

## CEOS VC Chats Q1 2022

### ESA SIT Chair Team Notes

#### Purpose

This document captures a set of internal notes for the ESA SIT Chair Team from the VC Chats Q1 2022.

**Overall Call Objectives:** To discuss what each VC expects to deliver, what do you need to deliver, and how can we ensure the CEOS relationship is worthwhile and efficient for you.

#### List of Standard Topics for All Chats

*A reference list of standard topics to include on the agenda for the VC Chats.*

- **Email lists for each VC** would these be useful to help facilitate communications for your Virtual Constellation? e.g. [p-vc@lists.ceos.org](mailto:p-vc@lists.ceos.org).
- **CEOS Work Plan** review of deliverables related to your VC, and suggestion or follow-up on any updates for the 2022 CEOS WP update.
- **SIT-37 issues** they would like to raise
- **Issues raised on last call in 2021.**

#### OST-VC - 1 Feb 2022

**Participants:** Annick, Estelle, Ivan, Marie-Claire, George

- Has been discussed within CNES and EUMETSAT but still **no active Chinese representative on OST-VC**. This remains important, but is also an issue that is larger than the VC. CNSA or CSOS would be ideal. This connection to China predates the COVID slowdown. Occasionally there are responses by email, but there is not a fluid conversation.
- CNES has a collaboration with China for CfoSAT, though this is not with CEOS agencies. Non-CEOS agencies can join VCs if that helps - this may present a possible way forward.
- **ACTION** Annick and Estelle to consider a couple of non-CEOS Chinese contacts to engage in the VC.
- **[VC-19-06: Update of CEOS OST-VC User Requirements Document](#)** will be discussed at a side meeting at March's OSTST Meeting (whether virtual or in person).
- Definition of Sentinel Next Generation is also a key component for the preparation of the User Requirements document. A decision was expected at the end of 2021, but this has been delayed until the end of 2022.
- No further updates to the CEOS WP from OST-VC at this time.

- No further additions to the thematic strategies page (<https://ceos.org/observations/>) at this time.
- We have reps from COVERAGE and SST-VC for the CEOS Oceans Coordination effort ([more here](#)). Would be useful to have more ideas from OST-VC. Focus is on having working level expertise for the group.
- Expectation is to have expertise on oceans to consider better coordination, e.g. on the UN Decade on Oceans. Coordination across CEOS activities such as the VCs, COVERAGE, COAST, etc. In particular reflection on better communication and coordination on responses to external needs across the six CEOS oceans-related groups. Initially this will be a brainstorming exercise, with some preliminary recommendations to be presented at SIT-37.
- Past discussion around merging the OST-VC and OSTST may provide some useful background inputs.
- Perhaps an annual less formal interaction (e.g. a workshop) might be something to consider.
- First milestone for this will be SIT-37, so likely before then there will be two meetings of 60-90 minutes each. And then prepare 3-4 slides for the SIT-37 meeting.
- **ACTION** Estelle and Annick to discuss with the OST-VC to see if there might be a representative for the CEOS oceans coordination effort.
- **ACTION** Estelle to share any materials from the past discussion within the OST-VC around the possibility of merging with OSTST.
- VC-specific mailing lists (e.g. [ost-vc@lists.ceos.org](mailto:ost-vc@lists.ceos.org)) didn't get a big response.

### **P-VC - 1/2 Feb 2022**

**Participants:** Chris Kidd, Takuji Kobota, Osamu Ochiai, Stephen Ward, George Dyke

- **P-VC terms of reference:** ToR document STILL needs to be updated and finalised. And membership updated. Last done in 2014. **Agreed to do before SIT-37.** We can update the website. Stephen will consult the VC Process Paper and share with Chris.
- **Representation of agencies on the P-VC:** Email from CEO, with request from GISTDA. Needs to be clarified. Stephen and Osamu will follow up with GISTDA. No reapproach to EUMETSAT yet. Their SAF is relevant.
- We still need to encourage the Chinese and Russians to join. Can try as SIT Chair. China very active in CGMS. JAXA utilising IPWG relationships for precipitation. Two IPWG Chairs are in P-VC which is helpful.
- **CEOS WP:** worked on action status before xmas. Will check with M-C.

<b>D</b> VC-20-13	Precipitation Constellation white paper
<b>D</b> VC-20-16	Precipitation product new version: GSMaP
<b>D</b> VC-20-17	GPM L2A precipitation products
<b>D</b> VC-20-18	New version IMERG

- **Thematic obs page:** 2021 document added. Nothing new.
- **SIT-37:** nothing.

