

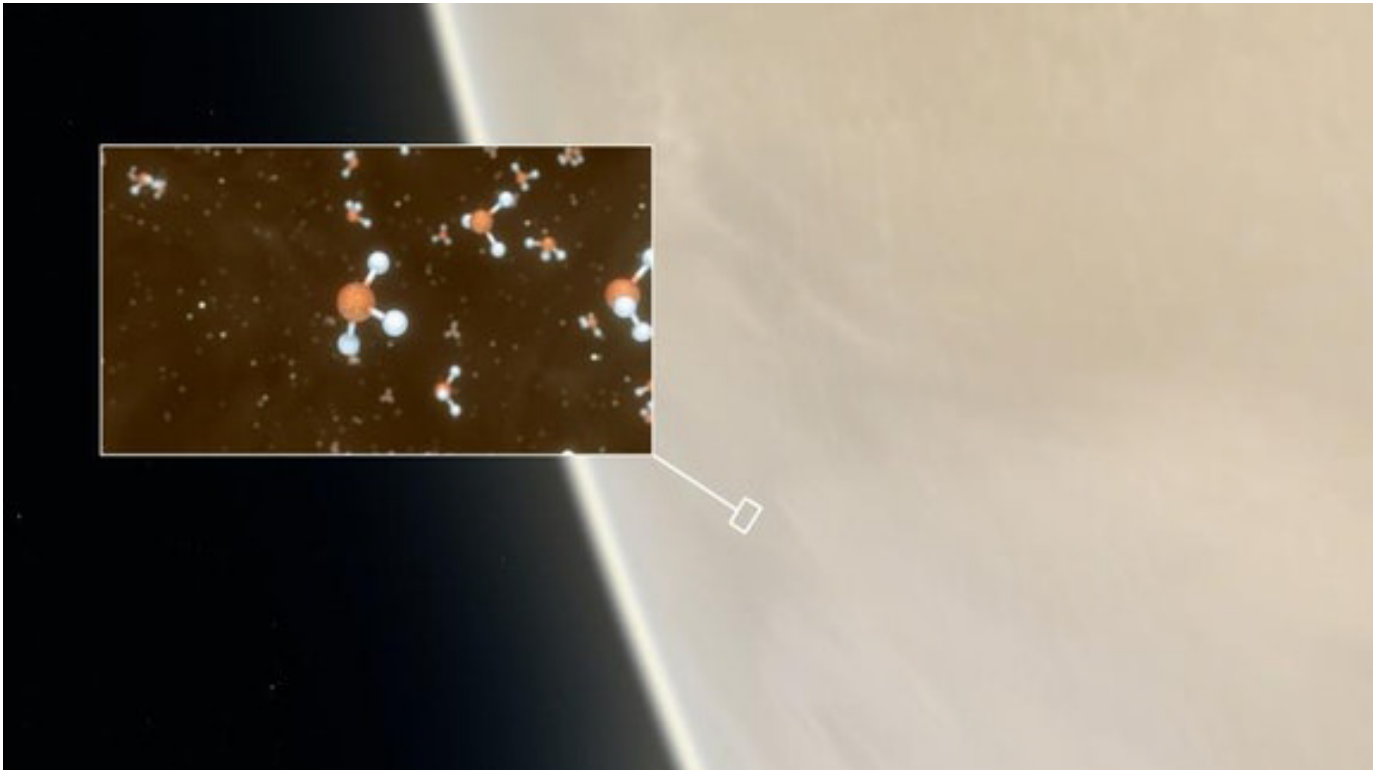


## Solar System Mission Mysteries Posters

Our Solar System is filled with mysterious locations and features, from underground lakes to unbreathable atmospheres. Take a look through the following seven posters of planets and moons, each with their own curious feature highlighted. Do any of them capture your curiosity or imagination? Choose one to think more deeply about. What might it be like to visit that world? What might you need to prepare a mission there? Continue on to the “Planetary Explorers” worksheets in the “Make a Mission” activity to plan your exploration of one or more worlds.

