

## CEOS WGISS 33 Meeting Report

### Introduction

The ultimate aim of WGISS activities is to improve access to satellite data at an international level. The latest meeting (WGISS 33), held in Tokyo from 23rd to 27th April, has shown progress continues to be made on a broad range of fronts. The meeting was attended by about 30 delegates from 13 Agencies, with particularly strong representation from China and Japan.

This report aims to present some of the highlights of the meeting. The agenda and most of the presentations will be available for download from the WGISS website (<http://www.ceos.org/>), or from the Report author (w cudlip@geoseren.com).

### CEOS Organisation (Context)

Over the last few years, CEOS has greatly increased the scope of its activities in support of GEO. In particular it has now created 7 Virtual Constellation activities (with more in the pipeline) and created 8 coordinators/teams in support of the GEO Societal Benefit Areas (SBAs). It has created a new Working Group on Climate (UK delegate Andy Shaw, NCEO) and renamed the Working Group on Education to be the Working Group on Capacity Building and Data Democracy (WGCapD). The following figure shows the latest structure:

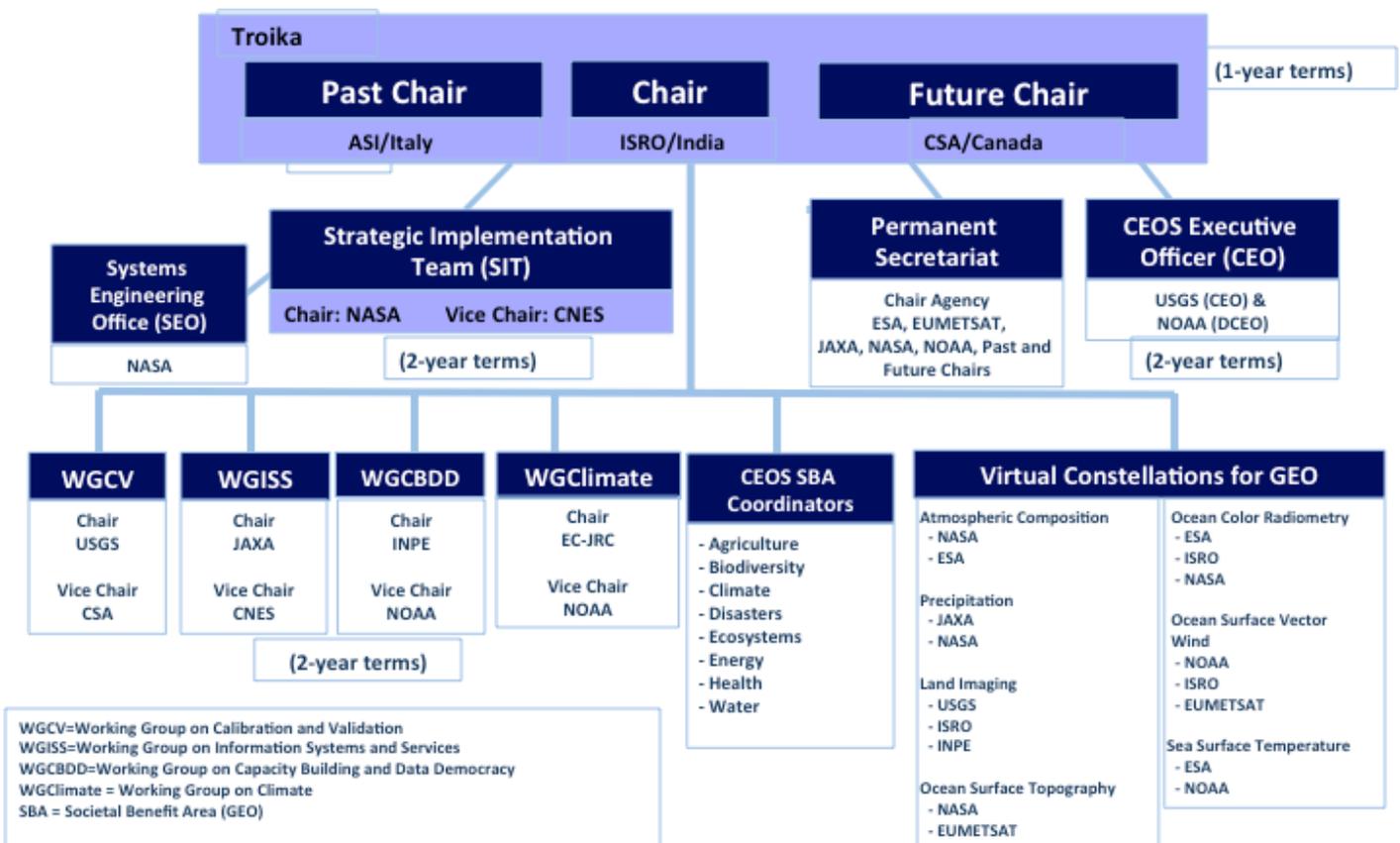


Figure 1: CEOS structure (start of 2012). (WGCBD now called WGCapD).

In response to this diversification CEOS has recently completed a CEOS Self Study activity which reviewed the CEOS past achievements and assessed how best to organise itself to support GEO. The Report, which was released at the end of 2011, essentially recommended that CEOS activities should be more tightly coordinated; and this would be facilitated with the creation of a 5-year Strategic Plan.

Some of the outcomes being targeted by CEOS for 2012 include:

- Improved Co-ordination of Space Agency activities related to climate.
- Further support for particular GEO initiatives such as GFOI<sup>1</sup>, JECAM<sup>2</sup>, QA4EO<sup>3</sup>, GLAM<sup>4</sup> and GEOBON<sup>5</sup>
- Enhance CEOS outreach to key stakeholders such as COP<sup>6</sup>, UNFCCC<sup>7</sup>, SBSTA<sup>8</sup> and G8/G20<sup>9</sup>.

