GeoSeren

CEOS WGISS Report for 2013

Executive Summary

This report summarises the outcomes and impact of the two meetings of the CEOS Working Group on Information Systems and Services (WGISS) held in 2013. The first meeting was hosted by INPE in Brazil in May; the second was hosted by ESA in Italy in September.

WGISS has created a new description of its activities: "WGISS creates and demonstrates prototypes supporting CEOS and Group on Earth Observation (GEO) requirements. WGISS also addresses the internal management of EO data, the creation of information systems and the delivery of interoperable services. The activities and expertise of WGISS span the full range of the information life cycle from the requirements and metadata definition for the initial ingestion of satellite data into archives through to the incorporation of derived information into end-user applications."

The main focus of WGISS activities is the support of GEO and the creation of GEOSS. This is mainly done by contributing to the CEOS Annual Work Plan for the support of GEO. This mainly involves responding to specific Actions from the CEOS Strategic Implementation Team (SIT), and contributing to other CEOS initiatives such as the Virtual Constellations. WGISS also contributes directly to GEO activities where appropriate.

Particular recent highlights in support of GEO include:

- Support for the development of the GEO Common Infrastructure (GCI) – through enhancements to the International Directory Network (IDN)
- Improving the accessibility of EO data through the CEOS WGISS Integrated Catalogue (CWIC) and OpenSearch developments
- Completion of the of Disasters Reference Model Architecture document

WGISS activities are organised in a number of Interest Groups and Projects. The Interest Groups address Technology Exploration, Data Stewardship, the International Directory Network (IDN) and the Virtual Constellations. The Projects address CWIC, OpenSearch, Disaster Management, Virtual Constellations and WGISS Infrastructure.

Additional highlights in 2013 include discussion sessions on Cloud Computing, "Big Data", and Long Term Preservation of Data. Host workshops (from INPE and ESA), together with the Agency Reports presented at the meetings, have provided good up-to-date summaries of Space Agency activities in Earth Observation.

Appendix A contains the Agendas for the 2013 WGISS meetings, with links to the presentations. Appendix B provides an overview of the CEOS structure in order to place WGISS activities in context. The Agendas and presentation from earlier meetings can be found on the WGISS webpages.

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Figure 1. Delegates at the WGISS 36 meeting in ESRIN, Frascati, September 2013

1 Introduction

This report summarises the outcomes and impact of the two meetings of the CEOS[1] Working Group on Information Systems and Services (WGISS) held in 2013. The first of these was hosted by INPE[2] in São José dos Campos in Brazil on 6th to 10th May; and the second was hosted by ESA[3] at ESRIN[4], Frascati, Italy on 16th to 20th September.

WGISS continues to focus its activities on support to GEO[5] and GEOSS[6] both through direct contributions to GEO Tasks and through indirect contributions to CEOS activities that support GEO, such as the development of the CEOS Virtual Constellations.

WGISS operated under a new leaner structure through 2013. It still organises its activities into two components, namely Interest Groups and Projects (IG/P), but the Subgroup Layer, with their associated Chairs and Vice-Chairs, has been removed such that the IG/P Chairs now report directly to WGISS Management.

In 2013 WGISS developed a new short descriptive paragraph to summarise its activities:

"WGISS creates and demonstrates prototypes supporting CEOS and Group on Earth Observation (GEO) requirements. WGISS also addresses the internal management of EO data, the creation of information systems and the delivery of interoperable services. The activities and expertise of WGISS span the full range of the information life cycle from the requirements and metadata definition for the initial ingestion of satellite data into archives through to the incorporation of derived information into end-user applications."

The following diagram shows the WGISS structure through most of 2013:

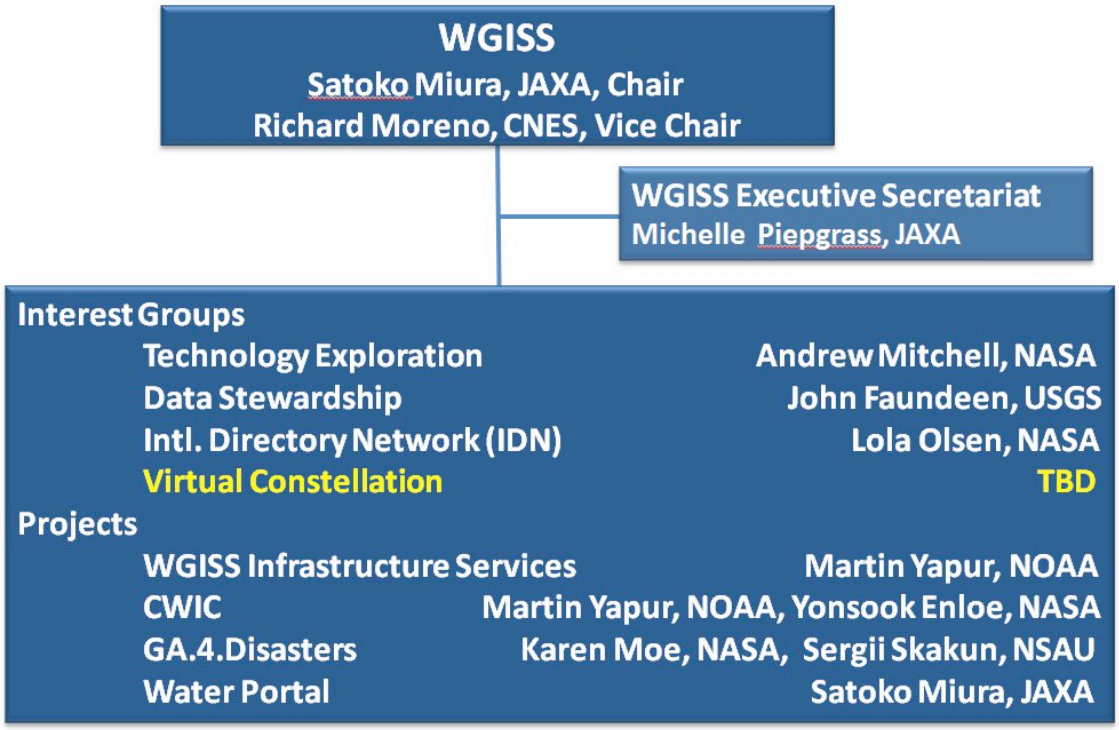

Figure 2. WGISS structure and key personnel through much of 2013.

[1] CEOS – Committee on Earth Observation Satellites
[2] INPE - Instituto Nacional de Pesquisas Espaciais
[3] ESA - European Space Agency
[4] ESRIN – European Space Research Institute
[5] GEO – Group on Earth Observation
[6] GEOSS – Global Earth Observation System of Systems

The WGISS Chair position changes every two years, and from November 2013, Richard Moreno (CNES) (the Vice-Chair) became Chair and, following a request to the Space Agencies for a volunteer, Andrew Mitchell (NASA) has been appointed the new Vice Chair. Michelle Piepgrass (an independent contractor) will continue to support the WGISS Secretariat under funding from CNES.

Some changes to the WGISS structure were agreed at the last meeting. The GA.4.Disasters Project was closed having completed its work on the creation of a Reference Model for Disaster Information Systems, and the creation of a new Working Group for Disasters within CEOS. A new OpenSearch Project has been created to drive forward the integration of the FedEO and CWIC data access systems being developed by the Space Agencies.

