

NEW CHALLENGES IN THE MODELLING OF THE SOLAR WIND INTERACTION WITH THE LOCAL INTERSTELLAR CLOUD

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New observational information as crossing of the heliospheric termination shock (TS) by both Voyagers, new SOHO/SWAN and Ulysses data as well as maps of the heliospheric ENA spectra that are expected from the Interstellar Boundary Explorer (IBEX) mission after its launch in 2008 create new requirements and new challenges for modelling of the heliospheric interface that is the region of the solar wind (SW) interaction with the local interstellar cloud (LIC). Modern kinetic-gasdynamic models of the SW/LIC interaction takes into account multi-component nature of both the solar wind and the interstellar medium. New results that include dynamic effects of the interstellar H atoms, the 11-year and latitudinal variations of the solar wind, interstellar and heliospheric magnetic fields will be discussed. Analysis of the constraints on the models, which follow from the TS crossing by Voyagers and other observational data, will be given in the paper. Theoretical predictions of the ENA fluxes that will be measured by IBEX will be provided.