**Minutes V1.0**

**278th CEOS SECRETARIAT MEETING**

Thursday 15 April 2021

Chaired by NASA

**Participants**

**CEO:** Marie-Claire Greening

**ESA:** Ivan Petiteville

**EUMETSAT:** Paul Counet

**GEO SEC:** Doug Cripe

**ISRO:** Raj Kumar

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

**NASA:** Sandra Cauffman (Chairing), Christine Bognar, Andy Mitchell, George Dyke, Matthew Steventon, Andy Masciola, Gib Kirkham

**NOAA:** Kerry Sawyer

**OCR-VC:** Ewa Kwiatkowska, Marie-Helene Rio

**SIT Chair Team:** Adam Lewis, Jonathon Ross

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

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

**WGCV:**  Akihiko Kuze, Philippe Goryl

**WGDisasters:** David Green, Dave Borges

**WGISS:** Robert Woodcock, Makoto Natsuisaka

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

Sandra Cauffman (NASA, CEOS Chair Team) welcomed everyone to SEC-278. She congratulated the SIT Chair Team and all contributors on a successful virtual SIT-36 meeting. There was a high level of participation with more than 100 participants on each day and good geographic representation, that included relatively new CEOS Agencies and some that have not joined a major CEOS meeting in a while. Sandra remarked that these positive outcomes are good for the sustainability of CEOS and that CEOS should do its best to continue the trend of engaging more Members and Associates to participate in its meetings and important work.

Sandra noted that Selma Cherchali (Incoming 2022 CEOS Chair) and her team at CNES have been invited to the Troika meeting on April 29, 2021, and the next SEC meeting (CEOS SEC-279 on May 13). SEC Action **276-06** can be closed.

1. **Action Status**

Christine Bognar (NASA, CEOS Chair Team) invited the SEC to review outstanding SEC and CEOS Plenary actions and requested updates from the actionees. The following updates were noted:

**CEOS-34-13:** *SIT Chair and Ed Armstrong (SST-VC Co-Lead) to form a team of experts to review the CEOS ARD Framework (Definition, Specifications and processes around CEOS ARD) for completeness and suitability (including looking at changes that make it amenable to non-land domains).*

The CEOS Chair Team recommended that this action be closed since the team of experts has been established and it is holding meetings. Christine noted that the second part of the action has been incorporated in the CEOS 2021-2023 Work Plan and is likely a longer-term activity. Adam Lewis (GA, SIT Co-Chair) agreed, noting that in addition, members of the LSI-VC that were responsible for developing the CARD4L Framework are now working with the expert team to document and formalise these processes in a generalised form.

**CEOS-34-21:** *All CEOS Virtual Constellation Co-Leads, Working Group Chairs and Vice Chairs, and Ad Hoc Team Co-Leads to review CEOS website content and provide updated/revised content and information to the CEOS Systems Engineering Office (SEO) and the CEOS Executive Officer (CEO).*

Marie-Claire Greening (CEOS Executive Officer) reported that all update requests received to date are now reflected on the CEOS website. She suggested closing the action. Further updates will be addressed by the CEO and SEO as part of their ongoing responsibility, in cooperation with those who lead the Working Groups, Virtual Constellations, and ad hoc teams. It was agreed that this action can be closed.

Christine Bognar (NASA, CEOS Chair Team) invited further updates to pending SEC and CEOS Plenary actions. The following updates were noted:

**CEOS-34-07:** *CEOS Agriculture, Forestry, and Other Land Use (AFOLU) Roadmap Team to follow up with CEOS Agencies to determine their willingness to contribute to the development of an AFOLU Roadmap. In 2021, the effort will prioritise AFOLU products for the first UNFCCC Global Stocktake given the urgency, followed by a longer-term vision in a CEOS Roadmap document.*

Jonathon Ross (GA, SIT Chair Team) suggested that the action has been overcome by events and can be closed. The AFOLU Roadmap Team is very active and advancing this work, as reported at the SIT-36 meeting, where follow-up actions were also recorded. Osamu Ochiai (JAXA, AFOLU Roadmap Team Co-Lead) agreed, noting that the team is now working to define specific deliverables that CEOS Agencies could target for the first Global Stocktake. It was agreed that the action can be closed.