### OSVW-VC - 9 Feb 2022

**Participants:** Stefanie Linow, Raj Kumar, Ivan Petiteville, Matt Steventon

- Have been starting to prepare for the IOVWST meeting. Will discuss the documents noted in their CEOS WP tasks and the International Ocean Vector Winds Science Team-led Document on Applications noted on ceos.org/observations.
- Last year they had a special session at IGARSS on Virtual Constellation topics and exchange of data.
- IOVWST is still defining the requirements for the CEOS-CGMS task team action from Plenary 34. Joplin from KNMI (<https://www.knmi.nl/home>) is leading the definition. No discussion since last time. Wanted to start discussion in a face-to-face meeting, but was delayed by COVID. No progress. Hoping to have a meeting in the next couple of months to get the requirements well defined. Already have a good understanding but need to consolidate across groups and purposes.
- Remotely Sensed Winds and Wind Stresses for Marine Forecasting and Ocean Modeling: <https://www.frontiersin.org/articles/10.3389/fmars.2019.00443/full> Could be used as a basis for a CEOS paper. Needs further discussion on how to prepare a document suitable for ceos.org/observations. Also maybe relevant to CEOS ocean coordination effort.
- Started preparing standards and metrics for VC-14-15, but WGCV contact (Xiaolong Dong, WGCV MSSG Lead) has gone quiet. An exchange of data was discussed. Looking at using the upcoming IOVWST meeting as an opportunity to regroup (April/May, virtual).
- Raj is keen to have someone from the OSVW-VC on the CEOS ocean coordination team. He is not able to commit himself as primary contact. Stefanie has the same time and resource constraints. Likely for Paul as well. Ivan confirmed it should be a low time commitment – a couple of telecons of an hour each before SIT-37. Need someone with good science knowledge but more importantly a strategic mind and understanding of the whole landscape.

- Matt will resend the email seeking nominations for the CEOS ocean coordination team. **DONE**
- VC-14-14: Vision for an OSVW Constellation: Stefanie will send an update to Marie-Claire for the new CEOS WP. Still in progress.
- Nothing further on SIT-37 at the moment, but will keep an eye out for the agenda and get in touch if anything comes to mind.
- Would be helpful to have more CEOS-level discussion about connecting systems across space agencies.

### **LSI-VC - 2 Feb 2022**

**Participants:** Steve Labahn, Peter Strobl, Astrid Koch, Marie-Claire Greening, Stephen Briggs, Ivan Petiteville, George Dyke

LSI

- COM travel budget looks to be constrained so likely the working level will struggle to get travel permission. SIT-37 virtual is good.
- USGS were hoping to have a future Copernicus side meeting at SIT-37, Sentinel-2 data access, etc. Still interested in having some kind of tag up - maybe on the margins of EU-US space dialogue in April. Some recent discussion on the US side on dates and location - Colorado was discussed, but DC was also an alternative. COM participation is likely to be hybrid.
- CEOS ARD oversight group setup has been great and well organised. Tomorrow is the first group meeting. Unclear how it fits into the work plan, but should discuss how to capture this activity in the WP. In particular to encourage the other WGs and VCs.
- Quite a lot of activity on the F&B subgroup in LSI-VC, in particular around AFOLU. Clear that land cover is highly related, and so there is a strong involvement and cross membership is ideal. Would be helpful to recognise this in the WP.
- **ACTION** to follow-up on where LSI-VC might need to be plugged into other CEOS WP deliverables where necessary - in order to ensure resources can be allocated.
- May be worth looking at the broader carbon program to see if there are other linkages to LSI-VC.
- Next feasible LSI-VC meeting opportunity is 8-9 September at ESRIN prior to SIT Workshop. Ivan has booked some rooms at ESRIN.
- [VC-18-03: CARD4L Product Family Specifications \(PFS\)](#)
- Annual update process underway, with several working sessions in the next couple of months. May be ready by SIT-37, but if not soon after.

