Global Earth Observations

International and U.S. Perspective

Woody Turner

Land Cover/Land Use Change Program Meeting

January 13, 2005

Presentation Outline

The Global Earth Observation System of Systems (GEOSS)

U.S. Contribution to GEOSS – Integrated Earth Observation System

Next Steps

Why GEOSS?

GEOSS-Global System To Meet Societal Needs

- No one organization or country can provide comprehensive capacity
- An integrated international system using remote sensing & in situ systems
- Foundation for sound decision-making: global, regional, & local level

Social, Economic, & Science Concerns

- More than half the world's population lives within 60 km of the shoreline, & this could rise to 3/4 by the year 2020
- More than 90% of natural disaster-related deaths occur in developing countries
- 25% of Earth's biological productivity & an estimated 80-90% of global commercial fish catch is concentrated in coastal zones
- Worldwide agricultural benefits of better El Niño forecasts are conservatively estimated at $450-$550M/year

Basis For Sustainable Development

Earth Observation Summit I

34
Nations

20
International Organizations

July 31, 2003
Washington, D.C.

Earth Observation Summit I

Declaration created ad hoc Intergovernmental Group on Earth Observations (GEO) to develop a 10-Year Implementation Plan

http://earthobservation.org

Four Intergovernmental Chairs:

- Mr. Akio Yuki, Japan
- Mr. Achilleas Mitsos, European Commission
- Dr. Rob Adam, South Africa
- VADM Conrad Lautenbacher, USN (Ret.), United States

Earth Observation Summit II

Held in Tokyo, Japan

- Prime Minister Koizumi gave keynote address

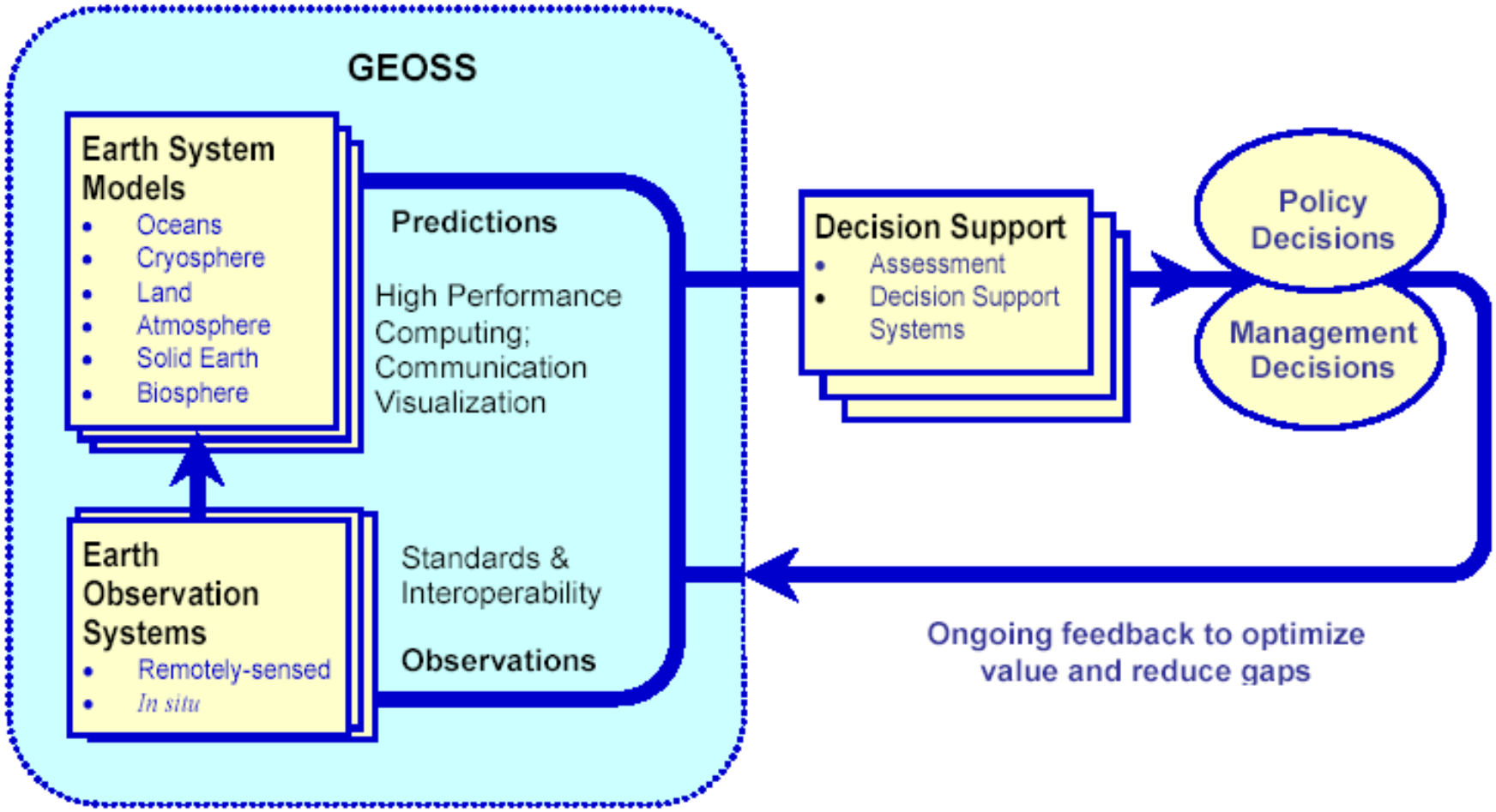
43 Ministers & Heads of Delegation present

