

Reassessment of planetary protection requirements for Venus missions

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In 2005 the US Space Studies Board (SSB) was asked by NASA to reexamine the planetary protection requirements for spacecraft missions to Venus. In particular, the SSB was tasked to: 1. Assess the surface and atmospheric environments of Venus with respect to their ability to support the survival and growth of Earth-origin microbial contamination by future spacecraft missions; and 2. Provide recommendations related to planetary protection issues associated with the return to Earth of samples from Venus. The task group established by the SSB to address these issues assessed the known aspects of the present-day environment of Venus and the ability of Earth organisms to survive in the physical and chemical conditions found on the planet's surface or in the clouds in the planet's atmosphere. As a result of its deliberations the task group found compelling evidence against there being significant dangers of forward or reverse biological contamination as a result of contact between a spacecraft and the surface of Venus or the clouds in the atmosphere of Venus, regardless of the current unknowns. The task group did, however, conclude that Venus is a body of interest relative to the process of chemical evolution and the origin of life. As a result, the task group endorses NASA's current policy of subjecting missions to Venus to the requirements imposed by planetary protection Category II, rather than the less restrictive Category I recommended by COSPAR.