Contribution ID: **1363** Type: **Oral**

A model for the magnetic field in the inner heliosphere

Monday 30 October 2023 16:40 (15 minutes)

The magnetic field in the inner heliosphere, including both regular and irregular components, was modelled. The regular component is described by Parker's model, which assumes that the magnetic field is frozen inside the solar wind plasma. To include the irregular component of the field, a Gaussian random field was generated on the field source surface, and later transported into the inner heliosphere along the regular component field lines. An agreement between the model and the observed field by spacecrafts such as ACE, Ulysses, Voyager, and Parker Solar Probe is shown for different heliolatitudes and helioradiuses.

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Session Classification: Mathematical Modeling and Computational Physics

Track Classification: Mathematical Modeling and Computational Physics