*Target Acquired:*

# Venus: Mysterious Molecule

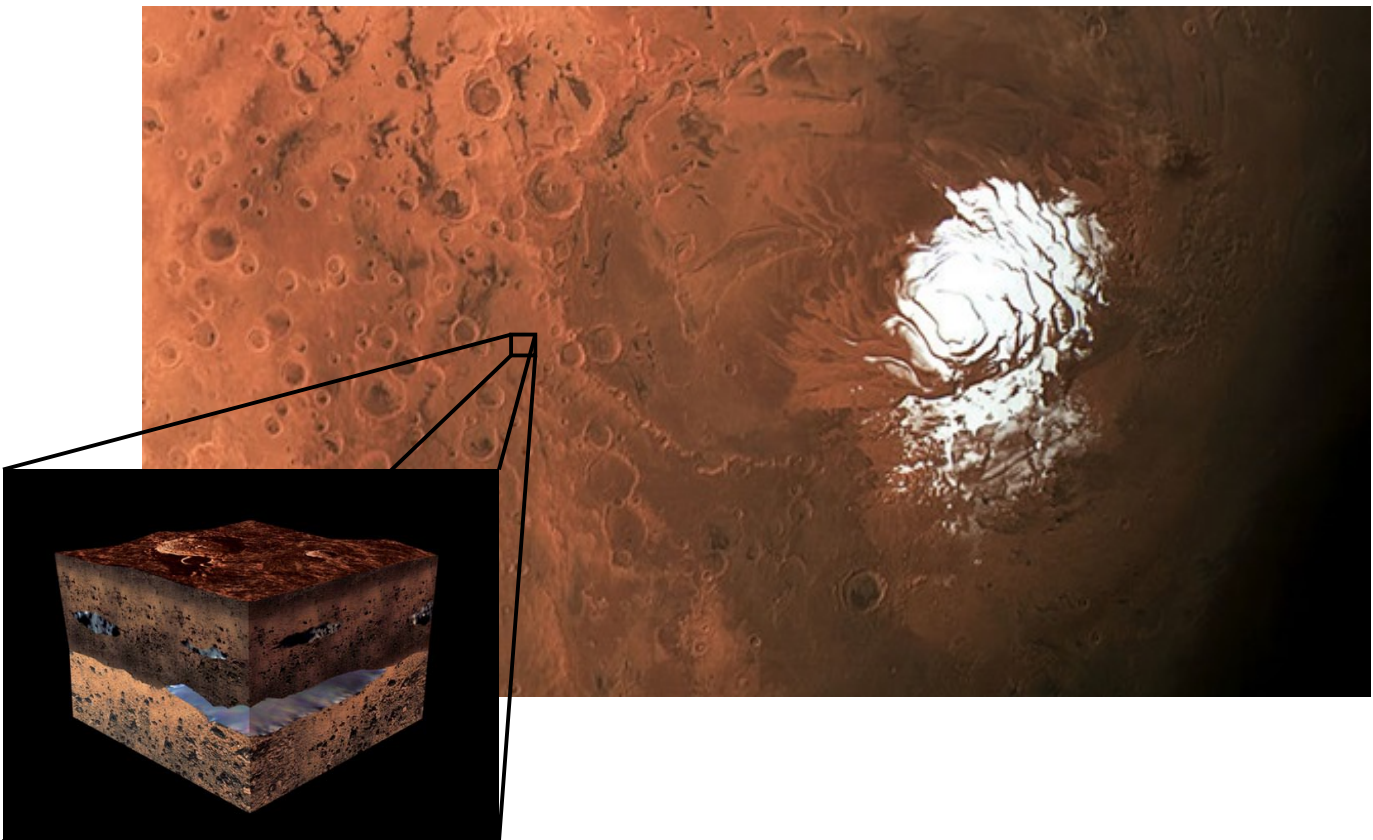


**Venus** is too hot for life as we know it to live on the surface, but higher up in the air where it is cooler, life might thrive. In fact, when scientists look at the color of some of Venus's clouds, they see a special molecule called phosphene that often comes from living things!

**Your mission**, should you choose to accept it, is to design a mission to explore Venus's clouds and find out where all the phosphene is coming from.

