MINUTES v1.0

CEOS SIT Technical Workshop 2026

9-10 September 2026

Executive Summary

1. Two deliverables under the SIT Chair's *Connected Data for Community Resilience* priority were reviewed: the CEOS Data Value Chain and the Socio-Economic Impact Assessment. The final products for both will be delivered in 2027. A simple, linear value chain was preferred; this could be accompanied by an interactive online version.
2. Under the SIT Chair's *Water Planet* priority, the 2026 CEOS-ARD Strategy Water Annex was reviewed, and inputs and feedback were collected for the Best Practice Guidance for Integrating Multiplatform and Multispectral Data for Water Science and Applications. The CEOS-ARD Strategy Water Annex aims to address the domain holistically using essential variables, and proposes to serve as a pathfinder for higher level products. SWOT and PACE self-assessments are underway by the NASA team. Inputs are requested to the CEOS Water Best Practice Guidance Integration Example Submission and Societal Challenge Input Form.
3. The draft 2026-2031 CEOS-ARD Strategy was reviewed, and further information was requested on the expertise needed to complete the identified initiatives. The AI Enablement and Trustworthy GFM Pillar requires further review and inputs from the WGISS Technology Exploration Interest Group (TEIG), which will remain as the focal point for AI/SI in CEOS for now. CEOS-ARD will use the NASA-ESA-USGS Quality Assessment Framework (QAF) as the backbone of the quality indicators for CEOS-ARD. CEOS will consider adopting the QAF more broadly as well, as a CEOS best practice; this will be carried forward by WGCV.
4. The 2026 Earth Observation Handbook, focused on Adaptation and Resilience, will now be printed ahead of the official launch at the 2026 CEOS Plenary. The CEOS Chair Team has developed a complementary, internally-focused discussion paper, which aims to set Principals up for a discussion at the 2026 CEOS Plenary about future CEOS support for the topic of Adaptation and Resilience. Resilience of the Earth observation system was also discussed, including where CEOS can act to increase the resilience of the entire EO supply chain.
5. The CEOS Virtual Constellations presented updates on their observing systems and activities, noting gaps and opportunities. These will be consolidated into the first *State of the CEOS Virtual Constellations Report*, to be compiled by the SIT Chair Team and presented to CEOS Plenary.
6. The draft proposal for the Synthetic Aperture Radar Virtual Constellation (SAR-VC) was presented, with any additional feedback on the Terms of Reference, Implementation Plan and Full Proposal requested by 30 September 2026.
7. The SIT Chair Team raised potential areas of shared interests between CEOS and CGMS, particularly wildfires, and will engage with the CGMS Secretariat to discuss further.
8. Virtual endorsement was granted for the update of the CEOS Governance and Processes document, as well as the new DOI Process Paper ahead of the SIT Technical Workshop. The SEO will present a list of previously published documents to Plenary which will be retroactively assigned CEOS DOIs.
9. An updated CEOS Terms of Reference will be presented to CEOS Plenary for endorsement, primarily to clarify the process for withdrawing from CEOS.
10. The CEOS Aquatic Carbon Roadmap, the third and final of the CEOS Carbon Roadmaps, will be presented to CEOS Plenary for acknowledgement. The GHG and AFOLU Roadmaps will be updated with matching cover pages.
11. AC-VC is developing a white paper on *Expanding Geostationary Monitoring of Atmospheric Composition*, which will be presented to SIT-42 (April 2027) for acknowledgement.
12. The 2027 CEOS Chair Themes will focus on the headline *Trusted Satellite Data for a Better Future*, and includes three focus activities: *True Green* (open, trustworthy data for tropical forests), *True Blue* (EO for polar and ocean science), and *True Future* (continuing the CEOS Youth Engagement activity). The 2027 CEOS Plenary will be held in Bergen, Norway, in the week of 1-5 November, 2027.
13. The first Earth Observation Data Providers Collaboration Forum was held on Tuesday, ahead of the SIT Technical Workshop. Many commercial companies are using CEOS information, networks, and CEOS-ARD, however there is still an awareness and communication gap. It was suggested this might be addressed in the short-term with defined commercial points of contact and a dedicated mailing list.

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Wednesday September 9th – Workshop Day

Workshop 1: Data Value Chain & Impact Assessment *[presentation]*

W1.1: Introduction: Data Value Chain

Robert Cheetham reviewed the process taken to develop a new CEOS Data Value Chain, which involved consulting with a wide variety of stakeholders, both internally and externally to CEOS. The consultations identified the key roles of CEOS across different points in the value chain, but many identified the most important CEOS roles as 'intangibles', such as international space agency relationship building.

W1.2: Activity: Reviewing the Data Value Chain and Preparing for CEOS Plenary Discussion

Participants were invited to review a number of potential value chain representations in groups. The following discussion points were shared with the audience after reconvening:

- The target audience for the value chain is primarily external and the final product will be hosted on the CEOS website. The primary goal is to better communicate what CEOS does to a broader audience.
- The value chain will also help CEOS identify gaps, and how new activities may fill them.
- Several people suggested that the more simple value chain is best, and the circular or helical examples are too complex. The diagram should not need to be complemented by a long description/instructions.
- It was suggested that this could sit under the organisation diagram on the CEOS website. The position of CEOS teams should be identifiable and it should help people navigate the CEOS organisation.
- One potential shortcoming of the linear value chain is that it doesn't accurately capture the number of CEOS activities on the downstream end. For example, WGDisasters and the Virtual Constellations often engage with end users to understand their needs and requirements.
- The 'other actors' section has unclear messaging and needs to be reconsidered. The map may not yet be complete. The value chain for CEOS needs to be considered in the context of the broader sector.
- It was suggested that the website version of the value chain be interactive and should include popups with more information about each activity listed, and links to further information. This will ensure the diagram is not cluttered and still provides the necessary information.
- The AI value chain could be published as a second version, to show one potential future of the sector. Even as a cautionary note, this could be useful.

W1.3: Introduction: Socio-Economic Impact Assessment

Zachary Vinyard presented the work done to assess socioeconomic impacts of CEOS, using water and resilience activities as a focus, since these are priorities under NASA's SIT Chair term. Impact is defined as the change that CEOS creates, such as the creation of data or decisions that would not have happened (or would have happened differently) without CEOS.

W1.4: Discussion: Appropriate Metrics for Measuring CEOS Impact and Potential Case Studies

Q1: Identify one CEOS activity you are confident has real impact, and describe how you know.

- Digital Earth Africa is a great example of CEOS impact. It's a continental-scale platform which has a huge number of impact stories (see: https://digitalearthafrica.org/en_za/insights/). CEOS

efforts on data acquisition and provision of CEOS-ARD has allowed the platform to focus efforts on downstream users.

- ASI has received user feedback and examples of the positive impact of the Geohazard Supersites and Natural Laboratories (GSNL) championed by WGDisasters.
- The cal/val community often struggles to rationalise impact, despite the number of commercial companies that rely on facilities like RadCalNet. Furthermore, CEOS work to provide guidance and standards such as through the WGCV LPV Protocols, is critical to ensuring good practices and utility of EO data and products.
- International coordination and trust building for the EO sector is a key element of CEOS work, and for which assigning clear impact is difficult.
- CEOS was critical in coordinating data supply for the Global Forest Observations Initiative (GFOI) for national forest monitoring systems.
- The CEOS Missions, Instruments, and Measurements Database is a cornerstone of space agency asset coordination, with the information feeding into both CEOS Virtual Constellation and agency planning processes. CGMS and GEO, as well as many other actors, regularly cite the Database as a critical reference.
- CEOS-ARD has many testimonies including from the Global Mangrove Watch, national statistics bodies, Digital Earth Africa, and others. For Global Mangrove Watch, CEOS-ARD standards for SAR have greatly simplified the processing chain and reduced internal efforts. The CEOS-ARD team is actively working to better document impact examples.
- The Global Methane Pledge has referenced the Common Practices for Quantifying Methane Emissions from Plumes Detected by Remote Sensing (2025) standards, which increased impact and fed into party governance, including in the UK.
- The benefit that CEOS has for its members must be clearly communicated, to ensure agencies have confidence in their investment in the organisation. The ability for CEOS to create trust in the rapidly growing EO sector is a critical service.
- Dave Borges (NASA, SEO) suggested that before a CEOS Work Plan deliverable is closed, the owner should provide some characterisation of the impact the deliverable has had, and this should also be fed into CEOS Communications team planning.

Q2: CEOS has massive, globally recognized impact. How is this impact measured? How is it communicated?

- Jonathon Ross (GA, CEOS Chair Team) recognised the competition for attention globally is high, and CEOS should think about whose opinions matter most. Intermediary and partner organisations are key.
- Peter Strobl (EC, LSI-VC Co-lead) recognised that for an organisation like CEOS, in the context of data provision, the real goal is to be invisible – data should be fully interoperable and work together with no technical friction. This further masks impact.
- When a gap arises in the observing system, end users should be able to have confidence that CEOS agencies will coordinate to fill the gap and ensure continuity of data records.
- Marie-Claire Greening (ESA) recognised external impact can be difficult to measure as it is disparate and vast. She suggested the primary focus should be on measuring internal impact.
- Mark Dowell (EC) recommended CEOS should strive to build strong value chains from end-to-end, with seamless data flow from provider to user. This makes impact traceable and more measurable.
- It is important to separate out the impact from agencies individually, and the added impact from the coordination that CEOS provides.

- A suggested vision for 2030 was that CEOS should strive to ensure that all potential users of EO are able to find, access, use and trust the data. CEOS has to build reputation and trust if EO data is to realise its potential.

Workshop 2: Water Planet *[presentation]*

Chaired by Erin Urquhart of the NASA SIT Chair Team. Water Planet is one of the NASA SIT Chair priorities for 2026-2027. This session reviews progress on the CEOS-ARD Strategy Water Annex, NASA efforts to assess mission products against the CEOS-ARD Product Family Specifications (PFS), review progress on the best practices survey, and to cover connections to the 2027 CEOS Chair priority 'True Blue'.

W2.1: 2026 CEOS-ARD Strategy Water Annex

Perry Oddo (NASA, SIT Chair Team) reviewed the development of the 2026-2031 CEOS-ARD Strategy Water Annex. The aim is to present a holistic approach to CEOS-ARD for the water domain, with higher level products being a key focus. The Annex considers past documents such as the CEOS Strategy for Water Observations from Space (2015) and frameworks like the Essential Water Variables (EWVs) and Essential Climate Variables (ECVs) with the aim of providing a holistic hierarchy for higher-level CEOS-ARD products for water. Other developing frameworks like the Essential Wetland and Water Quality Variables also need to be factored in.

Discussion

- Essential variables are a good framing, providing they have end user buy-in and are appropriately defined.
- The EWVs have overlap with other essential variable frameworks (e.g. climate, biodiversity, etc.) and the overlaps and the requirements for each need to be analysed.
- Osamu Ochiai (JAXA) recalled the objective of the GEOSS Water Strategy and the EWVs was to provide justification for the development of relevant missions. He suggested a similar objective should be clear for all essential variable frameworks.

Matt Bonnema (NASA) presented an update on the Surface Water and Ocean Topography (SWOT) mission CEOS-ARD self-assessment. The Level 1 low-rate interferogram product is being assessed against the INSAR CEOS-ARD PFS. It is lacking many of the requirements in the assessment since many of the required metadata fields are relegated to product documentation rather than being embedded in the product. The feeling is that the SWOT user community would benefit from a higher level product, perhaps a surface water specification.

Jeremy Werdell (NASA, OCR-VC Co-lead) reviewed the Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) CEOS-ARD self-assessment against the CEOS-ARD Aquatic Reflectance PFS. PACE meets 83% of the Threshold requirements. This is the first self-assessment against this Specification; feedback from the PACE team will be critical to tuning and improving the PFS.

W2.2: Best Practice Guidance for Integrating Multiplatform and Multispectral Data for Water Science and Applications

John Bolten (NASA) reviewed the purpose and scope of the best practice guidance document, which is to provide a community-driven guide for combining optical, SAR, passive microwave, altimetry, and gravity data for water applications. The team is requesting integration examples from the CEOS community, as well as expert perspectives on water-focused societal challenges highlighting current satellite integration, existing products and remaining gaps. He also encouraged product teams who are not necessarily using multi-sensor products to fill out the form. The surveys can be found here and here.

