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## Structure and composition of the Martian wake

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PHOBOS observations and the last Mars-Express measurements of Martian space environment with mass-analyzer IMA (ASPERA-3) show that the wake of the planet consists of two different ion regimes. In the first regime ions of planetary origin form the layer adjacent to the the magnetic pile-up boundary. These ions are accelerated mostly by pick-up mechanism and demonstrate gradual decrease of their energy from the pile-up boundary down to the tail. The second plasma regime is observed in the planetary shadow. This regime is usually called "plasma sheet" and manifests itself by heavy ions accelerated up to the energy equal to the energy of solar wind protons. Moreover the boundary layer and plasma sheet have a very asymmetric spatial distribution in the frame referred to the interplanetary magnetic field direction. Ion composition of the both regions can be also quite different. We investigated the spatial variations of the species ratio  $O^+/O_2^+$  and  $CO_2^+/O_2^+$ .