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Dear Colleagues,

I am pleased to circulate this draft White Paper on New Space for consideration at the 37<sup>th</sup> CEOS Plenary, hosted by the 2023 CEOS Chair, GISTDA, in Thailand from 14-16 November 2023. The topic of New Space was introduced for consideration as one of ESA's 2022-2023 CEOS Strategic Implementation Team (SIT) Chair priorities and the paper is the result of considerable work by the New Space Task Team (NSTT) which was given a one-year mandate at the 36<sup>th</sup> CEOS Plenary in 2022.

The NSTT explored opportunities related to New Space that bring mutual benefit to all parties. This included the aim to identify concrete initiatives that CEOS could and should focus on, and to define a set of recommendations for CEOS Principal consideration. The NSTT membership was open to representatives of all CEOS Members and Associates who were then free to consult within their respective communities to bring forward observations and ideas. Additionally, the leads of the various CEOS entities (Working Groups, Virtual Constellations, and ad hoc teams) were consulted in order to assess the potential for existing CEOS initiatives to better address the potential of the New Space sector and to consider what else might be done in the context of their work.

I would like to share the following general observations which emerged from this inward-looking exercise:

- The CEOS community was able to benefit from this exercise due to the opportunity to share experiences in engaging with upstream and downstream New Space actors, and thus learn from others.
- New Space actors are delivering data aimed at an increasing number of priority applications that have historically been the domain of publicly-funded missions. This includes carbon and greenhouse gas monitoring, climate risk reporting, disaster management and mitigation, etc.
- Data from New Space actors are generally seen as augmenting, rather than replacing, long-term institutional programmes, albeit with potentially reduced quality. As such, data from institutional missions are needed by commercial actors not only for use as a reference to improve the accuracy of their own data products, but also to fuse the data sets to generate higher level information products.
- Data quality is an essential factor for scientific and operational endeavours, requiring harmonised assessment methods. CEOS, in line with its long-term objectives, has a continuing and key role to play in ensuring long-term confidence in the accuracy and quality of all space-based EO data and products, be they produced by public or private missions. CEOS also has a supporting role to play in order to develop common methodologies and practices for data harmonisation, to play an advisory role for matters relevant to the development of systems and services that supply EO data (such as calibration and calibration of sensors and data), and to provide intercomparison opportunities for all space-based datasets, including those generated by New Space companies.

Three recommendations put forward to CEOS Principals by the NSTT in this White Paper (Appendix A) are as follows:

- R1) In view of augmenting the scientific and operational potential of long-term, institutional programmes, CEOS Members and Associates should act collectively in **using the CEOS mechanisms to identify and support potential complementary capabilities enabled by New Space and other commercial actors.**
- R2) CEOS Members and Associates should strive to continue to **share information on relevant events and activities related to New Space**, including commercial data evaluation results when possible. CEOS Agencies should also investigate ways to work together on cooperation agreements with New Space actors possibly including common lines to take on end-user licence agreements and IPR issues.
- R3) Cooperation and collaboration opportunities should be sought with to **facilitate interoperability between private and public sector data** and future CEOS SIT Chairs are encouraged to routinely provide the opportunity for CEOS Members and Associates to report on developments in the standards domain, be they from public or private sources, at future SIT Technical Workshops.

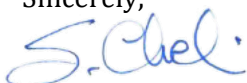
In addition, this White Paper includes in Appendix B, five recommended deliverable activities to include in the CEOS Work Plan:

- D1) To ensure users can benefit from increased complementarity and interoperability of CEOS Agency and New Space datasets, the **CEOS-ARD initiative should identify and implement mechanisms to deepen engagement with the New Space sector**, consistent with CEOS Governing Documents. Examples include establishing a mechanism to consult the New Space sector during the development and review of CEOS-ARD Product Family Specifications (PFS), encouraging commercial sector participation in the ISO-AGC ARD Standards Working Group, and encouraging and assisting New Space entities to undertake self-assessments of their datasets against CEOS-ARD PFSs.
- D2) CEOS Members and Associates should continue unified engagement with New Space actors on key topics such as ARD, Cal/Val and data quality via **CEOS representation at key meetings** including VH-RODA, JACIE, IGARSS, Living Planet Symposium, and ARD2x.
- D3) A **revision of CEOS-ARD Industry Engagement Strategy** should include consideration of aspects of specific relevance to the New Space sector, and the CEOS-ARD Oversight Group should consider the merits of organising a dedicated New Space workshop.
- D4) The CEOS Interoperability Roadmap will **ensure that legacy and new public and commercial datasets can be used more interoperably** to generate advanced decision-support products and new research applications. As such, adequate resources should be made available to complete its development and maturation
- D5) The CEOS Systems Engineering Office should **demonstrate the integration of New Space data into the CEOS Analytics Lab** and evaluate its interoperability with common CEOS datasets.

We look forward to the discussion on the findings and recommendations.

With this, I would like to warmly thank all the CEOS agencies and the various CEOS groups for having shared their thoughts and experience with the CEOS Community and for their very constructive contributions to this CEOS New Space White Paper.

Sincerely,



**Simonetta Cheli**

2022-2023 CEOS SIT Chair

Director of Earth Observation Programmes

European Space Agency (ESA)