Discussion

- Excess water and lack of water challenges are of interest, particularly with a view to understanding how the modelling community leverages satellite data. River usage and stream flow dynamics are also of particular interest.

SIT-TW-26-01	CEOS Agencies to coordinate submissions for the SIT Chair team's surveys on *Best Practice Guidance for Integrating Multiplatform and Multispectral Data for Water Science and Applications*, via the following forms: • CEOS Water Best Practice Guidance Integration Example Submission • Societal Challenge Input Form	**2026 CEOS Plenary**
	Rationale: The SIT Chair Team is requesting inputs to help shape the best practice guidance.	

W2.3: NOSA 2027 CEOS Chair Theme: True Blue

Ole Morten Olsen (NOSA, 2027 CEOS Chair Team) presented the second focus activity for the 2027 CEOS Chair, *True Blue*, under the broader theme of *Trusted Satellite Data for a Better Future*. *True Blue* will explore a number of collaborations with partners, including the OceanEye International Alliance, the Global Ocean Observing System (GOOS), WMO Task Team on the Cryosphere and Polar Observation from Space (TT-CPOS) and the 5th International Polar Year (IPY-5). The polar and ocean regions are difficult to observe, accentuating the value of EO; space agency coordination is required to maximise the benefit.

Discussion

- The proposed SAR Virtual Constellation sees an opportunity to engage in the polar activities under True Blue. Ake Rosenqvist (JAXA) recalled an International Coordination Group for Spaceborne SAR (ICGS-SAR) paper highlighting opportunities around interferometry for polar observations. SAR-VC could potentially coordinate observations from multiple SAR missions in various frequency bands over a series of hot spot glacier regions, such as the Himalayas, the European Alps and the Andes, to demonstrate the use of SAR data to monitor glacier movements at different frequencies, for example. Sea ice observation coordination could also be addressed, given the challenge of the large area to be covered.
- Recommendations from CEOS on polar observations would be useful. Three of the Copernicus Expansion missions have a polar focus.
- Jonathon Ross (GA, CEOS Chair Team) suggested applying a polar 'lens' to the suitability of the CEOS-ARD Specifications, noting challenges around geometry near the poles.
- WMO TT-CPOS is looking for further engagement from scientists and experts and would likely welcome engagement with CEOS agencies.
- ESA is hosting a Hydrospace Workshop in 2027, which could be a good opportunity to engage with the scientific community.
- NASA has an arctic observation coordinator who could support discussions from an end user perspective.

Workshop 3: 2026-2031 CEOS Analysis Ready Data (CEOS-ARD) Strategy *[presentation]*

W3.1: 2026 CEOS-ARD Strategy Overview

Matt Steventon (CEOS-ARD Oversight Group Secretariat) reviewed the 2026-2031 CEOS-ARD Strategy, which is built around six pillars of activity, with individual initiatives taking place over three time horizons from 2027-2031. The objective for this discussion was to identify how to best facilitate a discussion at Plenary that might see specific commitments from CEOS Principals to achieve the Strategy.

Discussion

- Beth Greenaway (UKSA) suggested highlighting which actions already have people proactively working on them, and where there is room for more involvement. Narrowing down the ask to which specialists are needed to accomplish specific tasks, and highlighting where the gaps are is key to enabling a clear response from Principals.

SIT-TW-26-02	CEOS-ARD Oversight Group to add details to the 2026 CEOS-ARD Strategy Initiatives and Tasks table regarding the expertise and skillsets needed to achieve each outcome.	**2 October 2026**
	Rationale: This additional detail will help agencies identify appropriate assignments.	

- The CEOS-ARD Oversight Group is looking for more software developers to implement the shift of the Specifications to the 'Building Block' framework on GitHub and to build out the compliance automation mechanisms. This area primarily relies on the efforts of one person currently, representing an implementation risk.
- Nitant Dube (ISRO, WGISS Chair) suggested a key message for Principals should be how CEOS-ARD can help their individual organisation, as this will incentivize participation and resource allocation.
- The CEOS-ARD team would like to see more WGCapD engagement as a means to connect with agency capacity development programmes that can promote the uptake of CEOS-ARD, as well as provide a mechanism for feedback on the specifications and the development of application case studies.
- John Remedios (UKSA) recommended that Principals should be asked for higher-level commitments such as project-level agreements on contributions.
- Jonathon Ross (GA, CEOS Chair Team) recognised the importance of capacity building not only for end users, but also for data providers, to give advice and support as they work to develop their products to be CEOS-ARD compliant.

W3.2: Artificial/Super Intelligence Enablement and Trustworthy GFM Pillar

Katie Baynes (NASA) presented an overview of NASA's Earth Science Data Systems (ESDS) AI Strategy. The Strategy is built around four pillars, focused on data systems and infrastructure to support AI-powered workflows. An AI innovation augmentation call by NASA received 33 ideas and selected 7 of them for funding over the next year for augmentation of existing work in the community. NASA is partnering with the University of Washington for a responsible gen-AI NASA EarthData hackweek.

Discussion

- USGS has an AI-ready strategy document. It doesn't promote 'analysis-ready' EO data, rather simply urges that data be high-quality. The authors are not engaged in CEOS.

- ESA developed an AI roadmap in 2025 which will be updated in the coming year. PhiLab is the innovation hub in ESA and works with industry including startups. The sector is evolving so quickly and any approach needs to be dynamic and flexible.
- Each ESA program also has their own AI strategy on how to leverage tools. The ESA Climate Change Initiative (CCI) surveyed their community to understand how AI is being used with their datasets and has recently hired a climate and AI scientist.
- Alex Held (CSIRO, CEOS Chair) noted that CSIRO is using AI and agentic AI for water quality applications.
- GA does not have an EO-specific AI strategy but does apply AI to analyse outputs, and highlight trends and outliers for further investigation.
- CNES has a new AI strategy, complementary to ESA's with a specific focus on VHR imagery, 3D elevation models, and thermal IR. CEOS-ARD could usefully provide guidelines on usage of GFM, especially if we can think about having standards for embeddings, where it can be hard to understand quality.
- The European Commission also has an AI Strategy, with a very broad scope. Copernicus is briefly mentioned in the strategy. For CEOS it will be important to understand what standards and best practices we want to develop in the use of AI.
- Chris Barnes (USGS, LSI-VC Co-lead) highlighted that the CEOS-ARD Oversight Group has not yet identified the CEOS resources/people to support five of the six initiatives under the AI/SI/GFM pillar.
- Maral Bayaraa (UNEP's IMEO, WGISS TEIG) agreed that more representation of AI/ML expertise is needed in the WGISS Technology Exploration Interest Group (TEIG). When it comes to using AI models and GFMs, choosing a model needs assessment of the trade-offs.
- Nitant Dube (ISRO, WGISS Chair) recognised that WGISS would like to see more about how CEOS-ARD products can be used for AI/ML applications. WGISS developed an AI/ML white paper but could do an exercise to map CEOS-ARD products in different EO applications. An exercise has been done to revise the chapter on disasters in the AI/ML White Paper. More interaction with downstream users is needed. WGISS would like to gather more use cases from across CEOS and build them into the AI/ML white paper.
- There was no strong call for a new dedicated AI/ML subgroup under WGISS. Continuing this work under the leadership of the WGISS TEIG was the implied takeaway from the discussion.
- The AI/ML tasks currently defined in the new CEOS-ARD Strategy are quite broad, making them more difficult to assign. The type of AI and purpose also needs more consideration. Breaking the tasks down into more manageable chunks will make gaps clearer and assignments easier, as well as help identify tasks which can be pursued in the near-term.

SIT-TW-26-03	WGISS Chair and Technology Exploration Interest Group (TEIG) leads to review Pillar 5 of the 2026 CEOS-ARD Strategy (AI Enablement and Trustworthy Geospatial Foundation Models) and propose a more appropriate discretisation of the Initiatives and Tasks.	**SIT-42**
	Rationale: Breaking the tasks down into more manageable chunks will make gaps clearer and assignments easier.	

W3.3: Discussion: Barriers and Opportunities to Broader CEOS Agency Uptake of the CEOS-ARD Framework

- Peter Strobl (EC, LSI-VC Co-lead) noted that CEOS-ARD is referenced in the specifications for the Copernicus Expansion and Next Generation missions. There are requirements for the Sentinel Next Generation missions to comply with CEOS-ARD.
- It is recommended that CEOS-ARD be included in mission design from the outset, as archive reprocessing can represent a barrier due to high costs.
- Ake Rosenqvist (JAXA) recalled that CONAE is developing a CEOS-ARD tool so that compliant products can be generated on demand, without requiring a full reprocessing and storage of the entire archive. This approach has also been used in the past to generate on-demand CEOS-ARD Sentinel-1 products.
- Jonathon Ross (GA, CEOS Chair Team) raised the need to have more demonstrators of how CEOS-ARD has resulted in positive change, particularly for interoperability, as this will motivate adoption.
- Alex Held (CSIRO, CEOS Chair) recognised that if data procurement requirements specify the data must be CEOS-ARD compliant, providers will be motivated to comply.
- In preparation for the Landsat 10 launch, USGS is reprocessing the Landsat archive to Collection 3, which will be compliant with the CEOS-ARD specifications.
- The primary argument for CEOS-ARD is that end users will be saving a large percent of typical pre-processing efforts, representing a strong financial benefit from an end user perspective. However, it does require an increase in investment on the provider side. If statistics showing increases in impact, saved downstream costs, and additional data uptake were available, this would be very useful in encouraging more data providers to get onboard.
- Patrick Gibson (UKSA) recognised that being clear about what CEOS-ARD is *not* would also be useful, to avoid overselling the capabilities. He suggested it could also be helpful to show the counter case, that is, what happens *without* CEOS-ARD with regard to data trust, interoperability, quality, etc.

W3.4: CEOS-ARD and Data Quality Assessment

Matt Steventon (CEOS-ARD Secretariat) reviewed the Quality Pillar of the 2026-2031 CEOS-ARD Strategy, highlighting that CEOS-ARD plans to adopt the NASA-ESA-USGS Quality Assessment Framework for the data quality aspects of the framework and noted that data quality will have a greater prominence under the vision of the new Strategy.

In addition to the CEOS-ARD context, participants were asked to consider whether it would make sense to explore, through CEOS, broader agency adoption of the Joint NASA-ESA-USGS Quality Assessment Framework (QAF). The reasoning being that the CEOS WGCV and experts from NASA, ESA and USGS have produced a mature and robust framework that is being used for operational data quality assessments and it makes sense for other CEOS agencies to leverage this extensive work and provide a common approach and consistency for both CEOS agencies and private sector data providers.

Discussion

- Responses to the live survey were unanimous that CEOS should adopt the NASA-ESA-USGS Quality Assessment Framework in some fashion.
- Subsequent discussion concluded that CEOS should endorse the QAF (at a particular point in time) as an accepted CEOS best practice for quality assessment. This would maintain the independence of the NASA-ESA-USGS framework for their own purposes and not have CEOS take control of something that is critical to these agencies' work. This would be similar to how

CEOS endorses a reference solar irradiance spectrum. CEOS-ARD could then adopt the CEOS best practice for the data quality pillar of the new CEOS-ARD Strategy.

- The NASA-ESA-USGS Quality Assessment Framework was developed as a way to validate commercial data before purchasing, initially developed by NASA and ESA, leveraging WGCV resources. USGS have since assessed Landsat products against the QAF.

SIT-TW-26-04	CEOS Agencies to provide final feedback on the 2026 CEOS-ARD Strategy and Water Annex.	**9 October 2026**
	Rationale: The CEOS-ARD Strategy will be presented for endorsement at the 2026 CEOS Plenary.	

Workshop 4: CEOS Support for Adaptation & Resilience *[presentation]*

W4.1: 2026 CEOS Earth Observation Handbook: Satellite Earth Observations In Support Of Adaptation And Resilience

Marie-Claire Greening (ESA) presented the 2026 CEOS Earth Observation Handbook, which is now finalised and will be printed shortly. The focus is on adaptation and resilience and the role of satellite EO therein. An expanded version with more case studies will be available online. The CEOS Secretariat and CEOS agencies were thanked for their review of the drafts.