- Steve is trying to get a workshop organised around STAC extension around CARD4L (involving Matt Hanson and Chris Holmes).
- [VC-18-01: Evaluate CARD4L supply](#)
- [VC-19-03: CARD4L Product Assessments](#)
- Two successful assessments which have been updated at ceos.org/ard: Sentinel-2, and EnMap/DLR product.
- A couple of others in work for CARD4L compliance, e.g. SANSa/SPOT, Orbital Sidekick, Labsphere - including uncertainty and traceability (which is a target level requirement). Lots of commercial engagement at JACIE where CARD4L was mentioned quite a bit.
- [VC-20-06: Water Leaving / Aquatic Reflectance CARD4L PFS](#)
- This has been in work for a couple of years. As of yesterday, it looks like there's a document that everyone has agreed to - ready for final endorsement.
- [VC-20-10: CEOS-Industry ARD Workshop](#)
- Using VH-RODA and JACIE as that type of opportunity. Still a good opportunity for face to face once things settle down.
- Terminology work and definitions are working on some fundamental terms. Peter sees an urgent need to discuss between CEOS and OGC to get certain concepts more closely aligned. e.g. in situ and ex-situ used by OGC but doesn't translate to CEOS / space agency work. This inconsistency will become a problem in cross-domain understanding in future.
- Good scope for public-private sector collaboration: high resolution data and methane data. Opportunity for LSI-VC.
- [VC-18-07: Gap Analysis Tools](#) (CEOS DB Team Lead, with SEO)
- [VC-19-05: Open-source library for surface reflectance product generation](#)
- Steve raised the issue of CEOS communications and the meeting calendar could be more clearly communicated. Meeting is 15th February. Transition to a new person. Marie-Claire does maintain a calendar and need to discuss a mechanism to share it on the website. Would be useful if the calendar was communicated across CEOS, even if via email for now. The calendar is communicated via CEOS SEC, but distribution to non-SEC agencies needs to be discussed.
- **ACTION** check with the CEOS communications team on how the CEOS calendar is managed and shared, e.g. via the CEOS website.
- Ivan asked about the LSI-VC involvement in the SDGs, e.g. the LDN Indicator. Have discussed this with Brian, and with some specifics on what's needed hope to be able to support from LSI-VC.

### SST-VC - 3 Feb 2022

**Participants:** Christo Whittle (SANSa), Ed Amstrong (JPL), Stephen Ward (Symbios/SCT)

- No major issues to be raised. Will attend SIT-37 virtually.
- SST will join the **ocean coordination effort** and Christo will join. Awaiting what the point is.
- UN Decade of Ocean Data Coordination Committee of about 25 members from different agencies are meeting in this. Ed is there. Data sharing and interoperability. Multi-year effort.
- **Thematic strategies:** nothing to add. Next gen SST constellation is in there already.
- **CEOS WP:** consider having a task. Have contributed to the ARD task. Will consider what else could be in the WP. Could help the CEOS Industry ARD workshop. Ed reach out to Steve Labahn. Also in ARD oversight. Consider replying to the CEO. New SST products and algorithms in Christo's group eg. Will consider. Will reach out to SST-VC membership to follow up.

### OCR-VC - 7 Feb 2022

**Participants:** Ewa, Marie-Helene, Marie-Claire, Ivan, George

- **Aquatic Reflectance CARDL PFS**
- Received a request from Ferran and Matt to nominate an OCR-VC rep to the ARD oversight group, and have nominated a person from Micera? UVic in Canada. **ACTION** to confirm that she was invited (sounded like she'd been in touch with Ferran).
- **CEOS WP deliverables**
- Updates on current deliverables and inputs for 2022 Work Plan
- [VC-20-24: Aquatic Carbon From Space Special Issue](#) and [VC-20-25: Aquatic Carbon From Space Workshop](#)
- Workshop next week (14-18 February), and shaping up well as an international event. Virtual format is allowing many to attend. 200 participants have already registered. Several carbon topics (e.g, blue carbon, carbon budget closure).
- The opening keynote address will be from Global Carbon Project, emphasising the importance of oceans in the global carbon budget.
- Recommendations of the Workshop will be published as an article in the special issue. Workshop will address both making the most of currently available satellite data, as well as future instruments/missions. Gaps in knowledge and observations being sought from participants ahead of the Workshop.
- Should consider products and gaps that can be implemented in the coming 12-18 months.
- These are all first steps towards the ocean element of the GST. Question of how to convert this work into a related CEOS documentation - this should be raised on the SIT-37 agenda.

The GST Strategy document should also be referenced. **ACTION** to share this with Ewa and Marie-Helene. [Document here](#).

