

Initial Proposal

Transitioning CEOS-COAST into a Virtual Constellation: Progress to Date and Rationale for Sustainment

Background

In 2019, CEOS established the Coastal Observations, Applications, Services and Tools (COAST) effort as a study team. The 2020 CEOS Plenary subsequently approved COAST as an Ad Hoc Team (AHT) and the effort continued to develop in 2020. The 2022 CEOS Plenary extended its remit as an AHT until the 2023 Plenary, at which point, COAST will have reached the maximum duration allowed for an AHT in the *CEOS Governance and Processes Document* (ref. page 7).

COAST effectively leverages the expertise and resources of participating CEOS agencies in a coordinated and synergistic manner to better serve user needs in dynamic, highly productive, and populated coastal regions. Since 2020, ISRO and NOAA have maintained the Co-lead roles in COAST. The effort was augmented by Geoscience Australia and ESA through active product development and Pilot Region capacity building. Now, the outcomes of COAST are further amplified through the remote sensing support and scientific expertise from numerous CEOS agencies.

Through sustained CEOS Ocean Coordination Group (OCG) deliberations and guidance from CEOS leadership, a consensus has emerged in favor of transitioning COAST into a Virtual Constellation (VC). In July 2023, the CEOS Secretariat (SEC) was briefed by the OCG Lead and COAST Co-lead Paul DiGiacomo (NOAA) on this recommended approach. The Secretariat proposed that the topic be on the 2023 CEOS Plenary agenda.

Progress to Date

CEOS-COAST crosscuts the land-sea boundary and works across CEOS VCs and WGs, developing, transitioning, integrating, and delivering diverse data sets and derived products. As outlined in the [recommended 2022 COAST AHT extension support document](#), COAST has steadily and successfully progressed in the development of new products and improved the quality and range of existing products in coastal regions. COAST leveraged deliverables from WGCapD in its pioneering implementation of stakeholder co-design and use of the CEOS Analytics Lab (formerly known as the Earth Analytics Interoperability Laboratory or EAIL) as a product development space. Significantly, in 2023, COAST publicly released an Application Knowledge Hub where users can readily access COAST products and relevant open source data and information in COAST Pilot Regions.

Future Scientific and Technical Opportunities to be Addressed by COAST-VC

As a CEOS Virtual Constellation, COAST will leverage and exploit new mission technology and science for prototype development. Forthcoming efforts will focus on high-latitude regions, Blue Carbon, biodiversity, ecosystem and societal impacts (including nature-based solutions for climate change), as well as extending current products to other regions.

Engaging social scientists on a routine basis as part of COAST community interactions and inclusion of social science data sets in the COAST Application Knowledge Hub have emerged as priority needs for successful co-design, development, and production efforts with diverse coastal stakeholders. COAST members will continue to engage and inform new users, especially expanding Pilot Regions, co-designing with key stakeholders, and introducing innovative products for research and operational

applications. COAST expects to continue internal planning, coordination and execution of technical activities with the four CEOS Ocean VCs, LSI-VC, WGISS, WG-CapD, the Joint CEOS-CGMS WGClimate, and certainly, with stakeholders including the Group on Earth Observations (GEO) and the Global Ocean Observing System (GOOS), among others.

ACTIONS to Transition the COAST Ad Hoc Team (AHT) into a Virtual Constellation (VC)

The *CEOS Virtual Constellations Process Paper* (Section 4), lays out the process to be followed:

“CEOS endorses the following set of procedures for development and implementation of potential future CEOS Constellations, and encourages existing Constellations to also adapt to them, as practicable, realising, however, that each Constellation is unique. This process will normally consist of two phases:

Phase I – An Initial Proposal to the SIT with a request to determine CEOS Agency interest in a possible Constellation;

Phase II – A Full Proposal for SIT approval – including an Implementation Plan.”

Consistent with the above requirements, this Initial Proposal formally requests that:

Phase I – The 2023 SIT Technical Workshop discusses interest in a COAST VC and determine if the Initial Proposal and Terms of Reference (or revised versions) can advance to the 2023 CEOS Plenary for principal-level consideration.

Phase II – The 2023 CEOS Plenary give its approval for the COAST AHT to develop a Full Proposal and Implementation Plan for potential endorsement by CEOS principals at the SIT-39 meeting in April 2024.

Please refer to our draft Terms of Reference for this new VC.