**Venus close-up**

INTRO text for the Web

Launched in 2005, ESA’s Venus Express spacecraft has been observing the Earth’s so called “sister” planet from a unique point of view: in orbit around Venus itself. This mission is providing scientists with detailed information about the Venusian atmosphere and in the course of these studies many surprises have emerged.

10:00.00

VO : As our closest planetary neighbour, Venus was formed at the same time and in the same part of the early solar system as the Earth. And Venus was made with the same basic ingredients, the same gases and the same rocks. However, now the two planets are completely different. On Venus days last longer than years and the planet rotates clockwise with the sun rising in the west and setting in the east. And while here on Earth we benefit from an atmosphere permitting life; Venus is bone dry and cloaked in a thick, choking atmosphere of sulphuric acid and CO2.

*Image – Animation of Venus, of Earth, surface of Venus from ESA* 07/04/2006*, then animation of Venus in orbit round sun, Venus Express mission 5/6/12 and planets surface from ESA* 07/04/2006 *, Then fields on Earth ESA 2013, Then animation of venus ESA* 10/02/2012

00:47

Since 2005 ESA’s Venus Express has been in orbit around Venus, scanning its atmosphere from above. Recently, to take a better look, ESA sent Venus Express skimming into the top layer of the atmosphere using a technique known as aerobraking,

*Images- Animations of Venus express ESA* 07/04/2006, *Venus Express aerobraking graphic -ESA 16/05/2014*

**01:03**

**ITW: Donald Merritt, Venus Express Science Ground Segment Manager, ESA "We went into the atmosphere in this direction, because this face of the spacecraft, which had been attached to the rocket originally when it was launched was most able to take the forces and the temperatures. We also turned the solar panels, to maximize the amount of friction and to get the most amount of braking."**

01:22

This manoeuvre offered the first ever close-up view of Venus's upper atmosphere - and it wasn't what was expected:

*Images-Venus Express aerobraking graphic -ESA 16/05/2014*

**01:29**

 **Donald Merritt,** **Venus Express Science Ground Segment Manager , ESA**

**"What we saw that was a little unusual was the variability in the pressure, as if there were waves within the atmosphere. And so that possible wave-like structure was not expected, and analyzing that data will keep scientists busy for a little while yet."**

01:50

Thanks to Venus Express’s data it is thought that these wave-like fluctuations could be related to the speed of the winds that circulate around Venus - and these winds appear to be getting faster.

*Images- Animation of Venus Express ESA* 07/04/2006, *artist concept of winds on Venus ESA* 29/11/2007 *Venus, and hurricanes at poles from artists impression of vortex at the poles ESA* 07/04/2006

**02:02**

 **Håkan Svedhem, Venus Express Project Scientist, ESA**

**"When we arrived at Venus 8 years ago we detected winds of 300 kilometers per hour - very fast - but what has happened during these years until now they have actually increased. We have now seen winds of 400 kilometers per hour, and we can't really explain why that has happened."**

02:21

Venus Express has spent more than 8 years digging into the secrets of the Venusian atmosphere to better understand the complex dynamics between the planet’s atmosphere and interplanetary solar winds - and the atmosphere and the surface. While these recent findings pose many new questions, it is possible that clues to the answers lie somewhere in the vast amounts of data that have been gathered by the spacecraft over the course of its mission.

*Images- Animation of Venus interacting with solar winds ESA* 29/11/2007*,* Animation of solar system ESA 29/11/2007*, surface of Venus from ESA* 07/04/2006 *, Then antennae and Images of meeting VEX committee ESAC 5/6/12, ends on animation of Venus Express-ESA* 07/04/2006

*02 :48 The end of A-roll*

B-Roll

**ITW: Donald Merritt,** Venus Express Science Ground Segment Manager**, ESA ,** Filmed - 12 September 2014 ESAC, near Madrid (English)

**02: 48 -** Aerobraking x1

03:39 - Fluctuations in atmospheric pressure x1

**ITW: Håkan Svedhem, Venus Express Project Scientist, ESA,** filmed - ESOC , Darmstadt, June 2014.

04:00 - Hostile atmosphere x1

04:28 - Increasing wind speeds x1

04:52 – cutaways

**ITW: Michel Breitfellner, Venus Express** Science Operations Engineer**, ESA, Filmed,** 12 September 2014 ESAC, near Madrid

06:29 - Days longer than yearsx1

06:58 - Disaster Causing Hostile atmosphere x1

07:27 – cut-aways

08:55 -End