**Minutes V1.0**

**280th CEOS SECRETARIAT MEETING**

Thursday 10 June 2021

Chaired by NASA

**Participants**

**CEO:** Marie-Claire Greening

**CNES:** Pierric Ferrier, Aurélien Sacotte

**ESA:** Ivan Petiteville

**EUMETSAT:** Robert Husband, Paul Counet

**GEOSEC:** Doug Cripe

**JAXA:** Osamu Ochiai, Yukio Haruyama, Koji Akiyama

**NASA:** Karen St. Germain (Chair), Christine Bognar, Andy Mitchell, Stephen Ward, George Dyke

**NOAA:** Kerry Sawyer

**P-VC:** Chris Kidd

**SIT Chair Team:** Jonathon Ross, Andreia Siqueira

**SEO:** Brian Killough, Kim Holloway
**WGCapD:** Nancy Searby, Yasha Moz

**WGClimate:** Albrecht von Bargen, Jeff Privette

**WGCV:**  Akihiko Kuze

**WGDisasters:** David Green, Dave Borges

**WGISS:** Robert Woodcock, Makoto Natsuisaka

1. **Welcome and Introductions, Review of Agenda**

Karen St.Germain (NASA, CEOS Chair) welcomed everyone to SEC-280, noting high levels of activity across the CEOS structure. Karen highlighted that CEOS is in high gear during the May and June timeframe, as there are meetings scheduled with the GEO, CGMS and other stakeholders, in addition to meetings of the CEOS Working Groups and Virtual Constellations. Karen encouraged healthy discussion on the reports and other topics on the meeting agenda.

Christine Bognar (NASA, CEOS Chair Team) thanked everyone who responded to the email inviting additional topics for today’s SEC agenda. Under AOB, segments were added for: the CEOS Newsletter; an update from the COAST ad hoc Team; and a brief discussion with CNES on potential dates for the 2022 CEOS Plenary.

1. **Action Status**

Marie-Claire reported on SEC Action 279-01 (now marked as completed), noting that she has been coordinating with GISTDA regarding the submission of a formal letter of nomination for the role of 2023 CEOS Chair.

1. **CEOS Chair Report**

Christine Bognar (NASA, CEOS Chair Team) offered updates on topics raised during the last CEOS SEC teleconference:

* The action record (distributed as part of the agenda for this meeting) was thoroughly reviewed and updated in response to SEC Action 278-01. CEOS Executive Officer, Marie-Claire Greening, distributed the updated record via email on June 7, 2021, with a call for further updates as new developments allow.
* The virtual endorsement of the new GEO Geohazard Supersites and Natural Laboratories (GSNL) Permanent Supersite in Nicaragua occurred on May 20, 2021.

Christine then reported the following progress on the CEOS Chair priority Implementation Plan objectives:

* **MIM Database:** Created several videos for the MIM Database to improve visibility and use. These videos were created by the SEO team.
* **Cloud Deployments:** Microsoft-Azure Cloud is now offering Landsat and Sentinel data via their Planetary Computer. The SEO plans to obtain credits to explore cloud services and data offerings.
* **CEOS Earth Analytics Interoperability Lab (EAIL):** CSIRO-Chile has developed training documents for EAIL, uploaded multiple datasets to support projects, and sent out access information for users. Copernicus Land Cover and Copernicus Digital Elevation Model (DEM) global data is now available through the Earth Analytics Interoperability Lab (EAIL) for CEOS testing.
* **Open Data Cube (ODC) Sandbox:** The SEO team is planning a session for the GEO Symposium on June 24 that will focus on a demo of the new ODC Sandbox tool.
* **Training Webinars:** The first Jupyter Python notebook training webinar is planned for July 21. WGCapD has held several planning meetings to discuss details for the sessions.
* **Climate Use-Cases:** The EUMETSAT "Drought and Vegetation Data Cube" is an example of open data and open science, and consists of Climate Data Records similar to that found in the ECV Inventory. So far, the CEOS Chair team is aware of about 16 climate use-cases offered by: JAXA, NOAA, NASA, SANSA, CMA, and the UK.
* **CEOS Communications:** The SEO is working to develop a short video to showcase the impact of CEOS international cooperation, even during this past year when travel and meetings have been affected by the COVID pandemic.
* **CEOS Website:** A CEOS Communications Team (SEO, CEO) has been working on plans for a website revision to add consistency and to further enhance the CEOS online presence, and the impact of its website.
* **EOTEC DevNet:** Working with the SEO to develop an online database and Application Programming Interface (API) to support flood tools from CEOS Agencies. This will promote open science and open data sharing in support of floods.

