IOGOOS IX
Annual Report

Cape Town, South Africa
October 19 – 20, 2012

GLOBAL OCEAN OBSERVING SYSTEM FOR INDIAN OCEAN

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

CONTENTS

INTRODUCTION

The IOGOOS IX Workshop and Annual meeting was held at Protea Sea Point Hotel, Cape Town, South Africa during October 19 – 20, 2012. The meeting was hosted by the Perth Regional Programme Office of the Intergovernmental Oceanographic Commission (IOC), UNESCO (IOC Perth Office) with local support from South African Weather Services (SAWS) and Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project office. The IOGOOS Secretariat coordinated the meeting with the assistance of the IOC Perth Office. This annual IOGOOS meeting was held in conjunction with a related and integrated package of meetings comprising the 9th meeting of the Indian Ocean Panel (IOP), 3rd meeting of Sustained Indian Ocean Biogeochemistry and Ecosystem Research (SIBER) and 3rd meeting of the Indian Ocean Observing System (IndOOS) Resource Forum (IRF).

The agenda of the meeting and the list of participants of IOGOOS IX Workshop and Annual Meeting are attached as **Annexure 1 & 2,** respectively**.**

This report provides a record of the salient elements, recommendations and action items resulting from the meeting.

Presentations delivered by the delegates at the meeting are available at IOGOOS website (http://www.incois.gov.in/Incois/iogoos/home.jsp).

OPENING CEREMONY

Dr. T. Srinivasa Kumar, Acting Chair, IOGOOS welcomed the delegates to the IOGOOS IX annual meeting. Dr. Kumar conveyed his appreciation to Dr. Nick D' Adamo, IOC Perth Regional Programme Office and Dr. Johan Stander, Dr. David Vousden and the staff of the South African colleagues from South African Weather Services (SAWS) and Agulhas and Somali Current Large Marine Ecosystems (ASCLME). He welcomed the IOGOOS Officers and chairs of IOP and SIBER to the meeting. He thanked Dr. Shailesh Nayak (Chair, IRF and Secretary, Ministry of Earth Sciences (MoES)) for agreeing to participate in the opening ceremony of IOGOOS, chairing the session on Plenary Science Talks and for his continued support of IOGOOS.

Dr. Shailesh Nayak, as Chair of IRF and Former Chair of IOGOOS, in his opening remarks congratulated IOGOOS for its progress and wished it a very successful 9th annual meeting. Dr. Somkiat Khokiattiwong, Officer, IOGOOS also congratulated the gathering and extended his wishes for a very fruitful meeting.

IOGOOS Officer, Dr. Alfonse Dubi thanked the organizers and the IOGOOS Secretariat for organizing the meeting and also thanked all participants for providing their valuable time to participate in the meeting, emphasizing that this indicated encouraging support for IOGOOS from its constituents. Dr. Dubi mentioned that since IOGOOS started 10 years ago, it has been exciting enjoyable for him to be part of the IOGOOS Regional Alliance. Dr. Dubi added that he believed IOGOOS could always focus its efforts in respect to increasing its capacity building activities, sharing facilities, sharing knowledge with associated IOGOOS and IO rim countries. Dr. Dubi mentioned that as an outgoing Officer he was pleased to note the impressive gathering at IOGOOS IX.

Dr. Andreas Schiller mentioned that he had been in Cape Town during the previous week and had enjoyed the opportunity to learn in detail of the IOGOOS portfolio of activities. He noted that he had been impressed with the progress of IOGOOS projects, such as those involving RAMA moorings, and including the work of

IRF. Dr. Andreas was impressed by the ongoing relevance and contribution of the IRF in terms of observations and financial support that it facilitates for IOP and SIBER. Dr. Andreas conveyed his best wishes for a fruitful meeting and looks forward to the progress that IOGOOS will make into the future.

Dr. Nick D'Adamo thanked the Chairs of IOGOOS. Dr. Nick began through appreciating the IOGOOS Chairs and Secretariat for their efforts in organizing of the meetings. Dr. Nick also similarly thanked the willingness of officers, members and colleagues from IRF, SIBER and IOP to stay in Cape Town after their own respective meetings so that they could participate in the IOGOOS-9 Meeting. Dr. Nick also took pleasure in acknowledging Dr. Johan Stander for his role in facilitating the week's meetings and Dr. David Vousden for provision of local administration for the meetings. Dr. Nick thanked the Bay of Bengal Large Marine Ecosystem (BOBLME) program for facilitating the participation of Dr. Abdulla Nasser, Maldives at the IOGOOS-9 the meeting. Dr. Nick also thanked Dr. Rezah Badal, Officer-in-Charge, Mauritius Oceanography Institute (MOI), in his capacity representing MOI and Mauritius, which facilitated the origin and 1st meeting of IOGOOS (in Mauritius) and also the important DBCP SWI Training / Capacity Building workshop in Mauritius during 2011. Dr. Nick welcomed all sponsors of the week's meetings and ended with wishes to all for a fruitful meeting.

Dr. T. Srinivasa Kumar, Acting Chair, IOGOOS thanked Dr. Nick for his opening remarks. Dr. Kumar welcomed any additional items to be included in the agenda of the meeting. Dr. Kumar also informed participants about the changes to the agenda since its last circulation

PLENARY SCIENCE TALKS

Near surface circulation and downward ocean heat pumping induced by Tropical Cyclones in the Bay of Bengal by Dr. Weiqing Han, Member, Indian Ocean Panel (IOP), University of Colorado, Boulder, Co, USA

Tropical Cyclones (TCs) of the Bay of Bengal (BoB) have strong societal & economic consequences. Climatically, TCs, act as mixing agent, pump heat downward into the tropical Thermocline, and then transport poleward, playing an important role in regulating global meridional ocean heat transport & heat balance (Emanuel 2001; Sriver and Huber 2007; Sriver et al. 2008). Three steps are suggested to be involved in this scenario. i.e. (a) Strong Wind and T Homogenization (b) Tm restoration after a TC by heating during Downward Ocean Heat Pumping (DOHP) (c) pumped heat transported away. Stage (a) shows upper ocean temperature homogenization, which lowers the ML temperature and raises the temperature of the upper thermocline layer, Stage (b) shows restoration of the ML temperature via enhanced downward surface heat flux and advection, and Stage (c) shows that the additional heat in the upper thermocline layer is carried away by lateral advection. In Stage (a), the warm anomaly in the upper thermocline layer (striped) compensates the cold anomaly in the ML (dotted), and thus there is no net column heating in this stage. The question here is whether this scenario holds for the Indian Ocean, especially the BoB, where freshwater flux is important and a barrier layer exists? The present talk details results on (i) understanding the upper ocean response & processes to TC forcing in the BoB; and (ii) quantifying the BoB's TCs Downward Ocean Heat Pumping (DOHP) characteristics. The authors used Ocean General Circulation Model (OGCM) experiments with two scenarios: (i) Lack of 3-D, spatially & temporally continuous observations: (ii) OGCM – isolate TC effects. The OGCM is configured at 0.25°x0.25° with 32 vertical layers for the Indian Ocean basin. The model was forced with 6-hourly multi-satellite merged data at 0.25°x0.25° CCMP, Wind, TRMM Rain, 0.7°x0.7° ERA-1. The experiments carried out for the two TCs occurred during October 1999, landing near Orissa, India in the BoB. The experiments

