

# Venus

## Earth's sister from hell



*Venus as imaged by the Messenger spacecraft. Image courtesy of NASA.*

Venus looks tranquil. But beneath its cloud blanket, the planet named after the Roman god of beauty is anything but beautiful. Blame it on the clouds that engulf the planet.

They hide a world where the surface temperature is a constant 467°C. When it rains on Venus you are showered in sulphuric acid.

Then there's the crushing atmospheric pressure. It's 93 times that of Earth. The minute you stepped out on Venus you'd be broiled, eaten by acid and crushed like an empty beer can. Have a nice day!

### Quick Smarts

Distance from Sun - 108,200,000 km  
Distance from Earth - 261,000,000 km  
Position in solar system - 2<sup>nd</sup> from Sun  
Moons - 0  
Diameter - 12,104  
Atmosphere - 96% Carbon dioxide  
Atmospheric pressure - 93 Bar  
Surface composition - Volcanic  
Surface temp - 467°C  
Cloud top wind speed - 360 km/h  
Gravity VS Earth - .85%  
Orbital period - 225 Earth days  
Length of day - 243 Earth Days

The reasons for Venus' unfriendly personality are its clouds. They cover the entire planet like a greenhouse effect gone wildly wrong. They not only trap heat from the planet's molten surface, they also bounce it back down to the surface. To make matters worse, they let heat in from the Sun. So the temperature soars even higher. But their evil deeds aren't over yet.

Any Earthling who could survive Venus' heat would choke on the planet's atmosphere. It's 95% carbon dioxide. And let's not forget the storms and 360 km/h winds on Venus. Now you can begin to understand why Earth's so-called sister planet should be named Earth's evil sister.



*Soviet Venera 13 probe image looking out towards the distant horizon. Lower portion of probe is visible in lower portion of image.*

Venus came to be known as our sister planet because there are some similarities. Size-wise, Earth and Venus are a near match with the edge going to Earth. Both are in the habitable zone – close enough to the Sun that water shouldn't evaporate or be completely frozen over. Venus is just 30% closer to the Sun than is Earth. Even our orbital periods are close. Venus takes 243 days to orbit the Sun while Earth takes 365. No one knew what was beneath the Venusian cloud cover, so people imagined the best.