Christine briefly reviewed information on upcoming meetings and events that was in last month’s CEOS Chair report as a reminder.

* 2nd Climate Observations Conference of CGMS and WCRP (Aug. 30-Sept. 2; virtual event): Karen St. Germain (NASA, CEOS Chair) has accepted to be a speaker for the 2nd Climate Observations Conference of CGMS and WCRP. The CEOS Chair has been invited to give a presentation on “Satellite Observations – Capabilities and Needs” on Sept. 1, 2021. *[Update: CEOS has learned that this conference has been postponed until 2022.]*
* IAC (Oct. 25-29; Dubai): Karen St. Germain (NASA, CEOS Chair) has accepted the invitation of the International Astronautical Congress (IAC) to be a guest speaker on behalf of CEOS.
* COP26 (Nov. 1-12; Glasgow): Christine confirmed that the U.S. State Department has agreed on the matter of the member of the U.S delegation delivering the Annual Joint Statement from Space Agencies to SBSTA.
* CEOS Plenary (Nov. 1-4; Virtual): Because these dates coincide with the first few days of COP26, the CEOS Chair team will make every effort to deconflict the scheduling of presenters and participants who will need to engage in COP26.

Osamu Ochiai (JAXA) asked about the cloud deployments point under the CEOS Chair priority Implementation Plan report and whether this topic is restricted in scope to the largest global cloud providers (i.e., Amazon Web Services, Microsoft Azure, Google Cloud) or whether the full landscape of cloud providers is being considered. Osamu noted the case of domestic Japanese cloud providers that will host JAXA data. Brian Killough (NASA, SEO) clarified that progress will be measured solely by whether data is openly accessible and available for open science; all providers are in scope. In the case where agency data is stored on cloud infrastructure but only available for internal purposes, this would not be counted.

Osamu added that while Japanese cloud companies are primarily focused on the domestic market, it is hoped that they will start to look toward the international market in time. Brian suggested that this global ambition is a very important point to note.

1. **SIT Chair Report**

Jonathon Ross (GA, SIT Chair Team) reported on behalf of the SIT Co-Chairs Alex Held (CSIRO) and Adam Lewis (GA):

* **CEOS-34-20:** *COVERAGE, COAST, and SIT Chair Teams to discuss and conclude on how CEOS will coordinate internally and externally on CEOS involvement in the United Nations Decade of Ocean Science for Sustainable Development (2021-2030). Once determined, the SIT Chair will prepare a follow-up letter (in coordination with the CEOS Secretariat) to the IOC, identifying the appropriate CEOS contact for matters relating to the Decade.*

WGClimate review of the letter is complete, and it is ready to be sent to the IOC.

