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Scale Comparison between the Magnetosheath and tail interface of Mars and Venus

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Planetary bodies without intrinsic magnetic fields, but with substantial atmospheres are known to possess cometlike "induced" magnetotails as a result of the mass loading and subsequent "draping" of passing flux tubes. The properties of theses magnetotails depend on the characteristics of both the incident flow of magnetized plasma and the planetary ionosphere. The Venus and Mars wakes can be expected to be very similar because of their induced origin.
In the present work, we are comparing the fine structure of the magnetosheath-induced magnetosphere interface of the both planets. We performed such comparison in two key regions of the planetary wake : 1) plane containing interplanetary magnetic field (IMF) and solar wind velocity (Equator), 2) plane of convection electric field (Polar regions). Both investigations were made on the data of mass analyser IMA, the part of plasma package ASPERA-3/4 onboard of Mars Express and Venus Express correspondingly. For the Venus study, the MAG magnetometer data was used, but for Mars we derived IMF direction from MGS data. The profiles of magnetosheath protons and planetary ions as a function of distance from sun-planet axis were investigated in the different scales. We have shown that, at least, in the polar region, the ion gyroradius defines the structure and size of the transition region.