

EuroPlaNet/HELIO VO use case: Planets as Space-Weather Probes (2)

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Abstract

This abstract (as well as several accompanying abstracts in this conference) presents a use case of the Virtual Observatory for Planetary Science being defined in JRA4/IDIS. This abstracts also covers the objectives of the HELIO project (Heliophysics Integrated Observatory). The goal is to illustrate possible applications of a VO system in the context of this session.

1 Introduction

The JRA4/IDIS working group of EuroPlaNet-RI is setting the basis for a Virtual Observatory (VO) in Planetary Science. At the end of the project, a protocol will be available to access complex databases described using a specific Data Model. Any data provider will be allowed to describe their data services using this Data Model and declare them in a system of mirrored registries. The perimeter of the data accessible through this mechanism is therefore expected to increase greatly in the coming years. The preferred approach is to preserve the compatibility with tools developed in the framework of the astronomical VO (IVOA), and to save the development of specific tools in particular for visualization.

The present abstract, as well as several accompanying abstracts in this conference, illustrates a possible use of such a system in the context of this session.

2 Science Case

We study a corotating interaction region observed in early 2008 from Mercury to Saturn, comparing all available data sources (in-situ probes and remote observations) and solar wind propagation models.

This poster shows the outer solar system part of this study, concentrating on the auroral radio emissions as

a remote probing tool. A second poster for the inner planet part is shown in the MG1 poster session.

3 Tools

The AMDA¹ (Automated Multi Dataset Analysis) tool has been developed by the CDPP² (french Data Center for Plasma Physics). It is a generic online tool for space physics data that allows the user to do: automated event search and characterization; catalogue generation and exploitation; automated database conditional extraction; access to remote Data Centers. Current remote access is built on SPASE³ (Space Physics Archive Search and Extract), which a standard in space physics.

The HELIO⁴ Front End (HFE) interface is used to look up for Space Weather related data and events. We also used the HELIO propagation tool.

Solar Wind modeling data has been taken from two projects: mSWiM⁵ (University of Michigan) and CCMC⁶ (Community Coordinated Modeling Center).

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¹<http://cdpp-amda.cesr.fr/>

²<http://cdpp.cesr.fr/>

³<http://www.spase-group.org/>

⁴http://www.helio-vo.eu/services/service_interfaces.php

⁵<http://mswim.engin.umich.edu/>

⁶<http://ccmc.gsfc.nasa.gov/>