

Ion fluxes and ion distribution function moments in the Martian and Venusian magnetospheres for 2007 - 2017 time interval. The data of the ASPERA instrument onboard of Mars Express and Venus Express missions

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Abstract

We present ion moments data set that have been obtained from the IMA mass-spectrometer which is a part of ASPERA plasma package. ASPERA experiments have been mounted onboard of ESA Mars Express and Venus express missions. Mars express is still active and we have an excellent solar and planetary ions data set from 2007 up to now. Venus Express mission has been completed in 2014 and the ions moment data set covers 2006 - 2014 time interval. IMA is a sophisticate ion mass-spectrometer with almost omnidirectional field of view. It accumulates a 3D distribution function of H⁺, He⁺⁺, He⁺, O⁺, and O₂⁺ every 193s. Since Venus express and Mars Express are planetary focused, 3D stabilized mission, we can expect the ion flux from almost any direction in the spacecraft reference frame. The instrument field of view is partially obscured by the spacecraft and its solar panels. We have take into account all such circumstances during the moments calculation and the ion distribution function analysis. The presentation shows all aspects of IMA data processing, ion distribution function reconstruction, and moments calculations. The resulting data are available in AMDA database (<http://amda.cdpp.eu/>) online. The presentation shows examples of online data manipulation