Time-Dependent Hydrodynamic Modeling of the Global Structure of the Heliosphere

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We present results from time-dependent two-dimensional hydrodynamic modeling of the global structure of the heliosphere. The solar wind plasma is assumed to flow out radially with a uniform supersonic velocity. Three cases are considered. First, we consider the case of a subsonic external local interstellar medium flow and compare results for the termination shock and stagnation point locations with the incompressible models of Parker[l] and Suess and Nerney[2]. Second, we consider the case of a supersonic external flow and compare with the results of Baranov[3]. Third, the solar wind velocity is allowed to vary in time and we study the effect of variable solar wind velocity on the lo cation and speed of movement of the termination shock.

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