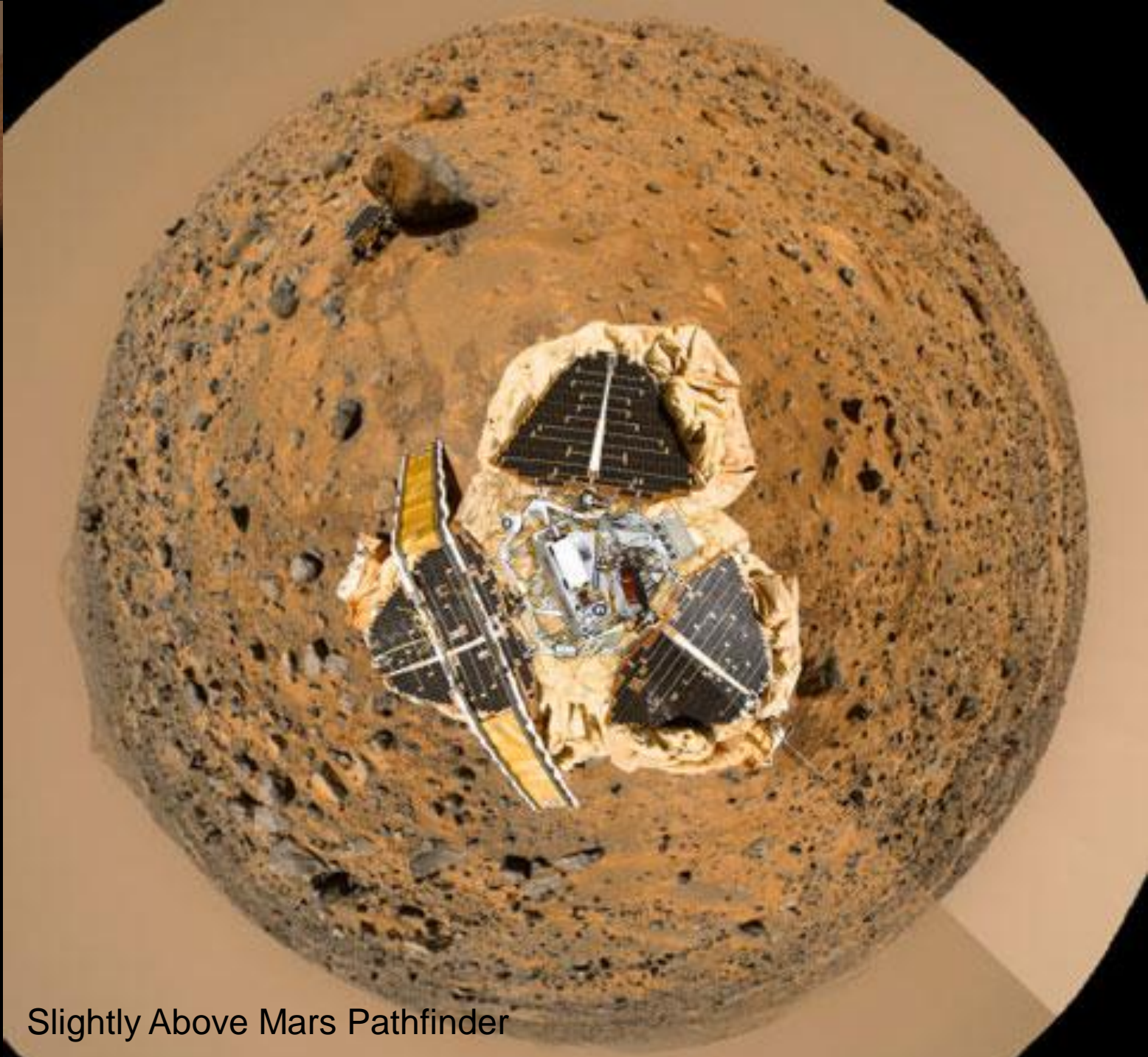


Close-up of the Face on Mars

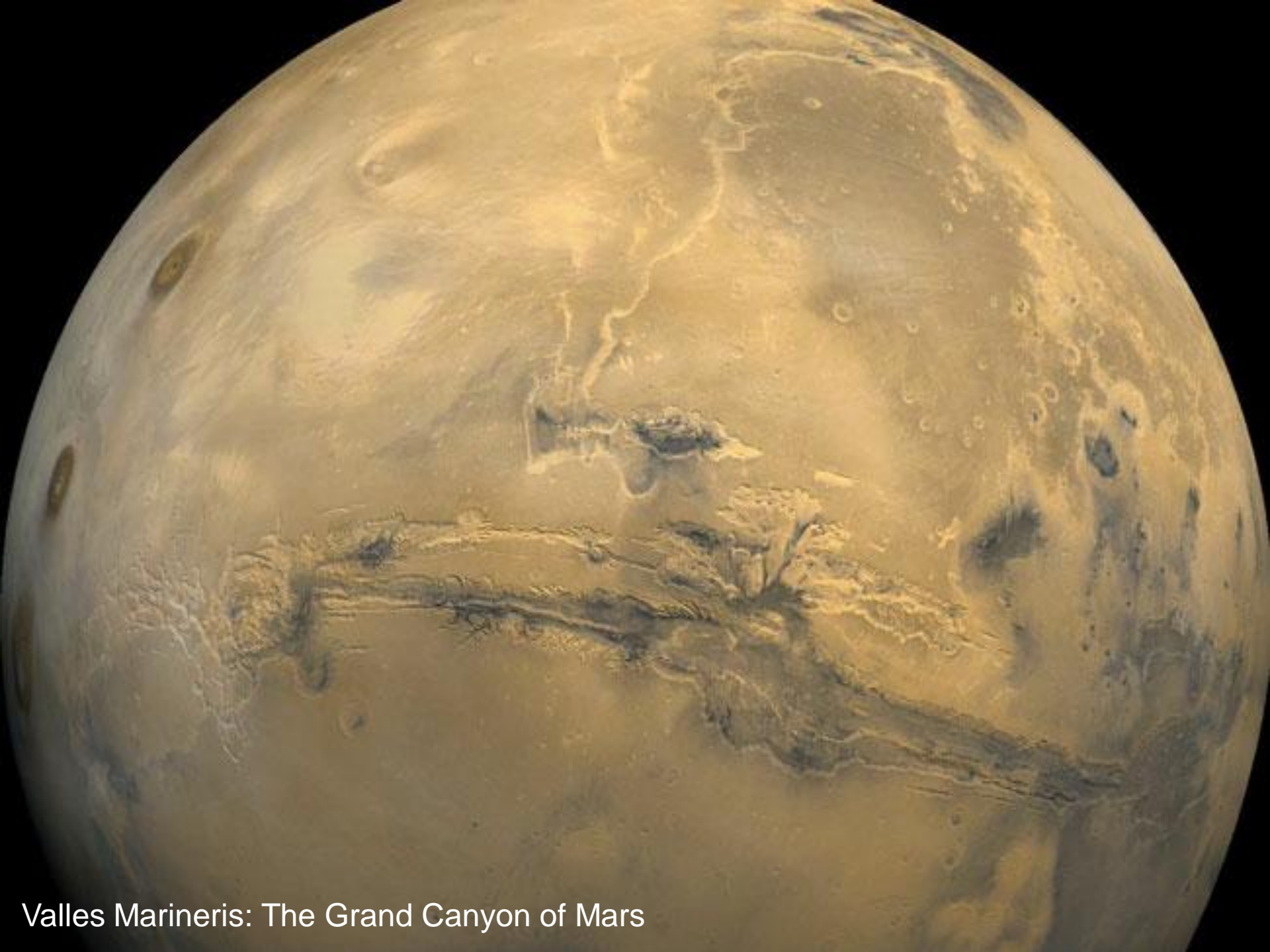
PLANETS OF OUR SOLAR SYSTEM



Olympus Mons on Mars: The Largest Volcano



Slightly Above Mars Pathfinder



Valles Marineris: The Grand Canyon of Mars