

Sub-task Number: AR-09-03c

Sub-task Title: Global Ocean Observation System

Overarching Task: Advocating for Sustained Observing Systems

Area: ARCHITECTURE

Related Community of Practice: Coastal Zone

Relevant Committee: ADC

Related Targets: (to be included in 2009)

Sub-task Definition (as given in the 2009-2011 Work Plan):

Enhance and improve the coordination of coastal/open-ocean observations and modelling initiatives, in support of a global ocean observation system.

Related activities will include: Improve the global coverage and data accuracy of the coastal/open ocean observing systems as well as the management and archiving of the resulting data and information. Contribute to the implementation of global coastal and open ocean observing networks using the mechanism of GOOS and Regional Alliances. In particular sustain and extend the network of Argo buoys and encourage the establishment of a Program Office to ensure the ongoing implementation of this global array of profiling floats in the ocean. Building on existing capabilities, develop a global coordinated information and data system for deep-ocean monitoring to better understand the dynamics of the ocean processes throughout the ocean water column.

Leads (GEO Member or PO, Entity carrying out the work, Contact: e-mail):

GOOS, Point of Contact: Boram Lee, b.lee@unesco.org

IEEE, John Potter, j.potter@ieee.org

IOC, Ralph Rayner, ralph@ralphrayner.com

IOC/GOOS, Keith Alverson, k.alverson@unesco.org

POGO

Motivation/Background

The Global Ocean Observing System (GOOS) is a scientifically designed permanent, international system for gathering, processing, and analysing oceanographic observations on a consistent basis, and distributing data products. It gathers data by remote sensing, sea surface, and sub-surface instrumentation, from the open-ocean, coastal and shelf seas. GOOS products describe the state of the ocean globally at regular intervals. Data and data products are available to all Nations. Reference: The Case For GOOS, GOOS publication No. 1, 1993.

Outputs (e.g. products and services which result from the activities of the Task/sub-task; outlined in the form of deliverables with timelines)

Planned: 100% implementation of the climate module of GOOS including satellites, drifters, Argo floats, moorings, and ship based measurements by 2012

Produced (current status): Slow but still positive progress is under way in extending and sustaining observing networks; as of 1/1/2009, 60% of the initial goals as specified in the GCOS Implementation Plan has been implemented.

Activities (operations or work processes through which resources are mobilized to produce specific outputs; outlined in the form of milestones including timelines)

Planned: Annual expert meetings of GOOS scientific steering committee (GSSC), Panel for Integrated Coastal Observations (PICO) and Ocean Observations Panel for Climate (OOPC). Biennial meetings of

Member States participating in the Intergovernmental Committee for GOOS. (I-GOOS). Regular expert/panel meetings of JCOMM(Joint WMO-IOC Commission for Oceanography and Marine Meteorology) in relation to the coordination of global ocean observations, such as DBCP, SOT, GLOSS, Argo, and OceanSITES.

Progress (current status): Sustained

[Note: Updates on outputs and activities will be formally provided twice a year, according to the GEO schedule for 2009]

Resources

Member State investments in GOOS are of the order of 1 billion dollars per year. Resources available for coordination of the system are of the order of 1 million dollars per year.

Architecture and Data Component

1) Please briefly describe any task-related Earth observation resources (data set, system, website/portal) and any related Web Service interfaces that are contributed to GEOSS. State whether these items are or will be registered with the GEOSS Component and Service Registry for access via the GEO Web Portals, and whether any associated standards or other interoperability arrangements will be registered in the Standards and Interoperability Registry.

2) Please also describe what data and information your activity/system needs that you would request to be accessible through the GEOSS Common Infrastructure.

Capacity Building Component

(capacity building is defined to include the development of capacity related to: (i) Infrastructure and technology transfer (Hardware, Software and other technology required to develop, access and use EO); (ii) Individuals (education and training of individuals to be aware of, access, use and develop EO) and (iii) Institutions – building policies, programs & organizational structures to enhance the value of EO data and products).

1) In accordance with the above definition does this Task have a capacity-building component? If so, please provide a short description of this component including a description of end users.

GOOS, in coordination with JCOMM and IODE, continues to produce and update manuals and guides on ocean observations and modelling(e.g. IOC Manuals and Guides: list available at <http://ioc.unesco.org>). Efforts are being made also to re-visit and update the existing implementation strategies on coastal and open ocean observations, such as Coastal Observation strategies and DBCP implementation strategy.

2) Have any additional CB needs for this Task been identified? Please provide a short description.

N.A.

