

## MINUTES OF THE 29<sup>th</sup> CEOS SIT MEETING

9<sup>th</sup>-10<sup>th</sup> April 2014  
Toulouse Space Centre  
Toulouse, France

### Main SIT-29 Discussion Points, Outcomes and Actions

The main discussion points, outcomes and actions from the SIT-29 meeting are as follows:

1. The **CEOS Chair and SIT Chair will write to GEO leadership**, including to the GEO Co-Chairs and the Implementation Plan Working Group (IPWG), expressing **CEOS desire to seek formal representation on the IPWG, and observer status on the GEO Executive Committee.**
2. The **CEOS 2014-2016 Work Plan** was reviewed and will be **endorsed virtually in the weeks following SIT-29.**
3. Actions in support of the ongoing activities of the **Virtual Constellations and Working Groups** were identified, including on **training and capacity building, links to related science groups, membership, and websites.**
4. Options on the future of **land imaging coordination within CEOS** will be developed for **discussion at the SIT Workshop.**
5. The development of a new **CEOS document configuration management system**, and a **website refurbishment** were agreed.
6. The **2014 Update of the Global Baseline Data Acquisition Strategy for GFOI**, and the **Space Data Services Strategy for GFOI** were both endorsed.
7. It was agreed that the SDCG would **develop the third Element (R&D) of the CEOS Data Strategy for GFOI.** The **CEOS Strategy for Carbon Observations from Space** was endorsed (Plenary), and a **study team was created** to recommend options for implementation.
8. An update on the implementation of the **CEOS Acquisition Strategy for GEOGLAM Phase 1** was presented, and it was agreed that the **Strategy would be updated for the CEOS Plenary.**
9. The **WGDisasters proposed structure (Plenary), Recovery Observatory (SIT), three new Supersites (SIT), new Supersites selection process (SIT), and CEOS Agencies' support to the three DRM pilots** were endorsed.
10. The approach to a **CEOS Plan for Participation in the World Conference on Disaster Risk Reduction** was agreed.
11. An update on progress of the **CEOS-CGMS WGClimate** was given, and planning for **CEOS representation at SBSTA-41 (December 2014) and for COP-21 (late 2015)** was initiated.
12. A **CEOS Plenary session** was held, which endorsed the **CEOS Strategy for Carbon Monitoring from Space** and the proposed structure for the newly established **WGDisasters.** The **CEOS Working Group Process Paper and CEOS New Initiatives Process Paper** were each reviewed and endorsed in the same Plenary session.

## 1 Welcome and Opening Remarks

Marc Pircher (Toulouse Space Centre Director) welcomed participants to Toulouse Space Centre, presenting a brief summary and history of the Earth observation activities of CNES, and the CNES Toulouse Space Centre. Participants introduced themselves in a brief tour de table. The full list of meeting participations is included at the end of these minutes.

Pascale Ultré-Guérard (SIT Chair) welcomed all participants attending SIT-29 in person and via web-conferencing. She congratulated ESA and the EC on the successful launch of Sentinel-1A. Astrid-Christina Koch (EC) and Stephen Briggs (ESA) noted that mission deployment is proceeding nominally, and that they looked forward to seeing Sentinel-1A, and Copernicus in general, deliver new services for society.

Pascale reviewed the objectives of SIT-29:

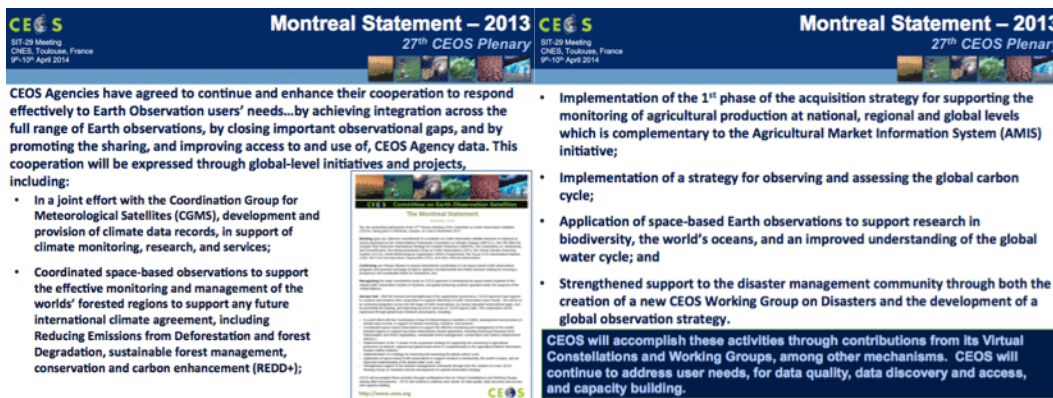
1. To address CEOS organizational issues, including the CEOS 2014-2016 Work Plan, Process Papers relating to CEOS Working Groups and new initiatives, and a proposal for a CEOS document configuration management system.
2. Consideration of the outcomes of the GEO-X Plenary and Ministerial meetings.
3. To advance initiatives related to the new CEOS Working Group on Disasters.
4. Review of progress on CEOS-CGMS Working Group on Climate implementation.
5. Review of established CEOS priorities: GFOI, Carbon Task Force, and GEOGLAM.
6. Review of Working Group and Virtual Constellation activities, priorities, and reporting, and recommendations from the Land Surface Study Group (LSSG).

## 2 Review of Open Action Items

Stephen Ward (SIT Chair Team) reviewed the open actions from SIT-28 that were assigned a deadline of SIT-29, as well as the actions from the 27<sup>th</sup> CEOS Plenary in Montreal with a SIT-29 deadline. *A summary table can be downloaded from the SIT-29 website and is also included as an appendix of these minutes.*

## 3 CEOS Priorities for 2014

Kerry Sawyer (CEOS Executive Officer, CEO) reviewed the CEOS priorities for 2014 and reported on the most recent draft of the CEOS 2014-2016 Work Plan. She noted that it has not been possible to finalise the Work Plan and so a procedure for virtual endorsement would be put forward during the mini-Plenary session. She reviewed the priorities identified in the Montreal Statement.



**CEOS Montreal Statement – 2013**  
27<sup>th</sup> CEOS Plenary  
SIT-29 Meeting  
CNES, Toulouse, France  
9<sup>th</sup>-10<sup>th</sup> April 2014

CEOS Agencies have agreed to continue and enhance their cooperation to respond effectively to Earth Observation users' needs...by achieving integration across the full range of Earth observations, by closing important observational gaps, and by promoting the sharing, and improving access to and use of, CEOS Agency data. This cooperation will be expressed through global-level initiatives and projects, including:

- In a joint effort with the Coordination Group for Meteorological Satellites (CGMS), development and provision of climate data records, in support of climate monitoring, research, and services;
- Coordinated space-based observations to support the effective monitoring and management of the world's forested regions to support any future international climate agreement, including Reducing Emissions from Deforestation and forest Degradation, sustainable forest management, conservation and carbon enhancement (REDD+);
- Implementation of the 1<sup>st</sup> phase of the acquisition strategy for supporting the monitoring of agricultural production at national, regional and global levels which is complementary to the Agricultural Market Information System (AMIS) initiative;
- Implementation of a strategy for observing and assessing the global carbon cycle;
- Application of space-based Earth observations to support research in biodiversity, the world's oceans, and an improved understanding of the global water cycle; and
- Strengthened support to the disaster management community through both the creation of a new CEOS Working Group on Disasters and the development of a global observation strategy.

CEOS will accomplish these activities through contributions from its Virtual Constellations and Working Groups, among other mechanisms. CEOS will continue to address user needs, for data quality, data discovery and access, and capacity building.

Kerry reviewed the contents of the first draft of the 2014-2016 Work Plan. The creation of the Three-Year Work Plan was an outcome of the CEOS Self-Study, and it is to be updated annually. The initial revision is based on a number of information sources, including the Montreal Statement, the 2013 CEOS Work Plan, Virtual Constellation Terms of Reference, Working Group Terms of Reference, CEOS 2015 Deliverables for GEOSS, input from essentially Working Groups, Virtual Constellations, *Ad Hoc* Teams (Working Groups), and input from external stakeholders, including GEO Secretariat and GCOS.

Kerry noted there are a few comments remaining to reconcile, which she will be doing in the coming weeks.

A few discussion points were raised:

- Brian Killough (SEO) noted that the management of the large number of actions associated with WGCV should be considered, and Satish Srivastava (CSA) agreed that, where possible, these items should be consolidated and streamlined.
- Chu Ishida (JAXA) suggested that Water could be added as a 10<sup>th</sup> priority area within the Work Plan, and noted that he would like to propose adding a CEOS response to the GEO Water Strategy in the near future.
- Alain Ratier (CEOS Chair) thanked Kerry for her efforts in developing the Work Plan.

#### **4 Outcomes from the GEO Ministerial and GEO-X Plenary**

Espen Volden (GEO Secretariat) reviewed the highlights of the GEO Ministerial Declaration, noting that the mandate of GEO was renewed through 2025, and that the Declaration highlighted the unique contributions of Participating Organisations, including CEOS.

Espen reviewed the GEO Implementation Plan 2025 Process, noting that an Implementation Plan Working Group (IPWG) with a Writing Team has been established, and will have their first meeting 10<sup>th</sup>-11<sup>th</sup> April in Geneva. The membership of the IPWG and Writing Team is broad, with a number of GEO Members having nominated representatives, including CEOS Members and Associates (e.g. CSIR, INPE, DLR, EC, NOAA and Roshydromet). It was noted that individuals are representing their national GEO Member and not their space agency. Espen noted that the Ministerial provided guidance on the evolution of GEOSS:

1. Advocate for the value of Earth observations and the need to continue improving Earth observation worldwide.
2. Urge the adoption and implementation of data sharing principles globally.
3. Advance the development of the GEOSS information system for the benefit of users.
4. Develop a comprehensive interdisciplinary knowledge base defining and documenting observations needed for all disciplines and facilitate availability and accessibility of these observations to user communities.
5. Cultivate global initiatives tailored to meet specific user needs.

Espen reviewed the plans for the upcoming Work Plan Symposium and the GEO-XI Plenary.



### GEO Work Plan Symposium 28-30 April in Geneva

- Information for Society – GEO Global initiatives
- GEOSS Portal – Data, Tools & Services
- Managing and Sharing Data
- Future Requirements for Observations & Information
- Looking into the Future of GEO and GEOSS



### GEO-XI Plenary Libreville, Gabon

- Week at a glance
  - (10-)11 Nov: Board meetings and side events
  - 12 Nov: ExCom and side events
  - 13-14 Nov: Plenary
- Implementation Plan update and request for feedback



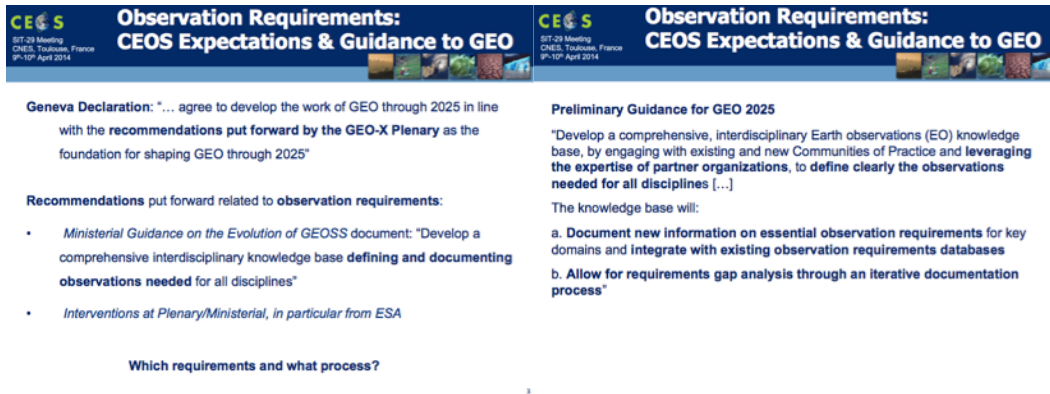
A brief discussion followed:

- Mike Freilich (NASA) raised the issue of CEOS participation at the GEO Work Plan Symposium, and Kerry Sawyer (CEO) noted that there are currently only two CEOS participants (Brian Killough as the CEOS SEO, and Frank Lindsay as the Disasters SBA lead). Mike stressed that if CEOS intends to interact with GEO through representation at meetings like the Work Plan Symposium, that ensuring strong and coordinated representation is important.
- Stephen Briggs (ESA) noted that the larger issue of CEOS representation to GEO needs to be addressed, noting that often CEOS representation within GEO is done on an *ad hoc* basis by participants wearing multiple hats, rather than as the official designees of CEOS with a clear mandate to represent CEOS positions. He noted the fundamental issue to be addressed is why there is no formal representation of Participating Organisations within the governance framework of GEO.
- Pascale Ultré-Guérard (SIT Chair) noted that Steven Hosford will attend the Work Plan Symposium on behalf of the CEOS SIT Chair.
- Alain Ratier (CEOS Chair) noted that Robert Husband will also attend the GEO Work Plan Symposium on behalf of the CEOS Chair.
- Alain noted that the timing of the release of the new GEO Implementation Plan is good for CEOS in formulating its position on the representation of Participating Organisations in the GEO governance, and Espen confirmed there will be a draft Implementation Plan for GEO-XI.
- Mary Kicza (NOAA) noted that there was a lot of positive sentiment from NOAA following the GEO Plenary, and that a lot of the issues to be addressed are well aligned with CEOS priorities.
- Stephen noted the membership of the IPWG does not include a role for Participating Organisations – and this is emblematic of the issue of Participating Organisation representation within GEO. He noted that CEOS is investing a lot of resources in the GEO relationship, and representation in GEO governance should be formalised.

## 5 GEO Coordination Items

Brent Smith (NOAA) presented a summary of post-2015 GEOSS issues for consideration. CEOS continues to make key contributions to the GEO Work Plan, in particular to global initiatives, but its role and influence in future GEO governance is not clear (e.g. IPWG, GEO Executive Committee [ExCom]).

In the past, there has been discussion within the GEO ExCom regarding a potential role for GEO Participating Organisations in the ExCom and GEO governance. CEOS representation could be a potential role for SIT Chair, in addition to the annual CEOS-GEO Task coordination role already pursued by the CEO and CEOS leadership.



**CEOS** SIT-29 Meeting  
CEOS, Toulouse, France  
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**Observation Requirements:  
CEOS Expectations & Guidance to GEO**

**Geneva Declaration:** "... agree to develop the work of GEO through 2025 in line with the recommendations put forward by the GEO-X Plenary as the foundation for shaping GEO through 2025"

**Recommendations put forward related to observation requirements:**

- *Ministerial Guidance on the Evolution of GEOSS document:* "Develop a comprehensive interdisciplinary knowledge base defining and documenting observations needed for all disciplines"
- *Interventions at Plenary/Ministerial, in particular from ESA*

**Which requirements and what process?**

**CEOS** SIT-29 Meeting  
CEOS, Toulouse, France  
9-10<sup>th</sup> April 2014

**Observation Requirements:  
CEOS Expectations & Guidance to GEO**

**Preliminary Guidance for GEO 2025**

"Develop a comprehensive, interdisciplinary Earth observations (EO) knowledge base, by engaging with existing and new Communities of Practice and leveraging the expertise of partner organizations, to define clearly the observations needed for all disciplines [...]"

The knowledge base will:

- Document new information on essential observation requirements for key domains and integrate with existing observation requirements databases**
- Allow for requirements gap analysis through an iterative documentation process"**

A brief discussion followed.

- Stephen Briggs (ESA) noted that while the construction of the GEO Ministerial Declaration is well aligned with CEOS objectives, without CEOS formal representation on the GEO IPWG, it is difficult to ensure they are characterized accurately and followed-up.
- Mike Freilich (NASA) agreed with Stephen's characterisation, and suggested that CEOS should be using all approaches available in the near-term to ensure that CEOS does influence the development of the GEO Implementation Plan. This would not be a substitute for more formal representation, but also does not pass up the current opportunity to influence the IP.
- Alain Ratier (CEOS Chair) recommended that CEOS provide a supporting statement to the members of the GEO IPWG detailing the CEOS position regarding the future of GEO. This statement could be based on the main features of the CEOS statement already made to the recent GEO Plenary. Alain also suggested that CEOS seek Observer status on the ExCom.
- Stephen supported the idea of developing a CEOS statement to the IPWG, but suggested that it be sent to the GEO Co-Chairs and the IPWG membership. He also agreed with the suggestion of asking for ExCom Observer status.
- Stefano Bruzzi (ASI) agreed with the proposal to send the statement, but he also stressed that the question of what to do with GEO remains open. He suggested CEOS develop its own ideas about the future role of GEO – not just from the space agency perspective, but also in general.
- Espen Volden (GEO Secretariat) noted that the IPWG will not work in isolation, and has been asked by the GEO Co-Chairs to seek outside inputs.
- Hilcéa Ferreira (INPE) noted that INPE is currently in transition, but noted that it will coordinate the CEOS position with their representative (Luciano Pezzi) to the IPWG.
- Stephen noted the fundamental need GEO can help address from a space agency perspective is like that of the former IGOS - providing a coherent set of data requirements to which CEOS can respond.



