

EVE !!! - Radio Amateurs Bounce a Signal off Venus

Radio Amateurs have achieved the very first reception of amateur signals bounced off the planet Venus over 50 million km away - EVE (Earth-Venus-Earth)

Peter Guelzow DB2OS, President of AMSAT-DL has provided a description of this landmark achievement.

On March 25th, 2009 a team from the German space organisation AMSAT-DL reached another milestone on its way to an own interplanetary probe towards planet Mars. The ground station at the Bochum observatory transmitted radio signals to Venus. After travelling almost 100 million kilometers and a round trip delay of about 5 minutes, they were clearly received as echoes from the surface of Venus. Receiving these planetary echoes is a first for Germany and Europe. In addition, this is the farthest distance crossed by radio amateurs, over 100 times further than echoes from the moon (EME reflections).

For receiving the EVE signals, an FFT analysis with an integration time of 5 minutes was used. After integrating for 2 minutes only, the reflected signals were clearly visible in the display. Despite the bad weather, signals from Venus could be detected from 1038UT until the planet reached the local horizon.

The 2.4 GHz high power amplifier used for this achievement is described in the current AMSAT-DL journal. This represented a crucial test for a final key component of the planned P5-A Mars mission. By receiving echoes from Venus, the ground and command station for the Mars probe has been cleared for operational use and the AMSAT team is now gearing up for building the P5-A space probe.

For financing the actual construction and launch, AMSAT-DL is currently in negotiation with the DLR (Deutsches Zentrum für Luft- und Raumfahrt) amongst others, to obtain financial support for the remaining budget of 20 Mil Euros.

AMSAT-DL wants to show that low-cost interplanetary exploration is possible with its approach.

More information and the link to the official press release [in German]:

http://www.amsat-dl.org//index.php?option=com_content&task=view&id=166&Itemid=97

The EVE experiment was repeated on Thursday, March 26th for several hours with good echoes from Venus. Morse code was used to transmit the well known "HI" signature known from the AMSAT OSCAR satellites.

73s de DB2OS

Peter Guelzow
President AMSAT-DL

A video showing P5-A Project Leader Prof. Dr. Karl Meinzer DJ4ZC, Freddy ON6UG and the 2.4 GHz amplifier used for EVE can be seen at:

<http://tinyurl.com/EVE13cmAmp>

Peter Guelzow DB2OS and other members of the AMSAT-DL team regularly attend the AMSAT-UK International Space Colloquium. This year the Colloquium is being held at the **University of Manchester** from Friday July 24th to Sunday 26th July. Further details at <http://www.uk.amsat.org/colloquium>

AMSAT-DL has achieved a number of Amateur firsts using the Bochum facility. This was a disused radio telescope that has been restored by volunteers to serve as a ground station for the P5-A Amateur Radio mission to Mars. On its journey to Mars P5-A will initially swing by Venus and the 2.4 GHz Bochum transmitter which be used by Radio Amateurs to sent control signals to the spacecraft.

Control Software for the Amateur Radio Bochum Facility
<http://amsat.org/amsat-new/articles/G3RUH/>

AMSAT-UK Colloquium 2006 – Receiving Voyager 1
http://www.southgatearc.org/news/june2006/receiving_voyager1.htm

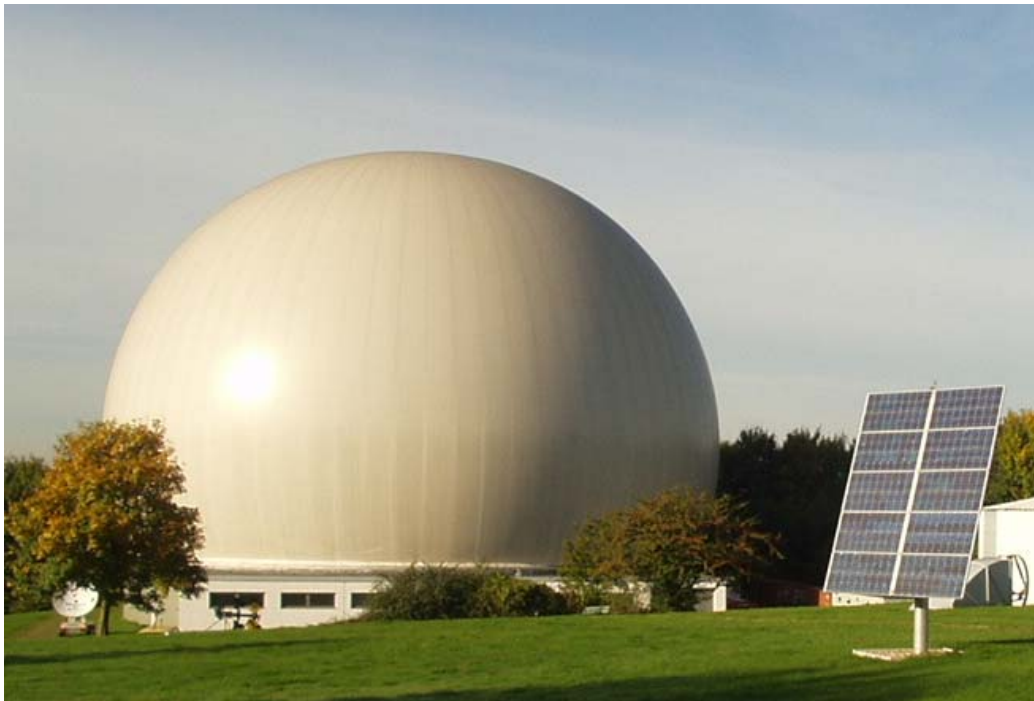
AMSAT P5-A ground station successfully receives ESA's MARS-EXPRESS Probe
<http://www.amsat-dl.org/p5a/p5a-bochum-eng.htm>

