

Planetary Geology



Technical English for Geotechnology

กฤตติกา ตระกูลงาม

Planetary Geology

(Astrogeology)

The science related to geology of planets and their moons, asteroids, comets, and meteorites

**Image of Titan's Surface
(Saturn's moon)**

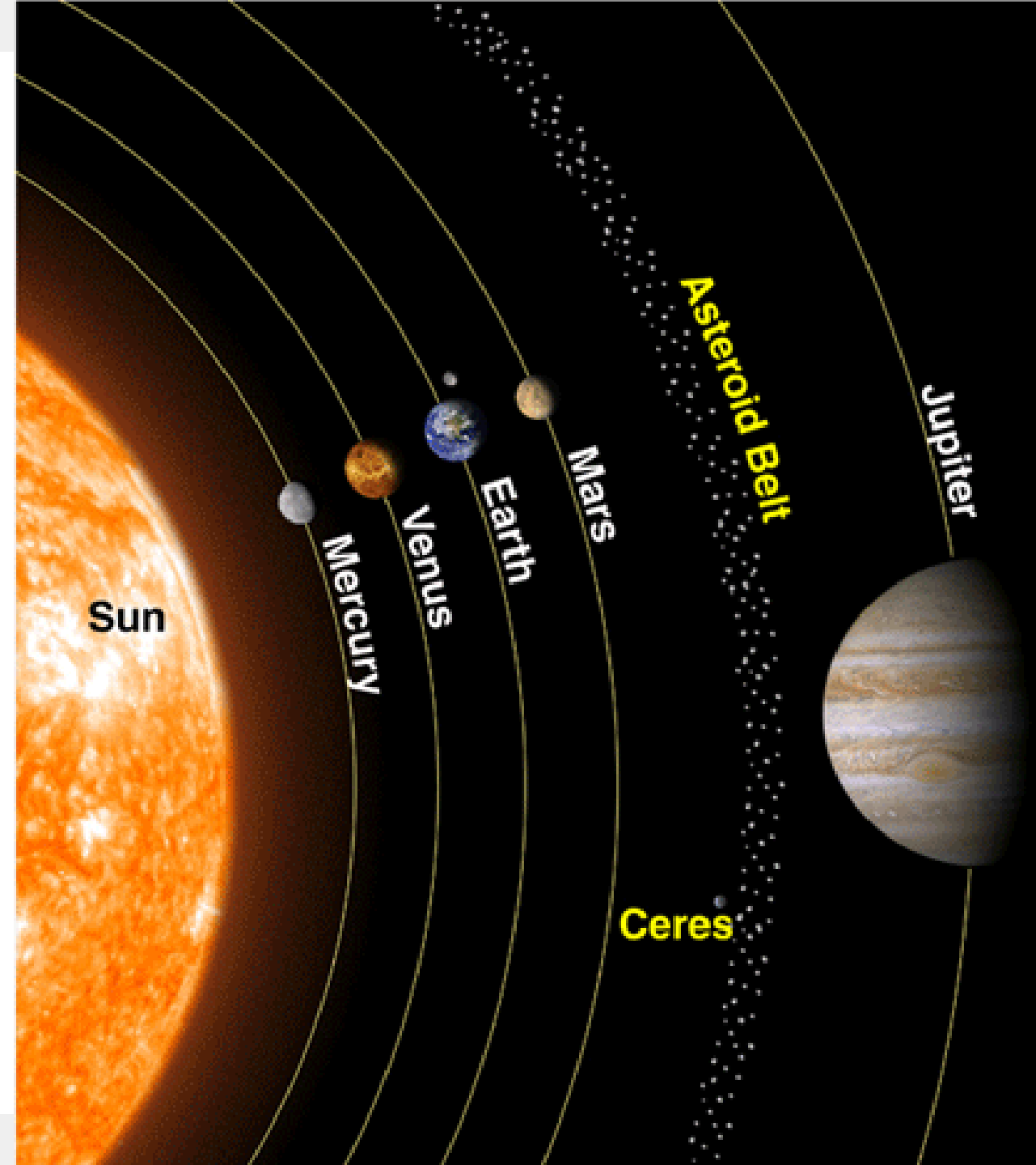
By ESA/NASA/JPL/University of Arizona; processed by Andrey Pivovarov

