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Title: Vesper is a proposed Discovery Mission to Venus with an atmospheric Probe and Orbiter

Abstract:

The recently commissioned National Research Council's Decadal Report, *New Frontiers in the Solar System: An Integrated Exploration Strategy*, offers NASA a new exploration paradigm that emphasizes the uniqueness of our home world in the context of the Past, Present, and Future of the planets such as Venus and Mars. Vesper will closely follow this strategy and will answer key Decadal Report questions focused on the Past, Present, and Future of Venus by taking in situ probe and unique remote sensing or measurements of Earth's nearest neighbor. The Vesper Orbiter will transport the Probe to the vicinity of Venus. The Probe will enter the Venus atmosphere and descend through the cloud deck into the lower troposphere, collecting data throughout the descent for approximately 45-60 minutes. The possibility exists that the Probe will continue to transmit data for some time from the surface of the planet. The Orbiter will fly over the Probe entry site providing supporting science observations and acting as a communications relay link. The Vesper Orbiter is later placed into an elliptical polar orbit around Venus. The Orbiter provides science observations at all Venus latitudes, longitudes and local times. The Orbiter mission duration is approximately 1 Venus years (896 Earth Days).

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