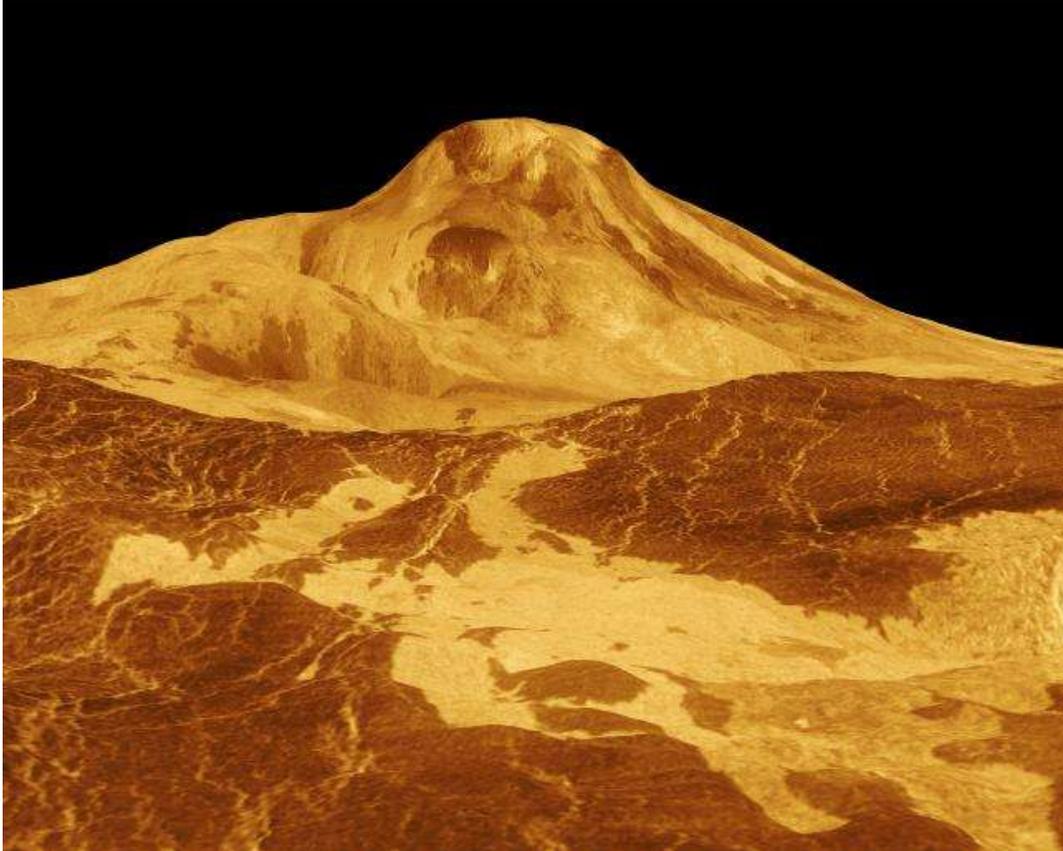


These were the times when scientists and science fiction writers thought that the surface of Venus was warm and tropical – like Florida. Romance novels were set in the imagined lush, tropical landscape of Venus. Intelligent fish-like creatures inhabited the oceans. Some paperbacks claimed there were beings there – handsome men and beautiful women. Boy, were we in for a surprise when the first spacecraft touched down.

The Venera missions from the Soviet Union were the first and only space probes to land on the inhospitable world so far. The longest a probe lasted was a little over 2 hours before it went silent. But that was time enough

to capture some images and send them back to scientists on Earth who eagerly awaited them.

NASA also made observations of Venus. But the agency used an orbiter equipped with a radar imaging camera to penetrate the cloud structure and image the surface in detail. It didn't qualify as an official "Venus landing" but it did show that Venus had been an active volcanic planet and was covered with lava flows and mountains that may still be active volcanoes. Both the U.S. and Soviet results were the same – avoid Venus.



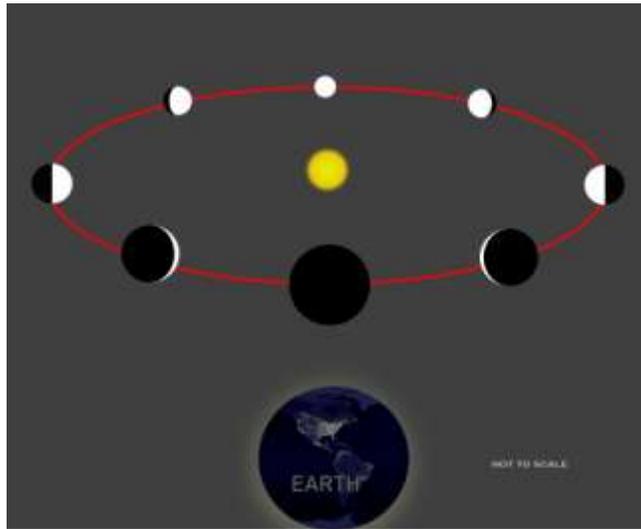
*Maat Mons is one of 1,000 large volcanoes on Venus. 3D image created by NASA.*

Nonetheless, both NASA and the Soviet Union had plans for a manned Venus flyby in the late 1960s. There were even rumours that the Russians had already tried it, but the crew perished during the mission. It was probably a lot of malarkey, it did add to the mysterious intrigue of the planet.

But Venus' bizarre nature doesn't end with its atmosphere. Earth's contrary sister also rotates backwards on its axis. If you could live on Venus you'd see the Sun rise in the west and set in the east. Scientists think this might have been caused by an impact from a proto-planet during our solar systems early period.

Venus is also an inner planet, so when we see it we are looking in towards the centre of our solar system. That's why we sometimes see it as the "morning star" and as the "evening star" at others. Of course Venus isn't a star, it's a planet. This inward view of Venus is also why we see it go through phases as the Sun lights it from different angles. Sometimes the phases are visible through binoculars, but a small telescope will show this phenomenon better. Galileo first observed the phases of Venus in 1610 through

his homemade telescope. By the way, Galileo didn't invent the telescope. Credit for that goes to Franz Lippershey a Dutch optician who specialized in spectacles.



**The illustration above demonstrates the Venesian phases.**



Perhaps the best way to enjoy Venus is from a safe distance. In a spectacular view like this it's easy to see why the ancient Romans named Venus for their goddess of beauty. Little did they know!