- Pascale Ultré-Guérard (SIT Chair) proposed that the SIT Chair and CEOS Chair write to the GEO Co-Chairs, and the IPWG leadership setting out the CEOS position regarding the future of GEO.

<b>SIT 29-1</b>	<b>CEOS and SIT Chairs to write to GEO Co-Chairs to: a) provide the CEOS view on the future of GEO b) offer our service to GEO and to interact with the IPWG on the development of the IP, and c) to request Observer status at EXCOM</b>	<b>End May 2014</b>
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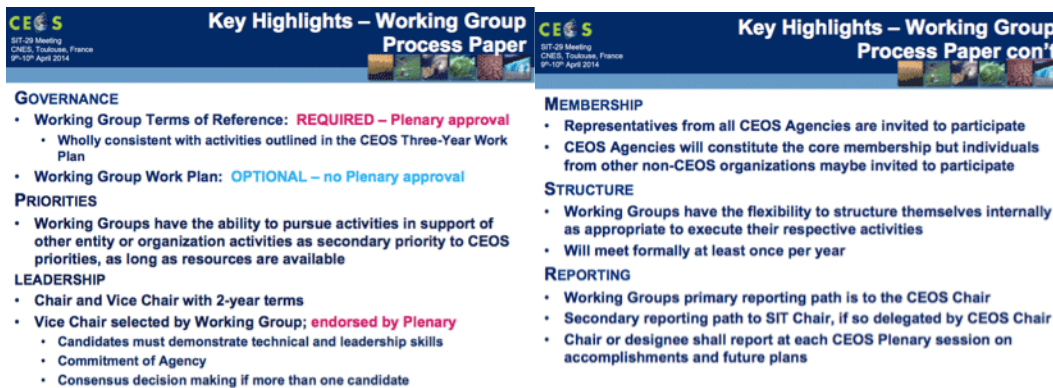
## 6 Introduction to Working Group and Virtual Constellation Session

Pascale Ultré-Guérard (SIT Chair) introduced the SIT Chair Team’s high-level objectives for the Working Groups and Virtual Constellations during their mandate.

1. Develop the synergy between CEOS Virtual Constellations and Working Groups.
  - Encourage more focused exchanges and collaboration.
  - Follow examples, e.g. WGCV-SST-VC, WGISS-WGDisasters, VCs-WGClimate.
2. In continuity with 2015 GEOSS deliverables and new 2014-2016 Work Plan, increase focus on WG and VC deliverables.
  - Interact with GEO during Implementation Plan development.
  - Seek alignment with GEOSS post 2015 10-year plan.
3. Broaden active participation of key asset holding agencies not yet fully involved in CEOS WGs and VCs.
  - Engage more agencies in WG and VC leadership and activities.
  - Revitalize the LSI-VC.
4. Establish and/or improve the linkages between VCs and existing relevant scientific groups.
  - Identify gaps and/or hurdles in these linkages.
  - Work with the sponsors of the relevant scientific groups.

## 7 Working Group/New Initiatives Process Paper

Kerry Sawyer (CEO) reviewed the Process Papers relating to CEOS Working Groups and to guidance on new initiatives, noting that CEOS does not currently have a formal “tactical” process document in place for these activities. Many CEOS Members have expressed a desire for additional details regarding the processes by which new Groups or new work are proposed and endorsed by CEOS. Kerry reviewed some of the key highlights from the Process Papers, developed in response to CEOS Plenary Action 27-4.



**GOVERNANCE**

- Working Group Terms of Reference: **REQUIRED – Plenary approval**
  - Wholly consistent with activities outlined in the CEOS Three-Year Work Plan
- Working Group Work Plan: **OPTIONAL – no Plenary approval**

**PRIORITIES**

- Working Groups have the ability to pursue activities in support of other entity or organization activities as secondary priority to CEOS priorities, as long as resources are available

**LEADERSHIP**

- Chair and Vice Chair with 2-year terms
- Vice Chair selected by Working Group; **endorsed by Plenary**
  - Candidates must demonstrate technical and leadership skills
  - Commitment of Agency
  - Consensus decision making if more than one candidate

**MEMBERSHIP**

- Representatives from all CEOS Agencies are invited to participate
- CEOS Agencies will constitute the core membership but individuals from other non-CEOS organizations maybe invited to participate

**STRUCTURE**

- Working Groups have the flexibility to structure themselves internally as appropriate to execute their respective activities
- Will meet formally at least once per year

**REPORTING**

- Working Groups primary reporting path is to the CEOS Chair
- Secondary reporting path to SIT Chair, if so delegated by CEOS Chair
- Chair or designee shall report at each CEOS Plenary session on accomplishments and future plans

Kerry noted that the creation of new Working Groups would be directed to the New Initiatives Process Paper, and reviewed some of the highlights of that Paper.

 <b>Key Highlights – New Initiatives Process Paper</b>	 <b>Key Highlights – New Initiatives Process Paper cont'</b>
<p><b>CRITERIA FOR CONSIDERATION OF NEW INITIATIVES</b></p> <ul style="list-style-type: none"> <li>Information wholly consistent with language in the <i>CEOS Governance and Processes</i> document, Section 3 – Decision-Making Process</li> <li>Decision criteria:           <ul style="list-style-type: none"> <li>Alignment with CEOS strategic goals</li> <li>Benefit to internal and/or external stakeholders</li> <li>Feasibility and affordability</li> </ul> </li> <li>Evident concern that CEOS may become overextended which justifies more rigorous CEOS consideration of proposals while ensuring priorities do not become static and unresponsive to new internal or external developments</li> <li>Key to successful proposal review lies in a good understanding of required Agency participation and resource commitments, matched against overall CEOS priorities</li> </ul>	<p><b>CEOS SUPPORT TO NEW INITIATIVES</b></p> <ul style="list-style-type: none"> <li>First must understand extent and interaction of support by asking a few key questions</li> <li>“CEOS support” comes in many shapes and sizes           <ul style="list-style-type: none"> <li>Major global, resource-intensive, long-term tasks requiring large number of CEOS Agencies</li> <li>Smaller-scale, short-term tasks involving small number of CEOS Agencies</li> <li>...and activities that fall somewhere in between</li> </ul> </li> </ul> <p><b>PROCESS FOR APPROVAL OF NEW INITIATIVES</b></p> <ul style="list-style-type: none"> <li>Begins with a written request to the CEOS Secretariat of the activity that is significant in nature and requires discussion and strategic evaluation by CEOS Principals</li> <li>Must be sponsored or led by a CEOS entity</li> <li>If approved, will become part of CEOS Three-Year Work Plan and may also be part of a WG or VC Work Plan or part of an Ad Hoc Team</li> </ul>

A brief discussion followed.

- Alain Ratier (CEOS Chair) suggested that some adjustments were necessary to ensure consistency/coherence with the CEOS 2014-2016 Work Plan and the Strategic Guidance document. This was agreed.
- Mary Kicza (NOAA) asked if there are many cases where a Working Group is working on its own, supporting secondary, non-CEOS activities. Kerry noted there are “bottom-up” activities going on in the Working Groups, independent of the “top-down” activities, and these activities should be allowed to continue.
- Pascal Lecomte (WGClimate, ESA) noted that, in the past, WGCV has proposed bottom-up activities (e.g. QA4EO), and brought these to SIT/Plenary for approval, and then they were executed. Satish Srivastava (WGCV, CSA) noted that this is part of the reason WGCV has included the number of deliverables in the CEOS 2014-2016 Work Plan that they have.
- Mike Freilich (NASA) asked if this means that we need top-down endorsement of all CEOS Working Group activities. Alain clarified that this is not required, but emphasised that the activities of joint Working Groups needs to be consistent with the jointly agreed Terms of Reference of the Working Group. Furthermore, Alain noted there is freedom for Working Groups to have their own work plan, as long as it is consistent with the CEOS Three-Year Work Plan.

## 8 Working Group and Virtual Constellations Objectives and Content

Jean-Louis Fellous (SIT Chair Team) outlined the Virtual Constellation (VC) Session objectives and content, reviewed the membership, composition and leadership of VCs and Working Groups (WGs).

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WG's and VCs' Leadership			
Working Groups	Chair	Vice-Chair	
WGCV	Srivastava (CSA)	Von Bargaen (DLR)	
WGISS	Moreno (CNES)	Mitchell (NASA)	
WDCapD	Wood (USGS)	Olwoch (SANSa)	
WGDisasters	Petiteville (ESA)	Chalifoux (CSA)	
WGClimate	Bates (NOAA-CGMS)	Lecomte (ESA-CEOS)	
Virtual Constellations	Co-Leads		
ACC-VC	Eckman (NASA)	Zehner (ESA)	
SST-VC	Donlon (ESA)	Casey (NOAA)	
OST-VC	Lambin (CNES)	Bonekamp (Eumetsat)	
OSVW-VC	Figa (Eumetsat)	Chang (NOAA)	Gohil (ISRO)
OCR-VC	DiGiacomo (NOAA)	Bontempi (NASA)	Regner (ESA)
P-VC	Neeck (NASA)	Oki (JAXA)	
LSI-VC	Dalge (INPE)	Faundeen (USGS)	Diwakar (ISRO)

Jean-Louis provided an overview of the outcomes from the recent VC-WG teleconferences.

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Action items from tag-up telecons (1)		
Action	Content	Due date
SIT-Chair/WGCV/1	SIT Chair Team to encourage CEOS agencies to provide additional funding and resources in support of the Calibration campaigns.	SIT-29
SIT-Chair/WGCapD/1	WGCapD to coordinate with WGISS on data access	By SIT-29
SIT-Chair/WGDisasters/1	WGDisasters to consider merging Data and Superites Coordination Teams	By SIT-29
SIT-Chair/WGDisasters/2	SIT Chair Team to plan for a "mini-Plenary" session at SIT-29 including formal approval of WGDisasters' organization and structure.	By SIT-29
SIT-Chair/WGDisasters/3	WGDisasters to extend the Call for DRM Pilot requirements to all CEOS agencies.	By SIT-29
SIT-Chair/WGClimate/1	SIT Chair Team to contact past SIT Chair and JAXA to inquire on the designation of a new CTF contact and on his/her presence at SIT-29	By mid-February

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Action items from tag-up telecons (2)		
Action	Content	Due date
SIT-Chair/ACC-VC/1	SIT Chair Team to pursue efforts to better engage agencies in ACC-VC activities.	SIT-29, Plenary and beyond
SIT-Chair/ACC-VC/2	SIT Chair Team to support ACC-VC recommendation for limb sounding missions.	SIT-29, Plenary and beyond
SIT-Chair/SST-VC/1	SST-VC to submit a request for a side meeting at Technical workshop	By mid-July
SIT-Chair/SST-VC/2	SIT Chair Team to pursue its efforts to better engage agencies from China, Korea and other countries in the SST-VC activities.	SIT-29, Plenary and beyond
SIT-Chair/OST-VC/1	SIT Chair Team to help clarify the status of OST-VC Tools	By Plenary
SIT-Chair/OST-VC/2	SIT Chair Team to pursue its efforts to better engage agencies from India, China, Russia, and Japan in the OST-VC activities.	SIT-29, Plenary and beyond
SIT-Chair/OST-VC/3	OST-VC to explore the possibility to hold a side meeting during the next OSTST in Konstanz	October 2014

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Action items from tag-up telecons (3)		
Action	Content	Due date
SIT-Chair/OSVW-VC/1	SIT Chair to confirm the engagement of CNES in OSVW-VC activities and re: the CFOSAT mission identify the appropriate contact person.	By SIT-29
SIT-Chair/OSVW-VC/2	Saldana to report about plans for future training workshops.	By SIT-29
SIT-Chair/OSVW-VC/3	SIT Chair Team to work with Roshydromet and Roscosmos about their potential engagement in the VC, in relation with the launch of Meteor-M3 in 2017.	SIT-29, 2014 Plenary and beyond
SIT-Chair/OCR-VC/1	SIT Chair Team to pursue efforts to better engage agencies in OCR-VC activities.	SIT-29, Plenary and beyond
SIT-Chair/OCR-VC/2	OCR-VC leaders to convey the conclusions of JOCCG meeting to SIT Chair team	15 March 2014
SIT-Chair/PC-VC/1	SIT Chair Team to pursue its efforts to better engage agencies from China and Russia in the PC-VC activities.	SIT-29, Plenary and beyond

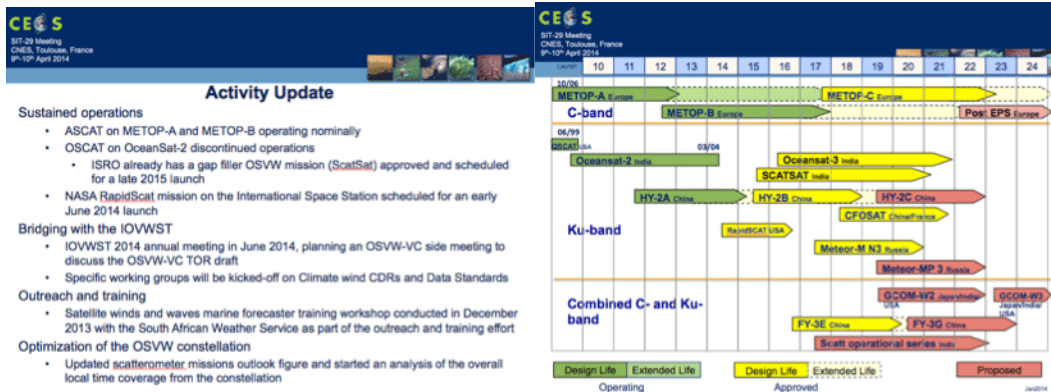
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## 9 Working Group and Virtual Constellations Session – VC Focus

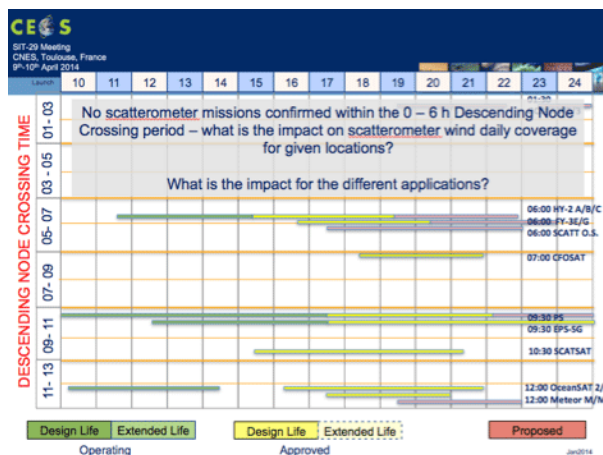
### OSVW-VC

Paul Counet (EUMETSAT) reported on behalf of the OSVW-VC co-leads, Paul Chang and Julia Figa Saldana.



Paul noted that several issues, concerns and on-going activities were identified.

- The discontinuation of OSCAT operations and the current unavailability of HY-2A data in NRT has a significant impact on short-term weather forecasting applications.
- Continuing to pursue engagement of other OSVW mission owners to participate in the VC and IOVWST (i.e. China and Russia) and advocate for open and timely data access, as well as for open scientific exchanges and cooperation.
- Continuing to advocate for long-term international commitment to a sustained global vector winds constellation to support short-term weather forecasting and warning and long-term earth system forecasting and monitoring.
- Continuing outreach and training efforts, in order to improve the utilization of data streams and advocate for sustained and coordinated OSVW missions in the future.



Jean-Louis noted that each VC was asked to include a focus on training and capacity building, and stressed the past role of Stan Wilson and NOAA for developing capacity building activities in the area of ocean surface winds.

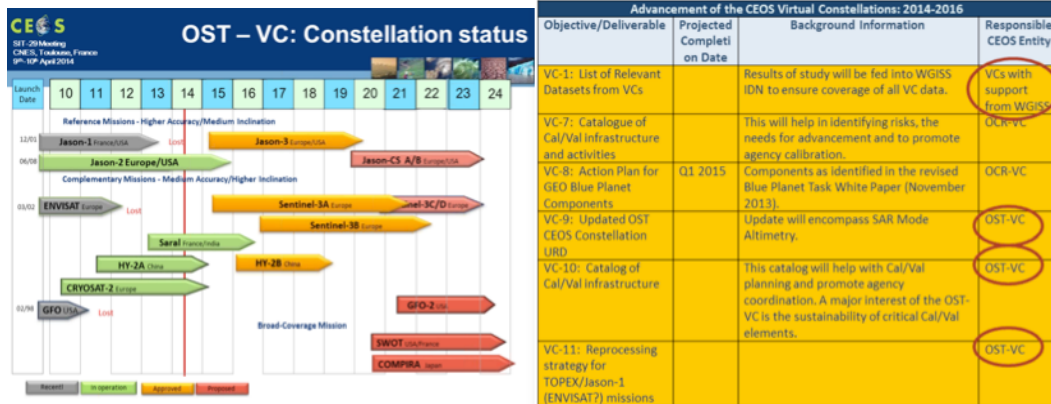
SIT 29-2	VCs to consider developing training activities in their field, following the example of the OSVW-VC, involving the corresponding science groups, in collaboration with WGCapD and	Initial ideas – SIT Chair tag up telecons (June 2014) Plans – SIT Technical Workshop
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possibly with external partners (e.g., COSPAR, GxOS, WCRP)

(September 2014)

*OST-VC*

Juliette Lambin (OST-VC, CNES) presented a summary of the OST-VC status.