WGISS is one of a number of Working Groups and other components within CEOS. For reference, Appendix B gives an overview the CEOS Structure.

The following Sections provide more detail on the WGISS support for GEO and the activities of the Interest Groups and Projects.

2 WGISS Support for CEOS and GEO

The main governing body of CEOS is the CEOS Plenary, which meets once a year (usually November). However, much of the specific planning and actions for CEOS is generated within the CEOS Strategic Implementation Team (SIT). The SIT's main objective is to define, characterize, and develop the vision for CEOS participation in GEO and in particular, to strengthen the CEOS linkages to GEOSS. The SIT is currently engaged in objectively defining and prioritizing a series of "actionable" actions and demonstrated results that will support corresponding GEO Societal Benefit Area (SBA) Tasks. For each of the GEO Tasks that CEOS contributes to, key CEOS actions have been identified with a direct traceability established. The SIT also leads the CEOS Virtual Constellation development and implementation activities as described in its annual Work Plans[7]. NASA served as the 2012-2013 SIT Chair and will be followed for a two-year term by CNES.

In particular, CEOS SIT is co-ordinating the CEOS response to the relevant components of the GEO 2012-2015 Work Plan[8]. CEOS is currently participating in:

- Infrastructure: IN-01, IN-02, IN-03, IN-05
- Institutions and Development: ID-01, ID-02, ID-04
- Information for Societal Benefits: SB-01, SB-02, SB-03, WA-01, DI-01, HE-01, EN-01, BI-01, CL-01, CL-02, AG-01

Of the eight elements of the 2013 CEOS Work Plan, the expected CEOS 2013 outcomes that affect WGISS are:

- CEOS Support to Further Key Stakeholder Initiatives: Continued dialogue on potential CEOS contributions to Integrated Water Cycle products and services: CEOS will engage with GEO to identify specific ways in which CEOS can support improved water cycle products and services, including the Water Cycle Integrator (WCI), and through data portals (including CEOS Water Portal).
- Adoption of recommendations from the 2011 CEOS Self-Study[9]
- Disaster Risk Management: Enhanced support for Disaster Risk Management (DRM): CEOS DRM activities are intending to include and leverage existing disaster-related efforts supported by CEOS Agencies, including work on the GEOSS disasters and risk management architecture conducted by WGISS. This activity will also take into account ongoing CEOS Agencies' regional pilot projects such as flood risk mitigation, warning, and recovery, and development of a more reliable warning tool for volcanic ash monitoring.
- Capacity Building and Data Availability and Access: Continued support to the development and operationalization of the GEOSS Common Infrastructure (GCI) and its CEOS-related elements. Through the Working Group on Information Systems and Services (WGISS), CEOS Agencies will foster the

[7] CEOS 2013 Work Plan: http://www.ceos.org/images/CEOS_2013_Work_Plan_FINAL.pdf
[8] GEO 2012-2015 Work Plan: http://www.earthobservations.org/geoss_imp.php
[9] CEOS Self Study: http://www.ceos.org/images/CSS/CEOS%20SELF%20STUDY%20FINAL%20REPORT%20Part%201%20-%20Synthesis%20Report.pdf

implementation and enhancement of the GEOSS Common Infrastructure (GCI) through continued development and coordination of tools that improve discovery, interoperability, and access to satellite data such as the CEOS WGISS Integrated Catalogue (CWIC), the International Directory Network (IDN), and the Heterogeneous Missions Accessibility (HMA) protocol-based system. WGISS will investigate opportunities and obstacles for interoperability of HMA and CWIC, and make recommendations to CEOS leadership in the further coordinated development of both systems, including consideration for how to work with GEO. WGISS will also work with the CEOS Systems Engineering Office (SEO) to optimize the use of portals sponsored by CEOS Agencies, Virtual Constellations, and SBA Teams, to enhance dataset discovery and access by users.

As a result of these directives, WGISS has been paying particular attention to:

- Support for the development of the GEO Common Infrastructure (GCI) – through enhancements to the GCMD/IDN[10]
- Improving the accessibility of EO data through the CWIC[11] and OpenSearch developments
- Disaster Risk Management through the completion of the Disasters Reference Model

Following the completion of the CEOS Self Study activity, CEOS has now instigated the CEOS Self-Study Implementation Initiative (CSSII)[12]. Three topical teams concluded reports on roles and responsibilities, major meetings, and decision-making processes. This has resulted in a scheme to manage CEOS activities through three documents, namely:

- CEOS Strategic Guidance (10-year life);
- CEOS Governance & Processes (5-7 year life); and
- CEOS 3-Year Work Plan (rolling, updated annually, 2013 version released).

Traditionally, CEOS WGISS has described its structure, processes and main activities in an annually updated 5-year Plan[13]. However, the intention during 2014 is to replace this with documents that match the CEOS management set.

3 WGISS Interest Groups

The WGISS technical activities are categorised as Interest Groups and Projects, recognising that the distinction can be slightly blurred. Interest Groups tend to concern more generic activities with a focus on information exchange.

3.1 Technology Exploration Interest Group

The Technology Exploration Interest Group includes the interest of the former GRID, Web Services, and Sensor Web Services Interest Groups. It now serves as a forum for exchange of technical information and lessons-learned experience about current and trending software technologies, services and other WWW / Internet related software technologies.

Recent sessions at the last two WGISS meetings have covered:

- A review of Agency User-Registration/Authentication arrangements (including presentation from CNES concerning the use of OAuth and OpenID).
- Support for the CWIC-START Client for CWIC (see CWIC Section below)
- A survey of quality-assurance (QA) metadata for Agency collection-level datasets
- The use of Cloud Computing within the Space Agencies (including presentations from JAXA, NASA, Russian Space Systems, ESA, CNES)
- Agency experiences of “Big Data” (including presentations from NOAA, CCMEO (Canada), ESA, NASA)

[10] GCMD/IDN – Global Change Master Directory/International Directory Network
[11] CWIC – CEOS WGISS Integrated Catalogue
[12] CEOS Self Study: http://www.ceos.org/index.php?option=com_content&view=category&layout=blog&id=339
[13] CEOS WGISS 5-year Plan: http://www.ceos.org/images/WGISS/Documents/WGISS_5yrPlan_V15.0e.doc

The presentations will eventually be made available from the WGISS website; in the interim they can be obtained from Wyn Cudlip (wcudlip@geoseren.com).

3.2 Data Stewardship Interest Group

The data Stewardship IG aims to provide a forum for the discussion of data management issues including the long-term preservation of data. The focus is on Data, Metadata and Products, including:

- Long-Term Archive Strategies
- Data Formats
- Data Preservation
- Data Lifecycle Concepts
- Archive Media

The Group also co-ordinates the recording of environmental conditions (temperature and humidity) within Agency Data Archive Centres.

A number of documents on these topics are available from the Data Stewardship website[14].

A highlight of the last WGISS meeting was a half-day workshop hosted by ESA's Long-Term Data Preservation Working Group[15].

