

CEOS Introduction

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WGCV-37 Meeting
Frascati, Italy (ESRIN)
20 February 2014





- **Mission, Objectives, and Organization**
- **2013 CEOS Plenary Outcomes and 2014 Priorities**
- **Overview of New CEOS Strategic Documents**
- **Draft CEOS 2014-2016 Work Plan and WGCV – Review/Discussion**



CEOS Committee on Earth Observation Satellites



MISSION, OBJECTIVES, AND ORGANIZATION

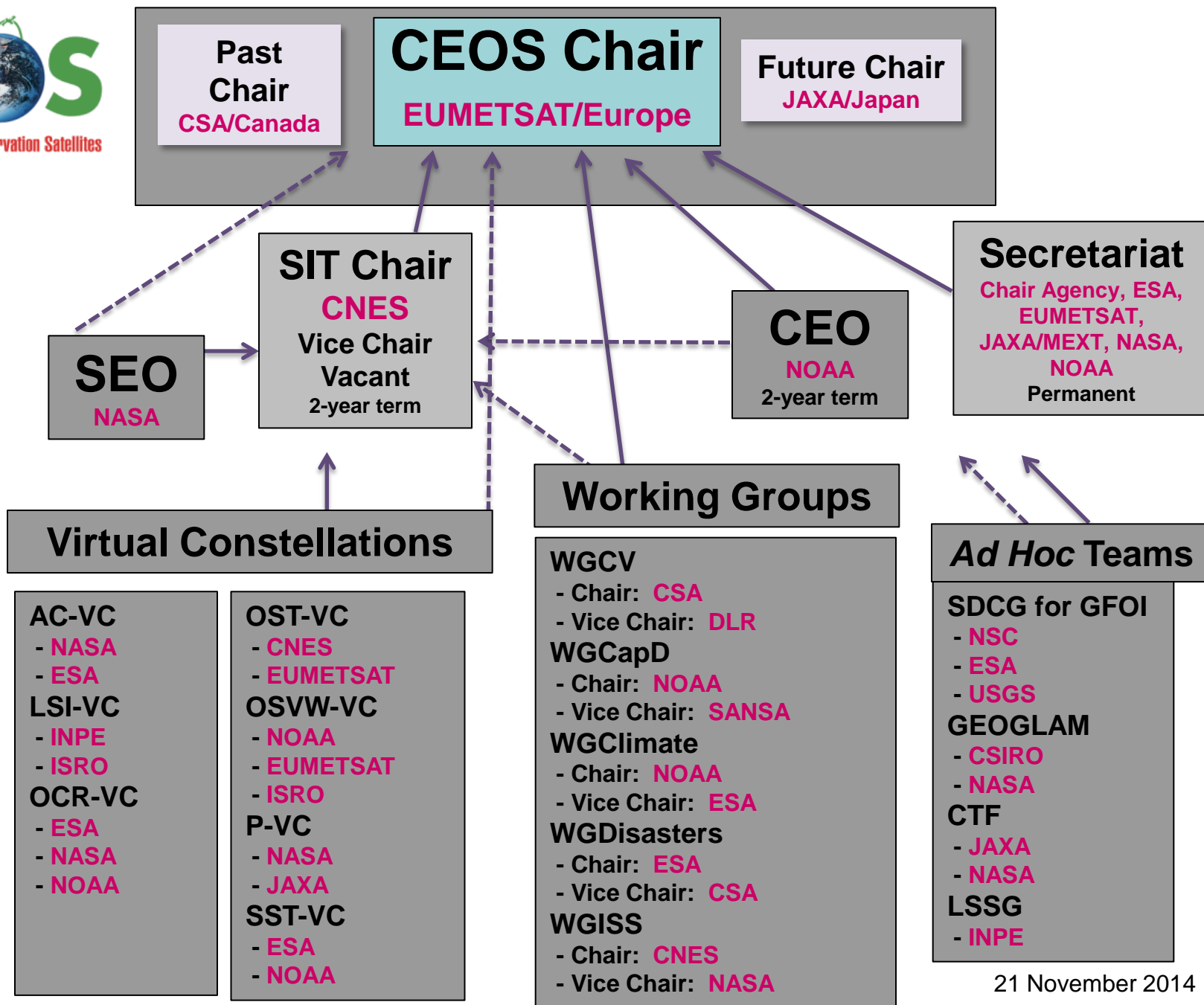
CEOS Mission and Objectives

Mission

CEOS ensures international coordination of civil space-based Earth observation programs and promotes exchange of data to optimize societal benefit and inform decision making for securing a prosperous and sustainable future for humankind.

