



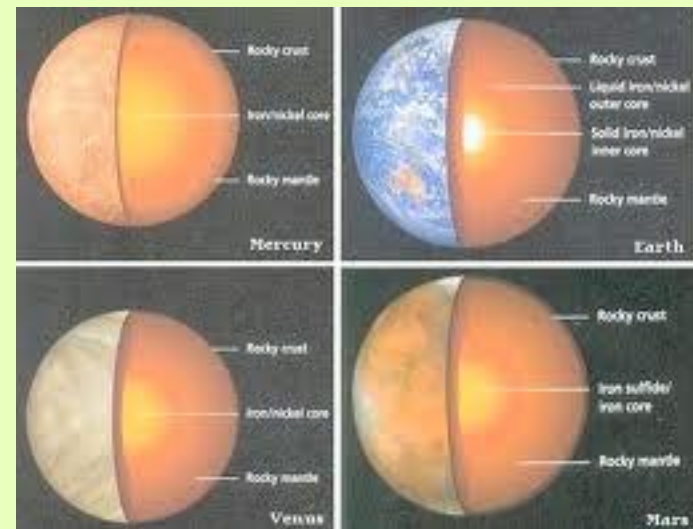
# The Inner Planets

- WRITE WHAT IS  
UNDERLINED

# Terrestrial Planets

**Mercury**, **Venus**, **Earth** and **Mars**

- Rocky Surfaces
- No rings
- No or Few Moons (compared to the Jovians)



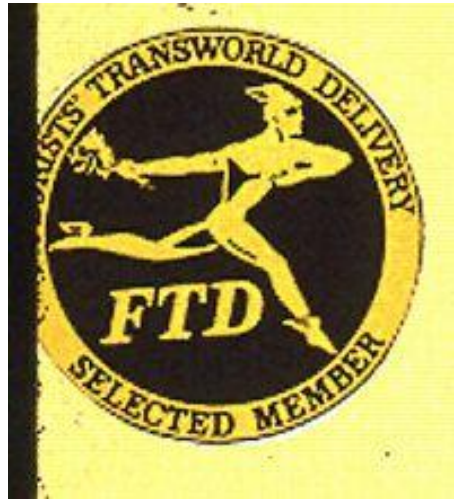
# Jovian Planets

**Jupiter, Saturn, Uranus and Neptune**

- Gas Surfaces
- rings
- Many Moons or Satellites (compared to the Terrestrials)



# Mercury



**The “winged-foot” messenger of the gods.**

GREETINGS

from



A photograph of the sky at twilight. The sky transitions from a deep blue at the top to a warm orange and red glow near the horizon. A crescent moon is visible in the middle-left portion of the frame, with a bright white arc on its right side and a faint, greyish glow on its left side, known as Earthshine. To the right of the moon, a small, bright white dot is visible in the sky. The labels 'Mercury' and 'Moon with Earthshine' are overlaid on the image in white serif font. An arrow points from the text 'Moon with Earthshine' to the crescent moon.

**Mercury**

**Moon with  
Earthshine**



# First Telescopically Observed by By Galileo in 1609



- [Mercury](#)



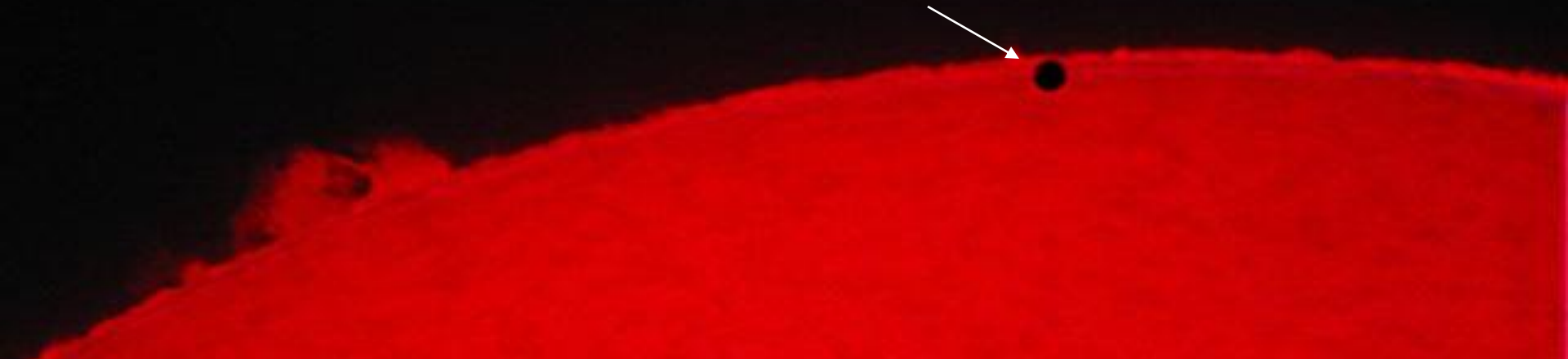


# PLANET DATA

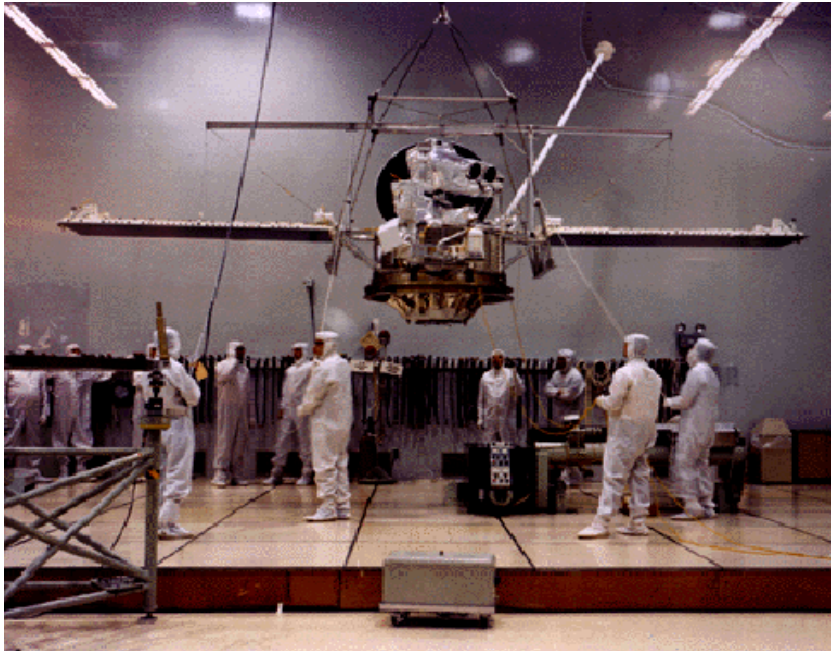
Planet	Period of Rotation (Earth Days)	Average Distance from sun AU)	Period of Revolution (Earth days)	Number of Moons
<u>Mercury</u>	<u>176 days</u>	<u>.39</u>	<u>88 days</u>	<u>0</u>
Venus				
Earth	1 day	1 AU	365.25 days	1
Mars				
Jupiter				
Saturn				
Uranus				
Neptune				