*Target Acquired:*

# Underground Lakes on Mars

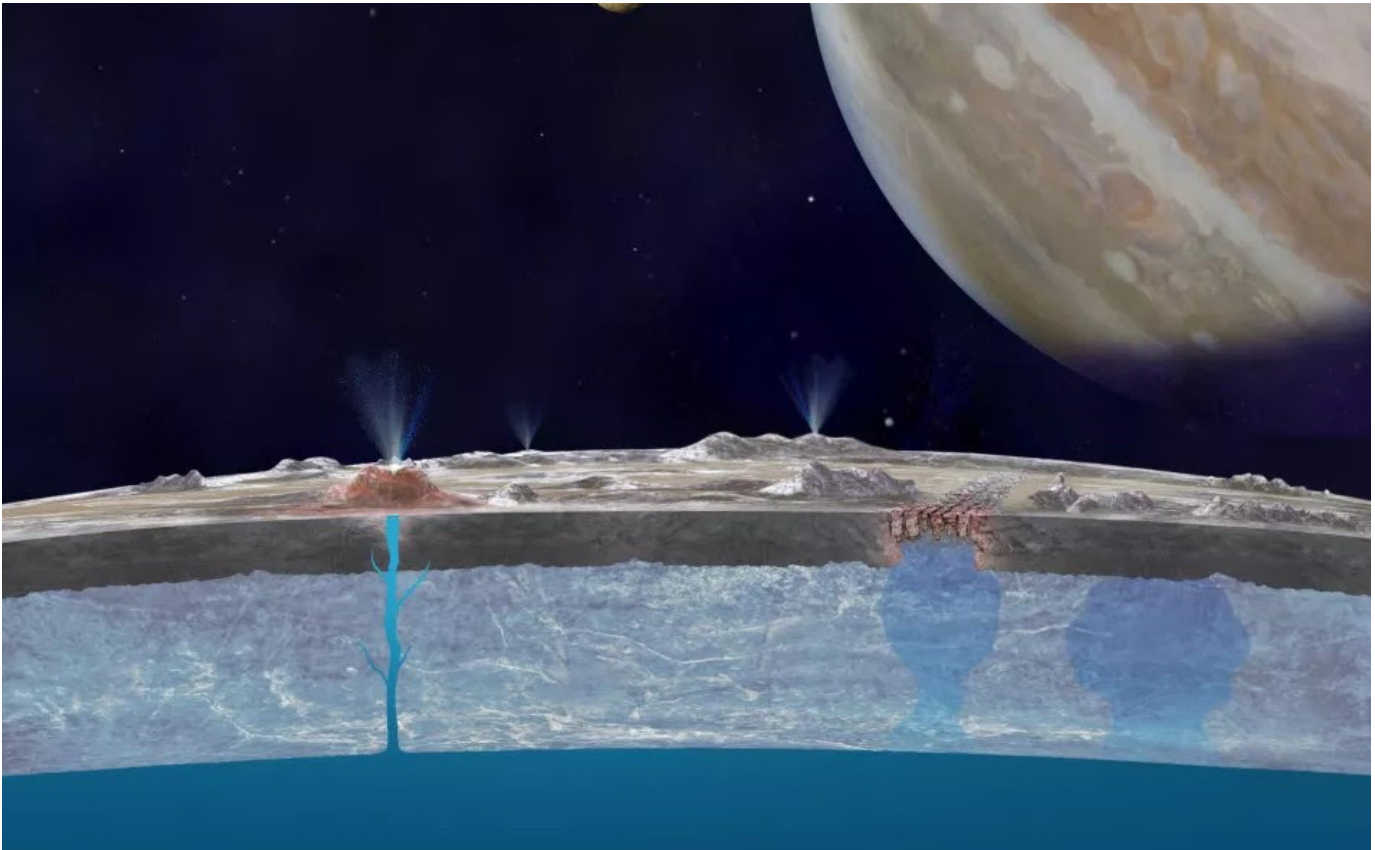


A very long time ago, **Mars** used to look like Earth, with oceans and a warm atmosphere. But today, the surface is as dry as a desert. However, scientists have recently made an exciting discovery: there are lakes of water trapped deep beneath layers of rock and dust under Mars's surface!

**Your mission**, should you choose to accept it, is to design a mission to get down to those underground lakes and find out what they're like.