### WGISS re-organisation

With the expansion of the Working Groups and Teams within WGISS (in particular the creation of the Virtual Constellation Groups and the SBA Coordinators), the overall scope of WGISS activities has been reduced. WGISS still has an essential role to play in the co-ordination of Space Agency information systems, but its role in outreach/education has been reduced with the creation of the WG on Capacity Building and Data Democracy (WGCapD); and it no longer needs to be so pro-active in the creation of joint projects with Users (a role essentially carried out by GEO). However, given the CEOS support for specific GEO initiatives, the demand for WGISS activities in the area of data management and access is increasing.

WGISS therefore has recognised the need to simplify in structure in order to remain efficient and responsive to the needs of GEO and other international initiatives.

The WGISS Interest Groups (IG) and Projects remain at the core of the structure, as these provide a focus for the technical work carried out within WGISS. However, the number of IGs has been reduced and the Subgroup Layer of the organisation has been removed. The IGs and Projects will now Report directly to the WGISS Chair, who will be supported by an Exec composed of the Chair, Vice-Chair and IG/Project Leads. The Co-Vice-Chairs representing Users have also been removed and their work absorbed into a stronger Liaison Activity.

The following Diagram shows the new structure.

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<sup>1</sup> GFOI – Global Forest Observation Initiative  
<sup>2</sup> JECAM – Joint Experiments on Crop Assessment and Monitoring  
<sup>3</sup> QA4EO – Quality Assurance for EO <http://QA4EO.org/>  
<sup>4</sup> GLAM – Global Agricultural Monitoring  
<sup>5</sup> GEOBON – GEO Biodiversity Observation Network  
<sup>6</sup> COP – Conference of the Parties (highest decision-making authority for UNFCCC)  
<sup>7</sup> UNFCCC – UN Framework Convention for Climate Change  
<sup>8</sup> SBSTA – Subsidiary Body for Scientific and Technical Advice (for COP)  
<sup>9</sup> G8/G20 – Forums for the most wealthy nations

