CEOS Systems Database Overview

Brian Killough
CEOS Systems Engineering Office (SEO)

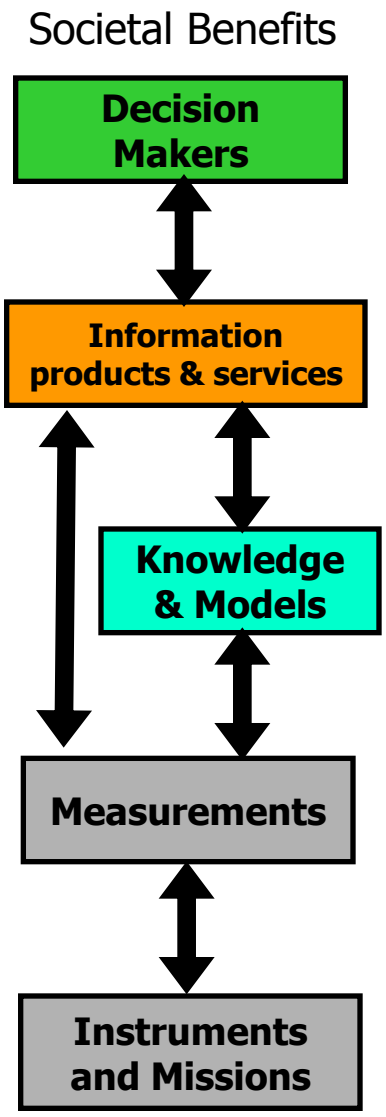
Systems Database Summary

Purpose

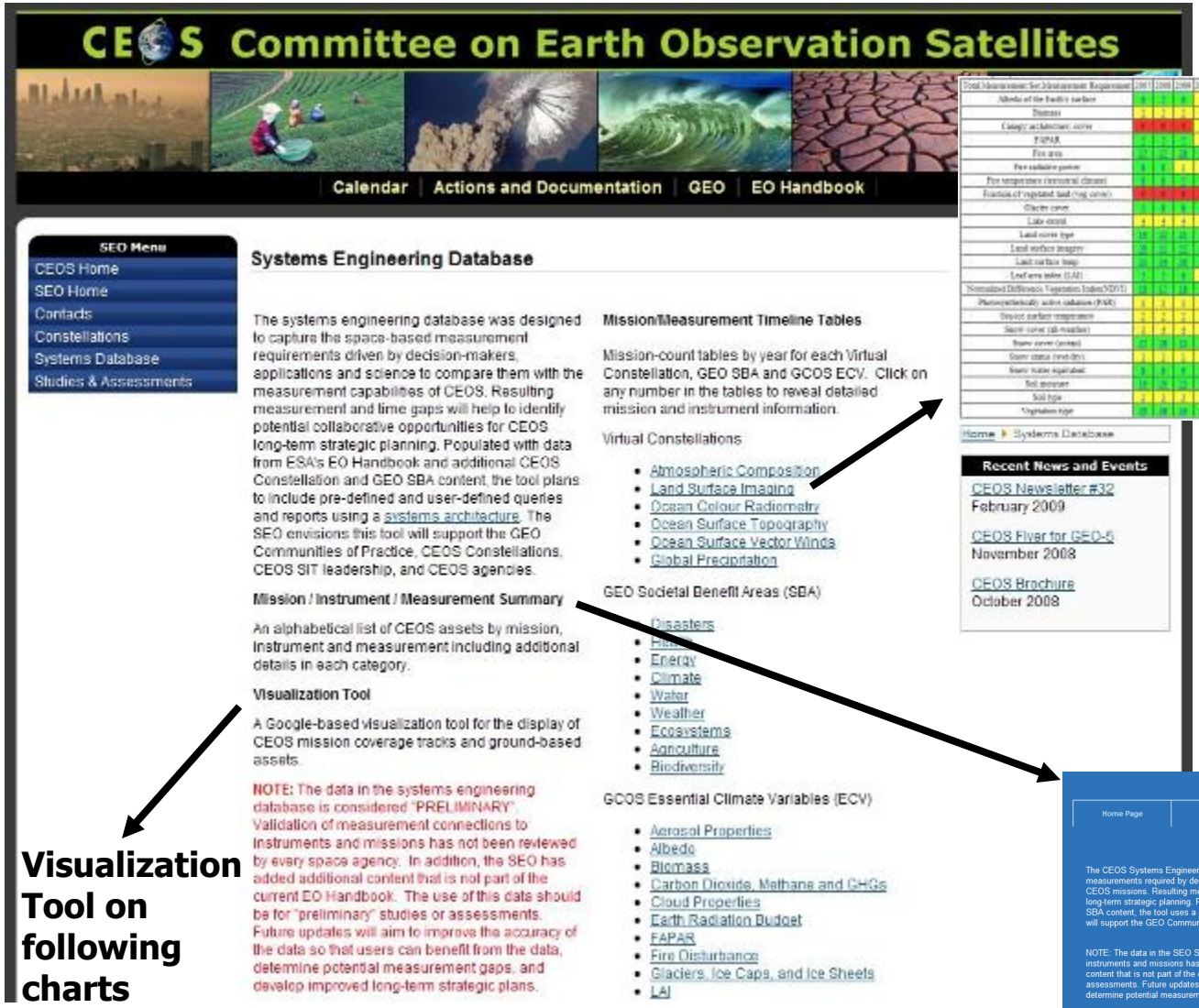
- Capture the space-based measurement requirements driven by science, applications, and decision makers and compare them with the space-based measurement capabilities of CEOS to determine measurement and time gaps and identify potential collaborative opportunities for CEOS long-term strategic planning.

