Evaluation of requirements on data quality information in relation to the Long Term Data Preservation (LTDP) guidelines

In recent years the need for accessing historical Earth Observation data information has greatly increased, driven by long term scientific and environmental monitoring. The need to preserve such data indefinitely has led to the establishment of the Long-Term Data Preservation (LTDP) guidelines for Earth Observation. However to make full use of this data, it is necessary to have sufficient quality information available to be assured about the data quality. This is the objective of the Quality Assurance for Earth Observation (QA4EO) framework developed by the CEOS Working Group on Calibration and Validation (CEOS WGCV).

This project, entitled "Evaluation of requirements on data quality information in relation to the Long Term Data Preservation (LTDP) guidelines", has analysed the LTDP and QA4EO frameworks, and has looked at how they align in practice for a selection of past and current missions, in order to create recommendations both for the frameworks themselves and for the procedures required to apply the frameworks to future missions. The project was undertaken by a consortium of CGI (formerly Logica), NPL and GMV between January 2012 and December 2014.

The key part of the study was a series of case studies investigating how well the LTDP guidelines, and in particular the associated Preserved Data Set Content (PDSC) document, worked when applied to real-world examples. The overall conclusion is that the approach is a promising one, but that further tailoring of the PDSC standard is needed, as well as guidelines for applying this document in practice.

The project has proposed substantial updates to the PDSC document to make it better suited to serving as the link between the two frameworks, and to make it a closer match for real missions. Ultimately this should become a living document for each mission and instrument. To this end this study has also proposed procedures for how quality information should be managed during the course of a mission. The project has also proposed changes to the LTDP guidelines, both to reflect the procedures discussed above, and more generally to give a clearer explanation of quality information, and how it should be dealt with, within the framework as a whole.

The changes proposed should be reviewed by the appropriate steering boards and, if approved, incorporated into the frameworks directly. They may also be used as inputs to other activities being initiated by ESA, for example around simplification of the PDSC.