*Target Acquired:*

# Europa's Trapped Ocean

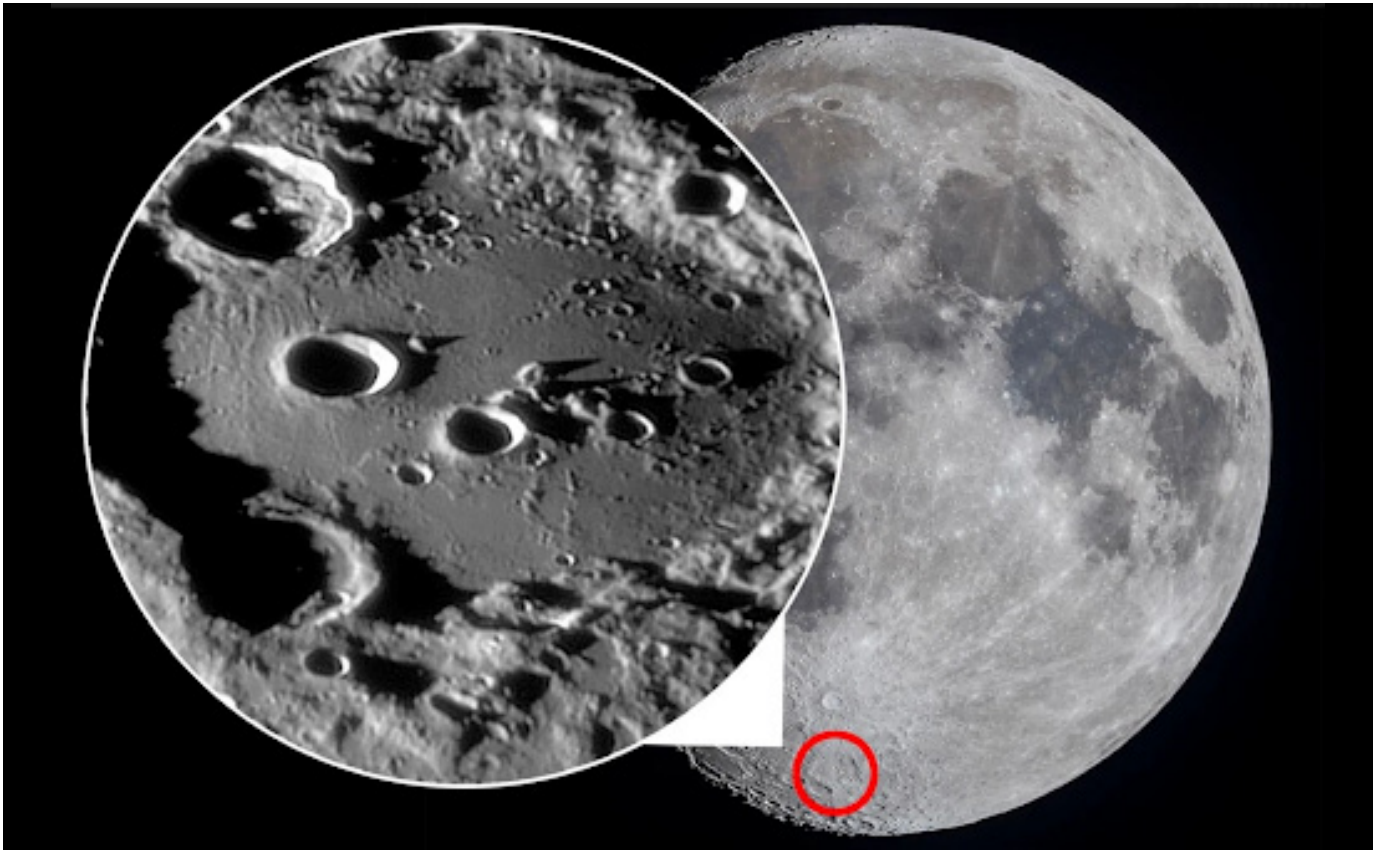


**Europa** is one of the largest moons of Jupiter. Unlike our Moon, Europa is covered in a thick layer of ice. Trapped under that ice is more water than there is on planet Earth! That ocean is kept warm by magma bubbling up from deep within the small moon.

**Your mission**, should you choose to accept it, is to design a mission to learn more about that trapped ocean under Europa's surface.

*Target Acquired:*

# Ice Shadows on the Moon



The surface of the **Moon** is 100 times dryer than the Sahara desert, and yet, we have found ice in shadows at its south pole. Humans need water to survive, so finding ice on the Moon would be a big help for astronauts: instead of wouldn't bringing it themselves, they'd just have to find it, melt it, and purify it.