**CEOS-34-10:** *CEOS Agencies are invited to provide recommendations and feedback on how to achieve the proposed creation of a Global Forest Biomass Reference System, including possible national contributions.*

Adam Lewis (GA, SIT Co-Chair) suggested that this action be closed, as it is only a call for participation, and the due date for replies has since passed. Osamu Ochiai (JAXA, AFOLU Roadmap Team Co-Lead) noted that the reference system concept is being advanced by GEO through GEO TREES, which has been added as a Community Activity in the GEO Work Programme. It was agreed that this action can be closed.

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| **278-01** | CEOS SEC representatives to review the outstanding CEOS Plenary actions detailed in the agenda for SEC-278 and to provide updates to the CEOS Chair Team, either before SEC-279 or during the SEC-279 meeting on May 13, 2021. | **SEC-279** |

1. **CEOS Chair Report**

Christine Bognar (NASA, CEOS Chair Team) reported:

*Updates on Implementation of the 2021 CEOS Chair Theme*

* The CEOS Branding Guidelines are completed and have been posted to the CEOS website.
* The Earth Analytics Interoperability Lab (EAIL) was released in March 2021. The EAIL is working on user training and access to begin targeted project support.
* The WGDisasters Flood Pilot team continues to work closely with WGISS, SEO and WGCapD to leverage the recently released EAIL for each Pilot Subgroup focus area, and to integrate efforts with EOTEC DevNet’s initial thematic flood focus.
* The SEO has completed the first release of the Open Data Cube (ODC) Sandbox. Further work is needed to develop documentation and inputs for the GEO Knowledge Hub and SDG Toolkit.
* EOTEC DevNet was formally endorsed by CEOS at the SIT-36 meeting.
* The Biomass Validation Protocol was formally endorsed by CEOS at the SIT-36 meeting. This plan will advance global validation efforts, open sharing of data, and biomass product harmonisation.
* A series of articles are planned for the CEOS website to demonstrate open data and open science.
* The Global Stocktake initiative is planning future website content to organise CEOS resources.

*Upcoming Meetings*

* November 2-4, 2021 are the dates proposed for this year’s CEOS Plenary, which will be virtual. The CEOS Chair Team is also looking into having it consist of 3 hours per day over 4 days, instead of 4 hours per day over 3 days. She noted for general awareness that the COP26 conference is on Nov. 1-12 and that the GEO Plenary is planned for Nov. 22-27 (virtual). Christine welcomed SEC feedback on this idea.

Adam Lewis (GA, SIT Co-Chair) welcomed the plan, suggesting that 4 hours is too long. Christine added that the plan is to balance starting times so that the same CEOS Agencies are not always having early mornings and late evenings. To that end, the plan is to have an early morning start (U.S. Eastern time) on two days and an afternoon start (U.S. Eastern time) on the other two days. This approach will help CEOS participants in Asia, Australia and the U.S. Pacific coast, all of whom have endured rather extreme hours for a long time. The Chair team will make best efforts to develop the agenda appropriately around anticipated presenters, attendance, and local times.

The overlap with the first few days of the 2021 United Nations Climate Change Conference (COP26, November 1-12) was noted.

Doug Cripe (GEO SEC) confirmed that November 22-27 remain the dates for the virtual GEO Week meeting.

Albrecht von Bargen (DLR, WGClimate Chair) highlighted that the CEOS statement to SBSTA will need to be endorsed by CEOS in advance of the CEOS Plenary, given the overlap in dates. The CEOS Plenary is usually the occasion where the statement is approved, but this will have to be done in advance this year. Christine agreed and noted that the CEOS Chair Team will be in contact regarding the logistics of the statement’s presentation to SBSTA.

1. **SIT Chair Report**

Adam Lewis (GA, SIT Co-Chair) reported:

* CEOS SIT-36 was held successfully as scheduled, with good paths forward charted and actions recorded for the three SIT Chair priorities: SDGs, CEOS ARD, and Carbon and Biomass.
* SIT Technical Workshop 2021: Current plan is to be held as a virtual event over two weeks. The first week (of September 6) will have self-organised sessions with a narrower thematic/topical focus. The second week (of September 13) will be more structured and include a debriefing from each thematic discussion.

