

Watery Worlds of Our Solar System

Note: Saturn and Jupiter orbit too distantly to get much warmth from the Sun. These moons are "tidally heated" or stretched and warmed by the gravity of the large planets they orbit. Saturn and Jupiter both have many other moons that are not tidally heated.

To scale size with the 1/2 meter (19 inch) Earth, left



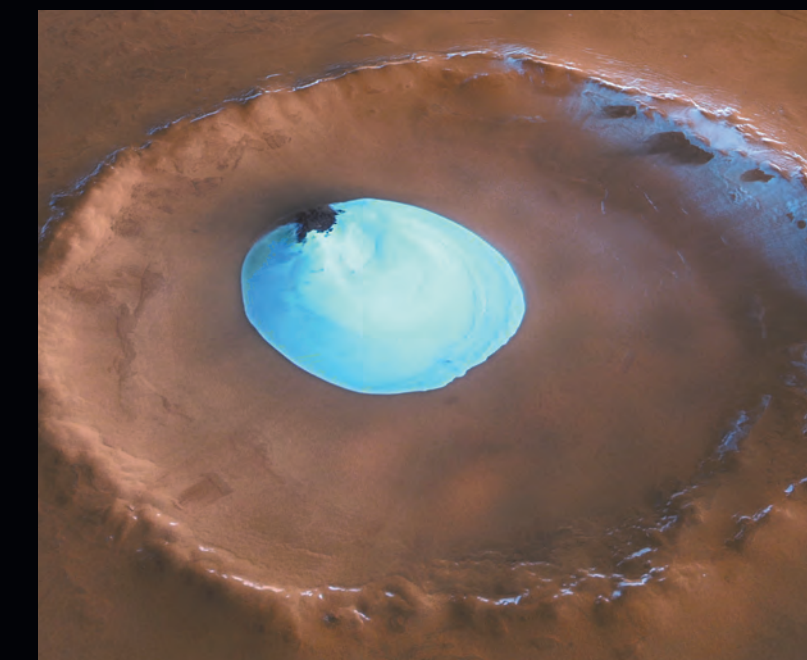
Earth

Temperature is warm enough for liquid water.
Clouds create water rain, feeding rivers, lakes and oceans of salty water.

Mars?



NASA/ESA/The Hubble Heritage Team (STScI/AURA)