**Your mission**, should you choose to accept it, is to design a mission to find and map the location of ice on the Moon's surface.

*Target Acquired:*

# Titan: Strange Atmosphere

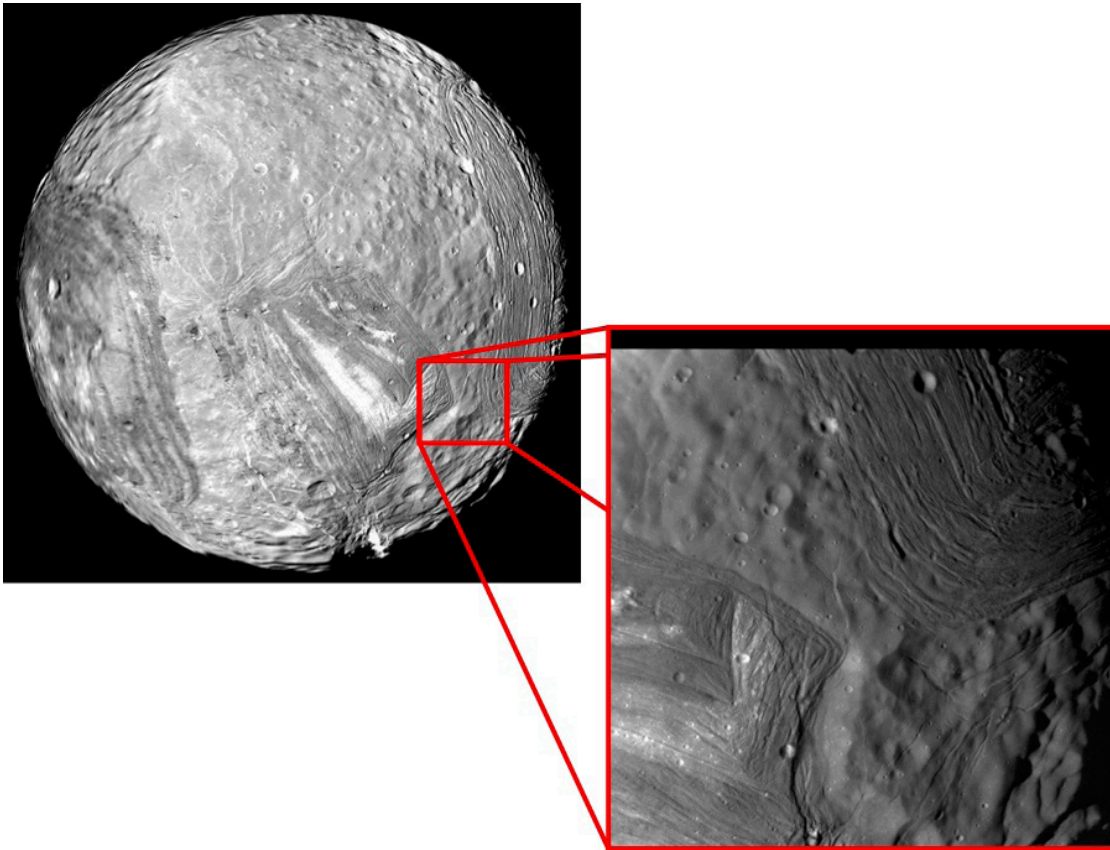


**Titan** is Saturn's largest moon, and the only moon in the solar system with a stable atmosphere. Unlike Earth's atmosphere, however, the gases on Titan are not breathable. They also block our view of Titan's surface. With the help of radar, scientists have found that there is liquid on Titan's surface!

**Your mission**, should you choose to accept it, is to design a mission to travel to Titan and explore this strange atmosphere, and the surface that lies below.

