Geophysical Research Abstracts
Vol. 21, EGU2019-10723, 2019
EGU General Assembly 2019

Wave Polarization and Propagation Parameters for the THEMIS mission

Ulrich Taubenschuss (1), David Píša (1), Ondřej Santolík (1,2), and Jan Souček (1)

(1) Department of Space Physics, IAP, Czech Academy of Sciences, Prague, Czechia (ut@ufa.cas.cz), (2) Faculty of Mathematics and Physics, Charles University, Prague, Czechia

We present an online tool called iPECMAN (sPECtral Matrix ANalyzer) for the analysis of electromagnetic waves in space plasmas. iPECMAN is based on PRASSADCO, an analysis technique for wave polarization and propagation parameters initially designed for the CLUSTER mission. We show recent results of its implementation for THEMIS (Time History of Events and Macroscale Interactions during Substorms) waveform observations. Three magnetic components from THEMIS-SCM enable determination of the wave vector direction as well as the state of polarization (degree of polarization, ellipticity, and magnetic planarity). Three electric (EFI) components are also included in order to determine the Poynting vector. Coordinate systems, spectral parameters, polarization parameters, and chosen threshold values are discussed, as well as the way how the user of iPECMAN can modify those parameters. The new THEMIS data products are available at http://dorotka.ufa.cas.cz/themis. This project is part of VESPA (Virtual European Solar and Planetary Access) work packages in the frame of Europlanet-H2020-RI.