25 International Organizations represented

Adopted Framework for Global Earth Observation System of Systems (GEOSS)

Adopted Ministerial Communiqué

GEOSS Architecture



GEO 5, November '04, Ottawa, Canada

GEO met most recently in Ottawa in December

- 10 Year Implementation Plan (negotiated)
- Reference Document (not negotiated)
- Resolution of ECOS-III (negotiated)

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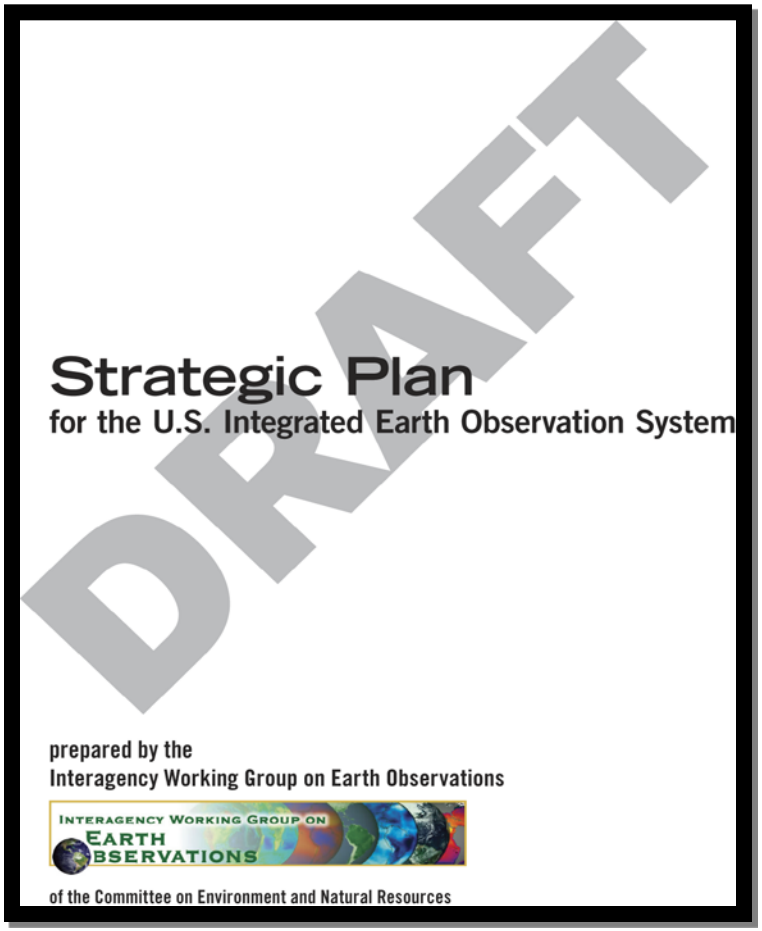
Next Steps

U.S. Contribution to GEOSS

VISION

Enable a healthy public, economy, and planet through an integrated, comprehensive, and sustained Earth observation system.

http://iwgeo.ssc.nasa.gov



Benefits Focus

Natural & Human Induced Disasters

Water Resources

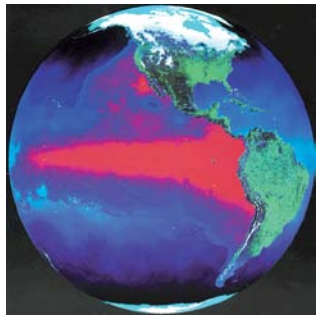
Ecosystems

Human Health & Well-Being

Energy Resources

Sustainable Agriculture & Desertification

Weather Information, Forecasting



Climate Variability & Change

Oceans

IWGEO - Interagency Effort

Co-chaired by:

- Ghassem Asrar (NASA)
- Cliff Gabriel (OSTP)
- Greg Withee (NOAA)

U.S. Agencies Related To Societal Benefit Areas

TABLE KEY

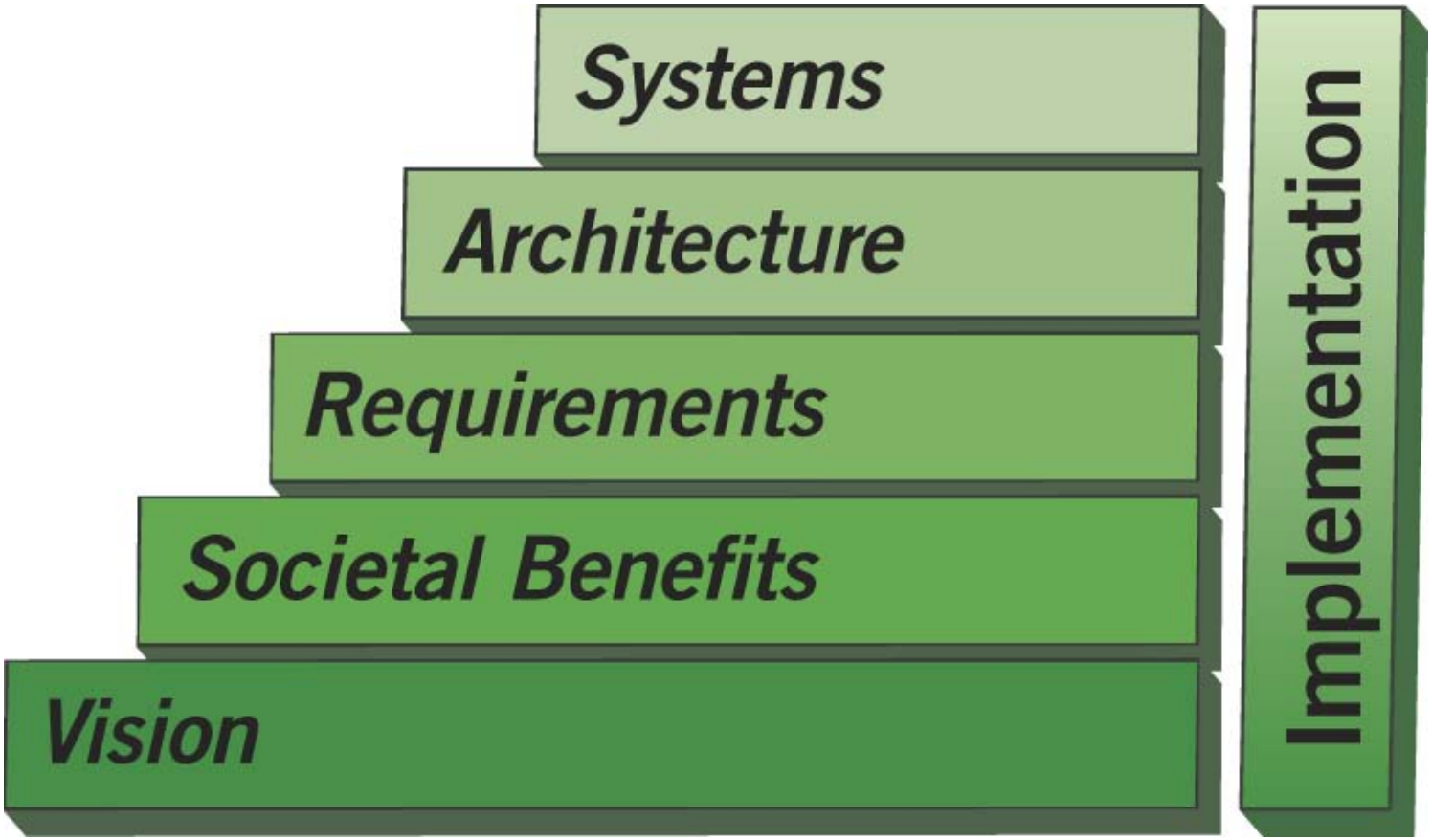
P = primarily provides data

U = primarily uses data

B = uses/provides data

Societal Benefit Areas	U.S. AGENCIES															
	DOC/NIST	DOC/NOAA	DOD	DOE	DHHS/NIEHS	DHS/FEMA	DOI/USGS	DOS	DOT	EPA	NASA	NSF	Tennessee Valley A.	Smithsonian	USAID	USDA
Weather	B	B	U	U	U	U		B	U	B	U	U	U	B	B	
Disasters	P	U	U	U	U	B	U	U	U	P	B	U	U	U	U	
Oceans	B	B	B	U	U	B			U	P	B		U	U		
Climate	B	U	B	U	U	B	U	U	U	B	B		U	B	U	
Agriculture	P		U	U	U	P	U		P	P	B		U	B	P	
Human Health	P		P	B			U		B	P	B		U	B		
Ecology	B		B	U		B	B		B	P	B		B	B	B	
Water	B		B	U	U	B	B	U	B	P	B		U	B	U	
Energy	P		B	U	U	B	P	U	B	P	U	B	U	U		

