Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies

Panel for Integrated Coastal Observation (PICO-I)

First Session
10–11 April 2008
Paris, France

GOOS Report No. 172 **UNESCO**

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ABSTRACT

The first session of the Panel for Integrated Coastal Observation (PICO) was held in Paris, France on 10-11 April 2008. PICO is a sub-committee of the GOOS Scientific Steering Committee (GSSC) and provide advice to the GSSC on matters pertaining to the coastal module of GOOS.

The aim of the first session was to foster an open discussion along PICO's Terms of Reference. Action plans and recommendations from the meeting are summarized in the report, and separated into the following categories:

- Coastal System of Systems [the Global Coastal Network]
- Regional GOOS/GRAs
- Mechanisms: coordination of existing activities, pilot projects, workshops and capacity building
- Other

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BACKGROUND AND OPENING

The Panel for Integrated Coastal Observation (PICO) is a sub-committee of the GOOS Scientific Steering Committee (GSSC) and provides advice to the GSSC on matters pertaining to the coastal module of GOOS. The First Session of PICO was convened on 10-11 April 2008 and with parts of the session held jointly with the eleventh session of the GSSC. The report of the GSSC session is published separately (GOOS Report No. 170).

PICO was established by the GSSC in accordance with the Terms of Reference of the GSSC. Formation of the PICO was also endorsed by the 24th IOC Assembly (Paris, 2007).

The Terms of Reference of PICO are:

(1) Provide the GOOS Scientific Steering Committee (GSSC) with technical advice needed for scientifically sound implementation of the Implementation Strategy for the Coastal Module of GOOS (GOOS Report No. 148). To this end, collaborate with the GRAs, the OOPC and Coastal GTOS to formulate 5-year plans for building the GCN that are updated periodically.

(2) Liaise with relevant scientific and technical organizations to facilitate synergy between advances in science and technology and the development of operational capabilities, including coastal services.

(3) Provide expertise and advice to the GSSC on the development of operational elements of the Coastal module of GOOS including interoperability and the management and dissemination of non-physical, physical and socio-economic variables regarding:

- *Observations and data telemetry*
- *Data management and communications*
- *Modelling and analysis, and*
- *Communication of data and information to user groups*

(4) Advise the GSSC regarding capacity building needs of nations and regions and approaches to address such needs for sustained coastal observations, analysis and modeling.

(5) Using the Implementation Strategy for the Coastal Module of GOOS (GOOS Report No. 148) as a guide, prepare and periodically update Action Plans supporting implementation.

(6) Organize periodic assessments (every 5 years) of the status of implementation and performance of coastal GOOS and recommend improvements and enhancements.

Size and Membership: The PICO should not be larger than 8 members and should ideally include experts from both in situ and remote sensing communities, research and operational communities, industry, public health, ecosystem health, living marine resources, basin scale boundary conditions, land-based inputs, and data management. However, experts needed for specific topics may also be invited to particular meetings.

Term of office for panel members: 2 years.

Paul DiGiacomo and Jose Muelbert, Co-chairs of PICO, welcomed the PICO panel members to the first session of PICO. The Co-chairs stressed that this was a kick-off meeting where the aim was to outline some priorities for the work of PICO. At the same time it was stressed that PICO primarily is a technical body that provides advice to the GSSC.

The agenda items for the PICO meeting were organized to foster discussion along PICO's Terms of Reference.

1. IMPLEMENTATION OF THE COASTAL MODULE OF GOOS (PICO Terms of Reference #1, #3)

1.1 GLOBAL COASTAL NETWORK (GCN) IMPLEMENTATION AND LINKAGES WITH GLOBAL GOOS/OOPC

1.2 REGIONAL GOOS AND GOOS REGIONAL ALLIANCES (GRAS) – REPORTS ON IMPLEMENTATION ACTIVITIES AND NEXT STEPS

1.3 DEVELOPMENT OF OPERATIONAL ELEMENTS, INTEROPERABILITY AND NON-PHYSICAL VARIABLES AND END-TO-END INTEGRATION

1.4 4TH GOOS REGIONAL FORUM (MUELBERT AND GROUP DISCUSSION)