* **CEOS Virtual Constellations:** The SIT Chair team has done a round of telecons with the Virtual Constellations over the past 2-3 weeks; calls have been completed with five of the seven VCs.
* **Carbon & Biomass:** The Global Stocktake Strategy paper effort has concluded for the time being and will be revisited during the SIT Technical Workshop, with a view to endorsement at the CEOS Plenary (Nov. 1-4, 2021).
* The SIT Chair Team has consulted with the SEO and WGISS regarding the action from SIT-36 to establish a web presence to support communication of the planned datasets and guidance from the GHG and AFOLU teams for COP26.
* Noting the launch of the International Methane Emissions Observatory (IMEO), the SIT Chair Team has contacted UNEP to identify the officials in charge, with a view to have a discussion session at the SIT Technical Workshop.
* **SDGs:** The CEOS Sustainable Development Goals ad hoc Team (SDG-AHT) continues to develop the two options for its future that will be presented for discussion at the Technical Workshop and the CEOS Plenary. It is also focusing on the deliverables from the four SDG Indicator sub-teams.
* **SIT Technical Workshop:** Preparation is progressing. Updates will be coming in the following weeks. The SIT Technical Workshop is an important milestone in the preparation for the CEOS Plenary. The SIT Chair Team welcomes inputs for the first draft of the agenda.
* **ARD:** Planning a re-group on the CEOS ARD Framework and scheduling a call with the VCs to discuss it in more detail (late June / early July). A first draft of CEOS ARD Strategy v2 will be prepared soon. Landsat Collection 2 has been re-confirmed as CEOS ARD against the latest versions of the surface reflectance and surface temperature Product Family Specifications (v5.0).

**Precipitation Virtual Constellation (P-VC) Report**

Precipitation Virtual Constellation (P-VC) Co-Lead, Chris Kidd (NASA/UMD), presented a brief overview of the status of the VC:

* P-VC satellites provide instantaneous snapshots of precipitation, by processing them through a consistent retrieval scheme to generate high resolution spatio-temporal maps of global precipitation.
* GPM is the realisation of the P-VC and provides a focus for strong international collaboration on precipitation, led by the NASA and JAXA science teams and the International Precipitation Working Group (IPWG) of CGMS.
* P-VC currently has three open CEOS Work Plan tasks:

i. VC-20-13: Draft Precipitation Constellation White Paper

ii. VC-20-14: IPWG/GEWEX Precipitation Assessment White Paper

iii. VC 20-15: Community engagement-furthering links with the CGMS International Precipitation Working Group with virtual outreach meetings

* The Constellation White paper was published in the Bulletin of the American Meteorological Society. It is the public form of the white paper for CEOS, so it needs to be converted into a format more suitable for CEOS.
* Outreach is ongoing through the NASA GPM Communications Programme and engagement with the International Precipitation Working Group (IPWG).
* New P-VC missions include:
* NASA/MIT TROPICS: pathfinder cubesat (24 June 2021) plus six satellite constellation (around 2022);
* ESA/JAXA EarthCare: aerosols and clouds focus, but precipitation capability also (2022+);
* CMA/NRCC: FY-3G/J microwave imager and radar (2023/2025);
* EUMETSAT: EPS-SG microwave imagers and sounders, ICI (2023+);
* NOAA-JPSS: microwave sounders;
* JAXA: AMSR-3 continuation of AMSR series (funded, 2023/24 launch);
* US DoD WSF-M: follow-on to the DMSP series;
* ESA: Copernicus Imaging Microwave Radiometer;
* NASA/JAXA: ACCP – shortlisting of system architectures (launch time frame around 2029).

Chris also identified some areas in which SEC may be able to help the P-VC, such as help with encouraging more CEOS Agencies to join and contribute to the P-VC. The VC is currently lacking the involvement of some key agencies. Chris encouraged participation by EUMETSAT.

David Green (NASA, WGDisasters Chair) said he sees opportunities for collaboration between WGDisasters and P-VC on precipitation and hurricanes, floods, and coastal impacts. David also noted that NASA and NOAA are prioritising reduction of information latency, and they are pursuing that through pathfinder efforts.

