GEO 2009-2011 Work Plan
2010 Progress Highlights

GEO-VII Plenary
3-4 November 2010
2010 Contributions from Members & Participating Organizations to GEOSS Implementation
3 Main Trends

* New Products, Information & Services
* More Data Sharing & Capacity
* Engaging Users
  Communities of Practice
GEOSS Common Infrastructure

* Single Clearinghouse (USGS)
* Single GEO Portal (ESA/FAO)
* Components & Services Registry
* Best Practices Wiki
New Products, Information & Services
Rapid and Open Access to Disasters Information
(Japan, Germany, USA, ESA)
Rapid and Open Access to Damage Information (Japan, Germany, USA, ESA)

ShakeMap

Empirical estimates of ground shaking in the epicentral region of an earthquake.

Measured on the Modified Mercalli Intensity Scale, ranging from MMI-I (not felt, no damage) to MMI-X+ (extreme shaking, very heavy damage).

Adjusted in the hours after an event to account for earthquake finiteness - i.e. large earthquakes are not point sources, but rather occur over large areas (10’s of km²).
Seismographic Stations Upgraded to Next Generation System

(EC, USA, FDSN, ISC)
Operational Fire Information Systems
(Canada, EC, Germany, FAO, GTOS, ISDR)
More Forecast Products for Sand & Dust Storm Warning
(China, Spain, WMO)
Real-time Air Quality Information
(China, USA)

• AirNow information delivered to ~300 US cities
• Demonstration at 2010 World Expo, Shanghai
• To be extended to other provinces in China
• Open source and free of charge
New Systems and Products to Optimize Energy Exploitation (EC, France, Germany, Netherlands, USA)
Digital Geological Map of the World
175 Datasets from 40 Countries (EC, UK)
Long-Term Reanalysis for Climate Change Detection (*Japan, USA, ECMWF, GCOS, WCRP*)
Ocean Forecasting Systems for W-Pacific, Latin America and Africa
(Chile, China, Denmark, EC, France, Korea, Norway, South Africa, USA)

DMI Ocean Forecast
Currents in Yellow Sea

SimOcean: modelling pillar of OceanSAfrica
Objective: To develop an ocean forecast system that provides regular estimates of the ocean state and its evolution into the future which are better than climatology and more accurate than persistence forecasts.

2-phase implementation plan

Phase 1: implementation
2 year horizon
Downscaling approach: use already available atmospheric forcing and boundary conditions from existing global forecast products to force nested, regional and limited area domains.

Phase 2: operational system improvements
5 year horizon
System development & research:
• data assimilation
• coupling: atmospheric bio-geochemical wave
• development of additional high resolution limited area domains

Requires close collaboration with 3 other pillars of OceanSAfrica, other disciplines and several institutes.
New Research on Monsoon and Cyclones for Improved Seasonal Prediction (WCRP, WMO)

- Most Complete 2-Year Record of Global Atmosphere
- May 2008 – April 2010
- High-Res Analysis, Forecasts, Special Diagnostics
- Data Freely Available
Tropical Cyclone Occurrence during YOTC

- **Nargis**, landfall over Myanmar, huge storm surge, 100,000 lives
- **Parma**, torrential rainfall
- **El Nino modulation**
- **Rick**, 2nd strongest in E. Pacific ever
- **3 landfalls in Mexico**
- **Ike**, Largest size & Marko - smallest TC ever in this basin
- **Grace**, heavy rainfall over Europe

(courtesy of Julian Hemming, UK Met Office)
AFES T1279L96
Precipitation [mm/hour] 03 SEP/07 06Z
Simulation at 1-km horizontal resolution (q@350m), Hurricane Earl, 12-72 hours
Large Atmospheric Computation on the Earth Simulator (LACES Project)
Launch of Earth-System Prediction Initiative (WMO, WCRP, IGBP, ICSU)
Climate Data & Services for Risk Management and Adaptation (Germany, USA, CEOS, GCOS, WCRP, WMO)
GEO Forest Carbon Tracking
(Australia, Canada, Japan, Norway, USA, CEOS, FAO)

Network of National Demonstrators

From 2009:
• Brazil
• Guyana
• Mexico
• Indonesia (Borneo)
• Australia (Tasmania)
• Cameroon
• Tanzania

From June 2010:
• Colombia
• Congo
• Peru
• Indonesia (Sumatra)

From 2011:
Progressive inclusion of countries from UN-REDD & World Bank FCPF
GEO Forest Carbon Tracking
(Australia, Canada, Japan, Norway, USA, CEOS, FAO)

- Satellite data acquisition completed for 1st half of 2010
- Portal launched
- Preparation for Global Forest Observation Initiative (GFOI)
New Tool to Improve Land-Cover Maps
(EC, IIASA)

- Global network of volunteers
- Resolve land-cover mismatch
- Based on local knowledge and satellite data
Global Drought Early Warning System
(Australia, Canada, EC, USA)
More Systems for Global Agricultural Monitoring
(Argentina, Canada, China, EC, India, Mexico, Russia, South Africa, USA, FAO)
More Phenology Products for Adaptation

(Australia, Austria, Brazil, Canada, China, Estonia, Finland, France, Germany, Ireland, Netherlands, Norway, South Africa, Switzerland, UK, USA, EUMETNET)
Global Ecosystem Classification & Mapping
(Australia, China, EC, Netherlands, Paraguay, USA, RCMRD)
GEO BON Early Product
Digital Observatory of Protected Areas
(EC, Switzerland, USA, Diversitas, GBIF, UNEP)
Global Invasive Species Information
Over 1 Million Biodiversity Records
(Argentina, Australia, Denmark, Greece, India, New Zealand, Portugal, USA, GBIF)
More Data Sharing and Capacity to Use GEOSS Information
New Data Policy for Water Research
(Germany, Italy, Japan, USA, WCRP)

50 Reference Sites
Full and Open Access to Sentinel Data
(EC, ESA)
GEONETCast Fully Operational
Product Navigator and Training & Alert Channels

Global Broadcast of Environmental Information
Data Sharing Standardized
Network of Receiving Stations Expanded
(Brazil, China, EC, Netherlands, USA, EUMETSAT, WMO)
One Stop-Shop for Disaster Management
Central America, Africa and now Himalayas
(Nepal, South Africa, USA, Cathalac, RCMRD)

- Downloadable data
- Online mapping & animation applications
- Decision support tools
- 3D visualization tools
New Regional Center for Tropical Forest Monitoring
(Brazil, France, Italy, Japan, FAO)

• Tailored Training Programmes
• Focus on Africa & S-America
• Based in Amazon Region (Belém)
Engaging Users
Communities of Practice

Air Quality
Biodiversity
Carbon
Coastal Zone
Energy
Forests
Geohazards
Global Agricultural Monitoring
Health and Environment
Integrated Global Water Cycle Observations

GEO-VII Plenary and 2010 Ministerial Summit

3-5 November 2010, Beijing, China
ACCELERATING GEOSS IMPLEMENTATION

Recommended Actions for GEO Members & Participating Organizations

(GEO Work Plan Symposium, May 2010, Pretoria, South Africa)
Recommended Actions

• Register components in the GCI – including datasets, systems, applications, services, web portals, best practices and ontologies

• Contribute datasets with full & open access – to support Implementation of GEOSS Data Sharing Principles

• …
More in

GEO 2009-2011 Work Plan Progress Report

(See GEO-VII Document 5)