**Draft Terms of Reference for
CEOS Organizational Elements**

For the purpose of this review, this document contains updated Terms of Reference (ToR) for CEOS elements including: the CEOS Chair, CEOS Secretariat (SEC), CEOS Strategic Implementation Team (SIT) Chair, CEOS Executive Officer (CEO), and the CEOS Systems Engineering Office (SEO). Once finalized and approved, the terms of reference in this document will reside as separate documents on the CEOS website (www.ceos.org). The Terms of Reference for CEOS are maintained as a separate, standalone document to ensure mutual consistency and clarity regarding the hierarchical precedence of CEOS guiding documents.

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# Terms of Reference: CEOS Chair

**Purpose**: The Committee on Earth Observation Satellites (CEOS) Chair leads the Committee on Earth Observation Satellites in its mission to ensure international coordination of civil space-based Earth observation programs and promote exchange of data to optimize societal benefit and enable decisions for securing a prosperous and sustainable future for humankind. The CEOS Chair leads the organization’s governance and is also its principal representative in the international community.

**Organization**: The CEOS Chair presides over the Secretariat and the Troika, the latter consisting of the CEOS Chair, the immediate past CEOS Chair, and the incoming CEOS Chair. For purposes of succession planning and continuity of major Earth observation endeavors in relation to stakeholders, CEOS Agencies wishing to be considered for the role of Chair are asked to inform the Agency in the CEOS Chair role at least two years in advance. Every effort should be made to rotate the CEOS Chair responsibility among major geographic regions (the Americas, Europe/Africa, Asia/Pacific) to promote leadership diversity. The composition of the CEOS Chair Team, itself, is at the discretion of that Agency’s CEOS Principal and will include expertise and resources to fulfill the range of activities outlined in these Terms of Reference and the *CEOS Strategic Guidance* document and *CEOS Governance and Processes* document. It is also suggested the composition of the CEOS Chair Team include appropriate international relations and technical expertise to effectively interact internally with the CEOS Working Groups and Virtual Constellations , and externally, with Ministerial-level organizations and other external stakeholders.

The CEOS Chair will be selected by the CEOS Plenary for a one-year term. The term of a previously confirmed incoming CEOS Chair nominee begins at the conclusion of the CEOS Plenary. The CEOS Chair will be a senior space agency official, from a different agency than the CEOS Strategic Implementation Team (SIT) Chair.

**Objectives:** The CEOS Chair’s objectives and intended outcomes, listed below, consist of overall leadership and guidance of the organization and its activities with regard to governance, stakeholder relationships, and mission objectives and priorities as implemented by the CEOS Working Groups, Virtual Constellations, and Ad Hoc Teams.

Strategic Guidance

* Play a central role in the strategic coordination of existing and future missions of CEOS Agencies, continuing to support the Group on Earth Observations (GEO) in the realization of the space segment of the Global Earth Observation System of Systems (GEOSS).
* Work with the SIT Chair and the Secretariat to build capacity and complementarity among CEOS Agencies, stakeholders, and partner organizations by broadening the participation in and contributions to CEOS Earth observation activities.
* Lead and coordinate, with the support of the CEOS Executive Officer (CEO), activities in support of external stakeholders. These external stakeholders may include, but are not limited to: GEO; the United Nations Framework Convention on Climate Change (UNFCCC); the United Nations International Strategy for Disaster Reduction; the United Nations Convention on Biological Diversity; the Global Climate, Ocean, and Terrestrial Observing Systems; and the Group of Eight/Group of Twenty (G20) industrialized nations.