The group discussion revealed the need to develop mechanisms to engage better with GRAs (e.g., through the planned 4th GRA Forum (18-21 November 2008 in Guayaquil, Ecuador) which will allow the panel to get feedback on priorities and enable PICO to provide science/technical advice to develop/improve systems that are fundable; also work to develop pilot projects within regions). The panel recommended to work with GRAs to develop a five year plan to develop the Global Coastal Network (GCN)/Coastal System of Systems as detailed in the implementation strategy of the coastal Module of GOOS (GOOS Report No. 148) (i.e. identifying what kind of measurements are of priority, where, when, etc). It was suggested that a specific action should be to develop a stepwise implementation plan – and the need to prioritize actions. PICO should revisit and update provisional GCN common variables and take to GRAs. Another alternative would be to first engage with GRAs for products they need in addressing the six Coastal GOOS societal benefit areas – toward revisiting the common variable priorities. PICO can also distill down to say 5-6 variables to focus on now. On related actions, PICO should collate, review and identify key ecological indicators (millennium assessment etc) to focus on, and associated variables needed for this. PICO should identify the existence of legal mandates/conventions, and to identify observing requirements, focus on those and use to prioritize.

The Large Marine Ecosystems (LME) projects were discussed as appropriate venues to help implementation of PICO. It was noted that it is up to countries to implement their strategic action plans – e.g., take fisheries data and report to the regional fisheries commission. PICO could have workshops to discuss this, as already has happened to some extent in the 3rd GOOS Regional Forum. PICO should work with the Global Environment Facility (GEF) to identify common practices adopted across LMEs (also relates to capacity building). A Workshops with people doing operational monitoring (e.g. HABs) to discuss best practices, needs, etc should be proposed to GEF and focusing on targeted research and capacity building.

Regional initiatives that are currently underway and could serve as reference for development of the coastal module of GOOS include: The Integrated Marine Observing System (Australia), South African Earth Observation Network (SAEON), State of Ecosystem Information System (SEIS) – generating indices, uploading data, etc and PROPAL.

The importance to develop based on issues of regional concerns: food security; diseases – waterborne pathogens; maritime uses -to package different variables you want to monitor on a regular basis – specially in light of climate change.

2. LINKAGES WITH OTHER BODIES (PICO Terms of Reference #2)

2.1 GEO AND IGOS

Paul DiGiacommo provided a brief overview of the GOS Coastal Zone Community of Practice (CZCP) which was initiated in 2006. The initiative for a CZCP emerged from the activities of the Coastal Theme of the Integrated Global Observing Strategy Partnership (IGOS-P). The Coastal Theme goal is to develop and implement a strategy for integrated observations across the land-sea interface that will provide data and information needed to make informed decisions on issues related to the propagation of change and variability as required for use, study, or management of coastal ecosystems or components thereof. The Coastal Theme builds on and integrates the coastal components of GOOS and GTOS.

Following the decisions of the 14th session of the IGOS-P (May 2007) to transfer IGOS and its themes to GEO, the IGOS Coastal Theme will transition and undertake its activities through the CZCP, in coordination with PICO.

More information about the IGOS Coastal Theme is available at:
http://unesdoc.unesco.org/images/0014/001458/145874e.pdf.

More information about the CZCP is available at:
http://earthobservations.org/documents/sbas/di/35_geo_coastal_zone_cop.pdf.

Paul DiGiacomo gave an overview of the plans for the workshop GEO/CZCP sponsored workshop "Observing System Requirements for Managing and Mitigating the Impacts of Human Activities and Coastal Inundation in the Mediterranean region" (9-13 June, Athens, Greece), http://www.greekgeo.noa.gr/geoworkshop1/page01.html.

Discussions focused on the need for specific recommendations for user data/information requirements of coastal managers/decision-makers for mitigating hazards for consideration by PICO.

2.2 CURRENT STATUS OF J-PICO FORMATION AND WAY FORWARD

The panel acknowledged that in the formation of PICO, the IOC Executive Council and IOC Assembly had not supported the formation of a joint GOOS/GTOS Panel for Integrated Coastal Observation (J-PICO). It was recognized that PICO needs to establish a track record of delivery before it is prudent to reconsider possible formation of a J-PICO. The Panel also recognized that joint coastal perspectives (spanning both land and ocean side of the coastal zone) can be addressed through the Coastal Zone Community of Practice under GEO and also through continued interactions with Robert Christian (Chair of the GTOS coastal panel).