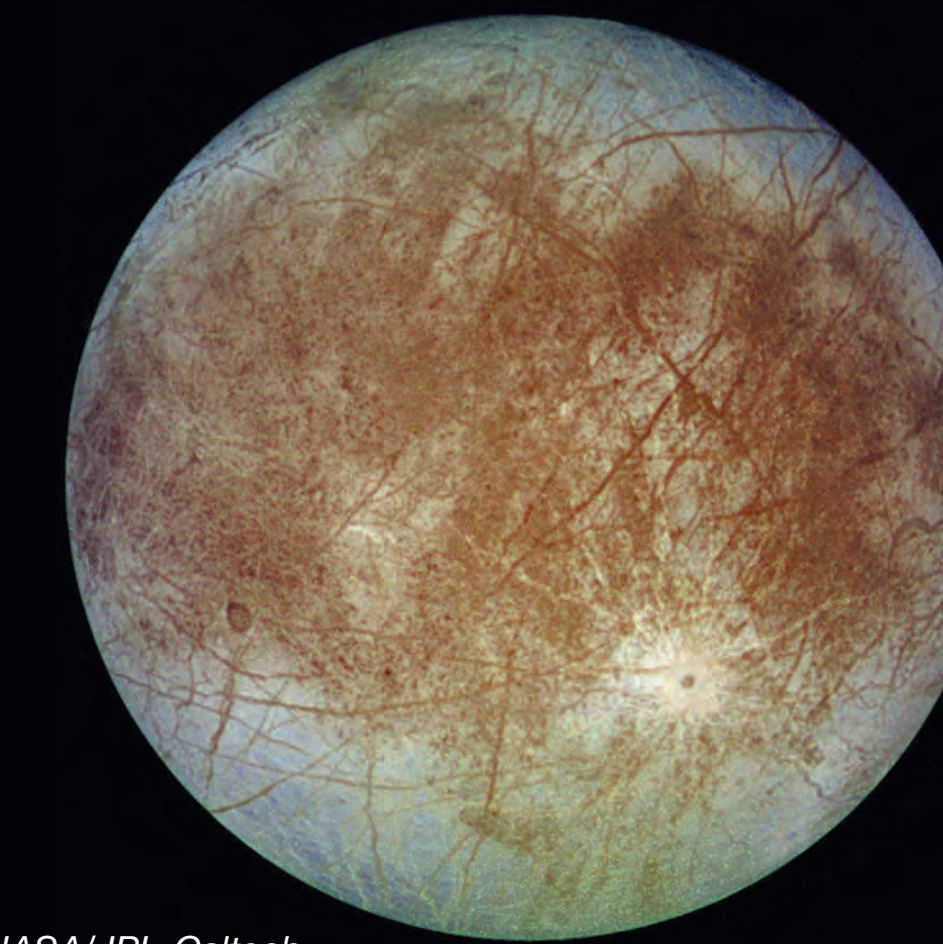


ESA/DLR/IFU

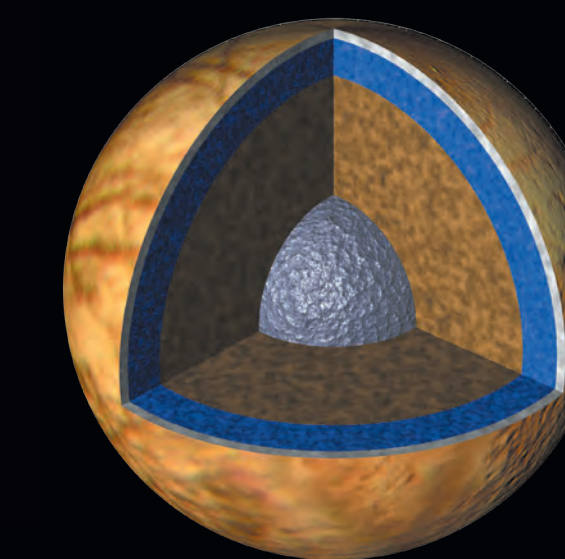
Water ice exists on the poles and surface features show a history of liquid water.
There could be underground lakes below the cold, dry surface.