Juliette noted that the updated VC Terms of Reference are currently in draft form, and are being aligned with the other VCs. She noted that the OST-VC is working to address the actions identified in the draft CEOS 2014-2016 Work Plan. She also noted that OST is a key parameter in Blue Planet and data are already available in near real-time. She highlighted several OST-VC implementation and coordination issues:

- Finalisation of the OST-VC ToR;
- Identifying meeting opportunities, i.e. OST-ST Meeting in Konstanz, Oct 2014; and
- Engaging more actively with agencies from India, China (CNSA, NSOAS), and Japan.

*OCR-VC*

Juliette presented a summary of OCR-VC issues on behalf of Paula Bontempi, Paul DiGiacomo, and Peter Regner, noting that the revised OCR-VC Terms of Reference were circulated in December 2013. This included a well-defined Mission Statement focused on basic and applied research and management, addressing broader community needs, and issues and gaps. Activities include:

- Implementation of ocean colour minimum mission requirements for global polar-orbiting sensors and data harmonization;
- Coordination for geostationary ocean colour missions and facilitating coastal ecosystem research, applications and services using OCR data;
- Implementation of the INSITU-OCR (International Network for Sensor InTer-comparison & Uncertainty assessment for Ocean Colour Radiometry);
- Ocean Colour ECV support; and
- Support for implementation of the GEO Blue Planet Task.

The 1<sup>st</sup> International Ocean Colour Science Meeting took place 6<sup>th</sup>-8<sup>th</sup> May 2013, in Darmstadt, Germany, with 244 participants from 36 nations. The overarching theme was “Building of Ocean Colour Climate Data Records”, and the meeting report is available at: <http://iocs.ioccg.org/wp-content/uploads/report-iocs-2013-meeting.pdf>.



- **OCR-VC implementation an coordination issues to be addressed by SIT**
  - SIT encouragement for CEOS agency implementation of the IOCCG Report 13 will be critical to the success of the OCR-VC and future OCR continuity and user engagement.
  - SIT encouragement for CEOS agency participation and support toward implementation of the INSITU-OCR.
  - SIT endorsement for the formulation of a Water Quality Community of Practice, and subsequent development of a pathfinder activity for a global coastal and inland water quality monitoring service, to be developed under the auspices of GEO/GEOSS.
  - CEOS agency endorsement of sensor calibration approaches advocated by OCR-VC.
  - SIT endorsement for the OCR-VC action plan to be generated addressing the ocean color components in the updated GEO Blue Planet Task Plan.
  - CEOS agency adoption of free, easy and timely access to and sharing of calibrated, as well as uncalibrated Level-0 or Level-1A OCR data, calibration information and source/processing codes.
  - SIT encouragement for CEOS agency participation and support for sustained projects for calibration and validation of OCR data, and merging of OCR data across satellite sensors with determination of uncertainties/errors.

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A brief discussion followed:

- Craig Donlon (SST-VC, ESA) asked what the OCR-VC is doing to try and establish SI traceability for the *in situ* data records, noting that this is an issue SST-VC is currently trying to address.

<b>SIT 29-3</b>	<b>OCR-VC to provide a detailed account of the implementation and coordination issues submitted to SIT-29 (with appropriate references) with a view to resolving them prior to SIT Technical Workshop</b>	<b>SIT Chair tag up telecons (June 2014)</b>
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*AC-VC*

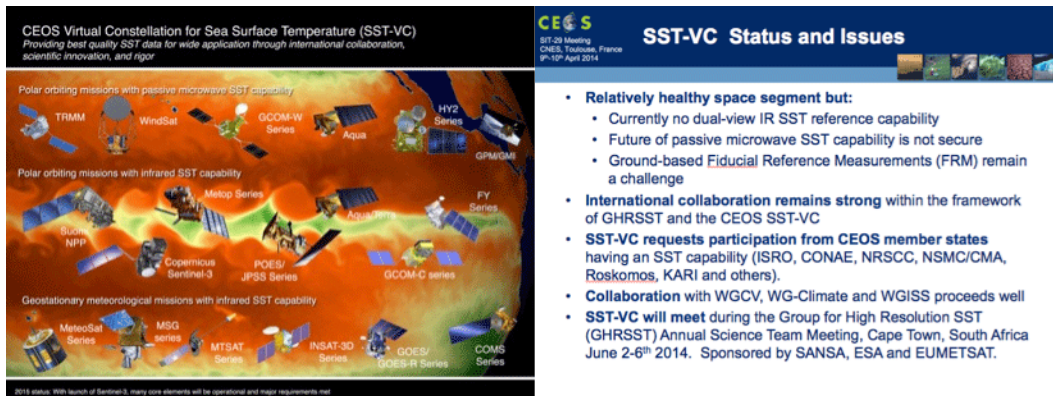
Richard Eckman (AC-VC, NASA) presented a summary of the AC-VC activities, noting the targeted three-year outcomes and main accomplishments are:

- Total ozone ECV validation and harmonisation;
- Geostationary Air Quality constellation coordination;
- Multi-sensor volcanic eruption alert system; and
- Greenhouse gas (GHG) constellation.

The AC-VC is concerned about the continuity of atmospheric limb sounding measurements, and that an ACC gap analysis (2008) noted a looming gap in limb sounding measurements necessary for high vertical resolution atmospheric composition measurements providing unique data for climate-chemistry interactions in the upper troposphere and stratosphere. Richard noted that, recently, NASA was assigned responsibility for sustained measurements of solar irradiance, ozone profiles, and Earth radiation balance beginning in 2021, and is considering options to address the limb sounding gap.

*SST-VC*

Craig Donlon (SST-VC, ESA) presented the status of the current SST Constellation.



**CEOS Virtual Constellation for Sea Surface Temperature (SST-VC)**  
Providing best quality SST data for wide application through international collaboration, scientific innovation, and rigor

**CEOS**  
SIT-29 Meeting  
CNES, Toulouse, France  
9<sup>th</sup>-10<sup>th</sup> April 2014

**SST-VC Status and Issues**

- **Relatively healthy space segment but:**
  - Currently no dual-view IR SST reference capability
  - Future of passive microwave SST capability is not secure
  - Ground-based Fiducial Reference Measurements (FRM) remain a challenge
- **International collaboration remains strong** within the framework of GHRSSST and the CEOS SST-VC
- **SST-VC requests participation from CEOS member states** having an SST capability (ISRO, CONAE, NRSC, NSMC/CMA, Roskomos, KARI and others).
- **Collaboration with WGCV, WG-Climate and WGISS** proceeds well
- **SST-VC will meet** during the Group for High Resolution SST (GHRSSST) Annual Science Team Meeting, Cape Town, South Africa June 2-6<sup>th</sup> 2014. Sponsored by SANSA, ESA and EUMETSAT.

2014 status. With launch of Sentinel-3, many core elements will be operational and major requirements met.

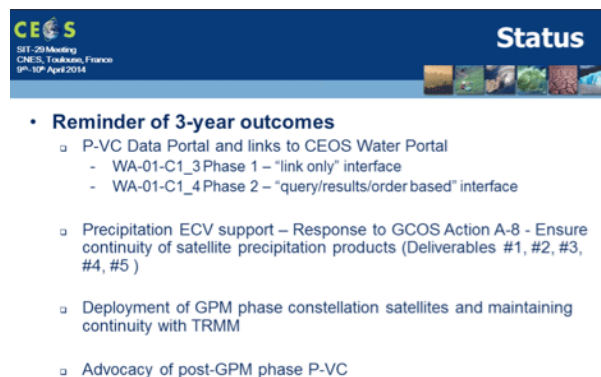
Craig reviewed the status of two SST activities:

- SST ship-borne radiometer inter-comparison requirements, aiming to establish and maintain S.I. traceability for ship-borne radiometers used as Fiducial Reference Measurements (FRM) for Satellite SST validation; and
- SST calibration and validation requirements for other SST infrastructure, aiming to establish and maintain S.I. traceability for infrastructure providing Fiducial Reference Measurements (FRM) for Satellite SST calibration and validation.

Craig also noted that SST-VC remains ready to participate and support Blue Planet with data and various data-driven SST infrastructure, and that better coordination of support to Blue Planet across CEOS VCs is required.

#### *P-VC*

Riko Oki (P-VC, JAXA) presented a summary of P-VC activities, noting the 3-year outcomes.



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**Status**

- **Reminder of 3-year outcomes**
  - P-VC Data Portal and links to CEOS Water Portal
    - WA-01-C1\_3 Phase 1 – “link only” interface
    - WA-01-C1\_4 Phase 2 – “query/results/order based” interface
  - Precipitation ECV support – Response to GCOS Action A-8 - Ensure continuity of satellite precipitation products (Deliverables #1, #2, #3, #4, #5)
  - Deployment of GPM phase constellation satellites and maintaining continuity with TRMM
  - Advocacy of post-GPM phase P-VC

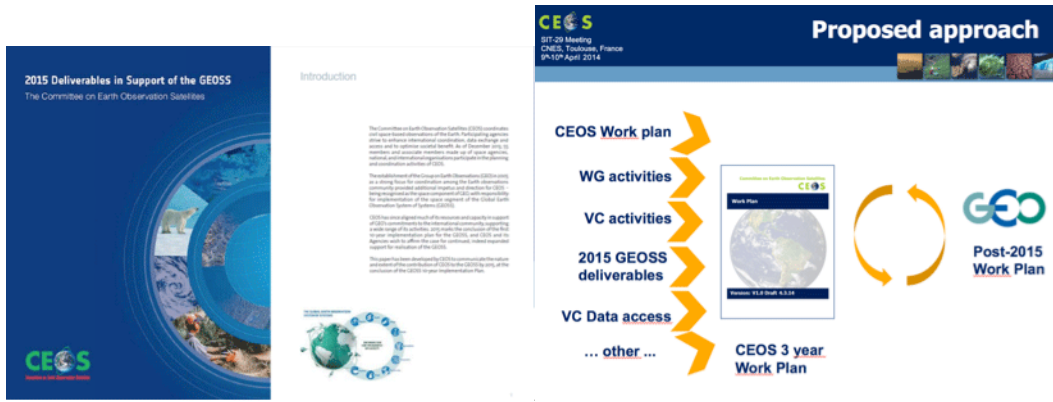
Riko summarized the initial data sets that have been produced by the recently launched GPM mission. She noted two current issues for the P-VC:

- Systematic lack of participation by Russia, China, and other countries; and
- Potential MI coverage gaps (e.g. post GCOM-W1, post-DMSP).

#### *VC Deliverables*

Steven Hosford (SIT Chair Team) presented the various activities focused on defining WG and VC deliverables including the VC data access study and the 2015 Deliverables in

Support of GEOSS document. He outlined the intention to ensure that all the deliverables that have been identified be reflected in the CEOS 2014-2016 Work Plan. Furthermore, the Work Plan will become a key document in seeking to ensure alignment between CEOS and GEO activities and should provide a basis to feed into the definition of the Post-2015 GEO Work Plan.



A brief general discussion on all the points raised followed.

- Chu Ishida (JAXA) supported Steven’s proposed approach to use the annually updated CEOS Work Plan as a key reference to feed into the Post-2015 GEO Work Plan.
- Pascal Lecomte (WGClimate, ESA) noted that he agrees the Working Group Chair and Vice Chair terms should have a two-year duration. He does not support the idea of Co-Chairs, noting there is a need for one person to be empowered to take decisions on behalf of the Working Group.
- Mike Freilich (NASA) agreed with Pascal, noting that it is important for the Working Groups to build internal leadership capacity, and that as many agencies as possible should be involved in the leadership of the Working Groups.
- It was agreed that the Working Group Process Paper should capture the agreement that each Working Group should have a Chair and a Vice-Chair (but not co-chairs) and that their terms should be 2 years. The draft Working Group Process Paper did indeed state this so no change to the Paper was recommended.

## 10 Land Surface Study Group

Julio D’Alge (INPE) presented a summary of the Land Surface Study Group (LSSG) report virtually, summarizing the objectives of the group.





### Land Surface Study Group (LSSG) created at SIT-28

- Review the current capacity of LSI and list current and future likely needs for significant land surface imagery in CEOS activities.
- Review activities to date of the LSI VC, SDCG for GFOI and other groups, if any, which have performed similar tasks.
- Review the relevant functions of WGISS and how they are best considered in the context of the study group purpose.
- Review the major requirements for land surface data sets from current CEOS and GEO priorities.
- Consider the implementation which will best satisfy all the above needs.
- Make recommendations on the way forward to CEOS Plenary.

3

Julio reviewed the activities from the LSSG since the SIT Technical Workshop 2013, and presented its conclusions on the future of the LSI-VC: new leadership is needed to reinvigorate the Virtual Constellation.



- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>▪ Co-Chairs John Faudeen (USGS) and Julio Dalge (INPE) quit in 2013 and there were no replacements.</li> <li>▪ Without INPE and USGS in the LSI leadership the current CEOS SIT Chair (CNES) understands the most important issue is the leadership.</li> <li>▪ In February 2014, Julio Dalge and Marcia Alvarenga had a telecon with Steven Hosford and Kerry Sawyer and came to the decision of freezing the LSI ToR while the SIT Chair Team searches for new leaders.</li> <li>▪ The work of LSSG has been terminated.</li> <li>▪ LSSG participants also understand that LSI should:             <ul style="list-style-type: none"> <li>✓ coordinate optical and radar missions.</li> <li>✓ Involve access to long-term data records, methodologies and best practices.</li> </ul> </li> <li>▪ The SIT Chair Team would not be searching for new leaders if they did not see the important role of LSI. In that sense, the LSSG work was very valuable.</li> </ul> | <ul style="list-style-type: none"> <li>▪ LSSG should produce a document specifically addressing the objectives in the LSSG ToR – to address the unique roles that will be played by an LSI VC given the existence and activities of related groups (e.g. SDCG/GFOI, GEOGLAM, WGISS).</li> <li>▪ The scope of the LSI coordination objectives needs not be confined to classical land imagery, but rather should address coordination of the suite of measurements required to generate the information products needed by ongoing and future land-focused CEOS activities.</li> <li>▪ The document should be formally approved by existing related CEOS organizations (e.g. GFOI, GEOGLAM, WGISS, etc.) prior to the LSSG presentation to CEOS. CEOS endorsement at SIT-29 (progress report at 2013 Montreal Plenary).</li> <li>▪ CEOS agencies are requested – urged – commanded to provide active and expert representatives to the LSSG process.</li> </ul> |
|---|--|

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A discussion followed.

- Stephen Briggs (ESA) said this discussion, over some months, has thrown into question the need for an LSI-VC, but has not generated a clear way forward. He noted it is not clear there is a case for the LSI-VC.
- Julio noted that he would (had he attended the 25<sup>th</sup> CEOS Plenary in Lucca) have suggested that the SDCG for GFOI be created under the umbrella of the LSI-VC.
- Alain Ratier (CEOS Chair) suggested that we should take note of where CEOS has been successful (e.g. GFOI and GEOGLAM) indicating that maybe priority should be given to such large global initiatives/projects, rather than adopting a "broad brush" approach.
- Stephen Briggs noted that we should not be looking at the available leadership to decide what the group should do, but rather we should look at what the group should do, and then identify the leadership.
- Klaus Schmidt (DLR) agreed that land imaging activities are probably too broad to focus into just one VC.
- Tom Cecere (USGS) offered to work with the SIT Chair to develop a Land Surface Imaging proposal for discussion at the SIT Technical Workshop.

- Mike Freilich (NASA) suggested this is an important problem, with practical solutions for CEOS to consider. He noted there are extensive resources being applied to land imaging issues, and that microwave radar issues also need to be taken into account.
- Stephen Ward (JAXA/CNES) noted that with the number of missions, current and launching in the short-term, we are entering a “golden era” of land surface imaging, and there is a coordination job to be done which a suitably directed LSI-VC could and should tackle.
- Julio noted the example of the former CEOS WGEdu, which redefined its role and leadership, and successfully translated the activity into the WGCapD.
- Jean-Louis Fellous (SIT Chair Team) noted that SDCG and GEOGLAM are probably covering some of the workflow from LSI-VC, but that there is still the need to better coordinate data access. In particular, he noted feedback from regional users, and suggested there may be a regional coordination role to help support South American, Southeast Asian, or African data access.



