

Venus Exploration Analysis Group: Planning and Prioritizing the Future Exploration of Venus

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The Venus Exploration Analysis Group (VEXAG) was created by NASA as a community forum for guiding the exploration of Venus by considering the scientific objectives, technologies available and needed to meet the science goals [1]. Open to the international scientific community interested in Venus, VEXAG holds community meetings to consider Venus exploration goals, discuss international efforts, refine science objectives, develop findings and communicate these to NASA through the Planetary Science Subcommittee of the NASA Advisory Council. These efforts include the Venus Flagship Mission study [2] which was conducted by the Venus Science and Technology Definition Team (VSTDT) selected by NASA in 2008. Last year VEXAG worked with the Venus scientific community to provide input on exploration goals to the Inner Planets Panel of the National Academy's Planetary Science Decadal Survey [3].

Venus was the first planet to be explored by spacecraft in 1962 and, until ESA's Venus Express arrived at Venus in April 2006, there were no dedicated missions to Venus since the Magellan radar mission to map the surface (1990 – 1994). Through these and the US and Soviet missions, much has been learned about Venus, its surface and its atmosphere and have raised questions that we still seek answers to. Some of these are – how did the slow spin state of Venus come about? How and why did Earth and Venus diverge on their evolutionary paths such that Earth remains habitable and Venus exhibits a very hostile surface environment for life? How did the superrotation of the atmosphere come about and what maintains it? New missions are needed to explore the surface and atmosphere to obtain the required observations to answer these questions.

In the United States, NASA's Discovery and New Frontiers programs continue to attract new proposals to explore Venus. Japan will launch Venus Climate Orbiter ("Akatsuki") in May/June 2010 and missions are being conceived in Europe and Russia. Coordination of the international efforts to explore Venus will help maximize the science return through collaborations and coordination of the missions. VEXAG is a forum that welcomes and supports such efforts and the interested scientific community is invited to actively participate.

An international workshop, “Venus Atmosphere: From Surface to the Thermosphere” and the next VEXAG meeting will be held in Madison, Wisconsin during 30 August – 2 September 2010 [4].

References

- [1] www.lpi.usra.edu/vexag
- [2] <http://www.lpi.usra.edu/vexag/reports/venusFlagshipMissionStudy090501.pdf>
- [3] http://sites.nationalacademies.org/SSB/CurrentProjects/ssb_052412
- [4] http://www.lpi.usra.edu/vexag/conf_reports.shtml