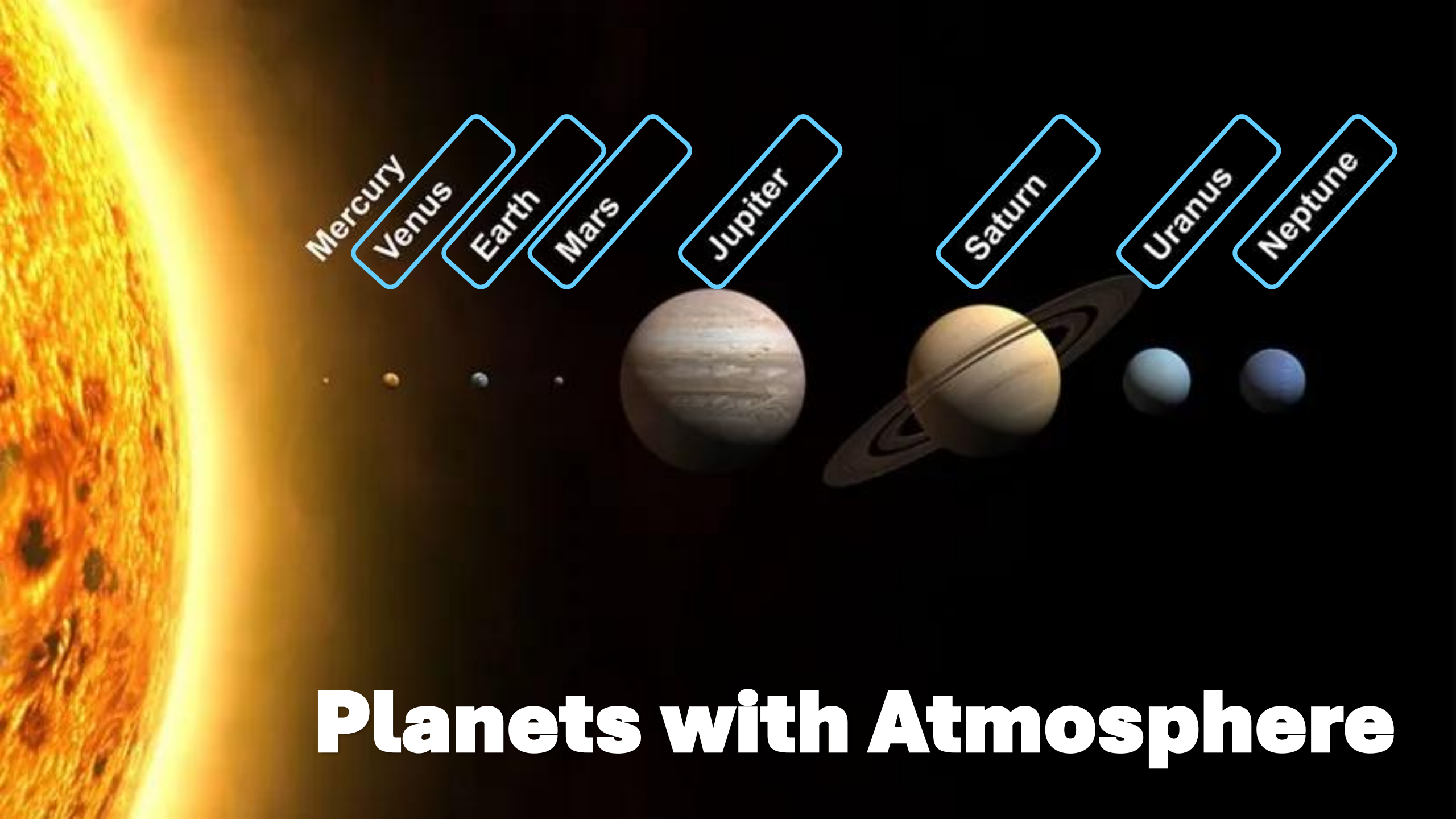


Inner Solar System Planets

All have similar geology

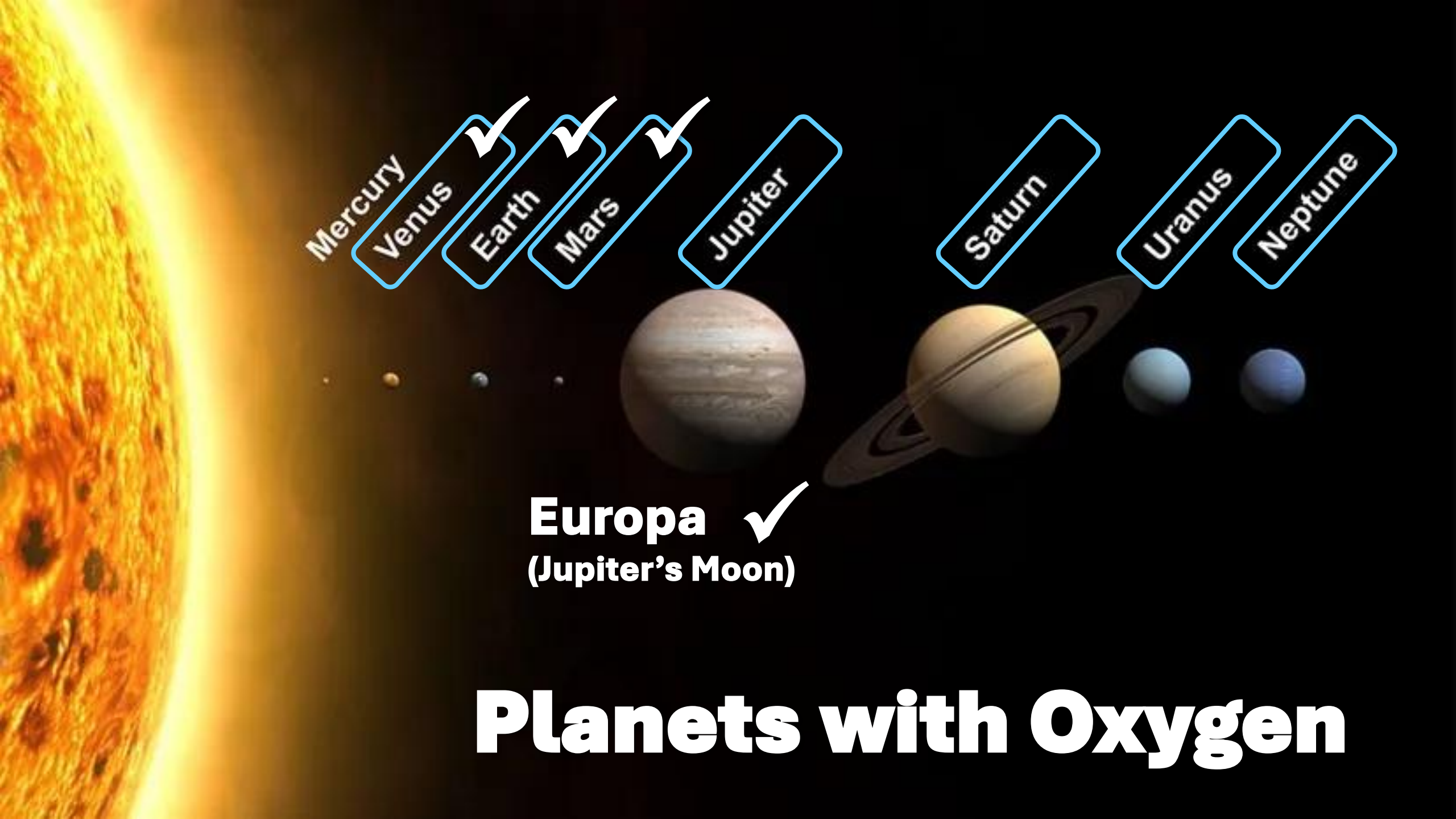
1. Volcanism (Basaltic lava)
2. Tectonics
3. Impact Craters
4. Fluvial or Aeolian Processes





Mercury
Venus
Earth
Mars
Jupiter
Saturn
Uranus
Neptune

Planets with Atmosphere



Mercury
Venus

Earth
Mars

Jupiter

Saturn

Uranus

Neptune

Europa ✓
(Jupiter's Moon)

