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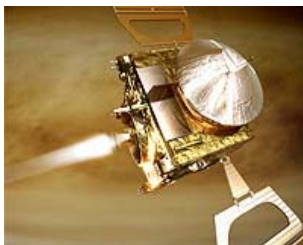
## Hot Venus Now Studied by ESA's Venus Express

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The CO<sub>2</sub> and sulfuric acid atmosphere of Venus is 90 times denser at the surface than Earth's and that greenhouse gas blanket retains almost all of the heat Venus receives from the sun, making the planet's surface temperature 480 ° C (896 °F). Image by ESA.

Earthfiles, news category.



Artist's illustration of Venus Express firing its rocket engine to slow down into orbit around the hot planet on April 11, 2006. Image by ESA.

**April 11, 2006 Darmstadt, Germany** - The European Space Agency (ESA) reported this morning that "at the end of a 153-day and 400-million km cruise into the inner Solar System beginning with its launch on 9 November 2005, ESA's Venus Express space probe fired its main engine at 09:17 CEST for a 50-minute burn, which brought it into orbit around Venus. With this firing, the probe reduced its relative velocity toward the planet from 29,000 to about 25,000 km/h and was captured by its gravity field. This orbit insertion maneuver was a complete success.

"During the next four weeks, the Venus Express probe will perform a series of maneuvers to reach the scheduled operational orbit for its scientific mission. It will move from its current highly elongated 9-day orbit to a 24-hour polar orbit, culminating at 66,000 kilometers. From this vantage point, the orbiter will conduct an in-depth observation of the structure, chemistry and dynamics of the atmosphere of Venus."

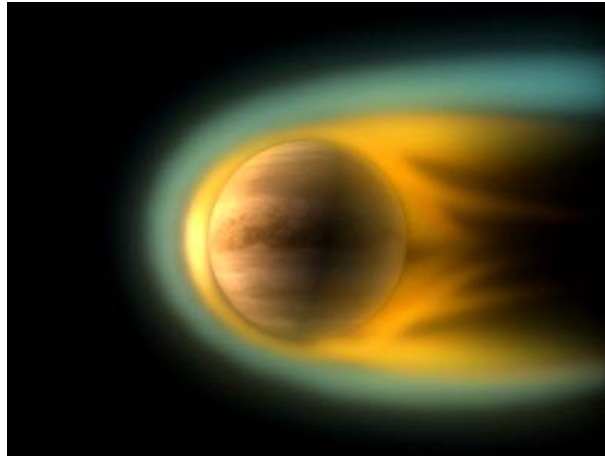
## Monitoring Venus's Strange, Spinning Atmosphere

"From previous missions to Venus as well as observations directly from Earth, we already know that our neighboring planet is shrouded in a thick atmosphere where there are extremes of temperature and pressure conditions. This atmosphere creates a greenhouse effect of tremendous proportions as it spins around the planet in four days in an unexplained 'super-rotation' phenomenon.

"The mission of Venus Express will be to carry out a detailed characterization of this atmosphere, using state-of-the-art sensors in order to answer the questions and solve the mysteries left behind by the first wave of explorers. It will also be the first Venus orbiter to conduct optical observations of the surface through 'visibility windows' discovered in the infrared spectrum.

"The commissioning of the onboard scientific instruments will begin shortly and the first raw data are expected within days. The overall science payload is planned to be fully operational within two months.

## Venus Has No Protective Magnetosphere



Artist's illustration of bombarding solar wind against surface of Venus which has no protective magnetosphere as Earth does. Image credit: ESA and C. Carreau.

"Venus is a planet with no intrinsic magnetic field, which is quite different from Earth. Venus has no shield to protect it from the continuous attack of the capricious and violent solar wind. Venus Express will study how much of the atmosphere of the planet escaped under the bombardment of the solar wind and how much it combined with the surface material. On the outer edge of the atmosphere, the Aspera instrument and a magnetometer will investigate the interaction with the solar wind and plasma it generates in an open environment without the protection of a magnetosphere like the one we have around Earth. The VMC wide-angle multi-channel camera will provide imagery in four wavelengths, including one of the 'infrared windows' which will make imaging of the surface possible through the cloud layer. It will provide global images and will assist in the identification of phenomena detected by the other instruments."

## Does Venus Have Active Volcanoes?



ESA illustration of what a volcanic Venusian surface might look like. Image credit: ESA and AOES Medialab.