**Ocean Colour Radiometry Virtual Constellation (OCR-VC) Report**

Ocean Colour Radiometry Virtual Constellation (OCR-VC) Co-Leads Ewa Kwiatkowska (EUMETSAT) and Marie-Helene Rio (ESA) reported:

* System Vicarious Calibration Infrastructure Coordination: There have been strong recommendations from CNES and NOAA for a white paper that describes the entire system of vicarious calibration infrastructure currently used for OCR, so that the information can be referenced when agencies are planning their expenditure. OCR-VC has taken this task on-board in coordination with IOCCG, which has established a new Task Force in response. IOCCG next meets in May, and this topic will be discussed further at that time.
* Aquatic Carbon from Space: Working to organise a community workshop, from which the hope is to generate a series of recommendations as the basis for a white paper to complement / serve as the aquatic component of the GHG Roadmap. Also gathering specific requirements for aquatic carbon from space as input for the Global Stocktake processes. A special issue of Earth Science Reviews on aquatic carbon is planned, with OCR-VC contributing to this publication targeted for the end of next year.

Kerry Sawyer (NOAA) recalled the 2012 International Network for Sensor InTercomparison and Uncertainty assessment for Ocean Colour Radiometry (INSITU-OCR) report, noting there were a number of recommendations, one of which was related to vicarious calibration. She asked whether this will be considered in the development of the white paper. Ewa confirmed that this will be considered.

1. **CEOS Executive Officer Report**

Marie-Claire Greening (CEOS Executive Officer) reported on the following SEC action:

**274-01:** *CEOS Chair Team and CEO to review the CEOS Governance and Processes document, External Request Process Paper and the New Initiatives Process Paper to understand the changes necessary to reflect the changes made to the CEO Terms of Reference.*

The CEOS Governance and Processes document was updated and put forward for SEC approval at SEC-276. The small editorial changes necessary were agreed at SEC-276, with the additional agreement that the table with the names of CEOS Agencies be updated, since Marie-Claire has identified minor information in the listing that is out-of-date. It was agreed at SEC-276 that these minor updates do not require further SEC review. The updated CEOS Governance and Processes document will be presented for final approval at the 2021 CEOS Plenary. The External Request Process Paper and the New Initiatives Process Paper do not require any updates.

There were no objections to the proposed way forward and the action was closed.

*CEOS 2021-2023 Work Plan*

* The CEOS 2021-2023 Work Plan was approved virtually on March 22, 2021.
* The Work Plan is one of the CEOS governing documents and can be found here: https://ceos.org/about-ceos/governing-documents/
* Marie-Claire said she is grateful to all who provided updates to both the Work Plan and the deliverables it informs (<http://deliverables.ceos.org>). She encouraged SEC representatives to ensure that points of contact for CEOS Work Plan Tasks/Deliverables in their respective agencies actively and regularly update the Tracking Tool to help us to understand where any blockages are, and of course to celebrate success.
1. **Working Group Reports**

**WGDisasters**

David Green (NASA, WGDisasters Chair) reported:

* SEC Action **274-02** (*CEOS SEC representatives to consider potential candidates for the WGDisasters Data Coordination Team (DCT) Lead Role. This person could be anyone from across the CEOS community*) remains open and is of growing concern. The WGDisasters is also seeking a candidate for the Vice Chair role.
* Both the Landslide Demonstrator and Wildfire Pilot implementation plans were successfully endorsed at CEOS SIT-36. The SEO are developing content for a new Pilot subpage on the WGDisasters website. The Co-Lead team is also actively coordinating with GEO GSNL leadership.
* GEO GSNL Supersites Updates:
	+ CEOS acceptance letter distributed for the new Nicaragua Supersite.
	+ Withdrawal of the CEOS licensed satellite data support to the Enceladus Supersite (due to a lack of satellite data requests).
	+ Renewal letters for the Marmara and Etna Supersites were sent this week.
	+ Renewal letters for Hawaii and Campi Flegrei are in progress.