# Smallest of the Terrestrial Planets

Mercury transits the Sun



# First visited by **Mariner 10, 1974**



# Bright Rayed Craters

**What is the surface like?**

**Mercury is heavily cratered, like the Moon.**

**The Sun is 10 times  
brighter than on Earth**

# Venus



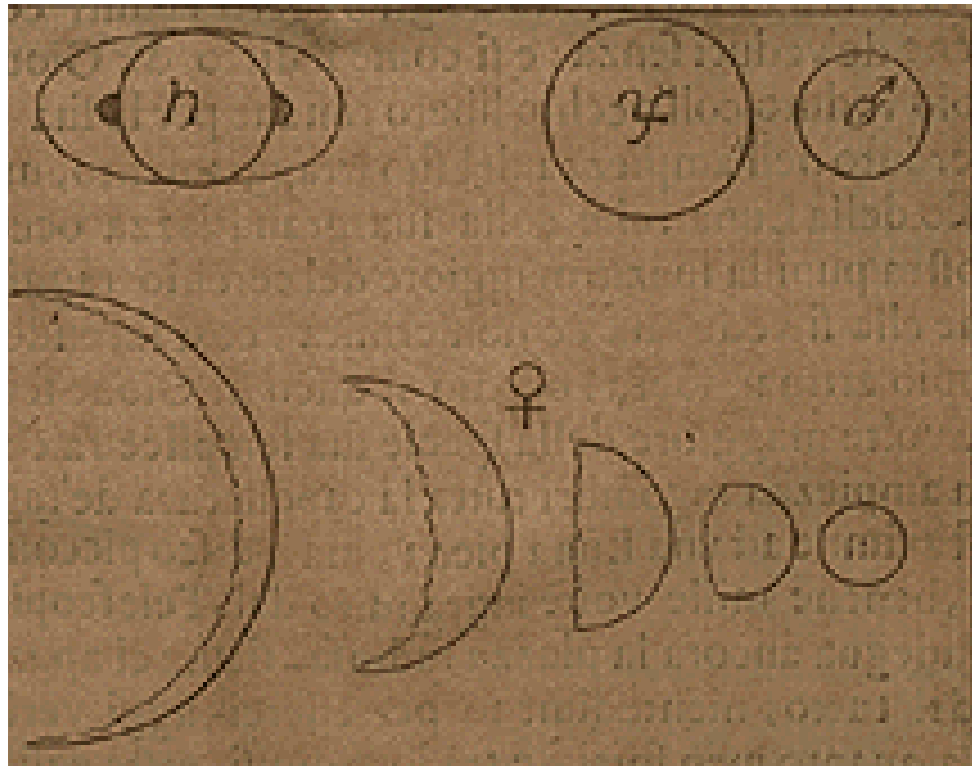


# *The goddess of love*



# First telescopically observed by

- Galileo in 1609





# **Venus - Our “Sister” Planet**

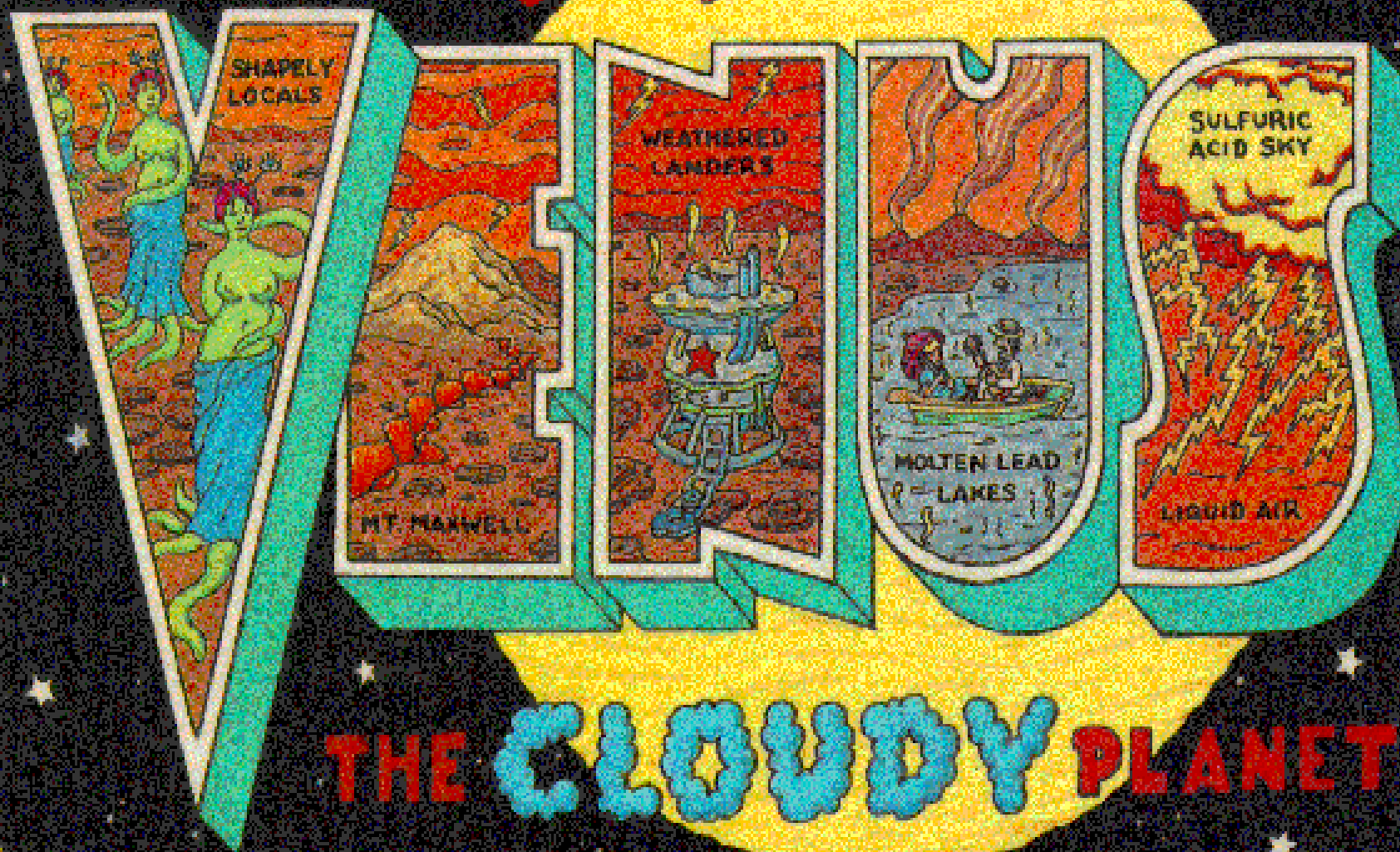
- **Until 1950 scientists believed Venus was covered with**

