

EGU23-15140, updated on 20 Apr 2024
<https://doi.org/10.5194/egusphere-egu23-15140>
EGU General Assembly 2023
© Author(s) 2024. This work is distributed under the Creative Commons Attribution 4.0 License.



Morphology case study of magnetic holes in the pristine solar wind

Henriette Trollvik, Tomas Karlsson, and Savvas Raptis

KTH Royal Insitutde of Technology, Stockholm, Sweden (trollvik@kth.se)

Magnetic holes (MHs) are deep depressions in the magnetic field found in the solar wind and in planetary magnetosheaths. Based on Cluster multi-point data from the pristine solar wind, we investigate the morphology of MHs exhibiting no to little rotation in the magnetic field (linear MHs). We introduce a new coordinate system, to better see the variation in the structure, and to be able to connect to solenoid-based models. We will present two events; One is an event where the observations suggest a long cylindrical shape, where the observations are compared to an infinitely long solenoid model. For this event we only consider a 2D model. The other event is where the observations suggest a truncated cylinder shape, where the event is compared to a 3D model of a truncated solenoid. We will show how well the models are able to reconstruct the observations and present some results.