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Comparing Observations from the Venusian Induced Magnetosphere to a Global Hybrid Simulation

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Venus is a puzzling planet with a dense CO_2 atmosphere and very different from Earth. Whereas the Earth has a strong intrinsic dipolar magnetic field (compared to the interplanetary space), Venus is a non-magnetic planet with an induced magnetosphere. As a result, the Venusian upper atmosphere is directly exposed to the interplanetary conditions such as the solar wind.

Venus Express is a European spacecraft mission to study Earthś sister. The spacecraft has orbited Venus since April 2006 and has gathered, among other things, detailed observations of the magnetic and particle environment of the planet. We are using our 3-dimensional hybrid code (HYB) to interpret what these in-situ observations can tell about the system in a global planetary scale. The comparisons provide an extrapolated picture of the plasma and magnetic regions which the spacecraft has gone through along its trajectory