3. PILOT PROJECT/STUDY DEVELOPMENT

3.1 REVIEW OF EXISTING AND PROPOSED EFFORTS/ACTIVITIES AND IDENTIFICATION OF PRIORITIES AND WAY FORWARD

Many propositions were discussed as existing or proposed efforts/activities to identify priorities for pilot projects. Remote sensing of shallow water/benthic ecosystems - coral reefs, sea grass beds, mangroves, wetlands, estuaries – extent and condition, quality, health, coupled with in situ observations – common standards and protocols – common approaches across regions. Refine requirements from the IGOS Coastal Theme Report. High resolution nearshore bathymetry/topography product necessary – also supports improved hydrodynamic modeling; links with coastal hazard drivers – inundation, flooding, erosion - toward risk assessments - links with above, also water quality. Comparative atlas/time series of (seemingly) similar coastal ecosystems to allow comparison – e.g., upwelling systems. Trends in these ecosystems – seasonal patterns and others - would help understand variability and better understand observing system requirements/needs. SCOR WG 125 Global Comparisons of Zooplankton Time Series can also be used as an example. The need for dissemination system – collecting and integrating information, studies, soliciting generation of indices was also noted. Scaled-up meta system analyses across GRAs is another possibility of activity.

3.2 GEOHAB AND GLOBAL PHYTOPLANKTON MONITORING NETWORK - POTENTIAL PICO-PILOT PROJECT

Discussion of this issue lead to the nomination of Tetsuo Yanagi and Tom Malone to represent PICO/GOOS on the Joint IPHAB-GSSC Task Team on HABs.

3.3 OCEAN TRACKING NETWORK

Tom Malone provided a short summary of the Ocean Tracking Network (OTN). The OTN is a global environmental research initiative that monitors the movements and migrations of marine animals as well as the ocean conditions that affect them. The OTN is based on implanted tags in fish and other marine animals and a network of acoustic receivers to track and collect observations from the tags. Several research institutions already take part in the OTN, and some national observing programs have incorporated tracking projects (i.e. Australia's Integrated Marine Observing System (IMOS) has a tracking component). Pilot scale tracking projects have also been demonstrated (i.e. the Census of Marine Life's Pacific Ocean Shelf Tracking (www.topp.org) and Tagging of Pacific Predators (www.topp.org)). The OTN has the potential for collection of a large pool of temperature and salinity observations. Other types of tagging sensors are under development. The OTN has a budget of 167 million Canadian dollars and it has received an initial funding of 45 million Canadian dollars. The project office is housed at Dalhousie University. More information is available at http://oceantrackingnetwork.org.

3.4 REMOTE SENSING OF WATER QUALITY

The group discussed the potential for implementing a pilot project in coordination/collaboration with partners.

4. CAPACITY BUILDING (PICO Terms of Reference #4)

The group recognized the existence of other capacity building activities in POGO, IODE, GEO Capacity Building Committee. The need to identify a PICO representative on GEO Capacity

Building Committee was pointed out. GOOS Report No. 69 on capacity building should be reviewed. Capacity building in developing nations/regions is important, and should target end-users, managers and decision-makers. It was recognized that capacity building also involves product improvement to make sure products satisfy user needs. It was also recognized that key challenges in developing nations include the need to demonstrate utility of products, otherwise investment of people and resources won't be made. The Panel also stressed the importance to coordinate with the Land Ocean Interaction in the Coastal Zone (LOICZ) and its regional offices in areas of capacity building and socio-economic indicators.

5. ACTION PLANS AND ASSESSMENTS (PICO Terms of Reference #5, #6)

5.1 IDENTIFICATION OF PRIORITIES AND METRICS TO ASSESS PROGRESS AND PERFORMANCE OVER SHORT TERM AND LONG TERM

It was noted that the phased implementation plan for the project Tagging of Pacific Predators (TOPP; http://www.topp.org/) could be a model for PICO to follow. The Ocean Observations Panel for Climate (OOPC) has integrated performance measures – meeting observational requirements per grid box per period of time. Other suggestions for PICO include: use of pilot projects – e.g., one in each region, etc; use of number of meetings PICO members attend as representative of PICO/GOOS; coastal data being used; impacts; etc. It was also discussed if each pilot project addresses this individually or if criteria is imposed on them by regional plans etc.

