



Hybrid modelling the induced Venusian magnetosphere when the IMF clock angle is not constant

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When the unmagnetized planet Venus with a dense atmosphere interacts with the solar wind, an induced magnetosphere is formed and the interplanetary magnetic field (IMF) is enhanced and draped near the planet. Hybrid modelling is a semi-kinetic method to study the plasma interactions of Venus-like objects in a global planetary scale. HYB simulation code solves numerically the hybrid model equations and provides, for example, a three dimensional structure of the magnetic field in the objects's near-space. It is proposed that the changes in the clock angle of the upstream IMF can be modelled by using a stationary simulation solution. The method uses rotations of the solution around the Venus-Sun axis along the spacecraft trajectory. In the study the magnetic fields produced by the HYB-Venus runs are compared to the Venus Express MAG magnetometer observations.