Executive Management

* Organize and chair the following meetings that inform, review, and advance the implementation of CEOS activities and deliverables each year: the annual CEOS Plenary, monthly meetings of the Secretariat, and meetings of the Troika at intervals deemed appropriate. The Chair may request other meetings as needed to discuss priorities, objectives, or issues. The CEOS Chair may also invite observers or CEOS entities, as appropriate, to any meeting.
* Lead the Secretariat as the coordinating body of CEOS and the central point for executive leadership discussions and reporting on activities. The CEOS Chair will develop the Secretariat meeting agenda, provide it in advance to all participants for comment, and distribute meeting minutes in a timely manner. The CEOS Chair is also responsible for inviting representatives from additional CEOS Agencies or other relevant organizations to participate in the Secretariat meetings, as required.
* To ensure leadership continuity, work with the Secretariat to identify and actively recruit Agencies qualified to serve as future CEOS Chair candidates, at least two years in advance.
* Oversee the activities of the CEOS Executive Officer (CEO) and, if one exists, the Deputy CEOS Executive Officer (DCEO), and make best efforts among CEOS Members and Associates to ensure continuity through succession planning.
* Oversee the activities of the CEOS Working Groups. This may include, but is not limited to: regular telecons with Working Group Chairs to understand progress and issues, and support for resolving issues that require Agency interaction. The CEOS Chair may delegate this responsibility to the SIT Chair, and/or utilize the support of the SIT Chair for this activity.
* Propose Ad Hoc Teams to the CEOS Plenary for discussion and consensus decision.

**Planning, Implementation, and Reporting:**

* Be the principal interface for all external reporting, except when delegated to the SIT Chair or CEOS Executive Officer.
* Report to the CEOS Plenary on matters requiring discussion or decision by CEOS Plenary, and arrange for appropriate action to be taken, except when delegated to the SIT Chair or CEO.
* Report to external stakeholders on the progress of CEOS actions/commitments.
* Work with the CEO and the CEOS Secretariat to ensure well-prepared and coordinated CEOS representation at key stakeholder meetings.

*These Terms of Reference can be amended or modified only after consultation and agreement by the CEOS Chair and the SIT Chair. The amendment process should include a review of other CEOS guiding documents that will be affected by the amendment or modification to ensure that all of the guiding documents are consistent and mutually supporting. Such amendment or modification shall require review and approval by the CEOS Plenary.*

# Terms of Reference: CEOS Secretariat (SEC)

**Purpose**: Led by the Committee on Earth Observation Satellites (CEOS) Chair, the permanent CEOS Secretariat (SEC) ensures progress on and implementation of Plenary and SEC actions; drafts and approves CEOS position statements, major meeting agendas, and minutes; and provides ongoing coordination of CEOS activities through monthly meetings between Plenary sessions.

**Organization**: The permanent Secretariat is maintained by the

* European Space Agency (ESA),
* European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT),
* National Aeronautics and Space Administration (NASA) of the United States,
* National Oceanic and Atmospheric Administration (NOAA) of the United States,
* Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan, and
* Japan Aerospace Exploration Agency (JAXA).

The SEC is chaired by the current CEOS Chair Agency, which is responsible for developing the SEC meeting agenda and topics for discussion. In addition, to ensure the expeditious conduct of business, the immediate past CEOS Chair and the incoming CEOS Chair are included in the SEC. The Strategic Implementation Team (SIT) Chair, SIT Vice Chair, CEOS Executive Officer (CEO) and CEOS Systems Engineering Office (SEO) are invited to participate in the SEC. The CEOS Working Group Chairs are also invited to all SEC Meetings so that they may report on the status of Plenary-related action items under their responsibility, and they are copied on all relevant correspondence. Representatives from additional CEOS Agencies or other relevant organizations may participate in the Secretariat on a temporary basis at the invitation of the CEOS Chair, for a period not to exceed the term of the CEOS Chair. Agencies or other organizations wishing to participate in the Secretariat on a temporary basis will apply in writing to the CEOS Chair, who will specify the length of the Agency’s participation, not to exceed the term of the CEOS Chair.