Three Primary Objectives

1. To optimize the benefits of space-based Earth observation through cooperation of CEOS Agencies in mission planning and in the development of compatible data products, formats, services, applications and policies.
2. To aid both CEOS Agencies and the international community by, among other things, serving as the focal point for international coordination of space-based Earth observation activities, including the Group on Earth Observations and entities related to global change.
3. To exchange policy and technical information to encourage complementarity and compatibility among space-based Earth observation systems currently in service or development, and the data received from them, as well as address issues of common interest across the spectrum of Earth observation satellite missions.





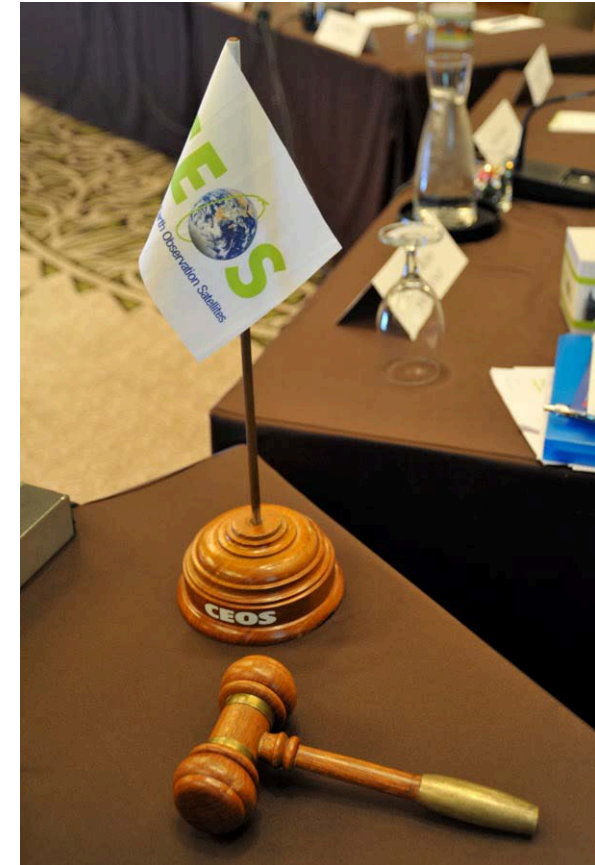
CEOS Working Groups

- **Working Group on Calibration and Validation (WGCV)**
 - To ensure long-term confidence in the accuracy and quality of Earth observation data and products
- **Working Group on Information Systems and Services (WGISS)**
 - To coordinate the development of Earth observation satellite systems and services which manage and supply the data and information from CEOS Agencies' missions
- **Working Group on Capacity Building and Data Democracy (WGCapD)**
 - To increase the capacity of institutions in less developed countries for effective use of Earth Observation data for the benefit of society and to achieve sustainable development
- **Working Group on Climate (WGClimate) Jointly led with CGMS**
 - To facilitate the use of Essential Climate Variable (ECV) time-series through coordination Member Agencies' initiatives and activities
- **Working Group on Disasters (WGDisasters) NEW**
 - Increase and strengthen the contribution of Earth Observation satellite to the various disaster risk management phases and raise the awareness on the benefits of using satellite Earth Observation in all phases of disasters.

Working Groups enhance technical cooperation among CEOS Agencies in specific topical areas with broad international benefit.