Approach

- Database tool developed in MS-ACCESS and My-SQL and hosted by the SEO website.
- Utilizes instrument types and measurement nomenclature consistent with the WMO report developed by Bizzarro Bizzarri (Space Based Global Observing System in 2009).
- Utilizes data from the "CEOS Database of Missions Instruments and Measurements" on which the EO handbook is based including SEO-added updates.
- Includes links to CEOS constellations, GEO SBAs and GCOS ECVs.
- Pre-defined tables of yearly mission counts by CEOS Constellation, GEO SBA, and GCOS ECV.
- Alphabetical menu list of CEOS assets by mission, instrument and measurement including additional mission details.



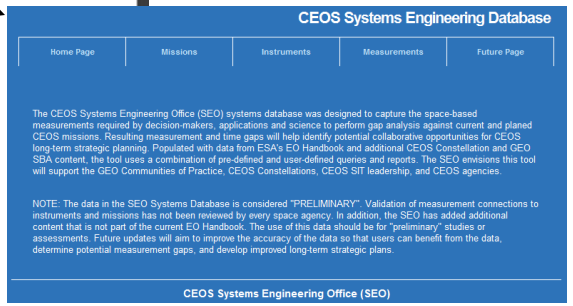
www.ceos.org – SEO/Systems Database



Mission Count tables by Constellation, SBA or ECV

DEMO

Alphabetical CEOS mission, instrument and measurement summary



Visualization Tool on following charts

Systems Database - Future Plans

- Enhanced web interface and systems database navigation
- Additional pre-defined queries for Constellations, SBAs and ECVs
- User-defined query capability linked to My-SQL
- Data content authentication for Constellations, SBAs and ECVs
- Desire to update the content of the "CEOS Database of Missions and Instruments" to correct missing and incorrect CEOS agency information.
- Integration with the "CEOS Database of Missions and Instruments" to improve data sharing. Consider consistent nomenclature for instrument types and measurements.
- Develop web-based tools to display results of CEOS "threads" analyses.
- Work with GEO UIC (Lawrence Friedl) to develop an approach for displaying results of the SBA metadata analyses.