1. **GEO SEC Report**

Doug Cripe (GEO Secretariat) reported:

* The GEO Programme Board met last month. One of the outcomes is that the Digital Earth Africa programme was accepted as a GEO Initiative.
* **GEO-GFOI Virtual Workshop (June 16-17):** The goal is to identify tools that would be suitable for spatially explicit monitoring of land cover change that can support greenhouse gas accounting in the land sector. The workshop is also going to identify open-source software packages that are made available freely on the SEPAL platform for those governments wishing to develop National Forest Monitoring Systems (NFMS).
* The GEO Virtual Symposium will be held on June 21-24, with plenary and parallel sessions every day, and spotlight (akin to virtual poster sessions) on the Tuesday (22nd) and Wednesday (23rd). The ODC Sandbox tool (developed by the CEOS SEO) will be featured on June 24. More information can be found [here](https://earthobservations.org/symposium2021.php).
* Four GEO Plenary sessions have been planned to gather information on various environmental themes such as oceans, climate ,biodiversity and to explore what CEOS can do to balance trade-offs.
* **GEO Executive Committee Meeting (July 6-7):** Will cover the GEO Knowledge Hub as a particular focus.
* **GEO Climate Policy and Finance Workshop (September 21- 23):** will present results from the GEO Climate Change Working Group and will explore the role of Earth observations in developing climate resilience and nature-based solutions.
* **GEO Microsoft Azure Credit Programme:** initial proposals are due by June 15. The overall aim is to support the implementation of the GEO Work Programme. Proposals should be endorsed by the Work Programme activity leads.
1. **CEOS Executive Officer Report**

Marie-Claire Greening (CEOS Executive Officer) reported:

* **COP26:** currently still being billed as an in-person meeting in Glasgow (Nov. 1-12).
* Calls for Green and Blue Zone activities have been evaluated and at least one CEOS-related event is anticipated, according to UKSA. To date there is no indication that the Green Zone meetings will not be in person. Marie-Claire will pass on further updates as they are communicated to her.
* **GEO Programme Board:** outcomes of relevance include Digital Earth Africa being approved as a GEO Initiative and the GEO Knowledge Hub being endorsed for continued development, pending endorsement by the GEO Executive Committee in July.
* **VC Meetings:** At the invitation of the SIT Chair, Marie-Claire attended the catch-up meetings with the Virtual Constellation Co-Leads for OCR-VC, OSVW-VC, P-VC and OST-VC. She also attended LSI-VC-10 and the AC-VC-7 meetings, the latter of which is continuing this week.
* **CEOS Communications:** Working with the SEO, SIT Chair Team and WGCapD on potential website improvements. Discussions have also been held regarding improving social media outreach.
* **SEC Action 278-02:** Marie-Claire is working with Albrecht von Bargen (DLR, WGClimate Chair) on a letter to CEOS Principals asking them to support the call for submission of use cases based on ECV Inventory data. The letter has been drafted and is almost ready to be sent.
1. **Working Group Reports**

**WGDisasters**

David Green (NASA, WGDisasters Chair) reported:

* **WGDisasters Data Coordination Team (DCT) Lead role (ref: SEC Action 274-02):** During the recent WGDisasters teleconference, Pierric Ferrier (CNES) offered, and it was confirmed, that he would retain the WGDisasters Data Coordination Team (DCT) Lead role for another calendar year.
* CONAE has nominated Dr. Laura Frulla for the Vice Chair position of WGDisasters. The WG agreed internally to the nomination, after multiple member agencies expressed appreciation to CONAE for their willingness to serve. David requested, on behalf of WGDisasters, that CEOS SEC concur to bring the Vice Chair nomination to CEOS Plenary 2021 and request endorsement.

Christine Bognar (NASA, CEOS Chair Team) welcomed the news and briefly noted that SEC endorsement of Working Group Vice Chair nominations is not required; it is plenary endorsement that is required. ESA and CNES welcomed the offer from CONAE to have Laura Frulla as the next WGDisasters Vice Chair.

* The Instituto Nicaragüense de Estudios Territoriales (INETER), Government of Nicaragua, held a kick-off meeting of the new GEO GSNL Nicaragua Supersite on June 3.
* The GEO Virtual Symposium 2021 has a session on: *EO Strategies, Partnerships and Services for Disaster Risk Reduction*. WGDisasters Flood Pilot members will present on *“Floods in Canada: The Need for Partnerships”*.
* WGDisasters is looking forward to working with the ESA MIM Database team on their thematic disaster efforts.