*Target Acquired:*

## Mountains on Miranda?

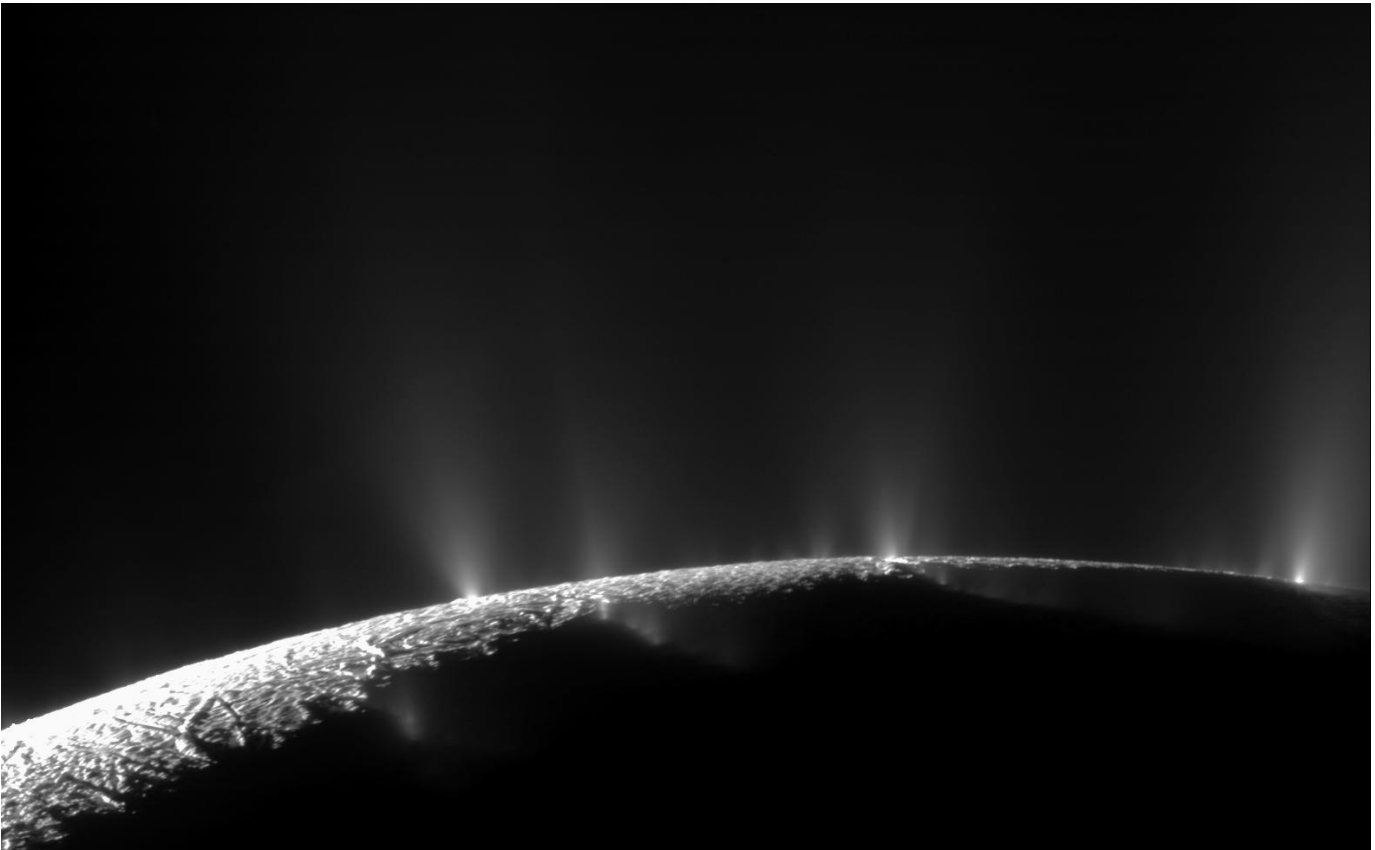


**Miranda**, one of Uranus's moons, is one of the strangest places in the Solar System. The only close look we've had was when Voyager 2 flew by in 1986 — but it still left scientists with lots of questions. It appears to have several kinds of terrain, including ridges, craters, and mountains.

**Your mission**, should you choose to accept it, is to design a mission to travel to this small moon and get a better sense of what the ground is like and why it's all jumbled up.

*Target Acquired:*

# Geysers on Enceladus



**Enceladus** is a moon in orbit around Saturn. The spacecraft Cassini flew over the top and spotted something bizarre happening on its surface: Geysers! A liquid is being launched high up away from the surface.

**Your mission**, should you choose to accept it, is to design a mission to find out if the liquid launching up off the surface is pure water or if there is something else hiding beneath the surface.