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Variability of the Heliospheric Current Sheet local structure at 1 AU. Observations from WIND and ACE

D. Arrazola Pérez, J.J Blanco Ávalos, and J. Rodríguez-Pacheco
Space Research Group, Physics Department, University of Alcala. Spain (arrazolapd@inta.es)

The Heliospheric Current Sheet divides the Heliosphere in regions of opposite magnetic polarity. Its local magnetic structure is observed as a boundary through which the magnetic field inverts its direction toward or away from Sun. This boundary shows a wide range of local inclinations, which can reflect a local waviness, complex structures, oscillations or propagating waves. In this work, we study the local variability of the HCS at 1 AU inferred from magnetometer measurements on board of WIND and ACE spacecrafts. They were at different but close locations: ACE always stayed at L1 point and WIND was orbiting around Earth but out of the magnetosphere. When a HCS crossing is detected by both spacecrafts, the solar wind features are studied in its neighbourhood, its solar connection is determined and its local orientation is estimated using three methods, the Minimum Variance Analysis (MVA), the Coplanarity Variance Analysis (CVA) and the Hyperbolic Tangent Rotation method (HYTARO). After analyzing each HCS crossing for each individual spacecraft, results are compared in terms of the HCS local orientation, taking into account the solar wind conditions and the spacecraft locations. In this study data from several HCS crossings detected since 1998 have been used. The preliminary results and future goals are summarized in this work.