**WGClimate**

Albrecht von Bargen (DLR, WGClimate Chair) reported:

* **Climate Data Record (CDR) Use Cases:** action items were clarified through teleconferences. The use cases are under review and have been selected to be included in the website publication. The first use cases should be online at the beginning of next week. More use cases have also been submitted, and the letter to CEOS Principals encouraging further submissions should be completed today.
* CGMS-49 Plenary was held on May 19-21 and included a climate / GHG / GCOS session. There was interest from international science groups of CGMS to be included in future WGClimate meetings.
* The Greenhouse Gas (GHG) Task Team met on June 4. The meeting included a review of the team’s purpose, and a discussion on updating Annex C (Implementation Actions; ref: Action **CEOS-34-06**). A follow-up meeting is planned in late June or early July, after the AC-VC annual meeting.
* The AFOLU Workshop (postponed from Varese in 2020) will be held in the Northern Hemisphere in Q3 2021 (ref: Action **CEOS-33-03**).
* The observation synthesis report for the Global Stocktake will be a community-drafted white paper addressing UNFCCC, with the writing team being organised by Frank Martin Seifert (ESA) and David Crisp (NASA).
* WGClimate Chair has been invited to represent CEOS at a UNOOSA Vault Space Forum and to give a presentation. The invitation was unclear, with it being addressed to both ‘CEOS’ and ‘CEOS WGClimate’. Albrecht recommended that the WGClimate Chair provide the presentation. It should serve as a starting point for a deeper conversation with the SIT Chair and CEOS.

**WGISS**

Robert Woodcock (CSIRO, WGISS Chair) reported:

* The CEOS Earth Analytics Interoperability Lab (EAIL) is progressing, with data requests from WGDisasters and COAST being processed. These teams have started to pull data of interest into the system. The EAIL team is working on an issue related to datasets that are in a format that doesn't currently have Data Cube indexing support. The EAIL team is also looking at whether the system can host confidential data without liability concerns in the unlikely event of a data breach.
* WGISS Exec has decided to form several multi-agency forums over the coming months to follow up specific topics that require further attention following the WGISS-51 meeting. There are several important topics, one of which is how to handle replicas of CEOS Agency data in the cloud and ensuring its traceability, robustness, accuracy, etc.

**WGCapD**

Nancy Searby (NASA, WGCapD Chair) reported:

* UNOOSA nominated Jorge del Rio Vera as WGCapD Chair. His nomination was discussed and unanimously supported at the monthly WGCapD meeting. WGCapD recommends this nomination for formal decision at the CEOS Plenary. WGCapD is still seeking candidates for the Vice Chair position.
* As a part of the Capacity Development for Flooding CEOS Work Plan Deliverable (CB-21-05), an online [Flood Tracker](https://docs.google.com/spreadsheets/d/1Ih_MxvHkgERx6wO0uzxQV9vAwvvYZ6VXRjMZtbvXdts/edit) tool was drafted and shared with WGCapD principals and community members. The CEOS SEO is supportive of the effort and is considering the possibility of helping to build a database and API to ensure that data is accessible, easy to update, and flexible.
* The EOTEC DevNet planning team, consisting of representatives from WGCapD, GEO, UNOOSA and flood SMEs, has been preparing for EOTEC DevNet regional meetings scheduled to occur on June 14. All information and registration forms are available on the CEOS website. Meetings will be co-facilitated by WGCapD members and flood experts from respective regions.
* The Phase II Geospatial Applications for Disaster Risk Management MOOC (CB-21-07) was launched on June 1. It is a joint effort by UNOOSA and the Centre for Space Science and Technology Education in Asia Pacific. Information is available on the [ISRO-IIRS website](https://isat.iirs.gov.in/mooc.php).
* The Jupyter Notebook Webinar, a joint deliverable with WGISS (CB-20-04), is planned for July 21-22, 2021. Organizers are using WGCapD’s branded webinar toolkit materials and are still looking for experts with insight into the relevance (and challenges) of using Jupyter Notebooks for capacity development to serve on the panel.
* As a part of the Branded Webinar Toolkit deliverable (CB-21-01), conversations continue on the proposed thematic observation area icons to be used in CEOS-sponsored webinars. While the branding issues related to specific use of the logos are being resolved, the rest of the updated toolkit materials will be shared with the CEOS community.
* WGCapD is exploring ways to build a stronger relationship with UNFCCC and [The Paris Committee on Capacity Building (PCCB) network](https://unfccc.int/pccb-network), possibly contributing to their capacity building efforts around the COP26 meeting in Glasgow.