6. REVIEW OF ACTIONS, TIMETABLES, RESPONSIBILITIES

6.1 DEVELOPMENT OF ACTION PLANS

Action plan and recommendations from the meeting are summarized in the table in Annex III. Items were separated in the following categories:

- *Coastal System of Systems [the Global Coastal Network]*
- *Regional GOOS/GRAs*
- *Mechanisms: coordination of existing activities, pilot projects, workshops and capacity building*
- *Other*

7. OTHER ITEMS and REPORTS

No other items and reports were presented or discussed.

8. CLOSURE OF MEETING

The meeting was closed at 17:00 on Friday 11 April 2008. The second session of PICO will be held in conjunction with the 12th session of the GSSC in Perth (Australia) from 23-28 February 2009.

ANNEX I

AGENDA

The PICO-I meeting was held jointly with the 11th session of the GOOS Scientific Steering Committee (GSSC-XI) for agenda items 9, 10 and 11 of the GSSC-XI. A report of the GSSC meeting is published separately (GOOS Report No. 170).

Thursday 10 April 2008

Joint session with the GOOS Scientific Steering Committee (GSSC). Agenda item numbers refer to the GSSC agenda (see also http://www.ioc-goos.org/index.php?option=com_oe&task=viewEventAgenda&eventID=153).

7. STATEMENT BY THE INCOMING GSSC CHAIR (including segue from GSSC meeting to GSSC-PICO meeting)

8. REGIONAL GOOS IMPLEMENTATION

- 8.1 Role and Status of GRAs Implementation of Coastal GOOS (Aarup)
- 8.2 Artic GOOS (Alverson)
- 8.3 Ocean Chlorophyll Pilot Project (ChlorOGIN) (Field)
- 8.4 Support for Coastal Hazard Mitigation and Coastal Development (Lee)
- 8.5 Preparation for the 4th GOOS Regional Forum (Muelbert, Alverson)

9. PICO LINKAGES: IGOS COASTAL THEME AND GEO COASTAL ZONE COMMUNITY OF PRACTICE

- 9.1 Overview and Status of GEO Coastal Zone Community of Practice and transition of IGOS Coastal Theme into GEO (DiGiacomo)
- 9.2 Regional GEO Coastal Zone Community of Practice Workshop on "Observing System Requirements for Coastal Development, Urbanization and Hazards" (DiGiacomo)

10. REVIEW AGENDA FOR PICO-I

11. REPORT ON THE SCIENTIFIC WORKSHOP (with PICO if time permits)

12. IN-SESSION BREAKOUT GROUP REPORTS (with PICO if time permits)

13. INTERSESSIONAL WORK PLAN AND INPUT TO I-GOOS IX

14. FORMAL ISSUES

- 14.1 GSSC Membership
- 14.2 Membership of the sub-groups (OOPC and PICO)
- 14.3 Date and Place of the Next GSSC and PICO Sessions

15. CLOSURE OF THE GSSC SESSION

Friday 11 April 2008 (PICO)

1. IMPLEMENTATION OF COASTAL MODULE OF GOOS (PICO Terms of Reference #1, #3)

1.1 GCN Implementation and linkages with Global GOOS/OOPC – (Harrison and group discussion)

1.2 Regional GOOS and GRAs – reports on implementation activities and next steps (Aarup/Muelbert and group discussion)

1.3 Development of operational elements, interoperability and non-physical variables and end-to-end integration (Malone and group discussion)

1.4 4th GOOS Regional Forum (Muelbert and group discussion)

2. LINKAGES WITH OTHER BODIES (PICO Terms of Reference #2)

2.1 GEO and IGOS (DiGiacomo and group discussion)

2.2 Current status of J-PICO formation and way forward (Malone and group discussion)

2.3 Ocean Tracking Network (Malone)

3. PILOT PROJECT/STUDY DEVELOPMENT

3.1 Review of existing and proposed efforts/activities and identification of priorities and way forward (Muelbert and group discussion)