Christine Bognar (NASA, CEOS Chair Team) noted that SEC Action **274-02** will be discussed in the May 29 Troika meeting. She invited SEC to follow up with David Green (NASA, WGDisasters Chair) and Pierric Ferrier (CNES, WGDisasters Vice Chair) directly if they have suggestions for nominees. David will consider preparing a summary of the implications of not having nominees for these positions in time for the 2021 CEOS Plenary, as well as information on the roles’ responsibilities, etc.

**WGClimate**

Albrecht von Bargen (DLR, WGClimate Chair) reported:

*Virtual WGClimate Meeting – March 16, 2021*

* GHG Task Team met separately.
* Concentrated on brief status reporting including on the update cycle of the ECV Inventory and its gap analysis, the status of the “Use Case” activity, interactions with GCOS, and UNFCCC-related topics.
* Shared information about the AFOLU Roadmap and the CEOS Global Stocktake Strategy.

*Virtual WGClimate Meeting – April 14, 2021*

* Preparation for COP/SBSTA in 2021 in cooperation with UKSA. Agreed a communication approach to ensure important messages reach CEOS SEC / leadership.
* Update on the ‘Use Case’ approach.
* CGMS Working Groups’ meeting and CGMS Plenary preparation.
* ECV Inventory Gap Analysis Workshop planning (for end 2021 / early 2022).

*Request of CEOS SEC: Use Case Support*

WGClimate requests SEC support in making a call for the submission of use cases which are based on ECV Inventory data. The current response has been sparse, with only 7-8 use cases collected so far. The use cases can be scientific, but also institutional, commercial, and in relation to stakeholder needs. WGClimate would like to reach out to relevant communities via the member agencies of CEOS to gather more use cases, and it proposes to do this via a detailed letter to be drafted by WGClimate and sent to CEOS Principals. Albrecht noted that the use cases will be published online and in an upcoming WMO publication.

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| **278-02** | WGClimate Chair to draft a letter to be sent to CEOS Principals (by the CEO) to ask for CEOS Agency support in the submission of use cases that are based on ECV Inventory data. | **SEC-280** |

*GCOS Interactions*

* Small-scale meetings were held with the GCOS Steering Committee Chair and GCOS Director about requirements formulation adapted to specific space-based applications.
* EUMETSAT and DLR are representing the space observation community in the Joint GCOS Study Team that is surveying GCOS governance. The first draft of the study has been delivered to sponsors for feedback. Both are currently considering how to best gather feedback from CEOS.
* The 2nd Climate Observation Conference is being organised by GCOS and WCRP, with support from EUMETSAT. The conference will be virtual and held from August 30 to September 2, 2021.

Ivan Petiteville (ESA) queried the involvement of EUMETSAT and DLR on the GCOS Study Team, asking whether this is on behalf of CEOS or as individual agencies. This is an important distinction, particularly when it comes to the outcomes and recommendations of this study. Adam Lewis (GA, SIT Co-Chair) supported Ivan’s call for more clarity on this point.

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| **278-03** | CEOS Chair Team to communicate with the WGClimate Chair via email to clarify the involvement of EUMETSAT and DLR on the GCOS Study Team, and the ambiguity around whether the involvement is in representation of CEOS or in representation of EUMETSAT and DLR, respectively. | **SEC-279** |

**WGISS**

Robert Woodcock (CSIRO, WGISS Chair) reported:

* WGISS-51: Organisation for this meeting is now in the final stages. The majority of presenters have registered and the hope is to receive all the presentations and recordings by Friday, April 16. Registrations are strong, as always. The current agenda and meeting materials can be found on the CEOS meetings website. It was noted in the recent WGISS Exec meeting that discussion and development of new initiatives and actions is waning with the lack of face-to-face conversations with everything (not just WGISS-51) being virtual due to the COVID-19 pandemic. At this stage no one had a suggestion on ways to reduce this effect, just that it is noticed everywhere, not just within CEOS. WGISS will be seeking ways to address this effect in future meetings.
* CEOS Earth Analytics Interoperability Laboratory: The WGISS/SEO team has been in discussion with the CEOS rice monitoring group (JAXA / Asia-RiCE), WGDisasters, CEOS COAST, and DEMIX activity representatives. Progress is slower than expected but reflects the WG’s pace and virtual meeting challenges. Some positive feedback was received from WGDisasters on the materials available to get started on EAIL. These materials have also recently been updated and the USGS Landsat Collection 2 data available in EAIL over the Eastern US has been extended to the full time series starting with Landsat 5. Rob thanked USGS for their quick resolution to a Collection 2 issue that was identified in establishing the EAIL.