**WGCV**

Akihiko Kuze (JAXA, WGCV Chair) reported:

* The 13th annual Joint Vicarious Calibration Campaign for Greenhouse Gas Observing Sensors is being held at Railroad Valley in Nevada from June 7 to July 8. A preparation meeting of the GOSAT-2, OCO-2/3, and TROPOMI teams, was held on June 4.
* Preparation of ACIX-3 (atmospheric correction intercomparison) is underway.
* A RadCalNet workshop was held in Europe on June 9 with 100 participants.
* The WGCV IVOS subgroup is meeting to discuss a potential new CEOS Solar Spectral Irradiance Spectrum (TSIS HSRS) on June 16.
* WGCV-49 will be held on June 29-July 2 as a four-day virtual event (two hours on each day).
1. **SEO Report**

Brian Killough (NASA, SEO) reported:

* The Open Data Cube Conference will take place virtually from June 22-25. It will feature training sessions, a hackathon, and several discussion forums.
* A demonstration of the Data Cube Sandbox has been approved for the GEO Virtual Symposium.
* The SEO is participating in the IGARSS 2021 conference on July 12-16. There will be a session on CEOS and private sector interactions and ARD.
* Work is underway on ideas for a CEOS website revisions. CEOS SEC will be consulted as these ideas mature.
1. **AOB, Next Meeting, and Adjournment**

**Coastal Observations Applications Services and Tools (COAST) *Ad Hoc* Team**

* Paul DiGiacomo (NOAA) announced that CEOS COAST has been formally recognised as a contribution to the Ocean Decade. It was noted that over 200 projects were submitted and about 60 were selected. More information can be found [here](https://www.oceandecade.org/resource/166/Announcement-of-the-results-of-the-first-endorsed-Decade-Actions-following-Call-for-Decade-Actions-No-012020).

**57th CEOS Newsletter**

* Yukio Haruyama (JAXA) reviewed the plan for the next edition of the CEOS Newsletter. There has been a positive response to article requests, with articles confirmed by: CEOS Chair, SIT Chair, CEO, SEO, Biomass team, AC-VC, LSI-VC, GST team.
* The JAXA team is waiting for articles to be submitted by the end of June. Editing will take place in July, with release planned for the beginning of August. Confirmation is still pending for the proposed WGClimate and WGDisasters articles.
* As discussed during SEC-279, consideration is being given to a refresh of the newsletter format, specifically a shift to a more web-focused publishing approach. The JAXA team is exploring this with the SEO and CEOS leadership.

**2022 CEOS Plenary**

* Pierric Ferrier (CNES, 2022 CEOS Chair Team) reported that CNES would like to propose the dates of October 25-27 for the 2022 CEOS Plenary in France. October 25 is the proposed date for side meetings and October 26-27 are proposed for the two-day formal agenda.
* Kerry Sawyer (NOAA) noted that these dates conflict with Diwali, a very important Hindu holiday.

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| **280-01** | CEOS SEC to consider the dates proposed for the 2022 CEOS Plenary in France (October 25-27) and advise the CNES 2022 CEOS Chair Team of any potential overlaps before the next SEC meeting on July 15. | **SEC-281** |

**Next Meeting and Adjournment**

Christine Bognar (NASA, CEOS Chair Team) thanked everyone for participating. CEOS SEC-281 will be held on July 15, 2021. The start time for the teleconference will be 7 AM US Eastern Time.