**Objectives:**

* Facilitate communication relating to CEOS activities between major CEOS meetings
* Play a key policy role in drafting and approving CEOS position statements and major meeting agendas and minutes in support of the CEOS Chair and SIT Chair
* Facilitate communication with external stakeholders
* Facilitate communication among internal stakeholders, such as the SIT and Working Groups
* Facilitate progress and address issues relating to select *CEOS Work Plan* initiatives
* Along with the CEO, coordinate CEOS representation at external meetings
* Report on the status of SEC actions and actions from previous Plenary meetings
* Maintain and update the *CEOS Earth Observation Handbook* and the corresponding online Mission, Instrument and Measurement (MIM) database
* Produce the *CEOS Newsletter* and other periodic outreach publications
* Other tasks as assigned by the CEOS Chair

**Planning, Implementation, and Reporting:**

The SEC meets on a monthly basis to review SEC and Plenary action items and assist in coordination of CEOS activities. Those in attendance are given the opportunity to report on other relevant topics to include the activities of CEOS, Group on Earth Observations (GEO), SIT, Working Groups, external meeting attendance, and other topics of interest. Meetings are typically conducted by teleconference, but may be combined with major CEOS meetings to take advantage of face-to-face participation.

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# Terms of Reference: CEOS Strategic Implementation Team Chair (SIT Chair)

**Purpose**: The Strategic Implementation Team (SIT) of the Committee on Earth Observation Satellites (CEOS) provides strategic guidance on the direction, progress, and status of implementation activities in relation to the established priorities, commitments, and partnerships of the CEOS organization.

**Organization**: The CEOS SIT Chair formally reports to the CEOS Chair, and participates in the meetings of the CEOS Secretariat and Troika. The SIT Chair is supported by the SIT Chair Team, whose composition is at the discretion of the SIT Chair. The SIT Chair Team includes expertise and resources to fulfill the range of activities outlined in these Terms of Reference, the *CEOS Strategic Guidance* document, and the *CEOS Governance and Processes* document. It is recommended that the SIT Chair Team members possess adequate international relations and technical expertise to effectively interact with and support the Virtual Constellations (VCs) and Working Groups (WGs).

Biennially, CEOS confirms and endorses an Agency as SIT Chair and a second Agency as SIT Vice Chair at the CEOS Plenary meeting. Both SIT Chair and SIT Vice Chair Agencies serve a two-year term, with the SIT Vice Chair taking on the role of SIT Chair at the end of the SIT Vice Chair term. The terms for the previously nominated and confirmed SIT Chair and SIT Vice Chair begin at the conclusion of the CEOS Plenary. The SIT Vice Chair role is intended to provide active support to the SIT Chair. Both the SIT Chair and SIT Vice Chair are invited to participate in the CEOS Secretariat. For purposes of succession planning and continuity of the implementation of major Earth observation deliverables in relation to stakeholders, CEOS Agencies seeking consideration to chair the SIT are asked to offer their candidacy to the CEOS Chair at least two years in advance so that they may be first considered for the SIT Vice Chair role, which precedes the role of SIT Chair.

Participation in SIT meetings is open to any CEOS Agency willing and ready to contribute to one or more of the activities being discussed by the SIT. The SIT Chair may, at his/her discretion, arrange dedicated sessions for those Agencies discussing coordination of implementation plans. The SIT Chair may also invite observers, as appropriate, to any meeting.

**Objectives:** The objectives and intended outcomes of the SIT Chair, listed below, center on strategic guidance with regard to governance, stakeholders, and the accomplishment of deliverables and societal benefit contributions of the VCs and WGs.

