

## THE CEOS WGISS INTEGRATED CATALOG FOR GEO

The Committee on Earth Observation Satellites (CEOS) is a consortium of international agencies that develop and operate Earth Observation satellites. CEOS is the satellite arm of GEO. The CEOS agencies are working together through the CEOS Working Group on Information Systems and Services (WGISS) to facilitate the development, availability, and access of satellite data, metadata, and products commonly required across diverse societal benefit areas. NOAA, working with the CEOS agencies, is providing key support toward the development of an Earth observation catalog access prototype. The goal of this effort is to satisfy the need in the Global Earth Observation System of Systems (GEOSS) operations concept for a community catalog of Earth observation satellite products.

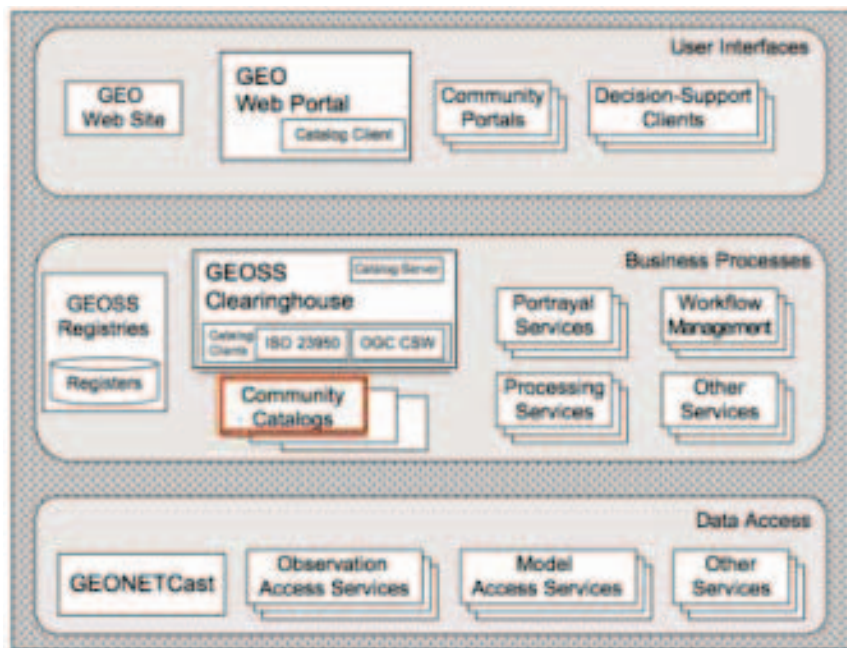


Figure 1. GEOSS Architecture

Because there are tens of thousands of different satellite data collections, and those data collections have many hundred thousands of individual products within a single data collection, a two-tiered discovery and search distribution is the preferred approach. In existing satellite data systems, catalogs are used to help non-expert users discover what types of data might fill their needs. Those catalog systems are the first tier in a two-tiered discovery model. Once users identify collections that are of interest, more detailed queries are sent to inventory systems where individually relevant products are identified for follow-on processing and data access. This inventory search is the second tier.

The product of this activity will be a CEOS WGISS Integrated Catalog (CWIC) that will act as a “virtual” clearinghouse by distributing the searches to the CEOS agency catalog systems. This effort will be accomplished through the emerging initiatives of CEOS WGISS and the GEO

Data, Metadata, and Products Harmonization Task. CEOS WGISS is working with the various societal benefit area applications and virtual constellation portal efforts within GEO to identify the user interface clients that will need search and access of satellite data. The CEOS agencies may also provide access to CWIC from their agency sponsored user interface clients. Each of the user interface clients accessing CWIC may offer the full or tailored set of data for their users. For example, the GEO client will offer search and access to all the satellite data offered through the WGISS agency catalog systems. The Atmospheric Chemistry portal will offer search and access of atmospheric data selected by the Atmospheric Virtual Constellation scientists.

