



An Induced Global Magnetic Field Looping Around the Magnetotail of Venus

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Venus serves as the prototype of solar wind interaction with unmagnetized planetary bodies with atmospheres. It has no intrinsic dipole or crustal magnetic field, the only magnetic field is believed to be formed by the draped interplanetary magnetic field (IMF). However, the large-scale magnetic field observed over the north polar region of Venus has a bias in the dawnward direction and seemingly unresponsive to the IMF's direction. Here we show that besides the draped field, there is a second type of induced global magnetic field at Venus, and the dawnward field is only a part of it. This global field has a distribution in a cylindrical shell around the magnetotail and a counterclockwise direction looking from the planetary tail toward the Sun, which demonstrates that there are two currents flowing out and in of the planet along the inner and outer boundaries of the looping field, respectively. [Chai et al., 2016, JGR, doi:10.1002/2015JA021904]