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### Land Surface Imaging Constellation

- **Potential for “regionally-based” enhanced collaboration**
  - **Establish regional “nodes”, e.g.**
    - Africa – with SANSAs as lead?
    - South America – with INPE as lead?
    - South-East Asia – with XXX as lead?
- **Action item for SIT Chair and volunteer agencies?**

- Jean-Louis noted that some initial discussions with Jane Olwoch from SANSAs had already taken place on such an African “node”. Jane added that SANSAs would be interested to look at the issue in more detail, but could not commit to implementation, and Jean-Louis noted that at this stage the task is just to explore the approach.
- Tom noted that the CEOS may be able to gain some insight from a recent U.S. land imaging report that identified a number of requirements which may be relevant to the international community.
- Mary Kicza (NOAA) noted that NOAA would be interested in supporting this assessment.
- Stefano Bruzzi (ASI) noted that it is not clear what CEOS gains by establishing regional “nodes” until we are clear what is needed from a CEOS land imaging coordination effort.
- Stephen Briggs noted that we have enough real land imaging challenges to tackle without digging for additional requirements. He suggested the better approach is to tailor solutions to challenges as they arise. He reiterated that the other VCs have relatively specific single issues, which are amenable to the VC approach – whereas for land imaging, the challenge is much broader.
- Jonathon Ross (GA) noted that Geoscience Australia would be interested in supporting efforts to define a Southeast Asian “node”.

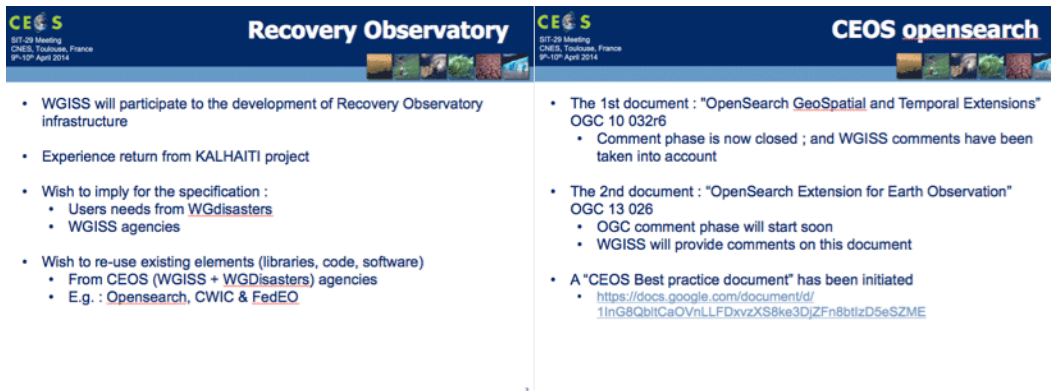
- Jean-Louis noted that the idea of the regional “nodes” needs to be studied further before implementation is considered. Any proposal brought further through CEOS needs to be prepared, defined and shared well through the normal processes.

<b>SIT 29-4</b>	<b>SIT Chair Team to work with volunteer CEOS Agencies to present a position paper at the SIT Technical Workshop on how to address CEOS contributions to Land Surface Imaging Agencies</b>	<b>SIT Technical Workshop (September 2014)</b>
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## 11 Working Group and Virtual Constellation Session – WG Focus

### *WGISS*

Richard Moreno (WGISS, CNES) presented a summary of current WGISS activities.



**Recovery Observatory**

- WGISS will participate to the development of Recovery Observatory infrastructure
- Experience return from KALHAITI project
- Wish to imply for the specification :
  - Users needs from WGDisasters
  - WGISS agencies
- Wish to re-use existing elements (libraries, code, software)
  - From CEOS (WGISS + WGDisasters) agencies
  - E.g. : Opensearch, CWIC & FedEO

**CEOS opensearch**

- The 1st document : "OpenSearch GeoSpatial and Temporal Extensions" OGC 10 032r6
  - Comment phase is now closed ; and WGISS comments have been taken into account
- The 2nd document : "OpenSearch Extension for Earth Observation" OGC 13 026
  - OGC comment phase will start soon
  - WGISS will provide comments on this document
- A "CEOS Best practice document" has been initiated
  - <https://docs.google.com/document/d/1InG8QbitCaOVnLLFDxvzXS8ke3DjZFn8btIzD5eSZME>

Richard outlined cooperation between WGISS and the VCs and other WGs.

- **VCs:** All VCs have been contacted to make an intervention;
- **WGCV:** Participation of WGISS chair to a part of WGCV meeting on April 2014;
- **WGDisasters:** Recovery Observatory and Supersites; and
- **WGClimate:** Coordination on ECVs

A brief discussion followed.

- Jean-Louis Fellous (SIT Chair Team) asked if there were any positive responses from the VCs invited to the next WGISS meeting, and Richard noted that none had been confirmed.
- Tom Cecere (USGS) asked about progress on ECV coordination. Richard noted that the first substantive discussion will be at the WGISS meeting next week, and will include an update from WGClimate on needs related to ECVs.

### *WGCV*

Satish Srivastava (WGCV, CSA) presented a summary of the WGCV activities, including one item for decision and one item for information. CEOS Plenary action 27-21 called for WGCV to develop and recommend detailed plans for the way forward on a SST Comparison Campaign (Project 1), and an SST Operational Validation Project (Project 2).

**Project 1: SST/LST Comparison Campaign Introduction and Background**

Cal/Val sensor comparison campaign in support of SST and LST measurements from space (support action for VC-SST and WGC)  
(follows similar highly successful Tuz Golu campaign for surface reflectance and Miami 3 (2009) for SST (10 global participants) using QA4EO guidelines)

**Proposal**

4<sup>th</sup> of ~5 yearly ('Miami' 1,2,3) WGCV comparisons for radiometers including black bodies

- Phase1 (2014-2015): Laboratory based vs. SI traceable standards (radiometers and black bodies) (Land and Ocean applications)
- Phase 2A (2014 – 2018): Series of ship/ocean based radiometer campaigns
- Phase 2B (2015 – 2017): Field-based calibration of radiometers

• Participation open to all

**Background**

- Essential Climate Variables Sea Surface Temperature (SST) and Land Surface Temperature (LST) are both dependent on global satellite observations of surface emitted thermal radiation
  - Heritage long-time series of data from multiple sensors exists
  - New sensors soon to be launched e.g. Sentinel 3, JPSS-1
- International comparisons are essential to provide confidence in data, test innovation and facilitate capacity building and training

**Project 2: SST (pilot) 'Operational Validation Project' Proposal**

**Background:**

- For SST validation (Operational and Climate) require network of high performance drifting Ocean Buoys for continuous monitoring of Ocean Temps, in addition to Ship borne radiometers analogous to 'test-sites' such as Aeronet and new LandNET.
- Key part of strategy to bridge 'data gaps' between sensors for climate
- White paper drafted by VC-SST, GHRSSST, WGCV-IVOS detailing background available
- Existing networks not sufficient in number for necessary coverage
- Perform a study, funded by ESA, to evaluate what is achievable in terms of accuracy and relative benefits of both improved Ocean Buoys: performance and number and similarly for Ship borne radiometers in the context of Satellite derived SST products and CDRs
- Lead to a potential future proposal to CEOS agencies based on an update of the existing white paper with more rigorous cost-benefit analysis.

Satish noted that the 2014-2016 WGCV Vice Chair position is open, and there are two candidates (one from NASA and one from a non-CEOS Agency sponsored by NRSCC). The Working Group's nomination will be confirmed at WGCV-38 (29<sup>th</sup> September – 3<sup>rd</sup> October), and presented for endorsement at Plenary.

There was a call for the approval of the two WGCV requests in response to CEOS Plenary action 27-21. **Pascale asked if there were any objections, and with none raised, the requests were approved.**

**Plenary Action 27-21: WGCV Request for Decision**

**WGCV requests the following decisions from SIT in response to CEOS Plenary Action 27-21 :**

- Approval to proceed with **Project 1** (SST Comparison Campaign) as presented
- Approval to proceed with ESA funded feasibility study for **Project 2** (SST Operational Validation)

### WGCapD

Jane Olwoch (WGCapD, SANSA) presented a summary of WGCapD 2013 accomplishments.

**2013 Accomplishments**

- WGCapD-2 was held in Frascati, Italy in March 2013
- Improved access to global DEM on a country-by-country basis
  - Workshop held in Nairobi in May 2013, where SRTM data from Somalia and S.Sudan was distributed
- E-learning course on "Introduction to Remote Sensing Technology"
  - Piloted with 30 university educators in four African countries
  - Lessons-learned report available at WGCapD website, "Documents": <http://www.ceos.org/wgcapd>
- Practical EO Education for Students and Teachers
  - Educational Stands organized at ESA Living Planet Symposium in Edinburgh, September 2013
- Capacity Building Inventory Project
  - Questionnaire sent to relevant institutions
  - Development of CB activities map

**2013 Accomplishments**

- Liaison with CEOS WG Disasters:
  - Workshop on the Use of Space Science and Technology for the Prevention of and Response to Disasters in Mesoamerica (Mexico, November 2013)
  - NASA-SERVIR CREST Modeling Workshop – a SERVIR-East Africa training workshop on a distributed hydrologic model using remotely sensed datasets (Namibia, February 2014)
- First WGCapD Short Video launched in November 2013

After Jacob Sutherlun had to withdraw from his WGCapD chairmanship, Eric Wood (USGS) was appointed the interim Chair for 2014, with 2015 continuity (to the end of Jacob's original term) to be determined later among USGS, NOAA and SANSa. Jane reviewed some of the 2014 planned activities for WGCapD.



- **WGCapD-3 will be held in Dehradun, India: April 23-25**, hosted by ISRO. The group will discuss ongoing projects such as:
  - Planning more DEM Workshops, hopefully following released access to global SRTM-2 30m, as well as other DEM datasets
  - Continuation and expansion of E-learning program
  - Practical EO Education for Students and Teachers (Cont.)
  - CB Inventory Project – continue upgrade through EO Power to a CB System of Systems
  - Liaison with WG Disaster: DRM Pilots (Support to Capacity Building Activities)
- [Update WGCapD Short Video](#)
- [TanDEMx Edu Project \(New\)](#)

A brief general discussion on all the points raised followed.

- Mary Kicza (NOAA) confirmed that NOAA is in a position to provide leadership continuity for WGCapD for 2015 should another option not be identified.
- Richard Moreno (WGISS, CNES) noted potential connection between WGCapD and WGISS activities.

## 12 Virtual Constellation and Working Group Session Review and Close

Jean-Louis Fellous (CNES) summarised some common issues from the discussions during the Virtual Constellation (VC) and Working Group (WG) sessions. He noted that these issues will be followed-up in the next round of VC/WG telecons, and then followed up at the September SIT Technical Workshop.



**Items for discussion**

- Training activities
  - Expand the OSVW-VC example
- Land Surface Imaging Constellation
  - Potential for “regionally-based” enhanced collaboration
- Linkages between VCs, WGs and Scientific groups
  - Beyond mutual recognition and dialogue
- Broadening CEOS agency engagement
  - Involve more agencies and give more responsibility
- Interacting with key external stakeholders
  - GEO during the development of the next Implementation Plan/Work plan?
  - Others?

**Training activities**

- Expand the OSVW-VC example
  - Interaction with WGCapD?
  - Role for scientific groups?
  - Collaboration with other partners (e.g. COSPAR CB program, GXOS, WCRP)?
- Action item for VCs?

Slide: 3

**Linkages between VCs, WGs and Science groups**

- Beyond mutual recognition and dialogue
  - Identify gaps and hurdles
  - Exchange with and benefit from other VCs’ experience
- Action item for VCs/WGs?
- A topic for discussion at SIT Technical workshop?

Slide: 4

There was a brief discussion on the linkages between the VCs and WGs, and their related science groups, and follow-up actions were agreed.

<b>SIT 29-5</b>	<b>SIT Chair to prepare a SIT Technical Workshop agenda item regarding the relationship between VCs &amp; WGs and the respective science groups, to be coordinated during the next series of SIT Chair tag-up telecons – and including gaps and bottlenecks which could be acted upon</b>	<b>SIT Chair tag up telecons (June 2014) SIT Technical Workshop (September 2014)</b>
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Several other action items relating to VC and WG websites and membership we agreed.

<b>SIT 29-6</b>	<b>VCs &amp; WGs to ensure that their respective websites are updated with current information</b>	<b>SIT Technical Workshop (September 2014)</b>
<b>SIT 29-7</b>	<b>VCs &amp; WGs to review their membership and leadership with a view to encourage broader participation by CEOS Agencies</b>	<b>SIT Technical Workshop (September 2014)</b>
<b>SIT 29-8</b>	<b>SIT and CEOS Chair to approach CEOS Agencies and potential new Members with a view to broaden participation in and leadership of CEOS activities</b>	<b>CEOS-29</b>

### 13 CEOS Document Configuration Management System and Website Refurbishment

Kim Keith (SEO) reviewed the status and plans for the development of the CEOS Document Configuration Management System, and a revision of the CEOS website.

**Current Strategy**

**The CEOS Website:**

- who we are & what we do
- data portals
- software tools
- documents/publications
- meeting materials

**Proposed Solutions**

**Website redesign:**

- updated look and feel
- reorganized information architecture
- improved user interface
- interesting feature stories
- meeting registration
- integrated document management system

**THIS IS NEW!**

Kim noted that a survey on the topic of the CEOS website will be circulated in April, and encouraged participants to complete that survey providing their inputs into the process. She is also going to create a study group, and those interested in contributing should contact Kim ([kim.e.keith@nasa.gov](mailto:kim.e.keith@nasa.gov)).

A brief discussion followed. Pascale Ultré-Guérard (SIT Chair) noted that CNES is willing to provide a nominee.

<b>SIT 29-9</b>	<b>CEOS Agencies invited to nominate volunteers for the new CEOS website study group (by end April); and SEO to implement the new CEOS website, including document management system</b>	<b>CEOS-28</b>
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## 14 Space Data Coordination Group (SDCG) for GFOI

### *GFOI Status Update*

Stephen Briggs (ESA) reviewed the progress on GFOI and the SDCG since SIT-28.

**Progress since SIT-28**

- First version of the Methods and Guidance developed and published at GEO-X Plenary
  - Key GFOI deliverable for countries, in addition to space data
- 2014 update of the Global Baseline Data Acquisition Strategy and the Space Data Services for GFOI.
- Continued Capacity Building workshops by SilvaCarbon in S America and first regional workshops held in SE Asia and Africa
- GFOI Project Office established and staffed in Geneva – Leads propose to move the Office to Rome, embedded in FAO HQ
- GFOI Review of Priority R&D Topics published - to address common challenges like data interoperability and degradation

**Promoting GFOI**

- Uptake by countries with National Forest Monitoring Systems is the priority
- SDCG *Country Days* have been leading the way in engaging countries – supplemented by SilvaCarbon workshops
- An Australian-ESA side event at SBSTA-38 promoted the Methods and Guidance Documentation to negotiators for REDD+ at UNFCCC.
- Norway funding promo videos to explain the GFOI objectives
  - [https://www.youtube.com/watch?v=Hhb\\_Ed8slOs](https://www.youtube.com/watch?v=Hhb_Ed8slOs)

Stephen Briggs noted that at the COP-19 meeting (Warsaw), a number of key scene-setting decisions were taken, which underpin the ability of SDCG and CEOS to support in-country UN-REDD activities.

### *Global Baseline Data Acquisition Strategy 2014 Update*

Stephen Ward (SDCG) reviewed progress towards implementing the CEOS Strategy for GFOI, including the 2013 implementation report.

**CEOS Global Strategy: Context & Process**

SIT-29 Meeting  
CNES, Toulouse, France  
9-10<sup>th</sup> April 2014

- Coordination of satellite data supply is fundamental to GFOI objectives and supports all countries' participation in reporting

CEOS Strategy for GFOI has 3 Elements, coordinated by SDCG:

- Element 1:** A baseline, coordinated global data acquisition strategy involving a number of 'Core data streams' that can be used free-of-charge and openly for GFOI purposes. This will involve global, systematic and sustained wall-to-wall acquisitions of forested areas
- Element 2:** Coordinated strategies for national data acquisitions including historical coverage characterization, impartial data needs assessment, and data delivery.
- Element 3:** Data supply in support of the GFOI R&D activities, including in support of: the science studies assisting the development and evolution of the Methods and Guidance document for GFOI

**CEOS Baseline 2013: Landsat Coverage**

SIT-29 Meeting  
CNES, Toulouse, France  
9-10<sup>th</sup> April 2014

Year	Coverage added	No. countries*	Area* (Mkm <sup>2</sup> )	Total Area* (Mkm <sup>2</sup> )
2013	GEO-FCT National Demonstrator countries GFOI Participating Countries	15	20.5	20.5

Stephen reviewed the main 2014 updates to the CEOS Global Baseline Data Acquisition Strategy for GFOI. He noted that we are about to enter a period of relatively high availability of land imaging satellite data, with Landsat-7 and -8 in full operations, the ramping up of Sentinel-1, and the launch of Sentinel-2 in the next 12 months.