Moons of Jupiter

Europa

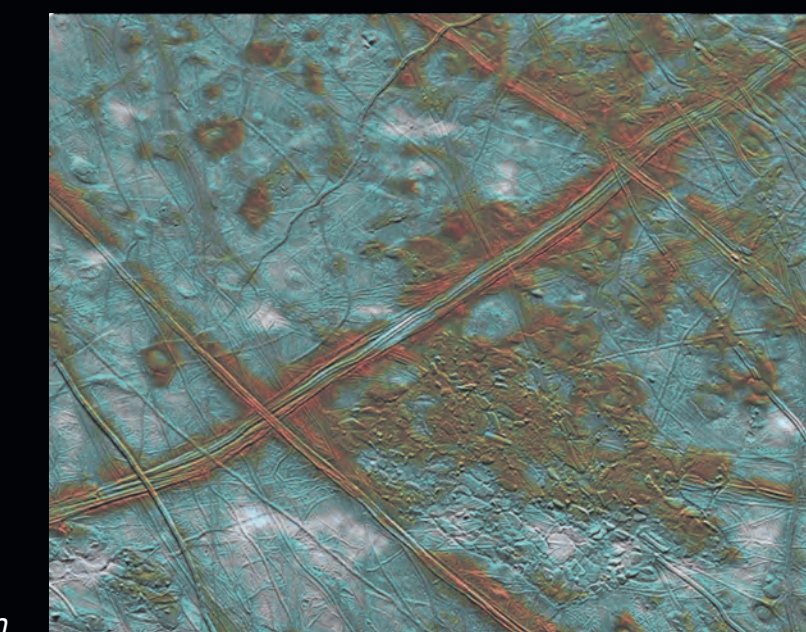


NASA/JPL-Caltech



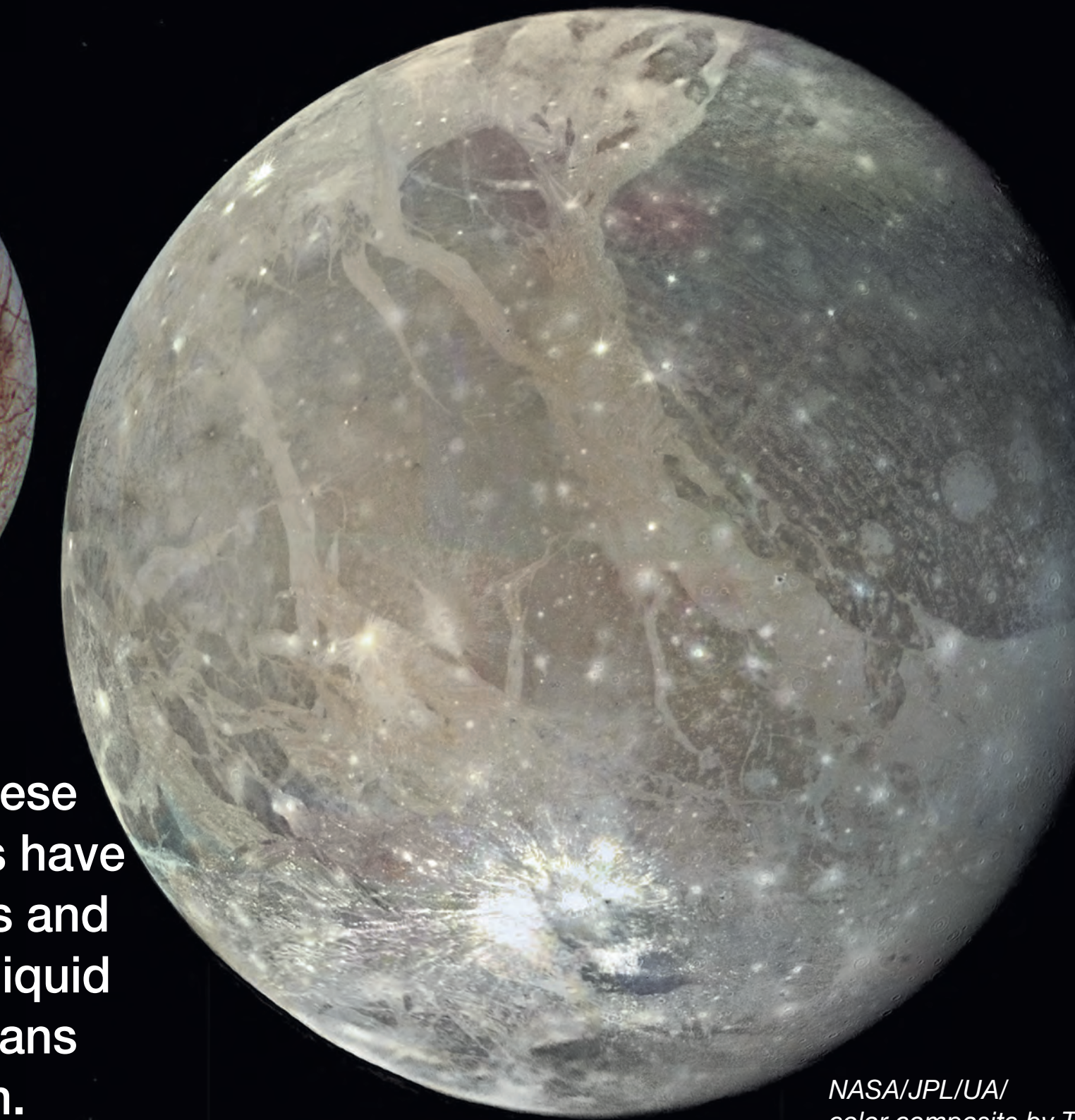
NASA/JPL

Both of these large moons have icy surfaces and likely have liquid water oceans beneath.

