

**Sub-task Number:** DA-09-01a

**Sub-task Title:** GEOSS Quality Assurance Strategy

**Overarching Task:** Data Management

**Area:** DATA MANAGEMENT

**Relevant Committee:** ADC

**Related Targets:** (to be included in 2009)

**Sub-task Definition** (as given in the 2009-2011 Work Plan):

Develop a GEO data quality assurance strategy, beginning with space-based observations and evaluating expansion to *in situ* observations, taking account of existing work in this area.

**Leads** (GEO Member or PO, Entity carrying out the work, Contact: e-mail):

CEOS (ESA), Point of Contact: Pascal Lecomte, WGCV Chair, Pascal.Lecomte@esa.int

IEEE, Irwin Alber, irwin.alber@sbcglobal.net

**Motivation/Background** (Why should this Task or sub-task be implemented? What relevance to society? What is the state of the art? 3-5 lines)

The Quality Assurance Framework for Earth Observation (QA4EO) provides the structure and guidance to enable individual organisations to document, in a consistent manner, the necessary evidence of compliance, thereby allowing those commissioning the work to assess its adequacy and “fitness for purpose”. QA4EO-compliant processes would unequivocally assure data quality and would enable and encourage harmonisation across the whole GEO community.

**Outputs** (e.g. products and services which result from the activities of the Task/sub-task; outlined in the form of deliverables with timelines)

Planned:

Widely implemented QA4EO framework with sets of community approved, operational guidelines (including key and more community-specific guidelines) throughout the GEO community and an expectation from data users to have Quality Indicators supplied with datasets.

Produced (current status): ...

The QA4EO framework and 10 key guidelines are now in version 3 after a thorough review by GSICS. In addition, more community-specific guidelines from the space sector are being developed and placed under the QA4EO banner. All documentation is freely available via the QA4EO website (<http://qa4eo.org/>).

**Activities** (operations or work processes through which resources are mobilized to produce specific outputs; outlined in the form of milestones including timelines)

Planned:

Further review and updating of the QA4EO documentation is an ongoing process; the documents are seen as living documents that will be open to review and update at any point should the need arise. Outreach into the wider GEO community is proposed to extend the acceptance of QA4EO outside of the satellite community together with the development of communication infrastructure to facilitate the process.

Progress (current status): ...

A QA4EO workshop on facilitating implementation will be held from 29 September – 01 October 2009 in Antalya, Turkey and is open to the wider GEO community.

[Note: Updates on outputs and activities will be formally provided twice a year, according to the GEO schedule for 2009]

**Resources** (indication of resources – e.g. financial, human – contributed by GEO Members or Participating Organizations to produce outputs)

A QA4EO committee is currently leading the work. The committee currently comprises members from the WGCV. Membership to this committee is currently expanding to include representatives from a wider cross-section of the GEO community in order to reflect the wider scope of QA4EO.

A dedicated QA4EO secretariat is the main focus for all QA4EO activities and events, including the maintenance of a dedicated QA4EO website at <http://qa4eo.org/>. The secretariat is currently funded by ESA.

### **Architecture and Data Component**

1) Please briefly describe any task-related Earth observation resources (data set, system, website/portal) and any related Web Service interfaces that are contributed to GEOSS. State whether these items are or will be registered with the GEOSS Component and Service Registry for access via the GEO Web Portals, and whether any associated standards or other interoperability arrangements will be registered in the Standards and Interoperability Registry.

QA4EO information and documentation is maintained on the QA4EO website at <http://qa4eo.org/> and this site can be placed in the registry.

2) Please also describe what data and information your activity/system needs that you would request to be accessible through the GEOSS Common Infrastructure.

Compliance to QA4EO (or level of compliance) is now being requested of GEO data providers. This requires a declaration facilitated by completion of a questionnaire, which needs to be linked to any dataset for users to view.

### **Capacity Building Component**

(capacity building is defined to include the development of capacity related to: (i) Infrastructure and technology transfer (Hardware, Software and other technology required to develop, access and use EO); (ii) Individuals (education and training of individuals to be aware of, access, use and develop EO) and (iii) Institutions – building policies, programs & organizational structures to enhance the value of EO data and products).

1) In accordance with the above definition does this Task have a capacity-building component? If so, please provide a short description of this component including a description of end users.

QA4EO provides the framework, tools and infrastructure to enable datasets to be harmonised and combined in a consistent and reliable manner, facilitating new global services using combined resources. The guidelines and best practices developed as part of this process, including the existing key guidelines, can and should be considered training and educational material to aid organisations in existing data producing nations, as well as those emerging, to produce high value data products to the GEO community efficiently and in a cost effective manner.

2) Have any additional CB needs for this Task been identified? Please provide a short description.

None to date

**User Engagement Component**

*(please briefly describe to what extent end users are engaged in this Task and influence the nature of the outputs produced)*

The QA4EO process is very much user driven and user led. All users and user communities are welcome to contribute at any stage.

**Science and Technology (S&T) Component**

*1) Please briefly describe the elements of scientific research or technological development contained in this Task.*

QA4EO and its operational guidelines represent the means to demonstrate the value and performance of the cutting edge in scientific and technological development within specific communities. Guidelines will be updated as new community-approved best practices emerge.

*2) In relation to the S&T component(s) of this task, please describe gaps, priorities, continuity needs, barriers, scientific expertise and additional resource needs (this information will be used for developing a gaps and needs assessment in Task ST-09-01)*

All communities should be pro-active in providing updates to their best practices and so enabling QA4EO-approved best practices to be truly reflective and current guidelines.

**Members and POs' Contributions to Outputs and Activities above:**

*(Input is optional. This section gives the chance to Members and POs to provide more details (3-5 lines) on their individual activities, making a clear connection with the Outputs and Activities outlined above).*

**Australia**

Share results on calibration/validation activities being undertaken at Geoscience Australia for EO missions using Australian test sites and participate in discussions on best practice approaches for calibration/validation processes.

**Germany**

*DLR RD-RE:* Member of CEOS WGCV, CalVal Expert for DLR missions

**Japan**

*JAXA:* To contribute implementing the GEOSS Data Quality Assurance through CEOS/WGCV.

**CEOS**

*BNSC/NPL:* Develop radiometric standards for use in Earth Observation and develop a handbook. CEOS Reference Test Site Data Collaboration and Comparison. Benchmark mission coordination between TRUTHS and CLARREO missions. Obtain support and resources to complement those of ESA to initiate and plan an international cross-comparison of ground-based Cal-Val support techniques and instrumentation for both IR emitted radiance (SST) and VIS/SWIR reflected radiance (Land).

*ESA/USGS:* Quality Assurance Framework for Earth Observation (QA4EO) Implementation. Develop Cal/Val Portal and post-launch Test Sites. CEOS Reference Test Site Data Collaboration and Comparison. Organise a QA4EO workshop on facilitating implementation from 29 September – 01 October 2009 in Antalya, Turkey. Continue outreach activities into the wider GEO communities through publicity material and conference / meeting presentations.

**EC**

*EU-project HYPOX:* complying quality control of Hypox data.

*Participation (Table to be filled in 2009):*

Type	Member or PO	Representing	Contact Name	EmailAddress
Lead(PoC)	CEOS	ESA, WGCV Chair	Pascal Lecomte	Pascal.Lecomte@esa.int
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