- Abstracts for the special issue deadline is March/April, and they will include this in their SIT-37 presentation.
- [VC-14-09: Implementation of the International Network for Sensor Intercomparison and Uncertainty Assessment for Ocean Colour Radiometry \(INSITU-OCR\)](#)
- [VC-20-26: System Vicarious Calibration \(SVC\) infrastructures in support of Climate-quality OCR data records](#)
- [VC-20-27: Development of protocols for bio-optical in situ measurements](#)
- [VC-20-28: Capacity building summer schools and online resources](#)
- [VC-20-29: Synergistic activities with CEOS COVERAGE](#)
- Would be interested in hearing more about the progress of COVERAGE, and what OCR-VC can contribute in the next phase of development.
- Reports into the deliverables tracking tool are helpful. Updates to the Work Plan text due by Friday. They have started working on the updated version, and plan inputs by Friday.
- **Inputs/changes to thematic strategies page:** The “IOCCG-led Document on Aquatic Carbon Strategy 2022”, is a placeholder for the OCR-VC recommendations, and can be updated when the updated report is available. (<https://ceos.org/observations/>)
- **The CEOS Oceans Coordination effort** ([as presented at CEOS Plenary](#))
- Overall objective is to help optimise coordination of oceans activities within CEOS.
- Could help address aquatic carbon coordination efforts.
- Would like to have an OCR-VC representative involved.

### **AC-VC - 7 Feb 2022**

**Participants:** Barry Lefer, Hiroshi Tanimoto, Ben Veihelmann, Ivan Petiteville, Marie-Claire Greening, Stephen Briggs, Stephen Ward

- **General update on the VC:** VC progressing well with capable topical leads and a broad scope. Experts in 6 different topics from GHG to aerosols, air quality and ozone. In the middle of planning the next annual meeting in March (virtual). Ben and Shobha leading a new white paper on aerosol optical depth measurements and surface PM2.5. This is related to one of the actions in the CEOS WP (VC-20-05). Focusing on air quality aspects of aerosol. Somewhat mimicking the GHG White Paper approach - a broad effort from different obs and modelling communities. White paper well advanced and about to be released to community to present at SIT at next opportunity. Seeking endorsement at Plenary.
- Could present at SIT-37 in draft form and make a presentation. And prepare for Plenary (endorsement).

- Good progress on VC-20-01 and -03: On the Tropospheric Ozone Assessment Report - AC-VC is pretty active. NASA launched TEMPO 2023 and working with Asian community to help cal-val GEMS instrument. Ground network for trace gases in development with sun photometer.
- Concrete deliverable is individual mission validation plans. Sentinel-4 and -5 joint ESA-EUM calval plan has been issued last year.
- AMPAC was NASA-ESA campaign using AVIRIS observing methane. More joint campaigns planned including CO2M airborne instrument.
- Steve B suggested AC-VC consider the GST strategy actions at their next meeting and to reflect on the different campaigns that are known and how they could potentially support. Barry undertook to consider this.
- **CEOS WP tasks:** The tasks shown in the CEOS Work Plan for AC-VC are as follows:

VC-20-03	Air quality constellation validation coordination: validation plans	open	2020	2022 Q4	Coordinate the writing of harmonized GEO-AQ mission validation plans.
VC-20-02	Air quality constellation validation coordination	open	2020	2024 Q4	Coordinate implementation of recommendations expressed in CEOS document...
VC-20-05	Aerosol air quality coordination	open	2020	2021 Q4	Production of a white paper or peer-reviewed paper on satellite-informed...
VC-20-06	Water Leaving / Aquatic Reflectance CARD4L PFS	open	2020	2021 Q4	Develop a CARD4L PFS for Water Leaving / Aquatic Reflectance.
VC-20-01	Tropospheric ozone dataset validation and harmonization	open	2020	2022 Q4	Production of peer-reviewed papers on intercomparisons and harmonization of f...

- **The thematic strategies page:** <https://ceos.org/observations/>
- We can add the new white paper in there later this year to add to the current 4 AC-VC documents.
- **SIT-37 issues.** Nothing to raise. John Worden JPL taken over from Dave Crisp.
- GISTDA has reached out to AC-VC with a view to joining their upcoming meeting. SIT Chair Team will check GISTDA intent with each of the VCs.
- **Possible CEOS cooperation with IMEO:** NASA is trying to buy some of the GHGSat data. NASA flies airborne methane instruments yearly. Govt keen on doing more obs of GHG emissions with other federal partners. Talking with GHGSat.
- No issue with UNEP or GHGSat being present at VC meetings. UNEP is a CEOS associate. There is a GHG session at the upcoming AC-VC meeting that GHGSat/IMEO could engage with. They could present at AC-VC. Ivan said they should make the link to the UN side as well as the commercial aspect. Can we show that CEOS is helping the IMEO? Show the P-P benefits. MethaneSat and CarbonMapper presented last year. Need to be aware of sensitivities of govt interfering in their business.
- There are various aspects of the meeting they may be interested in across disciplines - such as CO2 and NO2 correlations. Would be keen to explore some of this on trace gases.



- Ivan asked for the AC-VC slides in good time for SIT-37.