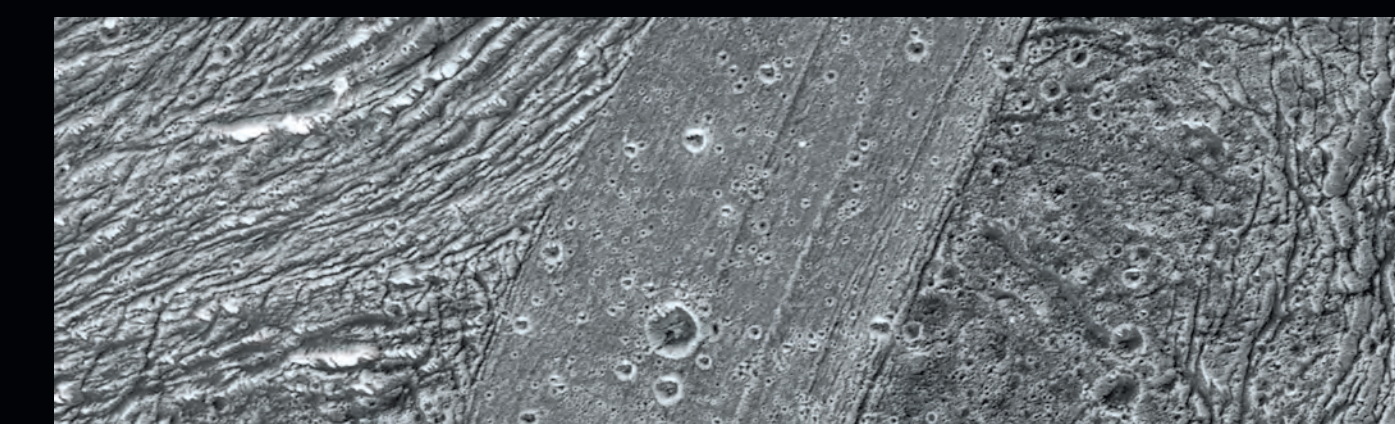


NASA/JPL-Caltech

Ganymede

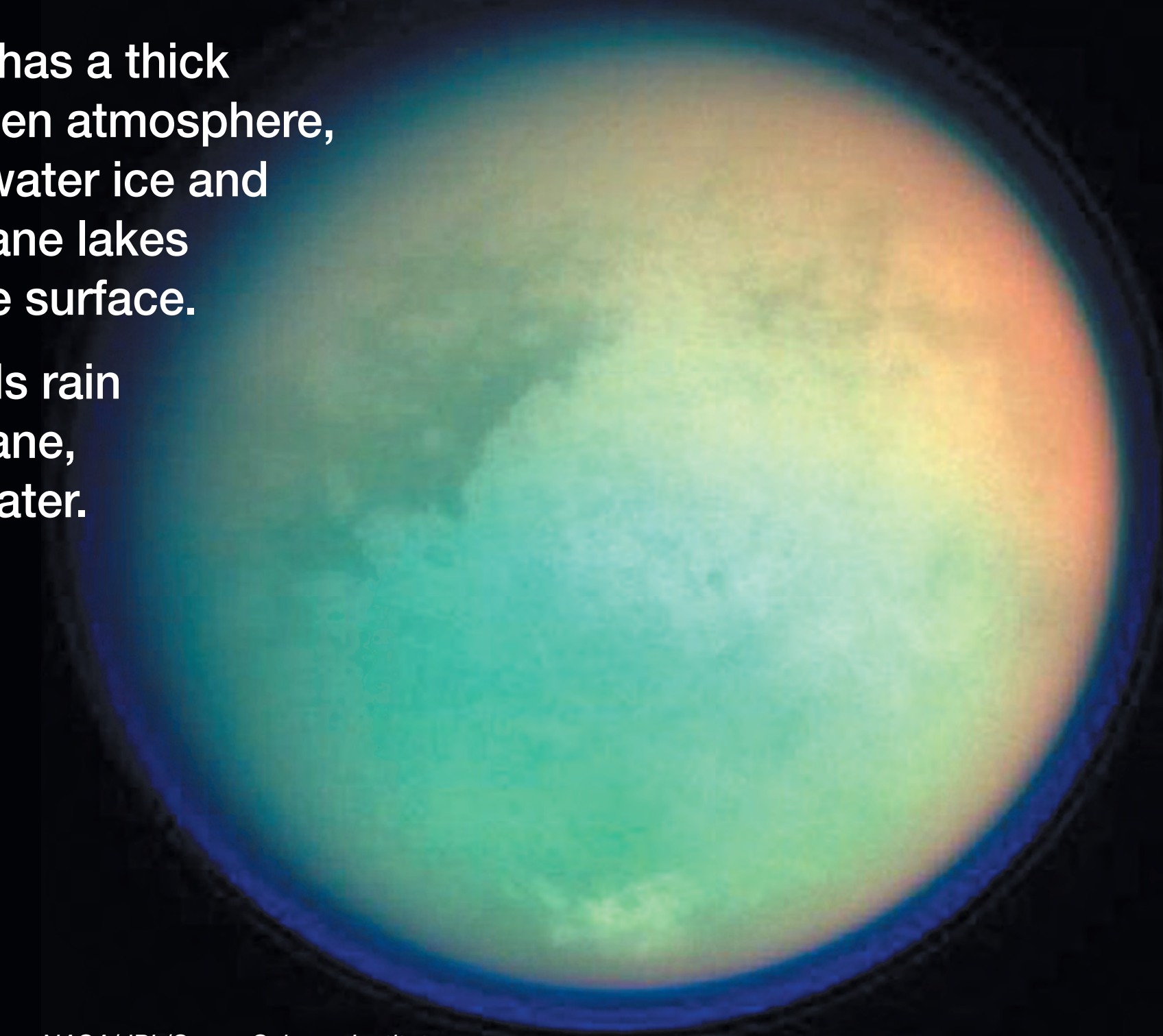


NASA/JPL/JAI color composite by Ted Stryk



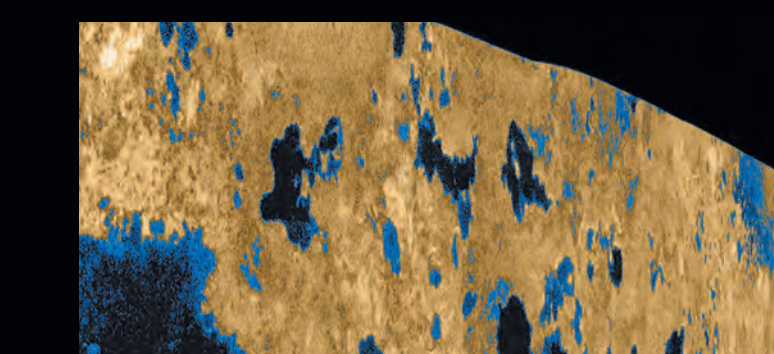
