



A comprehensive catalogue of solar wind properties and events in the inner heliosphere

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The evolving ambient solar wind is one of the key links between the Sun and planetary bodies in our solar system. Here we present a comprehensive catalogue of solar wind properties, stream interaction regions, and coronal mass ejections at different locations in the inner heliosphere. Our database incorporates observational data products and also solar wind modelling results. The solar wind modelling is based on two different approaches for modelling the conditions in the ambient solar wind. While the WSA/THUX model combination solves the viscous form of the underlying Burgers equation to compute the two-dimensional solar wind conditions in our solar system, the second approach is a computationally fast machine learning method for predicting the ambient solar wind flows at Earth. Statistics of the ambient solar wind model results for more than 15 years in combination with a catalogue of coronal mass ejections observed at the Earth, Mars and STEREO satellites along with stream interaction regions provide a comprehensive overview of the past and present solar wind behaviour for shaping planetary space weather.