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IMPEx : enabling model/observational data comparison in planetary plasma sciences

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Abstract

The FP7 IMPEx infrastructure, whose general goal is to encourage and facilitate inter-comparison between observational and model data in planetary plasma sciences, is now established for 2 years. This presentation will focus on a tour of the different achievements which occurred during this period. Within the project, data originate from multiple sources : large observational databases (CDAWeb, AMDA at CDPP, CLWeb at IRAP), simulation databases for hybrid and MHD codes (FMI, LATMOS), planetary magnetic field models database and online services (SINP). Each of these databases proposes dedicated access to their models and runs (HWA@FMI, LATHYS@LATMOS, SMDC@SINP). To gather this large data ensemble, IMPEx offers a distributed framework in which these data may be visualized, analyzed, and shared thanks to interoperable tools; they comprise of AMDA – an online space physics analysis tool –, 3DView – a tool for data visualization in 3D planetary context –, and CLWeb – an online space physics visualization tool. A simulation data model, based on SPASE, has been designed to ease data exchange within the infrastructure. On the communication point of view, the VO paradigm has been retained and the architecture is based on web services and the IVOA protocol SAMP. The presentation will focus on how the tools may be operated synchronously to manipulate these heterogeneous data sets. Use cases based on in-flight missions and associated model runs will be proposed for the demonstration. Finally the motivation and functionalities of the future IMPEx portal will be exposed. As requirements to and potentialities of joining the IMPEx infrastructure will be shown, the presentation could be seen as an invitation to other modeling teams in the community which may be interested to promote their results via IMPEx.

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