Moons of Saturn

Titan

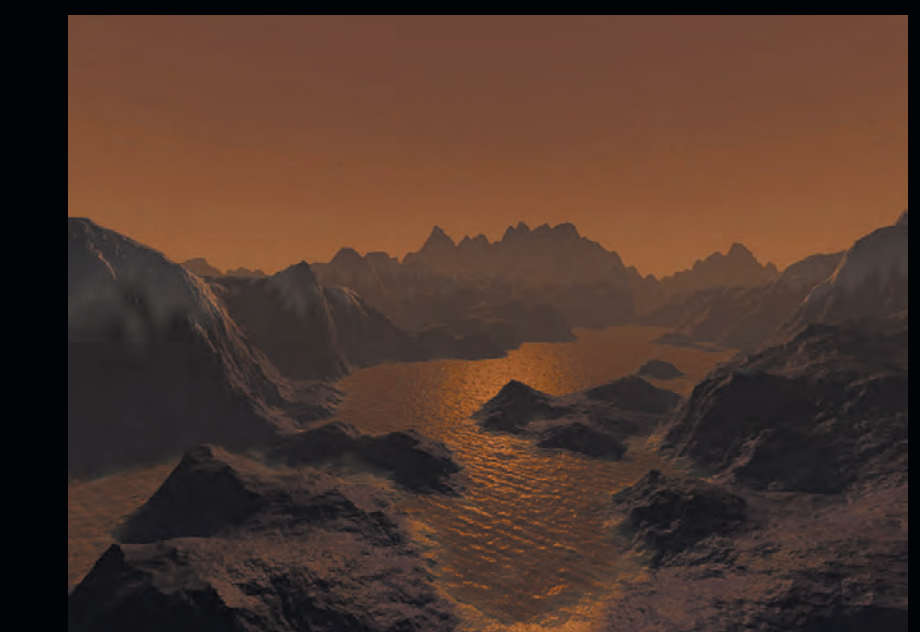


Titan has a thick nitrogen atmosphere, with water ice and methane lakes on the surface.
Clouds rain methane, not water.

