



A QUALITY ASSURANCE
FRAMEWORK FOR
EARTH OBSERVATION

IAF GEOSS Subcommittee Meeting

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Overview

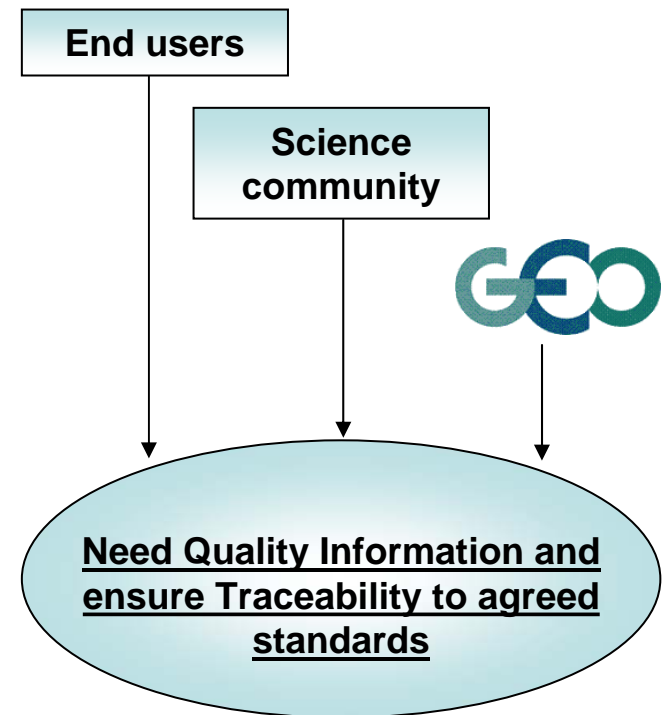
- Origin of QA4EO and current status
- What QA4EO is ...and what is not
- Key Guidelines of QA4EO
- Future implementation and governance

Origin of QA4EO

EO end-users → need to access **quality information** (eg accuracy and precision) on the products they use

Scientific community and Value-adding Comp. → maintain the **traceability of all processing steps** (i.e. from acquisition to delivery) to allow:
 1) error propagation, 2) reprocessing, 3) development of new products, 4) multi sensor inter-calibration, 4) long-term studies, etc.

GEO → Data shall be Available/Accessible and Suitable/Reliable. Overall intent to **maximise interoperability**. A specific task (DA-06-02) to develop a **“GEOSS Quality Assurance Strategy”**.



Maximise the correct APPLICABILITY and INTEROPERABILITY

Origin of QA4EO

Committee on Earth Observation Satellites (CEOS)
Working Group on Calibration and Validation (WGCV)

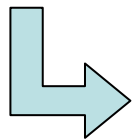
- Coordinate, standardise, advance cal/val of EO missions and their data.
- “space arm” of GEO

Prioritised task DA-06-02 in its implementation plan
and facilitating its development



CEOS WGCV discussed the **principles and operational** details of this task in two workshops: Geneva WMO Oct. 2007 → *Guiding principles*

Gaithersburg NIST May 2008 → *Establishing an operational framework*



All developed documents
peer-reviewed by
representatives from the
different cal/val communities



- **approved by WGCV** (plenary meeting in Oct. 2008)
- **endorsed by CEOS** (22nd CEOS plenary Nov. 2008)

What is QA4EO ...and what is not

10 “key guidelines”

that respond to 3 guiding principles
for generic processes and activities
(Data Quality – Data Policy – Comm. & Edu.)

The “key guidelines” will lead to more
detailed technical procedures
developed by experts and individual
organisations

It also includes coordinated
comparisons for inter-calibration
efforts

...not a certification
body

...not a set of standards
for QC/QA activities and
processes

...not a framework
developed with a
top-down approach

3 Guiding Principles

1) Data Quality

All data and derived products must have associated with them a **Quality Indicator (QI)** based on **documented quantitative assessment** of its **traceability to community agreed reference standards**.

2) Data Policy

Cal/Val data must be **freely and readily available / accessible / useable**. This necessitates that **all Cal/Val data and associated support information (metadata, processing methodologies, QA, etc.) is associated with the means to effectively implement a quality indicator**. In return, the provider must be consistently acknowledged.

3) Communication and Education

All stakeholders must have a **clear understanding** of the adequacy of the information, which should be **accessible through a single portal** and should be **fully traceable to its origins**.

10 Key Guidelines

the Key Guidelines **may evolve** in time and **refinements** could be applied

e.g. Recent contribution and review by Global Space-Based Inter-Calibration System (GSICS) and WMO.

Cal/Val Portal: <http://calvalportal.ceos.org/>

Detailed procedures and activities

QA4EO encourages the development of more detailed documents (following the key guidelines) on technical procedures and activities by appropriate technical experts and individual organisations

QA4EO-WGCV-IVO-CLP-001 . T. Stone - Use of the Moon for in-flight calibration stability monitoring

Their endorsement and encouragement will lead to improved coordination between agencies and a common-set of well-established procedures

They will also represent a guidance for newcomers

Compliance and Implementation

Compliance is a **long-term objective** that
that requires efforts and strong coordination
at an international level

It requires **activities from different perspectives and at different levels**
to respond to the 3 guiding principles on Data Quality, Data Policy,
Communication and Education.

Both a **top-down and a bottom-up** approach must be followed
simultaneously in order to **close the gap between the high level QA4EO
guidelines and their practical applicability.**

The overall implementation mechanism can be divided into three main
aspects: **practical, policy and financial.**

QA4EO Implementation and Governance

- **QA4EO Implementation Workshop**

Chaired by GEO

Organised by GSICS and CEOS WGCV

Last week of September, in Antalya Turkey

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- QA4EO in the **Agenda** for **GEO Plenary** meeting in November

Summary

- Maximise **APPLICABILITY & INTEROPERABILITY** of data through
QUALITY INFORMATION and TRACEABILITY
- The key **guidelines** have been established.
Subsequent procedures and “best practises” are now being written.
- **QA4EO and will be evolved as necessary also to take account of any additional specific requirements of the wider GEOSS community.**
- **Implementation Achievements and Governance will be presented in GEO/GSICS/CEOS WGCV September meeting**

QA4E

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Thank you

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