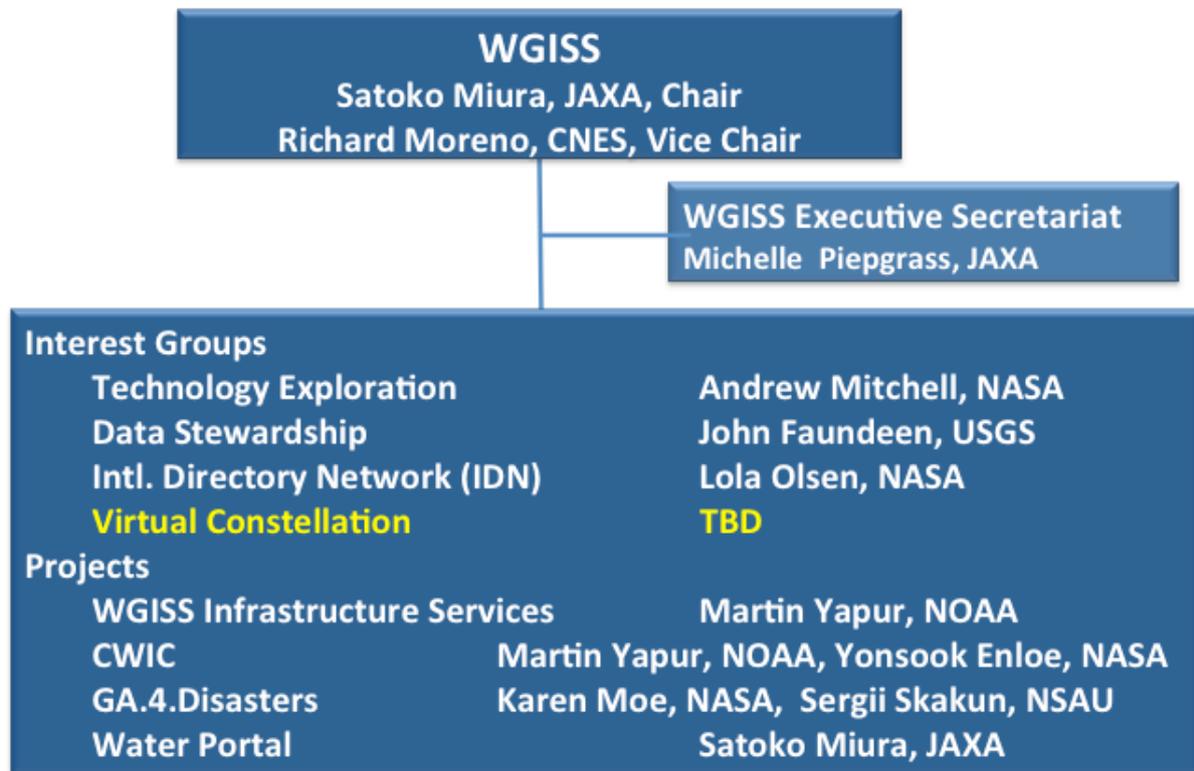


Figure 2: WGISS structure as of April 2012.

The three basic components of EO data exploitation, namely, Management, Search, and Access are covered by the three Interest Groups, Data Stewardship, International Directory Network (IDN) and the CEOS WGISS Integrated Catalogue (CWIC). Additional technical issues will be addressed by the new Technology Exploration IG, formed from a combination of the Web Services IG, Grid IG and the Sensor Web IG. A new Virtual Constellations (VC) Interest Group will combine the work of the former Atmospheric Composition IG and the Land Surface Imaging (LSI) Interest Group. There were no volunteers at the meeting for the lead position of the VC IG and a general call to fill this roll will be issued to the full WGISS membership. Other, more application-orientated activities continue with the Water Portal Project and the GEO Architecture for Disasters (GA.4.Disasters) Project. The Global Datasets Interest Group was closed for lack of active Agency Support. Managing the WGISS website and other internal co-ordination activities will continue under the WGISS Infrastructure Services Project.

This was the first meeting with Satoko Miura as Chair. Richard Moreno (CNES) has been appointed as the Vice Chair and will take over as Chair in two years.

## GEO Support

WGISS continues its support of specific Tasks in the new GEO Workplan for 2012 – 2015.

This new GEO Workplan has 26 main Tasks and 60 Components. CEOS plans to be active in at least 24 of these and WGISS is co-lead for two components, namely:

IN-02-C1 Advances in Life-cycle Data Management (including long-term data preservation & data quality)

IN-03-C1 Evolution and Enhancement of the GEOSS Common Infrastructure (GCI)

The first is particularly relevant to the UK because of its leading role in the development of the QA4EO specifications and the recent UKSA/NPL<sup>10</sup> support for the new QA4EO Secretariat and Website.