3.3 IDN: International Directory Network

NASA's Global Change Master Directory (GCMD) continues to provide the basis for the CEOS International Directory Network (IDN). This provides directory-level information for almost 24,000 datasets and over 3000 Services related to Earth Observation.

GCMD/IDN version 9.9.1 was released August 2013. New features include performance improvements to the RESTful APIs, Hyperlinked Data Set Digital Object Identifiers (DOIs), ISO-19115 Formatted Data Set Metadata View, ISO-19115 to DIF Metadata Translator, bulk metadata uploader, and OpenSearch tags. The performance of the Keyword Management System (KMS) and Metadata Web Service (MWS) APIs has been improved by using caching techniques. DOIs populated in the DIF "Data Set Citation" are now hyperlinked. This was resolved using http://dx.doi.org/, is searchable via a "fielded" free text search. DOIs without a valid DOI string will not be hyperlinked.

The GCMD/IDN DIF display now offers users the option to view data set descriptions in ISO-19115 XML format. Providers may now submit metadata to the IDN in ISO-19115 metadata format, and the tool translates sets of multiple metadata records from ISO format to DIF format. The bulk uploader tool allows upload of multiple metadata records to the GCMD metadata queue, and validates records (links and syntax) and sends an email to the provider with validation results. "Open Search" tags were added to the GCMD, IDN Data, and IDN Services portal, allowing users to add a custom search site from their browser. In Firefox, a user can add "Global Change Master Directory" or "CEOS" using the "Manage Search Engine" feature.

The GCMD/IDN is now closely integrated into the GEO Common Infrastructure (GCI), with harvesting of the GCMD/IDN metadata taking place daily through the Catalogue Service for the Web (CSW) interface. There is also a drive to try and get all CEOS Agencies to register their data-product metadata in the GCMD/IDN.

3.4 Virtual Constellations

In support of GEO objectives, and as a space component of GEOSS, CEOS has developed the concept of virtual, space-based Constellations of satellites. A CEOS Virtual Constellation (VC) is a set of space and ground segment capabilities operating together in a coordinated manner, in effect a virtual system that overlaps in coverage in order to meet a combined and common set of Earth Observation requirements. The individual satellites and ground segments can belong to a single or to multiple owners. There are currently 7 defined constellations[16]:

[14] Data Stewardship IG: http://www.ceos.org/index.php?option=com_content&view=category&layout=blog&id=174&Itemid=274
[15] ESA GSCB Long-term Data Preservation WG: http://earth.esa.int/gscb/ltdp/
[16] CEOS Virtual Constellations: http://www.ceos.org/index.php?option=com_content&view=article&id=122:virtual-constellations-for-geo&catid=31:initiatives&Itemid=46

- Atmospheric Composition Constellation
- Land Surface Imaging (LSI) Constellation
- Precipitation Constellation
- Ocean Color Radiometer Constellation
- Ocean Surface Topography Constellation
- Ocean Surface Vector Wind Constellation
- Ocean Sea Surface Temperature Constellation

WGISS continues to support the development of the CEOS Virtual Constellations as and when required. It has particular involvement in the Land Surfacing Imaging (LSI) VC and the Atmospheric Composition VC. The UK also has a particular interest in the Sea Surface Temperature VC.

The LSI Constellation activity supports the GEO Global Forest Observation Initiative (GFOI)[17]. The former WGISS LSI Interest Group helped with the creation of the current LSI Portal[18], and provided support for the use of the CWIC within the Portal.

Support for the development of the *Atmospheric Composition Portal*[19] (GEO Task AR-09-02b) has also been provided. This Portal is a good example of the incorporation of European GMES activities into a global CEOS/GEO initiative.

4 WGISS Projects

WGISS Projects tend to be more focussed activities when compared to the Interest Groups, with specific objectives and milestones, and usually a more limited set of participants.

4.1 CWIC – CEOS WGISS Integrated Catalogue

The CWIC activity is creating a search protocol and supporting middleware to allow easy searching of distributed EO inventory databases. It embraces the concept of a two-tier search, with the first search being targeted at directory information provided by the GCMD/IDN. This allows relevant information services to be identified and then targeted with a second tier search of specific inventories of interest. The inventory search might identify data (granules) of interest and then identification information can be passed to the individual Agency ordering systems. The system does not, at this stage, integrate data ordering at this stage, as data ordering usually requires specific username/passwords and sometimes commercial payments.

Current data partners include NOAA (CLASS, GHRSST), NASA, USGS (LSI), INPE, CCRS, AOE, and ISRO; with USGS and INPE providing access to operational databases. The LSI team has added additional data to CWIC through the USGS CWIC connection and this is operational. NOAA will add access to most of the data in CLASS when the new API is released in 2014. NASA is working to make all EO unrestricted online satellite data accessible from CWIC, including near real time data (from LANCE). GHRSST added about 60 data collections (~2.3 million granules) and is operational. CCRS is very close to being an operational data partner and will offer access to Radarsat-1 and -2. AOE is working to add CRESDA (HJ1A, HJ1B, CBERS01, CBERS02, CBERS-2B, Beijing-1 (BJ-1), and NSMC/Feng-Yun (FY3A, FY2D, FY2E). ISRO is working to become a new data partner.

The value of CWIC is that it is relatively easy to integrate new inventory systems into the distributed search capability. A demonstration Client called CWIC-Start is available. This is a user-interface client for scientists that provides collection search by GCMD keywords (mission/instrument, science etc.) via the IDN CSW, and provides search and access to all CWIC accessible inventories via the CWIC Server.

Current activities are focused on supporting the integration of new partners and helping to improve the consistency of partner APIs, for example, concerning results pagination and exception handling.

[17] GFOI: http://gfoi.org
[18] LSI Constellation Portal: http://wgiss.ceos.org/lsip/
[19] Atmospheric Composition Portal: http://wdc.dlr.de/acp/about.php

Extensive help documentation is available from the CWIC webpage[20] on the WGISS website.

4.2 OpenSearch[21]

The objective of this project is to establish a common CEOS interoperability best practice for the use of the existing OpenSearch protocol, in order to allow for standardized and harmonized access to metadata and data of CEOS agencies, including the CWIC and FedEO communities. The GEO/CEOS portals will then need only to speak one "language" for accessing multiple systems. There is no intention of creating a new OpenSearch standard but simply to create a Best Practice Document to ensure that systems that make use of OpenSearch do so in a consistent way to ensure interoperability. Lately, WGISS has been providing comments on the OGC OpenSearch Extension for Earth Observation document (OGC 13-026).

A joint one-day workshop was held with the OGC community on 23rd September at Frascati in order to ensure interoperability/compliance with OGC specifications will be maintained. A further "CEOS OpenSearch Workshop for Catalog Implementers (FedEO/CWIC)" will be held in conjunction with the next WGISS (37) meeting, currently planned for Florida in April 2014.