2013 CEOS PLENARY OUTCOMES AND 2014 PRIORITIES



Outcomes from 27th CEOS Plenary



- Endorsed the membership of the **Vietnam Academy of Science and Technology (VAST, Member)** and **Geoscience Australia (GA, Associate)**
- Endorsed the proposed **CEOS Self Study** documents, including the **CEOS Terms of Reference, Strategic Guidance, Governance and Processes**, and the Terms of Reference of several **core CEOS functions**
- Endorsed the **updated Virtual Constellation Process Paper**
- Agreed that CEOS would by 15th November provide its inputs on the draft GEO Ministerial Declaration and draft Vision for GEO 2015, and that it would **formulate a response to the outcomes of the GEO Ministerial at SIT-29**
- Received updates on the **GEO Water Cycle Report**, the **Blue Planet** task, the **GEO Biodiversity SBA**, and the **Carbon Task Force**, anticipating possible future engagement
- **Approved Iceland** as a new **Permanent Geohazard Supersite**, and requested a recommendation to SIT-29 on the process for endorsing future Supersites
- **The following CEOS *Ad hoc* Working Groups were approved by Plenary to continue activities:**
 - ***Ad hoc* Space Data Coordination Group for GFOI (SDCG)**
 - ***Ad hoc* Working Group on GEOGLAM**
 - **CEOS Carbon Task Force (continued through milestone of adoption of report at SIT-29)**

Outcomes from 27th CEOS Plenary – con't





- Endorsed the **CEOS Disaster Risk Management Earth observation requirements**, and agreed to consolidate CEOS Agencies' response for its three pilots (floods, seismic risks and volcanoes)
- Endorsed the creation of a **new standing Working Group on Disasters**, with ESA and CSA as its initial Chair and Vice Chair respectively
- Received an update from the **Space Data Coordination Group for GFOI** on the status of the Global Baseline Strategy, and the formulation of new Space Data Services
- Endorsed the **CEOS Acquisition Strategy for GEOGLAM Phase 1**
- Endorsed the creation of a **joint CEOS-CGMS Working Group on Climate**, adopting un-amended the Terms of Reference endorsed by the CGMS Plenary (CGMS-41)
- Adopted the **Montreal Statement** (next slide)



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 worlds' 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+);

CEOS Committee on Earth Observation Satellites

The Montreal Statement

(November, 2013)

We, the assembled participants of the 27th Plenary meeting of the Committee on Earth Observation Satellites (CEOS), taking place in Montreal, Canada, on 5 and 6 November 2013:

Building upon our collective commitments to coordinate our Earth observation satellite missions in response to needs expressed by the United Nations Framework Convention on Climate Change (UNFCCC), the UN Office for Disaster Risk Reduction International Strategy for Disaster Reduction (UNISDR), UN Conventions on Biodiversity and Desertification, the intergovernmental Group on Earth Observations (GEO), the Global Climate Observing System (GCOS), World Meteorological Organization (WMO) Programmes, the Group of 20 Industrialised Nations (G20), the Food and Agriculture Organization (FAO), and other external stakeholders;

Confirming our Primary Mission to ensure international coordination of civil space-based Earth observations programs and promote exchange of data to optimize societal benefit and inform decision making for securing a prosperous and sustainable future for humankind; and,


Recognizing the major investments made by CEOS Agencies in developing the space-based segment of the Global Earth Observation System of Systems, and global observing systems operated under the auspices of the United Nations;

Declare that: With the renewal and strengthening of the organization governance, CEOS Agencies have agreed to continue and enhance their cooperation to respond effectively to Earth Observation users' needs. We will do so 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 worlds' 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 1st 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.

<http://www.ceos.org>





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OVERVIEW OF NEW CEOS STRATEGIC DOCUMENTS



- The final output of the CEOS Self Study effort is a set of **strategic documents** that will guide CEOS in the future.
 - **CEOS Terms of Reference (ToR)**
 - **CEOS Strategic Guidance (SG)** (~10 year life)
 - **CEOS Governance & Processes (GP)** (~5 year life)
 - **Element ToRs** for: CEOS Chair, SEC, SIT Chair, CEO, SEO
- All documents can be found on the CEOS website under the “Governing Documents” link.



- **Broadly engage** the CEOS community and leadership during the CSS development and review process to produce a set of strategic documents for endorsement at the 2013 CEOS Plenary.
 - Multiple SIT and Plenary Meetings
 - 19 Past and Present Leadership Interviews
 - 80 individuals contributed to the Study Reports
 - 11 Agencies contributed to the Topical Teams
 - 8 Agencies represented on the Steering Team
 - 12 Agencies provided feedback during 4 Town Hall telecons



- Heavily based on the current ToR that has been in existence since 1984, with minor amendments
- Definition: “**CEOS Agencies**” = Members and Associates
Members = Government organizations that have currently operating space-based programs or at least in Phase-B (detailed design)
Associates = Coordination groups and scientific or governmental bodies with significant activities that support CEOS objectives.
- Provides a definition of temporary “**Ad Hoc Teams**” to investigate specific areas of interest, cooperation and coordination. Continuation requires confirmation at each annual Plenary meeting.



