Remote Sensing in Decision Making- an International Perspective

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The UN System

PRINCIPAL ORGANS

- Trusteeship Council
- Security Council
- General Assembly
- Economic and Social Council
- International Court Of Justice
- Secretariat

Programmes and Funds:

UNCTAD
UNDCP
UNEP
UNICEF
UNRWA
UN-HABITAT
UNDP
UNIFEM
UNV
UNCDF
UNFPA
UNHCR
WFP

Research and Training Institutes:

UNICRI
UNITAR
UNRISD
UNIDIR

Other UN Entities:

OHCHR UNOPS UNU UNSSC

Specialized Agencies:

ILO
FAO
UNESCO
WHO
World Bank Group
IMF
ICAO
IMO
ITU
UPU
WTO (World Tourism Org)
WIPO
IFAD
UNIDO
WMO

Functional Commissions: on Human Rights, Crime Prevention, Justice etc.

Regional Commissions: ECA, ECE, ECLAC, ESCAP, ESCWA

Other Bodies: UN Forum on Forest, Permanent Forum on Indigenous Issues

Departments and Offices:

OSG (Office of the Secretary General), OLA, DPA, UNON, UNOG

United Nations Environment Programme Overview

- Founded by the United Nations in 1972
- An international organization with offices around the world
- Helps make and enforce rules to protect the environment

UNEP Around the World

- UNEP's global headquarters are in Nairobi, Kenya

- UNEP is represented by six regional offices:

UNEP is the Voice of the Environment within the United Nations System

- UNEP's mission is to provide leadership and
- Encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations

Global Environmental Challenges

- Climate change: impact, mitigation, adaptation
- Water quantity and quality
- Land use change, deforestation
- Loss of biodiversity
- Land degradation, desertification
- Air pollution in megacities
- Urban waste , toxic waste, e waste, nuclear waste

UNEP's Main Roles

- Monitor the state of the world environment
- Identify solutions
  - International agreements
  - Voluntary initiatives
- Help implement solutions

UNEP Hosts Environmental Conventions

Multilateral Fund
for the Implementation of the Montreal Protocol

United Nations Environment Programme
Ozone Secretariat

Convention on International Trade in Endangered Species of Wild Fauna and Flora

Convention on Migratory Species

Secretariat of the Basel Convention
United Nations Environment Programme

STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS (POPs)

ROTTERDAM CONVENTION ON PRIOR INFORMED CONSENT

Role of international organisations in the field of remote sensing

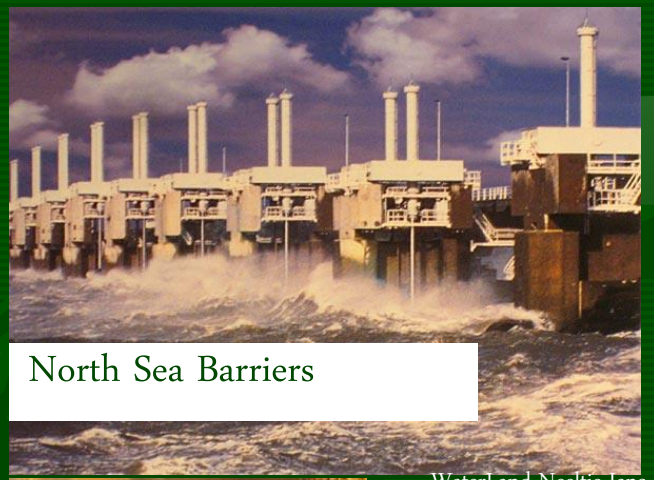
- UNEP and other UN agencies are users of remote sensing derived information;
- Integrate data from multiple sources to address issues affecting people and environment
- Capacity building in developing countries

