



SMILE – New mission to image the magnetosphere

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Solar wind Magnetosphere Ionosphere Link Explorer (SMILE) is a novel self-standing mission to be jointly developed between ESA and the Chinese Academy of Sciences (CAS). It will observe the solar wind-magnetosphere coupling via simultaneous in situ solar wind/magnetosheath plasma and magnetic field measurements, X-Ray images of the magnetosheath and polar cusps, and UV images of global auroral distributions. Remote sensing of the cusps with X-ray imaging is now possible thanks to the relatively recent discovery of solar wind charge exchange (SWCX) X-ray emission, first observed at comets, and subsequently found to occur in the vicinity of the Earth's magnetosphere. The SMILE science as well as the results of the on-going study undertaken jointly by ESA and CAS will be presented.