Printed copies will be distributed to CEOS Agencies at the CEOS Plenary and copies will also be sent to agencies upon request. Mark Dowell (EC) suggested that GEO ExCom members be included in the initial distribution list.

SIT-TW-26-05	CEOS Agencies are invited to suggest events for deployment of the 2026 EO Handbook on Adaptation and Resilience. Suggestions can be sent to Marie-Claire Greening.	**2026 CEOS Plenary**
	Rationale: The EO Handbook is a key community resource which should be shared at a variety of events over the coming year. The ESA team can provide materials at any relevant events.	

W4.2: CEOS Chair Paper: CEOS Support for Adaptation and Resilience in a Changing Global Environment

Alex Held (CSIRO, CEOS Chair) summarised the draft paper, noting the questions which will be presented to CEOS Plenary for discussion.

Discussion

- Julie Robinson (NASA, SIT Chair Team) recalled the challenges faced by GEOGLAM in the wide variety of needs in the agriculture community, and how these map to various CEOS activities. End user perspectives can help CEOS prioritise activities, in particular, how data from upcoming missions can be utilised more effectively. Focusing efforts is critical to ensuring success. Mark Dowell (EC) added that CEOS needs to consider different levels of users.
- John Remedios (UKSA) referred back to the value chain discussion and the need to prioritise CEOS work and suggested identifying external interfaces on adaptation and resilience.
- The WGDisasters EW4All Subgroup should be invited to review the paper.
- It was suggested that the questions be more open ended, to encourage discussion.

- A reinvigoration of the CEOS-GEO relationship and a proactive approach by CEOS to say in which areas GEO needs to help build the last mile to the end user community would be helpful.

SIT-TW-26-06	CEOS Agencies to provide feedback on the draft CEOS Chair paper *CEOS Support for Adaptation and Resilience in a Changing Global Environment*.	**30 September 2026**
	Rationale: The paper will be provided for information to CEOS Principals at the 2026 CEOS Plenary to inform discussions around future CEOS support for adaptation and resilience.	

W4.3: CEOS Roundtable Discussion on the Necessary Components for a Resilient, Trusted, Integrated, Interoperable, and Impactful Observing System

Jonathon Ross (GA, CEOS Chair Team) provided context on what a resilient observing system means, which is critical to ensure confidence in EO data. He invited participants to identify aspects which most contribute to the resilience of the EO data supply chain, and to identify how relevant to / actionable they are by CEOS, as a means for identifying areas of potential action. The charts produced by the discussion teams are compiled in Appendix C. Participants ranked the highest priority risks for CEOS attention as:



Thursday September 10th – Plenary Day

Julie Robinson (NASA, SIT Chair Team) welcomed participants to the National Academies of Sciences in Washington D.C., USA and to the Plenary Day of the SIT Technical Workshop. She thanked the National Academies for hosting CEOS. Julie recalled the new structure trialled at this year's SIT Technical Workshop, and welcomed any feedback from participants on the Workshop Day held the day prior. The convening power of CEOS is critical to ensure EO data is working to support communities around the world.

Session 1: Virtual Constellations: State of the Earth Observation System

1.1: Session Introduction and Objectives *[presentation]*

Sid Boukabara (NASA, SIT Chair Team) reviewed the objectives for the session, noting it will focus on the state and continuity of the Virtual Constellations, as well as identifying potential gaps, risks and challenges in product availability, satellite operator engagement, and commercial sector involvement.

1.2: Virtual Constellation Reports

Atmospheric Composition (AC-VC) *[presentation]*

Charles Miller (NASA) reviewed the status of AC-VC missions, noting the commissioning of Sentinel-4, Sentinel-5, IRS and IASI-NG, and the need for harmonised total column water vapour observations. He presented key findings from the AC-VC white paper *'Expanding Geostationary Monitoring of Atmospheric Composition'*, highlighting the need for hourly global air quality observations and noting that four geostationary instruments using current technology could help address observation gaps in the tropics and Southern Hemisphere. AC-VC experts recommend Sentinel-5 Precursor (S5P) be extended through to 2035, to support long-term data continuity, and provide an important reference for validating and verifying upcoming missions.

Sea Surface Temperature (SST-VC) *[presentation]*

Christo Whittle (CSIR) recalled that the SST-VC annual meeting was held on 9 June 2026. SST-VC has substantial collaborations across CEOS, including with COAST-VC and Biodiversity-VC. GHRSST Data Specification v3 (GDS v3; expected by Fall 2026) is being developed in consideration of CEOS-ARD alignment.

Biodiversity (B-VC) *[presentation]*

Yoseline Angel Lopez (NASA, B-VC Co-lead) reported on B-VC activities, highlighting biodiversity mapping work in Costa Rica using the sensor-agnostic BiodivmapR approach, development of the Bioclimatic Ecosystem Resilience Index (BERI) as a GBF monitoring indicator, and plans to expand validation and applications using SAR data. B-VC is considering potential activities on wetland mapping and collaboration with the Ramsar Convention and GEO-Wetlands, and is preparing a CEOS statement to UN CBD COP-17. B-VC are coordinating with WGDisasters regarding their biodiversity pilot, as well as with the LSI-VC Forests and Biomass Subgroup on AFOLU activities.

Land Surface Imaging (LSI-VC) *[presentation]*

Ake Rosenqvist (JAXA) reported on agency land surface imaging program highlights, including progress on USGS Landsat Collection 3 and Landsat 10, ongoing and recent CEOS-ARD compliance activities (NASA HLS, Resourcesat-2/2A, THEOS, NISAR, JERS-1, ALOS-1), and planned updates to CEOS-ARD Product Family Specifications (PFS) to support very-high-resolution data and greater commercial sector participation.

The LSI-VC GEOGLAM Subgroup has adopted a new framework for documenting Essential Agricultural Variables (EAVs) and is undertaking work to consolidate the EAVs and prepare for Phase 2

of the assessment of space agency products. The Wildfire Subgroup has finalised its Terms of Reference and will focus on best-practice guidelines, collaborative validation of fire products, and development of CEOS-ARD specifications for fire products. Mark de Jong (NRCan) noted the CEOS wildfire portal (ceos.org/wildfires) shows all missions with the *potential* capability to monitor active wildfires; the number of operational active fire products comes from a much smaller subset. An update on the LSI-VC Forests and Biomass Subgroup follows later in agenda item 1.3.

Jonathon Ross (GA, CEOS Chair Team) noted that LSI-VC is a key point of CEOS engagement with the commercial sector, and has championed the idea of commercial engagement sessions at its meetings. Regarding CEOS-ARD, commercial providers have invested a lot of effort in achieving compliance, and it could be helpful for CEOS to acknowledge this effort to a management/executive level in these companies, ensuring they recognise the importance. He suggested the CEOS Chair could be included in the compliance process, specifically to provide a letter of acknowledgement.

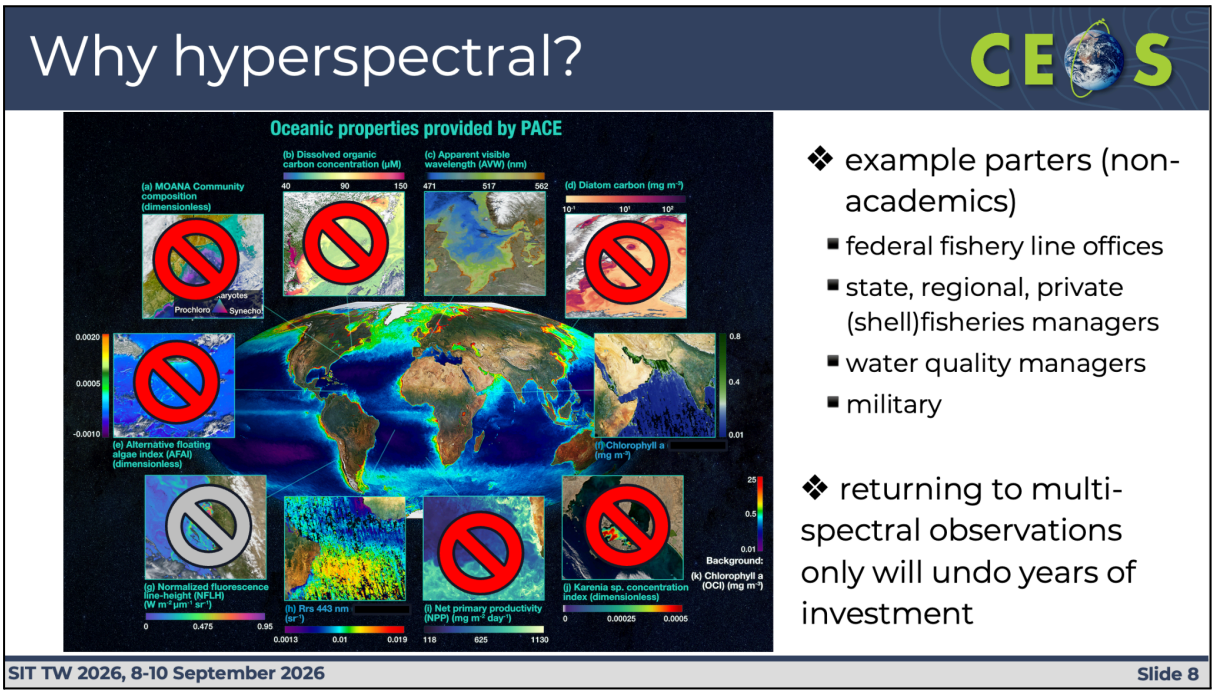
Ocean Colour Radiometry (OCR-VC) *[presentation]*

Jeremy Werdell (NASA) reviewed OCR-VC activities, highlighting the importance of hyperspectral observations for OCR. Recent focus for OCR-VC has been on the Aquatic Carbon Roadmap, as well as progressing CEOS-ARD assessment, with the completion of an initial PACE self-assessment reported to the SIT Technical Workshop yesterday. There is a potential gap in global (1-2 day) hyperspectral ocean colour observations between PACE OCI and future missions such as Sentinel-3 A-OLCI. There are a few one-off geostationary ocean colour instruments, however a consistent, global network is not currently being planned. OCR-VC is also considering greater engagement with WGCV.

Discussion

Regarding the potential gap in global (1-2 day) hyperspectral ocean colour observations, Jonathon Ross (GA, CEOS Chair Team) suggested that communications to CEOS Principals on this matter should focus on the impact to science. Jeremy confirmed that the task force is formulating a statement along these lines. Julie Robinson (NASA, SIT Chair Team) added that the SIT Chair Team has recommended OCR-VC develop an applications traceability matrix to help explain what the gap means in terms of the science and applications.

In response to a question about hyperspectral coverage, Jeremy showed the following slide, noting that the crossed-out oceanic properties would be unavailable without the increased spectral coverage, as well as the 1-2 day coverage.



Ocean Surface Topography (OST-VC) *[presentation]*

Estelle Obligis (EUMETSAT) reported mission status updates for ocean surface topography missions, noting that Sentinel-6B is progressing through commissioning and is expected to become the reference altimeter mission by the end of 2026. SARAL/AltiKa is critical for high-latitude coverage, as well as for the cross-calibration and validation of CRISTAL. Discussions on extending the mission into 2027 are ongoing.

Ocean Surface Vector Wind (OSVW-VC) *[presentation]*

Stefanie Linow (EUMETSAT) reported new developments for OSVW-VC, including winds products from ISRO (scatterometer, SAR and GNSS-R), the upcoming launch of EPS-SG scatterometer with improved high-winds capabilities, the launch of HY-2E in July 2026, and plans for HY-2F in 2027 with improved payloads such as upgraded altimeters and dual-frequency scatterometers. One issue identified is that data is not always exchanged freely and openly, primarily due to political reasons. Agencies need to start thinking now about the evolution of the next generation of instruments beyond 2035.

Precipitation (P-VC) *[presentation]*

Will McCarty (NASA) reported the changes to the precipitation constellation, including the new generation of MetOp instruments, and the upcoming transition from GPM Core to PMM in the inclined orbit. Key gaps remain in measurement coverage and continuity, surface reference observations, snowfall and complex terrain retrievals, with a need for improved algorithms, validated products and lower-latency data. NASA has purchased Tomorrow.io precipitation radar data, while NOAA is using Tomorrow.io radar and WeatherStream microwave sounder data. These commercial sources may help fill sampling gaps, but require further assessment of quality, calibration, coverage and interoperability. There is a need for an agreed procedure for such assessments.