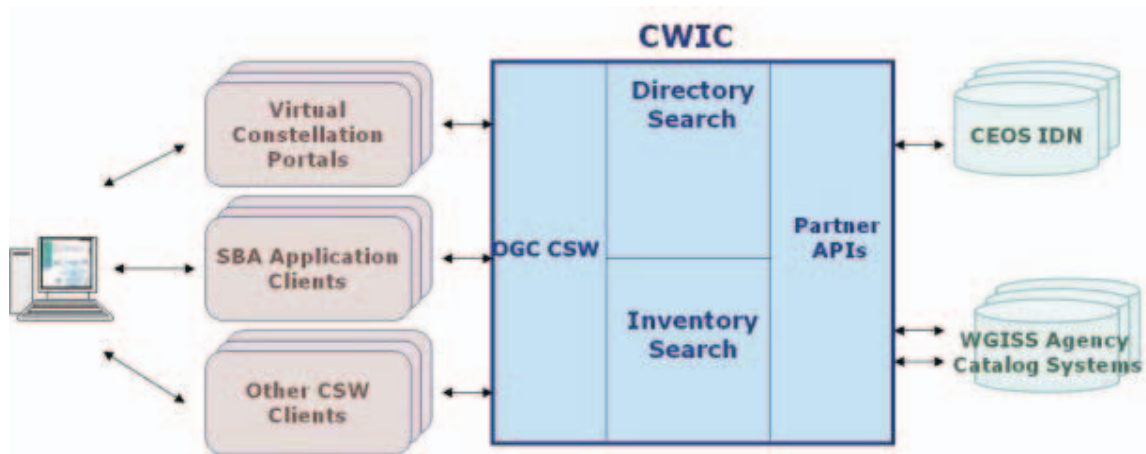


Figure 2. CEOS WGISS Integrated Catalog

The CWIC design team, composed of staff from NOAA, NASA, USGS, JAXA, ESA, and EC, will kick off its activities in first quarter of 2010. The design team's approach will be based on industry best practices of establishing a vision for CWIC and elaborating that vision through Use Case Modeling. An Actor Survey, identifying the stakeholders and their roles and interactions with CWIC will be developed. Use Cases will be identified and defined, including the identification of participating stakeholders. It is planned that CWIC will be developed iteratively. Therefore, the CWIC leadership team will prioritize the Use Cases, and high priority Use Cases will be implemented in the earliest iterations. The Use Cases will be validated by identifying components and their data access mechanisms that will work together to fulfill the Use Case. CWIC will work with components and services that are currently operational at the CEOS WGISS agency data systems. CWIC will integrate the common inventory search with the specific data access mechanisms. Wherever possible, existing standards and components will be reused. The key standards currently being utilized by the GEOSS Common Infrastructure will be used by CWIC.

User interface clients will access CWIC through the GEO adopted standard, the OGC Catalog Services for the Web (CSW), using a search criteria that is a subset of ISO 19115 metadata. The CEOS WGISS agencies are working together to identify a minimum, common metadata set that must be supported across all satellite data providers to provide collection discovery and also

a comprehensive and consistent inventory or product search of the individual satellite observations. The data access mechanisms being used by the CEOS agency systems represented in the CWIC design team will be reused to provide the data access after the catalog search.

We have developed a concept for an improved infrastructure for Remote Sensing EO resources, and have an approach to demonstrate and validate that vision. We have built a heterogeneous and international team which will work to design and implement that vision, utilizing best practices, common standards and existing components. CWIC will be offered as a component of the GEO Common Infrastructure baseline, as a CEOS community catalog. This presentation will provide an overview of CWIC, the CWIC architecture and design, and will highlight the potential benefit of its implementation to the international scientific user community.

**Bibliography:**

- [1] GEO, Group on Earth Observations home page. <http://www.earthobservations.org/>
- [2] GEOSS Common Infrastructure (GCI) Initial Operating Capability (IOC) Task Force Terms of Reference.
- [3] CEOS WGISS home page. <http://www.ceos.org/wgiss>
- [4] CEOS WGISS Architecture and Data Contributions Project. <http://www.ceos.org/wadc>