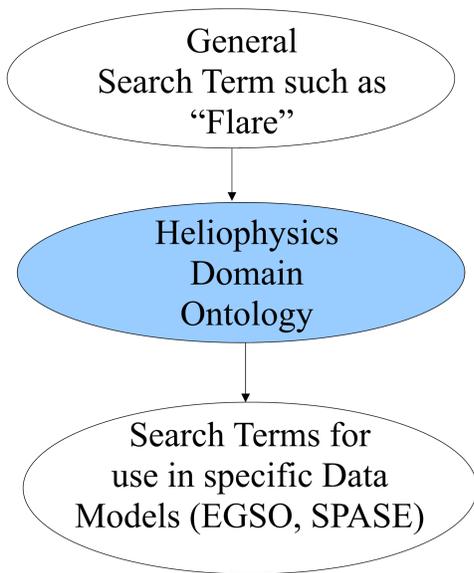
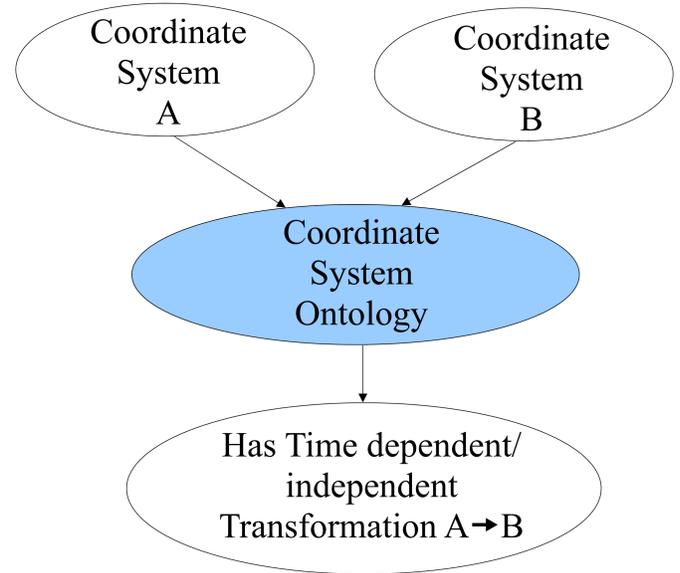
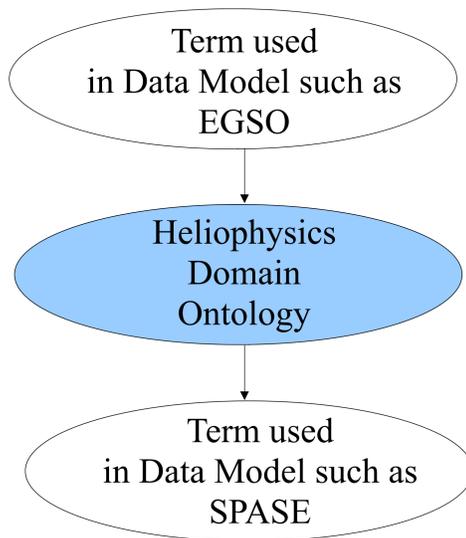


Problem: Individual communities within Heliophysics have evolved independently and developed individual Data Models.

Solution: Domain Ontology with description of data to enable semantic mapping between Data Models.

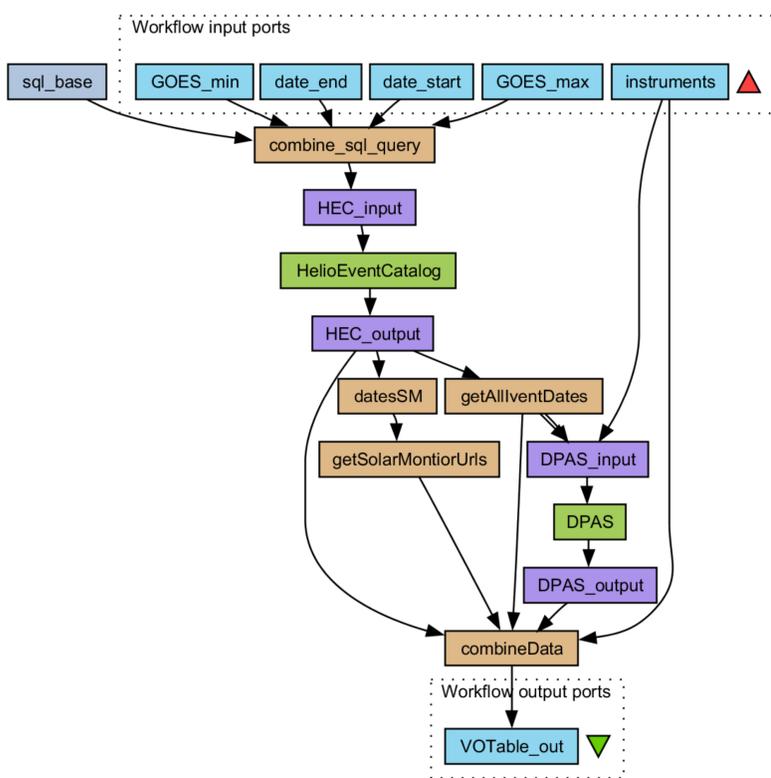


Controlled Vocabulary



Use for Reasoning

Workflows - Lego with Web Service blocks



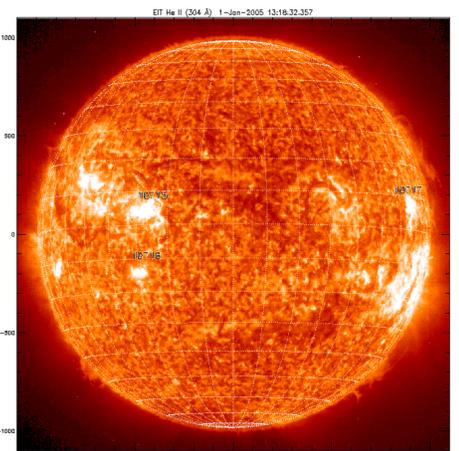
All Web Services are developed to do some specific job, like looking up data in databases. Usually data coming out of those services needs to be processed further and might provide input data needed for another Web Service. Workflows can help scientists to create more complex tasks by combining Web Services with each other.

The HELIO project is developing a set of Web Services providing well defined services. These services can be grouped into two areas: search for interesting events and phenomena; and identify, locate and retrieve observations.

Taverna is a workflow engine which allows scientists to assemble workflows by connecting Web Services in a GUI. The workflows can be constructed on a local PC and later be executed on a server.

This Taverna workflow (picture on the left) looks up events from the HELIO Event Catalog for a specific time interval and filters those where all specified instruments have made measurements. URLs of images from the Sun at the peak time of the event are added from the Solar Monitor service to give some context information about the event. All data is combined into one output file in VOTable format.

Scripts in between the Web Service calls can modify/combine data so that they match required input parameter types.



Picture source: www.solarmonitor.org 01/01/2005

Workflows will be collected in a public repository for reuse.

Web Services developed during the HELIO project will output their data in different formats. One format all services will support is VOTable. The VOTable format is an IOVA standard and is widely used in the Heliophysics community. It provides a means of defining the structure of data independently of the nature of the data.

Data in a VOTable format is only usable if the data is described in a way scientists can understand, and if all surrounding factors are known. All elements containing data can have 'ucd' and 'utype' attributes. With the help of these attributes, values can be defined in terms of high level controlled terminologies and references into Data Models. Both of these values will be used for the semantic mapping which we are doing in the Semantic VO.