EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Data Management Systems (4)

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EXPERIENCE IN IMPLEMENTING AN EO DATA CENTRE, BASED ON A COMMERCIAL MULTI-MISSION DATA AND INFORMATION MANAGEMENT SYSTEM INTEGRATING EXISTING PROCESSING FACILITIES

Abstract

This contribution introduces into the architecture of the modular data and information management system of the South African Earth Observation Data Centre (EODC), focussing on the processing chains under the multi mission aspect of handling, cataloguing and disseminating data from various sources.

The growing number of received satellites, the diversity of data and required products led to the need of a highly automated data and processing management that is independent of specific EO data sources and flexible to integrate various processors. This led to a multi mission approach of an EO data management system.

By principle the processing chain is characterized by an initial source specific ingestion and processing step (up to L1) with conversion into a consolidated format, followed by processing through several steps to higher level products, archiving and cataloguing and presentation in a portal for user access. The solution manages automated data driven processing on occurrence of data as well as order driven processing. It safeguards efficient production by a high degree of automatization from ingestion through processing to dissemination, eliminating lots of personal involvement in organizing the processing and handling of products that have a volume of 500 TB and more.

The flexibility to integrate the existing and well-proven processing facility SARMES and several other processors into the new solution was a central requirement that led to the multi mission capable Data and Information Management System DIMS-EO, developed by Werum and the German Remote Sensing Data Centre (DLR). DIMS has proven its maturity e.g. as part of ESAs multi mission facility infrastructure. At the CSIR SAC, it is the integrating backbone of a solution where CSIR SAC's own processing suite SARMES is integrated as well as an advanced customer interface to order and search the required products from the EODC.

The SARMES processing facility was developed by Wolfgang Lück at the CSIR SAC for the automatic radio and geometric correction, mosaicking and classification of a wide range of earth observation data, supporting aerial photography, imagery from high resolution satellites such as Ikonos, GeoEye, WorldView 12, Spot, Landsat and many others. It has proven its capabilities since 2006. SARMES is based on PCI Geomatics and processes products from L1 to L3 and L4 (single scenes as well as complete mosaics or mosaic tiles) in several steps such as GCP (Ground Control Point) collection, orthorectification, atmospheric correction, pansharpening, true colour reconstruction and mosaicking/tiling.