

The ESA Venus-Express mission An astrobiology point of view.

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The Venusian conditions are unique in the solar system. Venus abounds in molecules which could feed a life form except that the usual missing factor, energy, is present in excessive amounts from both active geothermic phenomena and from the nearby solar radiation trapped in a dense carbon dioxide atmosphere. Its surface conditions are hotter than the best practiced in hospital sterilisation; volcanism injects highly toxic gases which in the absence of water can accumulate in the atmosphere. Its upper atmosphere lays bare to solar radiation with only carbon dioxide to act as a confirmed EUV filter, so any consideration of life might seem excessive compared to what was known from life on earth before extremophile bacteria were discovered in dark undersea high temperature sulphur rich volcanic vents. However, some regions of the atmosphere might show conditions similar to the earth surface and could be a habitat of earth like “normal” microbial life. A synergy between the different atmospheric instruments of the VENUS-Express payload: SPICAM, VIRTIS and PFS can provide the way to probe the actual environmental conditions of this region and to check its capabilities of preserving an extant life or providing nutrients to a new one.

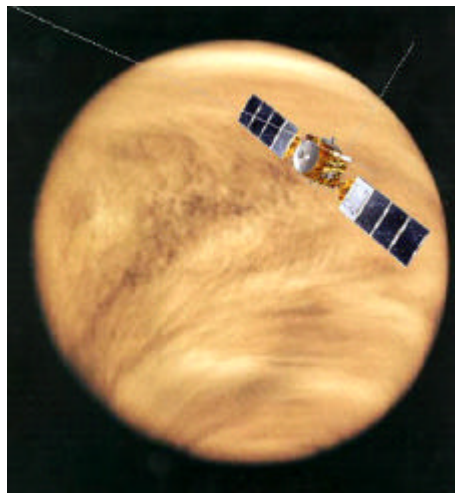


Fig1.: Pioneer Venus image of Venus shown with a model of the Venus-Express satellite, the dark features on the clouds correspond to UV absorptions which are still to be explained. Venus-express is scheduled to be launched in 2005. (ESA document).