Planets with Oxygen

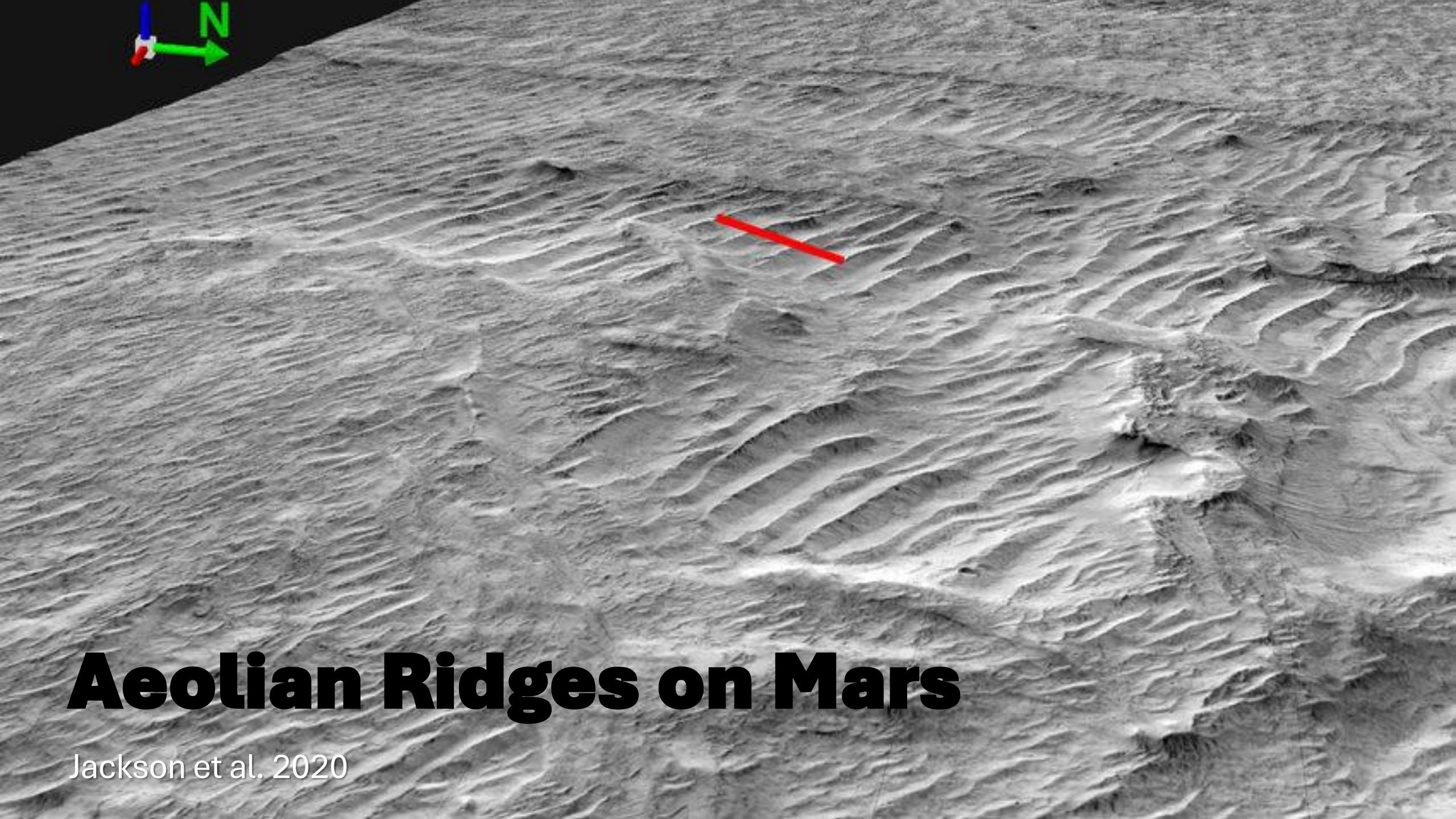


All have a Magnetic Field

Fluvial Process on Mars

7

These ridges on Mars were once river channels, now inverted into positive relief by the erosion of the surrounding rock.