to study the impact of TCs on the BoB Ocean Heat Content (OHC) shows that TC1 & TC2 significantly reduces BoB OHC from Oct. 15 - Nov. 5, and recovers afterwards. The OHC reduction during the TCs results primarily due to TC winds & radiation (mainly relating to a reduction of SW radiation), and the two effects are almost equal. The importance of wind – especially wind stress – is consistent with previous studies, whereas the equal importance of SW radiation is in contrast to previous studies that suggest Heat Flux (HF) is not important in cooling SST. The effects of precipitation & wind speed (relating to turbulent heat flux) are not important. Although gradually recovering, the BoB OHC loss due to the TCs remains about -37×1018J from MR-NoTC and about -30×1018 J from reconstructed-WIND-Filtered-TC by the end of February, 2000. This "net OHC loss" due to TCs results primarily from accumulated OHT. TC-wind stress induces changes in ocean circulation (near surface currents), and thus the OHT out of the BoB.

Do TCs cause DOHP in the BoB? By examining surface HF, we can see that reconstructed-WIND experiment indeed induces DOHP; cooling by surface heat flux results mainly from SW radiation, & wind plays a less important role; without reconstructed-WIND strong wind, however, there is no DOHP. With the strong reconstructed-WIND, DOHP exists but is weak, with net surface heat gain of 12x10^18J by February. This DOHP by TC wind is compensated by SW effects, and the total DOHP is ~1.74x10^18J. THF is important for the "recovery" – consistent with previous studies. There is also a seasonal cooling effect at the end of TC2 and afterwards: with air-sea heat flux interaction (SST-flux feedback). (TC induced OHC ~ 10% of seasonal cycle). In summary, the rightward bias of TC-induced surface cooling is caused by the asymmetry of both upwelling (+advection) and vertical mixing process; The DOHP is an order of magnitude weaker than that estimated by the observed SST before/after TCs, due to barrier layer formation and the large effect of solar radiation associated with the TCs. Hence, it is impressed here that in situ 3-D sustained observations, combined with Model experiments, are important for advancing our understanding and improved prediction of the Indian Ocean processes & its role in regional/global climate.

Basin wide Impact of the Indian Ocean Dipole on Biophysical Processes by Dr. Jerry D Wiggert, Secretary SIBER and Professor, Dept. of Marine Sciences, The University of Southern Mississippi, Stennis Space Center, MS 39529, USA

Characterizing how the Indian Ocean Dipole (IOD) modifies typical dynamical variability in the Indian Ocean has been vigorously pursued over the past 15 years. Along with this dynamic response, a clear biological impact is seen in satellite ocean color data. The signature feature of the positive IOD's biological impact is a phytoplankton bloom that first appears in September off Java and Sumatra. However, positive chlorophyll anomalies are also apparent in the southeastern Bay of Bengal, while negative anomalies are observed over much of the Arabian Sea. Characterizing the clear contrast in regional responses to the anomalous forcing conditions imposed during an IOD: 1) provides an opportunity to better understand each region's distinctiveness; 2) reveals how regional interconnectivity linked to Rossby wave propagation is modulated during IOD events; and 3) advances our capacity for predicting climate change response in the Indian Ocean on regional to basin scales. Here the 13+ years of satellite measured ocean color, and co-temporal remotely sensed surface temperature, height and winds, as well as the available Argo float data, are used to illuminate and contrast the unique physical and biogeochemical responses to IOD throughout the Indian Ocean. The use of remote sensing data streams to investigate biogeochemical response to climate models in the equatorial and tropical Indian Ocean are in clear alignment with SIBER objectives. With continuing advancements in the applications of ocean color data, insight into spatio-temporal patterns of nutrient limitation, carbon uptake and phytoplankton functional types and size classes, and their IOD response, are now realizable.

DBCP In-Region capacity building workshops in the SW IO relevant to IOGOOS by Dr Sidney Thurston, Chair, DBCP Task Team on Capacity Building – Presented by Dr. Nick D' Adamo, Head, Perth Regional Programme Office

The presentation focused on the IOC/WMO JCOMM Data Buoy Cooperation Panel (DBCP) In-Region Capacity Building Workshops for the Indian Ocean and was presented by Dr. Nick D'Adamo in place of Dr. Sidney Thurston, Lead, DBCP Capacity Building Programme. The presentation provided a precise of the recent DBCP Western Indian Ocean Capacity Building Workshop (WIO-3) held at Mombasa, Kenya during April 16 – 20, 2012. These workshops' generic goals are (i) Implementation and Operations Of Indian Ocean Data Buoy Networks and their Applications for Enhancing Regional Predictive Capability, (ii) Continue to Build Capacity Within Regional Institutes to Apply New Indian Ocean Observing System (IndOOS) Data, such as from RAMA and others, for Enhanced Predictive Capability for the Region, (iii) Demonstrate the Crucial Role of Ocean Observations for Understanding and Predicting Regional Weather, Ocean and climate, (iv) Build In-Region Modelling Development Teams (MDT) and Observation Development Teams (ODT), including for the implementation of buoy programmes, (v) Demonstrate the Societal and Economic Benefits of Delivering Enhanced Ocean Observing System Data for Better Informed Decisions, (vi) Continue to Build Capacity within Regional Institutes to Apply New Indian Ocean Observing System (IndOOS) Data, such as from RAMA and others, for Enhanced Predictive Capability for the Region, (vii) Provide Training in Deployments and Management of In-situ Ocean Observations, and (viii) Continue to Build In-Region Modelling Development Teams (MDT) and Observation Development Teams (ODT), including for the implementation of buoy programmes. Representatives from 18 countries and three major regional projects viz. ASCLME, AMESD and SWIOFP participated in the 2012 meeting. Dr. Nick also briefed the audience on the forthcoming DBCP/NIOT/BOBP-IGO Regional workshop on Best Practices for Instruments and Methods of Ocean Observation scheduled to be held at Chennai, India during November 19 – 21, 2012. The aim of this workshop is capacity building for scientists, researchers, engineers and managers on best practices in calibration and testing instruments for ocean observation systems. The meeting also involves industry. About 10 countries and 14 Industry representations are expected to participate in the meeting. A briefing was also given on the next (4^{th}) DBCP Western Indian Ocean Capacity Building Workshop scheduled to be held during May 2013 in Zanzibar, Tanzania, and co-hosted by the Tanzania Institute of Marine Sciences and Tanzania Meteorological Agency with the goal of providing training on instrument deployments, societal-economic applications of Indian Ocean data for research and modelling.