**CEOS Global Baseline: Main Updates for 2014**

SIT-29 Meeting  
CNES, Toulouse, France  
9-10<sup>th</sup> April 2014

- Adjustments based on mission status and launch date changes
  - Landsat-8 launch; CBERS-3 failure; CBERS-4, Sentinel-1A, Sentinel-2A, and ALOS-2 launch dates
  - ALOS mosaic and SPOT archive availability
- Refinements of Landsat coverage assessment based on operations
- Refinements to Sentinel expected coverage assessment based on development
- References and linkages to the Space Data Services Strategy where appropriate
- Summary of 2013 implementation, and detailing of 2014 implementation plans
- Scoping of 2015 and 2016+ implementation plan

**CEOS Global Baseline Data Acquisition Strategy**

SIT-29 Meeting  
CNES, Toulouse, France  
9-10<sup>th</sup> April 2014

- Global Baseline Strategy implementation commenced successfully in 2013
- Strategy updated with revised implementation plan for 2014
- Communicable & defensible
- Provides ongoing community confidence that the organisational and technical capacity will exist to support reporting of all countries
- Core data stream (& Contributing data stream) agencies have been engaged throughout the process and subscribe
- Seeking endorsement of CEOS SIT (@ SIT-29) for the updated Strategy

Stephen Ward proposed the formal endorsement of the update to the Global Baseline Data Acquisition Strategy, and Pascale Ultré-Guérard (SIT Chair) called for comments. No issues were raised, and Pascale noted that **the 2014 update to the CEOS Global Baseline Data Acquisition Strategy for GFOI was endorsed by SIT.**

<b>SIT 29-10</b>	<b>Core data stream providers (USGS, ESA, INPE/CRESDA, CSA, CONAE) to work with SDCG to implement the global baseline data acquisition strategy for GFOI in 2014</b>	<b>End 2014</b>
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*Space Data Services Strategy for GFOI*

Stephen Ward introduced the Space Data Services Strategy for GFOI. He noted that the Global Baseline Strategy can be implemented entirely in-house by CEOS Agencies without external engagement, whereas the Space Data Services Strategy proposes services that require significant interaction with national governments.

**CEOS Space Data Services Strategy**

- Element 2: Coordinated strategies for national data acquisitions
- Designed to address the fundamental national information requirements for GFOI
- National-level complement to the Global Baseline Strategy
- Developed in consultation with 17 countries at SDCG and SilvaCarbon meetings
- Provides a **GFOI Space Data Services 'menu'** for countries to choose from in support of their national forest monitoring systems' needs

Meeting	Participating Countries
SDCG-4 (Presidenc)	Mexico, Colombia, Ecuador, Peru, Guyana, Honduras
SDCG-5 (Rwanda)	Uganda, Tanzania, Kenya, Democratic Republic of Congo
SilvaCarbon Asia (Kiang Mai)	Thailand, Vietnam, Cambodia, Laos, Philippines, Nepal, Indonesia

Table 3 - Countries Consulted to Date

**CEOS Space Data Services Menu**

- Regional GFOI Space Data Workshops (USGS/SilvaCarbon)**
  - Leveraging SilvaCarbon in Africa, South America and Asia
- Impartial National Space Data Needs Assessments (SDCG and SEO)**
  - Service to individual governments seeking to establish their MRV strategies and the role of space data therein
- National Historical Coverage Reports (SDCG and SEO)**
  - By request, assessment of what satellite data exist for a given country or region for past years to support establishment of reference levels
- Ensured On-going Coverage (SDCG and Core Data Stream providers)**
  - Tailored support to ensure on-going national baseline acquisitions (Element 1)
- Satellite Data Discovery, Assembly and Delivery (SDCG, SEO, and CDS providers)**
  - Support to core data handling and delivery
- Cloud Storage, Processing and Analysis of Satellite Data (SDCG, SEO, FAO)**
  - Collaboration with FAO and SEO on data delivery and processing infrastructure contributed by Norway

Stephen Ward reviewed the proposed menu of services, which includes six services aimed at facilitating country utilisation of, and access to satellite data in support of their national MRV systems.

**CEOS Space Data Services Milestones**

- SDCG-5, Feb 2014:** Confirmation of the Strategy with agencies and coordination with GEOGLAM in a joint session
- SIT-29:** Seeking endorsement of the Strategy
- GFOI Leads, July 2014:** Review architecture, approach, and prototypes
- May-Sept 2014:** Engagement with 2-3 countries on piloting of Space Data Services
- SDCG-6, Oct 2014:** Review status of pilot Services
- CEOS Plenary, Oct 2014:** Implementation status update, seeking feedback and confirmation of continuing mandate for SDCG

**CEOS Space Data Services Strategy for GFOI**

- National-level complement to the Global Baseline Data Acquisition Strategy (Element-1)
- Developed in consultation with countries, contributing CEOS agencies, and in-country actors like FAO and the World Bank
- Initial implementation roles and resources identified
- Implementation plan for 2014 ready for execution; plans for 2015 and 2016+ scoped
- 2014 candidate pilot countries (2-3) have been identified
- Seeking endorsement of CEOS SIT (@ SIT-29) for the Strategy**

Stephen Ward noted that the SDCG is seeking endorsement of the Space Data Services Strategy for GFOI. Pascale called for comments. No issues were raised, and Pascale noted that **the Space Data Services Strategy for GFOI was endorsed by SIT.**

SIT 29-11	SDCG to work with the SEO, contributing Agencies, and FAO to develop prototypes of the Space Data Services for GFOI and report on the outcomes of pilot projects with several countries	CEOS-28
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Stephen Briggs provided an overview of 2014 implementation activities.

**CEOS 2014 Outlook: Global Baseline**

- Continuing ramp-up towards global coverage by 2016
- Adding 19 countries, 18.5 Mkm<sup>2</sup>
- Landsat-7 and Landsat-8 will continue to be the main providers during 2014
  - Optimisation of Landsat LTAP acquisition strategy continues
- Continuing development (by NASA/USGS) of WELD global mosaics
- Launch of new data streams: Sentinel-1, ALOS-2, CBERS-4
  - Ramp-up of these missions to operational is expected to conclude in 2014 (ALOS-2) and 2015 (Sentinel-1A and CBERS-4)

**CEOS 2014 Implementation: Space Data Services**

- Development of prototypes for each of the six GFOI Space Data Services and prototyping of their value with a number of countries
- In depth engagement with 2-3 countries, focused on trialling the delivery of the Services, in the months before SDCG-6.
- "Country Day" at SDCG-6 to seek feedback on the pilot services, and detailed follow-up from SDCG-6 on pilot service delivery and optimisation
- Pilot version of a Space Data Management System (SDMS) to be developed by the SEO in collaboration with FAO and UN-REDD to prototype the relevance and effectiveness



Stephen Briggs noted that a Space Data Management System (SDMS) pilot project is planned for 2014, and is currently being executed by the CEOS SEO. This is being developed in part with FAO, and will be piloted with three countries: Ecuador, Tanzania and Uganda. He also summarised the key implementation actions for 2014.

**What are the SDMS features?**

- A dedicated cloud-based architecture to store, process and access space-based Earth observation data.
- Country-specific datasets for rapid access, processing and product development.
- Country-specific secure access to open datasets and purchased commercial datasets.
- Coverage analysis tool to analyze historical archives and identify and select relevant scenes for processing or download.
- Pre-processing tools and algorithms for advanced product development.
- Potential links to forest cover mosaics and deforestation products.
- Modular approach to allow expansion to multiple countries and the addition of new features.
- Web-based functionality that is sensitive to low bandwidth.
- Consideration of alternative delivery approaches such as local computers for countries without Internet or mobile devices.



Cloud Computing



Coverage Analyzer

**2014 Implementation - ACTIONS**

- **SIT-29 Actions:**
  - 1) Core data stream providers (USGS, ESA, INPE/CRESDA, CSA, CONAE) to work with SDCG to implement the global baseline data acquisition strategy for GFOI in 2014.
  - 2) SDCG to work with the SEO, contributing agencies, FAO/World Bank to develop prototypes of the six space data services for GFOI (including the SDMS), and perform an in-depth pilot with 2-3 countries.
  - 3) SDCG to define and develop the third Element of the CEOS Strategy for GFOI (acquisitions for R&D) for presentation and endorsement at SIT-30.

A brief discussion followed:

- Brent Smith (NOAA) noted that at the 2012 SIT Workshop in Reston, it was agreed that WGCapD and SilvaCarbon should work together in connection with capacity building activities. He also asked if there are any potential links to AfriGEOSS, and GEOSS regional initiatives in the Americas, that could be exploited. He noted that NASA, NOAA, USGS and INPE are all involved in the GEOSS Americas activities. He also noted that Mexico, represented by its space agency at the recent GEO Plenary, will be rotating into a GEO ExCom slot at the GEO Plenary next November.
- Brian Killough (SEO) noted, in relation to WGCapD training activities, that the SEO is working on securing some sample TanDEM-X data for Colombia.
- Stephen Briggs noted that GFOI is really driven by CEOS, and where resources exist to contribute, WGCapD (and other groups) should be engaged.
- Richard Moreno (WGISS, CNES) asked about links between WGISS and the SDMS, noting that as a ground segment focused system according to the responsibilities defined in the Self-study, it is surprising that WGISS has not been involved more. Brian Killough (SEO) informed SIT that there has been coordination on the SDMS activity with WGISS, particularly regarding the use of the CWIC system. It was agreed to work to improve visibility, particularly in light of the multi-agency coordination currently being established by WGISS on this theme.

<b>SIT 29-12</b>	<b>SDCG to define and develop the third Element of the CEOS Data Strategy for GFOI (acquisitions for R&amp;D) for presentation and endorsement at SIT-30</b>	<b>SIT-30</b>
<b>SIT 29-13</b>	<b>WGISS and WGCapD to liaise with SEO and SilvaCarbon respectively to review the GFOI Space Data Services plans and to provide guidance, review and support of its progress</b>	<b>CEOS-28</b>

Stephen Ward summarised the potential future activities for SDCG, noting that it is working to move GEO and CEOS closer to delivering services for national governments (as opposed to global outputs – which are of less interest to GEO Members and Ministers).






- 2013 CEOS Plenary agreed to continue operation of *ad hoc* SDCG for GFOI
- SDCG has been extremely busy with the strategy development and implementation
- Takes CEOS & GEO a step closer to delivering to individual governments
- Ongoing discussion about moving closer to GEOGLAM, but questions remain
- The overall multi-mission acquisition and interoperability strategy needs to be optimised – CEOS needs a view and a plan, reflecting available capacity

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## 15 Carbon Task Force

Stephen Ward (JAXA) presented on behalf of the Carbon Task Force (CTF) Co-Chairs, Diane Wickland (NASA) and Masakatsu Nakajima (JAXA), and noted that the CEOS Strategy for Carbon Observations from Space has been five years in the making. Endorsement of the Strategy is being sought during the Plenary session on the SIT-29 meeting agenda.

CEOS SIT-29 Meeting Toulouse, France 9-10 April 2014	CEOS Response to the GEO Carbon Strategy	CEOS SIT-29 Meeting Toulouse, France 9-10 April 2014	Purpose and Scope
	<p>CEOS established a Carbon Task Force (CTF) to coordinate the response from the space agencies to the <i>GEO Carbon Strategy</i>.</p> <ul style="list-style-type: none"> <li>• Take into account information requirements of both the UNFCCC and IPCC and consider how future satellite missions will support them</li> <li>• Also take account of, and be consistent with, the GCOS and GEO Implementation Plans.</li> <li>• Help definition of next generation missions for individual agencies (provide a long-term outlook, 2013-2028).</li> <li>• Provide a basis for systematic observation and reporting of progress towards satisfying society's carbon information needs</li> </ul>	<p>The primary purpose of this report is to <b>guide future CEOS actions, priorities, and planning</b> and provide the basis for systematic monitoring and reporting of progress toward satisfying science and society's carbon information needs and realizing GEO's Integrated Global Carbon Observing System (IGCO) -- specifically with regard to the establishment, sharing, and coordination of space-based Earth observations of carbon and related Earth system properties.</p> <p>The <i>CEOS Strategy for Carbon Observations from space</i>:</p> <ul style="list-style-type: none"> <li>• Is comprehensive, defining a strategy for space-based observations in support of global carbon measurement requirements – covering land, ocean and atmosphere as well as the interfaces among them;</li> <li>• Requires the data to be cross-calibrated and validated;</li> <li>• Provides a long-term outlook, to 15 years hence</li> <li>• Addresses the full range of societal needs and applications related to space-based carbon observations</li> <li>• Addresses the establishment of appropriate and effective institutional arrangements, within CEOS and between CEOS and other institutions, for realization of the space component of the IGCO</li> <li>• Provides a framework for monitoring, reporting and communicating progress towards implementation of the space component of IGCO.</li> </ul>	<p><b>CEOS Strategy for Carbon Observations from Space has been completed and presented for CEOS endorsement.</b></p>



A major objective of the Strategy is to help CEOS Agencies understand and formulate a long-term outlook for carbon observations over the coming years.

The Strategy has gone through several review cycles, and the most recent cycle (October 2013 – March 2014) saw constructive comments from 38 individuals. The most frequent and significant of these expressed concern about the nature and wording of the recommended actions, noting that several of the more substantive ones were well beyond the scope of what CEOS can or should do.

 <b>Main Messages</b>	 <b>Recommended Way Forward</b>
<ul style="list-style-type: none"> <li>Carbon cycling is an Earth system process, with intimate coupling among its land, oceans and inland waters, and atmosphere domains and with Earth's climate.</li> <li>Satellite observations for an Integrated Global Carbon Observing System (IGCO) must address carbon pools in all domains and the fluxes among them.</li> <li>CEOS and its agencies must promote and facilitate an end-to-end approach so that data are not just acquired, but relevant data products are produced, delivered in carbon units, and used to advance scientific understanding and meet societal needs.</li> <li>CEOS can meet these challenges by providing leadership, sharing this vision for carbon observations from space, and working to coordinate agency space missions and activities in ways that maximize the scope, coverage, quality, accessibility, and utility of satellite-derived carbon data.</li> </ul>	<ul style="list-style-type: none"> <li>CEOS and its member agencies make note of the important and wide-ranging challenges and actions identified in this report. They will work within their own capacities and with their governing bodies to identify and secure the resources that are required to implement the actions and meet the long-term challenges.</li> <li>CEOS identifies a group to be responsible for carbon-related observations within CEOS and for advancing the findings of this report. This group will take responsibility for overseeing, coordinating, and reporting on the actions identified in this report and will establish strong working relationships with relevant CEOS Virtual Constellations and Working Groups.</li> <li>CEOS works with GEO, GCOS, UNFCCC and other relevant bodies to strengthen understanding, communications, and cooperation on carbon observations for science and policy.</li> <li>CEOS recognizes the importance of periodically assessing progress and reporting on actions and will establish internal (to CEOS) procedures for these purposes and will also report to relevant external bodies, as appropriate and when requested.</li> </ul>

The report offers two types of recommendations: Challenges and CEOS Actions. Challenges are recommendations that CEOS will acknowledge as important, where CEOS Actions are specific activities for CEOS to implement, track, and report on following established procedures. The recommended actions were divided into missions, products, calibration and validation, and interactions, linkages, and communications.

Stephen noted that Diane and the CTF would like to see an integrated CEOS implementation of the Carbon Strategy, mirroring the integrated nature of the Strategy, with a single coordinating entity rather than dividing the coordination across CEOS groups. At last year's SBSTA-39, a request was made of CEOS to consider including updates to CEOS's other important carbon contributions such as the CEOS Carbon Strategy and GFOI activities in addition to CEOS reporting on GCOS implementation.