Discussion

Mike Ford (NOAA) noted that the commercial sensors are characterised at a different level of detail, and recommended strengthening the linkage to GSICS activities.

It has been a priority for NASA and JAXA to ensure there is overlap between GPM and PMM. An orbit reconfiguration for GPM was performed a few years ago, and the sensors are still healthy.

Coastal Observations Applications Services and Tools (COAST-VC) *[presentation]*

Nima Pahlevan (NASA) reported that COAST-VC is leading a gaps and limitations analysis across coastal regions, which covers in situ validation, products and algorithms, high latitudes, and tools. A report will be delivered to the SIT Chair in Q2 2027. COAST-VC has proposed an arctic focus group, which is well aligned with the 2027 CEOS Chair themes. Challenges have been identified in the adoption of EO tools by the private sector.

Discussion

Julie Robinson (NASA, SIT Chair Team) commended the efforts of COAST-VC as a model for multi-sensor VC gap analysis, noting similar challenges faced by GEOGLAM.

Jonathon Ross (GA, CEOS Chair Team) highlighted the relevance of coastal issues to adaptation and resilience. COAST-VC lessons should feed into the broader discussions around what CEOS needs to do to support local governments.

1.3: Agriculture, Forestry and Other Land Use (AFOLU) Update *[presentation]*

Matt Steventon (JAXA) reviewed the ongoing implementation of the CEOS AFOLU Roadmap. Recent efforts have focused on stocktaking agency outputs that contribute to the realisation of the Roadmap, with the goal of launching a public-facing CEOS AFOLU Portal to catalogue CEOS Agency outputs and aid identification of gaps.

Clement Albergel (ESA) provided updates on ESA's AFOLU initiatives, including the release of the CCI Biomass v7 dataset, the CarbonEYE project tailored for carbon markets, and the ESA WorldPeatlands and World Forests programs. The BARCCIOLE, CARBONARA and CoMet 3.0 Tropics projects are airborne campaigns, focused on collecting validation data for greenhouse gas fluxes.

There is a need to reconcile national GHG inventories with top-down satellite observations, as recent research finds that European forest biomass is declining faster than it can recover and tropical forest degradation remains a major, under-reported source of carbon emissions.

Peter Strobl (EC) reported on new 10m Copernicus Land Monitoring Service (CLMS) Land Cover and Forest Monitoring (LCFM) products releasing on the Copernicus Data Space Ecosystem (CDSE) over the next six to nine months.

Ake Rosenqvist (JAXA) reported that Global Mangrove Watch version 4 was released in July 2026, with 30m resolution annual maps from 1985-2025, with annual layers that discern mangrove gains and losses.

Discussion

- Alex Held (CSIRO, CEOS Chair) asked whether CEOS might contribute more on non-forest biomass measurements, noting the focus has been on forest biomass to date. CEOS should consider rangelands as well.
- Osamu Ochiai (JAXA) recalled the biomass harmonisation work, and recommended that work continue to help users understand which biomass maps they should use. A CEOS-ARD PFS on above-ground biomass might be a helpful approach.
- Julie Robinson (NASA, SIT Chair Team) recognised potential synergies between COAST-VC, B-VC and the AFOLU Roadmap activities and suggested an effort to explore connections.
- Yoseline Angel Lopez (NASA, B-VC Co-lead) suggested the essential variables concept could be used as a framework to review interconnected activities. A mapping activity could be conducted between each essential variable family and the relevant Virtual Constellation(s). Consideration could also be given to how to leverage the CEOS-ARD framework in this context.
- Ake Rosenqvist (JAXA) noted that all SAR products used in the Global Mangrove Watch are CEOS-ARD compliant and this has helped enormously to reduce the processing workload.

SIT-TW-26-07	LSI-VC Co-Leads to engage COAST-VC and Biodiversity-VC leadership on shared priorities and collaboration opportunities and potential efficiencies / connections.	**SIT-42**
	Rationale: Noting the shared areas of the AFOLU Roadmap, essential variables, etc.	

1.4: Proposal: Annual CEOS Report on the State of the Virtual Constellations *[presentation]*

Libby Rose (SIT Chair Team, MIM Database Team) reviewed issues with the current mechanisms in CEOS for reporting and addressing gaps in the observing system, and proposed an annual report to summarise gaps and opportunities as identified by the Virtual Constellations. Virtual Constellations have been requested to provide inputs for this first edition of the report by 9 October 2026, so the report can be presented at the CEOS Plenary in November.

Discussion

- Jonathon Ross (GA, CEOS Chair Team) commended this idea on behalf of the CEOS Chair Team. He encouraged Virtual Constellation co-leads to consider how gaps in the observing system will impact downstream science and applications and to highlight this in the report to Principals.

- Evan Neuwirth (USGS) agreed the report is a good initiative, and it will be helpful to have such information published regularly. A template should be defined to make it easier for Virtual Constellations to provide inputs in a consistent manner.
- Will McCarty (NASA, P-VC Co-lead) suggested thinking about defined metrics that can be tracked year after year, to enable future analyses.

SIT-TW-26-08	SIT Chair team to work with the VC Co-Leads to develop a first edition of an *Annual CEOS Report on the State of the Virtual Constellations*.	**2026 CEOS Plenary**
	Rationale: The aim is to provide a holistic, consistent overview with expert commentary from the VC Co-Leads to communicate more clearly to CEOS Principals.	

1.5: Establishing the Synthetic Aperture Radar Virtual Constellation (SAR-VC) *[presentation]*

Paul Rosen (NASA) recalled the SIT-41 action which tasked the International Coordination Group for Spaceborne SAR (ICGS-SAR) with drafting a proposal for a SAR Virtual Constellation. SAR-VC would be composed of five subgroups, covering core coordination activities alongside cross-cutting elements. Areas of coordination with other CEOS entities have been identified. The draft Terms of Reference, Implementation Plan and Full Proposal were circulated ahead of SIT Technical Workshop and will be presented for final decision at the 2026 CEOS Plenary in November.

Discussion

- Francesco Longo (ASI) confirmed ASI's support for the establishment of SAR-VC. He asked about the automated tasking tool and where it will focus. Paul confirmed that the tool is for disaster response, based on a development for NISAR. Its future development and scope is a topic for discussion.
- Dave Borges (NASA, SEO) noted potential connection to the Sensor Tasking API (STAPI) and related OGC standard for the automated tasking tool activity.
- Jonathon Ross (GA, CEOS Chair Team) noted the proposed waveband protection activity. CEOS needs to ensure the correct information is reaching the right people at the right times to support the decisions being made regarding waveband allocations.
- SAR-VC will coordinate with the International Charter: Space and Major Disasters through WGDisasters.
- Ann Mari Fjæraa (NOSA) confirmed NOSA's support for the establishment of the SAR-VC. NOSA would like to connect with SAR-VC leadership to discuss links to the 2027 CEOS Chair themes. For the upcoming International Polar Year and enhancing satellite coverage for polar regions, SAR-VC input will be very important.

SIT-TW-26-09	Prospective SAR-VC Co-Leads to finalise the SAR-VC proposal documents for CEOS Plenary, reflecting feedback from SIT TW.	**2026 CEOS Plenary**
	Rationale: The full proposal for SAR-VC is planned to be presented at the 2026 CEOS Plenary, following the acceptance of the initial proposal at SIT-41.	

1.6: CEOS-CGMS Coordination *[presentation]*

Sid Boukabara (NASA, SIT Chair Team) noted that a discussion at the CGMS plenary led to an action to consider engaging CEOS to assess aspects of common interest. He highlighted the various existing approaches to coordination between the two groups, which range from separate, *ad hoc* efforts to

the joint mechanism of the CEOS-CGMS WGClimate. Key questions were raised for consideration regarding how to achieve further synergies and mechanisms for routine assessment of those, as well as establishing ongoing dialogue between CEOS and CGMS leadership on Earth observation coordination.

Discussion

Julie Robinson (NASA, SIT Chair Team) suggested that the wildfires topic is especially interesting. Both bodies have an interest, although there is a substantial difference in observing capability between meteorological and non-meteorological agencies. The SIT Chair team will speak with EUMETSAT, NOAA, and other agencies to seek inputs for the planned future meeting between CEOS and CGMS leadership.

Session 2: Preparation for the 2026 CEOS Plenary

Jonathon Ross (GA, CEOS Chair Team) recalled the CEOS Chair Theme: *Positioning CEOS for Success in a Rapidly Changing Context*. The 2026 CEOS Plenary will use this theme as context and focus on three key objectives: ensuring a resilient, interoperable and integrated Earth observation system; realising the full potential from Earth observations from space and driving impact; and, ensuring that CEOS remains a thriving and sustainable organisation that is responsive to member needs.

2.1: CEOS Governing Documents Updates *[presentation]*

Lefteris Mamais (CEOS Executive Officer) noted virtual endorsement was granted for the update of the CEOS Governance and Processes document, which included clarifications around how documents are presented to CEOS Principals. Four document type requests are covered: for information, for feedback, for acknowledgement, and for endorsement. An update of the CEOS Terms of Reference has also been drafted to clarify the process for withdrawing from CEOS. The Terms of Reference update will be presented to CEOS Plenary for endorsement.

Discussion

- Dave Borges (NASA, SEO) noted the CEOS Document Management System (ceos.org/documents) is hosted on the CEOS website and serves as the long-term archive for CEOS documents. CEOS Agencies can request a login if they would like access; most already have one assigned to their email addresses.
- It was clarified that under the new Governance and Processes, the document author is the one to assign the category of document (for information, for feedback, for acknowledgement, for endorsement); however, Plenary can reclassify if needed.

2.2: CEOS Digital Object Identifier (DOI) Process Paper *[presentation]*

David Borges (NASA, SEO) recalled that the new CEOS DOI Process Paper was virtually endorsed alongside the new Governance and Processes. It outlines the process to assign CEOS DOIs through Zenodo. Going forward, only acknowledged and endorsed documents will be eligible for a DOI, however a selection of existing CEOS publications will be retroactively assigned a CEOS DOI, as will the CEOS governing documents.

Discussion

- Jonathon Ross (GA, CEOS Chair Team) requested that the list of documents to be retroactively given a DOI should be presented to CEOS Plenary for visibility.

SIT-TW-26-10	SEO to prepare a list of historical CEOS documents that will be retroactively assigned DOIs, working with CEOS entity co-leads. SEO	**2026 CEOS Plenary**

	will also consider where new format cover pages for existing documents are needed.	
	Rationale: Clarifying the scope of this retroactive assignment for CEOS Principals is important.	

2.3: CEOS Aquatic Carbon Roadmap *[presentation]*

Laura Lorenzoni (NASA, OCR-VC) reviewed the latest draft of the CEOS Aquatic Carbon Roadmap, which addresses carbon dynamics across the land to ocean continuum. Feedback was provided by the GHG and AFOLU Roadmap teams, with a graphic developed to show the areas of interaction between the three Roadmaps. Recommendations are identified for the short, medium and long term. Following the presentation of the Roadmap to Plenary, OCR-VC will develop metrics to track the implementation of the priority areas and areas of opportunity.

Discussion

- Jonathon Ross (GA, CEOS Chair Team) noted that the CEOS Chair Team will liaise with the three Carbon Roadmap teams to highlight at CEOS Plenary the significance of completing this trilogy of roadmaps. It may be worthwhile creating new cover pages for the GHG and AFOLU Roadmaps such that they are a harmonised set.

SIT-TW-26-11	The CEOS Chair will liaise with the three carbon roadmap author groups to consider how best to communicate the new Aquatic Carbon Roadmap at Plenary, including a proposal to rebrand the GHG and AFOLU documents to look like a harmonised set of three documents.	**2026 CEOS Plenary**
	Rationale: It is worth recalling that these documents are three parts of a whole and are inherently inter linked and dependent. Ongoing coordination will be needed in the implementation phase.	