GODAE OceanView and related activities in the Indian Ocean by Dr. Andreas Schiller, GODAE OceanView Co-Chair

The presentation focused on two key elements: the challenges addressed by the GODAE OceanView Science Team and examples of recent work on developing biogeochemical analysis and forecasting capability in the Indian Ocean. The presentation highlighted the societal needs for operational oceanography, in particular in the coastal zone for the sustained exploitation of the natural resources of the seas based on ecosystem-based management. Furthermore and in cooperation with other international efforts in improving our understanding of the oceans, GODAE OceanView provides an international platform for coordination of research efforts in ocean modelling and data assimilation, and coupling with other components of the Earth system, all of which ultimately lead to enhanced accuracies of ocean information products. GODAE OceanView also supports international efforts in charge of developing the global ocean observing system and supports the transition to a sustained in situ and remotely-sensed ocean observing system. The scientific part of the presentation discussed recent advances in simulating the

chlorophyll content of the Indian Ocean ("ocean colour"). Due to the complexity of biogeochemical systems it is challenging to constrain a biogeochemical ocean model with (sparse) observations. Although early results in simulating and analysing ocean colour in ocean models of the Indian Ocean and global oceans are promising much work remains to be done before a skill level similar to those we are used to in physical oceanography can be achieved.

JCOMM linkages in the context of IOGOOS by Dr. Johan Stander, Co-President, JCOMM

Dr. Johan Stander made a very brief presentation on the possible linkages of JCOMM with IOGOOS and the relevancies of JCOMM.

Persian Gulf – Persian Gulf and Gulf of Oman Oceanographic Study (PG-GOOS) by Dr. Said Mazaheri, INIO

Dr. Said Mazaheri, Iranian National Institute of Oceanography (INIO) presented on the Persian Gulf & Gulf of Oman Oceanography Study (PG-GOOS) being carried out in Iran. Dr. Said overviewed the International Marine Cruises held in the Persian Gulf & Gulf of Oman, including the regional marine cruises run by Iran & Persian Gulf Rim countries in the Persian Gulf since 1992. Dr. Said also presented on INIO's historical marine surveys carried out in the Persian Gulf & Gulf of Oman. He also briefed about the Persian Gulf Oceanographic Training Curise conducted during summer 2009 and winter 2012. Dr. Said described how the aims of PG-GOOS programs focus on collecting marine physical, chemical, geological, biological and environmental data, and also modelling of water circulation and physical parameters with GETCM, COHERENS, FVCOM Software and how it also includes compiling a comprehensive oceanographic report. The study area includes the entire Persian Gulf and Gulf of Oman areas, sampling to their maximum depths (ie up to 1000m in the Gulf of Oman). He detailed PG-GOOS's program management structure, work plans, instruments used for sampling and described the suite of measurement of variables measured. He also briefed participants on the related issue of data management and in that context referred to the newly established National Oceanographic Data Center (NODC) in Iran, formally known as the Iranian Oceanographic Data Centre (IRODC). IRODC is the only national oceanographic data center in the Persian Gulf and the Gulf of Oman region, tasked with the collection, archiving, and quality control of oceanographic data, as well as its exchange with various international bodies and institutions. Dr. Said also introduced the newly formed Iranian National Center for Ocean Hazards (INCOH), outlining its establishment and its constituent research stations. He ended by providing details on future plans for ocean observing and services by INIO and also update the group on research vessels currently being built vessels being built in Iran under INIO's auspices INIO.

REPORTING TO IOGOOS

Report from the Indian Ocean Panel by Dr. M. Ravichandran, IOP Co-Chair

Dr. M. Ravichandran, Co-Chair, IOP presented the IOP report. This included an update on the status of the various ocean observing platforms, plans and the applications under IOP's Indian Ocean Observing System (IndOOS). Dr. Ravi described planned observing platforms to be part of IndOOS, itself a multi-platform, long-term observation network. As part of the Research Moored Array for African-Asian-Australian Monsoon Analysis and Prediction (RAMA), 31 moorings out of the 46 sites planned in the IndOOS design were completed by September 2012, which is 67% of total proposed sites. This includes the recent deployment at 25° S / 100° E. All the moorings were serviced. It was noted that the IndOOS Resource

Forum (IRF) has been an important support mechanism facilitating this achievement. In 2010, Meteo-France initiated support for sea level pressure sensors leading to pressure measurements at four RAMA Sites, aimed at helping to improve cyclone forecasting. Another important initiative in respect to the RAMA moorings is the introduction biogeochemical measurements as part of RAMA, undertaken in collaboration with SIBER. The main objective of this is to (i) define & understand biogeochemical variability in the IO region, (ii) develop models of ocean-atmosphere-biosphere interactions; and (iii) assess the impacts of climate change on ocean primary productivity and air-sea CO_2 exchange. The key measurement parameters targeted are CO_2, pH, Fluorescence, Particle Backscatter and O_2. The first CO_2 measurements from RAMA moorings have resulted from the Chinese Bai Long mooring's pCO_2 system (at 8° S, 100° E). In respect to RAMA maintenance, during October 2011 – September 2012, 7 cruises were conducted through the participation of seven nations, resulting in deployment / maintenance of 27 moorings involving a total of 153 days of vessel time. Plans are in place to conduct a further 9 cruises through the participation of 6 nations for deployment / maintenance of 36 moorings, involving 211 total vessel days during October 2012 – September 2013. One of the key challenges being faced is to increase the rate of data return from RAMA moorings (currently sitting at 64%), and this further depends on securing and coordinating ship time, mitigating vandalism and piracy and implementing biogeochemical measurements. It was also reported that the oceanography community is accessing RAMA data widely. The total RAMA data files delivered via the web during October 2011- September 2012 was 95379. Furthermore, some 458386 FTP / Web based user hits (for RAMA data) were recorded. It was reported that 769 Argo floats are currently active in the Indian Ocean (including 491 floats north of 40 S), and that 68% of Argo profiles were subjected to DMQC. During the past year about 175 new floats were deployed in the region. Another important achievement in respect to the Argo float observation network is the deployment of Bio-Argo floats which provide data on Temperature, Salinity, Oxygen, Chlorophyll-a, Backscatter @ 700 nm and Nitrate. During 2012, the research community used Argo profile data in at least 144 publications. About 233 drifters were deployed during the past year, and XBT Transects were continued. 67 tide gauges are active in the Indian Ocean region. Dr Ravi's report also included details of progress in process studies (eg such as the CINDY 2011/ DYNAMO study on the MJO and related ocean-climate dynamics).

Report from Sustained Indian Ocean Biogeochemistry and Ecosystem Research by Dr. Raleigh Hood, SIBER Co-Chair

Dr. Raleigh Hood, Co-Chair, SIBER presented the SIBER report. Dr. Hood overviewed the SIBER Science Plan and Implementation Strategy (SPIS) and updated members on the status of SIBER in India. The SIBER SPIS has now been reviewed, approved and published under IMBER & IOGOOS. Dr Hood described the SIBER themes within the SPIS and detailed three of the major areas of SIBER science activity (Remote Sensing, Modelling and In-situ observations). He emphasized the potential for leveraging existing IndOOS infrastructure for potential supplementation with biogeochemical observation. Dr. Hood also presented a SIBER program timeline for activity and achievement during the 2010-2020 period, including synergies that SIBER can promote, facilitate and develop with other ocean programs in the IO.