It is noted that FedEO is a prototype system providing a brokered discovery and access capability to European and Canadian EO missions' data based on HMA interfaces. Currently, OpenSearch access to HMA catalogs is supporting OGC 06-131 (Atom with EOP O&M, OGC 10-157, metadata as foreign markup or atom:link), CWIC catalogs (Atom with DC or ISO metadata as foreign markup or atom:link), and Virtual Archive 4 and G-POD: Atom or RDF. The interface is aligned with OASIS searchRetrieve 1.0 conventions. FedEO will eventually implement OGC 10-032 Geotemporal Extension and OGC 13-026 Extension for Earth Observation. A good description of the related ESA HMA-S development can be found in: http://www.ogcnetwork.net/system/files/status-fedeo-hmas-v2.pdf

The following figure illustrates how FedEO/CWIC interoperability will work.

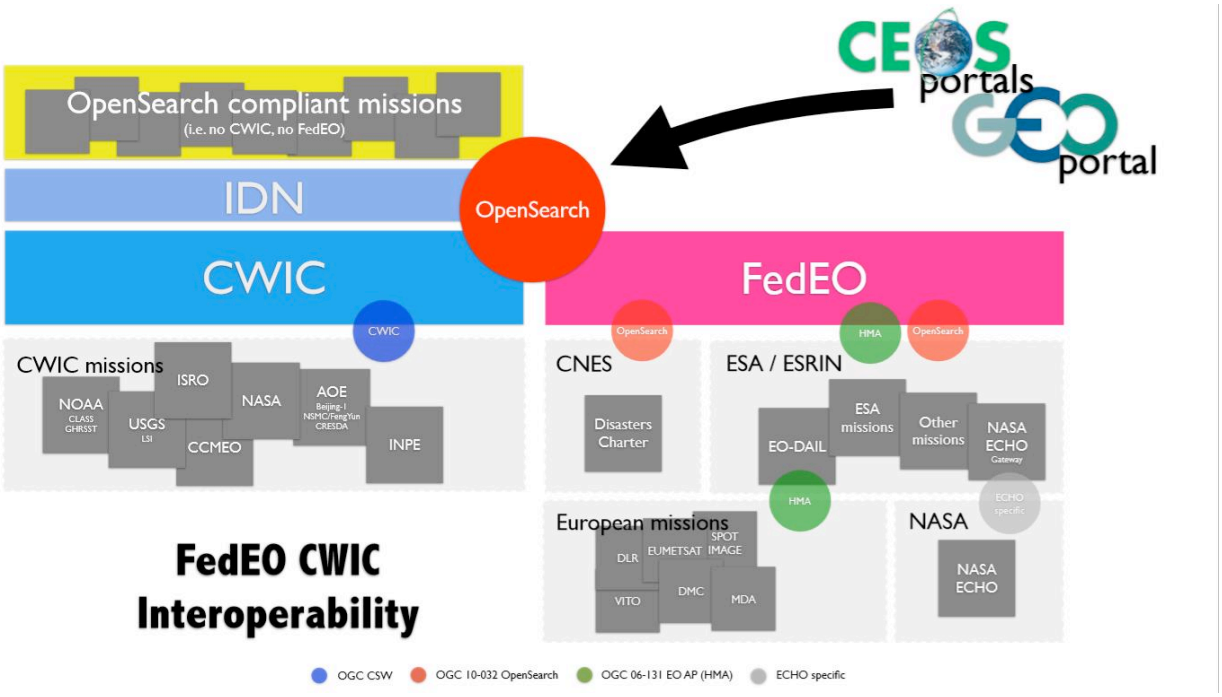

Figure 3. Plan for FedEO and CWIC interoperability

[20] CWIC: http://www.ceos.org/index.php?option=com_content&view=category&layout=blog&id=154&Itemid=225

[21] WGISS OpenSearch Project: http://www.ceos.org/index.php?option=com_content&view=category&layout=blog&id=348&Itemid=482

4.3 GA.4.Disasters

The "GEOSS Architecture for the use of Satellites for Disasters and Risk Assessment" (GA.4.Disasters) Project[22] has created a Reference Model for the use of satellites, sensors, models, and associated data products to support disaster response and risk assessment. The purpose of the Reference Model is mainly to provide an enterprise perspective for managing distributed systems and web services for disaster management. It is intended to provide a common vocabulary to describe the GEOSS building blocks and how they are composed. Proof-of-concept prototypes have been analysed to refine the architecture, capture lessons learned and recommend standards for web service and system interfaces.

V1.0 of the GA.4.Disasters architecture document has now been released (end of 2013). The UK contributed to the creation of this document, particularly with regard to the operation of the International Charter for Space and Major Disasters.

This Project is now closed as a result of the creation of the new CEOS Working Group on Disasters. WGISS will maintain its interest in disaster related issues with further discussion mainly taking place within the Technology Exploration Interest Group.

4.4 Water Portal

The purpose of the CEOS Water Portal Project is to provide assistance to scientists and general users (or non-researchers) from the water domain in the development of data services associated with data integration and distribution. The portal provides access to a variety of hydrological and water relevant data scattered over the world including satellite, in-situ and model output data.

The portal does not store data. Instead, according to requests made by users on the portal, it retrieves data from distributed data centers on-the-fly (by OPeNDAP protocol etc.) and lets them download and see rendered images/plots. It is important to note that this portal is not a data distribution system, but a portal system that aims to provide one-stop-service to a variety of hydrological and water relevant data to support data integration. The CEOS Water Portal is now available at http://waterportal.ceos.org/ . It is due to become operational in 2016.

The latest developments include support for a component of the 6th GEOSS Architecture Implementation Pilot Project (AIP-6), namely the GEOSS Water Services, which is intended to provide a federated resource in GEOSS. The scope of the current activity is "a global registry of water data, map and modeling services catalogued using the standards and procedures of OGC and WMO".

Water data and its catalogue of participating organizations will be exposed through OGC based web services (CSW,W*S,SOS), which then will be harvested to the GEO Data Access Broker (DAB). The GEO Web Portal, as well as any other portal, can access the GEO DAB middleware framework through its catalog web service (OpenSearch, CSW, etc.). The OpenSearch endpoint OSDD supports phrase search as well as AND/OR-search for multiple free-keywords. The URL is http://184.73.174.89/gi-cat-StP/services/opensearchgeo?getDescriptionDocument.

4.5 WISP: WGISS Infrastructure Project

The WISP is not a typical WGISS Project in that it is an on-going activity concerned mostly with the internal management of WGISS documents and the maintenance of the WGISS website. It also ensures the presentations given at meetings are made available. The activity is mainly supported by NOAA staff.

[22] GA.4.Disasters: http://www.ceos.org/index.php?option=com_content&view=category&layout=blog&id=164&Itemid=252

5 Other WGISS Interests

5.1 Host Agency Workshops

It is a WGISS tradition that the host Agency is given the opportunity to organise a half-day workshop with a range of presentations from the host Agency highlighting their current activities and plans.

The Brazilian Space Agency (INPE) presentations in May described the satellite monitoring of the Amazon rain forest, new trends in geoinformatics, the CBERS satellite[23] applications, and INPE's Remote Sensing Data Center.

The European Space Agency (ESA) presentations in September covered the plans for the new Sentinel series of satellites, which will begin launching in 2014; the Copernicus (formerly GMES) operational concept and data access plans; and a live demo of the FedEO data access system.

5.2 Agency Reports

The various Agency Reports presented at WGISS meetings are also a very useful and efficient means of finding out about the latest activities and plans of the Agencies.

