



A QUALITY ASSURANCE
FRAMEWORK FOR
EARTH OBSERVATION

The Global Earth Observation System of Systems (GEOSS) must deliver comprehensive and timely “knowledge / information products” worldwide to meet the needs of its nine “societal benefit areas” (SBAs). The GEOSS community represents a wide variety of disciplines, which utilise a multitude of monitoring methodologies and procedures. These all require an association of a quality metric to their outputs to enable them to be reliably integrated into the various systems and services that support the Earth Observation (EO) needs of Society. The fundamental principle of the Quality Assurance Framework for Earth Observation (QA4EO) - "that all EO data and derived products has associated with it a documented and fully traceable quality indicator (QI)" - addresses this core requirement and is universally applicable to all disciplines. This principle is not in itself novel and is already being practised by many. QA4EO seeks to ensure it is implemented in a harmonious and consistent manner throughout all EO communities to the benefit of all stakeholders. The end-user – "customer" – is the driver for any specific quality requirements and will assess if any supplied information, as characterised by its associated QI, are "fit for purpose".

QA4EO Core Principle

Data and derived products shall have associated with them an indicator of their quality to enable users to assess its suitability for their application - "fitness for purpose"

Quality Indicators

Quality Indicators (QIs) should be ascribed to data. A QI should provide sufficient information to allow all users to readily evaluate its "fitness for purpose"

Traceability

QI needs to be based on a documented and quantifiable assessment of evidence demonstrating the level of traceability to internationally agreed (where possible SI) reference standards

The QI needs to be unequivocal in its interpretation and derivation, yet sufficiently flexible, to be implemented across the full range of EO activities that are coordinated through the Group on Earth Observations (GEO). This is the purpose of QA4EO, established to achieve this task. A set of documentation is available (from the QA4EO website – <http://QA4EO.org/>) to assist the user in interpreting and implementing QA4EO into their specific working arena. A framework document provides information on the fundamental principles and concepts that underpin the QA4EO philosophy. This is complemented by a set of key guidelines to assist the adoption of the QA4EO ethos into operational working. These are further enhanced by numerous (and ever-evolving) detailed community-specific guidelines that provide assistance in the practical implementation of QA4EO at the working level.

Funding organisations that oversee the development and execution of EO programs are responsible for implementing the QA4EO key guidelines in the generation and delivery of data products for their sphere of influence. Data users (at all stages) are responsible for the utilisation of QA4EO to assess the appropriate level of evidence in determining the “fitness for purpose” of that data and derived information provided to them for their specific applications. They are also responsible for adhering to the data sharing principles outlined in the QA4EO guidelines.



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QA4EO website – <http://QA4EO.org/>