3.2 GEOHAB and global phytoplankton monitoring network - Potential PICO-Pilot Project (Malone)

4. CAPACITY BUILDING (PICO Terms of Reference #4)

5. ACTION PLANS AND ASSESSMENTS (PICO Terms of Reference #5, #6)

5.1 Development of action plans

5.2 Identification of priorities and metrics to assess progress and performance over short term and long term

6. REVIEW OF ACTIONS, TIMETABLES, RESPONSIBILITIES

7. OTHER ITEMS and REPORTS

8. CLOSURE OF MEETING

ANNEX II

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ANNEX III

PICO-I ACTION AND RECOMMENDATIONS PLAN

Item	Due Date	By Whom	Remarks
Coastal System of Systems [the Global Coastal Network]			
Develop a conceptual plan for a global coastal network/coastal system of systems, integrating it with regional pilot projects (observations, models, pilot projects, information delivery mechanisms et al.); then work this issue collaboratively with GRAs at the 4th GRA Regional Forum		Tom Malone and John Parslow; group	
Identify, collate, review and identify key ecological indicators (millennium assessment, and other reports) of coastal (GOOS) relevance, and associated variables needed for this		Jose Muelbert, Helen Yap, Tom Malone	
Identify the driving legal mandates under conventions to demonstrate observation needs. Use these to identify near-term observing requirements, focus on those and use to prioritize variables and observing priorities as below to drive implementation (Thorkild Aarup to provide UNEP inventory of conventions)		Thorkild Aarup, Paul DiGiacomo and Neville Sweijd	
Revisit and update provisional GCN common variables and take to GRAs (e.g., pH); identify 5-6 variables to focus on (possibly some variables that can be remotely sensed). Then develop a phased implementation of other variables into the GCN		John Parslow and Tom Malone	
Continue to engage LMEs; encourage cross-LME interactions (standards), and explore working with GEF to encourage countries to implement LMEs and have workshops to discuss common/best practices, targeted research and development and capacity building needs across LMEs; recommend high level meeting between IOC and the World Bank's International		Neville Sweijd, Bruno Blanke, Paul DiGiacomo	

Waters Programme (Al Duda) – Paul DiGiacomo to contact Ned Cyr and Ken Sherman/NOAA on this suggestion			
Endorse GSSC XI breakout working group on recommendation for a model survey and intercomparison activity and use these findings to articulate priorities for basin-scale/regional development and implementation activities		Co-chairs, then Tetsuo Yanagi, Bruno Blanke and John Parslow to review	
Develop a plan to effectively link and couple basin-scale with coastal observations (seasonal to short-term physical forecasts); facilitate planning and development of Coastal Data Assimilation Experiments (CODAE) (basin/shelf) as well as CODAS (catchment/coastal coupling) – also addressing mesoscale atmospheric observations and their assimilation – possible contact Pierre-Yves Le Traon (CLS, Toulouse, France)		John Parslow, Paul DiGiacomo and Ed Harrison	
Formulate a set of questions to take to the steering committee for the final Global Ocean Data Assimilation Experiment (GODAE) symposium – meeting in June 2008 - coordinating basin with regional scale observations, processes and dynamics		John Parslow, Paul DiGiacomo and Ed Harrison	
Reviewing and updating requirements in IGOS Coastal theme and how to tune to specific applications/products		Co-chairs/Group	
Regional GOOS/GRAs			
Review pilot projects identified by GRAs during 3rd GRA Forum that can conform to criteria identified by GSSC XI Breakout Group #4 (including IEEE criteria)		Co-chairs/Group	
Working with participating countries, IOC Regional Offices and GRAs, to create and maintain an updated inventory and characterize current activities that should be considered for		GRAs/IOC Offices then group	

endorsement as a contribution to implementation of the coastal module of GOOS; some previous activities (19 countries reported provided national GOOS reports to the 8th session of the Intergovernmental GOOS Committee (June 2007)) – PICO will review and assess relative to conceptual framework			
Plan/organize PICO meetings/workshops within GRAs		Co-chairs	
Recommend to GSSC that the GOOS Regional Council create an inter-GRA web-site/clearinghouse to provide overview of regional observing activities and promote coordination/integration of their activities		Co-chairs	
Review and update requirements in IGOS Coastal theme and how to adapt them to specific applications/products		Co-chairs/Group	
Mechanisms: coordination of existing activities, pilot projects, workshops and capacity building			
Develop pilot project on remote sensing of shallow water/benthic ecosystems (coral reefs, sea grass beds, mangroves, wetlands, estuaries) - extent and condition, quality, health, coupled with in situ observations – formulate common standards, protocols, approaches; refine requirements from IGOS Coastal Theme Report		Helen Yap; Tetsuo Yanagi	
Pursue development of high resolution nearshore bathymetry/topography product – which can support improved hydrodynamic modeling. This will be of use toward supporting improved coastal hazard risk assessments and mitigation efforts vis-a-vis inundation, flooding, erosion. Paul DiGiacomo to bring to the GEOSS workshop Observing System Requirements for Managing and Mitigating the Impacts of Human Activities and Coastal		John Parslow and Paul DiGiacomo	