6 Conclusions

WGISS meeting attendance remains an efficient way of gathering information on global activities in Earth Observation, and maintaining international contacts at a working technical level. The leverage provided by working with other Space Agencies in an international context provides opportunities to make significant international contributions with relatively modest investment. The knowledge gained also helps ensure UK investments in related topics are co-ordinated and relevant in an international context.

There are a number of other technical areas that the UK has expertise to offer including data quality, disaster response, land surface imaging, metadata harmonisation, sensor web enablement etc. The UK has world-class expertise to offer in these areas and increased involvement would provide an international showcase for UK capability and provide a valuable contribution to important international activities.

Many of the discussion/mini-workshop sessions in WGISS meetings now have good facilities for remote participation in the discussion through the use of GoTo Meeting software. It is recommended that anyone with a special interest in any of the topics addressed by WGISS get in contact with Wyn Cudlip who might then be able to arrange web/telephone participation in future discussions.

CEOS is now well established as the provider of the satellite arm for GEO. It is therefore appropriate that UK expenditure on *space* activities in support of GEO be routed through CEOS. This will provide maximum synergy with other Space Agency activities and ensure that space expenditure is effective and well targeted on space-related issues.

It is noted that WGISS developments are relevant to the new Satellite Applications Catapult, particularly with regard to metadata and data access issues. Good communication is being maintained.

Further information on CEOS and WGISS is available from Wyn Cudlip (wcudlip@geoseren.com) and the presentations given at the meeting will be available from the meeting section of the WGISS website http://wgiss.ceos.org/.

[23] CBERS: China-Brazil Earth Resources Satellite.
http://en.wikipedia.org/wiki/China–Brazil_Earth_Resources_Satellite_program

Appendix A – WGISS Meeting Agendas

WGISS 36 Agenda, September 2013, Frascati

The Agenda for the WGISS September meeting follows, with live links, where available, to the presentations currently stored in GoogleDocs. However, the WGISS storage locations are currently being revised and so the links may cease to work in the future. In which case, copies of the presentations will be made available via the WGISS website, or can be obtained from the UK Delegate, Wyn Cudlip at wcudlip@geoseren.com.

http://www.ceos.org/index.php?option=com_content&view=category&layout=blog&id=141&Itemid=110

Monday, September 16, 2013

09:30	Welcome and Introductions	*Satoko Miura*
09:40	Host Welcome, Logistics Information	*Mirko Albani*
09:50	Host Opening Address	*Martin Ditter*
10:00	Adoption of Agenda	*Satoko Miura*
10:10	Chair Report	*Satoko Miura*
10:45	WISP	*Martin Yapur*
11:00	Discussion based on Chair report	*Satoko Miura, all*
12:00	Future Meetings	*Richard Moreno*
12:30	Lunch	
13:30	LTDP Workshop	*Mirko Albani*
	Preservation Workflow and Instantiation	*Rosemarie Leone*
	Persistent Identifiers	*Katrin Molch*
	Other LTDP WG Activities	*Mirko Albani*
	Overview of WGISS DSIG Activities	*Ryan Longhenry**
	Environmental Data Logger Network	*Ryan Longhenry**
	Data Browse Guidelines	*Yoshiyuki Kudo*
	Conclusions and Future Activities	*Ryan Longhenry*, Mirko Albani*
16:00	Future WGISS Discussion	*Richard Moreno*
17:00	CEO Report	*Kerry Sawyer**
17:30	Minutes and Action Items review	*Michelle Piepgrass*
17:45	Adjourn	

Tuesday, September 17, 2013

09:00	CEOS Water Portal Project	
	Overview and Operation Status	*Shinichi Sekioka*
	Development Status & Future Plan	*Yoshiyuki Kudo*
	Discussion	*All*
09:30	Agency Reports	
	ROSCOSMOS	*Valery Zaichko*
	GSDI	*Gabor Remetey-Fülöpp*
10:00	CEOS OpenSearch Session	*Moreno, Kudo*
	Project status	*Moreno, Kudo*
10:45	CEOS OpenSearch Session, cont…	*Moreno, Kudo*
	Project status	*Moreno, Kudo*
	FedEO Introduction	*Yves Coene*
	Review of CEOS comments to OGC	*Moreno, Kudo*

	CNES OpenSearch Implementation	
	Discussion on CEOS OpenSearch Best Practice	*All*
12:30	Lunch	
13:30	CEOS OpenSearch Session, cont…	
	Discussion on WGISS-OGC Joint Meeting	*All*
15:00	WGISS GA.4.D and CEOS Disasters Activities	*Karen Moe*
	Project Overview	*Karen Moe*
	Flood Pilot Contributions to Disasters/Risk Management (DRM)	*Stu Frye**
15:45	WGISS GA.4.D and CEOS Disasters Activities, cont…	*Karen Moe*
	Capacity Building for Disaster Risk Reduction and SERVIR Workshop	*Dan Mandl**
	Natural Disasters Risk Assessment at UN-SPIDER; RSO in Ukraine	*N. Kussul, A. Shelestov S. Skakun**
	Ukrainian segment of IGMASS	*N. Kussul, A. Shelestov, S. Skakun**
	GeoSocial API Enabling Customized Satellite Data Requests	*Pat Cappalaere**
	Role of Emerging Technologies in Disasters Architecture	*John Evans**
	Discussion GA.4.D Completion, Future Needs	*All*
17:15	Minutes and Action Items review	*Michelle Piepgrass*
17:30	Adjourn	

Wednesday, September 18, 2013

09:00	IDN Interest Group	*Michael Morahan*
	WGISS-35 Action Items Version 9.9.1 Release New Development IDN Metrics IDN Website Design Discussion	*All*
10:15	ESA Workshop	
	ESA EO Activities and Report	*Henri Laur*
10:45	ESA Workshop, cont…	
	Copernicus ops Concept and Data Access	*Pier Bargellini*
	FedEO Demo / Updates	*Marchetti, Coene, Mougnaud*
12:00	Lunch	
13:00	Data Acquisition Planning for GFOI and GEOGLAM	*Brian Killough*
13:45	Data Policy Portal (instead of SEO)	*Brian Killough*
14:15	CWIC Project	*M. Yapur, Y. Enloe*
	Introduction	*M. Yapur, Y. Enloe*
	CWIC Report	*Yonsook Enloe*
	IDN Support for CWIC	*Michael Morahan*
	CWIC-Start status and demonstration	*Doug Newman**
15:45	CWIC Project, continued…	
	ISRO Report status and future plans	*Nitant Dube**
	GHRSST partner report	*K. Casey**
	NOAA CLASS API	*Ken McDonald*
	INPE report	*Lubia Vinhas*
	CCRS report	*Theophilos, King**
	LSI Portal demonstration and report	*Ryan Longhenry**
	CWIC and OpenSearch	*M. Yapur, Y. Enloe*
17:15	Minutes and Action Items review	*Michelle Piepgrass*
17:30	Adjourn	

