



## **Simulating and cataloguing the background solar wind conditions**

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I will present a new series of solar wind simulations used to build a catalogue of the background solar wind from the surface of the Sun to 1 AU. We used a new solar wind model, called MULTI-VP, which takes a coronal magnetic field map as input and calculates the dynamical and thermal properties of the solar wind from the chromosphere up to about 30 R<sub>sun</sub>. MULTI-VP supplies the full set of physical inner boundary conditions required to initiate the model ENLIL, which was then used to calculate the properties of the wind flow in the heliosphere (from 21.5 R<sub>sun</sub> to 1AU). This combined modelling strategy does not rely on semi-empirical assumptions for the state of the solar wind at the high corona, and provides new estimates of the state of the background wind which are based only on physical principles.

MULTI-VP was initiated using Potential Field Source-Surface extrapolations from WSO synoptic maps covering several Carrington rotations both at solar minimum and at solar maximum (CR 2055 - 2079 and CR 2130 - 2149; see <https://stormsweb.irap.omp.eu/doku.php?id=windmactable>). Our solutions were calibrated against in-situ measurements of different spacecrafts, white-light J-Maps and coronal/heliospheric imagery in order to provide better predictions than the classical methods. These wind solution will be available as HELCATS catalogues (<http://www.helcats-fp7.eu/>).