Importance of Earth Observation Data

- We Must Promote Societal Benefits of Integrated Observations

UK Flooding

courtesy Environmental Agency



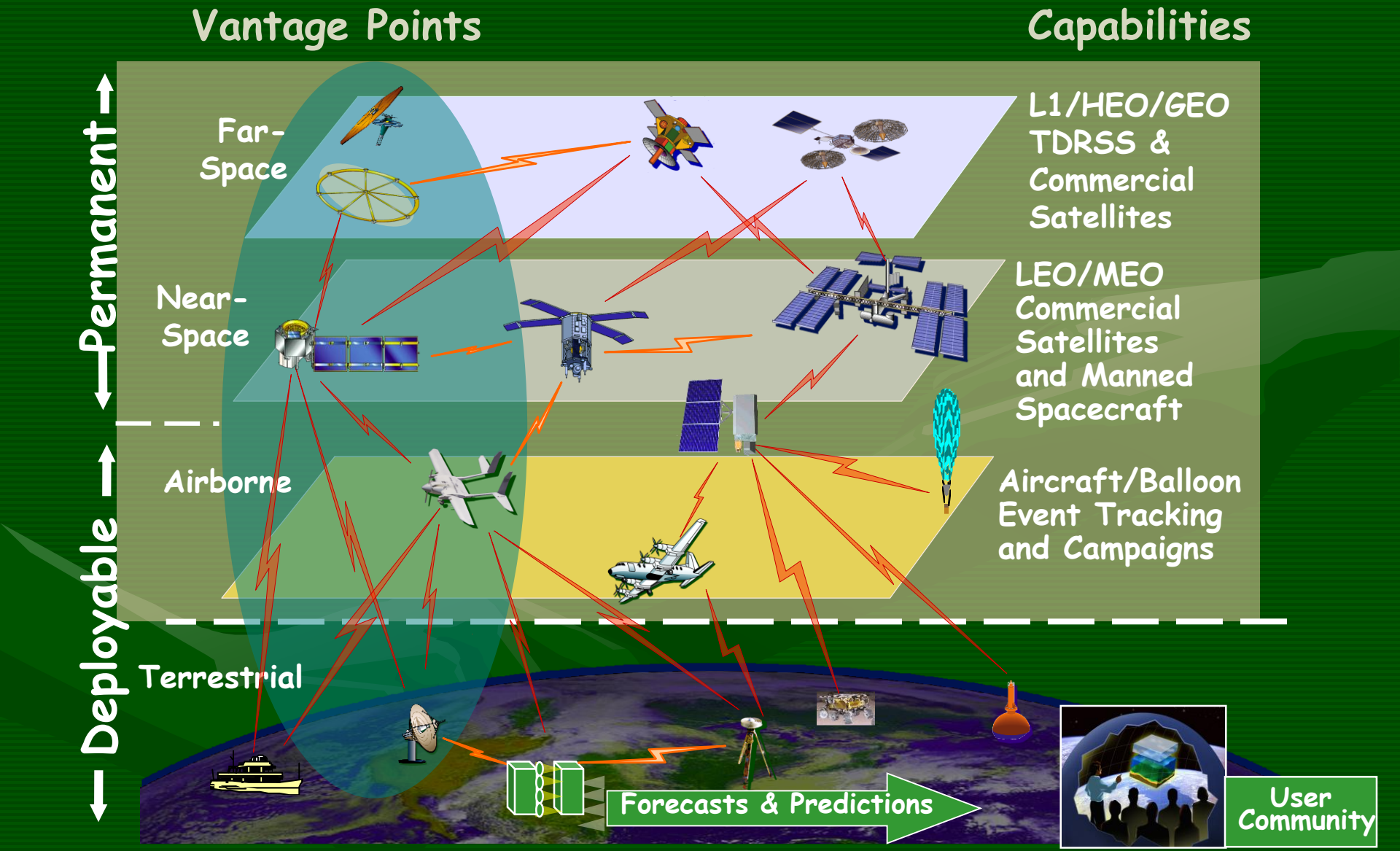
North Sea Barriers

WaterLand Neeltje Jans Museum

Forest Fire
Central Portugal

courtesy Reuters

Coordinating Earth Observing Systems



Building Global Political Momentum

- UN Conference on Environment and Development (Earth Summit) June 1992; Rio de Janeiro
- Millennium Development Goals - September 2000; UN General Assembly
- World Summit on Sustainable Development (Rio + 10) - August 2002; Johannesburg
- G8 Summit – June 2003; Evian
- Earth Observation Summit - July 2003; Washington D.C.
- Earth Observation Summit III – February 2005; Brussels

Vision for GEOSS

(Global Earth Observation System of Systems)

To realize a future wherein decisions and actions for the benefit of humankind are informed via coordinated, comprehensive and sustained Earth observations and information.