Report from IndOOS Resource Forum by Dr. Nick D' Adamo, IRF Convener

Dr. Nick D' Adamo, the new IRF Convener presented the IRF-3 report. Following endorsement by IRF, Dr Gary Meyers handed over the IRF Convener role to Dr Nick D'Adamo, Perth Regional Programme Office in support of UNESCO IOC, (PRPO), effective from January 1, 2012. Dr. Gary Meyers' fundamentally important strategic and tactical support to IRF in his founding role as IRF Convener was warmly acknowledged at the IRF-3 meeting. The update on the piracy issue for NW IO was highlighted and

discussed. It was noted that piracy incidents had dramatically reduces in the past 12 months, compared to the previous few years (2012 piracy incidents are at 15% of 2011 levels). It was felt that ocean science may soon be able to renew its former engagement in the NW IO. IRF agreed to write letters to IOR-ARC to (i) introduce IRF (and IOP, SIBER and IOGOOS) and its relevancies to IOR-ARC constituents, (ii) outline possible areas of cooperation with / through the IOR-ARC framework and (iii) seek dialogue and development of further strategic linkages between IRF and IOR-ARC during current Indian and future Australian Chairing tenures. IRF will support, through an endorsing letter, a proposed capacity building concept paper that relates to capacity building and delivery of benefits from IndOOS through the IOGOOS Pilot Project: *Modeling for Ocean Forecasting and Process Studies* (MOFPS) which is planned to be prepared and submitted by the IRF Convener to the GEF IW Division. IRF supports the concept of a Western IO Alliance to be led / facilitated by ASCLME and introduced to IOGOOS for consideration at this IOGOOS-9 meeting. IRF will continue to try to rationalize overall ship usage for IndOOS through continued efforts in joint planning, etc. IRF3 suggested examining POGO as a useful mechanism to facilitate this objective. IRF3 requested the Convener prepare a concept structure for a high-level review of IndOOS and its related projects (IOP and SIBER) for 2013. Work has begun on draft ToR, timelines, agenda, underpinning source materials needed, etc. The concept of a 50th anniversary effort to repeat the International Indian Ocean Expedition of the early 1960s was been discussed. The IO community and related ocean-observing stakeholders have endorsed the concept of IOGOOS championing and facilitating planning for a prospective IIOE-2. Raleigh Hood and Nick D'Adamo were endorsed by IRF3 to undertake some strategic thinking and early planning in this regard. It is planned to create an ad hoc 'coordinating committee' under IOGOOS and to bring the group together to plan an IIOE-2 that is further tabled for discussions at IOGOOS-9 meeting.

Report from Modeling for Ocean Forecasting and Process Studies (MOFPS) Project by Dr. Nick D'Adamo, Project Leader

Dr. Nick D' Adamo, the MOFPS Project Leader provided a status report on the MOFPS project. Dr. Nick presented on the initiation and evolution of the IOGOOS MOFPS project. Dr. Nick re-iterated the agreed demonstration areas for development of the regional models and the corresponding coordinating and leading organizations / countries leading each of the demonstration areas. Dr. Nick also overviewed the series of discussions and workshops held as part of the development of the project and which subsequently led to an invitation to submit a 2-page concept document on the project to the GEF International Waters Division. A MOFPS workshop was held during March 2012, under hosting by IOC Perth, funding from BoM Australia and with the participation of a good range of project members from IOGOOS stakeholder countries. Dr. Nick presented the report of the workshop in which the specifications of specific objectives for each demonstration area of the project were listed. These objectives vary widely depending on the state of readiness and capacity of respective stakeholder countries to engage in ocean forecasting and related modeling. The project is being set up to tailor effort according to each members' own respective needs and gaps in these fields. The workshop also derived a first estimate of funds needed for each demonstration area - estimated approximately at 5 million USD per demonstration area. Dr. Nick emphasized the merits of the IOGOOS Pilot Project's status moving to 'Project' Status. He posed the question as to whether IOGOOS should write to GEF and IOR-ARC in order to raise awareness about this concept of Capacity Building in the area of MOFPS through emphasizing the importance felt by the IOGOOS communities for societal benefit. Dr. Nick also provided a brief on the proposal recently submitted to AusAID of the Australian Government under AusAID program (with IOR-ARC endorsement), on the general theme of "Capacity Building to Progress, Validate and Apply Indian Ocean Forecasting Systems". The workshop, if funding is achieved, would be held in Australia and involve the invited participation of stakeholders from all IOR-

ARC countries. The workshop's objectives have been designed to harmonise with those of the IOGOOS MOFPS project. Dr. Nick ended his presentation by detailing the key objectives of this AusAID project.

Report from the IOGOOS Pilot Project: Indian Ocean Core Remote Sensing Project by Dr. T. Srinivasa Kumar, Project Leader

Dr. T. Srinivasa Kumar presented on the IOGOOS Indian Ocean Core Remote Sensing Project. He presented the history of the project in terms of its three component sub-projects, describing the three sub-projects have been amalgamated to form one consolidated project, using remote sensing as a unifying theme. He also indicated the identification of alternative project leaders due to discontinuation or inactivity of project leaders initially leading the sub-projects. Dr. Kumar mentioned that the projects on Keystone Ecosystems (KEY) and Monitoring of Shoreline Changes were not progressing well due to retirement or inactivity of the original project leaders. On this occasion, he recalled the decision taken at the IOGOOS-8 meeting on constituting an IOGOOS sub-committee to review and recommend on continuation or cessation of IOGOOS pilot projects and this issue tabled for the IOGOOS 9 meeting for discussion and decisions on the projects. Dr. Kumar, who also acts as a project leader for the sub-project on "chlorophyll-a mapping / ChloroGIN-IO", provided a progress report on the IO Core Remote Sensing sub-project. He recalled the decisions and appreciation made during the IOGOOS-7 meeting on the sub-project's progress. Dr. Kumar explained in detail the project components viz. Operational Remote Sensing, Insitu activities, related R & D and Capacity Building. Dr. Kumar described the process chain that has been established for generation and dissemination of various remote sensing products requested by the IOGOOS members. Dr. Kumar also informed on a number of new products viz. True Colour Composite, AOT869, CDOM index and TSM (Clark). These were added to the suite of existing products being disseminated to the member countries. Dr. Kumar further explained the insitu components and the observations being made as part of the project. Dr. Kumar also briefed members on the Harmful Algal Blooms (HABs) Information Service being developed with the usage of ocean colour data. Dr. Kumar also explained various capacity building initiatives undertaken with a view to provide benefits to IOGOOS member countries. Dr. Kumar also outlined future plans on (i) continuing to provide the project's products to IO member institutions (ii) development of new products / indicators, and (iii) capacity building for the participating member institutions in the area of time series measurements for core variables.

DISCUSSIONS ON IOGOOS PILOT PROJECTS

Wave forecasting updates and ocean hazards by Dr. Said Mazaheri, INIO

Dr. Said Mazaheri, INIO has made a presentation on the updates of Wave forecasting and ocean hazards program in Iran. Dr. Mazaheri outlined about the models being used in the centre, its methodology and results of the models. Dr. Mazaheri also briefed the plans for improving the forecasting accuracies and for the development of dissemination mechanisms of the products. Dr. Mazaheri informed, in response to a query on the availability of type of observing systems / observations stations in Iran, that weather stations were established and 07 buoys were in place, which are mostly not working due to vandalism. Dr. Mazaheri also responded with the awareness being conducted in collaboration with 03 local community organisations in order to build up the awareness on the usability of the wave forecast by fishermen community of the country. In response to another query on disaster preparedness of the local community, especially on the awareness of the people on signage points and assemblage points, etc to be used during the disaster events, Dr. Mazaheri mentioned that workshops are being conducted to teachers on educating the local community

regarding tsunamis, and information is distributed through various modes to the people. Dr. Mazaheri also mentioned that there were two major projects started towards reinforcing the structures at coasts.