Implementation Approach



Integration: 4 Perspectives

Policy and Planning Integration

- Focus on specific societal benefits

Societal Issue Focused Integration

- Integrated System Solutions

Scientific Integration

- Modeling of Earth processes

Technical Systems Integration

- Coordination of observing system technology and data management systems
- Account for observing system evolution

Architecture

- Planned, research and operational systems
- Interoperability specifications
- Metadata and quality indicators
- Continuity of observations, and instigation of new observations
- Builds on existing systems and historical data
- Federal Enterprise Architecture Framework

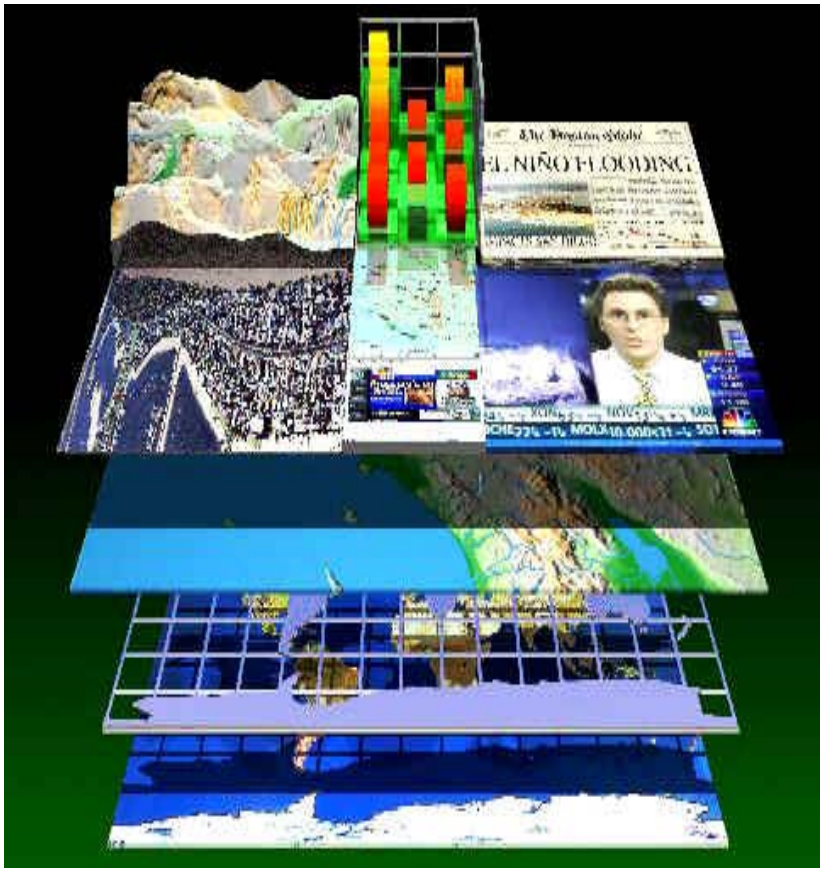
Near-Term Opportunities

- Data Management System for Earth Observations
- Improved Observations for Disaster Warnings
  - And better coordination of warnings – tsunami is a tragic example
- Global Land Observing System
- Sea Level Observing System
- National Integrated Drought Information System
- Air Quality Assessment and Forecast System

Data Management System for Earth Observations

Data Management Needs

- New Systems mean 100-fold increase in data
- Current systems already challenged
- Development of browser and visualization systems
- Interoperability through protocols and standards



The Road Ahead for the U.S. Interagency Effort

Continue to engage academic, industry, and non-profit partners to guarantee plan comprehensive and useful

- Workshop being planned for late Spring
- Industry alliance has been formed

Update draft; e.g., incorporate public comments release final in press event in late January

Deliver final draft to international GEO process

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Earth Observation Summit III

Brussels, Belgium

GEO 6

- Goal to iron out last editorial issues with Implementation Plan

Agreement on Implementation Plan and Resolution

- Ministers to receive Reference Document as Basis of Plan

Set up new GEO Structure and Secretariat

- WMO offer to host