Design review of Planetary Data Access Protocol

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A standardization of planetary science archives is discussed in the International Planetary Data Alliance; IPDA. IPDA is proceeding to determine the specification of Planetary Data Access Protocol, PDAP, with the aim of the common interface between the world-spread planetary data archives in each agency.

PDAP is a common access protocol on the Internet categorized into Web service API. It allows users to obtain the expected URI list of data set stored in data server with specifying URI GET/POST parameters.In PDAP, 'PRODUCT' describes a unique data. 'DATA_SET' is a set of PRODUCT. 'DATA_SET' or a pair of 'DATA_SET' and 'PRODUCT' expresses the unique in PDAP. The definition is the completely same as Planetary Data System, PDS. PDAP enables data to be added with their data type those are a kind of image, a kind of spectrum, or an original data. PDAP adopts flexible design to allow the extension of each data type, which means each data type has each specific parameters. PDAP defines 'SERVICE' as a service to provide a specific function for each data type, and 'RESOURCE' as a provided data type. User can search data specifying the parameter 'RESOURCE_CLASS=DATA_SET' or 'RESOURCE_CLASS=PRODUCT' because all data belongs to 'DATA_SET' or 'PRODUCT'. Longitude and latitude can be specified if user specify the parameter 'RESOURCE_CLASS=IMAGE'. Current PDAP has three values of 'RESOUCE_CLASS' : DATA_SET, PRODUCT, and IMAGE. However, the images obtained by Hayabusa AMICA are not categorized into PDAP 'IMAGE' because they don't have the coordinate of four corners of each image. This PDAP 'IMAGE' is designed considering a lunar map or mars map which surface covers whole images. This problem is under discussion in IPDA framework. In addition user can specify the return type: HTML format or VOTable format. HTML is a user-friendly interface when user can access PDAP using a browser while VOTable is a XML based format used by Virtual Observatory that promote the machinery processing.

The assumption that machinery processing accesses PDAP is aimed to design with simplicity. After the PDAP specification, development of useful libraries and API connecting to PDAP as a next step. Currently IPDA is defining PDAP specification as a preparation of infrastructure in planetary data archives.