Modeling for Ocean Forecasting and Process Studies

It was felt that this issue was adequately discussed prior to the afternoon tea break, and hence the report above is referred to. Dr D'Adamo did add however that the MOFPS project has been carefully considered and integrated into the overall design and objective setting of the proposal to AusAID (Australian Government) for an IOR-ARC endorsed workshop to build capacity in ocean forecasting and related modeling amongst IOR_ARC stakeholders, which of course overlaps closely with the IOGOOS member constituency.

Indian Ocean Core Remote Sensing Project

Dr. Kanthi Yapa provided a brief progress report on the ChloroGIN-IO component "Monitoring of HAB species in the Coastal Waters of India and Sri Lanka". This project is funded by the Nippon Foundation and POGO and was initiated in August 2012. As part of this, coastal waters in India and Sri Lanka will be monitored in the context of HAB's. Biological and chemical methods have been proposed for taxonomic and toxin characterization of HAB species. The project also proposes to use remote sensing and mathematical modeling approaches to further understand HAB dynamics at larger scales. Dr. Kanthi briefed members on the key objectives of the project: (a) study of dinoflagellate community structure with reference to HAB species and dissolved phytoxins in the coastal waters off India and Sri Lanka; and (b) use of remote sensing and bio-optical properties to understand HABs in this region. Dr. Kanthi also spoke about the variables measured, along with the networking and capacity building activities undertaken under the project. Dr. Kanthi ended her presentation by indicating the anticipated results of the project and an overview of the participating and coordinating members.

Plenary review of the status and viability of IOGOOS Pilot Projects - presentation by Mr Nagaraja Kumar

Mr. Nagaraja Kumar, Secretary, IOGOOS presented on the present status of the IOGOOS Pilot Projects. Dr. Kumar recalled the original basis of the formulation of projects targeted at making respective basin-scale and regional-scale contributions to the observing system and at addressing societally relevant coastal issues (eg shoreline change, coastal fisheries, ecosystem monitoring and health etc). The SOCIO workshop held in Perth, Australia during November 2000 identified themes under these general three areas. About 60 representatives from 16 countries in IO region met at SOCIO and agreed to formulate three pilot projects that (i) target high-priority phenomena of interest in coastal waters and (ii) require regional to global approaches in addition to the agreement to initiate planning to establish a network of coastal laboratories for data and information exchange. The SOCIO gathering agreed that each country would describe 2-3 phenomena that are accorded as the highest priority in the country in terms of their impact on the socio-economics of the countries in the region, and that might be feasible to tackle under pilot project status. Accordingly each participating country arrived at various high priority phenomena of interest to their respective constituencies. In light of country reports, phenomena of interest in coastal waters were further prioritized and planned for development as pilot projects – focusing on the respective areas of Coastal Erosion, Habitat/ Biodiversity and Sustainable fisheries. Accordingly, working groups were established for (i) Monitoring and Predicting Coastal Shoreline Change (ii) Multi-scale Monitoring and Mapping of Keystone Coastal Ecosystems and (iii) Development of a Monitoring and Management System for Penaeid Prawn Resources. The first two projects are progressing. The Penaeid Prawn project was recommended to

be discontinued at IOGOOS-5. Another project that subsequently emerged called "Enhanced Cooperation in Observations on Whale Sharks in the Indian Ocean" was also recommended for closure at IOGOOS-5 due to the reduced interest and capacity to engage by participating project members. During the 2006 IOGOOS annual meeting a new proposal on Remote sensing applications and Chlorophyll-a mapping was proposed. Since then and as part of this project, several training programmes under the umbrella of IOGOOS have been conducted. Daily images of various products as requested by the member countries are generated in near real-time and are made available to the IOGOOS Members. The *Chlorophyll-a project*, the *keystone coastal ecosystems project* and *monitoring of shoreline changes project* have subsequently been amalgamated (in 2008) as one project using remote sensing as a unifying theme. Dr. Kumar ended his presentation by noting two of the key challenges that have been noted as being associated with creating and implementing pilot projects and that have underlined the failure or poor progress in certain pilot projects: (i) lack of national focal points, and (ii) inadequate communication among the existing focal points. To properly assess the viability for existing pilot projects, it was suggested that: for projects that appear to remain important to respective members, national experts in each country be identified; that they involve themselves in their respective pilot project of interest as the national focal points for that project; that they review the methodologies and time-frames relevant for the projects, and that they revise the project proposals for submission to donor agencies.

IOGOOS MEMBERSHIP AND GOVERNANCE

Examination of overall IOGOOS membership. Development of a strategy to reactivate member engagement or replace inactive or resigning members. by Mr. Nagaraja Kumar, Secretary, IOGOOS

Mr. M. Nagaraja Kumar, Secretary, IOGOOS presented the status of the membership of IOGOOS. 26 marine institutes in the Indian Ocean region are members of IOGOOS. However, relatively few member institutes are actively and regularly involved in IOGOOS activities. The inactive members are Kenya Marine Fisheries Research Institute (KMFRI), Laboratoire ECOMAR, Universite de La Reunion, INAHINA, South African National Committee for IOGOOS, South African Institute for Aquatic Biodiversity, University of Port Elizabeth, Durban School of Life and Environment Sciences, Curtin University, Institute Halieutique & des Sciences Marines, Agency for Assessment and Application of Technology (BPPT), Indonesian Institute of Science (LIPI), Ministry of Marine Affairs and Fisheries and MERCATOR.

Mr. Kumar also outlined extensive inter-sessional efforts undertaken by the IOGOOS Secretariat and Officers to contact relevant IOGOOS member Directors / Heads of Department in order to seek confirmations or new nominations for IOGOOS member focal points. Mr. Kumar noted that no response was received from these member institutes. It was suggested that in general IOGOOS membership needs to be consolidated and enhanced. In this regard, IOGOOS was suggested to communicate the activities and applications to partner countries and users, for example in the areas of coral bleaching, circulation, sea level, hazards, etc. Dr. Nick suggested that IOGOOS needs to target institutions rather than individuals. It was noted that JAMSTEC requested associate membership of IOGOOS. The representative from the Maldives advised that the issue will be discussed with the higher officials in order to re-engage Maldives more closely in IOGOOS activities and to formally become a member. It was proposed and agreed that IOGOOS should send a letter to members to ascertain their membership status, and in that context, encourage them to better engage in IOGOOS or seek a clear understanding that they wish to resign from IOGOOS. It was also suggested that a strategic assessment be undertaken of existing and members and that potential new

members be identified and approached. It was also strongly suggested that all members of IOP, SIBER and IRF be members, by default, also of IOGOOS.