Presentations on P3E and the Mars Orbiter P5-A
http://www.southgatearc.org/news/july2008/p5a_and_p3e_presentations.htm

GO-Mars with AMSAT-DL's P5A Mission
<http://www.ticket-to-mars.org/>

AMSAT-DL Press Release
http://www.amsat-dl.org/pic/gallery2/main.php?g2_view=core.DownloadItem&g2_itemId=7561

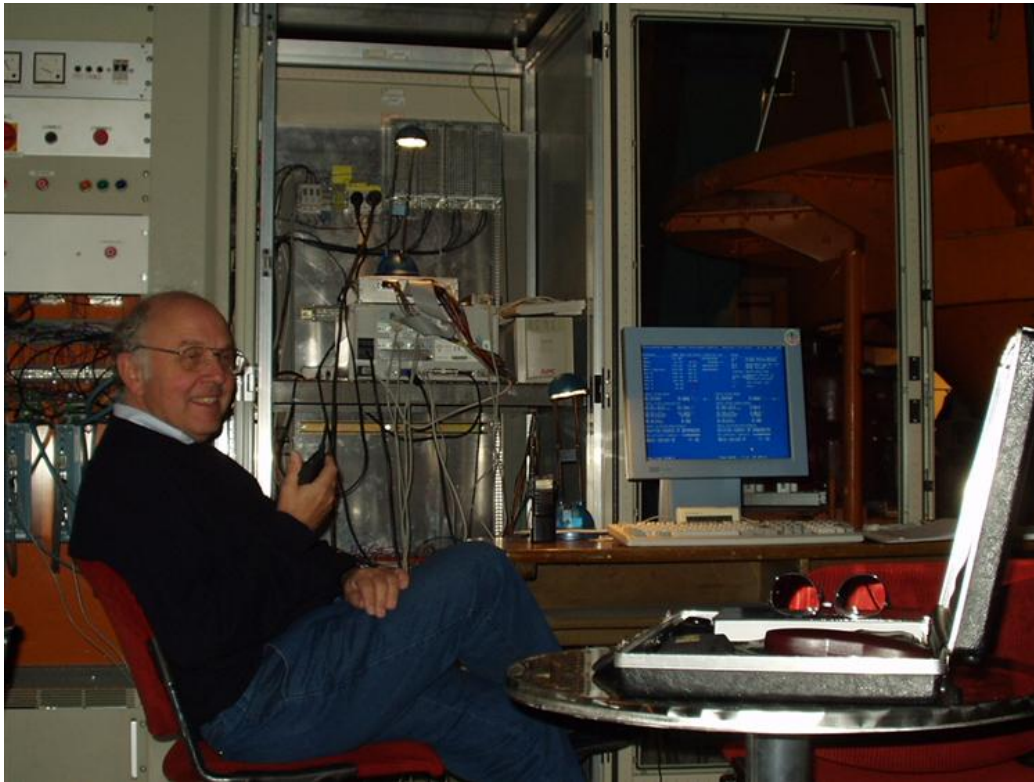
Some pictures from the event, people and settings:



Amateur Radio Bochum Facility



James Miller G3RUH and Achim Vollhardt DH2VA receiving Voyager Signals using the Bochum Amateur Radio station in 2006.



Karl Meinzer DJ4ZC at Bochum a few years ago.



The Bochum Dish Antenna.
