

Martian Tail

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According to the first theoretical model of cometary tails by Alfvén (1957) the region behind the gaseous non-magnetic planet looks like a long wake filled by draped magnetic field with the large B_X component. The first *in situ* measurements performed by Mars-5 mission has shown that the martian magnetotail exists and is filled by low energy ions of probably planetary origin. Moreover it was shown that magnetotail boundary confines of the heavy ions domain. The next important step in the understanding of the martian tail structure was made after the PHOBOS mission. ASPERA and TAUS experiments have shown the composition, dynamics and structure of the planetary wake. It was shown that picked-up high energy ions lose their energy closer to the tail center. But at the same time another intense and almost monoenergetic plasma flow called "plasma sheet" appears in the current sheet region between the magnetic lobes. The mechanism of ion acceleration in the plasma sheet is not clear up to now. The last data obtained from ASPERA-3 experiment onboard the Mars Express mission allows to clarify the view on the martian wake problem. Extremely good epoch superposition statistics and rather good mass resolution give the chance to see the tail structure in details. Present work shows the last statistical data obtained from ASPERA-3 experiment and discusses the different mechanisms of creation of such a structure. The paper also discusses the role of magnetic anomalies in the formation of the plasma sheet.