Discussions on possible re-organization of IOGOOS Governance Structure by Dr. T. Srinivasa Kumar, Acting-Chair, IOGOOS

Dr. T. Srinivasa Kumar, IOGOOS Officer and Acting-Chair of IOGOOS, presented on the possible revision of the IOGOOS governance structure. Dr. Kumar recalled the formation of IOGOOS, overviewed the current membership, discussed IOGOOS's founding aims and objectives, the current set of IOGOOS initiatives, and summarized the progress made to date under IOGOOS. He also pointed out the challenges being faced by IOGOOS such as maintaining and enhancing membership, members' participation across projects and governance, IOGOOS's limited resources, piracy as an impediment for IOP/SIBER activities and difficulties that have been experienced in trying to take forward pilot projects relating to coastal issues. Dr. Kumar also pointed to the lack of active engagement of key project stakeholders in the governance structure of IOGOOS. With these points in mind, the IOGOOS governance structure was then discussed in plenary. The current structure is shown in the Figure 1 below. Currently, IOGOOS consists of Members and Associate Members. IOGOOS Officers are drawn from Members of IOGOOS. The Officers are elected from the five regions viz. Central Indian Ocean, Indian Ocean Islands, Eastern Indian Ocean, East Africa and North Eastern Indian Ocean.

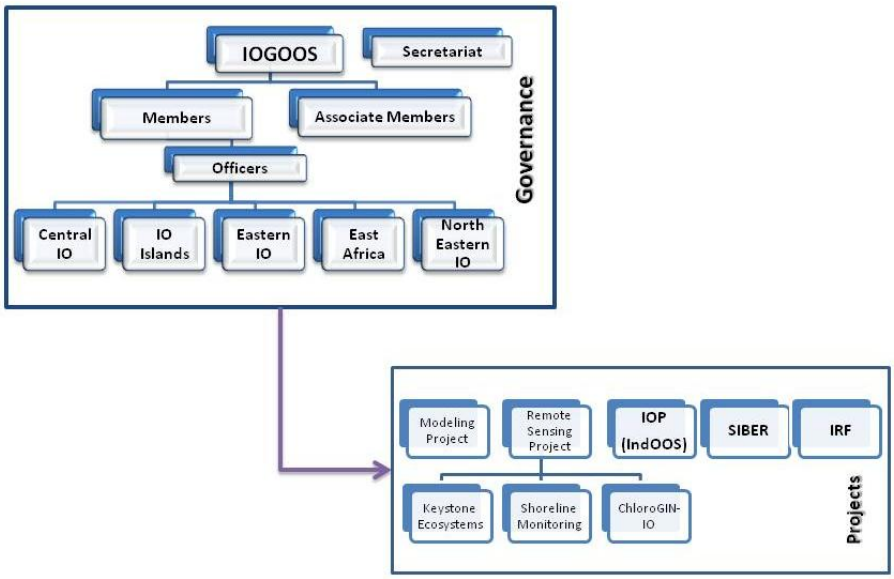

Figure 1: IOGOOS current organizational structure

After plenary discussion, it was proposed to re-organize the governance structure in such a way that the High Level Objectives of Intergovernmental Oceanographic Commission (IOC) of UNESCO are also considered. Keeping in view of the above, members proposed a governance structure, as shown in the Figure 2 below.

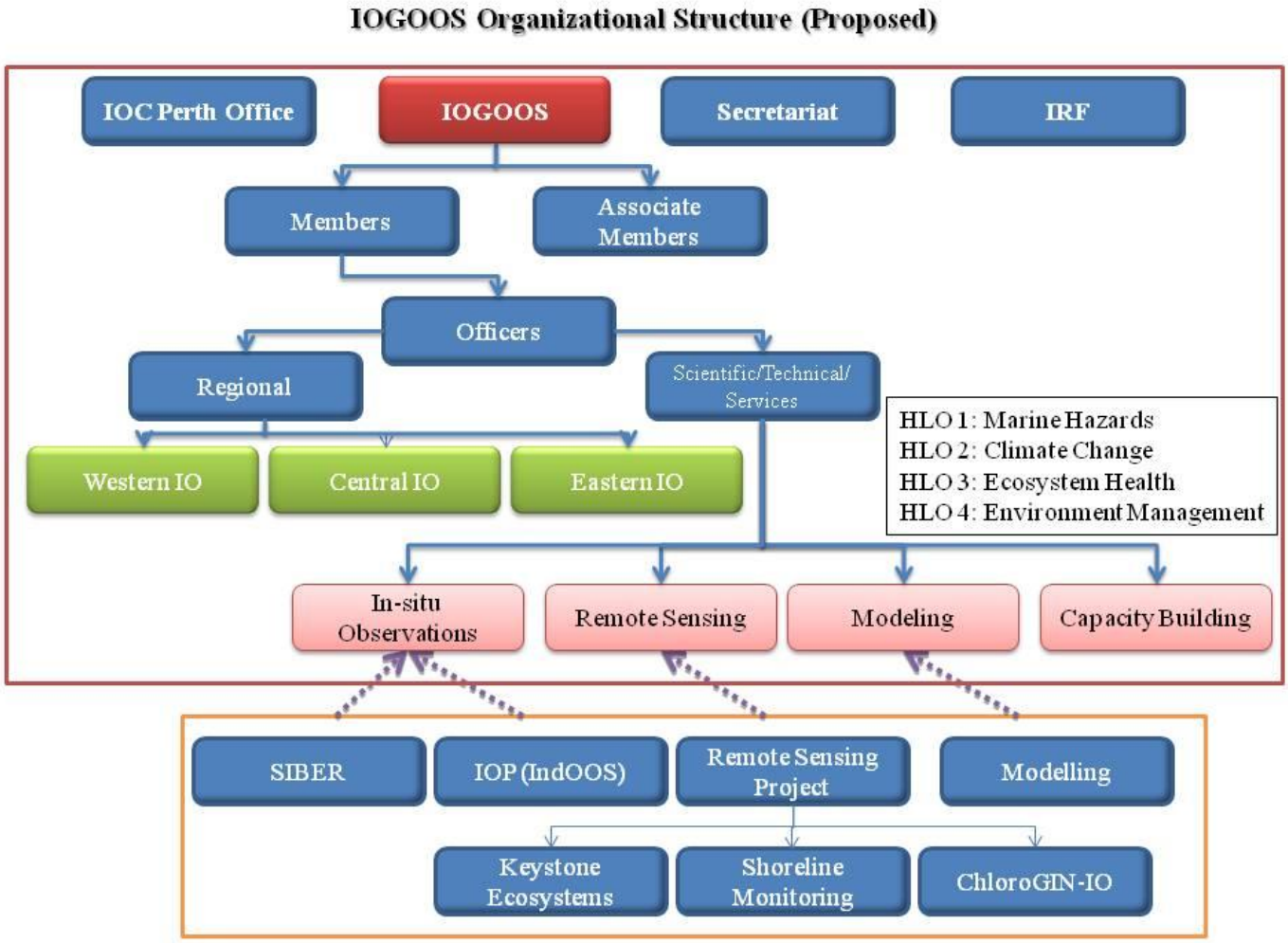

Figure 2: IOGOOS Proposed Organizational Structure

In the proposed IOGOOS Governance Structure, a Secretariat, IOC Perth Office and high-level IRF would support IOGOOS. IOGOOS would consist of Members and Associate Members. IOGOOS Officers would be elected from the Members of IOGOOS. Officers would be selected on the basis of either their regional representation and capacity to represent IOGOOS's interests or in the technical (eg scientific) and services/applications spheres of its mission. Accordingly, it was proposed that three Officers would be elected, from three distinct regions viz. Western Indian Ocean, Central Indian Ocean and Eastern Indian Ocean. The two additional Officers are proposed to be drawn from the technical / services spheres of IOGOOS. In keeping with the current IOGOOS priorities in these areas, it is a-priori proposed to elect two IOGOOS Officers from within the suite of IOGOOS projects viz. SIBER, IOP, Remote Sensing, and Modeling projects. As a starting point, to initiate the new governance structure, it was further proposed to request IOP and SIBER to nominate Officers for IOGOOS from their own respective memberships. This, in all, would then result in IOGOOS having five officers, respectively representing: (i) Western Indian Ocean; (ii) Central Indian Ocean; (iii) Eastern Indian Ocean; (iv) Scientific / Technical /Services (SIBER); and (v) Scientific / Technical / Services (IOP).