**WGCapD**

Nancy Searby (NASA, WGCapD Chair) reported:

* WGCapD continues to consult with CEOS leadership and Principals at WGCapD member agencies to identify a nominee for the role of Chair for endorsement at the CEOS Plenary in November 2021. It is now exploring this possibility with UNOOSA.
* WGCapD members are working on executing actions in the CEOS 2021-2023 Work Plan, which includes 33 deliverables (28 to be implemented in 2021; 4 in 2022; 1 in 2023). Updates are captured monthly in a shared work plan document, with main developments reflected in the CEOS Deliverables Tracking Tool.
* The [Advanced Multi-Lingual MOOC on Radar Backscatter](https://eo-college.org/courses/) Deliverable CB-18-06 was completed, and provides training in English, Spanish, French, and German.
* The WGCapD-10 meeting took place March 1-4 as a virtual meeting. More than 170 participants from 30 countries joined working sessions, a [keynote](https://www.youtube.com/watch?v=YFaidhaQaPw&list=PLvyKmUq3-Y_3bpIOzpZ7EZTdme_zFy7NG&index=9) address was made by former GEO Secretariat Director Barbara Ryan, and panel discussions with experts [within](https://www.youtube.com/watch?v=Xl_qJtXFaRI&list=PLvyKmUq3-Y_3bpIOzpZ7EZTdme_zFy7NG&index=10) and [outside](https://www.youtube.com/watch?v=9rO9l7ypTeQ&list=PLvyKmUq3-Y_3bpIOzpZ7EZTdme_zFy7NG&index=11) of CEOS were held. The meeting also included four regional exchanges focused on floods as a use case to identify how WGCapD members and partners could collaboratively advance capacity development in EO-informed flood management, early warning, and response. WGCapD members were asked to prepare agency updates in advance of the annual meeting to enable more time for discussion at the meeting itself. The video updates are available on the CEOS YouTube [channel](https://www.youtube.com/playlist?list=PLvyKmUq3-Y_3bpIOzpZ7EZTdme_zFy7NG) and meeting materials are available on the WGCapD-10 meeting page at<https://ceos.org/meetings/wgcapd-10>. The final report is in review.
* The EOTEC DevNet Initiation Plan was endorsed at SIT-36 (Deliverable CB-20-05). The WGCapD Secretariat received supportive comments from those active in WGCapD, e.g., ESA, DLR, CRECTEALC, NOAA, USGS, UNOOSA, and WMO. It also received endorsements from agencies not currently engaged with WGCapD, e.g., GISTDA offered their ASEAN Research and Training Center for Space Technology and Applications (ARTSA) and Canada’s Director General for the Canada Centre for Mapping and Earth Observation endorsed it with plans to work with CSA on ways to support the initiative.
* According to the plan to share with participating networks, the WGCapD Chair will present EOTEC DevNet to CGMS-49 WGIV (April 26-27) and it will be mentioned by both the U.S. in our statement and the European Commission in their presentation to the Scientific and Technical Subcommittee (STSC) of COPUOS (April 19-30).

**WGCV**

Akihiko Kuze (JAXA, WGCV Chair) reported:

* Cindy Ong (CSIRO) is coordinating CEOS WGCV input to two ISO standards: ISO 19159 on pre-launch cal/val of instruments and ISO 19124 on post-launch cal/val of remote sensing instruments/products.
* WGCV reported on its activities at the Global Space-based Inter-Calibration System (GSICS) annual meeting on March 29. During the meeting, the TSIS Hybrid Solar Reference Spectrum (HSRS) was recommended as the official solar spectra of GSICS. CEOS will consider its position at the upcoming WGCV-49 meeting (June 29 to July 2). The database is of particular relevance to Greenhouse Gas measurements.
1. **GEO SEC Report**

