Geophysical Research Abstracts
Vol. 21, EGU2019-8085, 2019
EGU General Assembly 2019

Reconstructing coronal holes with EUHFORIA

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Modelling accurately the ambient solar wind is important for space weather forecasting. EUHFORIA (European Heliospheric Forecasting Information Asset) model employs an empirical solar wind model that is based on the Wang-Sheeley-Arge model. It combines the Potential Field Source Surface (PFSS) and the Schatten Current Sheet (SCS) models. In previous studies it was shown that placing the inner boundary of the SCS model at a radius, Ri, lower than that of the outer boundary of the PFSS model, Rii, improves the simulation output. Here, we investigate the capability of the empirical solar wind model adopted in EUHFORIA to recreate the geometry and size of coronal holes for a large set of pairs of PFSS and SCS radii. We vary Rii within the interval [1.4, 3.0]Rs with a step of 0.1Rs, and the Ri within the interval [1.3, 2.8]Rs with the same step size. The study is repeated for 12 coronal holes of different latitudinal position and geometry. We compare the modelled coronal holes with boundaries obtained by remote sensing EUV observations using the CATCH tool (Collection of Analysis Tools for Coronal Holes). Preliminary results of the study indicate that a previously defined pair of PFSS and SCS radii results in underestimated coronal hole sizes. It also indicates that different radii sets give better results for different types of coronal holes.