2.4: AC-VC Expanding Geostationary Monitoring of Atmospheric Composition White Paper *[presentation]*

Ali Omar (NASA, AC-VC) shared the draft paper, noting the wide array of contributors. The fast rate of change in aerosols requires hourly observations, and hence geostationary missions provide critical measurements. However, only three atmospheric composition geostationary instruments are currently flying, all observing the northern hemisphere. The document will be submitted to CEOS Principals for review ahead of SIT-42, in April 2027. There are some gaps in the capacity building area which still need to be addressed.

Discussion

- Jonathon Ross (GA, CEOS Chair Team) suggested the title should specifically reflect the air quality focus.
- The report considers LEO missions as well; however, they are only a bridge to GEO observations.
- Julie Robinson (NASA, SIT Chair Team) recognised challenges with presenting gaps identified by a Virtual Constellation, especially where there isn't necessarily budget for a mission. Recommendations made by any Virtual Constellation need to be framed in an appropriate way such that they can have impact aligned with agency objectives. This report stays away from specific implementation suggestions and instead focuses on what is possible from an orbital configuration perspective.

2.5: WGDisasters Updates *[presentation]*

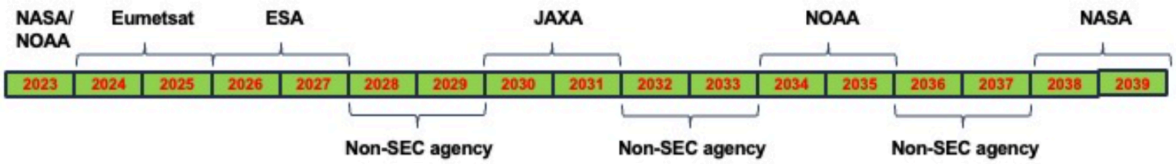
Antonio Montouri (ASI, WGDisasters Vice Chair) presented ongoing WGDisasters initiatives, including the Geohazards Supersites and the Seismic Risk Demonstrator. Four new multi-year pilot projects were recently launched, focused on landslides, wildfire preparedness, biodiversity, and drought. WGDisasters is looking to expand synergies with other CEOS working groups on artificial intelligence and capacity building, alongside growing international membership and space agency re-engagement.

Discussion

- Simona Zoffoli (ASI) noted the effort put into understanding user needs and requirements in WGDisasters.
- Alex Held (CSIRO, CEOS Chair) suggested showing CEOS imagery provided in the context of, and relevant to, recent major disasters as part of the WGDisasters report at Plenary, as a way to demonstrate impact.

2.6: CEOS Executive Officer Continuity

Jonathon Ross (GA, CEOS Chair Team) recalled the agreed schedule for funding of the CEOS Executive Officer role, as agreed at the 2022 CEOS Plenary. The responsibility for 2028-2029 lies with a non-SEC agency. Beth Greenaway (UKSA) recalled the 2023-2027 period was covered by ESA and EUMETSAT, supported by funding from other European agencies, including UKSA.



All agencies are invited to consider supporting the role, and to contact the CEOS Chair and SIT Chair Team for more information.

SIT-TW-26-12	All CEOS Agencies, consistent with the agreed rotation at 2022 Plenary, are invited to consider nominating for the role of CEOS Executive Officer (also Deputy CEOS Executive Officer) and to contact the CEOS Chair and SIT Chair teams for more information.	**SIT-42**
	Rational: The CEOS Executive Officer is a critical role within the CEOS organisation, and funding is not guaranteed beyond 2027.	

2.7: Norwegian Space Agency (NOSA) 2027 CEOS Chair Themes *[presentation]*

Ole Morten Olsen (NOSA, 2027 CEOS Chair Team) introduced the 2027 CEOS Chair Themes, which will focus on the headline *'Trusted Satellite Data for a Better Future'*, and includes three focus activities: *True Green*, *True Blue*, and *True Future*. CEOS-ARD is central to all activities. For *True Green*, NOSA is connected to the Global Forest Observations Initiative (GFOI), Norway's International Climate and Forest Initiative (NICFI) and the FAO Forestry Programme. *True Blue* will highlight the importance of satellite observations of the oceans and polar regions, in particular in support of the 5th International Polar Year (IPY-5). *True Future* will continue the legacy of the UK and Australia on the CEOS Youth Engagement Programme. The 2027 CEOS Plenary will be held in Bergen, Norway, on 1-5 November.

Discussion

- Patrick Gibson (UKSA) offered UKSA support to all three priorities and noted they are happy to see the youth programme continuing.
- Jonathon Ross (GA, CEOS Chair Team) suggested including a link to the Ocean Decade in the *True Blue* material.
- Inge Jonckheere (ESA) welcomed the GFOI linkages, and specifically noted the UK AIM4Forests and Tropical Forest Forever Facility (TFFF) programmes.

2.8: Working Group Vice Chair Nominations for CEOS Plenary Endorsement *[presentation]*

Alex Held (CSIRO, CEOS Chair) reviewed the nominations for Vice Chair which will be presented for endorsement at CEOS Plenary: WGCapD (Melanie Follette-Cook, NASA), WGClimate (Susanne Mecklenburg, ESA) and WGCV (Nigel Fox, NPL for UKSA). Each will serve as Vice Chair of the respective Working Groups for 2027-2028, followed by Chair for 2029-2030.

2.9: Reflection on the Earth Observation Data Providers Collaboration Forum *[presentation]*

Eleanor Pierel (NASA, SIT Chair Team) reviewed outcomes from Tuesday's event, noting many commercial companies are using CEOS information, networks, and CEOS-ARD, however there is still an awareness and communication gap. There were requests from companies for more organized outreach, similar to how CEOS Agencies have designated Contacts and Principals. A feedback survey will be sent to all participants, to inform considerations of future engagements.

Discussion

- Lefteris Mamais (CEOS Executive Officer) suggested expanding the scope of the private sector invited, to include intermediaries as well, such as service providers.
- Julie Robinson (NASA, SIT Chair Team) recalled that invitations were limited to companies that were already engaged with NASA or other CEOS Agencies.
- It was suggested that points of contact for companies engaged with CEOS could be listed on the CEOS website, however there were concerns around giving an impression that CEOS has endorsed certain companies over others.
- Alice Andral (CNES) noted the quality assessment session and raised the importance of having guidelines within CEOS about the quality of data. CEOS could benefit from more commercial perspectives, particularly on AI matters.
- Jonathon Ross (GA, CEOS Chair Team) advocated for more connectivity between this community and the broader geospatial community.

SIT-TW-26-13	SIT Chair Team to propose an actionable, strategic approach for CEOS review regarding a more organised method for sustained connection to the private sector, such as a centralized mailing list and/or designated points of contact.	**SEC-352**
	Rationale: EO Collaboration Forum participants identified a need to streamline engagement and information sharing with CEOS, which is currently fragmented and distributed across multiple channels and levels of leadership.	

2.10: SEO Report *[presentation]*

David Borges (NASA, SEO) reported on key SEO updates, highlighting the integration of new data and tools into the CEOS Analytics Lab (CAL). EO-GPT is a conversational AI framework for geospatial analysis, which will soon be released as an open source tool. SEO is transitioning the CEOS Visualization Environment (COVE) to a python library, known as COVELib, to allow for integration with

other projects. LinkedIn is the primary social media platform used by CEOS communications, with average impressions tripling in the last six months. A phased strategy has been developed to modernise the CEOS website infrastructure throughout 2026 before a full relaunch in 2027. An interested group of individuals will be curated over the next few months to gather feedback on the website.

Discussion

- Julie Robinson (NASA, SIT Chair Team) recalled that CEOS will present during the EO International Collaboration session at IAC in October 2026, and recommended this be done every year.

Session 3: Closing Session

3.1: Review of Actions and Decisions

Matt Steventon (SIT Chair Team) reviewed the actions recorded, which can be found in Appendix B.

3.2: Closing Remarks *[presentation]*

Alex Held (CSIRO, CEOS Chair) noted the CEOS Chair Team is looking forward to welcoming the CEOS community to Hobart, Australia for the 40th CEOS Plenary, on 3-6 November 2026.

Julie Robinson (NASA, SIT Chair Team) recalled that SIT-42 will be held 20-22 April 2027, in Washington D.C., USA, and the 2027 SIT Technical Workshop will be held 7-9 September 2027 in Irvine, California, USA.

Alex reviewed the objectives for the Second CEOS Water Quality Workshop, to be held on 11 September 2026.

APPENDIX A: Attendees

** = virtual participation*

Agency/Organisation	Name	Agency/Organisation	Name
AEM	Yair Omar Anguiano Olvera*	NASA	Julie Robinson
ASI	Antonio Montuori*	NASA	Katie Baynes*
ASI	Francesco Longo	NASA	Kurtis Thome
ASI	Simona Zoffoli	NASA	Laura Lorenzoni
CNES	Alice Andral	NASA	Mahya Hashemi
CSA	Laura-Alexe Marcoux*	NASA	Melanie Follette-Cook
CSA	Laurent Giugni*	NASA	Michelle Hanssen
CSA	Lucie Viciano*	NASA	Nadya Vinogradova Shiffer
CSA	Yann Denis*	NASA	Perry Oddo
CSIR	Christo Whittle*	NASA	Sid Boukabara
CSIRO	Alex Held	NASA	Wenying Su
CSIRO	Zandria Farrell	NASA	Yasha Moz
DLR	Elizabeth Nuncio Quiroz*	NASA	Yoseline Angel
DLR	Klaus Schmidt*	NASA	Erin Urquhart
ESA	Ben Veihelmann*	NASA	Nima Pahlevan
ESA	Clement Mathieu Jacques Albergel	NASA/JPL	Charles Miller
ESA	Inge Jonckheere	NASA/JPL	Gary Geller*
ESA	Marie-Claire Greening	NASA/JPL	Matthew Bonnema*
EUMETSAT	Estelle Obligis*	NASA/JPL	Nicholas Parazoo
EUMETSAT	Paul Counet*	NASA/JPL	Paul Rosen
EUMETSAT	Robert Husband*	NOAA	Adria Schwarber Makrivadr
European Commission	Peter Strobl	NOAA	Mike Ford
Executive Officer	Eleftherios Mamais	NOSA	Ann Mari Fjaeraa
Executive Officer	Julia Caufape Hostench	NOSA	Dag Anders Moldestad*
GEOGLAM	Sven Gilliams	NOSA	Ola Nordbeck*
Geoscience Australia	Jonathon Ross	NOSA	Ole Morten Olsen
Geoscience Australia	Maggie Arnold*	NOSA	Vigdis Lonar*
Geoscience Australia	Matt Adams*	NRCan	Mark De Jong*
ISRO	Nitant Dube*	PhilSA	Izrael Zenar Bautista*
JAXA	Ake Rosenqvist	PTSpace	Carolina Sá*
JAXA	Hiroyuki Maehira*	Radiant Earth	Robert Cheetham
JAXA	Misako Kachi*	Radiant Earth	Zachary Vinyard
JAXA	Osamu Ochiai	SIT Chair Team	Libby Rose
JAXA	Takeo Tadono*	SIT Chair Team	Matt Steventon
JAXA/Solafune	Pushkar Kopparla	SIT Chair Team	Stephen Ward
MYSA	Shahruddin Ahmad	UKSA	Patrick Gibson
NASA	Ali Omar	UKSA	Svetlana Zolotikova*
NASA	Ayia Lindquist	UKSA/NCEO	John Remedios
NASA	Brock Blevins*	UNEP's IMEO	Maral Bayaraa*
NASA	Chris Justice	UNOOSA	Jorge Del Rio Vera*
NASA	David Borges	USGS	Dan Opstal*
NASA	Eleanor Pierel	USGS	Darcee Killpack
NASA	Emma Knowland*	USGS	Evan Neuwirth
NASA	Janet Nackoney	USGS/KBR	Christopher Barnes
NASA	Jeremy Werdell		

