

The CEOS Constellations

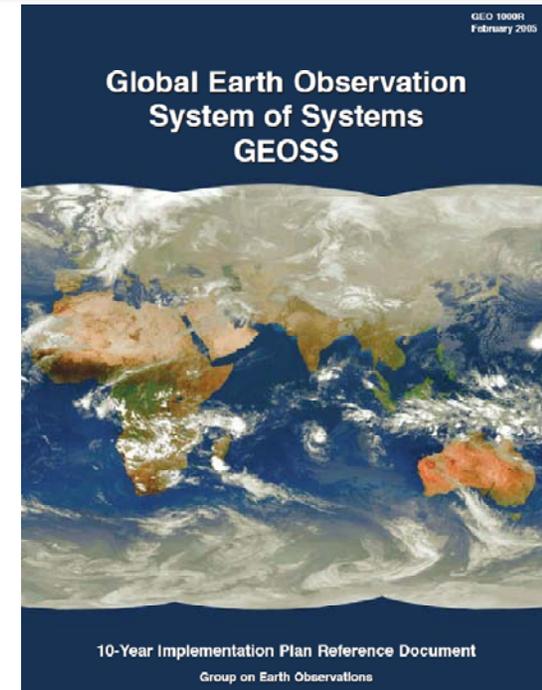
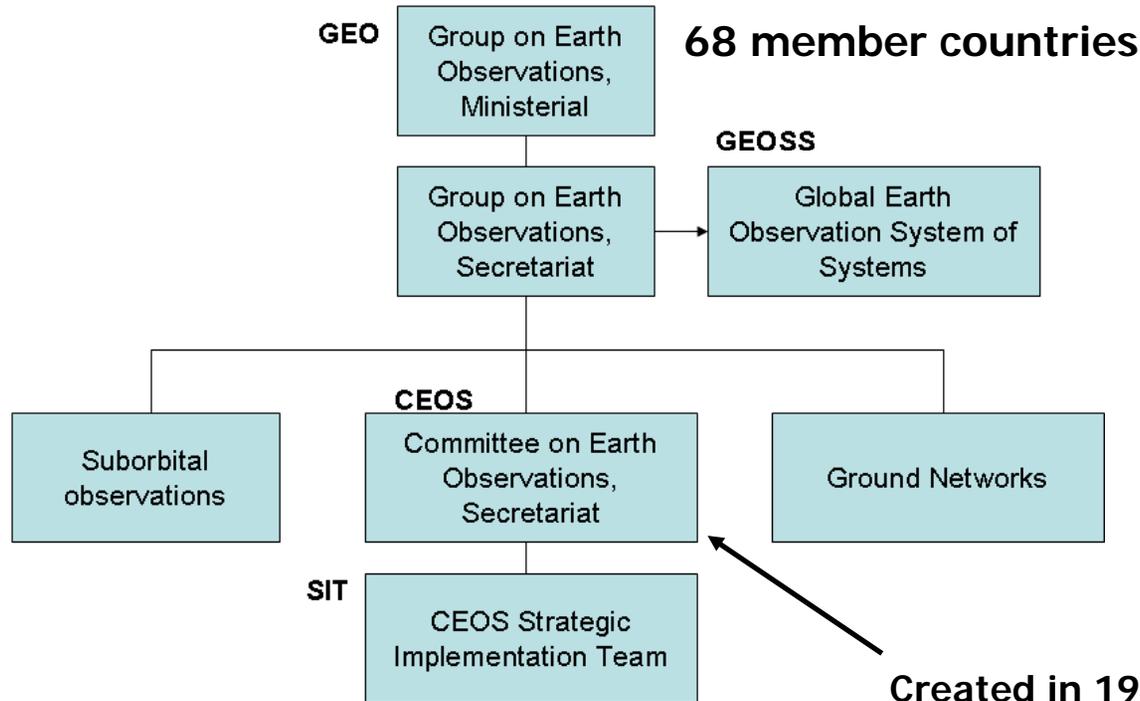
*A Framework for Building the
Space Component of GEOSS*

Dr. Brian Killough
NASA Langley Research Center
October 30, 2007
CRSS/ASPRS 2007 Specialty Conference
Ottawa, Ontario, CANADA





CEOS Background



Created in 1984
26 members + 20 associates



Participants of the ST-20



The SIT-20 Meeting at ESA/ ESRIN



Coordination and cooperation to achieve the GEOSS space segment

- National and regional Earth Observation will continue to dominate space agency spending.
- CEOS promotes coordination between member organizations and cooperation in the development of Earth observing satellites.
- A “**CEOS Virtual Constellations**” concept is an approach to facilitate agreements, develop standards, and address shortcomings in the international planning process. The results will help secure resources from space agencies for space-based implementation of Earth observations, all without eroding the independence of individual agencies.