"An artist's illustration of possible volcano on Venus. Based on data from previous missions to the hot planet, Venus might be among the most geologically active in the solar system. Venus Express will look for gaseous markers in the lower layers of the atmosphere and variations in the planet's temperature which might indicate volcanic activity. Local variations in atmospheric temperature and pressure might also indicate seismic activity."

## ESA Spacecraft Now Studying Venus, Moon, Mars and Saturn

"With the arrival of Venus Express, ESA is the only space agency to have science operations under way around four planets: Venus, the Moon, Mars and Saturn."

“To better understand our own planet, we need to explore other worlds in particular those with an atmosphere,” said Jean-Jacques Dordain, ESA Director General. “We’ve been on Titan and we already are around Mars. By observing Venus and its complex atmospheric system, we will be able to better understand the mechanisms that steers the evolution of a large planetary atmosphere and the change of climates. In the end, it will help us to get better models of what is actually going on in our own atmosphere, for the benefit of all Earth citizens.”

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## More Information:

For more about solar system exploration, please see reports below in **Earthfiles Archives**:

- 03/17/2006 -- Planet Earth's Ice Melt
- 11/18/2005 -- Is the Sun Heating Up?
- 11/09/2005 -- Dust Storm On Mars, Cosmic First Light and Black Hole At Our Galaxy's Center
- 10/19/2005 -- Saturn's Icy Moon, Dione, Up Close
- 09/23/2005 -- 9 X-Class Solar Flares Between September 7 - 19, 2005.
- 09/16/2005 -- "Planet X" and the Kuiper Belt's Oddballs, "Santa" and "Easterbunny"
- 08/12/2005 -- Deep Impact Spectra: Carbonate, PAHs and Some Amino Precursors in Comet Tempel I
- 07/30/2005 -- Astronomers Report 10th Planet Far Beyond Pluto
- 07/10/2005 -- First Data from Deep Impact Crash Into Comet Tempel I
- 06/29/2005 -- July 3-4, 2005: NASA "Deep Impact" Spacecraft to Blast Hole in Comet Temple I
- 05/07/2005 -- Did Milky Way Gas and Dust Turn Earth Into Icy Snowball Four Times?
- 05/06/2005 -- What Are The Straight Lines on Saturn's Titan Moon?
- 04/01/2005 -- What's Killing Off Marine Life Every 62 Million Years?
- 03/25/2005 -- Glow of Distant Worlds Seen For First Time
- 03/20/2005 -- Astronaut John Young: "The Moon Can Save Earth's Civilization."
- 03/03/2005 -- What Made Five Strong Radio Bursts At the Center of Our Galaxy?
- 02/17/2005 -- Iapetus and Enceladus: Baffling Moons of Saturn
- 02/11/2005 -- Story Behind "Inflation-Theory Implications for Extraterrestrial Visitation"
- 02/11/2005 -- Sunspot Region 720 Emitted Strongest Solar Radiation Since October 1989.
- 01/22/2005 -- Titan - A Moon Where It Rains Methane Into Seas and Soils of Hydrocarbons
- 01/13/2005 -- NASA "Deep Space" Craft Will Hit Comet On July 4, 2005
- 12/17/2004 -- Is Our Solar System's Red, Mysterious Sedna An Alien Planetoid?
- 11/17/2004 -- European Space Agency's SMART-1 Satellite Begins Moon Orbit
- 10/07/2004 -- Exploding Stars: Investigating the 1604 and 1987 Supernovas
- 08/28/2004 -- Near-Earth Asteroid 4179 Toutatis Comes By Again On September 29, 2004
- 06/25/2004 -- Wild 2, An Amazing Comet
- 06/11/2004 -- Cassini Spacecraft Will Rendezvous with Saturn July 1, 2004
- 05/17/2004 -- Unidentified Lights in Sunrise Photograph from Long Island, N. Y.
- 03/15/2004 -- Most Distant "Icy Planetoid" in Our Solar System Has A Most Baffling Orbit
- 03/05/2004 -- Part 3 - Mars: A Sulfate Salty Planet - Could It Have Sulfate-Loving Microbes?
- 02/11/2004 -- Part 2: Opportunity Finds Martian Bedrock Has Lots of Sulfur and Small Spherical Rocks
