U.S. Integrated Ocean Observing System (IOOS) & GOOS Regional Alliances

By
Brian D. Melzian, Ph.D.

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Integrated Ocean Observing System

MBARI MUSE
Monterey Bay Aquarium Research Institute, MOOS Upper-water-column Science Experiment
Seven IOOS Societal Goals

► Predict climate change and effects
► Mitigate natural hazards
► Improve marine operations
► Improve national security
► Reduce public health risks
► Protect ecosystems
► Sustain marine resources
IOOS Architecture
Coastal Component

Regional Systems

► 11 Regional Associations
  - Develop
  - Operate
  - Contribute to national backbone

► Involve User Groups
  - Conduct needs assessments
  - Tailored product definition

► Incorporate
  - Sub regional systems
  - Observations – resolution and variables

National Backbone

► Operated by
  - NOPP Agencies & partners

► EEZ & Great Lakes

► Core Variables
  - required by regions

► Networks
  - sentinel stations
  - reference stations

► Standards/Protocols
  - QA/QC, DMA, Products
"The United States is playing a lead role in bringing the international community together to develop an integrated, comprehensive, and sustained earth observing system of systems that includes a substantial ocean component, known as the Global Ocean Observing System (GOOS).

The U.S. Integrated Ocean Observing System will be a major element of GOOS."

- from the President's U.S. Ocean Action Plan, December 2004
U.S. Contributions to IOOS Global Ocean-Climate Component (NOAA - in yellow)

Satellite-based measurements:
- sea surface temperature,
- sea surface height,
- surface winds,
- ocean color and sea ice

In situ measurements:
- Argo Array
- Tide Gauge Stations
- Moored Buoys
- Drifter Array
- Ship Observations
GRAs Priorities

► Engage industry, academia & government agencies
  – In the establishment of Coastal GOOS that
  – Meets their requirements for data & information

► Form partnerships with existing regional efforts that have common interests, e.g.,
  – Large Marine Ecosystems (LMEs) Programmes
  – Regional Seas Conventions
  – International Council for the Exploration of the Sea

► Implement Pilot Projects to build capacity

Source: Ocean.US
New Organizations:
GOOS & GEOSS

► U.S. IOOS is a GOOS Regional Alliance (GRA) (2007)

► U.S. IOOS is a Member of the GOOS Regional Council (2007):
  – Address collective needs of GRAs, and represent GRAs within GOOS Community;
  – Coordinate GRAs during implementation of Regional Ocean Observing Systems (ROOSs);
  – Other duties and responsibilities.
New Organizations: GOOS & GEOSS
(Continued)

► GEO’s *Coastal Zone Community of Practice (CZCP)* (2007):
  - Engage & link needs of user groups across Land-Sea Boundaries during development of the GEOSS;
  - Employ a "Regional Approach" through the GRAs;
  - Other Goals and Objectives.
New Organizations: GOOS & GEOSS (Continued)

  – Provide guidance to GRAs via GOOS Scientific Steering Committee (GSSC), and GOOS Regional Council;
  – Guide development of "Coastal Modules" of GOOS across the Land-Sea Boundaries;
  – Other duties and responsibilities.

► Engage GOOS Regional Alliances (GRAs) as Communities of Practice.

► Initiate Planning for 2008 GEO CZCP/GOOS workshop:

“Coastal Urbanization, Development, and Coastal Inundation: Impacts on Socio-Economic Systems, Ecosystems and Living Marine Resources”

Source: Ocean.US
QUESTIONS or COMMENTS?
Global Component of the U.S. IOOS

The global component of the Integrated Ocean Observing System is comprised of twelve complementary in situ space-based data and assimilation subsystems.

- Global Tide Gauge Network
- Global Surface Drifting Buoy Array
- Global Ships of Opportunity Network
- Tropical Moored Buoy Network
- Argo Profiling Float Array
- Ocean Reference Stations
- Ocean Carbon Monitoring Network
- International Arctic Ocean Observing System
- Dedicated Ships Operations
- Satellites for Sea Surface Temperature, Sea Surface Height, Surface Vector Winds, Sea Ice, and Ocean Color
- Data & Assimilation Subsystems
- System Management & Product Delivery