APPENDIX B: Actions Record

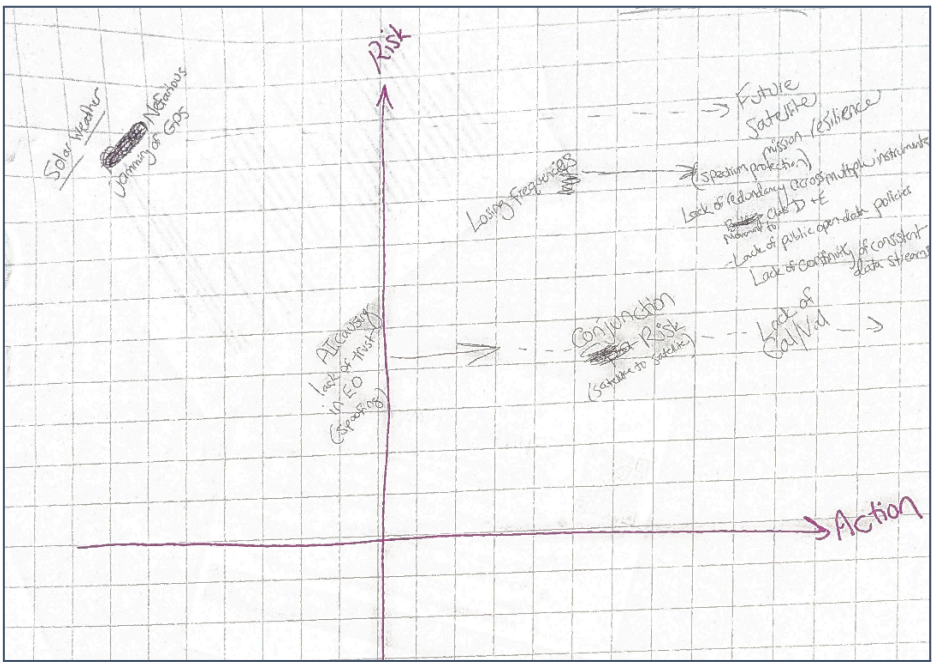
ACTIONS

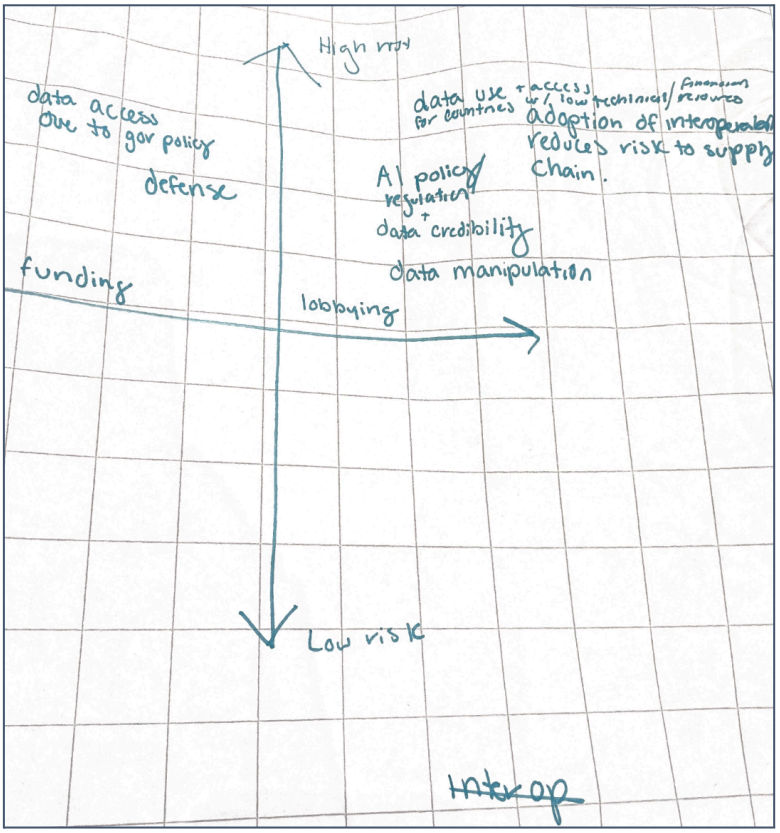
SIT-TW-26-01	CEOS Agencies to coordinate submissions for the SIT Chair team's surveys on *Best Practice Guidance for Integrating Multiplatform and Multispectral Data for Water Science and Applications*, via the following forms: • CEOS Water Best Practice Guidance Integration Example Submission • Societal Challenge Input Form	**2026 CEOS Plenary**
	Rationale: The SIT Chair Team is requesting inputs to help shape the best practice guidance.	
SIT-TW-26-02	CEOS-ARD Oversight Group to add details to the 2026 CEOS-ARD Strategy Initiatives and Tasks table regarding the expertise and skillsets needed to achieve each outcome.	**2 October 2026**
	Rationale: This additional detail will help agencies identify appropriate assignments.	
SIT-TW-26-03	WGISS Chair and Technology Exploration Interest Group (TEIG) leads to review Pillar 5 of the 2026 CEOS-ARD Strategy (AI Enablement and Trustworthy Geospatial Foundation Models) and propose a more appropriate discretisation of the Initiatives and Tasks.	**SIT-42**
	Rationale: Breaking the tasks down into more manageable chunks will make gaps clearer and assignments easier.	
SIT-TW-26-04	CEOS Agencies to provide final feedback on the 2026 CEOS-ARD Strategy and Water Annex.	**9 October 2026**
	Rationale: The CEOS-ARD Strategy will be presented for endorsement at the 2026 CEOS Plenary.	
SIT-TW-26-05	CEOS Agencies are invited to suggest events for deployment of the 2026 EO Handbook on Adaptation and Resilience. Suggestions can be sent to Marie-Claire Greening.	**2026 CEOS Plenary**
	Rationale: The EO Handbook is a key community resource which should be shared at a variety of events over the coming year. The ESA team can provide materials at any relevant events.	
SIT-TW-26-06	CEOS Agencies to provide feedback on the draft CEOS Chair paper *CEOS Support for Adaptation and Resilience in a Changing Global Environment*.	**30 September 2026**

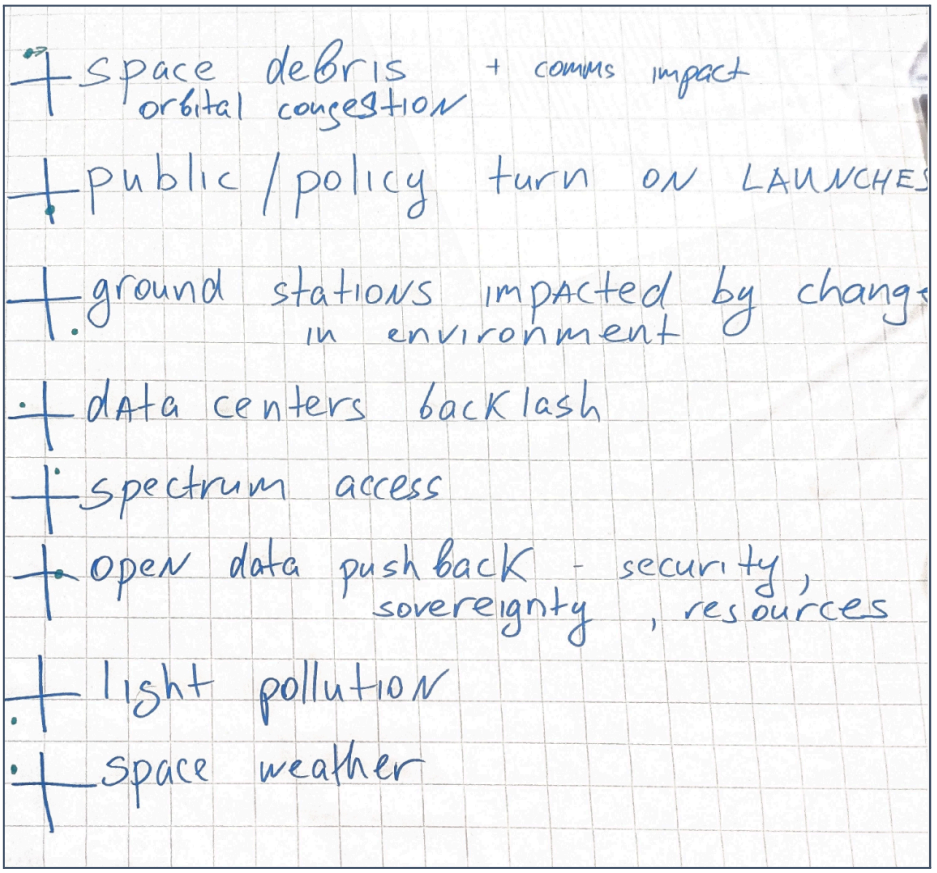
	Rationale: The paper will be provided for information to CEOS Principals at the 2026 CEOS Plenary to inform discussions around future CEOS support for adaptation and resilience.	
SIT-TW-26-07	LSI-VC Co-Leads to engage COAST-VC and Biodiversity-VC leadership on shared priorities and collaboration opportunities and potential efficiencies / connections.	**SIT-42**
	Rationale: Noting the shared areas of the AFOLU Roadmap, essential variables, etc.	
SIT-TW-26-08	SIT Chair team to work with the VC Co-Leads to develop a first edition of an *Annual CEOS Report on the State of the Virtual Constellations*.	**2026 CEOS Plenary**
	Rationale: The aim is to provide a holistic, consistent overview with expert commentary from the VC Co-Leads to communicate more clearly to CEOS Principals.	
SIT-TW-26-09	Prospective SAR-VC Co-Leads to finalise the SAR-VC proposal documents for CEOS Plenary, reflecting feedback from SIT TW.	**2026 CEOS Plenary**
	Rationale: The full proposal for SAR-VC is planned to be presented at the 2026 CEOS Plenary, following the acceptance of the initial proposal at SIT-41.	
SIT-TW-26-10	SEO to prepare a list of historical CEOS documents that will be retroactively assigned DOIs, working with CEOS entity co-leads. SEO will also consider where new format cover pages for existing documents are needed.	**2026 CEOS Plenary**
	Rationale: Clarifying the scope of this retroactive assignment for CEOS Principals is important.	
SIT-TW-26-11	The CEOS Chair will liaise with the three carbon roadmap author groups to consider how best to communicate the new Aquatic Carbon Roadmap at Plenary, including a proposal to rebrand the GHG and AFOLU documents to look like a harmonised set of three documents.	**2026 CEOS Plenary**
	Rationale: It is worth recalling that these documents are three parts of a whole and are inherently inter linked and dependent. Ongoing coordination will be needed in the implementation phase.	
SIT-TW-26-12	All CEOS Agencies, consistent with the agreed rotation at 2022 Plenary, are invited to consider nominating for the role of CEOS Executive Officer (also Deputy CEOS Executive Officer) and to contact the CEOS Chair and SIT Chair teams for more information.	**SIT-42**
	Rational: The CEOS Executive Officer is a critical role within the CEOS organisation, and funding is not guaranteed beyond 2027.	