Group on Earth Observation (GEO)

Earth Observation Summit III:

- Creation of the Group on Earth Observation
- Implement the Global Earth Observation System of Systems
- GEOSS 10-year plan with 2, 6 and 10 year targets

To monitor continuously the state of the Earth

To increase understanding of dynamic Earth processes

To enhance prediction of the Earth system

To further implement international environmental treaty obligations

GEOSS will meet the need for timely, quality, long-term, global information as a basis for sound decision making, and will ...

GEOSS

Global Earth Observation System of Systems

- A distributed system of systems
  - Improves coordination of strategies and observation systems
  - Links all platforms: in situ, aircraft, and satellite networks
  - Identifies gaps in our global capacity
  - Facilitates exchange of data and information
  - Improves decision-makers' abilities to address pressing policy issues

Systems and Benefits

...enhance delivery of benefits to society in the following initial areas

Disasters
Reducing loss of life and property from natural and human induced disasters.

Energy
Improving management of energy resources.

Health
Understanding environmental factors affecting human health and well being.

Weather
Improving weather information, forecasting and warning.

Biodiversity
Understanding, monitoring and conserving biodiversity.

Climate
Understanding, predicting, mitigating and adapting to climate variability and change.

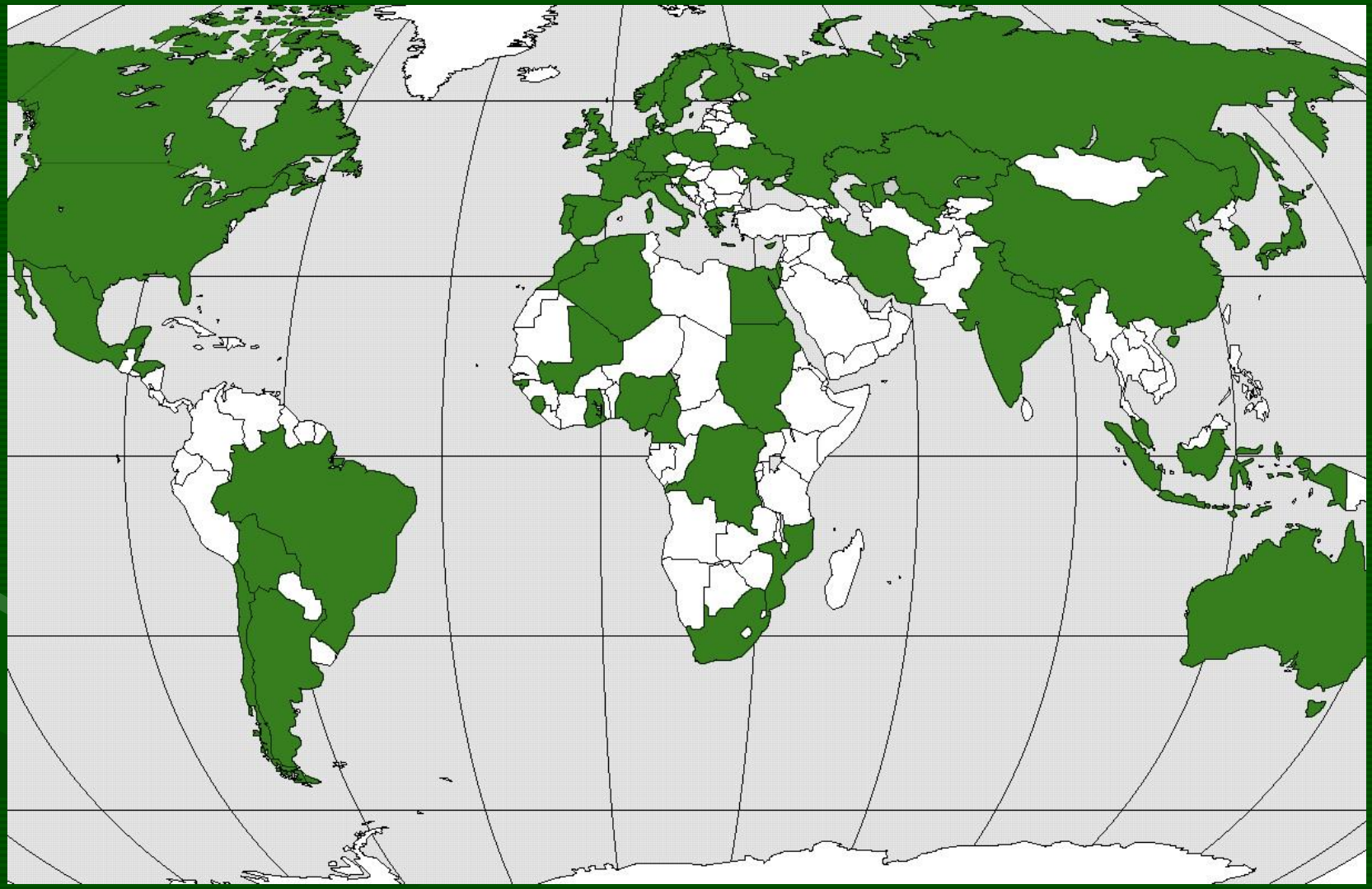
Water
Improving water resource management through better understanding of the water cycle.

