Publishing planetary science data following FAIR principles

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On the frame of Europlanet-2020-RI VESPA program we have developed an infrastructure to publish Solar System data. Our pipeline and tools follow the Open Data and FAIR (Findable Accessible Interoperable Reusable) principles. It uses protocols and infrastructures developed and maintained by the IVOA (International Virtual Observatory Alliance). It takes advantage of 15 years of experience in astronomical data sharing with interoperable data centers distributed all over the world. VESPA follows the IVOA models that define an interoperable system to describe, discover and search data collections and services. It uses standard data access protocols, formats and metadata descriptions. The specificity of the IVOA model is to propose a distributed system. The data are stored at each provider data center with interoperable layers on top of them. This model allows exponential increasing in data volume. One the next largest current project, SKA (Square Kilometer Array) is planning to produce more data than Google, Facebook and Youtube together. IVOA models will have to face this. VESPA proposes an extension to IVOA protocoles for handling Solar System data, namely: a data model for Solar System data product metadata. I will present TAP (Table Access Protocol) as a toolkit to publish a large type of data. This protocol can be associated to a data model to publish planetary data (surface, atmosphere), plasma physics, solar physics, spectroscopic property, time series, exoplanetary dataset, etc. I will also describe how the VESPA project makes use of it to publish any type of planetary science data.

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