Thursday, September 19, 2013

09:00	Agency Reports	
	CCRS	*Costas Theophilos*
	JAXA	*Shinichi Sekioka*
	NASA	*Andy Mitchell*
	CNES	*Richard Moreno*
	NOAA	*Martin Yapur*
	NSO	
10:00	Technology Exploration Interest Group	
	Cloud Computing	
	JAXA	*Satoko Miura*
	NASA	*Andy Mitchell*
	Russian Space Systems (JSC "RSS")	*Tamara Ganina*
	ESA	*Jodi Farres*
	CNES	*Richard Moreno*
	BIG Data	
	NOAA	*Martin Yapur*
	CCRS	*Costas Theophilos*
	NASA	*Andy Mitchell*
	ESA	*Sveinung Loekken*
	CNES	
12:30	Lunch	
13:30	Technology Exploration Interest Group, cont…	
	GEOSS Data Quality Guidelines	*Andy Mitchell*
	Authentication Service Technology	
	GEOSS	*Steve Browdy**
	NASA Single Sign-on	*Andy Mitchell*
	ESA	*Marchetti, Andrea Baldi*
	CNES	
14:15	GCI	*Osamu Ochiai*
15:45	Virtual Constellations Interest Group	
	SST VC	*Ken Casey**
16:15	WGISS Chair Summary	
17:00	Action Items Status	*Michelle Piepgrass*
17:30		**Meeting Close**

WGISS 35 Agenda, May 2013, Brazil.

Monday, May 6, 2013

09:30	Welcome and Introductions	*Satoko Miura*
09:40	Host Welcome, Logistics Information	*Lubia Vinhas*
10:00	Host Opening Address	*Dr. Leonel Perondi, INPE General Director*
10:45	Adoption of Agenda	*Satoko Miura*
10:50	WISP	*Martin Yapur*
11:00	Chair Report	*Satoko Miura*
	Results from CEOS Plenary Meeting, CEOS-GEO Action Workshop, SIT-28 Meeting (including CEOS Self Study)	
	Introduction for discussion in the afternoon	
11:30	CEO Report	*Kerry Sawyer*
12:00	SEO Report	*Brian Killough**
12:30	*Lunch*	
13:30	Status on WGISS-WGCV Joint Actions	*Satoko Miura*
14:00	WGISS Discussion on CEOS Issues	*Satoko Miura*
	Contributions to GEO "Sprint to Summit"	
	Presentations at the coming GEO Workplan Symposium	
	How to improve CEOS agencies' Data Discovery and Access	
	WGISS reports at future plenary meetings	
15:20	Agency Report	
	CCRS	*Costas Theophilos*
	ESA	*Mirko Albani*
Data Stewardship Interest Group		*John Faundeen**
15:45	Browse Study and report	*Yoshiyuki Kudo*
	Archives environmental analysis	*John Faundeen**
	Long Term Data Preservation Working Group activities	*Mirko Albani*
16:45	Minutes and Action Items review	*Michelle Piepgrass*
17:00	*Adjourn*	

Tuesday, May 7, 2013

Technology Exploration Interest Group		*Andy Mitchell*
9:00	Metadata Quality Exploration Questionnaire	*Michael Burnett**
9:10	Semantic Web Technologies	
	NASA/ECHO	*Andy Mitchell*
	CNES	*Jérôme Gasperi*
9:30	Authentication Service Technologies	
	User Management for GEOSS	*Steven Browdy**
	CWIC	*Michael Burnett*SA*
	JAXA	*Satoko Miura*
	ISRO	*Nitant Dube*
	NASA/URS	*Andy Mitchell*
	USGS	*Randy Sunne**
	CCRS	*Costas Theophilos*
	ESA	*Mirko Albani*
10:35	Interoperability with SEO	
	MIM Database Demo	*Shelley Stover**
	Interoperability Ideas	*All*
	MIM IDN Portal	
	MIM/ CWIC Client	
GA.4.Disasters Project		*Karen Moe**
11:15	GA.4.D Architecture Update	*John Evans**
	Earth Observations in Disaster Risk Assessment	*Sergii Skakun**
	CEOS Disasters/Risk Management Activities	*Stu Frye*, Karen Moe**
	Capacity Building for Disaster Risk Reduction	*Dan Mandl*, Karen Moe**
	Results from 2013 GEOSS Future Products Workshop	*Karen Moe**
	(*Remote Sensing for Lushan Earthquake Monitoring*)	

12:30	*Lunch*	
IDN Interest Group		*Andy Mitchell*
13:30	IDN Report	*Michael Morahan**
	Introduction	
	New Development	
	Keyword Release	
	New IDN Design	
	IDN Metrics	
	GEOSS Metrics	
Virtual Constellations Interest Group		*John Faundeen**
15:45	LSI	*Julio D'Alge*
	AC	*Stefan Falke**
	PC	*Steven Neeck**
	Virtual Constellation Study	*Pedro Gonçalves*
16:45	Minutes and Action Items review	*Michelle Piepgrass*
17:00	*Adjourn*	

Wednesday, May 8, 2013

09:00	WGISS way forward and future strategy	*Richard Moreno*
Technology Exploration Interest Group, cont…		*Andy Mitchell*
10:45	OGC – Web Processing Service	*Jérôme Gasperi*
11:00	FedEO Presentation	*Mirko Albani*
	FedEO Demonstration	*Yves Coene**
12:00	*Lunch*	
Technology Exploration Interest Group, cont…		*Andy Mitchell*
13:00	CEOS OpenSearch Standard	*Jérôme Gasperi*
	(OpenSearch – JAXA)	*Yoshiyuki Kudo*
	(OpenSearch – CNES)	*Richard Moreno*
CWIC	**Project**	*M. Yapur, Y. Enloe**
14:00	Introduction	*M. Yapur*
	CWIC Current Status	*Yonsook Enloe**
	CWIC Development Team meeting Outbrief	
	CWIC API Consistency	
	Using DIF temporal/spatial info in the CWIC Extended Capabilities	
	CWIC & GEOSS & Sprint to the Summit	
15:30	IDN Support for CWIC	*Michael Morahan**
	CWIC Partner Reports	
	CWIC-Start status & demo	*Doug Newman**
	NASA ECHO Report	*Andy Mitchell*
	LSI Portal demonstration & data partner report	*Julio D'Alge*
	ISRO Report	*Nitant Dube*
	GHRSST partner report	*Ken McDonald*
	NOAA – new CLASS API	*Ken McDonald*
	CCRS partner report (portal & CCRS connection)	*Pat King**
	AOE status & report	*Feng Lei*
	INPE report	*Lubia Vinhas*
	CWIC Ops Concept	*Michael Burnett**
	CWIC Future Plans – Discussion	*All*
	CWIC Support for CEOS OpenSearch	
	CWIC support for VCs	
	CWIC & WGCapD?	
16:45	Minutes and Action Items review	*Michelle Piepgrass*
17:00	*Adjourn*	

Thursday, May 9, 2013

INPE Presentations

09:00	INPE's Earth Observation Area	*Julio D'Alge*
09:30	New Trends in Geoinformatics	*Gilberto Camara*
10:00	The monitoring of Amazonia Rain Forest Using Satellite Data	*Dalton Valeriano*
10:45	CBERS Applications	*José Carlos Epiphanio*
11:15	INPE's Remote Sensing Data Center	*Ivan Marcio Barbosa*