Ecosystems
Improving the management and protection of terrestrial, coastal and marine ecosystems.

Agriculture
Supporting sustainable agriculture and combating desertification.

Members

65 + European Commission



National and International Coordination

- INTERNATIONAL
- Held GEO 3 in November 2006.
- Accepted 2007-2009 Work Plan.
- Earth Observation Summit 4 to be held in Cape Town, South Africa in November 2007.
  - Will highlight the societal and economic benefits of enhanced coordination of Earth observations.

NATIONAL

- US Strategic Plan provides the framework for the US contribution to GEO

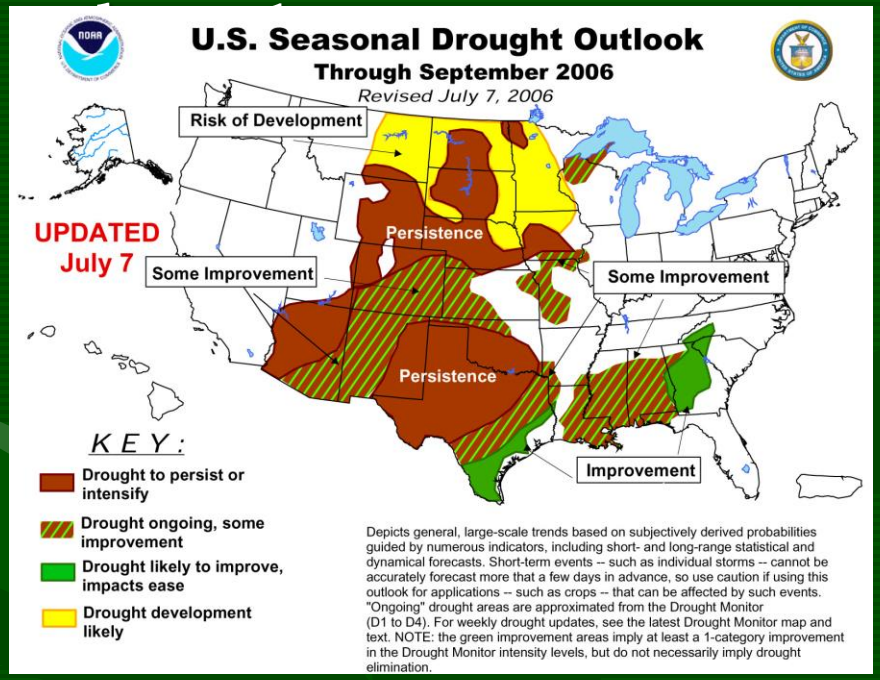
USGEO focusing on 6 Near-Term Opportunities