Strategic Guidance

* In consultation with the CEOS Chair, play a central role in technical coordination of existing and future missions of CEOS Agencies, continuing to support the Group on Earth Observations (GEO) in the realization of the space segment of the Global Earth Observation System of System (GEOSS).
* Work to accomplish greater synergy between the research satellite and operational satellite communities in building upon proven research instrumentation to develop future-generation operational monitoring capabilities
* Work with the CEOS Chair and Secretariat to build capacity and complementarity among CEOS Agencies, stakeholders, and partner organizations by broadening the participation in and contributions to CEOS Earth observation activities
* Oversee the activities of the CEOS VCs and, as delegated by the CEOS Chair, assist in overseeing the WGs. The SIT Chair may also oversee certain Ad Hoc Teams, as designated by the Plenary. Oversight of these entities may include, but is not limited to, regular telecons with VC Co-Leads and WG Chairs to provide strategic guidance, understand progress and issues, and support the resolution of issues that require agency coordination.
* Seek and monitor implementation of commitments by the membership in support of the *CEOS Strategic* *Guidance* and *CEOS Work Plan* documents.

Executive Management

* Working with the CEOS Chair and the CEOS Executive Officer (CEO), chair the following major meetings that inform, review, and advance the implementation of CEOS activities and deliverables each year: the CEOS SIT Meeting in the March to April timeframe, and the CEOS SIT Technical Workshop in the August to September timeframe (not required, but often desired to prepare for the CEOS Plenary, GEO Plenary, United Nations Framework Convention on Climate Change (UNFCCC), and other key external stakeholder meetings).
* Working with the CEOS Chair and the CEO, organize and coordinate the CEOS-GEO Actions Meeting in the January to February timeframe. This meeting will be chaired by the CEO.
* Evaluate initial proposals, full proposals, and implementation plans for new VCs according to the *VC Process Paper* and facilitate the discussion and decision process with CEOS Principals at the SIT Meeting.
* Take on such other tasks as the CEOS Chair considers appropriate.

**Planning, Implementation, and Reporting:** The SIT Chair organizes and chairs meetings of the SIT to strategically address space agency commitments to the *CEOS Work Plan*. The SIT Chair convenes each meeting at a time and place to facilitate the participation of as many interested representatives as possible, and makes every effort to offer web conferencing for representatives who cannot attend in person. The SIT Chair provides an agenda and related documents at a reasonable time prior to each meeting. The SIT Chair develops the agenda in consultation with the CEOS Chair and the Secretariat, and identifies potential outcomes for the meeting in question, topics for decision or approval, topics for information, topics requiring CEOS Agency guidance, and actions. As needed, the SIT Chair pursues inter-sessional contacts with CEOS Member Principals and works together with the CEOS Chair, CEO, and Secretariat to keep all CEOS Agencies informed of the organization’s activities and issues during the period between CEOS Plenaries.

The SIT Chair is also responsible for the following reporting and representation activities.

* In cooperation with the CEOS Chair, CEO and Systems Engineering Office (SEO), be the principal CEOS interface with GEO for the annual CEOS–GEO Coordination Meeting (in the December to January timeframe) between CEOS executive leadership (CEOS Chair, SIT Chair, CEO, SEO) and the GEO Secretariat.
* The SIT Chair will keep the CEOS Chair and CEO regularly informed and briefed, particularly in connection with external stakeholder meetings, where the CEOS Chair or designee will be the formal CEOS representative.
* In cooperation with the CEO, report to the CEOS Plenary on technical implementation matters requiring discussion or decision by CEOS Plenary, and arrange for appropriate action to be taken.
* Develop, maintain, and report (to CEOS Plenary annually) progress on CEOS contributions to the GEO Work Plan.
* Ensure appropriate 'space component' representation in any implementation initiatives undertaken by CEOS in support of various stakeholder initiatives. Representatives will report regularly to the SIT Chair, and will look to him/her for support in carrying out CEOS commitments.

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# Terms of Reference: CEOS Executive Officer (CEO)

**Purpose:** The Committee on Earth Observation Satellites (CEOS) Executive Officer (CEO) supports CEOS objectives to coordinate Earth observation (EO) satellite missions on a global basis, and to enhance the use and sharing of their data for societal benefit. The role of the CEO is to ensure the efficient conduct of CEOS activities in support of internal and external stakeholders. These external stakeholders may include, but are not limited to: the Group on Earth Observations (GEO); the United Nations Framework Convention on Climate Change (UNFCCC); the United Nations International Strategy for Disaster Reduction; the United Nations Convention on Biological Diversity; the Global Climate, Ocean, and Terrestrial Observing Systems; and the Group of Eight/Group of Twenty (G20) industrialized nations.