- Short, 9-page document (7 pages of content)
- Sections are consistent with the final set of CEOS Essential Questions
 - What are CEOS's scope and Purpose?
 - What is the value of CEOS to others?
 - What are CEOS's essential outcomes and relationships?
 - How does CEOS define and measure success?
 - What are the greatest risks and opportunities for CEOS?
- The Strategic Guidance (SG) document contains the following sections:
 - Introduction and Background
 - CEOS Mission and Objectives
 - Goals
 - Value to Stakeholders
 - Approach
 - Definition and Measures of Success
 - Challenges, Opportunities, and Strategic Direction



Introduction and Background

- CEOS established in 1984
- Significant increase in Earth observation satellites ...
109 currently operated by CEOS Agencies.
- Expanding user community that is becoming more organized ... GEO, GCOS, UNFCCC, UNISDR, etc.

CEOS Mission and Objectives

- **Mission Statement:** *CEOS ensures international coordination of civil space-based Earth observation programs and promotes exchange of data to optimize societal benefit and inform decision making for securing a prosperous and sustainable future for humankind.*
- **Objectives:** Optimize benefit of Earth observations, serve as focal point for international coordination, exchange information.



Goals

- Reduce observational gaps
- Improve coordination of Earth observations
- Promote Data Democracy by improving access and use of data
- Respond to user needs

Value to Stakeholders

- Coordinated Earth observation missions and data for societal benefit
- Provide data processing systems, products and science
- Forum for partnerships

Approach

- Internal coordination ... Agencies, Working Groups, Virtual Constellations, Ad Hoc Teams, SEC, SIT and Plenary.
- External Coordination ... via CEOS Chair with stakeholders



Definition and Measures of Success

- Achievement of its goals by measureable results for stakeholders. Sometimes hard to quantify, such as Agencies becoming motivated to contribute or lead
- Sustainability and engagement are critical to CEOS success
- Regular review of activities is needed to address viability and commitment
- Projects should have defined requirements, milestones, schedule and management plans

Challenges, Opportunities and Strategic Direction

- **Challenges:** Engaging stakeholders, maintaining leadership continuity and participation, managing cyclic and scarce resources
- **Opportunities:** Building capacity for Earth observation products, identifying gaps and promoting complementarity
- **Strategic Direction:** Optimize societal benefit, remain the focal point for international coordination of space-based Earth observations



