XML-based information system for planetary sciences

F. Carraro, S. Fonte, and D. Turrini

INAF-IFSI, Planetologia, Rome, Italy (carraro@asdc.asi.it)

EuroPlaNet (EPN in the following) has been developed by the planetological community under the "Sixth Framework Programme" (FP6 in the following), the European programme devoted to the improvement of the European research efforts through the creation of an internal market for science and technology. The goal of the EPN programme is the creation of a European network aimed to the diffusion of data produced by space missions dedicated to the study of the Solar System.

A special place within the EPN programme is that of I.D.I.S. (Integrated and Distributed Information Service). The main goal of IDIS is to offer to the planetary science community a user-friendly access to the data and information produced by the various types of research activities, i.e. Earth-based observations, space observations, modeling, theory and laboratory experiments.

During the FP6 programme IDIS development consisted in the creation of a series of thematic nodes, each of them specialized in a specific scientific domain, and a technical coordination node. The four thematic nodes are the Atmosphere node, the Plasma node, the Interiors & Surfaces node and the Small Bodies & Dust node.

The main task of the nodes have been the building up of selected scientific cases related with the scientific domain of each node. The second work done by EPN nodes have been the creation of a catalogue of resources related to their main scientific theme.

Both these efforts have been used as the basis for the development of the main IDIS goal, i.e. the integrated distributed service. An XML-based data model have been developed to describe resources using meta-data and to store the meta-data within an XML-based database called eXist. A search engine has been then developed in order to allow users to search resources within the database. Users can select the resource type and can insert one or more values or can choose a value among those present in a list, depending on selected resource. The system searches for all the resources containing the inserted values within the resources descriptions.

An important facility of the IDIS search system is the multi-node search capability. This is due to the capacity of eXist to make queries on remote databases. This allows the system to show all resources which satisfy the search criteria on local node and to show how many resources are found on remote nodes, giving also a link to open the results page on remote nodes.

During FP7 the development of the IDIS system will have the main goal to make the service Virtual Observatory compliant.