 <b>Recommendations on Implementation</b>	 <b>Next Steps toward Implementation</b>
<ul style="list-style-type: none"> <li>We have had discussions over the past two years regarding this report's contents and implementation options with other CEOS groups, primarily at consultative side meetings associated with CEOS Plenary, SIT, and SIT Technical Workshops, but have also participated in meetings of the WGCV, WG Climate, and AC VC.</li> <li>Feedback received from CEOS SIT leadership and at side meetings ~1 ½-2 years ago was that recommendations identifying responsible entities within the existing CEOS structure would be much better received than a recommendation for continuation of the CTF or a new WG focused on carbon.</li> <li>Our chief implementation recommendation, forming a Carbon Subgroup under the WG Climate, was an attempt to respond to this guidance, but has raised concerns within the WG Climate especially in light of their recent expansion in scope as the CEOS-CGMS WG Climate.</li> <li>Other options were considered and outlined in the Way Forward chapter of the report, and can be reconsidered.</li> <li>We will look to CEOS Leadership to help guide all parties to the best decision as to the responsible CEOS entity for the recommendations of this report.</li> </ul>	<ul style="list-style-type: none"> <li>In consideration of the concerns raised by the WG Climate and WGCV, we believe that the recommendation regarding which CEOS entity should be responsible for the integrated approach to implementation may need to be reconsidered.</li> <li>It appears that CEOS would benefit by devoting additional time for a short study of these institutional aspects and suggests that some type of an interim group involving representatives of relevant CEOS entities and the CTF may be an appropriate next step.</li> </ul>

Stephen noted that although there has been interaction with stakeholders, there has not been time for in-depth consultation and crafting of a mutually agreeable recommendation on CEOS implementation. The CTF recommends that CEOS would benefit by devoting additional time for a short study of these institutional aspects and suggests that some type of an interim team involving representatives of relevant CEOS entities and the CTF may be an appropriate next step.

Pascale Ultré-Guérard (SIT Chair) thanked all who contributed to the CEOS Carbon Strategy, and opened the floor for discussion.

- Alain Ratier (CEOS Chair) noted the need to clarify what endorsing the report means, in particular that we have no evidence of the feasibility of the 42 actions defined in the report. When SIT endorses the report, it should be made clear that CEOS cannot commit to implementation without an assessment of the actions.

- Klaus Schmidt (DLR) noted that SIT should welcome the report, but make clear that an immediate next step is needed before CEOS implementation can proceed. He noted that the WGCV Vice Chair (Albrecht von Bargaen, DLR) could commit to being part of the Strategy implementation study team.
- Satish Srivastava (WGCV, CSA) noted that the Strategy was presented at the last WGCV meeting, but they have not yet had an opportunity to analyse the actions.
- Mike Freilich (NASA) noted that while ‘endorse’ may not be the right word, SIT and Plenary should make it clear that the product is high quality, and the milestone of its completion should be marked. He agreed that we may need an interim study team to determine how the follow-up should be governed, but the CTF should be released from its duties – which conclude with the Report.
- Chu Ishida (JAXA) thanked the CTF Co-Chairs for their work on the Strategy. He noted that JAXA has been involved from the beginning, are very pleased with the outcome, and are ready to endorse and move on with a new implementation study team.
- Stephen Briggs (ESA) noted that the Strategy is a monumental piece of work, and therefore, CEOS should take time to respond properly. He suggested CEOS recognise the Strategy’s recommended actions, acknowledging them as recommendations, and note that CEOS will now study their implementation.
- Stephen Ward noted that many of the CEOS Response to the GCOS IP recommended actions were very ambitious, yet the Report was endorsed. Endorsement doesn’t commit CEOS to implementation, which is still done within the CEOS best efforts framework.
- Pascal Lecomte (WGClimate, ESA) noted that the two reasons why WGClimate resisted the implementation coordination role were because the CEOS-CGMS Working Group is new, and they were not comfortable with the scope of actions involved; and, because only some of the actions were within the scope of the WGClimate, which is focused on ECV coordination and the Climate Architecture. He noted that WGClimate supports the idea of creating a study team to propose a way forward on implementation.
- Espen Volden (GEO Secretariat) noted that GEO appreciates the need to consider the best approach to implementation, agreed with the suggestion that there be a single CEOS implementation body, and would be interested in hearing more about the time frame for implementation.
- Mike Freilich noted the CTF made an initial recommendation on the stewardship of the report and actions, which featured a single CEOS point of coordination, and SIT should agree on this approach and then look at the individual actions on that basis.
- Stephen Briggs agreed that the study team should be called on to establish a single CEOS point of coordination. He also suggested that CEOS should ensure links to the GEO Carbon Community of Practice, and other relevant external entities. Alain and Chu agreed with these points. Chu volunteered JAXA to take part in the study team.
- Pascale called for the creation of a Carbon Strategy implementation study team, with membership to include JAXA, NASA, ESA, CNES, and others interested. The team should draft its charter and submit to SEC-189 for comment and endorsement. The group should come to the SIT Workshop in September with a recommended approach to implementation. She stressed the need for the team to identify a lead.

- Kerry Sawyer (CEO) supported this approach, and also noted the need to coordinate ahead of CEOS’s next report to SBSTA in December 2014. She also noted that CEOS Plenary discussed the 2012 update to the CEOS Response to the GCOS IP, but never endorsed it.

SIT 29-14	CEOS Chair to prepare Draft ToRs for the <i>ad hoc</i> Carbon Strategy Implementation Study Team for approval at CEOS SEC-189	CEOS SEC-189
SIT 29-15	CEOS Principals to provide nominations for participation in the <i>ad hoc</i> Carbon Strategy Implementation Study Team	COB 18 <sup>th</sup> April

## 16 GEOGLAM

Michel Deshayes (GEOGLAM) presented an update on GEOGLAM activities and Phase 1 implementation. He summarised the use of CEOS data by both JECAM and GEOGLAM.

**GEOGLAM & CEOS Collaboration Phased Implementation Approach**

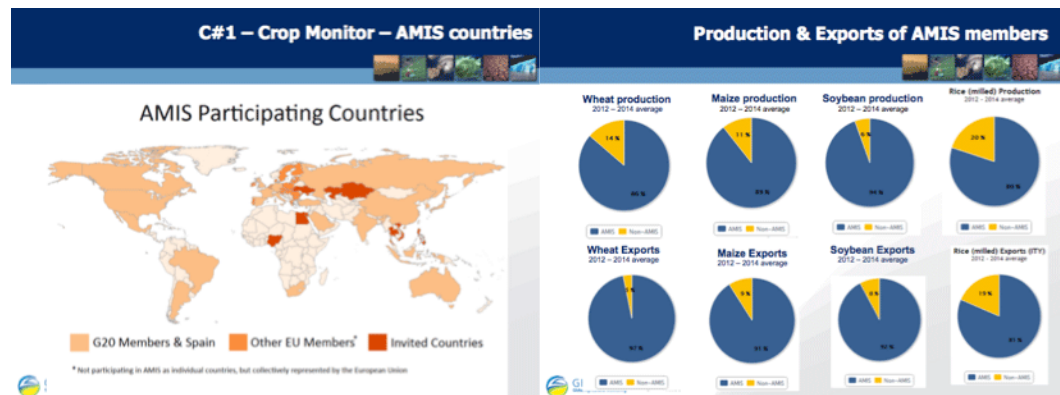
- **Phased approach** developed by GEOGLAM Ad-Hoc Team mandated Nov. 2012, refined March/June 2013
- **Subsequent, overlapping phases**
  - **Phase 1 (2012-2014):** focuses on foundation activities, building on existing activities & pilot projects for a few countries, scoping out the programme, & establishing require
  - **Phase 2 (2014-2016):** reviews and expands P1 activities with new starts
  - **Phase 3 (2015-2017):** the last building pre-operational phase with the completion of P1/ P2 projects and geographical expansion;
  - **Phase 4 (late 2017 onward):** the operational phase

Phased approach	2012	2013	2014	2015	2016	2017	2018
1 Foundation activities	█						
2 New starts		█					
3 Geographic expansion			█				
4 Operational					█		

**Present use of EO data in GEOGLAM projects**

- **EO data for Component #1 – Global Crop Monitoring**
  - **GEOGLAM Monthly Crop Monitor**
    - **Wheat, Maize, Soy**
      - Use of low resolution optical data (MODIS), together with Met data (GCOM-W, TRMM...) and with moderate resolution crop type masks
      - CEOS data used to-date: Optical Low Res, Optical Moderate Res
      - Future: sampled optical high resolution; microwave SAR
    - **Rice**
      - Rice regions: China, India, South-East Asia (90% world prod. & consumption)
      - Rice monitoring, using Agromet data (GCOM-W, TRMM...) & local experts
      - Asian collaborative network, coordinated by JAXA (S. Sobue)
      - CEOS data used to-date: Optical Low Res. (DLR); microwave SAR (just starting)
  - **Other crop monitoring activities**
    - Generally multi-source information:
      - Low (MODIS), Moderate (Landsat TM), High Resolution (RapidEye etc) optical data, Agromet data, field tours, expertise...
      - CEOS data used: Optical Low Res. (DLR), Mod Res. (OMR), High Res. (DHR)

Michel gave an overview of the support that GEOGLAM is delivering to FAO and Agricultural Market Information System (AMIS), noting that the reports to AMIS are being referenced by economists and decision makers, and cover up to 90% of the export market for the four main commodities of wheat, maize, soybean, and rice. He noted that AMIS had a clear mandate from the G-20 to provide market analysis and to work to reduce large price variations.



Michel noted several suggested next steps in building the CEOS-GEOGLAM relationship, noting that CEOS data coordination is crucial for GEOGLAM implementation.





- CEOS data coordination are crucial for GEOGLAM implementation!
  - Ad hoc Team is making good progress at forging two communities
  - So far:
    - Requirements established
    - Candidate missions to meet requirements identified
  - Next:
    - Formalize process of translating requirements into data requests
    - Data distribution system – e.g. NASA SDMS, ESRI, etc.
    - Track data - requests from GEOGLAM, coordination by CEOS, data use by GEOGLAM
- EO Data
  - HiRes or Very HiRes Optical data (Ikonos, Worldview, Quickbird, RapidEye...)
  - HiRes SAR data (CosmoSkymed, Radarsat, TerraSAR-X...)



George Dyke (CEOS *ad hoc* WG) presented a brief update on the activities of the CEOS *ad hoc* Working Group on GEOGLAM, noting that the CEOS Acquisition Strategy for GEOGLAM Phase 1 was endorsed at the 2013 CEOS Plenary, and that an update of the strategy was being planned for the 2014 CEOS Plenary. He provided a brief update on the implementation of the Strategy, and also on JECAM activities.

JECAM Status	Conclusions
<ul style="list-style-type: none"> <li>• JECAM is formally the R&amp;D component of GEOGLAM               <ul style="list-style-type: none"> <li>• 40 sites globally</li> </ul> </li> <li>• CEOS has been formally supporting JECAM since 2011</li> <li>• CEOS support is helping to grow the JECAM network               <ul style="list-style-type: none"> <li>• Success story!</li> </ul> </li> <li>• JECAM Annual Report recently released               <ul style="list-style-type: none"> <li>• Using a wide variety of CEOS agency data streams for R&amp;D and applications development</li> </ul> </li> <li>• Agencies invited to participate in the JECAM Science Meeting               <ul style="list-style-type: none"> <li>• 21<sup>st</sup>-23<sup>rd</sup> July, Ottawa, Canada (Side meetings 24<sup>th</sup>-25<sup>th</sup>)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Currently, main CEOS contribution is in support of JECAM and phase 1A of Asia Rice Crop Technical demonstration sites</li> <li>• Operationally (~2017-18), CEOS agency data streams will play a fundamental role in GEOGLAM</li> <li>• CEOS needs to:               <ul style="list-style-type: none"> <li>• Understand the role it can play as GEOGLAM progresses</li> <li>• Encourage GEO to <b>advocate</b> on behalf of its flagships</li> <li>• Evolve its strategy to <b>reflect</b> the evolution of GEOGLAM, to <b>reflect</b> lessons learned, and to be <b>commensurate</b> with GEOGLAM development, coordination, and maturity</li> </ul> </li> <li>• SIT-29 Action:               <div style="border: 1px solid orange; padding: 5px;">                 CEOS <i>ad hoc</i> Working Group on GEOGLAM to work with the GEOGLAM community to develop an update to the CEOS Acquisition Strategy for GEOGLAM for endorsement.                  Due: 28<sup>th</sup> CEOS Plenary, 29<sup>th</sup>-30<sup>th</sup> October 2014, Tromsø, Norway               </div> </li> </ul>

George raised several issues for CEOS consideration in the way forward.

1. Substance of the GEOGLAM reporting on progress towards the GEOGLAM Implementation Plan, i.e. capturing Phase 1 activities and lessons learned by GEOGLAM in a formal implementation report.
2. Realization of GEOGLAM governance, confirmation of resources, and capacity for GEOGLAM Phase 2. And whether CEOS should seek formal representation in GEOGLAM governance as a key stakeholder in the activity.
3. Coordination of resources being promoted by G-20 governments in support of agriculture, i.e. ensuring proper alignment and leverage of space agency contributions against ongoing G-20 initiatives.
4. Next update of the GEOGLAM Implementation Plan, i.e. should CEOS use the next update of the GEOGLAM IP (Expected Q4 2014 or Q1 2015) as an impetus for escalation of support.

A brief discussion followed.

- Pascale Ultré-Guérard (SIT Chair) asked that the CEOS way forward on GEOGLAM be included as a significant discussion item at the SIT Workshop in September.
- Alex Held (CSIRO) asked whether it was time for GEOGLAM and AMIS to report back to the G-20. He noted that Australia is hosting the G-20 leaders meeting in October, and




a meeting of Agriculture Ministers in June-July, and suggested that GEOGLAM and AMIS try and provide input into those meeting materials.

- Michel noted the CSIRO-initiated GEO Global Rangelands and Pasture Productivity (RAPP) initiative, and that there is a related meeting in Paris in July.
- Kerry Sawyer (CEO) noted that there will be a JECAM science meeting 21<sup>st</sup>-23<sup>rd</sup> July, in Ottawa, Canada, and CEOS Agencies are being formally invited to participate.

SIT 29-16	<b>CEOS <i>ad hoc</i> Working Group on GEOGLAM to work with the GEOGLAM community to develop an update to the CEOS Acquisition Strategy for GEOGLAM for CEOS Plenary endorsement</b>	<b>CEOS-28</b>
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## 17 WG Disasters Update


Stéphane Chalifoux (CSA) presented an update on WGDisasters activities since CEOS Plenary.



**Status - Update since 2013 Plenary**

All activities presented at 2013 Plenary progressing according to schedule (see next presentations for details):

1. Pilots: Agencies' responses to EO requirements from 3 Pilots (floods, seismic hazards, volcanoes) received and assessed; **Strategic EO Acquisition Plan developed.**
  - o Supporting activities e.g. flood monitoring and supersites on-going
- Supersites: **evaluation of new candidates completed. Selection process being improved.**
2. Recovery Observatory: **proposal consolidated**
3. 2015 WCDRR+HFA2: **several key contacts established, key strategic messages prepared, CEOS Voluntary Commitment drafted, participation (and contribution) in key preparatory meetings in 2014 carefully prepared.**



**Status - Update since 2013 Plenary**

- **"Structure of WGDisasters" prepared by ad hoc team** (CNES, CSA, DLR, ESA, JAXA, NASA, NOAA and USGS incl. CEO and SEO)
  - team members selected for their key role in disaster-related activities in 2013.
- **3 CEOS Agencies just joined WGDisasters following call from CEOS Chair: Australia, South Africa and China**

Stéphane presented the proposed new structure for the WGDisasters.



**Roles & Functions - Overview**

Title	Role held by
WG Chair	I.Petiteville (ESA) with Secretarial support (A.Eddy)
WG Vice-Chair	S.Chalifoux (CSA)
Liaison to GEO Disaster SBA	F.Lindsay (NASA), Outgoing GEO Disaster Task Coordinator
Liaison to User Communities	One or two persons. Still to be identified
"Vertical" Thematic Teams	See next slide # 18
"Horizontal" Cross-Hazard Teams	See next slide # 19
WG Experts	Several experts that do not belong to any specific team.



**Roles & Functions (cont.)**

Title	Team Members
Floods Team	S.Frye (NASA) and B. Kuligowski (NOAA) as co-Leads + Experts (CEOS and non-CEOS)
Seismic Hazards Team	P.Bally (ESA) and J.Hoffmann (DLR) as co-Leads + Experts (CEOS and non-CEOS)
Volcanoes Team	M.Poland (USGS) and S.Zoffoli (ASI) as co-Leads + Experts (CEOS and non-CEOS)

**"Vertical" Thematic Teams**

**CEOS Roles & Functions (cont')**

Title	Function	Team Members
<b>Recovery Observatory Oversight Team</b>	Define and implement the concept of Recovery Observatory (RO). <i>Note: no automatic engagement from Agencies involved, to provide data when 1<sup>st</sup> RO will be triggered.</i>	S.Hosford (CNES) as Lead + Experts (CEOS and non-CEOS)
<b>WTT Team – (2015 WCDRR – HFA2 Team)</b>	Define and implement the strategy to optimize the participation of CEOS in 2015 WCDRR (Japan, March 2015) and to position satellite EO in HFA2	C.Ishida (JAXA) as Chair + Experts (CEOS and non-CEOS)
<b>Data Coordination Team</b>	Coordinate the response of space agencies to requirements from Thematic Teams and RO Team. Includes the responsibilities of former Supersite Coordination Team)	Chair ( <i>not identified yet</i> ) + 1 Representative per Space Agency ( <i>see slide 21</i> )

**"Horizontal" Cross-Hazard Teams**

**CEOS Proposed WG Internal Organisation: Teams & Functions**

Stéphane reviewed several open items that WGDIsasters are considering.

