

GEOSS Workshop XXXVII – Data Quality and Radio Spectrum Allocation Impact on Earth Observation

Hilton Hawaiian Village, Honolulu, Hawaii
Sunday, July 25th, 2010 from 08:30 to 18:00

To be held in conjunction with the
30th International Geoscience and Remote Sensing Symposium (IGARSS)

Co-organizers

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This one-day GEOSS workshop XXXVII on “Data Quality and Radio Spectrum Allocation Impact on Earth Observations” will address the broad challenges of data quality and the impact of generating reliable information for decision makers who are Earth data users but not necessarily experts in the Earth observation field. GEO has initiated a data quality assessment task (DA-09-01a) and workshop users will review and debate the directions and challenges of this effort. Radio spectrum allocation is an element of data availability and data quality, and is also associated with a GEO task (AR-06-11). A recent U.S. National Research Council report on spectrum management will be addressed as part of the workshop. Key representatives from industry, academia, and government will provide invited talks on these and related issues that impact GEOSS implementation.

Workshop Theme

The Workshop will explore challenges associated with comprehensive observations of our environment in two specific areas:

- 1) approaches to assess, document, and convey data quality for earth observation data made available through GEOSS.
- 2) the status of existing radio regulations as they impact the passive and active Earth Exploration Satellite Services (EESS) and related ground-based and airborne passive Earth remote sensing applications.

The theme of the workshop supports Group on Earth Observation (GEO) tasks AR-06-11 (Frequency Management), and DA-09-01a (GEOSS Quality Assurance Strategy).

Workshop Objectives

The workshop will address methods for assessing, documenting and conveying data quality in GEOSS by focusing attention on the following questions:

- 1) What strategies can be pursued for determining data suitability and “fitness for purpose” of data accessed through GEOSS?
- 2) What standardized quantitative measures or best practices could be applied for all GEOSS data sets?

- 3) In a system of disparate systems, which do not share a common metadata standard, how can quality information be conveyed to the user in a consistent and intelligible fashion?
- 4) How can uncertainties be addressed for derived information and model outputs?
- 5) How should efforts to improve data accuracy be facilitated?
- 6) How can data providers and users be engaged to improve data quality?

The workshop will also address the importance of and possible methods for radio protection of the spectrum for passive and active measurements by focusing attention on the following questions:

- 1) What are the sensitivity requirements of passive observations or GEOSS?
- 2) What radio bands are currently most affected, and what bands are likely to be affected in the future?
- 3) What GEOSS societal benefits may be impacted by radio interference?
- 4) What are the limitations and possibilities of RFI mitigation and spectrum sharing?

By answering these questions the workshop will serve to enhance and improve the coordination between GEO data providers and the worldwide users of GEOSS. The workshop will include breakout sessions designed to address the above key questions. A report on the conclusions of the breakout groups will be available to the GEO community after the meeting.

Workshop Details

This one day workshop will be co-located with the IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2010). It will be held at the Hilton Hawaiian Village, in Honolulu Hawaii on Sunday, July 25, 2009 from 8:30 to 18:00. The workshop will offer an agenda of key invited speakers noted for their expertise in data quality and data management areas and in the radio spectrum. Ample time will be allocated to breakout sessions within which small groups will exchange views and provide proposed approaches to question posed to fulfill workshop objectives. A summary of the break-out group discussions will be presented to the reconvened audience. Workshop presentations and break-out sessions summaries will be collected as part of the workshop proceedings and made available on the IEEE Committee on Earth Observation (ICEO) website at www.ieee-earth.org.

In order to encourage the highest degree of participation in GEOSS the workshop will be open to the public for a nominal fee (\$40). Sponsors of the workshop will include NASA, the IEEE Geoscience and Remote Sensing Society, and the IEEE Committee on Earth Observation.

GEOSS Background

The Global Earth Observation System of Systems (GEOSS) is envisioned to cover all aspects of Earth observations and in this way introduce a new capability for monitoring and providing data on environmental processes. GEOSS is a complex “system of systems,” including sensors, communication systems, spatio-temporal data infrastructures and other components essential for observing the Earth on all relevant scales and disseminating this information to users for a host of important societal benefits. In addition, GEOSS includes models and data fusion processes to create usable information that is essential for decision making from the observational data. The 2003 Earth Observations Summit established the objective “*to monitor continuously the state of the Earth, to increase understanding of dynamic Earth processes, to enhance prediction of the Earth system, and to further implement our international environmental treaty obligations*”. GEOSS goals are to achieve comprehensive, coordinated and sustained observations of the Earth system, in order to improve monitoring of the state of the Earth, increase understanding of Earth processes, and enhance prediction of the behavior of the Earth system.

The GEOSS 10-year Implementation Plan states that GEOSS will provide the overall conceptual and organizational framework for integrated global Earth observations to meet user needs. GEOSS is a system of systems consisting of existing and future Earth observation systems, supplementing but not supplanting their own mandates and governance arrangements. It provides the institutional mechanisms for ensuring the necessary level of coordination, for strengthening and supplementing existing Earth observation systems, and for reinforcing and supporting component systems in carrying out their mandates.

The emphasis of GEOSS is on societal benefits, initially in nine key areas. Sound management of the Earth system, in both its natural and human aspects, requires information that is timely, of known quality, sustained, and global. Interpretation and use of Earth observations requires information on drivers and consequences of change, including geo-referenced socio-economic data and indicators. The nine areas addressed in the GEOSS Implementation Plan are:

- Disasters: Reducing loss of life and property from natural and human-induced disasters
- Health: Understanding environmental factors affecting human health and well-being
- Energy: Improving management of energy resources
- Climate: Understanding, assessing, predicting, mitigating, and adapting to climate variability and change
- Water: Improving water resource management through better understanding of the water cycle
- Weather: Improving weather information, forecasting and warning
- Ecosystems: Improving the management and protection of terrestrial, coastal and marine resources
- Agriculture: Supporting sustainable agriculture and combating desertification
- Biodiversity: Understanding, monitoring and conserving biodiversity

Although all of the above societal benefit areas (SBAs) of the Implementation Plan are important for GEOSS, this workshop will focus specifically on spectrum management as it impacts GEOSS goals and data quality for GEOSS, with a special emphasis on national and international spectrum management policies that may affect these two aspects of GEOSS.