



## A general shape and ion contents of the wakes behind Mars and Venus

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When the solar wind encounters an atmosphere of a non-magnetized planet, a void of the solar wind is created. This void, also known as “induced magnetosphere”, is filled by accelerated ions of planetary origin. The shape of such voids around and behind Mars and Venus was investigated in detail on the base of magnetic measurements (Mars and Venus) and plasma measurements (Mars only). Unfortunately all past mission to Venus lack of adequate ion spectrometer capable to determine the characteristic of magnetosphere contents. Nowadays with a plasma package Aspera-3 onboard of Mars Express and identical Aspera-4 onboard of Venus Express we can provide a comparative analysis of the shape of induced magnetospheres from the particles point of view and their contents. The present work is completely based on the IMA mass-spectrometer data. To study the shape of the solar wind voids we have made a large statistics of spatial distribution of the solar wind plasma and the planetary ions behind of the both planets. Comparing of plasma spatial distribution with average position of magnetic pileup boundary shows their inconsistency. The shape of magnetospheres of Mars and Venus was compared in the different physical scales to get the main factor controlling the size of the voids, especially in the planet wake. Comparison of the spatial distribution of the different ion species in the planetary wakes shows that in the both cases the  $H^+$  ions of planetary origin occupy the periphery of the tail, but the heavy ions like  $O^+$  or  $O_2^+$  are concentrated in the tail center.