- 1) Data Coordination Team and Supersites Coordination Team are merged. New Chair sought. (Jörn Hoffmann (DLR) cannot lead the team.)
- 2) Liaison to GEO Disaster SBA. New Liaison sought. (Frank Lindsay (NASA) is ending his term as Liaison.)
- 3) Liaison to User Communities: WGDIsasters plans outreach to disaster stakeholders (one or two non-CEOS persons to be identified).

Stéphane noted that the Plenary session will be asked to endorse the structure proposed for WGDIsasters.

## 18 WG Disasters Acquisition Planning and Coordination

### Recovery Observatory

Steven Hosford (SIT Chair Team) reviewed the proposal for the Recovery Observatory.

**CEOS Recovery Observatory – the idea**

**CEOS Recovery Observatory – the proposal**

**Recovery Observatory Implementation:**

- Oversight Team (CNES, ESA, JAXA, NASA, ASI) created summer 2013
- Proposes **ONE** Observatory as part of Observation Strategy 2014-2016
- Builds on success of Charter, Sentinel-Asia and KalHaiti project
- Detailed analysis completed
- Next steps:
  - Preparation (conditions for triggering, infrastructure establishment, liaison with DRR stakeholders, generic planning) – begins now!
  - Cold storage
  - Triggering
  - Operations (3-5 years)
  - Closing
- Recovery Observatory ready for triggering by 28<sup>th</sup> Plenary (November 2014)
- Preparation Phase completed April 2015

Steven provided an overview of the Recovery Observatory data requirements in comparison to other activities, noting that they are limited for a number of reasons: the area of interest will be relatively small in comparison to other activities; data during the “response” phase should be provided through the International Charter; and because data for recovery is limited to monitoring at regular intervals (weeks or months initially, then quarterly).

He reviewed the proposed phasing, and presented the Recovery Observatory decision for endorsement by SIT.

CEOS SIT-29 Meeting CNES, Toulouse, France 9 <sup>th</sup> -10 <sup>th</sup> April 2014	Recovery Observatory – Preparation Phase	CEOS SIT-29 Meeting CNES, Toulouse, France 9 <sup>th</sup> -10 <sup>th</sup> April 2014	Decision
	<p><b>Preparation Phase 1 (now til November 2014):</b></p> <ul style="list-style-type: none"> <li>• WGISS begins consultations on IT infrastructure, canvasses potential contributions; architecture defined. Basic IT architecture put in place.</li> <li>• Recovery Observatory Oversight Team to initiate dialogue with international DRM stakeholders. Synergy with 2015 WCDRR activities for the selection of the stakeholders.</li> <li>• Initial RO activation plan to be in place by November 2014</li> </ul> <p><b>Preparation Phase 2 (November 2014 – Mid 2015):</b></p> <ul style="list-style-type: none"> <li>• Long-term IT architecture established; transfer to new architecture of RO already triggered. Otherwise, beginning of cold storage.</li> <li>• Data licensing discussions</li> </ul>		<p><b>CEOS SIT is asked to endorse the set up of ONE CEOS Recovery Observatory. The following steps will be undertaken:</b></p> <ul style="list-style-type: none"> <li>• Initiate the Preparation Phase which will work out key implementation issues (triggering, infrastructure, partnerships, ...)</li> <li>• Enable a triggering of the Observatory from November 2014 Plenary, if a major disaster occurs and CEOS decides to trigger Recovery Observatory.</li> </ul> <p><b>Note that:</b></p> <ul style="list-style-type: none"> <li>• <b>After presentation at last 2013 Plenary, a SIT endorsement constitutes approval in principle for ONE CEOS RO in the 2014-2016 period (running for 3 to 5 years).</b></li> <li>• "In principle" contributions of data sets from agencies for the Recovery Observatory will be sought during the preparation phase and will only be confirmed at triggering (a quick decision will be required)</li> </ul>

Pascale Ultré-Guérard (SIT Chair) asked for comments on the Recovery Observatory decision. With none received, it was noted that the Recovery Observatory proposal was endorsed by SIT.

*New Supersites and Selection Process*

Klaus Schmidt (DLR) presented a summary of the proposed Geohazard Supersites and Natural Laboratories selection process, and reviewed the three new sites being proposed for endorsement by SIT.

CEOS SIT-29 Meeting CNES, Toulouse, France 9 <sup>th</sup> -10 <sup>th</sup> April 2014	Background	CEOS SIT-29 Meeting CNES, Toulouse, France 9 <sup>th</sup> -10 <sup>th</sup> April 2014	For decision today
	<p><b>The GEO Geohazards Supersites Initiative</b></p> <ul style="list-style-type: none"> <li>• <i>Aims at enriching our knowledge about geohazards by empowering the global scientific community through collaboration of space and in-situ data providers and cross-domain sharing of data and knowledge</i></li> <li>• <i>Primarily through providing easy and free-of-charge access to comprehensive satellite and ground-based geophysical data sets derived from different sources and different disciplines</i></li> </ul>		<ol style="list-style-type: none"> <li>1. <b>Accept</b> Marmara Sea / North Anatolian Fault Zone as Permanent Supersite and commit data resources</li> <li>2. <b>Accept</b> Mt. Etna volcano as Permanent Supersite and commit data resources</li> <li>3. <b>Accept</b> Mt. Vesuvius / Campi Flegreii as Permanent Supersite and commit data resources</li> <li>4. CEOS Principals to <b>accept</b> proposal to streamline CEOS acceptance procedure</li> </ol>

Klaus presented the motivation, and suggested changes to the Geohazard Supersites and Natural Laboratories selection process.

CEOS SIT-29 Meeting CNES, Toulouse, France 9 <sup>th</sup> -10 <sup>th</sup> April 2014	Permanent Supersite selection	CEOS SIT-29 Meeting CNES, Toulouse, France 9 <sup>th</sup> -10 <sup>th</sup> April 2014	Proposed modifications: Summary
	<p><b>Proposed changes to process for Permanent Supersites</b></p> <ul style="list-style-type: none"> <li>• <b>Supersite Nomination</b> (scientist / teams of scientists) <ul style="list-style-type: none"> <li>• using standard proposal based on existing Agency standards</li> </ul> </li> <li>• <b>Recommendation by Scientific Advisory Committee (SAC)</b></li> <li>• <b>Recommendation by CEOS Supersites Coordination Team (SCT)</b> <ul style="list-style-type: none"> <li>• includes details on data contributions planned</li> <li>• <b>Acquisition and provision of data may start in anticipation of formal approval with volunteer Space Agencies.</b></li> </ul> </li> <li>• <b>Approval by CEOS SIT and/or Plenary (whichever comes next)</b></li> <li>• <b>Confirmation of SIT approval by Plenary (if applicable)</b> <ul style="list-style-type: none"> <li>• → e.g. as part of a WG-D report.</li> </ul> </li> <li>• SAC confirms successful setup</li> </ul> <p><b>Regular review</b></p> <ul style="list-style-type: none"> <li>• Are Supersites actively exploited? Are they the right ones?</li> <li>• Every 2 years</li> </ul>		<ul style="list-style-type: none"> <li>• Permanent Supersites or NL may be accepted by SIT or Plenary</li> <li>• Data contributions may be made immediately following positive recommendation by SCT</li> <li>• <b>No change proposed for Event Supersites</b></li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• <b>WG Disasters proposes to transfer all SCT responsibility to Data Coordination Team.</b></li> </ul>

Klaus noted that the three Supersites, and separately the new selection procedure, are being presented for SIT-29 endorsement.

**Pascale asked for comments on the three Supersites, and with no comments raised noted the three proposed sites were endorsed by SIT-29.**

Pascale asked for comments on the new Supersites selection procedure.

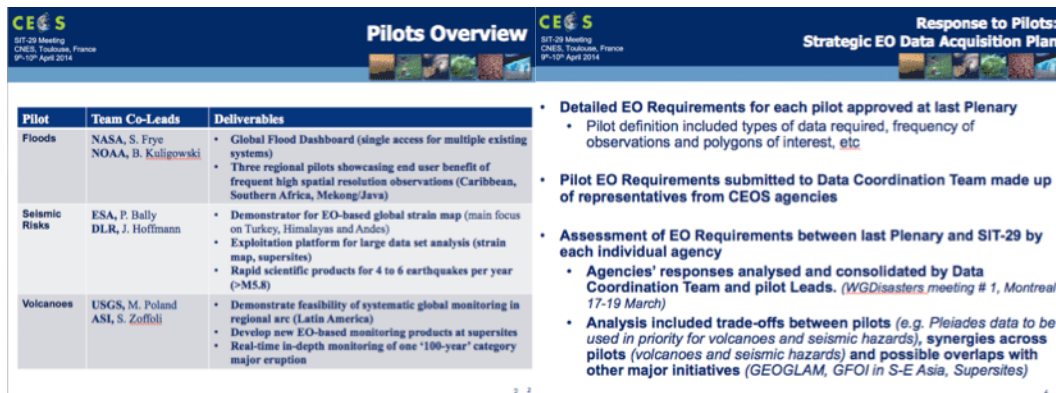
- Mike Freilich (NASA) suggested that a review period of every two years may be too frequent, and suggested a four-year review period. Klaus noted that the two-year review was proposed by the teams, and Steven noted that the two years aligned with the diverse agency’s procedures for science data access.
- Chu Ishida (JAXA) noted that for new site proposals, agency commitments would have to be discussed on a site-by-site basis, and coordinated with the point of contact for each site.

**Pascale asked for additional comments on the Supersites selection procedure, and with no additional comments raised noted that the proposed procedure was endorsed by SIT.**

<b>SIT 29-17</b>	<b>WGDisasters to proceed with the three new supersites and relevant CEOS Agencies encouraged to support data supply</b>	<b>Ongoing</b>
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*Support to DRM Pilots*

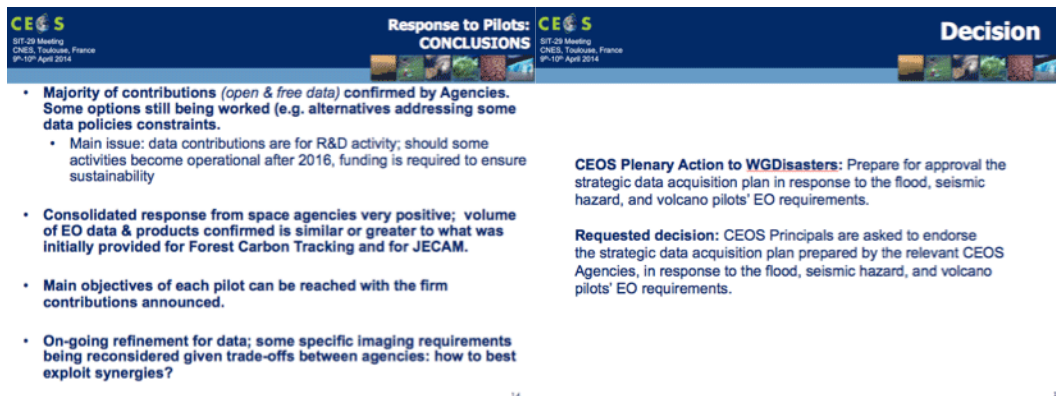
Andrew Eddy (ESA) presented a summary of the agencies’ response to three Disaster Risk Management (DRM) pilot EO data requirements.



Pilot	Team Co-Leads	Deliverables
Floods	NASA, S. Frye NOAA, B. Kuligowski	<ul style="list-style-type: none"> <li>• Global Flood Dashboard (single access for multiple existing systems)</li> <li>• Three regional pilots showcasing end user benefit of frequent high spatial resolution observations (Caribbean, Southern Africa, Mekong/Java)</li> </ul>
Seismic Risks	ESA, P. Bally DLR, J. Hoffmann	<ul style="list-style-type: none"> <li>• Demonstrator for EO-based global strain map (main focus on Turkey, Himalayas and Andes)</li> <li>• Exploitation platform for large data set analysis (strain map, supersites)</li> <li>• Rapid scientific products for 4 to 6 earthquakes per year (&gt;M5.8)</li> </ul>
Volcanoes	USGS, M. Poland ASI, S. Zoffli	<ul style="list-style-type: none"> <li>• Demonstrate feasibility of systematic global monitoring in regional arc (Latin America)</li> <li>• Develop new EO-based monitoring products at supersites</li> <li>• Real-time in-depth monitoring of one ‘100-year’ category major eruption</li> </ul>

- Detailed EO Requirements for each pilot approved at last Plenary
  - Pilot definition included types of data required, frequency of observations and polygons of interest, etc
- Pilot EO Requirements submitted to Data Coordination Team made up of representatives from CEOS agencies
- Assessment of EO Requirements between last Plenary and SIT-29 by each individual agency
  - Agencies’ responses analysed and consolidated by Data Coordination Team and pilot Leads. (WGDisasters meeting # 1, Montreal 17-19 March)
  - Analysis included trade-offs between pilots (e.g. Pleiades data to be used in priority for volcanoes and seismic hazards), synergies across pilots (volcanoes and seismic hazards) and possible overlaps with other major initiatives (GEOGLAM, GFOI in S-E Asia, Supersites)

Andrew outlined the Agencies’ responses to the pilots, and the decision being sought from SIT.



- Majority of contributions (open & free data) confirmed by Agencies. Some options still being worked (e.g. alternatives addressing some data policies constraints).
  - Main issue: data contributions are for R&D activity; should some activities become operational after 2016, funding is required to ensure sustainability
- Consolidated response from space agencies very positive; volume of EO data & products confirmed is similar or greater to what was initially provided for Forest Carbon Tracking and for JECAM.
- Main objectives of each pilot can be reached with the firm contributions announced.
- On-going refinement for data; some specific imaging requirements being reconsidered given trade-offs between agencies: how to best exploit synergies?

**CEOS Plenary Action to WGDisasters:** Prepare for approval the strategic data acquisition plan in response to the flood, seismic hazard, and volcano pilots’ EO requirements.

**Requested decision:** CEOS Principals are asked to endorse the strategic data acquisition plan prepared by the relevant CEOS Agencies, in response to the flood, seismic hazard, and volcano pilots’ EO requirements.



Pascale asked for comments on support to the three DRM pilots, and with no comments raised, noted support was endorsed by SIT.

<b>SIT 29-18</b>	<b>WGDisasters to implement the strategic data acquisition plan in support of the flood, seismic hazard, and volcano DRM pilot and Recovery Observatory requirements</b>	<b>Ongoing</b>
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## 19 CEOS Plan for Participation in the World Conference on Disaster Risk Reduction


Chu Ishida (JAXA) noted that the 27<sup>th</sup> CEOS Plenary in Montreal endorsed the proposed 2015 World Conference on Disaster Risk Reduction (WCDRR) Task Team (WTT), tasking them to define and implement CEOS participation in WCDRR and contribution to the Hyogo Framework for Action 2015-2025 (HFA2). In response to Plenary action 27-10, JAXA is to propose a way forward for the 2015 WCDRR.





Chu summarised the main CEOS strategic messages for WCDRR and HFA2, and summarised the next steps for the WTT.





The approach to a CEOS Plan for Participation in the World Conference on Disaster Risk Reduction was agreed.

A brief discussion followed.

- Mike Freilich (NASA) asked whether a lack of CEOS support to all the regional DRR meetings might threaten the viability of overall CEOS support. Chu noted that missing some of the workshops would reduce CEOS influence, so ideally, they would all be covered by CEOS – but there are many meetings.



SIT 29-19	WCDRR Task Team to implement the CEOS plan for engagement in WCDRR. CEOS Agencies to comment on the two supporting documents (Strategic Messages and Voluntary Commitments)	March 2015 Comments on documents by end April 2014
SIT 29-20	CEOS Agencies to interact with their relevant government participants in WCDRR to ensure representation of the CEOS key messages at the regional platforms and Preparatory Committee meetings	Through to March 2015

## 20 CEOS Plenary Session

Pascale Ultré-Guérard (SIT Chair) handed the chairing of the meeting to Alain Ratier (CEOS Chair), who introduced the five items for discussion and endorsement during the Plenary.