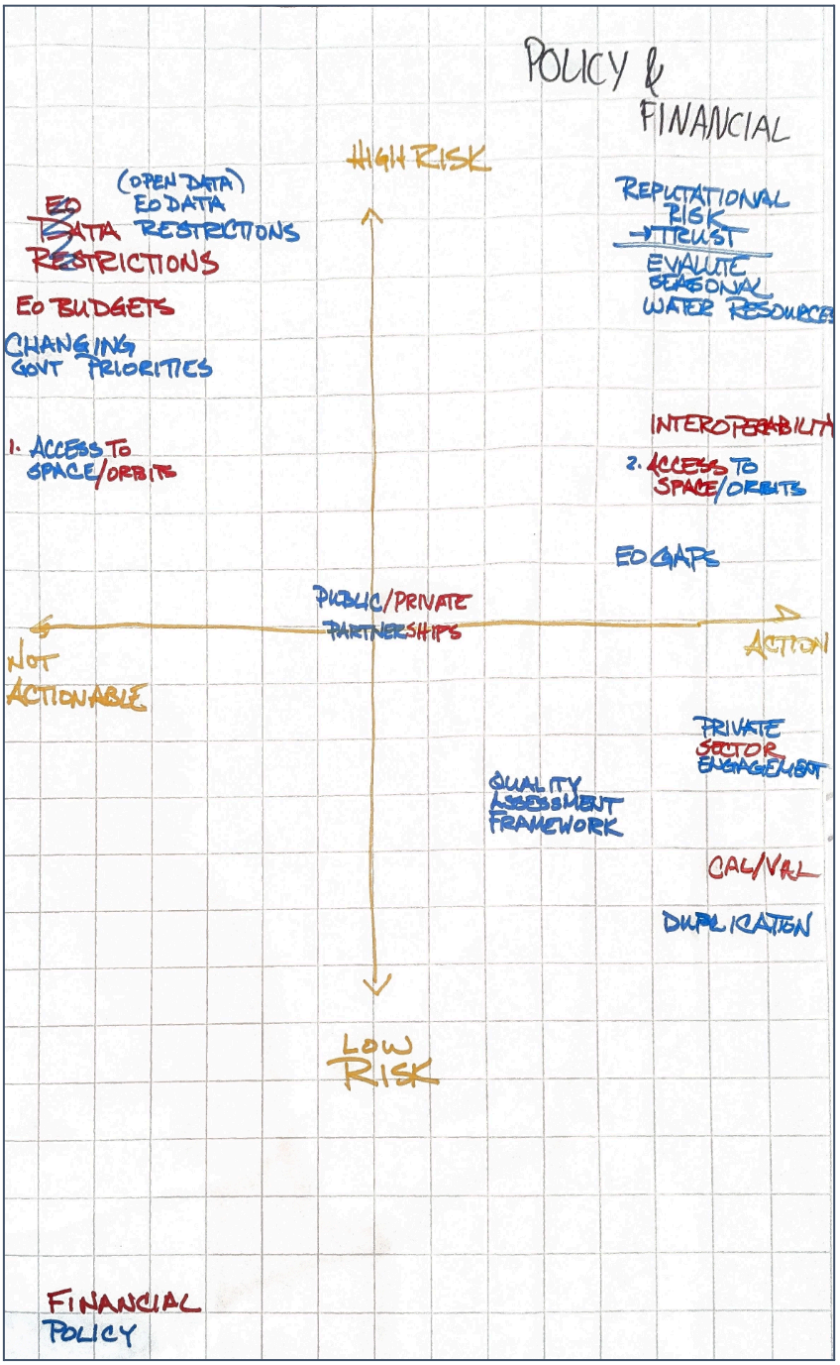
SIT-TW-26-13	SIT Chair Team to propose an actionable, strategic approach for CEOS review regarding a more organised method for sustained connection to the private sector, such as a centralized mailing list and/or designated points of contact.	**SEC-352**
	Rationale: EO Collaboration Forum participants identified a need to streamline engagement and information sharing with CEOS, which is currently fragmented and distributed across multiple channels and levels of leadership.	