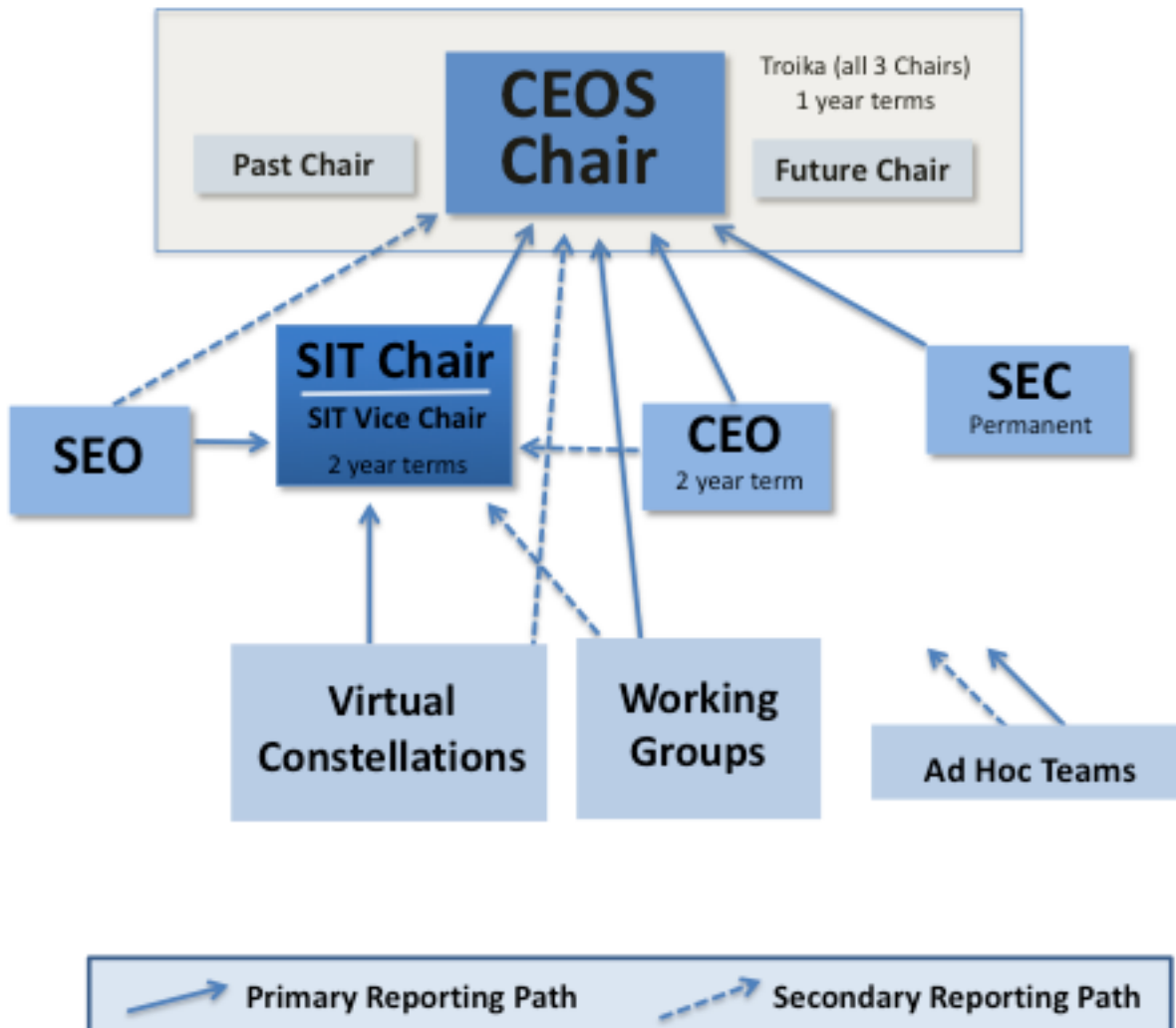
- 21 pages including 2 annexes. 15 pages of core content.
- Consistent with the output of the Topical Teams, which were arranged around 5 themes.
- **Governance and Processes (GP)** document includes ...
 - (1) Introduction and Background
 - (2) Organizational Roles and Responsibilities
 - (3) Decision-Making Process
 - (4) Major Meetings
 - (5) Membership and Participation

Annex 1 – Current list of Working Groups, Virtual Constellations, Ad Hoc Teams

Annex 2 – Current list of CEOS Agencies and year of acceptance

Governance and Processes – Highlights #2

Organizational Roles and Responsibilities



- Note Primary and Secondary reporting paths
- Primary leadership positions have dedicated ToRs
- VCs have their own Process Paper and ToRs
- Working Groups also have their own ToRs.
- GEO SBA Coordinators removed from CEOS structure. This decision was coordinated with GEO.
- Temporary “Ad Hoc Teams” have reporting paths to CEOS Chair or SIT Chair.



Here are some future initiatives related to the CSS ...

- **Work Plan** ... As part of the initial CSS objectives, it was decided that a rolling 3-year CEOS Work Plan would be developed in early 2014 (to be updated annually). Development of the new Work Plan will be discussed in more detail shortly.
- **Website** ... The CEOS website will need revisions to the main content (background, org chart, etc.) to accurately reflect the new strategic document content. This will be led by Brian Killough (SEO) with support from Kerry Sawyer (CEO) and approval from the SEC.



- **New Working Group and New Initiatives Process Papers ...** CEOS does not have a formal “tactical” process document for new CEOS Working Groups or new CEOS Initiatives. A Process Paper does exist for New Virtual Constellations, so a similar output is likely needed for Working Groups and New Initiatives. 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.
- **New Document Management System ...** CEOS has used several tools for managing documents in the past ... Website and Google-Docs. These options are not a good long-term solution and do not utilize a consistent organizational scheme. CEOS should consider options for the future to maintain a record of our key documents.