### *CEOS 2014-2016 Work Plan*

- Kerry Sawyer (CEO) reviewed the current status of the 2014-2016 Work Plan, and noted that the draft Work Plan was at about an 85% level of completeness prior to SIT-29, and still requires editorial review and concurrence on content and level of detail before a final version can be released. **She noted that it is expected to take about six weeks to finalise the plan, and that it will be endorsed virtually per existing CEOS procedures.**

### *CEOS New Initiatives Process Paper*

- Kerry noted that the revision proposed to Annex 1 has been implemented, and the Process Paper was ready for endorsement.
- **The revised paper was endorsed.**

### *CEOS Working Group Process Paper*

- Kerry noted that some of the wording under Governance and Priorities has been revised based on feedback received.
- Alain stressed the need to ensure that the process minimised and managed overlap between any new Working Group proposed, and existing CEOS activities. He also stressed the importance of Working Groups and New Initiatives ensuring consistency with the current CEOS Three- Year Work Plan.
- **It was agreed that any final (minor) wording changes to the proposed edited text in the Working Group Process Paper would be coordinated immediately following the close of SIT-29. The document was endorsed on this understanding.**

### *Carbon Task Force Report*

- Alain noted the draft actions SIT 29-14 and SIT 29-15, calling for the formation of an *ad hoc* implementation study team to bring a recommendation to the SIT Technical Workshop on the implementation of the CEOS Carbon Strategy.
- Alain emphasised the magnitude of the implementation task, which exceeds that of CEOS-CGMS WGClimate. As indicated by the Vice-Chair of WGClimate, it could be that some actions that are tightly correlated with ECV availability might fall within the remit of the team, but WGClimate does not wish to take an overall coordination role.

- Alain noted the desire that there be coordinated oversight of the implementation, and that this should be reflected in the Terms of Reference of the study team.
- Kerry volunteered for the study team.
- Mike Freilich (NASA) stressed the importance of laying out the near-term schedule for the study group, and that the terms of reference and membership of the team should be clear no later than SEC-189.
- Klaus Schmidt (DLR) noted that the WGCV Vice Chair would like to join the study team, and Pascal Lecomte (WGClimate, ESA) noted that WGClimate will provide a member.
- Chu Ishida (JAXA), Stephen Briggs (ESA), Tom Cecere (USGS), and Mike noted that they would be happy to provide a member for the study team.
- Alain noted that CEOS welcomes the high quality work of the Carbon Task Force, and their product – the CEOS Strategy for Carbon Observations from Space. Alain suggested that CEOS should endorse the Strategy, understanding that we take the report actions as recommendations with implementation to be evaluated by the study team.

**Plenary endorsed the CEOS Strategy for Carbon Observations from Space.** It was emphasised that the "actions" contained in the report should be interpreted as recommendations. A study of their implementation feasibility, including an assessment of compatibility with CEOS resource availability and oversight arrangements, will be carried out by an *ad hoc* Carbon Strategy Implementation Study Team (SIT actions 29-14 and 29-15).

#### *WG Disasters Structure*

- Alain asked for further comments on the proposed structure of the new WGDisasters. **As none were raised, the structure was endorsed.**

#### *Taiwan*

- Chu Ishida noted that JAXA have received an inquiry from NARL with regard to their possible participation in CEOS Plenary and Working Group meetings last October. At that time, he informed CEOS SEC, and SEC discussed the issue in November.
- Chu shared his draft informal response to NARL. Alain noted he was OK with this reply, and suggested that we do not encourage NARL to submit a formal application for CEOS membership. This was agreed, and Chu will coordinate the final wording of his message with Alain/CEOS Chair.
- Brent Smith (NOAA) asked about the approach CGMS took to NARL, and Alain noted that the situation and the outcome were exactly the same.

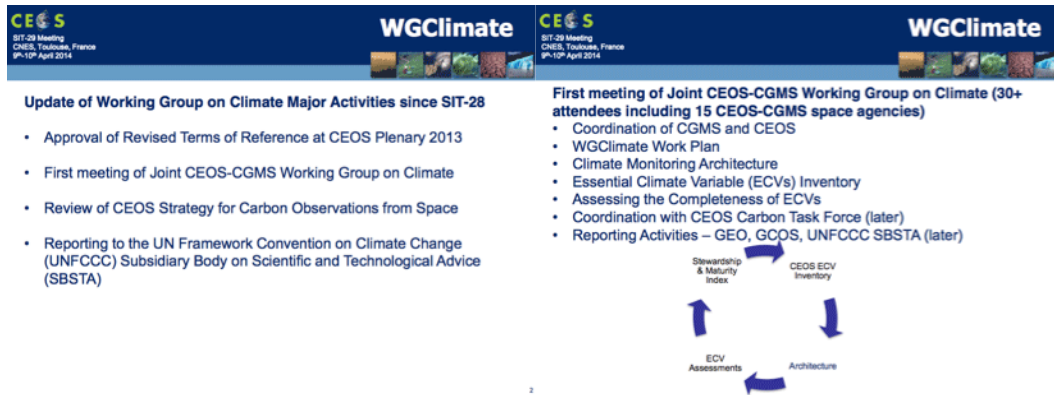
#### *CEO and DCEO*

- Alain noted that there is currently no Deputy CEOS Executive Officer (CEO), and that the SIT Chair and CEOS Chair are taking steps to try and identify a volunteer.
- He noted that the current approach is to decouple the identification of an individual from the funding, and that a formal letter proposing a co-funding arrangement between Asia and Europe is being considered.

- He noted the importance of the CEO and DCEO to both the SIT and CEOS Chairs, and that the intention would be to have the DCEO assume the CEO role at the end of Kerry's term.

## 21 CEOS-CGMS WGClimate Report

Pascal Lecomte (WGClimate, ESA) presented a summary of the WGClimate activities since SIT-28.



**Update of Working Group on Climate Major Activities since SIT-28**

- Approval of Revised Terms of Reference at CEOS Plenary 2013
- First meeting of Joint CEOS-CGMS Working Group on Climate
- Review of CEOS Strategy for Carbon Observations from Space
- Reporting to the UN Framework Convention on Climate Change (UNFCCC) Subsidiary Body on Scientific and Technological Advice (SBSTA)

**First meeting of Joint CEOS-CGMS Working Group on Climate (30+ attendees including 15 CEOS-CGMS space agencies)**

- Coordination of CGMS and CEOS
- WGClimate Work Plan
- Climate Monitoring Architecture
- Essential Climate Variable (ECVs) Inventory
- Assessing the Completeness of ECVs
- Coordination with CEOS Carbon Task Force (later)
- Reporting Activities – GEO, GCOS, UNFCCC SBSTA (later)

Stewardship & Maturity Index → CEOS ECV Inventory → Architecture → ECV Assessments → Stewardship & Maturity Index

Pascal reviewed the Climate Monitoring, Research, and Services (CMRS) tasks in the CEOS 2014-2016 Work Plan.

- **CMRS-1:** ECV inventory (first version) – Tools needed are available.
- **CMRS-2:** Gap analysis (first version) – Identify several target ECVs and conduct analysis.
- **CMRS-3:** Action plan (first version) – Identify actions Space Agencies can take to mitigate any gaps.
- **CMRS-8:** Update of ECV inventory, gap analysis and action plan (version 2) – The above sequence forms the basis for an ongoing analysis cycle, in agreement with the new GCOS plans.
- **CMRS-4:** Case studies linking CDRs to societal applications and informed policy decisions – Identify examples from current work and map it to the Climate Monitoring Architecture.
- **CMRS-5:** Contributions to the Global Framework for Climate Services (GFCS) – Work to identify existing examples of Climate Services that can be applied or adapted to the GFCS focus areas.
- **CMRS-6:** Report to UNFCCC Subsidiary Body for Scientific and Technological Advice-Research and Systematic Observation (SBSTA- RSO) – Details in a later item.
- **CMRS-7:** Incorporation of *in situ* data holdings within the ECV inventory – reuse original ECV questionnaire framework. Data base analysis and follow up will not be done by CEOS.

Pascal reviewed the status of the Climate Monitoring Architecture and the ECV Inventory.

**WGClimate**

**Climate Monitoring Architecture**

- The WGClimate 'Strategy Towards...' report primarily focused on the first 2 pillars of the Climate Monitoring Architecture and its logical, or generic, view.
- WGClimate will be focusing on identifying case studies and working with the GFCS to focus on the applications and decision-making pillars.
- A third phase will then identify several example physical architectures that incorporate the end-to-end climate information value chain

**WGClimate**

**Essential Climate Variable (ECVs) Inventory**

- At the WGClimate meeting, members met in breakout groups to use the current inventory and to provide feedback on what tools would be required to complete an assessment of ECVs, gap analysis and recommendations. The following are observations and recommendations on the ECV inventory:
  - Obtaining complete information for the inventory is challenging as it requires input from missions, scientific investigators, and archives
  - Detailed QA/QC of the inventory will be ongoing and iterative. An ongoing user feedback function will need to be supported
  - WGClimate leadership will follow up with ECV developers to ensure their roles and responsibilities are clear and that WGISS is also involved
  - The ECV questionnaire should remain continuously open for input. The questionnaire should be opened for input beyond CEOS and CGMS agencies to ensure a broad capture of all ECVs
- A demonstration of ECV tools is available for CEOS members

A brief discussion followed.

- Stephen Briggs (ESA) noted that it is usually the CEOS Chair that reports to SBSTA, via their country representative, and Brent Smith (NOAA) agreed that this is the usual approach.
- Alain Ratier (CEOS Chair) noted that the COP-20 meeting will take place 1<sup>st</sup>-12<sup>th</sup> December in Lima, Peru, and the SBSTA will begin on December 14<sup>th</sup>. CEOS participation in both these meetings needs to be coordinated by the CEOS Chair.

<b>SIT 29-21</b>	<b>CEOS Chair and Incoming Chair, supported by WGClimate and other stakeholders, to prepare the CEOS representation and report for SBSTA-41 in late 2014. The report will be confirmed at CEOS Plenary</b>	<b>CEOS-28</b>
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*GCOS*

Stephen Briggs provided a brief report on GCOS, noting that the road map for 2014 – 2016 has recently been agreed.



A brief discussion followed.

- Alain noted that the Climate Symposium 2014 is planned for 13<sup>th</sup>-17<sup>th</sup> October at EUMETSAT, Darmstadt. He noted that abstracts are due next week (extended by a week), and additional information can be found at <http://www.theclimatesymposium2014.com>
- Pascale Ultré-Guérard (SIT Chair) noted that COP-21 will be held in Paris in 2015, and that this is shaping up to be the most significant milestone since the Kyoto COP meeting.

- Pascale noted that the CNES Director is very interested in showing the value of satellite data in climate, and Stephen noted that this is an opportunity that should be followed-up.
- Richard Eckman (AC-VC, NASA) noted that several case studies showing the value of satellite data in support of climate decision support have been published, and should be referenced.

<b>SIT 29-22</b>	<b>SIT and CEOS Chairs to work with stakeholders to develop a strategy to prepare for COP-21 in late 2015 in Paris</b>	<b>Report to CEOS-28</b>
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## 22 SIT-29 Closing Business

Stephen Ward (SIT Chair Team) reviewed the actions agreed during SIT-29.

Pascale Ultré-Guérard (SIT Chair) and Alain Ratier (CEOS Chair) noted that SIT-29 is Mary Kicza's final CEOS meeting, and extended a special thanks to her for all of her contributions to CEOS over the years.

Pascale thanked the CNES SIT Chair Team members who organised SIT-29, and also the CEOS SEO for providing meeting support.

The SIT Workshop will take place 16<sup>th</sup>-18<sup>th</sup> September in Montpellier, France, with additional details to follow.

Pascale then closed SIT-29.



**SIT-29 Participants**

Organisation	Participant	Organisation	Participant
ASI	Stefano Bruzzi	GEO Secretariat	Espen Volden
CNES	Pascale Ultré-Guéraud	GEO Secretariat	Michel Deshayes
CNES	Jean-Louis Fellous	Geoscience Australia	Jonathon Ross
CNES	Steven Hosford	INPE	Leila Fonseca
CNES	Richard Moreno	INPE	Hilcéa Ferreira
CNES	Juliette Lambin	INPE	Júlio D'alge (GTM)
CNES	Mireille Paulin	INPE	Márcia Alvarenga (GTM)
CNES	Danielle Barrere	JAXA	Chu Ishida
CNES	Selma Cherchali	JAXA	Kazuo Umezawa
CNES	Hélène de Boissezon	JAXA	Riko Oki
CNES	Gérard Dedieu	JAXA	Yukio Haruyama
CNES	Jérôme Gasperi	JAXA	Azusa Fukuki
CNES	Patrice Henry	NASA	Mike Freilich
CNES	Denis Jouglet	NASA	Christine Bognar
CNES	Thierry Levoir	NASA	Richard Eckman
CNES	Anne Lifermann	NASA	Frank Lindsay
CNES	Olivier Marsal	NASA	Shelley Stover
CNES	Frédérique Meunier	NASA	Justin Tilman
CNES	Aimé Meygret	NASA	Yonsook Enloe
CNES	Cécile Vignolles	NASA	Andrew Mitchell
CNES/JAXA	Stephen Ward	NASA/SEO	Brian Killough
CNES	George Dyke	NASA/SEO	Kim Keith
CSA	Marie-Josée Bourassa	NOAA	Mary Kicza
CSA	Satish Srivastava	NOAA	Brent Smith
CSA	Stéphane Chalifoux	NOAA	Marvin LeBlanc
CSIRO	Alex Held	NOAA/CEO	Kerry Sawyer
DLR	Klaus Schmidt	NOAA	Ken Casey (GTM)
EC	Astrid-Christina Koch	NSC	Einar-Arne Herland
ESA	Stephen Briggs	NSC	Ake Rosenqvist (GTM)
ESA	Pascal Lecomte	SANSA	Jane Olwoch
ESA	Andrew Eddy	US Consulate Toulouse	Rachel Schneller
ESA	Craig Donlon (GTM)	USGS	Tom Cecere
ESA	Ivan Petiteville (GTM)	USGS	Steven Labahn
EUMETSAT	Alain Ratier		
EUMETSAT	Paul Counet		
EUMETSAT	Robert Husband		
EUMETSAT	Mark Churchyard		

(GTM) indicates remote participation via GoToMeeting.

**CEOS SIT & Plenary Action Status as of SIT-29**
**SIT-28 Action Items**

No.	Action	Due date
SIT 28-7	SDCG to develop Element 2 of the CEOS Data Strategy for GFOI and to work drafts with relevant data stream providers to support future endorsement by SIT for implementation	SIT-29 COMPLETE Will be presented for endorsement at SIT-29

**27<sup>th</sup> CEOS Plenary Action Items**

No.	Action	Actionee	Due Date
27-4	Prepare a process paper(s), with the support of a writing team, for: (a) CEOS Working Groups; and, (b) for guidance on proposals for new CEOS initiatives. (Interest expressed by Mark Dowell, Marie-Josée Bourssa, Ivan Petiteville, Brian Killough, and Steven Hosford.)	CEO, in consultation with CEOS SEC	SIT-29 Agenda item 7.
27-5	Develop and present a recommendation for a CEOS document configuration management system.	SEO, in consultation with CEOS SEC and CEO	SIT-29 Agenda item 13.
27-9	Develop the full Recovery Observatory proposal for approval.	WGDisasters	SIT-29 COMPLETE Agenda item 18.
27-10	Propose a way forward for the 2015 World Conference on Disaster Risk Reduction (WCDRR).	JAXA	SIT-29 COMPLETE Agenda item 19.
27-11	Prepare for approval the strategic data acquisition plan in response to the floods, seismic risk, and volcanoes pilots' EO requirements.	WGDisasters	SIT-29 COMPLETE Agenda item 18.
27-12	Prepare the structure of the new CEOS Working Group on Disasters (WGDisasters), encompassing the current work on Supersites coordination, Disaster Risk Management (three pilots, acquisition strategy), the Recovery Observatory proposal, the Disasters SBA, and other CEOS disasters-related activities.	WGDisasters	SIT-29 COMPLETE Agenda item 17.

No.	Action	Actionee	Due Date
27-14	Ensure a focused, comprehensive preparation of the discussion on implementation of the CEOS Carbon Strategy at SIT-29.	CEOS SEC	SIT-29 COMPLETE. Agenda item 15.
27-15	<p>To develop a list of implementation options for the CEOS Carbon Strategy, including a recommended option.</p> <p><i>Status Summary: Although there has been interaction with stakeholders, there has not been time for in-depth consultation and crafting of a mutually agreeable recommendation. CTF recommends that CEOS would benefit by devoting additional time for a short study of these institutional aspects and suggests that some type of an interim group involving representatives of relevant CEOS entities and the CTF may be an appropriate next step.</i></p>	Carbon Task Force, in consultation with WGClimate, and other stakeholders	SIT-29 Agenda item 15.
27-16	Prepare: (a) the Global Baseline Strategy (Element 1) 2013 implementation results summary; (b) Global Baseline Strategy Implementation Plan for 2014; and, (c) the GFOI Space Data Services (Element 2) Strategy and Implementation Plan for endorsement by SIT-29.	Ad hoc SDCG for GFOI	SIT-29 COMPLETE Agenda item 14.
27-17	Coordinate implementation of the CEOS Acquisition Strategy for GEOGLAM Phase 1, provide a progress report on implementation, and recommended a way forward.	Ad hoc Working Group on GEOGLAM	SIT-29 Agenda item 15.
27-18	Make a recommendation on the optimal process within CEOS for approval of new Supersites.	WGDisasters	SIT-29 COMPLETE Agenda item 18.