Aeolian Ridges on Mars

Jackson et al. 2020

Fluvial Process on Titan

9

Radebaugh et al 2016

Alluvial fans and
Fluvial fans



5 km

Venus

Colours represent elevation

faults

folds

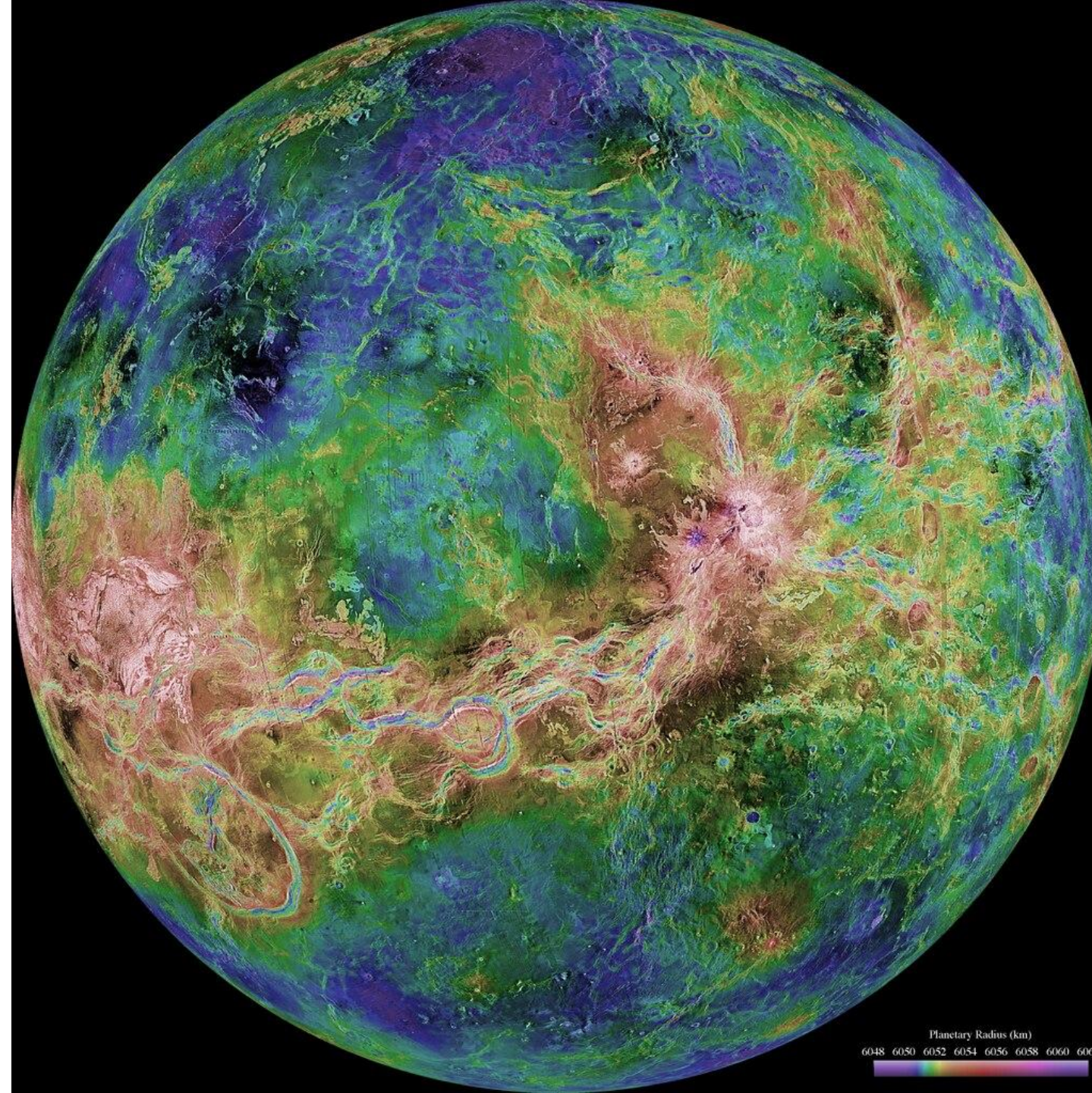
mantle convection

shield volcanoes

lava flow

chemical weathering

NASA/JPL/USGS -
https://solarsystem.nasa.gov/resources/486/hemispheric-view-of-venus/?category=planets_venus



Venus

surface covered in fine
particles <0.02 mm

erosion only by wind
(no water or ice)

