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**Statement by the Committee on Earth Observation Satellites**

**to the 16th Plenary Meeting of the Group on Earth Observations**

**Canberra, Australia**

*Satellite observations to better understand the world we live in.*

The Committee on Earth Observation Satellites, CEOS, coordinates its sixty-two Members and Associate Members in providing the space component of the Group on Earth Observations. It does this through ongoing coordination of the continued and sustained investments of our members in developing and maintaining the space segment of the Global Earth Observation System of Systems (GEOSS).

Through this investment, CEOS Agencies have launched into orbit and currently operate over 170 Earth observation satellites, with a further 155 missions are currently under development.

Naturally, CEOS’s contribution does not cease once the satellites are flying. A significant part of CEOS business today is focused on coordinating the availability of space-based Earth observations to users worldwide and the GEO community in particular. This is visible throughout the GEO Work Programme, but is specifically identified in CEOS’s role as an implementing body on the new Foundational Task on “GEOSS Data, Information and Knowledge Resources”. Through CEOS, Agencies work together to ensure sustained international coordination of space assets and the data they produce with the aim of delivering as much societal benefit as possible. In addition to coordination of agencies in the implementation of the space segment of the GEOSS, CEOS has also, over a number of years now, created a number of groups that are building bridges to downstream user communities in some key application areas. In this role, CEOS has contributed significantly to the progress of a number of successful ‘Flagship’ initiatives for GEO, such as GFOI and GEOGLAM, and developed the use of Earth Observation in general in others, such as Disasters and Climate. Among the multiple activities recorded both in the CEOS Work Plan and GEO Work Programme, many are focused on improving exchanges with downstream user communities, examples are: Aquawatch, Geohazard Supersites, EO4SDG and Blue Planet.

CEOS is tasked to specify, develop, launch, operate and coordinate space missions to sustain critical time-series, fill or minimize spatial or temporal gaps in satellite observations, and to provide new observations. The seven CEOS Virtual Constellations for GEO – Atmospheric Composition (AC-VC), Land Surface Imaging (LSI-VC), Ocean Colour Radiometry (OCR-VC), Ocean Surface Topography (OST-VC), Ocean Surface Vector Wind (OSVW-VC), Precipitation (P-VC), and Sea Surface Temperature (SST-VC) – were created to coordinate efforts among space agencies flying similar instruments or acquiring data on similar geophysical parameters. The intention of this coordination is to avoid duplication and overlap in deployment to maximise the impact of investment including closing potential emerging data gaps. In addition, Virtual Constellations seek to improve measurement intercomparability, through Calibration and Validation work, and discoverability of the datasets.

With too many developments to be exhaustive in this statement, CEOS would nevertheless like to bring some achievements to the attention of GEO Plenary.

The UNFCCC/SBSTA noted the increasing capability of satellite and in situ data to monitor greenhouse gas concentrations and emissions systematically. IPCC guidelines on the methodology used by governments to report their greenhouse gas emissions and removals includes information on the potential contributions of space-based observations for comparison with greenhouse gas emission estimates. CEOS has continued to be at the forefront of defining a constellation architecture for monitoring atmospheric carbon dioxide (CO2) and methane (CH4) concentrations, as well as their natural and anthropogenic fluxes from space. A whitepaper endorsed by CEOS and CGMS in 2019 provides a reference for individual agencies planning space-based CO2 and CH4 missions. CEOS together with CGMS will continue to drive forward the space component of this global architecture via the Joint CEOS/CGMS Working Group on Climate with AC-VC, WGCV, GSICS, and support from other CEOS and CGMS entities as appropriate. This includes coordination with relevant stakeholders and relevant modelling centers and maintains the necessary partnerships with the relevant users.

Over the past several years Analysis Ready Data has been a major focus for CEOS. CEOS Analysis Ready Data for Land (CARD4L) has been under development for 3 years and is now moving to the implementation phase with the first CARD4L Surface Reflectance and Land Surface Temperature products currently being assessed. With increasing interest from the private sector, the availability of CARD4L datasets from both institutional and private providers is expected to rise significantly. With CARD for Land now well advanced, CEOS is investigating whether the approach is also applicable to other datasets, e.g., LIDAR data. Furthermore, the growth of ARD datasets indicates an emerging challenge for the international community; that is, how to coordinate the sustained storage and management of ever expanding global data collections. These thought processes would undoubtedly benefit significantly from the participation of the broader GEO community, and from leadership from within GEO. The CEOS initiated side event, Big EO:Big Data, which will take place this week, will explore some of these questions.

The Indian Space Research Organisation ISRO is now CEOS chair and has identified several themes, consistent with the GEO Work Programme, that will be a focus for CEOS in 2020. Reinforcing the implementation of Virtual Constellations is one of these priority areas, with the objective of achieving more explicit coordination goals in some of these VCs. Concrete realisations are planned also in the role-out of additional data cube infrastructure, here focusing on the BIMSTEC region. This infrastructure may hold some direct benefits for the Asia-Oceania regional GEO, AOGEO. One thematic domain in which CEOS has not been engaged historically with GEO is to be a new area brought by ISRO: the evaluation of renewable energy resources. In addition to these ambitious objectives, ISRO has also identified making available a platform processing capacity for Disasters as one of the objectives of their CEOS chairmanship.

With so much work to be done, CEOS remains fully engaged as the space arm of GEO, and looks forward to continuing and reinforcing our productive working relationship with the GEO community and the GEO Secretariat.