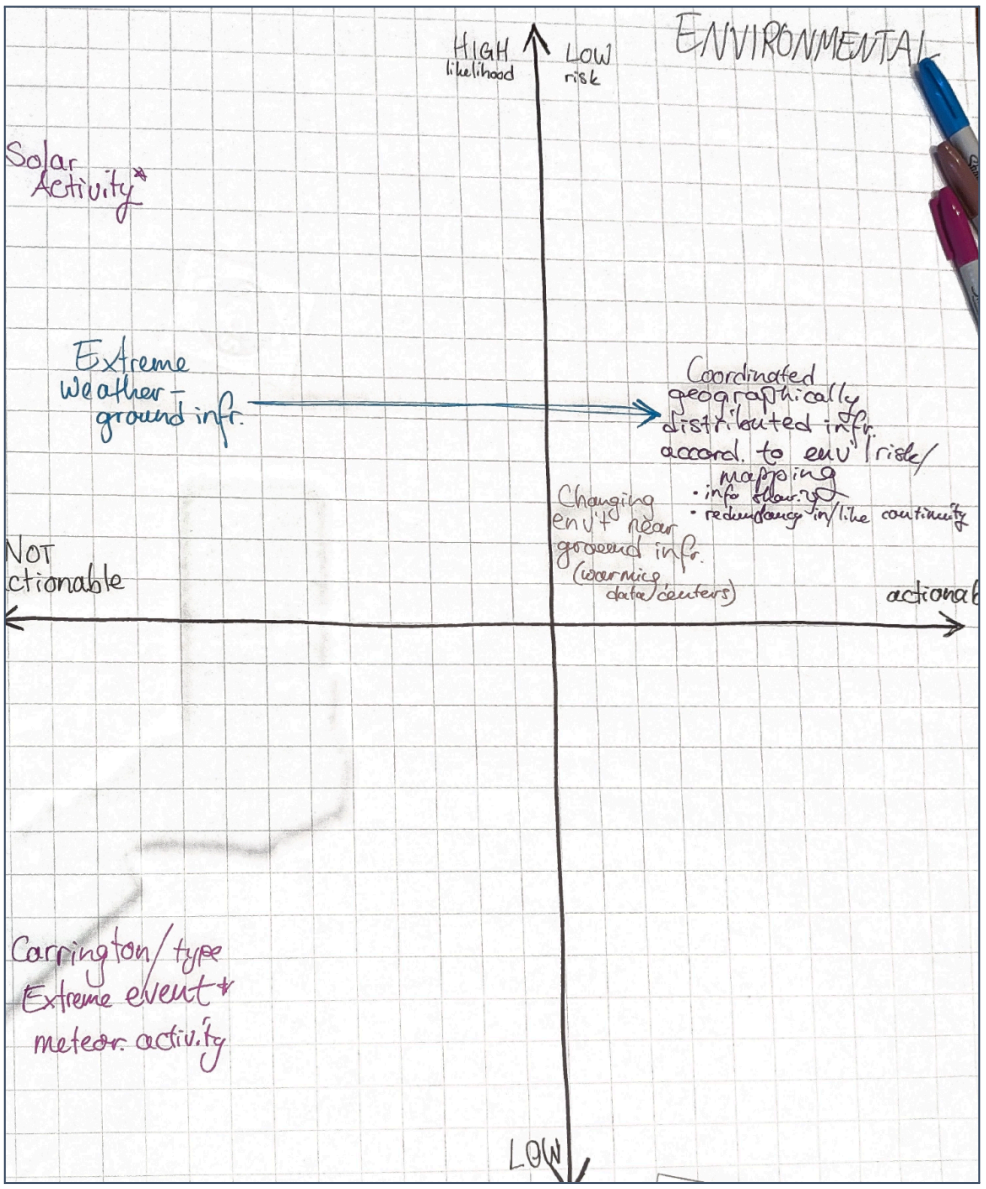
APPENDIX C: Workshop 4.3 Charts

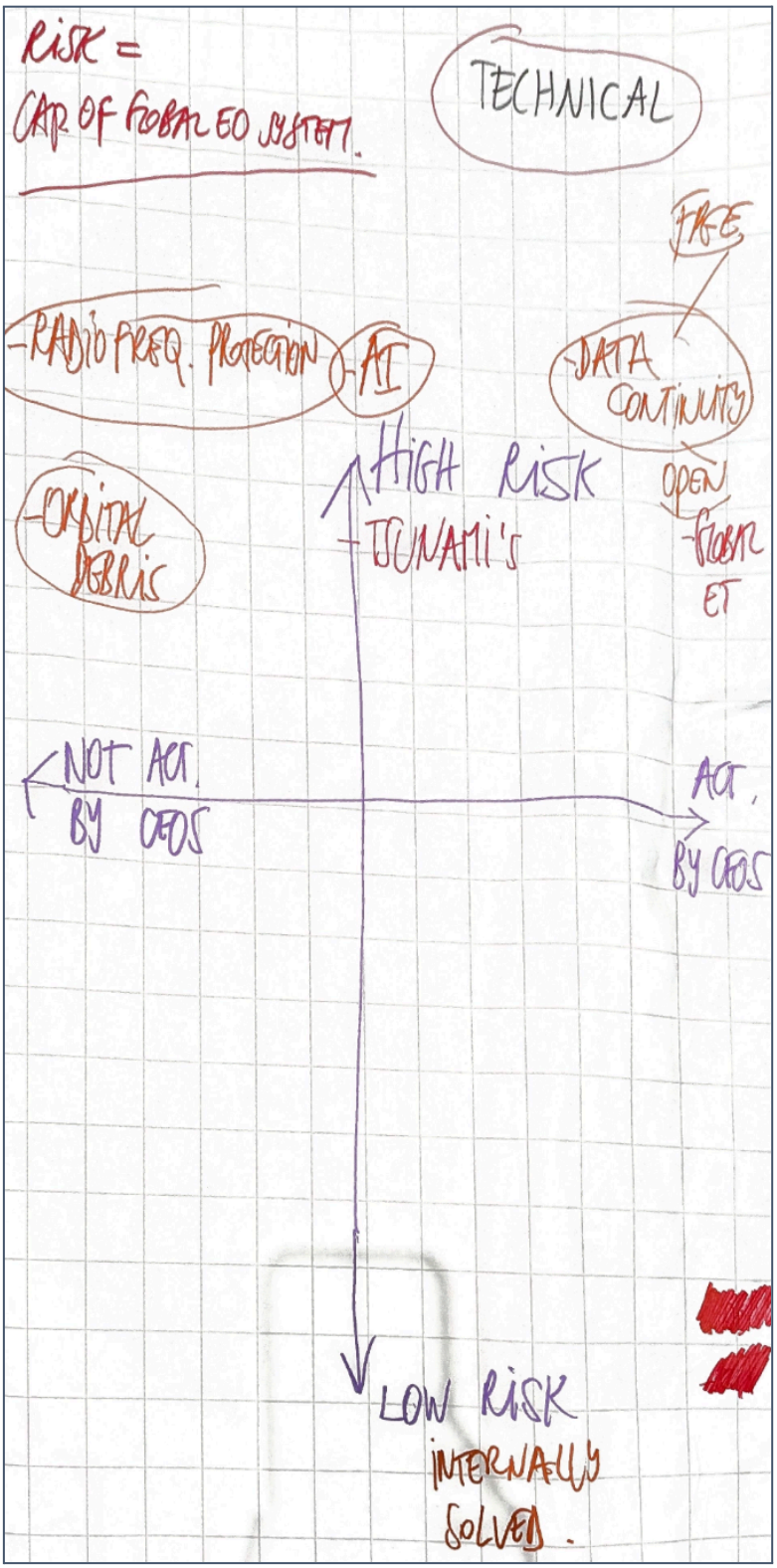


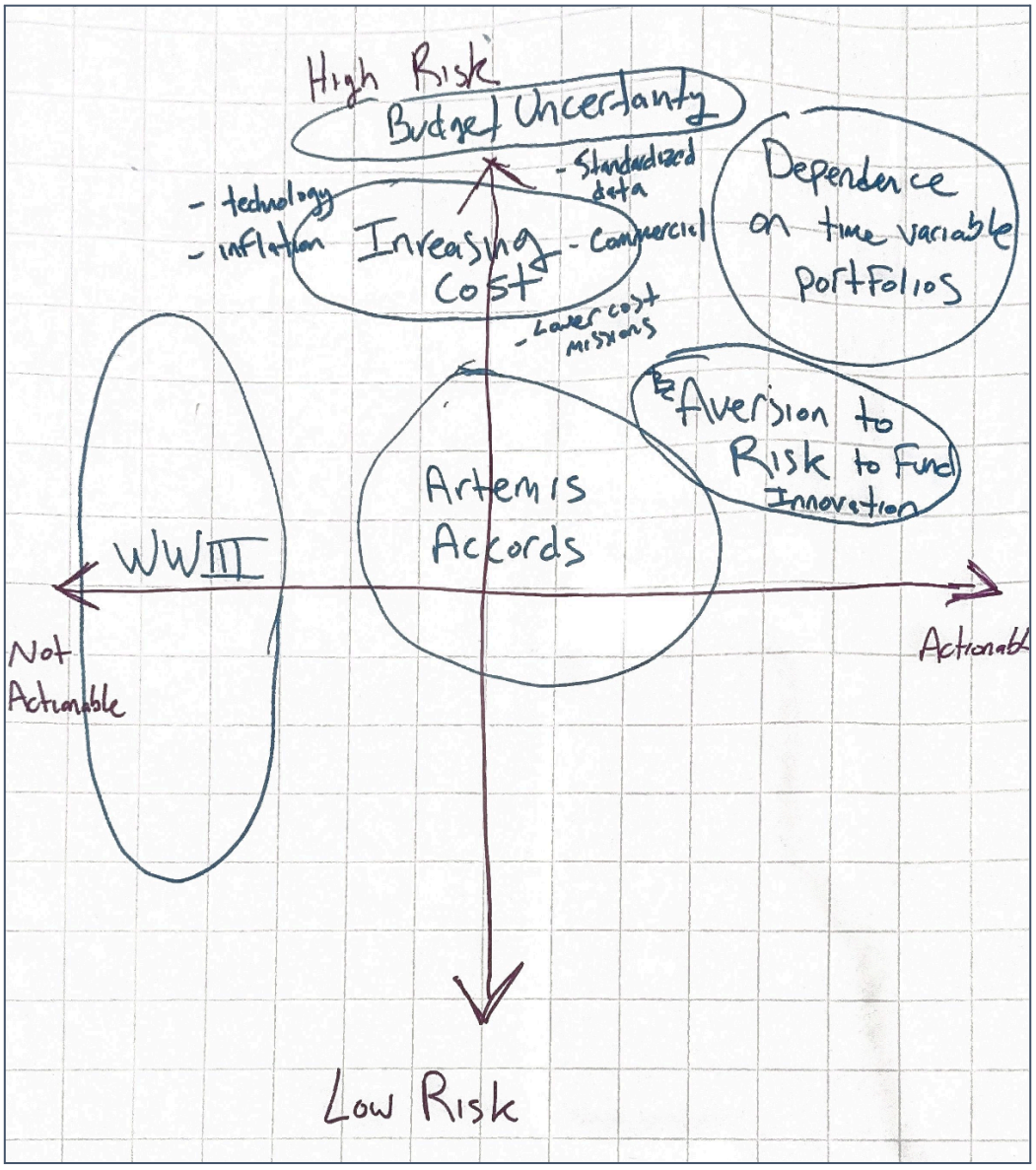


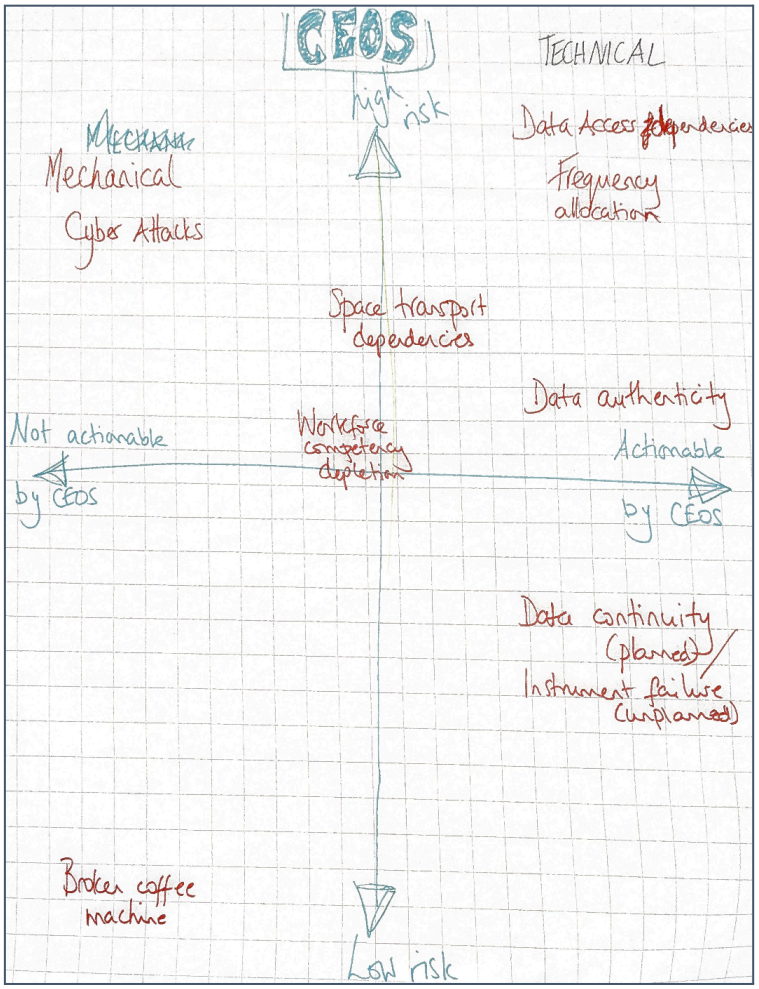

+ space debris + comms impact
orbital congestion
+ public / policy turn ON LAUNCHES
+ ground stations impacted by chang
in environment
+ data centers backlash
+ spectrum access
+ open data push back - security,
sovereignty, resources
+ light pollution
+ space weather

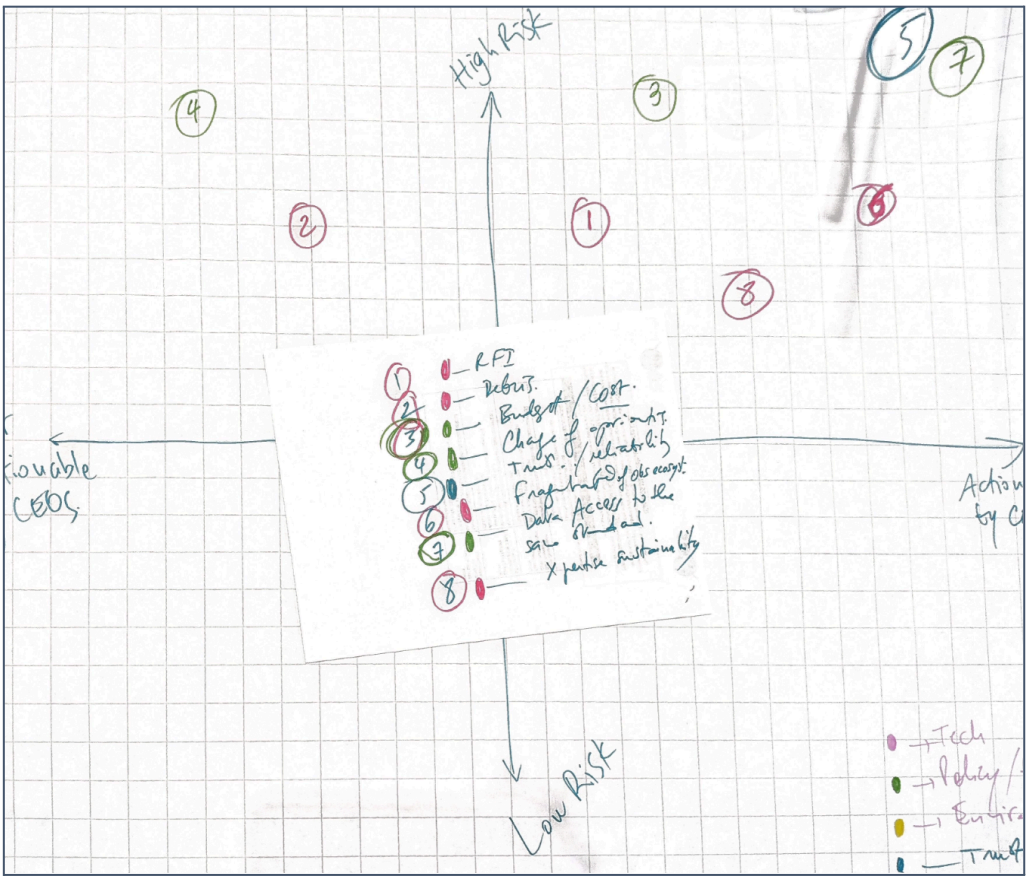

POLICY & FINANCIAL
HIGH RISK
(OPEN DATA) EO DATA RESTRICTIONS
EO DATA RESTRICTIONS
EO BUDGETS
CHANGING GOVT PRIORITIES
1. ACCESS TO SPACE/ORBITS
REPUTATIONAL RISK → TRUST
EVALUTE SEASONAL WATER RESOURCES
INTEROPERABILITY
2. ACCESS TO SPACE/ORBITS
EO GAPS
PUBLIC/PRIVATE PARTNERSHIPS
NOT ACTIONABLE
ACTION
PRIVATE SECTOR ENGAGEMENT
QUALITY ASSESSMENT FRAMEWORK
CAL/VAL
DUPLICATION
LOW RISK
FINANCIAL POLICY

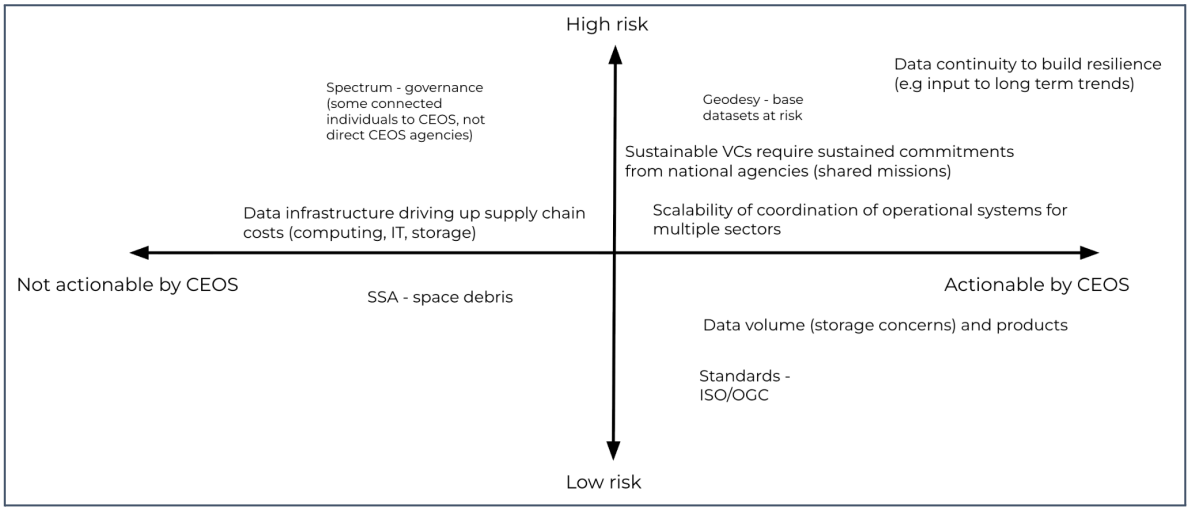

HIGH likelihood
LOW risk
ENVIRONMENTAL
Solar Activity*
Extreme Weather – ground infr.
Coordinated geographically distributed infr. accord. to env' risk/ mapping
· info sharing
· redundancy in/like continuity
Changing env't near ground infr. (warm ice data centers)
NOT ctionable
actionab
Carrington/type Extreme event* meteor. activity
LOW


RISK =
CAP. OF GLOBAL EO SYSTEM.
TECHNICAL
FREE
-RADIO FREQ. PROTECTION
AI
-DATA CONTINUITY
OPEN
-ORBITAL DEBRIS
HIGH RISK
-TSUNAMI'S
-GLOBAL ET
NOT ACT. BY CEOS
ACT. BY CEOS
LOW RISK
INTERNALLY SOLVED.


High Risk
Budget Uncertainty
- technology
- inflation
Increasing Cost
- Standardized data
- Commercial
- Lower cost missions
Dependence on time variable portfolios
Aversion to Risk to Fund Innovation
Artemis Accords
WWIII
Not Actionable
Actionable
Low Risk


CEOS
TECHNICAL
high risk
Mechanical
Cyber Attacks
Data Access dependencies
Frequency allocation
Space transport dependencies
Data authenticity
Not actionable by CEOS
Workforce competency depletion
Actionable by CEOS
Data continuity (planned)
Instrument failure (unplanned)
Broken coffee machine
Low risk


High Risk
Low Risk
RFI
Debris
Budget / cost
Data Access to the
Tech
Policy


High risk
Low risk
Not actionable by CEOS
Actionable by CEOS
Spectrum - governance (some connected individuals to CEOS, not direct CEOS agencies)
Geodesy - base datasets at risk
Data continuity to build resilience (e.g input to long term trends)
Sustainable VCs require sustained commitments from national agencies (shared missions)
Data infrastructure driving up supply chain costs (computing, IT, storage)
Scalability of coordination of operational systems for multiple sectors
SSA - space debris
Data volume (storage concerns) and products
Standards - ISO/OGC