User Engagement Component

(please briefly describe to what extent end users are engaged in this Task and influence the nature of the outputs produced)

Member States of GOOS participate in the process not only as services providers but also as users. Their requirements are fully taken into account through 1) intergovernmental process (I-GOOS) and 2) various expert groups whose members are selected by the Member States.

Science and Technology (S&T) Component

1) Please briefly describe the elements of scientific research or technological development contained in this Task.

2) *In relation to the S&T component(s) of this task, please describe gaps, priorities, continuity needs, barriers, scientific expertise and additional resource needs (this information will be used for developing a gaps and needs assessment in Task ST-09-01)*

Members and POs' Contributions to Outputs and Activities above:

(Input is optional. This section gives the chance to Members and POs to provide more details (3-5 lines) on their individual activities, making a clear connection with the Outputs and Activities outlined above).

Australia

IMOS: through Australia's Integrated Marine Observing System, contribution via activities within GOOS, and in particular as co-chair of CLIVAR/GOOS Indian Ocean Panel.

Greece

HCMR/MedGOOS: EuroGOOS and MedGOOS have recently taken the responsibility to co-ordinate the GOOS Regional Council (GRC) formed in 2008 to support the activities of the GOOS Regional Alliances (GRAs). The GRC will provide a unified voice for global coordination, and a mechanism to promote exchange of information and technologies, in order to improve national and regional capacities as a major contribution to the coastal component of GOOS.

Japan

JAMSTEC will:

- 1) Deploy about 90 Argo floats mainly in the Pacific Ocean and keep functioning as the Pacific Argo Regional Center for data quality control.
- 2) Deploy mooring buoys (TRITON buoys) in the tropical Pacific Ocean and the eastern Indian Ocean according to the international buoy observing plan proposed by CLIVAR/GOOS.
- 3) Carry out shipboard observations (hydrography) over the Pacific and Indian Oceans as a member of the WCRP/IOCCP and support Argo quality control, to detect changes in the heat content of the Pacific and changes in the CO₂ uptaken.

JMA: to contribute through its dedication to the ocean observing systems coordinated by JCOMM, including Argo, drifting buoys, GLOSS, and VOS and other ship-based observing networks. JMA also operates the NEAR-GOOS Regional Real Time Data Base to exchange oceanographic data and products in North-East Asian Region.

Norway

Institute of Marine Research: in-situ measurements of ocean parameters from the North, Nordic, Barents and Arctic Seas.

South Africa

SAEON - Egagasini node: the definition of this task is to "enhance and improve the coordination of coastal/open-ocean observations and modeling initiatives in support of a global ocean observation system.". This is very much inline with the South African Environmental and Observation Network's mandate, which applies specifically to the coast of South Africa and the surrounding oceans. In writing the science plan and observational strategy, SAEON has incorporated both GOOS and IGOS themes and parameters. We are involved in a number of international programs which focus on the oceans around South Africa, in terms of observation, monitoring and data and information. We have also secured funding and are in the process of purchasing the first two South African owned Argo floats. Being hosted by the South African Department of Environmental Affairs and Tourism's Marine and Coastal Management, allows us opportunities to be involved in their routine cruises, as well as helping to archive and manage their data, which is the largest source of marine data in South Africa. The Egagasini Node is also strongly linked with, amongst others, the University of Cape Town and Ma-Re (Marine Research), the South African member of POGO. Through our links with UCT we have a number of modeling studies underway, including a workshop on building modeling capacity. Regionally, we work with GOOS Africa and other initiatives such as ODINAfrica and the Nairobi Convention Clearing House Mechanism. SAEON could therefore offer advice and implementation assistance to GOOS, with regards to the SW Indian, SE Atlantic and Southern Oceans.

USA

NOAA: Enhance and improve the coordination of coastal/open-ocean observations and modelling initiatives, in support of a global ocean observation system.

GCOS

GCOS/GOOS Ocean Observations Panel for Climate: ensure that needs for ocean datasets for climate are met.

GOOS

IOC/GOOS: implementing Global Ocean Observing System (GOOS), to improve/sustain global ocean observing coverage and data management and services systems.

EC

EU-project HYPOX (WP6): build oxygen sensing capacities in shelf and open seas in compliance with GEOSS standards (interoperability, data and metadata standardization, archiving, and sharing)

EuroSITES: Contribute to the implementation of global open ocean observing network by maintaining 9 open ocean observatories across European seas. This will also contribute to improving the global coverage and data accuracy of the open management and archiving of the resulting data and information. work with relevant projects e.g. ACOBAR, ESONET, EMSO. Initial email sent to lead contact (GOOS b.lee@unesco.org).

Participation (Table to be filled in 2009):

| Type | Member or PO | Representing | Contact Name | EmailAddress |
|-------------|--------------|--|---------------------------|---|
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