**Organization**: The CEO is detailed on a full-time basis by a CEOS Agency, and appointed by the CEOS Chair for a two-year term. This term may be extended or renewed if jointly agreed by the CEO, incoming CEOS Chair, and CEO’s host Agency. Additionally, with the consent of the CEOS Chair and CEO, a CEOS Agency may also detail a Deputy CEOS Executive Officer (DCEO), on at least a half-time basis, for a two-year time period. In this event, the CEO and DCEO will agree upon their respective duties to fulfill the objectives and requirements specified in this document, and communicate this arrangement to the CEOS community. The CEO position was first agreed to at the 2006 CEOS Plenary in Buenos Aires, with the initial focus of facilitating CEOS coordination with the GEO, Global Climate Observing System (GCOS), and other stakeholders and providing support and guidance to CEOS leadership and membership at large. The CEO participates in the meetings of the CEOS Secretariat and Troika.

**Objectives:** Through the following objectives, the CEO advises CEOS leadership on CEOS priorities, objectives, new initiatives, and timetables for action.

* Under direction of the CEOS Chair and in consultation with CEOS leadership, the CEO develops the *CEOS Work Plan* (three-year longevity, updated annually). The CEO also supports the CEOS Chair and Strategic Implementation Team (SIT) Chair in development, coordination and approval of the *CEOS Strategic Guidance* (10-12 year longevity) document and the *CEOS Governance and Processes* (5-7 year longevity) document.
* Consults and coordinates with the GEO Secretariat on: CEOS contributions to GEO Work Plan Tasks and Components, CEOS participation in GEO Work Plan Task/Component leadership, development of CEOS Actions in support of GEO Work Plan Tasks, and CEOS participation in GEO Working Groups and Implementation Boards.
* Routinely liaises with CEOS Working Groups, Virtual Constellations, the CEOS Systems Engineering Office (SEO), and the GEO Secretariat.
* Works closely with CEOS Contacts and external stakeholders to facilitate execution of CEOS Actions; provides overall guidance and reports to external stakeholders regarding CEOS Actions.
* Advises and provides guidance on major CEOS initiatives; participates in the many CEOS entity (*e.g.,* Working Groups, Virtual Constellations) meetings to ensure cross-flow of information at working levels within CEOS.
* Advises CEOS leadership on prospects for continued/expanded internal and external cooperation.
* At the request of the CEOS Chair, represents CEOS at meetings of CEOS partners and stakeholders.
* In cooperation with the SIT Chair, CEOS Chair, and SEO, supports the annual CEOS–GEO Coordination Meeting (in the December to January timeframe) between CEOS executive leadership (CEOS Chair, SIT Chair, CEO, SEO) and the GEO Secretariat.
* Leads the annual CEOS-GEO Actions Workshop (in the January to February timeframe).
* Edits major CEOS publications and advises/assists with CEOS outreach efforts.
* Tracks and reports on upcoming internal and external meetings and events where CEOS representation/participation is required/invited; reports on status of CEOS representation at relevant meetings during monthly Secretariat telecons.
* Reviews and manages the CEOS mailing and contact lists, and consults with the SEO in updating CEOS mailing list servers. These lists will also be coordinated with the CEOS Chair and the SIT Chair to maintain accuracy and efficiency in CEOS communications.