12:00	*Lunch*	
CEOS Water Portal Project		*Satoko Miura*
13:00	Development Status	*Shinichi Sekioka*
	Future Plan	*Yoshiyuki Kudo*
	Contribution to AIP-6/GEOSS Water Services	*Satoko Miura*
	Discussion	*All*
Agency Reports		
13:30	HUNAGI	*Gabor Remetey-Fülöpp**
13:40	Technology Exploration Discussion	*All*
14:00	Global Data Sites Release from China	*Chuang Liu, Dingsheng Liu*
	CODATA Liaison Report	*Chuang Liu*
	Progress of Digital Geomuseum	*Chuang Liu*
	An Introduction to RADI	*Dingsheng Liu*
WGCapD Workshop		*Hilcea Ferreira*
14:30	WGCapD Workshop	*Hilcea Ferreira*
16:30	CWIC continued…	
	AOE status & report	Feng Lei
	CWIC Ops Concept	*Michael Burnett**
	CWIC Future Plans – Discussion	*All*
17:20	Minutes and Action Items review	*Michelle Piepgrass*
17:30	*Adjourn*	

Friday, May 10, 2013

09:00	Agency Reports - CNES	*Richard Moreno*
09:10	Follow up on WGISS Way Forward	*Richard Moreno*
10:00	WGISS Discussion and Summary	*Satoko Miura*
11:15	Agency Reports - JAXA	*Shinichi Sekioka*
11:25	Agency Reports - USGS	*John Faundeen**
11:35	Agency Reports - NASA	*Andy Mitchell*
11:45	Agency Reports - NOAA	*Martin Yapur*
11:55	Agency Reports - UKSA	*Wynn Cudlip*
12:05	Action Items Status	*Michelle Piepgrass*
12:30	Plenary Direction to Participants, Concluding Remarks	*Satoko Miura*
13:00	*Meeting Close*	

Appendix B – CEOS Overview

This Appendix provides some additional information regarding CEOS in order to place the WGISS activities in context.

Over the last few years, CEOS has greatly increased the scope of its activities in support of GEO. In particular it has created 7 Virtual Constellation activities and created 8 coordinators/teams in support of the GEO Societal Benefit Areas (SBAs). It has created a new Working Group on Climate and renamed the Working Group on Education to be the Working Group on Capacity Building and Data Democracy (WGCapD). A new Working Group on Disasters is also being created. The following figure shows the approximate current structure:

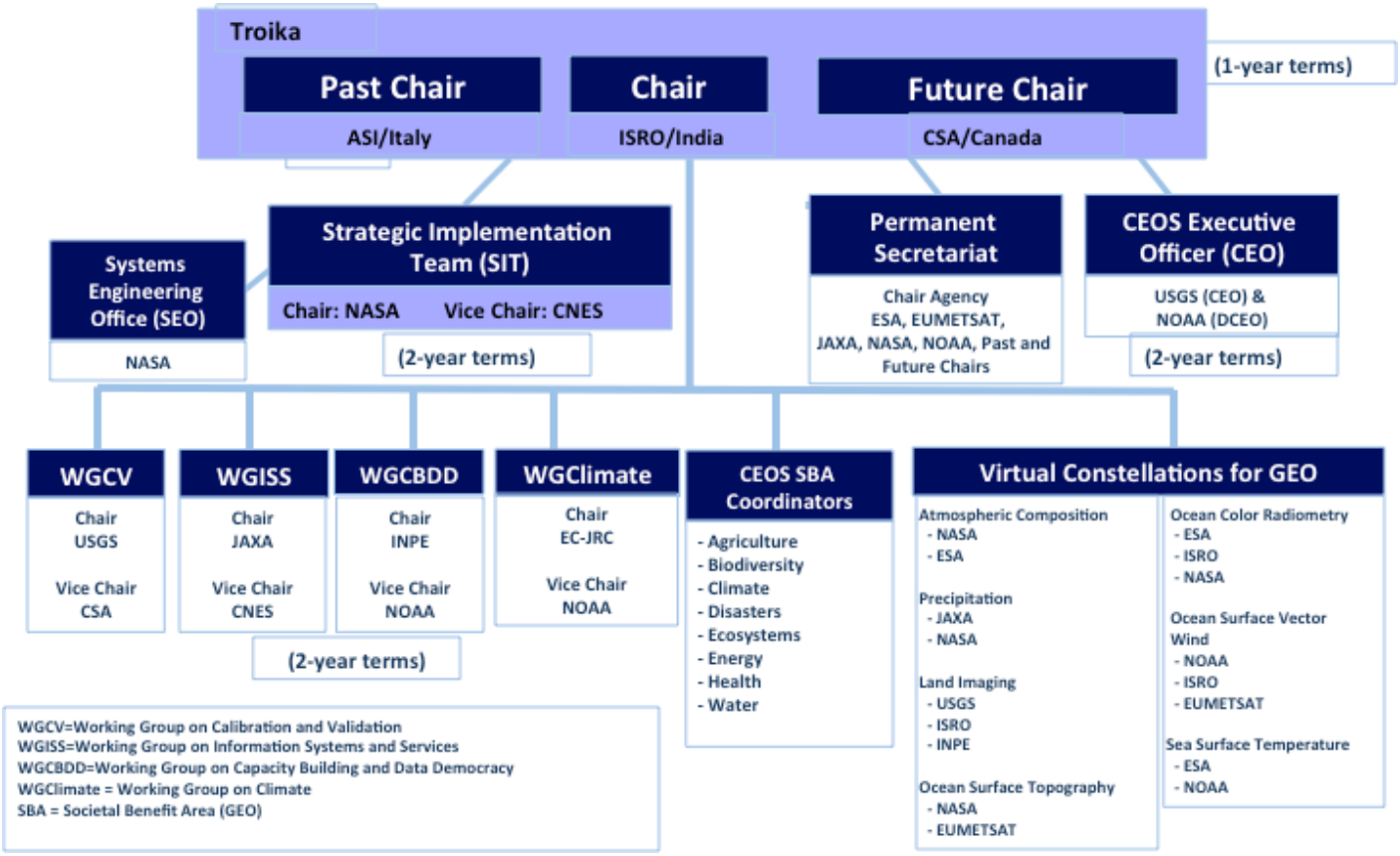

Figure 4: CEOS structure in 2013. WGCBDD now called WGCapD and a new Working Group on Disasters is being created. The Climate SBA and Disasters SBA will be subsumed into the corresponding Working Groups.

1 CEOS Plenary

The CEOS Plenary usually meets once a year in November. The Chair moves annually between the Space Agencies. CSIRO (Australia) took over the Chair in November 2013 from the Canadian Space Agency (CSA).

2 CEOS Secretariat

The management of CEOS is supported by a permanent Secretariat jointly supported by ESA/Eumetsat, NASA/NOAA and JAXA/MEXT; plus a supporting committee consisting of the Current CEOS Chair, the Past Chair and the Future Chair.

3 CEOS Executive Officer

For the last 6 years there has also been the fulltime post of CEOS Executive Officer with the role of supporting the CEOS relationship with GEO. The Executive Officer is charged with ensuring the efficient conduct of the CEOS contribution to GEO – including the implementation of the CEOS response to the GEO Work Plans, and development of the CEOS 'Virtual Constellations for GEOSS'.