- 02/03/2004 -- Planet 150 Light Years from Earth Has Oxygen and Carbon Atmosphere
- 01/24/2004 -- Updated - Spirit Alive, But in "Critical" Condition. Mars Express Sees Water Ice
- 01/19/2004 -- Earthfiles and Radio Audience Feedback About Anomalous Sky Objects
- 01/14/2004 -- President Bush's Sets "New Course for America's Space Program"
- 01/13/2004 -- Part 1 - Is Dark Matter the "Heavy Shadow" of Visible Matter?
- 01/09/2004 -- Robotic "Geologists" on Mars
- 12/07/2003 -- "Smoking Gun" Evidence That Liquid Water Has Flowed on Mars?
- 10/25/2003 -- Science Data Reinforces Invisible "Dark" Matter and Energy Make Up 96% of Our Universe
- 09/02/2003 -- Updated - Astronomers Don't Think Asteroid Will Hit Earth in 2014
- 08/27/2003 -- No Ancient Oceans On Mars? Only Glaciers?
- 08/26/2003 -- Mars At Its Closest August 27, 2003, At 2:51 a.m. PDT / 5:51 a.m. EDT.
- 03/07/2003 -- Scientist's Record Sun's Plasma Interaction with Comet NEAT
- 02/27/2003 -- Pioneer 10 Goes Silent
- 01/05/2003 -- What Are the Grooves in the Martian South Pole?
- 10/07/2002 -- Large Kuiper Belt Planetoid Found Beyond Pluto
- 09/07/2002 -- Does Gravity Travel the Same Speed as Light?
- 07/25/2002 -- Mile and A Half Diameter Asteroid 2002 NT7 Might Impact Earth in 2019
- 07/11/2002 -- Hubble Telescope Photographs Seven Objects Traveling In Pairs Beyond Pluto
- 06/14/2002 -- Another Solar System Like Ours?
- 06/01/2002 -- Scientists Surprised by Abundance of Water On Mars
- 02/24/2002 -- Mysterious Slowing of Pioneer Spacecraft 7 Billion Miles from Earth
- 01/26/2002 -- Something Is Perturbing Comet Orbits in the Oort Cloud Surrounding Our Solar System
- 12/20/2001 -- Will Our Universe End With Its Final Light Frozen in Time?
- 12/15/2001 -- Are Carolina Bay Craters Linked to Atlantic Ocean Impact and Sinking of Atlantis?
- 11/10/2001 -- The Orion Constellation and the Pyramids of Giza
- 08/25/2001 -- Are Crop Formations at Chilbolton Observatory A Response to 1974 Earth Transmission?
- 06/06/2001 -- Another Unusual "Face" On Mars
- 03/18/2001 -- Can Earth Plants and Bacteria Grow On Mars?
- 03/11/2001 -- Are the "Tubes" On Mars from Lava, Water, or Wind?
- 02/12/2001 -- NEAR Shoemaker Spacecraft's Historic First Landing On Eros Asteroid
- 01/14/2001 -- An Australian Zircon Crystal is 4.4 Billion Years Old
- 12/24/2000 -- Martian Bacteria?
- 12/03/2000 -- Bacteria from Outer Space?
- 10/09/2000 -- Astronomy Updates
- 10/01/2000 -- A Search for Earth's First Life
- 09/24/2000 -- Asteroid Eros: Up Close, and Then A Landing?
- 09/12/2000 -- Black Holes - A Surprising Mass in the M82 Galaxy
- 06/26/2000 -- 250 Photographs of Mars Show Signs of Water
- 04/24/2000 -- A Black Hole in the Big Dipper?
- 03/11/2000 -- Is 433 Eros Asteroid Younger Than Expected?
- 02/16/2000 -- 433 Eros, Orbiting An Asteroid Up Close
- 01/28/2000 -- Black Hole Mystery at the Center of the Andromeda Galaxy

- 01/17/2000 -- Chandra Telescope Helps Solve X-Ray Mystery
  - 12/01/1999 -- Six More Planets Discovered 60 to 190 Light Years Away
  - 11/18/1999 -- Short Environmental Updates
  - 11/06/1999 -- Leonids - and Linearids? - Light Up November Skies
  - 10/25/1999 -- A Mysterious "Perturber" at the Edges of Our Solar System
  - 09/24/1999 -- New Photos from NASA's Chandra X-Ray Observatory
  - 08/28/1999 -- Oddball Quasar and Salt Water Inside Meteorite
  - 06/27/1999 -- Microbes Two Miles Below Earth Surface in South Africa
  - 06/15/1999 -- Current Brightest Binocular Comet and Upcoming Solar Eclipse
  - 02/01/1999 -- Astronomy Updates with Brian Marsden and John Huchra, Harvard
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**Website:**

<http://www.esa.int>

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