The European Space Agency PDGS Data Cube service

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As part of the European Space Agency activities the multi-mission ground systems are operated to acquire, process, archive and distribute data from ESA Missions, including the Heritage Missions, as well as the Third-Party Missions under specific agreements with NASA, JAXA and other data owners. As a joint effort of several departments, the dissemination services have been designed to provide reliable services to support both interactive access (e.g. web client to explore data catalogues) and automated access (e.g. via API and machine-to-machine interfaces for automated access to the data). With the lunch of the Copernicus mission the unprecedent volume (e.g. Copernicus contributes with 10TB/day, CAMS with 100TB/day) of additional data has accentuated the need of effective access services to support environmental monitoring applications. Moreover the possibility to integrate and combine is driving the users to request time-series of data spanning 20 years and more, likely to increase even more in the future, in particular regarding the growing interest on global change monitoring and policy makers decisions on the observed changes particularly in the climate system (atmosphere, ocean, cryosphere, carbon and other biogeochemical cycles, sea levels).

To ensure, enhance and facilitate discovery and access of ESA Missions by a broader community of users, the European Space Agency has transferred into operation the ESA PDGS Data Cube service. Based on a new paradigm aiming at pulling out the full potential of EO data providing access to large spatio-temporal data stored in ESA dissemination archives and enabling on-the-fly analysis-ready form, the ESA PDGS Data Cube service has been designed to fit the ESA Common Services architecture.
Relevant use cases defined in connection with international initiatives (e.g. CEOS, GEOSS) are also presented.