<sup>10</sup> NPL – National Physical Laboratory

At the February 2012 CEOS-GEO Actions Workshop, WGISS was assigned a number of Priority Actions:

**CEOS-GEO Action Number: IN-01-C2\_5**

- GEO Task Reference: *IN-01* Earth Observing Systems  
C2 Development and Coordination of Space-based Observing Systems
- Action Description: Enable the LSI VC with a map interface accepting geographical queries to CEOS data providers utilizing CWIC
- Primary POC: John Faundeen, USGS

**CEOS-GEO Action Number: IN-02-C1\_1**

- GEO Task Reference: *IN-01* Earth Data Sets  
C1 Advances in Life-cycle Data Management
- Action Description: Sharing data management life cycle models and recommendations aligning to the first Priority Action
- Primary POC: John Faundeen, USGS

**CEOS-GEO Action Number: IN-03-C1\_1**

- GEO Task Reference: *IN-03* GEOSS Common Infrastructure  
C1 Evolution and Enhancement of the GEOSS Common Infrastructure (GCI)
- Action Description: Provide guidelines for CEOS partners to register their datasets in the IDN to enable the IDN and CWIC to be used to provide an integrated directory/inventory search of satellite data (Remapped from DA-09-01b\_2)
- Primary POC: Martin Yapur, NOAA

**CEOS-GEO Action Number: IN-03-C2\_X**

- GEO Task Reference: *IN-03* GEOSS Common Infrastructure  
C2 Operations and Maintenance of GCI Components
- Action Description: TBD
- Primary POC: TBD

**CEOS-GEO Action Number: IN-05-C1\_1**

- GEO Task Reference: *IN-05* GEOSS Architecture, Design and Interoperability  
C1 GEOSS Design and Interoperability
- Action Description: Conduct an assessment of CEOS data registration in the GCI to support the GEOSS architecture and interoperability principles
- Primary POC: Brian Killough, SEO

**CEOS-GEO Action Number: DI-01-C1\_2**

- GEO Task Reference: *DI-01* Informing Risk Management and Disaster Reduction  
C1 Disaster Management Systems
- Action Description: Enhance the use of satellite data from lessons learned and best practices in the use of satellites for disasters
- Primary POC: Karen Moe, NASA

**CEOS-GEO Action Number: WA-01-C1\_1**

- GEO Task Reference: *WA-01* Integrated Water Information (incl. Floods and Droughts)  
C1 Integrated Water-cycle Products and Services
- Action Description: Continue to develop the CEOS Water Portal, incorporating feedback from users
- Primary POC: Satoko Muira, JAXA

It was reported that at the recent CEOS SIT-27 meeting the GEO Director, Jose Achaché, stated that “WGISS is a critical component of CEOS and is due strong support”.

The UK also has significant expertise to offer with regard to these activities and greater UK support, particularly from academic institutions, should be encouraged.

## WGISS Technical Work

In addition to the re-structuring discussion, the meeting received reports on the continuing technical work going on with WGISS. These activities are now mostly progressed through monthly telecons between WGISS meetings. Some of the reported highlights are given below.

The **International Directory Network (IDN)** for Earth Science Data (based on NASA's Global Change Master Directory (GCMD)) continues to grow and now holds directory records for about 24,000 datasets and over 2400 associated services. The IDN is becoming an important part of the GEO Common Infrastructure (GCI) (all the IDN records are currently harvested daily into the central GEOSS Catalogue).

The IDN is currently working on a new User Interface and a Keyword Management System. These will make it easier for Users to exploit the available resources.

Unfortunately, many of the UK records in the IDN database have not been updated for several years and are becoming out of data. Inaccurate directory records frustrate users and undermine confidence in the data providers. It would be good if the UKSA could encourage UK data providers to update their IDN directory information.

However, this update process might best be carried out as a general activity to integrate the ISIC<sup>11</sup> CEMS<sup>12</sup> Facility into international information systems. By registering CEMS datasets with the IDN and providing a simple CWIC interface (see below) to CEMS catalogues, then CEMS data would automatically be included in the GEO GCI<sup>13</sup> Portal.

It is recognised that there are some issues in reconciling EO data catalogues with the requirements of the INPIRE Directive. However, working on this issue in the context of CEOS and GEO would both benefit the UK in terms of achieving data access interoperability and be a significant contribution to European EO developments.