CEOS Visualization Environment (COVE)

STK Orbit Analysis

mySQL Database

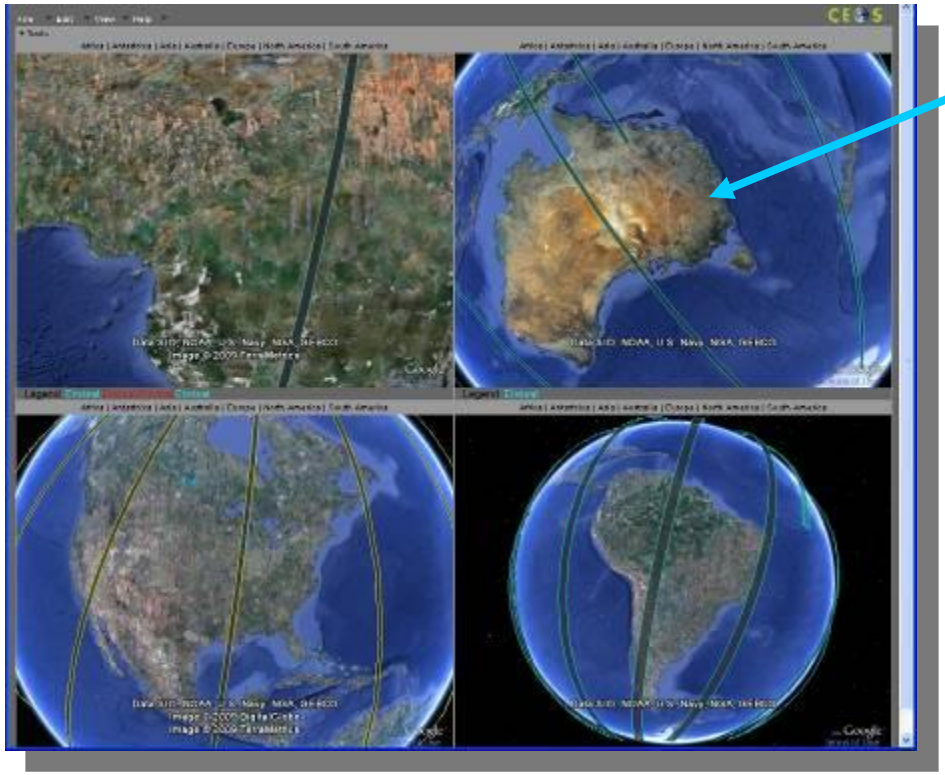
KML Conversion

Google Earth

Purpose

- Display orbit and measurement coverage of CEOS missions on a Google-Earth map.
- Support evaluation of data availability for GEO Societal Benefit Areas (SBA) in any location.
- Support calibration (on-orbit and ground) opportunities for CEOS missions.
- Use for education and capacity building.

CEOS Visualization Environment (COVE)



View multiple data sets on multiple viewports with zoom capability

Add background KML data such as CEOS agency locations or Cal-Val sites.

Functionality

- Full Google-Earth tool capabilities (zoom, rotation, country labels).
- User friendly GUI interface for selecting missions, instruments and measurements.
- Upload capability for personalized KML files (i.e., CEOS agencies, WGCV ground sites)
- Prototype version includes 4 missions (GoSat, Envisat, Landsat-7, Sentinel-2)

DEMO

COVE – Future Plans

- Any future improvements or applications will require that the tool remain SIMPLE and INTUITIVE.
- The current tool is only a prototype to demonstrate capability and was developed in 8 weeks. Additional work is needed on the GUI interface and data displays for full functionality.
- The SEO would like a small set of users to test the system to determine potential CEOS applications. Contact the SEO for a username and password.
- There is a great potential to support CEOS Working Groups or Constellations. For example, WGCV would like to support mission cross-calibration by identifying coincident scene locations in a given date range for a given set of instruments.