**Planning, Implementation, and Reporting:**

* The CEO reports to the CEOS Chair and to the CEOS SIT Chair, in areas where the CEOS Chair has delegated authority to the CEOS SIT. The CEO works closely with the CEOS Secretariat and leadership of CEOS Agencies, Working Groups, and Virtual Constellations.
* The CEO, in consultation with the SIT Chair, reports at the annual SIT, SIT Technical Workshop, and Plenary meetings on the CEOS contributions to the GEO Work Plan, as well as CEOS contributions to other initiatives.
* The CEO shall lead the development of reports and position statements (interventions) on CEOS annual accomplishments.

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# Terms of Reference: CEOS Systems Engineering Office (SEO)

**Purpose**: The Committee on Earth Observation Satellites (CEOS) Systems Engineering Office (SEO) provides systems engineering leadership and support to CEOS through technical and management services and the development of tools and products that facilitate systems engineering solutions for societal benefit.

**Organization**: The SEO was conceived by NASA in 2007, as a contribution to CEOS, and is currently funded and led by NASA. Continued leadership and funding for the SEO will be addressed annually by the sponsoring organization. The SEO formally reports to the Strategic Implementation Team (SIT) Chair and its annual work plan is coordinated with the SIT Chair, but the SEO may also consider requests for work from the CEOS Chair. NASA currently utilizes a mix of NASA employees and contractors representing various CEOS agencies to meet SEO objectives. Participation from other Agencies is desired to meet the expanding efforts of the SEO.

**Objectives:** The SEO’s objectives and intended outcomes are focused on management and technical services to CEOS.

Management

* The SEO will manage the CEOS website, including hosting and content. Website visits will be tracked and reported annually at the CEOS Plenary to optimize outreach potential.
* The SEO will update the CEOS mailing list servers with inputs provided by the CEOS Executive Officer (CEO), who will review and manage the CEOS contact list. These lists will be coordinated with the CEOS Chair and SIT Chair to maintain accuracy and efficiency in CEOS communications.
* The SEO will manage the CEOS-GEO Actions database. This includes hosting and coordination of content with the CEO to maintain accuracy and effectiveness.
* The SEO will work with the CEO to support the development of the *CEOS Work Plan*.
* The SEO will support CEOS-external stakeholder interfaces by working with CEOS leadership (Chair, SIT, CEO), Virtual Constellations (VCs), and Working Groups (WGs) on priority initiatives supporting those stakeholders.
* The SEO will support CEOS outreach and training activities, pending availability of funding. This support may include development of outreach materials, hosting of exhibition booths (e.g., GEO, International Geoscience and Remote Sensing Symposium [IGARSS], American Geophysical Union [AGU]) and training.

Technical

* The SEO will develop systems analysis tools to support the CEOS SIT, VCs and WGs. Examples of such tools include the CEOS Visualization Environment (COVE), the Essential Climate Variable (ECV) database, and the Data Policy Portal.
* The SEO will conduct systems engineering gap assessments (missions and measurements) and special studies to support the CEOS SIT, VCs, WGs, and Ad Hoc Teams.
* The SEO will support CEOS data acquisition planning initiatives. This support may include the development of measurement requirements, mission coverage and gap assessments, data volume assessments, cloud cover analyses, data policy assessments, and the coordination of mission data to optimize the use of Agency resources.
* The SEO will support the development and annual updates to the *Earth Observation (EO) Handbook* and the corresponding online database. This support includes prototyping new technical functions and reviewing development plans. The partnership between the SEO and Mission, Instrument and Measurement (MIM) team will improve the content and effectiveness of the MIM.

**Planning and Reporting:**

* The SEO will develop an annual SEO Work Plan and present the results at the CEOS Plenary meeting. The elements of this SEO Work Plan depend on available resources, SIT priorities, CEOS Chair priorities and SEO priorities.
* The SEO will present an annual report at the CEOS Plenary meeting. This report will summarize the key accomplishments of the SEO from the current year and the proposed SEO Work Plan for the following year.
* The SEO will present status reports, as needed, at CEOS meetings (i.e., Secretariat, SIT, Working Groups, Constellations) on topics related to their systems analysis tools, systems engineering assessments, and data acquisition planning assessments.

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