**Rain Forests**

**and possibly inhabited by**

**Photosynthetic, Alien,  
Human-like, Life forms**

*Greetings from*



**THE CLOUDY PLANET**

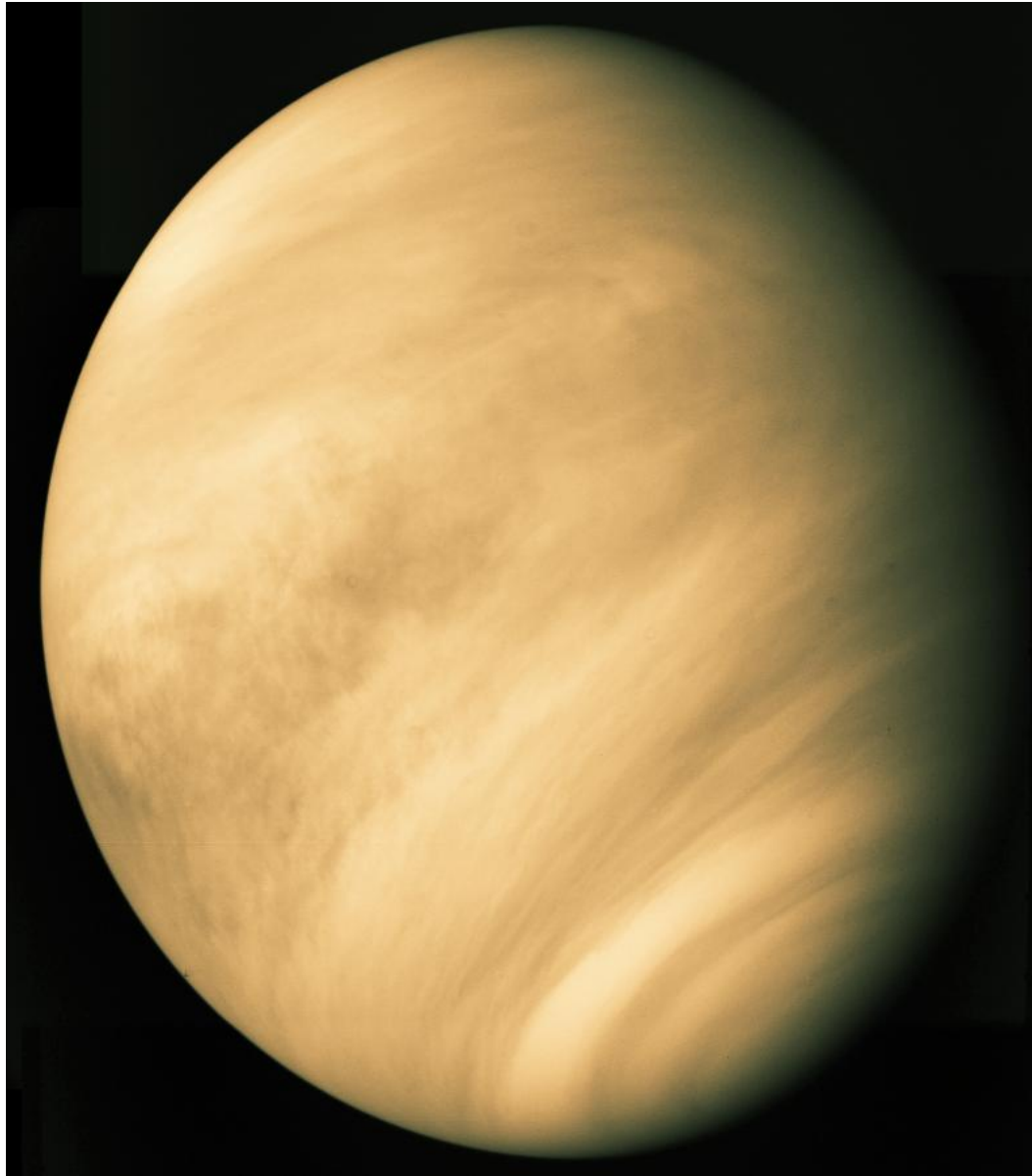
# PLANET DATA

Planet	Period of Rotation (Earth Days)	Average Distance from sun (AU)	Period of Revolution (Earth Years)	Number of Moons
Mercury	176 days	.39	88 days	0
<u>Venus</u>	<u>243 days</u>	<u>.72</u>	<u>225 days</u>	<u>0</u>
Earth	1 day	1	365.25 days	1
Mars				
Jupiter				
Saturn				
Uranus				
Neptune				

# View from Venera 14



# Mariner 10 Flyby in 1974



# Facts about Venus

- Called “Earth’s Twin” (similar in size, mass, density)
- In 1970, Russia sent a probe, “Venera 7” after it landed, it lasted only 23 min – due to the sulfuric acid atmosphere.
- Venera 7 was the first of 20 Russian missions.
- Daytime temperature: + 900 ° F
- Night time Temperature: + 850 ° F

# The Atmosphere of Venus

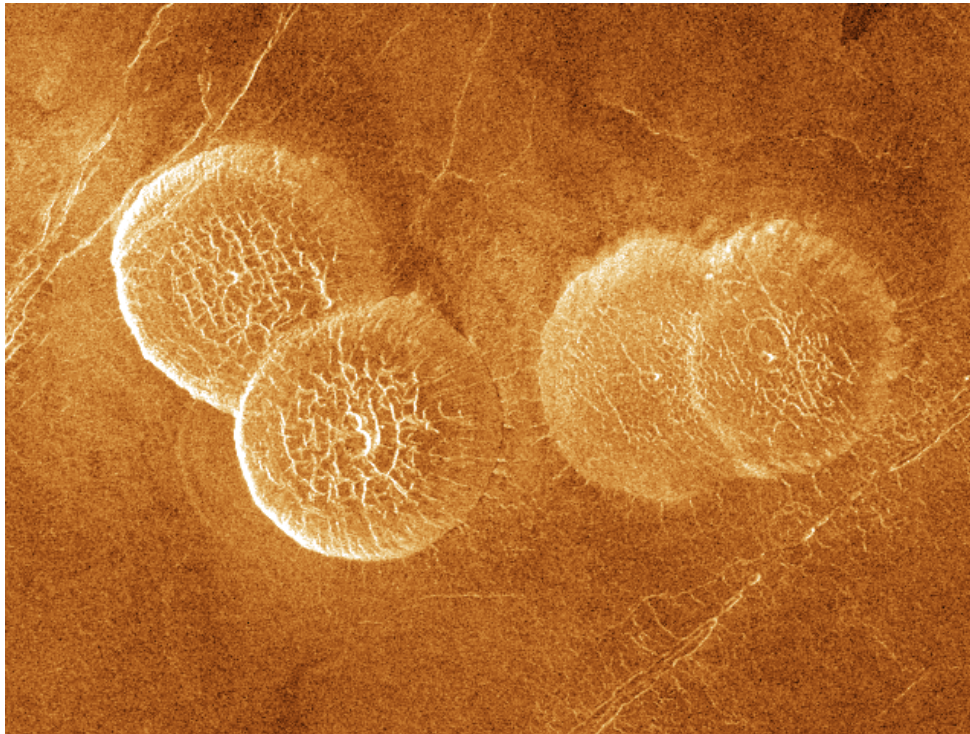
- Thick CO<sub>2</sub>
- Clouds made mostly of sulfuric acid
- Highly reflective light