NASA/JPL/Space Science Institute, image in representational color

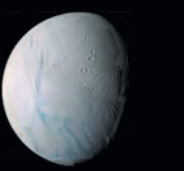


NASA/Cassini



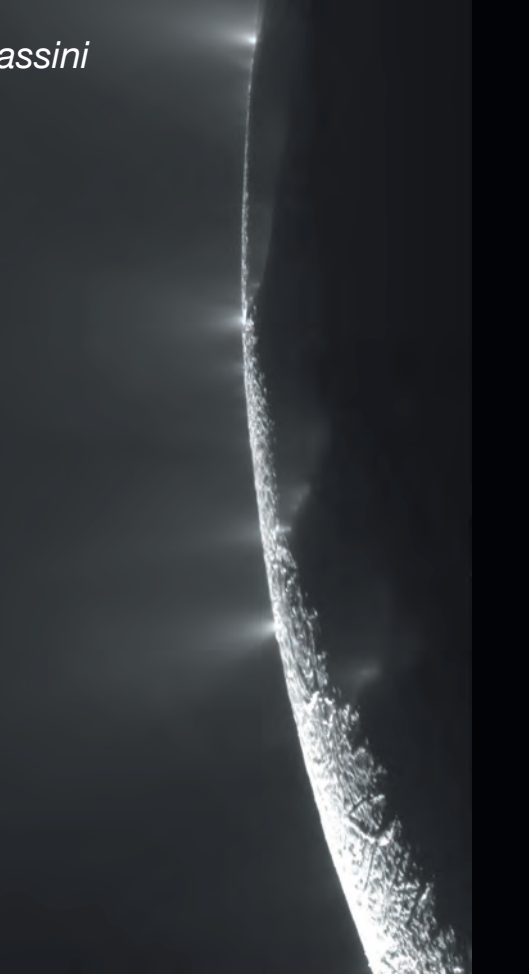
Steve Hobbs

Enceladus

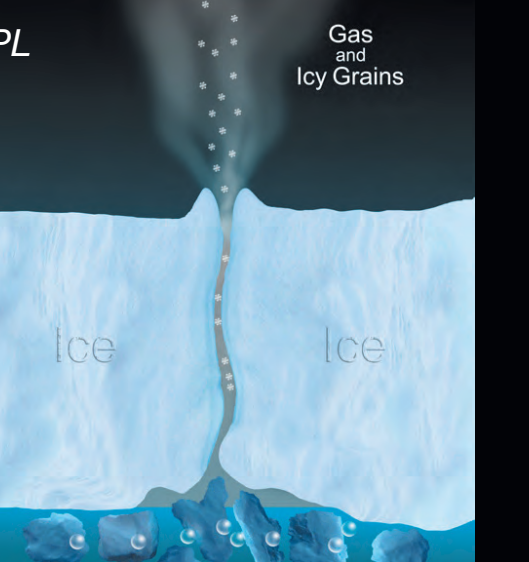


This tiny moon sprays liquid water from many geysers. A liquid ocean may exist below the icy surface.

NASA/Cassini

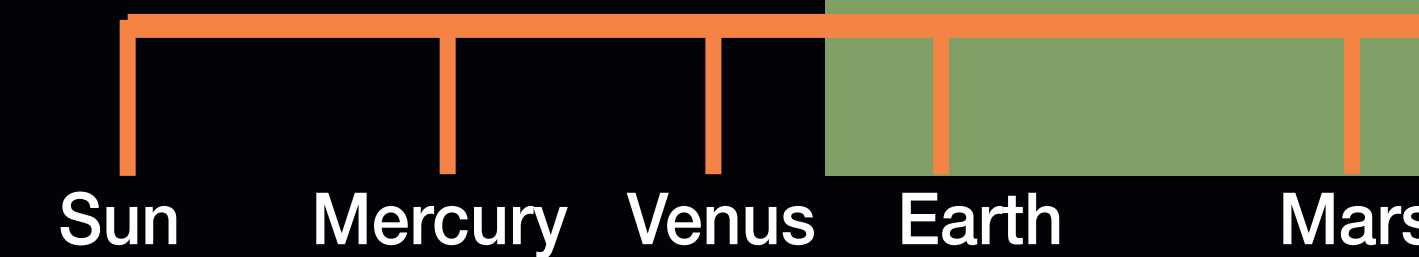


NASA/JPL



Gas and Ice Grains

Habitable Zone



NASA/GSFC

Scaled distance of the planets' orbits from the Sun