Inundation in the Mediterranean Region (9-13 June 2008, Athens, Greece)			
PICO nominates Tetsuo Yanagi and Tom Malone to represent GOOS on the Joint IPHAB-GSSC Task Team on HABs		Co-chairs	
Pursue development of Water Quality Remote Sensing Pilot Project – responsive to "Land-based sources of marine pollution and run-off" – pursue in conjunction with national efforts (e.g., Australia – John Parslow; Brazil - Jose Muelbert; South Africa - Neville Sweijd through Ecological Geography of the Sea programme and the project (RIBBS – River influencing Bights and Bays) spinning up in South Africa – Natal region). Africa has been identified by I-GOOS as primary region for pilot projects		Co-chairs; Neville Sweijd, and John Parslow	
Articulate during the intersessional period pilot projects involving wind-wave-current interactions (e.g., coastal erosion, spills/fate and transport, search and rescue, port/maritime operations)		Group	
Bruno Blanke will report back from Eastern Boundary Upwelling Ecosystems international conference (Las Palmas, Canary Islands, June 2008) regarding potential pilot efforts on comparative analyses/atlas/time series/typologies of coastal ecosystems – develop/use of advanced indicators to track changes in systems over time. There is also need to review what has already been done (i.e. consult with Alan Longhurst's book Ecological Geography of the Sea)		Bruno Blanke, then group potentially	
Recommend GSSC designate GOOS representative to serve on GEO Capacity Building Committee		Co-chairs	
Need to enhance linkages/coordination with LOICZ,		Co-chairs; John Parslow /Tetsuo	

especially in capacity building (also in area of socio-economic indicators) – Paul DiGiacomo to contact Jozef Pacyna (Chair of LOICZ)		Tetsuo Yanagi	
Review GOOS capacity building documents/initiatives and identify linkages for PICO		Thorkild Aarup and Jose Muelbert	
Other			
Implement IPHAB-GSSC joint task team on harmful algae blooms		Tom Malone	
Provide panel details on GRA composition, process, websites et al.; PICO website		Thorkild Aarup	
PICO to send representative to 13th session of OOPC 9-13 June 2008, Buenos Aires, Argentina)		Co-chairs	
Revisit issue of performance measures/metrics, progress indicator etc. for the coastal module of GOOS		Group; tabled for now	
Contact Ralph Rayner (Chair elect of the GSSC) re. outreach/coordination		Paul DiGiacomo	
Consideration of other remote sensing products (than SST), i.e. Coral bleaching observations/indicators – end to end system for coral bleaching (GEO community of practice…) perhaps in collaboration with the GEF funded project on coral bleaching		Group	

ANNEX IV

ACRONYMS

ChlorOGIN	Chlorophyll Global Integrated Network
CODAE	COastal Data Assimilation Experiment
CZCP	Coastal Zone Community of Practice
GCN	Global Coastal Network
GEF	Global Environment Facility
GEO	Group on Earth Observations
GODAE	Global Ocean Data Assimilation Experiment
GOOS	Global Ocean Observing System
GRA	GOOS Regional Alliance
GSSC	GOOS Scientific Steering Committee
GTOS	Global Terrestrial Observing System Global
HAB	Harmful Algal Blooms
ICSU	International Council for Science
IEEE	Institute of Electrical and Electronics Engineers (USA)
IGOS	Integrated Global Observing Strategy
IMOS	Integrated Marine Observing System
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange (IOC)
IPHAB	Intergovernmental Panel on Harmful Algal Blooms
J-PICO	Joint GOOS-GTOS Panel for Integrated Coastal Observations
LME	Large Marine Ecosystem
LOICZ	Land-Ocean Interaction in the Coastal Zone (IGBP)
NOAA	National Oceanic and Atmospheric Administration (USA)
OOPC	Ocean Observations Panel for Climate (GCOS-GOOS-WCRP)
PICO	Panel for Integrated Coastal Observation
POGO	Partnership for Observation of the Global Oceans
RIBBS	River influencing Bights and Bays (South Africa)
SAEON	South African Earth Observation Network
SCOR	Scientific Committee on Oceanic Research
SEIS	State of Ecosystem Information System
SST	Sea Surface Temperature
TOPP	Tagging of Pacific Predators
UNEP	United Nations Environment Programme
WMO	World Meteorological Organization