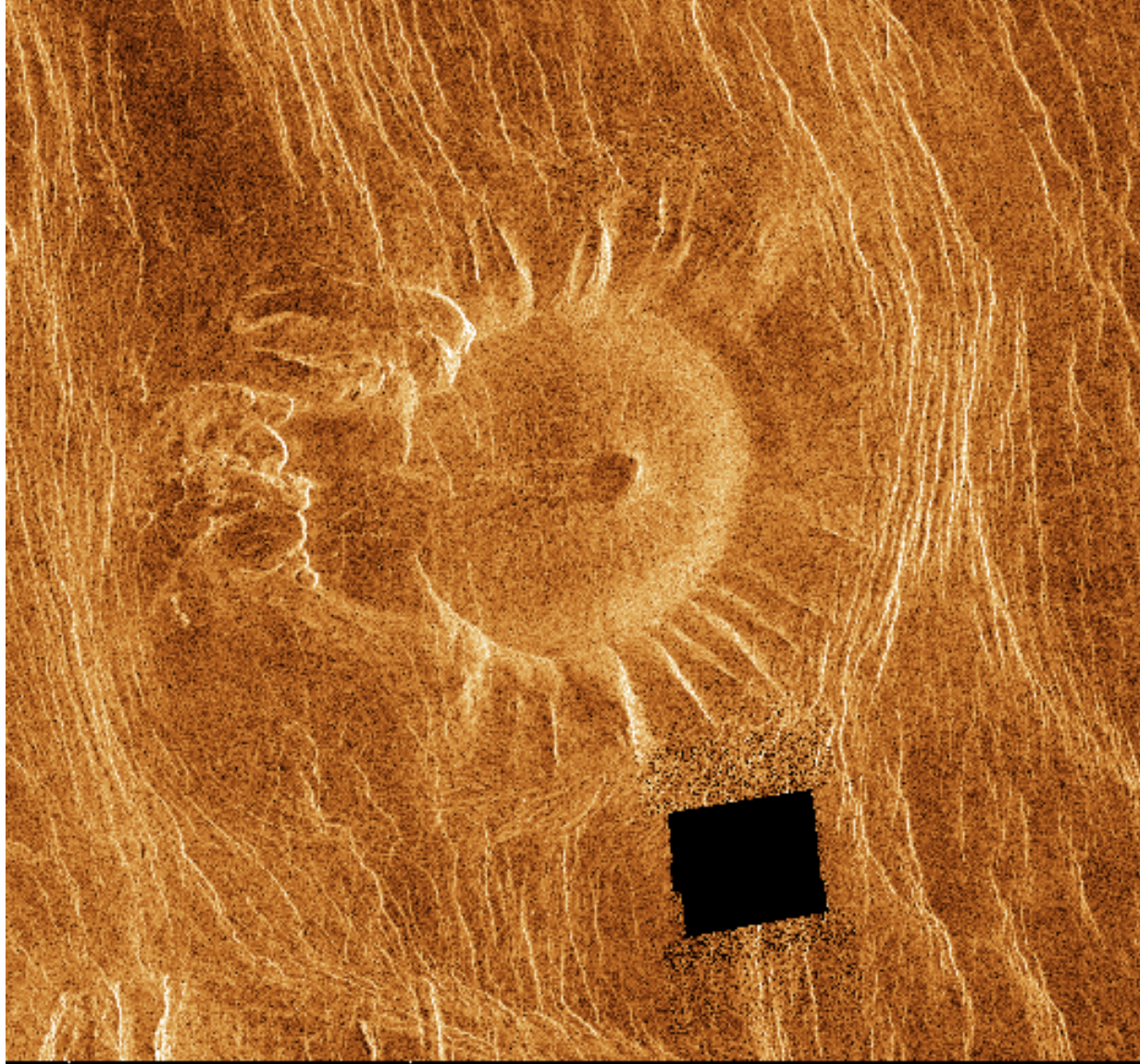
# Volcanoes

**Volcanoes are a common terrain  
feature: None in chains,  
suggesting no plate tectonics**

## Pancake Domes



# The “Tick”

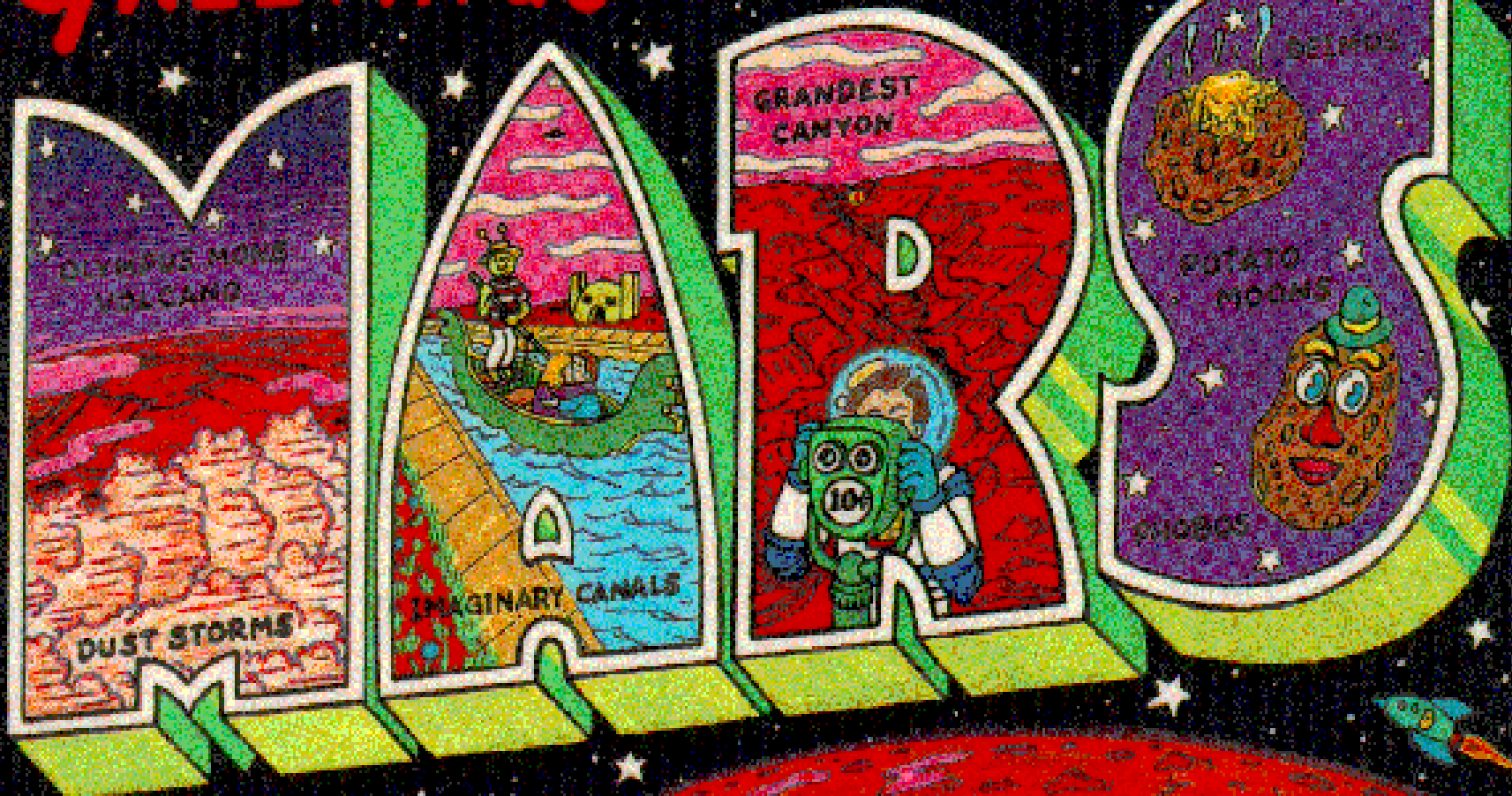




# Mars

**The god of War**

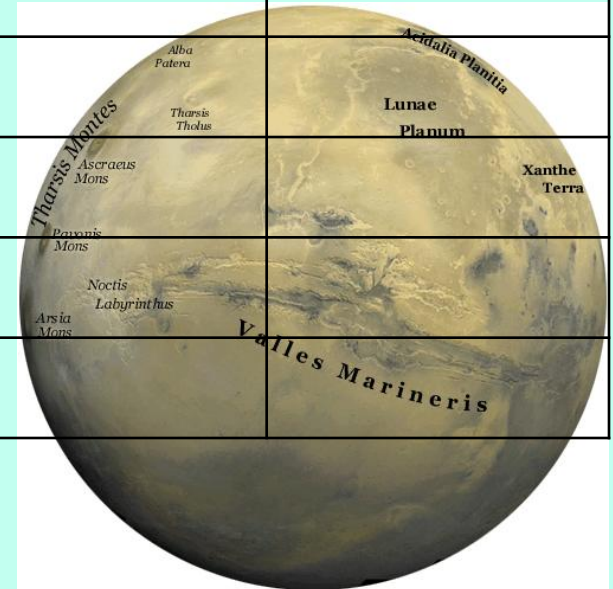
GREETINGS FROM



THE RED PLANET

# The Planet Mars

Planet	Period of Rotation (Earth Days)	Average Distance from sun (AU)	Period of Revolution (Earth Years)	Number of Moons
Mercury	176 days	.39	88 days	0
Venus	243 days	.72	225 days	0
Earth	1 day/24 hour	1	365.25 days	1
<b>Mars</b>	<b>25 hours</b>	<b>1.5 AU</b>	<b>694 days</b>	<b>2</b>
Jupiter				
Saturn				
Uranus				
Neptune				



# The Martian Record Book:

- Mars has the most observable surface features
  - The Largest Volcano in the solar system:  
**Olympus Mons**
  - The Largest Canyon in the solar system:  
**Valles Marineris**
  - The Largest impact basin in the solar system:  
**Hellas Basin**

# ATMOSPHERE

- 95% CO<sub>2</sub>
- Thin atmosphere
- **Appears Pink (suspended dust particles)**
- **Thin clouds of Carbon Dioxide and Water.**



# CO<sub>2</sub> Snow: (-110 ° F (-80 ° C))



Mars has:

