Geophysical Research Abstracts
Vol. 16, EGU2014-12533, 2014
EGU General Assembly 2014

Using the HELIO Event and Feature Catalogues to help place boundary conditions on propagation models.

Robert Bentley (1) and Peter Gallagher (2)

(1) University College London, Mullard Space Science Laboratory, Dorking, United Kingdom (rdb@mssl.ucl.ac.uk), (2) Trinity College Dublin, Dublin, Ireland (pierang@cs.tcd.ie)

In order to be able to understand space weather we need to be able to look for effects that result from solar events and also relate observed effects back to their causal phenomena. Difficulties in measuring propagation velocities and the inability to accurately define the propagation paths result in uncertainties in the relative timing of events in different parts of the Solar System. It is therefore essential that we are able to look back at a large number of events so that general criteria can be determined.

As part of the HELIO project we have been assembling comprehensive event and features catalogues of solar and heliospheric phenomena. The Heliophysics Event Catalogue (HEC) now contains nearly 70 event lists covering all the domains that constitute Heliophysics while the Heliophysics Feature Catalogue (HFC) has details of 7 different solar and heliospheric features. Both catalogues cover a time interval of more than 15 years; some events lists in the HEC go back many decades. Both catalogues can be accessed through user-friendly interfaces or through Web Services - for example, from IDL/SolarSoft or Taverna.

Using the capabilities of HELIO we have examined events available through different catalogues that are observed (remote-sensed and in-situ) from different vantage points in the Solar System. These include related phenomena from CMEs that the catalogues allow us to easily identify in different parts of the inner heliosphere and also several SEP events that are seen over a surprisingly wide range of locations. Using the information determined we are better able to place boundary conditions on different types of propagation models.

We will also discuss the limitations that we have found with a number of catalogues and the need to re-generate some of them in order to improve their usefulness.