The **WGISS Architecture and Data Contributions (WADC) Interest Group** has made good progress in developing the CEOS WGISS Integrated Catalogue (CWIC). This aims to provide a high-level common interface to CEOS member satellite-data inventories. This is also now being regarded as a significant contribution to the GEOSS Common infrastructure.

The main goal of CWIC is to define a very simple protocol to allow Agency data catalogues to be searched via a single User Client. It recognises that most Agency have data catalogues accessed by their own Client Portals. Adding CWIC protocols to the Server allows it to be easily searched by other Agency Clients; and adding CWIC protocols to the Client, allows it to easily access any other Agency (CWIC-enabled) catalogues. This can be regarded as the definition of interoperability!

A significant recent advancement for CWIC has been the development of a simple Test Client that can demonstrate the power of the interoperability being offered by the CWIC protocol.

A demo of the Client accessing relevant data from a number of Agencies over the Brazilian rainforest can be seen on YouTube at:

<http://www.youtube.com/watch?v=-hXfcNI-654&feature=youtu.be>

The CWIC protocol can be regarded as being complimentary to the HMA protocols being developed by ESA. HMA is more powerful, but also much more complicated with additional functionality (such as integrated data ordering). CWIC is much easier to use to connect a distributed set of independent data providers.

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<sup>11</sup> ISIC – International Space Innovation Centre Harwell

<sup>12</sup> Climate and Environment Monitoring from Space Facility

<sup>13</sup> GCI – GEOSS Common Infrastructure

The **Data Stewardship Interest Group** is being very active in compiling information for the long-term preservation of satellite data. This aims to integrate developments in Europe with activities in the USA. As mentioned above, UK expertise could make a valuable contribution to this activity.

As part of the DSIG activity, USGS has instigated a programme of coordinated observations of the environment (temperature and humidity) of Space Agency data archives. Even though data archives are climate controlled the storage conditions do change depending on the surrounding weather conditions. Monitoring these small changes will benefit planning for long-term storage and establish industry “best practices”.

USGS has offered to provide an environmental sensor to the CEMS Data Archive so that it can be included in the global analysis.

The other technical Interest Groups (**Web Services, Grid and Sensor Web**) continue to monitor technical web/service developments and assess their relevance to Space Agency activities. In the future, these different technologies will report under the Technology Exploration Interest Group.

It is noted that there were a number of Interest Groups concerned with Portal activities (i.e. providing web access to data and services). These covered **Land Surface Imaging, Atmospheric Composition** and the **Water Portal**. The UK could usefully have greater involvement in all of these, both from making a scientific contribution and from benefitting from the activities and expertise of others.

The **Global Datasets Interest Group** kept a watching brief on Global Dataset initiatives and was the home for the development of the UK DEM Quality Information Service (DEMqis) initiative proposed by UCL. However, WGISS has decided to close the IG as there has been very little Agency support recently. WGISS support for further DEMqis development (should it occur) can be coordinated within the Technology Exploration IG.

The **GEOSS Architecture for Disasters and Risk Assessment (GA.4.Disasters) Project** is continuing its work on developing an information model on risks and disasters in order to improve the interoperability of the various disaster/risk initiatives around the world. A draft document is being circulated for review. The Disaster Charter community has shown particular interest in this document as it might help them understand how their activity fits into the broader disaster response cycle.

## Agency Reports

Agency Reports were presented by France (CNES), Germany (GFZ), USA (NASA, NOAA, USGS), Brazil (INPE), Japan (JAXA, JMA and Restec).

## Conclusions

Support of WGISS continues to be a very cost effective way of gathering information on the technical activities of the world's Space Agencies; and also maintaining the UK reputation as a leading participant in international technical developments. The UK often acts as a mediator between European and US activities and so can be an important player in international cooperation.

The UK has a lot of expertise, particular in the academic community, that could be offered to enhance WGISS activities, and this engagement would ensure that the UK is able to obtain maximum benefit from international developments. Greater participation should be encouraged.

The international links established and maintained through WGISS participation, together with the knowledge obtained, can help support the UK Growth Strategy in Space by ensuring the UK is fully engaged with international technical developments.

End of Report



Figure 3: WGISS 33 participants in Tokyo, April 2012.