seasons because it has a tilted axis

Causes: dust storms

# Spirit and Opportunity

## Mars Exploration Rovers (MER)





# Landscape Imaged by Spirit



# Victoria Crater

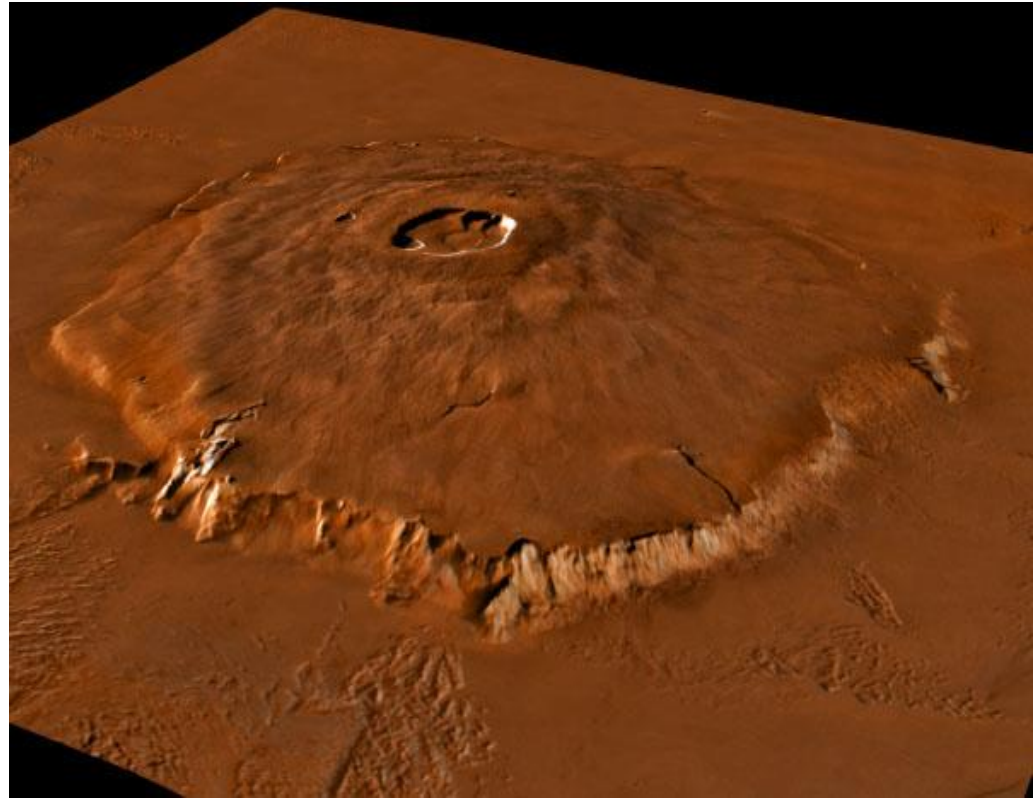
**Mars Reconnaissance Orbiter (MRO)**



# Olympus Mons

**Shield Volcano** - last erupted 300 Myr

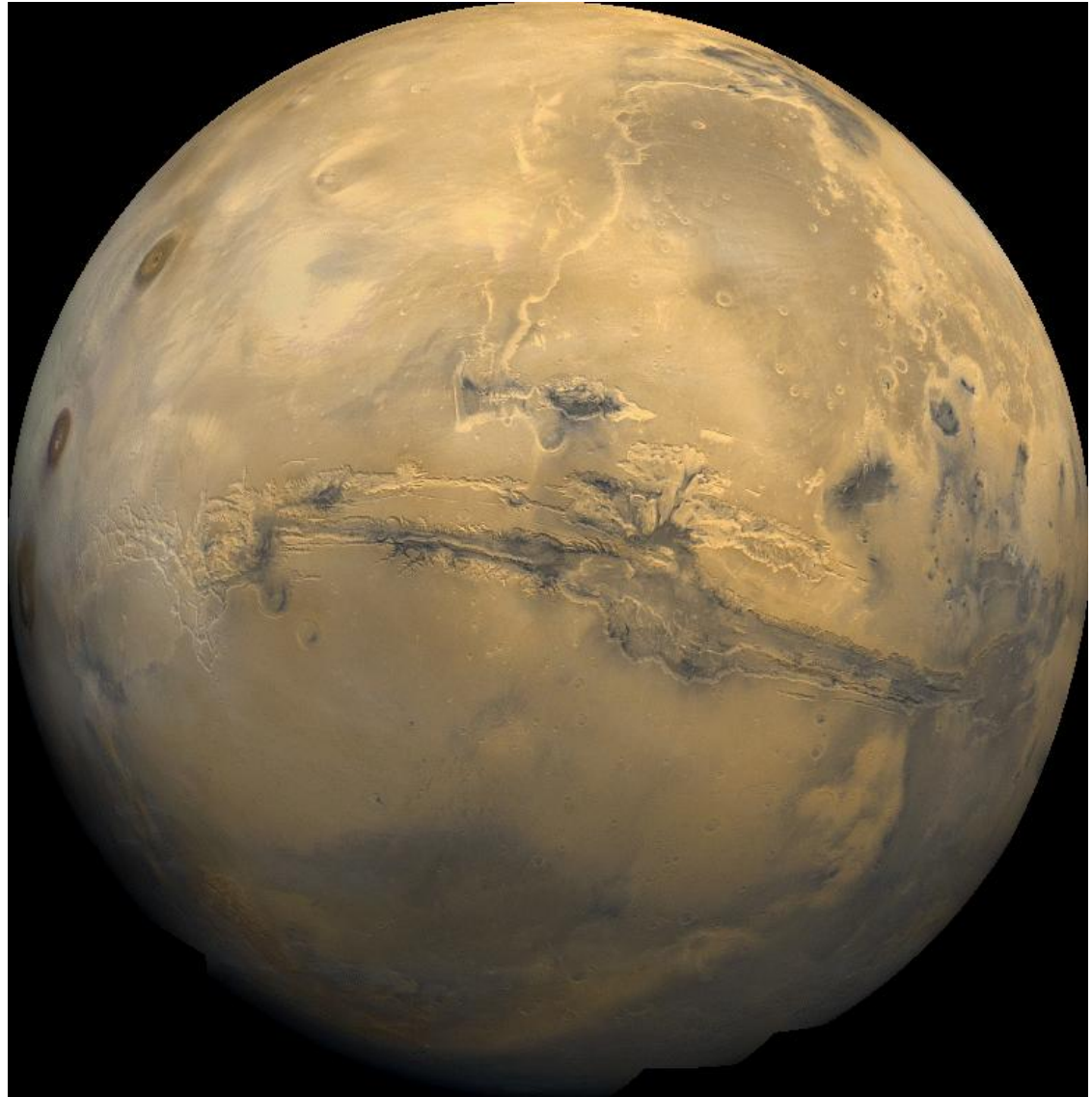
- 300 mile diameter
- 15 miles high
- Caldera is 60 miles across





# Valles Marineris

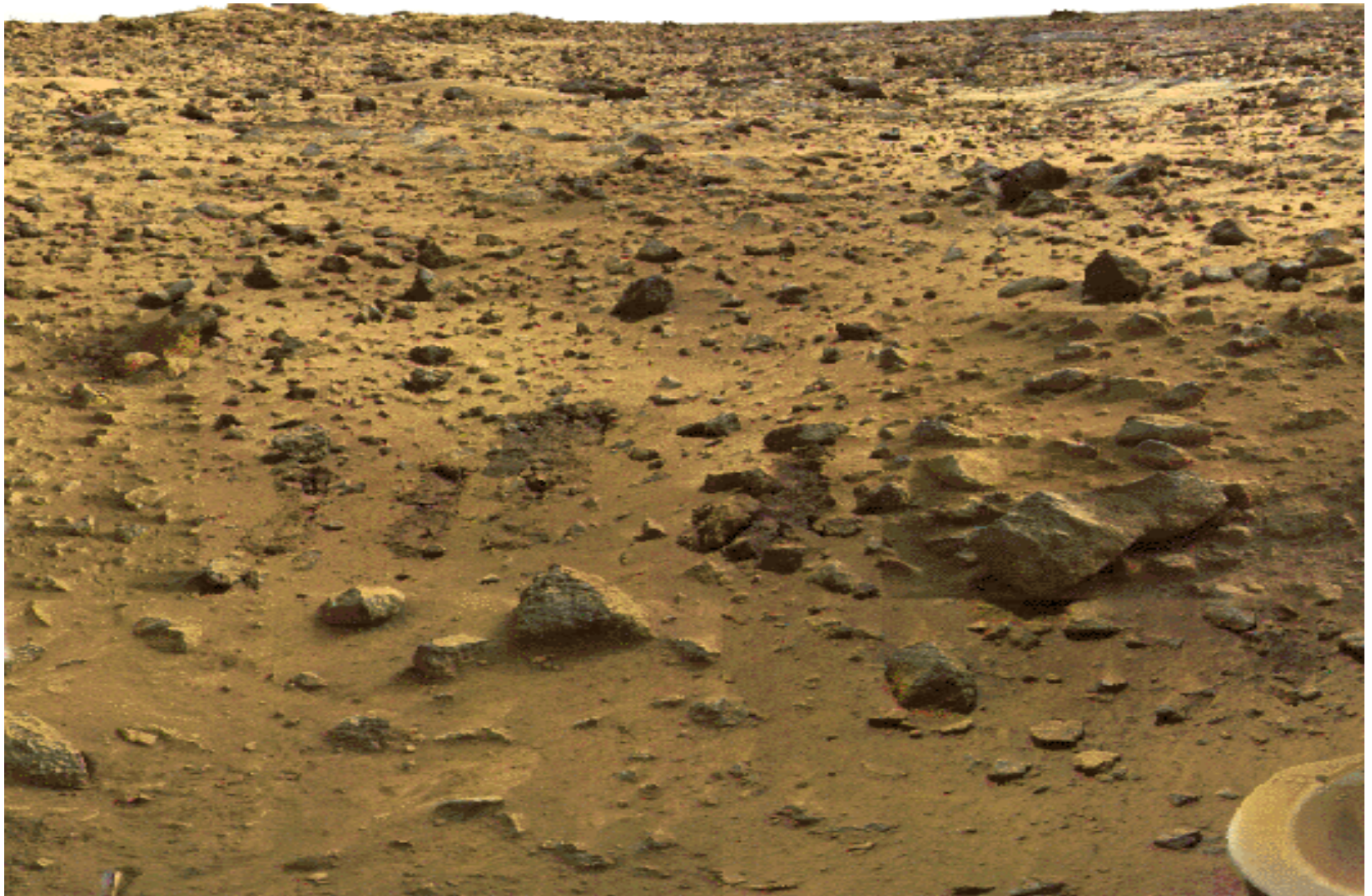
- **3,000 miles long**
- **6 miles deep**
- **400 miles across**