DRAFT CEOS 2014-2016 WORK PLAN REVIEW/DISCUSSION



Committee on Earth Observation Satellites



Work Plan



Version: V.01 Draft 2.16.14

Purpose: To set forth near-term objectives and deliverables designed to achieve the goals outlined in the *CEOS Strategic Guidance* document.

It includes a description of CEOS activities to be executed in the current calendar year (2014), and summarizes anticipated activities for the subsequent two years (2015-2016).

Detailed information, including planned milestones and deliverables, accomplishments, and issues, will be available and routinely updated in the CEOS Action Tracking System

Three-Year CEOS Work Plan



- The last of the CSS Strategic Documents
- Under direction of the CEOS Chair and in consultation with CEOS leadership, the CEO develops the *CEOS Work Plan* (three-year longevity, updated annually).
- Use the Montreal Statement as a basis for CEOS priority objectives for 2014 and 2015-2016
- Retains original intention to provide overall guidance for CEOS on expected outcomes for CEOS and its stakeholders
- Content will include a concise characterization of the main deliverables, their delivery schedule and associated high-level activities
- In addition to providing an overview for Plenary, this plan will also inform the progress monitoring activities carried out during the course of the year by the SIT and CEOS Chairs.
- Will cover the full three-year period, with more detailed information available for the first year. It is anticipated that the Work Plan will maintain the current thematic structure, with each theme addressed in no more than 1 and 1/2 pages. This theme information will be presented in tabular form with a generic structure that is common across all themes (*e.g.* Deliverable/Objective Identifier and Description, Proposed Completion Date, Background Information, Responsible CEOS Entity)



1. Climate Monitoring, Research, and Services
2. Carbon Observations, Including Forested Regions
3. Observations for Agriculture
4. Observations for Disasters
5. Capacity Building, Data Access, Availability and Quality
6. Support to Other Key Stakeholder Initiatives
7. Advancement of the CEOS Virtual Constellations
8. Outreach to Key Stakeholders
9. Organizational Issues



Continue CEOS leadership of, and support to, the Quality Assurance for Earth Observations (QA4EO) initiative

- **2014:** The Working Group on Calibration and Validation (WGCV) will work closely with the GEO Secretariat to encourage widespread adoption of QA4EO principles (including quality indicators and confidence levels) within future and, where possible, current CEOS activities. WGCV will extend the showcase repository to address science and data product provider community needs by ideally covering Level 1 Atmosphere, Terrestrial, and Ocean “compartments.”
- **2015-2016:** Continue to extend the QA4EO showcase repository to address the needs of the science and data product provider community. WGCV will also develop calibration infrastructure and comparison campaigns to follow and promote QA4EO principles and best practices.



Capacity Building, Data Access, Availability and Quality Objectives/Deliverables: 2014-2016			
Objective/Deliverable	Projected Completion Date	Background Information	Responsible CEOS Entity
CV-1: SST Comparison Campaign Plan	Q2 2014		WGCV
CV-2: SST Implementation Plan	Q4 2015		WGCV
CV-3: DOME-C			WGCV
CV-4: QA4EO			WGCV

- **WGCV is tasked with reviewing the draft Work Plan and populating, with detailed text, section 3.5 and more importantly, the table**