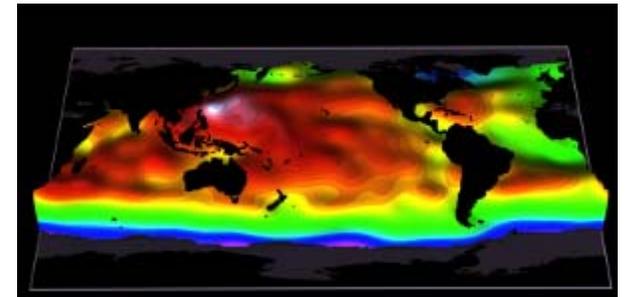
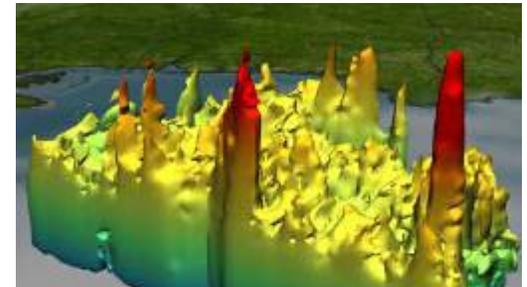
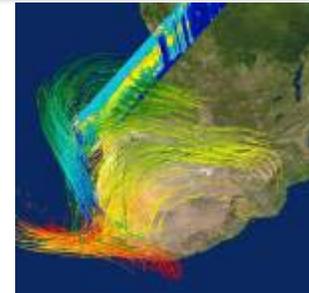




CEOS Virtual Constellations

CEOS recommended 4 constellation pilot studies in late 2005. The formal work plans for each constellation team was approved in late 2006

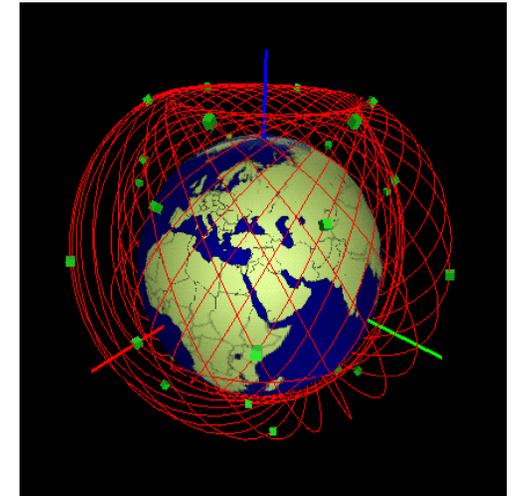
- **Atmospheric Composition** (NASA)
 - **Precipitation** (NASA/JAXA)
 - **Ocean Surface Topography** (NOAA/EUMETSAT)
 - **Land Surface Imaging** (USGS)
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- Promotes contribution to GEO observational requirements (GEOSS 10-year Implementation Plan)
 - Promotes synergies among national and regional satellite programs
 - Promotes common systematic guidelines and standards
 - Promotes coordinated user requirements for future system architectures and optimal end-to-end capabilities





Constellation Progress

- The CEOS leaders conducted interviews with each constellation team in October 2007 to discuss management and funding commitments, critical “next steps” and challenges, impact to the GEO Societal Benefit Areas, and the status of agreements.
- There was a significant difference in the maturity of the 4 constellations, but all have made significant progress in the development of key international agreements and mission architecture planning.
- The Constellation Teams participated in the development of a CEOS Constellation “Visualization Product” to be used at the CEOS Plenary and GEO Summit meeting in late 2007.





The Constellations Way Forward

- CEOS will review the progress of the 4 prototype constellations at the upcoming CEOS Plenary meeting in Hawaii on November 13-14, 2007.
 - Confirmation of resources from participating agencies
 - Timetables to adapt to the CEOS/GEO Calendar
 - Engagement of key agencies not yet participating
 - Update GEOSEC on progress
- The CEOS SIT Chair has directed rapid development of the “Virtual Constellations Process Paper”. The first full draft will be completed for the CEOS Plenary meeting.
- The “Virtual Constellations Process Paper” intends to:
 - Define how to move from the Constellations concept to implementation, define the framework, calendar, inputs and outputs
 - Provide guidance to study teams on approach
 - Provide a reference document for corporate memory
 - Based on the model of the IGOS Theme Process Paper
 - Develop guidelines for consideration of future candidates for Constellation studies