**Evidence that Mars once  
had liquid water.**

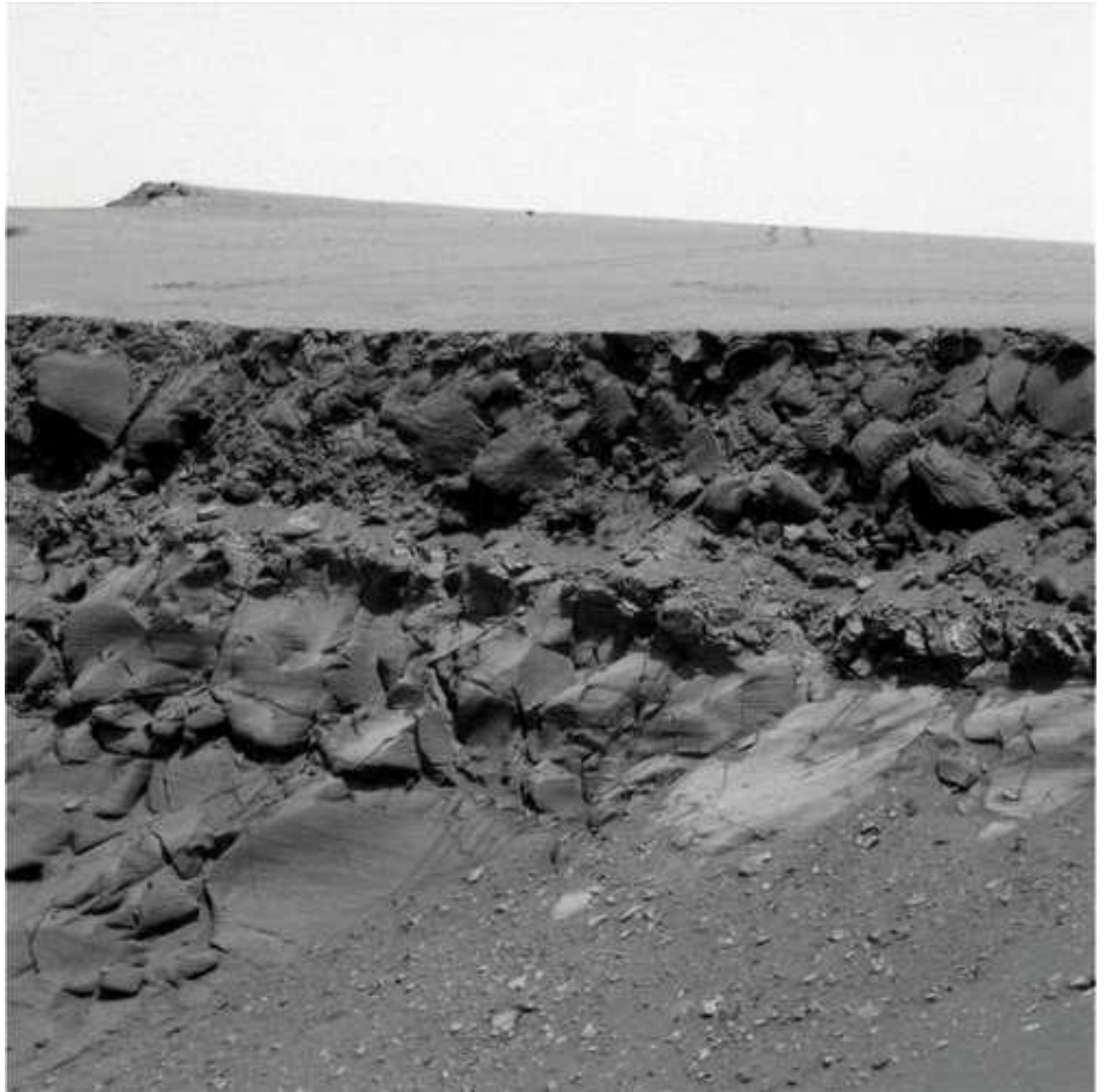


# Viking I, July 4<sup>th</sup> 1976



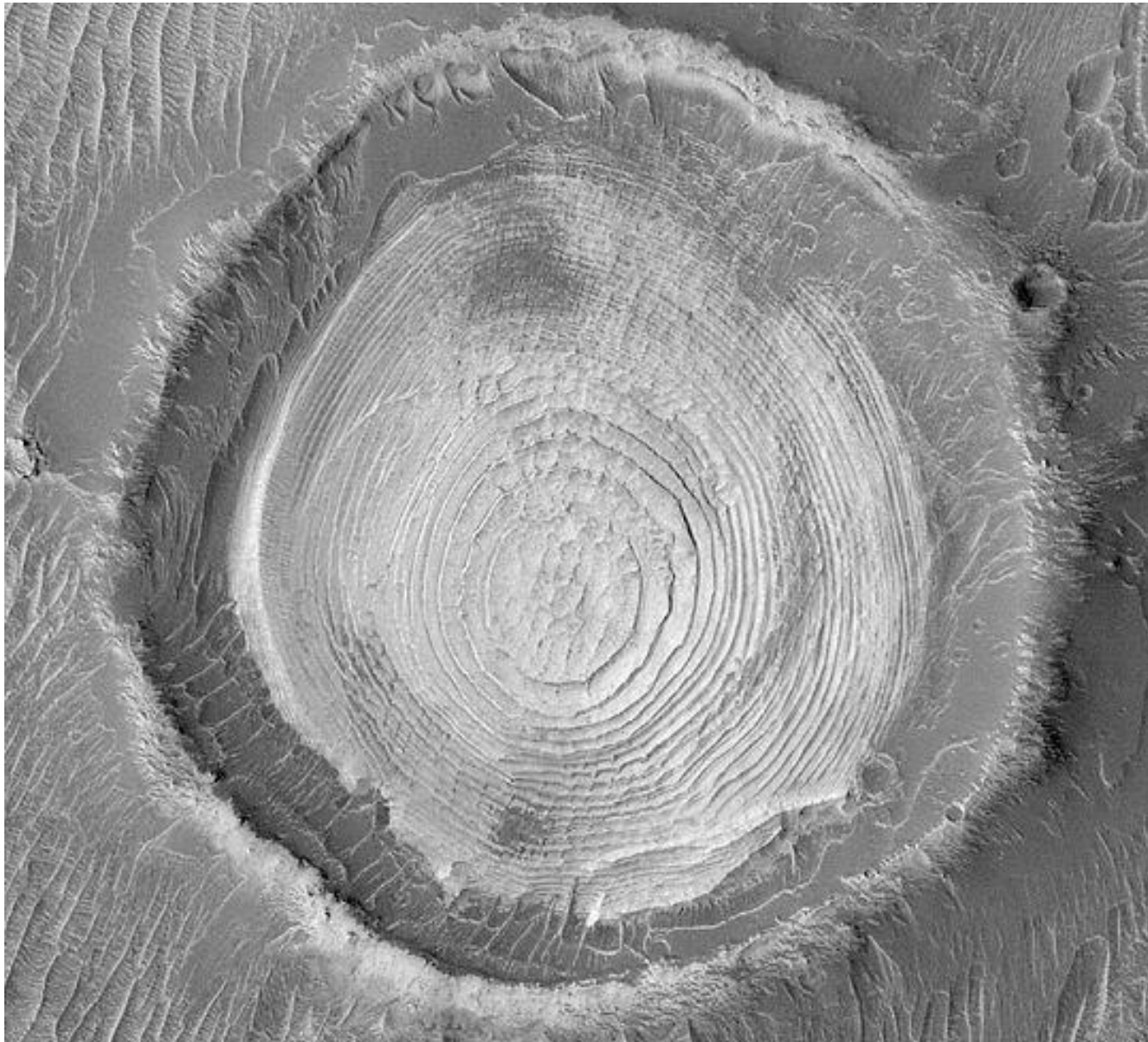
# Water on Mars

- **Sedimentation layers resemble similar terrains on Earth**





# Sedimentation Layers



**“Blueberries”** - hematite-containing spherules formed as water percolated through rock beds.

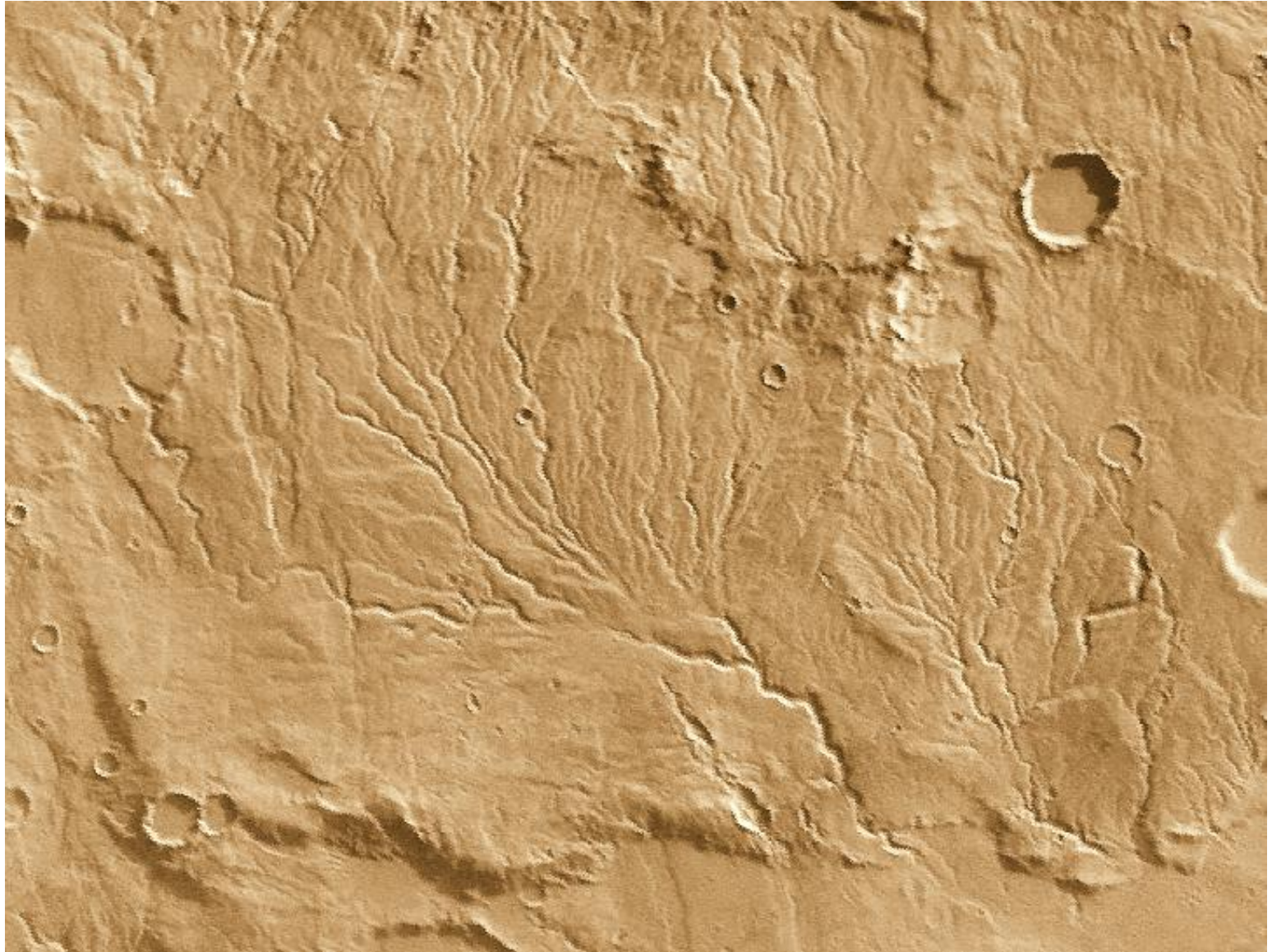