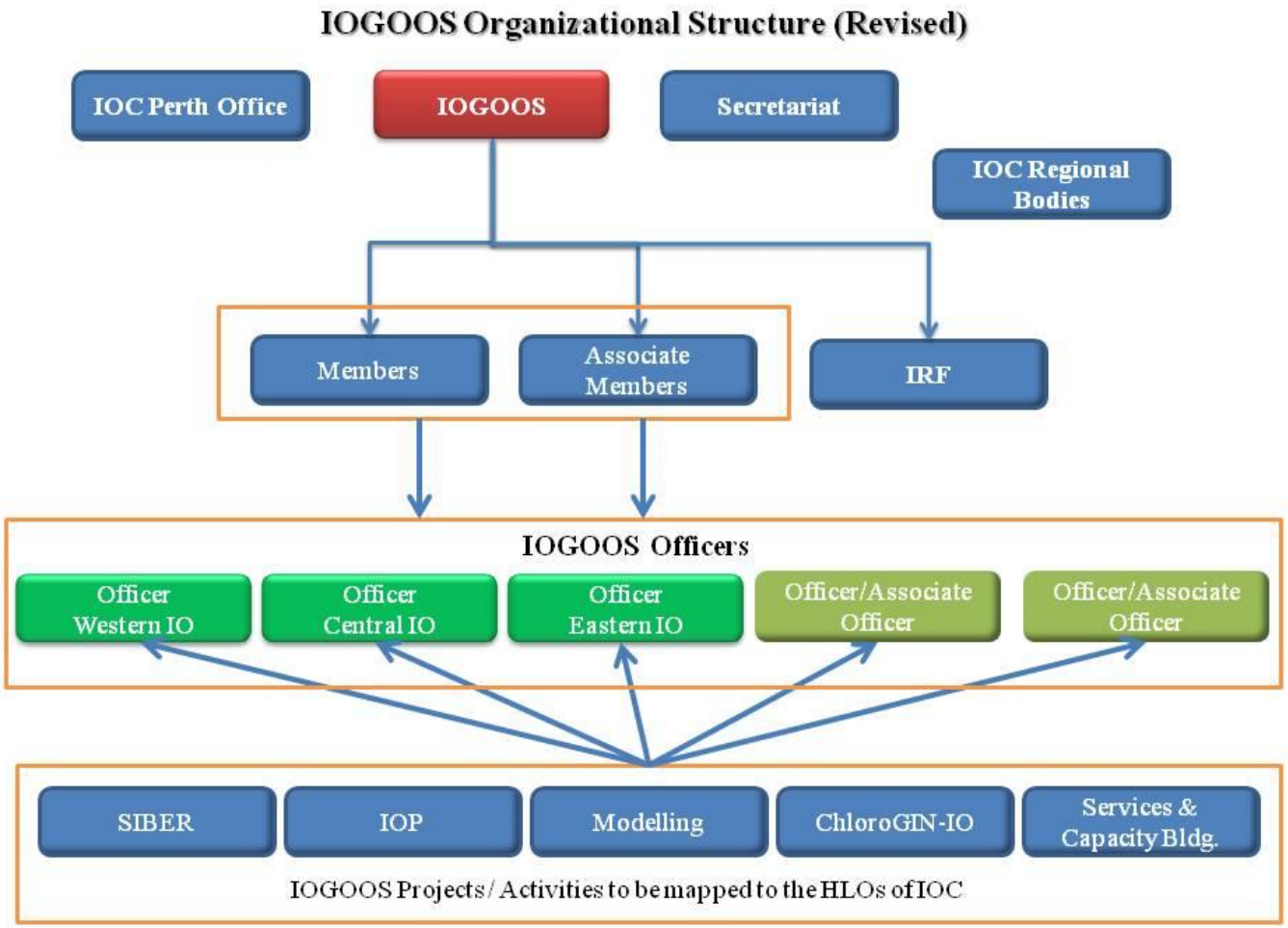

Figure 3: IOGOOS Revised Organizational Structure

Dr. Shailesh Nayak, Chair, IRF has conveyed his in principal acceptance to the proposed revised governance structure. However, it was suggested to keep in mind that IOGOOS's governance should always attempt to ensure the inclusion of scientists from IO member science/research institutions. For example, Dr. Shirayama suggested that IOGOOS could usefully explore potential officers from the various UNEP Regional Seas programmes in the IO (www.unep.org/regionalseas).

Discussions on structure of future joint IOGOOS / IOP/ SIBER / IRF meetings

Discussions were held on the organization structure of future meetings of IOGOOS, IOP, SIBER and IRF. It is proposed that these four groups should make it a high priority objective to meet in unison, to promote collegial interaction and demonstrate to the wider community the integrative nature and synergies between the science and societal applications and benefits of the institutional, governmental and scientific facets inherent in the IOGOOS 'family' of constituents. To this end, it was further agreed that the four groups would always aim to have a consolidated integrated meeting package of around 5 days duration, where IOP, SIBER, IRF and IOGOOS delegates meet in an integrated manner (allowing for joint and individual group meetings, as required for their respective individual and collaborative needs).

It was acknowledged by all that the actual detailed scheduling of the four groups' respective agendas would of course, depend on actual needs, logistical constraints and programmatic nuances from year to year, but as a starting plan, the following structure was suggested as a useful basis from which to base yearly meeting schedules on (Figure 4, below).

