



Landing-Site Areas for the Venus Entry Probe (VEP) Initiative

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The Venus Entry Probe Initiative is a potential future space mission proposed within the framework program of ESA's Cosmic Vision 2015-2025 to planet Venus. It can be seen as the next exploration step after the successful finalization of the ESA Venus Express mission and the Japanese Climate Orbiter. The baseline configuration of the VEP mission consists of 4 small/medium descent probes, 1 cloud-altitude balloon + 20 microprobes, 1 low-altitude balloon floating at 35 km, an orbiter for context science and as data relay system and one atmospheric sample return (ASR) system [1]. Further information on VEP can be found at: <http://www.aero.jussieu.fr/VEP/>.

On November 14-15, 2006, a workshop was held in Vienna (<http://www.univie.ac.at/EPH/venus/>) with the main goal to formulate 4 preliminary target sites for the VEP descent probes. In order to find an optimal mix between low atmosphere and surface science projects, 3 of the 4 descent probes are scheduled to land on the dayside of the planet and 1 at a nightside position. The selection was achieved considering a wide spread of latitudinal and altitudinal sites and omitting orbital restrictions for the moment.

2 of the 4 descent probes are scheduled for landing in Tesserae terrain, which form one of the presently most unknown surface areas on Venus. Stemming from a large community consensus Ovda and Phoebe Regio have been chosen. As third target a

hot-spot feature was selected for two reasons: to improve present understanding of Venusian resurfacing and heat loss and extend knowledge on hot-spot volcanism in different surroundings and environment conditions than on Earth. Therefore Eistla Regio was approved; or to enhance the latitudinal site distribution Alpha Regio was proposed. For the fourth descent probe destination Vellamo Planitia was accepted by ballot, to acquire further data about lowland areas and to be able to ameliorate our understanding of Venera/Vega datasets. This selection of site-types representing the high-altitude areas of Tesserae and the low-altitude lowlands is also an optimal scenario for the acquirement of new vertical atmospheric profiles, which pose one of the main mission goals of VEP and which are necessary to improve our knowledge of surface-atmosphere interaction.

References:

[1] Chassefiere E., and the VEP Mission Team, Europe's Concept and Plans for a Venus Entry Probe Mission, Paper presented at the 4th International Planetary Probe Workshop, held in Pasadena, CA, USA, June 27-30, 2006