



Implementation Plan for the 2021 CEOS Chair Theme: “Space- based Earth Observation Data for Open Science and Decision Support”

At the 2020 CEOS Plenary, the CEOS community welcomed NASA’s proposed theme for the 2021 CEOS Chair term: **“Space-based Earth Observation Data for Open Science and Decision Support”**. This document summarizes an implementation plan that will identify existing CEOS activities (in the 2020-2022 CEOS Work Plan) and other CEOS activities (not in the Work Plan) that directly align with this theme and advance the concepts of "Open Science".

Advancing Open Science will focus on three topical areas: **accessibility, transparency and reproducibility**. Accessibility promotes the concept of free and open data, tools and algorithms that are easily identified, usable, and preserve data integrity. Transparency promotes the concept of analyses and workflows that are clearly described and documented in order to improve the confidence of scientific results, their traceability and uncertainty, and their resulting decisions. Reproducibility promotes the concept that products can be reproduced now and into the future, and that users have the needed training and capacity building to understand, use, and apply the product production process.

Measures of Success

In 2021, identifying objectives and demonstrating the development, progress and accomplishment of the following activities will allow CEOS to measure its success toward this theme. References to related CEOS deliverables have been added at the end of several activities to highlight the connection to existing work. *This is a living document for which more CEOS community feedback is requested. Prioritization is not implied in the order of the list.*

- **CEOS Missions, Instruments and Measurements (MIM) Database** – Increase visibility of free/open datasets to promote and foster increased use and impact, targeting data user communities of users that are less familiar with satellite missions and instruments, but have a good knowledge of specific phenomena, of the associated applications (e.g., flood monitoring), and of the relevant measurements.
- **Open Science and Decision Support for Floods** – Develop a demonstration of a repository of data, methodologies and capacity building resources for open science and decision support for flood research and applications, ensuring relevance of outputs that can inform choices, support decisions, and guide actions using open science principles for disaster risk reduction through partnership efforts with CEOS WGCapD and stakeholder engagement. (DIS-20-06)
- **Biomass Validation Protocol** – Advance plans for a forest biomass reference network to promote global validation efforts, open sharing of data, and biomass product harmonization. (CARB-20-03)
- **Data Deployments in the Cloud** – Increase the number of free/open datasets in public computing clouds for improved access and use by identifying and prioritizing datasets of high

value to the Earth Observation user community for migration to public computing cloud architectures.

- **Analysis Ready Data (ARD)** – Develop and release ARD-compliant products from diverse domains (land, and potentially, ocean, atmosphere) for enhanced use of interoperable datasets. In addition, promote the use of CEOS ARD products for improved data integrity and confidence in scientific results through several virtual workshops. (VC-18-03, VC-20-12)
- **EOTEC DevNet** – Establish the Earth Observation Training, Education, and Capacity Development Network (EOTEC) DevNet and collect training resources that incorporate the use of EO to support national vulnerability assessments, disaster risk reduction plans, and climate adaptation and mitigation plans. (CB-20-05)
- **Global Stocktake** – Develop a high-level portal for relevant CEOS datasets and communication materials that support release of the integrated set of CEOS datasets and guidance. Ensure an effective release and uptake of the datasets provided for the 1st Global Stocktake in connection with COP-26 in the UK. Develop and implement a high-level strategy statement which identifies all the potential aspects and dimensions for CEOS engagement in the Global Stocktake process. (CARB-20-01)
- **“Use Cases” of Climate Data Records** – Demonstrate the value of space-based EO data for societal benefit and decision-making through “Use Cases” of Climate Data Records. (CMRS-20-01)
- **Training Webinars** – Conduct Jupyter Python notebook training webinars focused on Earth Observation (EO) applications that will allow more users to connect to open satellite datasets. Target diverse and developing populations to broaden participation in scientific research and its applications. (CB-20-04)
- **Earth Analytics Interoperability Lab (EAIL)** – Develop the first release of the EAIL to benefit several CEOS initiatives (e.g. COAST, Disasters, Asia-RiCE) by allowing users to combine multiple interoperable datasets from the land and ocean domains in an open and shared environment.
- **Open Data Cube Sandbox** – Release the first ODC Sandbox as a contribution to the Open Earth Alliance GEO Community Activity and the GEO Knowledge Hub to demonstrate global CEOS data access via computing clouds using a free/open programming framework. (FDA-17-02)
- **Sustainable Development Goals (SDGs)** – Contribute open data and tools to the SDG Toolkits to promote sharing of methods and improved capacity building. (SDG-20-07,08,09)
- **COVERAGE** – Advance plans for a next generation ocean observing data service infrastructure to support the UN Decade of the Ocean for Sustainable Development. (VC-20-29)
- **CEOS Identity and Communications** – Develop a 2021 CEOS Plenary Statement and a CEOS Annual Statement to the GEO Plenary that will include elements reaffirming the commitment of CEOS to open data principles for Open Science and decision support. Develop a CEOS presentation on “Space-based Earth Observation Data for Open Science and Decision Support” for use by CEOS presenters at stakeholder forums, by CEOS Agencies in their respective countries, etc.
- **CEOS Outreach** – Work with stakeholders (e.g., UNOOSA, GEO, FAO, etc.) to create more virtual opportunities to showcase CEOS Agency products to potential user communities in 2021.
- **CEOS Website** – Re-examine how we project the CEOS organization online and how it could better support "open science" and achieve greater impact. Avoid a focus on meetings and infrastructure and add a focus on data, tools, and capabilities to facilitate, enhance, and elevate science, research and decision-making.
- **CEOS Branding** – Develop clear branding guidelines to ensure more effective, frequent, and consistent, use of the CEOS logo, the CEOS tagline, the CEOS Mission Statement, and CEOS online links for different audiences. Complete and promote the CEOS-Branded Webinar Toolkit.