4 The CEOS Strategic Implementation Team (SIT)

The SIT was created in 1996 to advance the involvement of CEOS in the development of the Integrated Global Observing System (IGOS - subsequently merged into GEO). The SIT is comprised of CEOS Member Principals and some Associates with the authority to commit agency support to initiatives as they unfold. With the integration of IGOS Themes into GEO (completed in 2008), the SIT now plays a central role in coordination of existing and future missions of CEOS agencies, particularly to support GEO in its realization of the space segment of GEOSS. The SIT's objective is to define, characterize, and develop the vision for CEOS participation in GEO and in particular, to strengthen the CEOS linkages to GEOSS.

5 The CEOS Systems Engineering Office (SEO)

The CEOS SEO was established in April 2007 as a funded activity to facilitate the development of plans for the CEOS space virtual constellations. The SEO provides systems engineering leadership, provides a framework for coherent architecture plans, and provides decision support tools for trade studies and the assessment of execution options to maximize the probability of their implementation. To date, the SEO technical efforts include requirements definition, constellation assessment, gap analyses, and future architecture development. In addition, the SEO fosters communications among CEOS partners by coordinating and participating in CEOS Constellation Workshops and Working Group meetings, developing tools for file sharing and action item tracking, developing visualization products for educating the global Earth Observation community about CEOS, and supporting the content development and management of the CEOS website.

The SEO is currently managed by Brian Killough (NASA), and supported by Kim Keith (NASA).

6 The CEOS Working Groups

WGCV – Working Group on Calibrations and Validation

The WGCV aims to coordinate calibration and validation activities across the space agencies in order to ensure the standardisation and interoperability of space data, required for the effective use of existing and future Earth Observing systems.

The WGCV supports six subgroups that operate as individual entities and focus on specific technical areas related to calibration and validation. The current chairs / vice-chairs are as follows:

- **Synthetic Aperture Radar (SAR)** — Chair: Dr Manfred Zink, DLR
- **Infrared Visible Optical Sensors (IVOS)** — Chair: Dr Nigel Fox, NPL, UK
- **Microwave Sensors (MWS)** — Chair: Dr. Xiaolong Dong, CSSAR
- **Terrain Mapping (TMSG)** — Chair: Prof. Jan-Peter Muller, UCL, UK
- **Land Product Validation (LPV)** — Chair: Dr Joanne Nightingale, NASA
  Vice-Chair: Dr Gabriela Schaepman-Strub, University of Zurich
- **Atmospheric Composition (ACSG)** Chair: Dr Bojan Bojkov, ESA
  Vice-Chair: Dr Jean-Christopher Lambert, IASB/BIRA

The most recent high profile activity of WGCV has been the creation of the Quality Assurance Framework for Earth Observation (QA4EO[24]) on behalf of GEO to provide an internationally agreed framework for assessing EO data quality. The UK (in particular, Nigel Fox of NPL, supported by Steve Mackin of DMCii) played a leading role in the development of QA4EO and the UK now leads the QA4EO activity.

WGISS – Working Group on Information Systems and Services

WGISS creates and demonstrates prototypes supporting CEOS and Group on Earth Observation (GEO) requirements. WGISS also addresses the internal management of EO data, the creation of information systems and the delivery of interoperable services. The activities and expertise of WGISS span the full range of the information life cycle from the requirements and metadata definition for the initial ingestion of satellite data into archives through to the incorporation of derived information into end-user applications.

WGCapD – Working Group on Capacity Building and Data Democracy

The WGCapD has evolved from the Working group on Education and Training (WGEdu), originally established in 1999. With a focus on Developing Countries, WGCapD aims to enhance international education, training, and capacity building for space-based Earth observation techniques, data analysis interpretation, and applications.

The WGEdu gave strong support to the CEOS Data Democracy for Developing Countries initiative by organizing workshops and training programs. In 2010, the WGEdu formulated a new strategy devoted to open access and free use of Earth observation data. This has led to the strengthening of this component of the work in the Working Group and the change in name.

WGClimate – Working Group on Climate

The CEOS Plenary recently recognised the need for CEOS to strengthen its activities in support of the understanding of Climate and Climate Change. It therefore established a new Working Group on Climate under the Chairmanship of Mark Dowell (JRC) and vice-chair John Bates (NOAA).

Key activities of the Working Group are to:

- Review and assess, on behalf of CEOS, the generation of Fundamental Climate Data Records (FCDRs) and derived Essential Climate Variable (ECV) products supported by Member space agencies.
- Contribute to the review of compliance of satellite missions and products with the GCOS Climate Monitoring Principles and with the “Guideline for the Generation of Datasets and Products meeting GCOS Requirements”.

WGDisasters - Working Group on Disasters

This working group is currently being formed in order to provide better co-ordination of all the disaster related initiatives within CEOS and ensure a coherent contribution to the GEO Disasters Societal Benefit Area.

7 Virtual Constellations

In support of GEO objectives, and as a space component of GEOSS, CEOS has developed the concept of virtual, space-based constellations of satellites. A CEOS Virtual Constellation is a set of space and ground segment capabilities operating together in a coordinated manner, in effect a virtual system that overlaps in coverage in order to meet a combined and common set of Earth Observation requirements. The individual satellites and ground segments can belong to a single or to multiple owners. The Constellations effort provides a unique forum to achieve political visibility and increase mutual benefit among space and other environmental agencies in support of cross-cutting GEO Tasks and Targets.

[24] QA4EO: http://qa4eo.org/

8 CEOS SBA Coordinators

In order to improve the CEOS contribution to GEO, nine Societal Benefit Area (SBA) Coordinators have been set up. They address all the nine GEO SBAs except Biodiversity and the ninth coordinator focuses on the transverse activities. There is some confusion within CEOS as to the exact definition of this activity and some places they are referred to as SBA Teams. In practice, there is a mix such that only a coordinator has been identified and an associated team has not been established.

9 Additional Special Teams

Additional ad-hoc special teams are created when required.

The Carbon Task Force was established in 2010 to respond to the GEO Carbon Strategy Report, which updated the original Integrated Global Carbon Observations Theme Report developed through the IGOS partnership in 2004-5. The Task Force is working on a comprehensive report – The **CEOS Strategy for Carbon Observations from Space** – which is currently being finalized[25].

See: http://www.ceos.org/index.php?option=com_content&view=category&id=159&Itemid=204

The Space Data Coordination Group (SDCG) was established in November 2011 to implement the CEOS Strategy for Space Data Coverage and Continuity in Support of the GEO Global Forest Observations Initiative (GFOI) and the GEO Forest Carbon Tracking (FCT) Task. The scope of the activity is now spreading to cover the GEO Global Agricultural Monitoring (GEOGLAM) initiative[26] and the GEO Biodiversity Observation Network (GEOBON)[27].

[25] CEOS Carbon Strategy:
http://www.ceos.org/index.php?option=com_content&view=category&id=159&Itemid=204
[26] GeoGlam: http://www.ceos.org/index.php?option=com_content&view=category&id=159&Itemid=204
[27] GeoBON: http://www.earthobservations.org/geobon.shtml