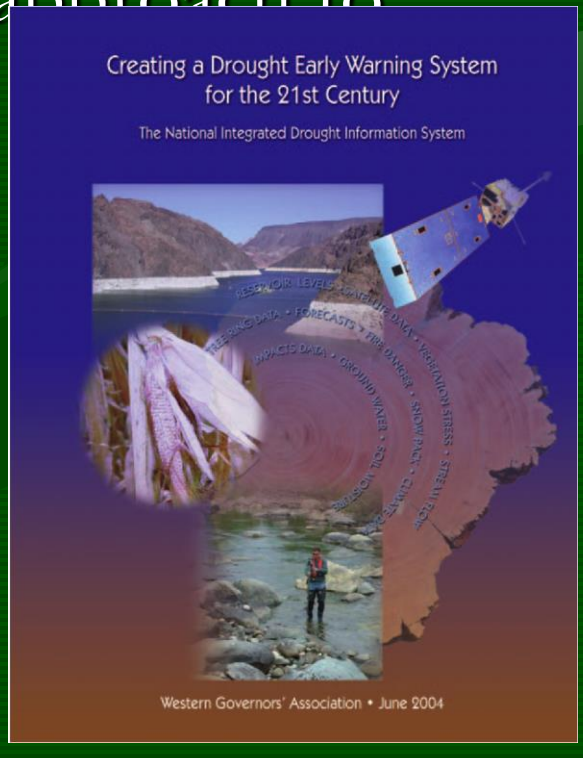
- Disasters
- Drought / National Integrated Drought Information System
- Land Observation
- Air Quality
- Sea Level
- Data Management

GEOSS Implementation

National Integrated Drought Information System (NIDIS)

- Goal: To enable the Nation to move from a reactive to a more proactive approach to





www.westgov.org/wga/publicat/nidis.pdf

Challenges In Creating Such a System

- ***Data policy*** - assuring full and open data exchange and access
- ***Observing scope*** - achieving the needed spatial, temporal and spectral coverage
- ***Data quality*** - producing calibrated data sets in useful formats from multiple sensors and venues
- ***Cost*** - acquiring sufficient resources to deploy observing systems and manage the resulting data and information
- ***Security*** - assuring safe operations and peaceful uses of observing systems
- ***Complexity*** - creating a system equal to the task of delivering useful information about the very complex Earth system

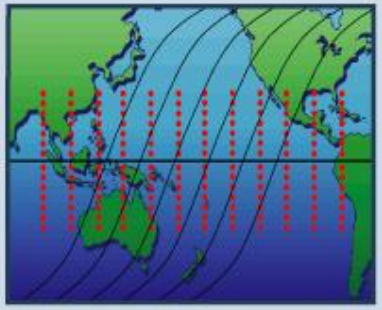
Turning Observations into Knowledge Products

Downlink Speed

Petabytes 10^{15}

Multi-platform, multiparameter, high spatial and temporal resolution, remote & in-situ sensing

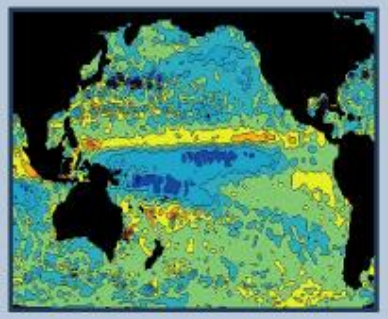
Advanced Sensors



Terabytes 10^{12}

Calibration, Transformation To Characterized Geo-physical Parameters

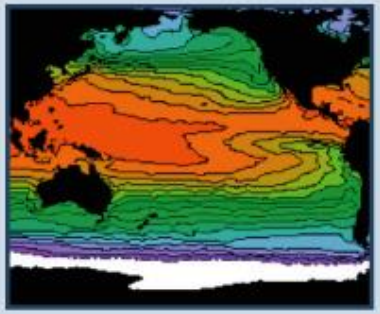
Data Processing & Analysis



Gigabytes 10^{9}

Interaction Between Modeling/Forecasting and Observation Systems

Information Synthesis



Megabytes 10^{6}

Interactive Dissemination and Predictions

Access to Knowledge

The Benefits of Earth Observations

Provide the right information,

in the right format,

at the right time,

to the right people,

to make the right

decisions.