**Salt Deposits...** formed by the evaporation...  
minerals dissolved in liquid water





# Small streams feeding into a valley



# **Satellites=Moons**

## **2 moons are oddly shaped**

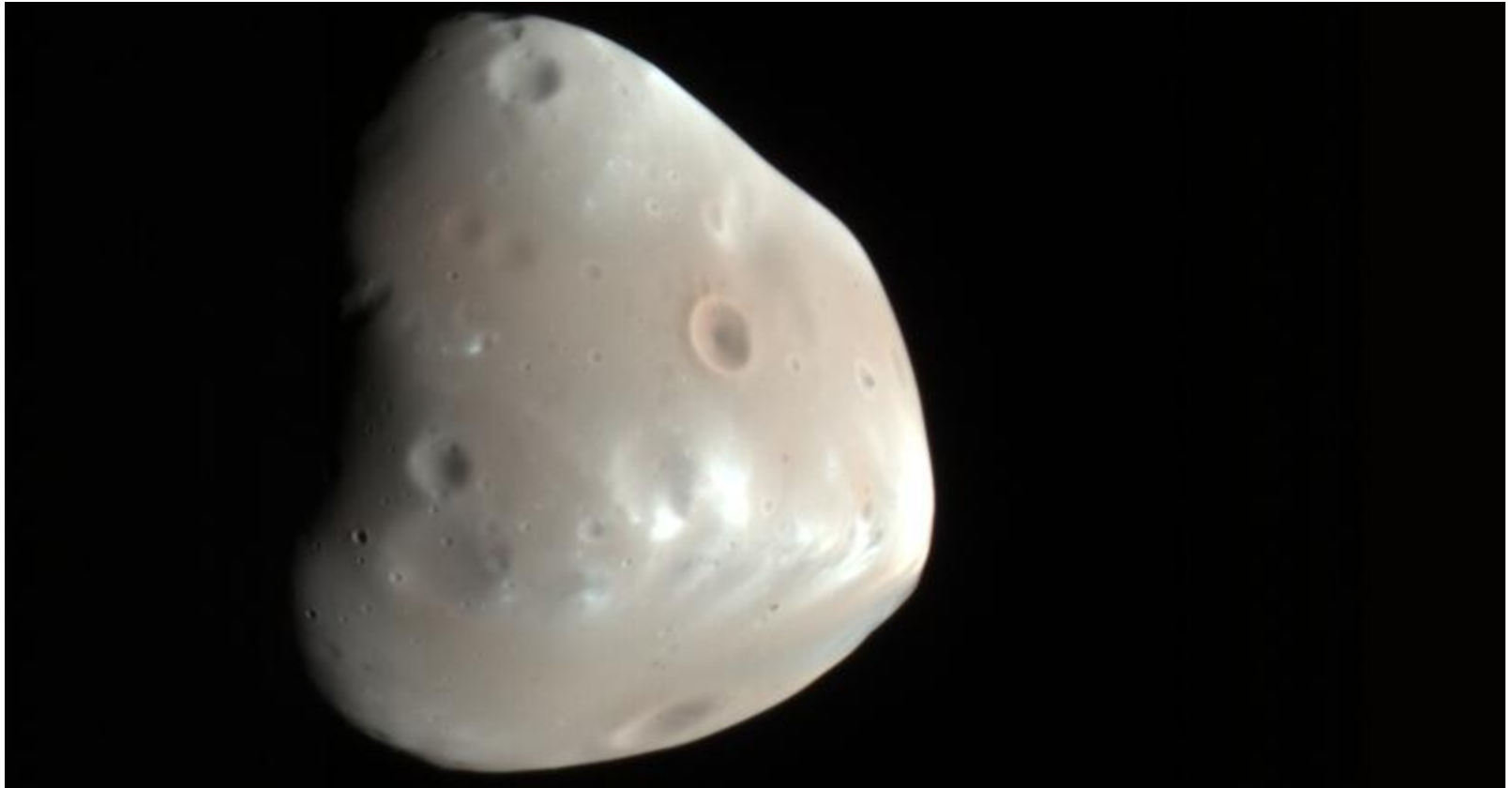


# Phobos “*Fear*”

**17 miles x 12 miles**  
**orbital period: 8 hrs.**



# Deimos “*Panic*”

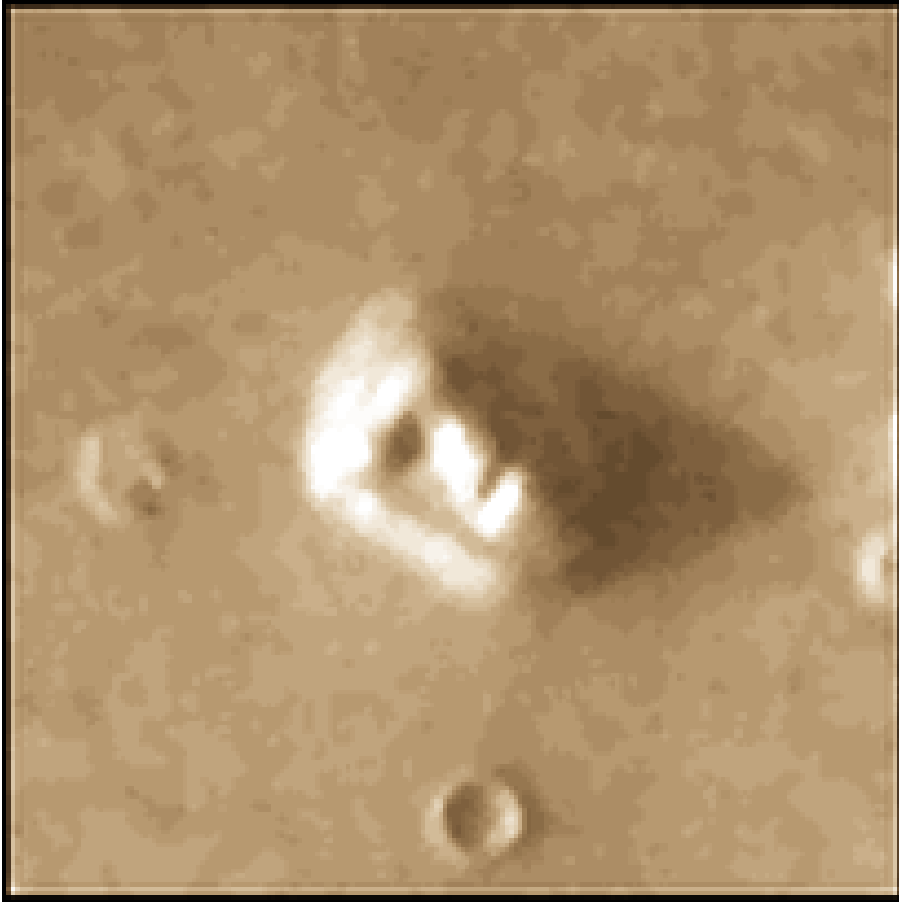


- 10 miles x 6 miles
- covered with regolith
- Orbital period: 30 hrs

