Peeking Behind Venus' Veil

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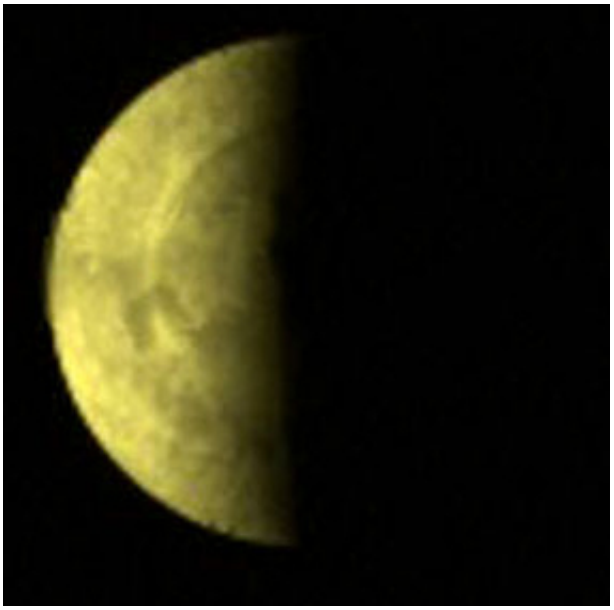

The first picture of Venus taken by a camera developed at the Max Planck Institute for Solar System Research, aboard the ESA probe Venus Express. The distance from the surface of the planet is 200,000 km, and the image shows clouds over our neighbouring planet&acutes south pole. Image: ESA/MAx Planck Institute for Solar System Research

A camera visiting Venus, onboard the Venus Express spacecraft, has sent back its first pictures of the planet. The "Venus Monitoring Camera", developed at the Max Planck Institute for Solar System Research (MPS) in cooperation with the Institute of Computer and Communication Network Engineering (IDA, Technical University, Braunschweig), the Institute for Planetary Research (DLR, Berlin) and FISBA OPTICS (St.

Gallen, Switzerland), spiralled down into an orbit about 200,000 km from Venus. It took the very first pictures ever of the clouds over Venus' south pole.

Dr. Dmitry Titov, Mission Science Co-ordinator and scientist at the MPS Institute, says "the first picture of the South Pole is already one of the mission's highlights. Until now, there were no images of that part of the planet. Now we can see that the vortex structures of the clouds at the south pole are similar to those on the north." He adds that "in the next few weeks, the European Space Agency is going to manoeuvre the probe to a much smaller orbit. Then, we can expect detailed observations of these meteorological phenomena."

The Venus Express Mission has lived up to its name. Only five years ago did European scientists originally propose it, led by their colleagues at the MPS . The instruments developed for the Mars Express probe were used to save time and costs. After fewer than three years development time, on November 9, 2005, Venus Express was launched from the Russian cosmodrome Baikonur. The time it took to reach Venus, too, is sensationally short: just five months. The spacecraft reached its destination on April 11, 2006, and now scientists are beginning their work.

Venus Express is starting its investigations by looking at the dynamics and chemistry of Venus' atmosphere. The scientists hope to get new insight into the super-rotation of the atmosphere, which moves at speed of quite a few hundred km per hour, as more moderate winds blow near the surface. Of particular interest are the mechanisms of atmospheric escape due to interaction with the solar wind and strong greenhouse effect.

The experiments onboard Venus Express are similar to those on Mars Express, its sister probe. For three years, Mars Express has been sending

back spectacular data while orbiting the Red Planet. Now both of Earth's neighbouring planets are being investigated with two nearly identical ESA instruments. This enables comparative planetology studies that the scientists hope will yield new results not only about our neighbouring planets but also about the evolution of the entire solar system - with the central question being why the planets next to us developed so differently.

The Max Planck Institute for Solar System Research has been involved with two instruments on the probe. In cooperation with the Institute of Computer and Communication Network Engineering (IDA, Technical University, Braunschweig), the Institute for Planetary Research (DLR, Berlin) and FISBA OPTICS (St. Gallen, Switzerland) MPS developed the Venus Monitoring Camera, which is using four filters to investigate thick clouds, as well as the surface. The camera's CCD chip allows the pictures to be taken quickly so that it is possible to study cloud dynamics. The Institute also helped to develop key components of the ASPERA-4 instrument that analyzes Venus' plasma environment and is being used to determine how the solar wind interacts with the planet's atmosphere.

Source: Max Planck Institute for Solar System Research