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An open platform for promoting interoperability in solar system sciences

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The European coordination project CASSIS is promoting the creation of an integrated data space that will facilitate science across community boundaries in solar system sciences. Many disciplines may need to use the same data set to support scientific research, although the way they are used may depend on the project and on the particular piece of science. Often, access is hindered because of differences in the way the different communities describe, store their data, as well as how they make them accessible.

Working towards this goal, we have set up an open collaboration platform, www.explorespace.eu, that can serve as a hub for discovering and developing interoperability resources in the communities involved. The platform is independent of the project and will be maintained well after the end of the funding. As a first step, we have captured the description of services already provided by the community. The openness of the collaboration platform should allow to discuss with all stakeholders ways to make key types of metadata and derived products more complete and coherent and thus more usable across the domain boundaries. Furthermore, software resources and discussions should help facilitating the development of interoperable services.

The platform, along with the database of services, address the following questions, which we consider crucial for promoting interoperability:
• Current extent of the data space coverage: What part of the common data space is already covered by the existing interoperable services in terms of data access. In other words, what data, from catalogues as well as from raw data, can be reached by an application through standard protocols today?
• Needed extension of the data space coverage: What would be needed to extend the data space coverage? In other words, how can the currently accessible data space be extended by adding services?
• Missing services: What applications / services are still missing and need to be developed? This is not a trivial question, as the generation of the common data space in itself creates new requirements on overarching applications that might be necessary to provide a unified access to all the services.

As an example, one particular aspect discussed in the platform is the design of web services. Applications of today are mainly human centred while interoperability must happen one level below and the back ends (databases) must be generic, i.e. independent from the applications. We intent our effort to provide to developers resources that disentangle user interfaces from data services.

Many activities are challenging and we hope they will be discussed on our platform. In particular, the quality of the services, the data space and the needs of interdisciplinary approaches are serious concerns for instruments such as ATST and EST or the ones onboard SDO and, in the future, Solar Orbiter. We believe that our platform might be useful as a kind of guide that would allow groups of not having to reinvent the wheel for each new instrument.