The EDAP Framework to Assess Commercial Satellite Mission Quality

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Abstract

In recent years, the increasing range of applications of Earth Observation data products and availability of low-cost satellites has resulted in an increasing number of commercial satellite systems. These services may provide complementary capabilities to those of Space Agencies. Adoption of these data products for many applications requires that they meet an assured level of quality that is fit for the given purpose. For the most efficient exploitation of EO data, therefore, assessment of data quality, calibration and validation are indispensable tasks, forming the basis for reliable scientific conclusions. Such quality information, however, is often communicated to users in an ill-defined and incomplete manner.

Here we show the development of a satellite mission quality assessment framework, designed to perform a thorough review of all important aspects of mission quality. Each aspect of quality is graded, based on their "fit for purpose" within the context of the mission's stated performance and application. The results of this grading are conveyed at a top level to the user as a quality assessment matrix diagram. The framework itself is based on the principles of CEOS QA4EO (Quality Assurance for Earth Observation) and builds on the experience of several European projects that worked towards practically implementing them.

The development of this framework has taken place under a European Space Agency project, the Earthnet Data Assessment Pilot (EDAP), which was aimed at developing techniques to perform quality assessments of potential ESA Third Party Missions (TPM). Under this project the framework has been used to perform a quality assessment of a number of missions, in the Optical, SAR and atmospheric domains. In a wider context, such a framework has potential for more general use in the commercial EO industry – helping mission providers to understand the information their users need and empowering users to make informed decisions about which data is fit for their purpose.

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