Three-Year CEOS Work Plan Timeline

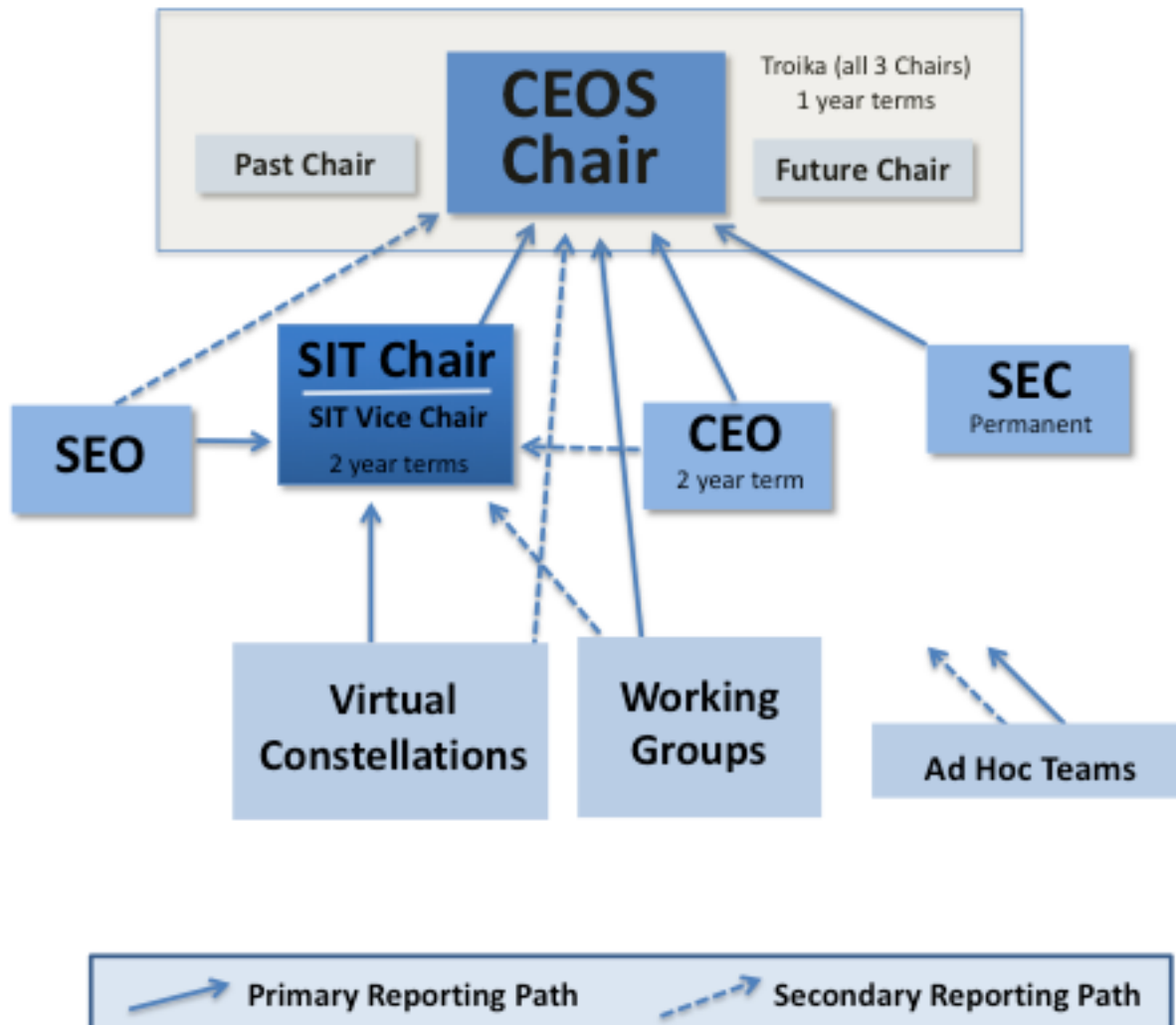


1. Mid-November: begin gathering inputs and prepare a draft outline of the document; work with Working Group Chairs, VC Co-Leads, and *Ad hoc* Team leads to identify key objectives and activities for 2014, 2015-2016.
2. Late-December: have a draft version of the document prepared and share with the CEOS Secretariat.
3. Mid-January: participate in the GEO Plenary meeting where CEO will capture GEO's priorities for the coming three years.
4. **Late January: Via e-mail, request closure/disposition of 2013 CEOS-GEO Actions**
5. Early February: CEOS-GEO Coordination meeting will occur where we will discuss both CEOS and GEO priorities and identify synergies where CEOS can support GEO; share the draft Work Plan with GEO.
6. **Early February: after the Coordination meeting, revise and update the Work Plan to reflect outcomes from the January GEO Plenary and the February CEOS-GEO Coordination Meeting.**
7. Late February: share the draft Work Plan with the Working Groups, VCs, and *Ad hoc* teams; receive comments and inputs from entities. Concurrently, restructure the CEOS-GEO Actions Tracking System
8. **Mid-March - publish the final version of the CEOS Three-year Work Plan.**
9. **April: Endorse the Three-Year Work Plan and hold virtual CEOS Actions meeting.**

CEOS Communication Protocol and Discussion

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- GEO SBA Coordinators removed from CEOS structure. This decision was coordinated with GEO.
- Temporary “Ad Hoc Teams” have reporting paths to CEOS Chair or SIT Chair.