**Too Bizarre to be True**



# The “Face”



# The “Happy Face”



# The “Heart”



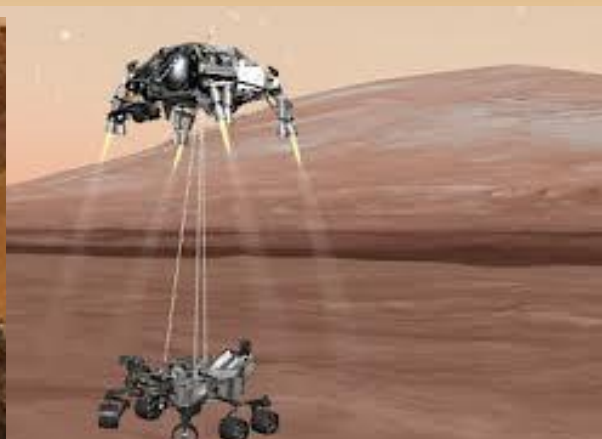
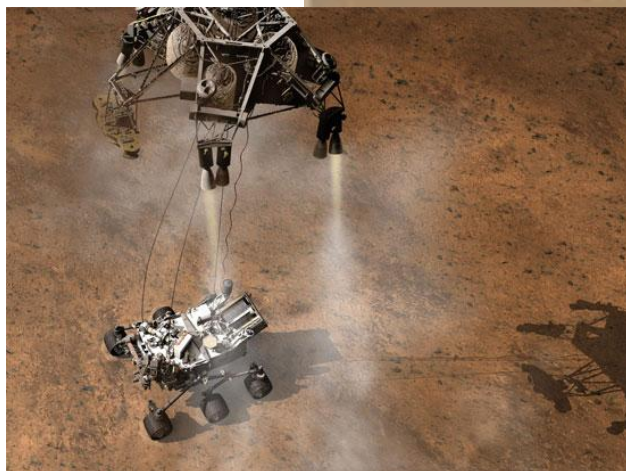
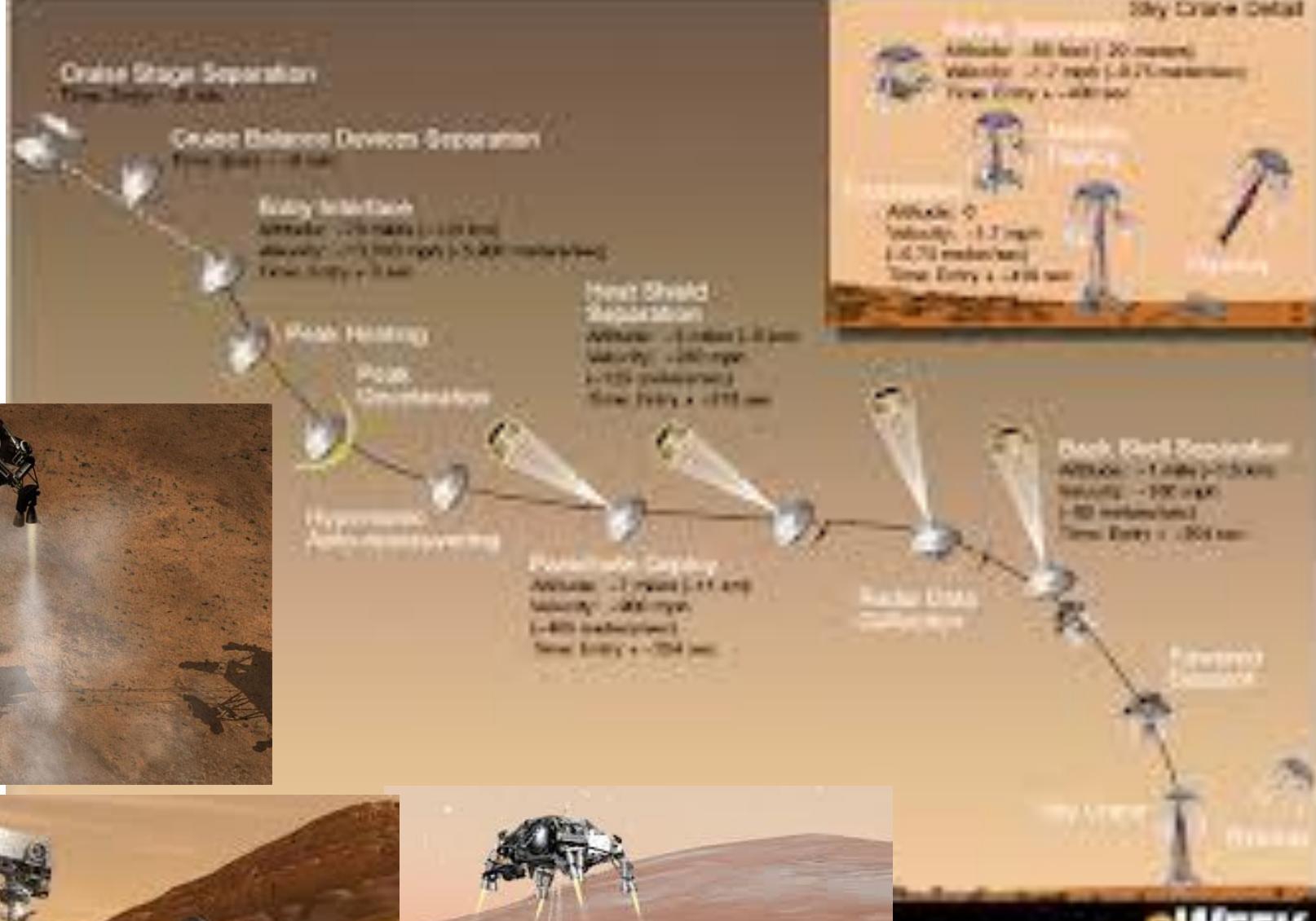


**“The Butterfly”**



**The “Hotdog”**







- how curiosity landed on mars
- how spirit and opportunity landed on mars
- A year in Space: Mars
- one way ticket to Mars
- The Mars 100
- Mars One website

# The End