Doug Cripe (GEO Secretariat) reported:

* A GFOI virtual workshop on wall-to-wall methods for land cover change will be held on May 31. IPCC experts will be involved and CEOS leadership will receive an invitation.
* The third GEO Knowledge Hub webinar will be held on May 6 at 13:00 CET. The webinar will feature a ‘deep-dive’ into Sen2Agri, which will be offered as a Knowledge Package within the Knowledge Hub.
* Gilberto Camara (GEO Secretariat Director) will participate in the WGISS-51 meeting.
* Nancy Searby (NASA, WGCapD Chair) recently wrote to the GEO Secretariat to explore options for EOTEC DevNet support through GEO. The response is still being considered, but it will be sent soon.
1. **SEO Report**

Brian Killough (NASA, SEO) reported:

* The SEO is participating in the first of three workshops to support the Americas. The first workshop will be on April 15, 2021 at 11am EDT. These workshops, sponsored by CSIRO-Chile and the Australian Government, will identify the EO needs and challenges of the region and will advance the use of satellite data and Open Data Cube technologies. The workshops involve key local stakeholders (e.g., UN-GGIM, AmeriGEO, INEGI, CEPAL) and country-level government agencies and are consistent with the 2020 Aguascalientes Declaration objective to improve collaboration and the use of EO in the region.
* Pacific Islands: The SEO has been communicating with the South Pacific Consortium (SPC) to advance plans for a regional Data Cube. Stakeholders from several countries have been discussing EO needs and plans are moving toward a prototype to demonstrate impactful use cases. The SEO recently completed a detailed data analysis that revealed significant issues with cloud contamination in available optical data. Therefore, radar is of high interest and there is a push to test these datasets and conduct local capacity building.
1. **AOB, Next Meeting, and Adjournment**

**Possibility of a CEOS Speaker for the 72nd International Astronautical Congress**

SEC discussed the possibility of a CEOS speaker for the International Astronautical Federation’s 72nd International Astronautical Congress (IAC 2021) on October 25-29, 2021 in Dubai (Topic: International Cooperation in Earth Observations; potentially 30 minutes, including a presentation and Q&A).

Christine Bognar (NASA, CEOS Chair Team) thanked Chuck Wooldridge (NOAA) for bringing the event to the attention of the CEOS Chair Team. She noted that in past years, the agency in the CEOS Chair role at the time has been invited to present. This year, the invitee would be CEOS Chair Karen St.Germain. An invitation indicating the date and time for the speaker to present has not been received.

Kerry Sawyer (NOAA) noted that the CEOS Chair has been providing this presentation to IAC since 2013. Chuck has since said that the IAC Planning Committee is still hedging its bets for an in-person meeting, but it is not requiring anyone to travel to make a presentation. All presentations will be videos, regardless of whether the speaker is participating remotely or at the conference venue in Dubai.

The CEOS Chair Team will investigate further and provide an update at SEC-279. Kerry noted that IAC has requested a response by a certain date. Christine stated that no IAC invitation had been received; hence the confusion regarding a response. Marie-Claire Greening (CEOS Executive Officer) is currently following up in coordination with the CEOS Chair Team.

**Farewell for Chu Ishida of JAXA**

Osamu Ochiai (JAXA) reported that Chu Ishida (JAXA) retired last month after a long and outstanding career. His early achievements included helping to form CEOS and GEO, after which he supported numerous CEOS and GEO groups in his many years of involvement. Osamu referred to Chu as one of the ‘CEOS Legends’, praising his strong passion for EO and commitment to the CEOS Mission.

We will all miss Chu’s friendly smile, welcoming personality, and strong commitment to CEOS. We all recognise his excellent contributions and wish him all the best for his retirement.

Christine Bognar thanked Osamu and JAXA for this very special tribute to Chu Ishida and invited CEOS SEC representatives to add a message to [Chu's Kudoboard](https://www.kudoboard.com/boards/247iLK4R), which will be shared with him soon.

**Next Meeting and Adjournment**

Christine Bognar (NASA, CEOS Chair Team) thanked everyone for participating. CEOS SEC-279 will be held on May 13, 2021. The start time for the teleconference will be 7 AM US East.