The CEOS Chair provides overall leadership and guidance of the organization and its activities with regard to governance, stakeholder relationships, and mission objectives and priorities as implemented by the CEOS Working Groups, Virtual Constellations, and Ad Hoc Teams. Works with the SIT Chair and the Secretariat to build capacity and complementarity among CEOS Agencies, stakeholders, and partner organizations by broadening the participation in and contributions to CEOS Earth observation activities

SIT provides strategic guidance on the direction, progress, and status of implementation activities in relation to the established priorities, commitments, and partnerships of the CEOS organization and the governance, stakeholders, and the accomplishment of deliverables and societal benefit contributions of the VCs and WGs. Oversee the activities of the CEOS VCs and, as delegated by the CEOS Chair, assist in overseeing the WGs. Oversight of these entities may include, but is not limited to, regular telecons with VC Co-Leads and WG Chairs to provide strategic guidance, understand progress and issues, and support the resolution of issues that require agency coordination.



GRAZIE MILLE



BACKUP SLIDES



CEOS PARTICIPATION IN THE 2012- 2015 GEO WORK PLAN MANAGEMENT STRUCTURE/FRAMEWORK



CEOS is identified:

- As a Component Lead for **sixteen (16)** Components
- As a Component POC for **six (6)** Components
- As Task Coordinator for **two (2)** Tasks
- As Implementation Board Member for **two (2)** Boards
- As a Contributor for **ten (10)** Components*

*Contributions need to be updated for Rev 3 of the Work Plan

GEO 2012-2015 WORK PLAN

23 January 2014

CEOS Highlights - Version 4 February 2014

Infrastructure and Institutions and Development Tasks/Components



	Tasks	Task Coordinator (CEOS)	Task Team (CEOS)	Components	Component Lead (CEOS) (**Component POC)
I N F R A S T R U C T U R E	IN-01 Earth Observing Systems	Brian Killough (NASA)	Brian Killough (NASA)	C1	
				C2	Brian Killough (NASA)**
				C3	Brian Killough (NASA)**
				C4	
	IN-02 Earth Data Sets		Satish Srivastava (CSA)	C1	Satish Srivastava (CSA)**
				C2	
	IN-03 GEOSS Common Infrastructure			C1	
				C2	
	IN-04 GEOSS Communication Networks			C1	
				C2	
	IN-05 GEOSS Architecture, Design and Interoperability		Brian Killough (NASA)	C1	Brian Killough (NASA)
I N S T I T U T I O N	D E V E L O P M E N T			C1	
				C1	Jacob Sutherlun (NOAA)
				C1	
				C1	
				C2	
				C1	
				C2	

Green text indicates those GEO Components where CEOS is an identified Lead Agency
Pink text indicates those GEO Components where CEOS is identified as a Component POC
Green shading indicates a change is required
Grey shading indicates a Component with no known CEOS leadership role

Societal Benefit Tasks/Components



	Tasks	Task Coordinator (CEOS)	Task Team (CEOS)	Components	Component Lead (CEOS) (**Component POC)
S O C I E T A L B E N E F I T S	SB-01 Oceans and Society: Blue Planet		Paul DiGiacomo (NOAA)	C1	Paul DiGiacomo (NOAA)
				C2	Paul DiGiacomo (NOAA)
				C3	
				C4	
				C5	
	SB-02 Global Land Cover			C1	
				C2	
				C3	
				C4	
	SB-03 Global Forest Observation		Stephen Briggs (ESA)	C1	Stephen Briggs (ESA)
	SB-04 Global Urban Observation and Information			C1	
	SB-05 Impact Assessment of Human Activities			C1	
				C2	
	AG-01 Global Agricultural Monitoring and Early Warning		Prasad Thenkabail (USGS)	C1	Prasad Thenkabail (USGS)
	BI-01 Global Biodiversity Observation (GEO BON)			C1	
	CL-01 Climate Information for Adaptation		John Bates (NOAA)	C1	
				C2	John Bates (NOAA)
				C3	
				C4	
	CL-02 Global Carbon Observation and Analysis		Masakatsu Nakajima (JAXA)	C1	Masakatsu Nakajima (JAXA) Diane Wickland (NASA)