Venus In Situ Explorer (VISE)

Venus In Situ Explorer (VISE) investigates the processes and properties of Venus that cannot be characterized from orbit or from a single descent profile. These include: 1) Complex atmospheric cycles (e.g., radiative balance; chemical cycles, atmospheric dynamics, variations of trace gases, light stable isotopes, and noble gas isotopes, and the couplings between these processes); 2) Surface-atmosphere interactions (e.g., physical and chemical weathering at the surface, near-surface atmospheric dynamics, and effects upon the atmosphere by any ongoing geological activity); and 3) Surface properties (e.g., elemental and mineralogical composition of surface materials, heat flow, seismic activity, and any magnetization). VISE will provide breakthrough information on the origin of the terrestrial planets, the evolution of their interiors and surfaces, atmospheric evolution and climate, and critical insights into the nature and habitability of exoplanets.

VISE Science Objectives:

- Characterize past or present large-scale spatial and temporal (global, longitudinal and/or diurnal) processes within Venus's atmosphere.
- Investigate past or present surface-atmosphere interactions at Venus.
- Establish past or present physical and chemical properties of the Venus surface and/or interior.

The mission shall address at least two of these three objectives.