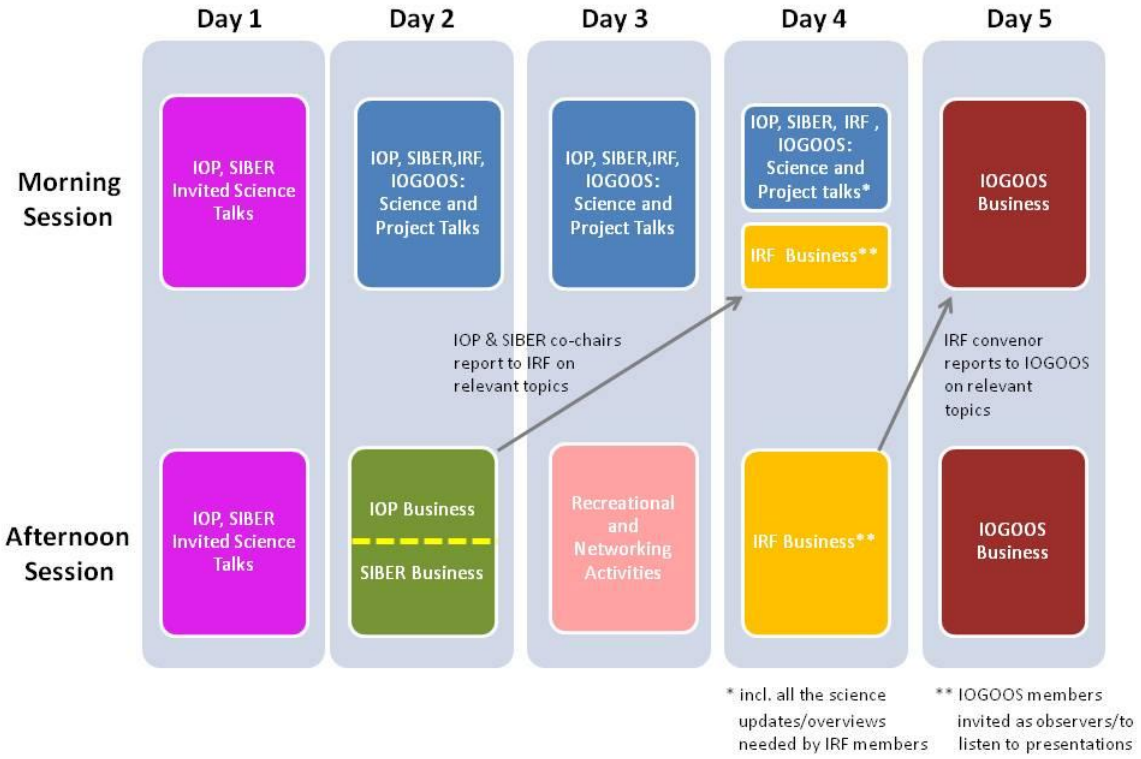

Figure 4: A starting framework structure for future joint meetings of IOGOOS, IOP, SIBER and IRF

ESTABLISHMENT OF STRATEGIC LINKAGES BETWEEN IOGOOS AND REGIONAL BODIES

IOC Africa Linkages with IOGOOS by Dr. Mika Odido, Coordinator, IOC Sub Commission for Africa and the Adjacent Island States

Dr. Mika Odido gave a brief presentation on linkages between IOC Africa and the IOGOOS community. It was emphasized that IOC Africa is keen to establish and strengthen its linkages with IOGOOS through the following.

- Participation of Western Indian Ocean institutions / countries in IOGOOS;
- Participation of IOC Africa in IOGOOS initiatives such as SIBER and IOP;
- Strengthening observations in the WIO region, including coastal observations;
- Participation of WIO countries in the proposed IIOE 50th anniversary celebrations and its activities; and

- Engaging in capacity development programmes such as those run under the JCOM/DBCP framework.

Dr. Mika Odido emphasized that IOC Africa would be able to engage and even coordinate the development of new initiatives and various other activities relevant to IOGOOS, with a view to strengthening ocean observing systems in the region and to facilitating related capacity building.

Southeast Asian Global Ocean Observing System (SEAGOOS) by Dr. Somkiat Khokiattiwong, SEAGOOS Coordinator

Dr. Somkiat presented an overview and update on SEAGOOS. Dr. Somkiat recalled that SEAGOOS's formation began at the IOC Workshop on the Establishment of SEAGOOS in the wider Southeast Asia Region held in Korea, August 2001, where a number of countries from the region agreed to the formation of SEAGOOS. Terms of Reference for the SEAGOOS Co-ordinating Committee were developed during the 5th International Session of the IOC Sub-Commission for the Western Pacific, September 2002. The operational guidelines for SEAGOOS were finalized during the 7th Intergovernmental Session of IOC / WESTPAC and suggestions were also made at the time for prospective SEAGOOSpilot projects to address issues including Sea Level and satellite applications relating to SST. The main components of the pilot projects included (i) development of observational and cruise programs in the region to serve operational oceanography and ocean & climate forecast objectives, (ii) capacity building for ocean observations, model development and analysis to serve identified needs of member countries, and (iii) data and information exchange/sharing among participating countries. Dr. Somkiat referred to the first SEAGOOS Pilot project that was developed in 2009: "Monsoon Onset Monitoring and Its Social and Ecosystem Impacts (MOMSEI)". The objectives of MOMSEI are (i) to enhance regional ocean observing capability, (ii) to address climate variability and change and (iii) to mitigate their potential risks in social and ecosystem sectors. Dr. Somkiat indicated that Asia, especially Southeast Asia, is vulnerable to climate related disasters such as drought and flood, which are mostly driven by anomalous monsoons and external forcings such as El Nino, IOD. Dr. Somkiat provided an overview of recent MOMSEI cruises and related capacity building initiatives conducted by SEAGOOS. Dr. Somkiat then provided detail on another recently established SEAGOOS Pilot Project relating to Ocean Forecast Demonstration (OFD), initiated with the participation of China, Thailand and Malaysia. Dr. Somkiat described the R & D, capacity building programmes, forecast products aspects of the project. Dr. Somkiat ended his presentation by outlining future plans for other activities planned under SEAGOOS.

Empowering Member States towards the Sustainable development of Marine and Coastal Resources by Dr. Somkiat Khokiattiwong, Chairperson, WESTPAC

Dr. Somkiat presented on the role of WESTPAC as a UNESCO focal point for ocean observations, ocean science, ocean services and data exchange in the region and the related NEA and SEA linkages of WESTPAC with respect to NEAR-GOOS and SEAGOOS. Dr. Somkiat referred again to the MOMSEI and OFD projects under SEAGOOS and their importance in the region. In this context, Dr. Somkiat also mentioned that WESTPAC has placed great importance to Capacity Building. Dr Somkiat referred to the development of UNESCO/IOC Regional Network of Training and Research Centers on Oceanography under WESTPAC. Through these, regular training has been provided over the past 2 years to developing countries focusing on countries' respective needs and interests. As mentioned above, to meet the long historical demand for capacity building in the SEA/NEA regions, a regional CB initiative called "IOC Regional Network of Training and Research Center on Marine Science" was established as a pioneering

initiative in IOC, representing the strong commitment of the Member States in the region to promote North-South and South-South cooperation, and providing valuable experience which could be shared with other regions. Following the Agreement signed by the First Institute of Oceanography, State Oceanic Administration of China, and IOC at the last WESTPAC Session (WESTPAC-VIII, 10-13 May 2012, Bali, Indonesia), the first IOC Regional Training and Research Center was officially inaugurated on 9 June 2011 with the first training course run from 10 to 16 June 2011 on ocean modeling. Furthermore, to better understand the biological, ecological and biochemical characters of harmful microalgae and events caused by them, the WESTPAC Harmful Algae Bloom project has organized regular training sessions since the 1980s. To now, more than 20 training sessions have been conducted. Dr. Somkiat also spoke about the IOC/WESTPAC International Scientific Symposia, underscoring WESTPAC's unique role as a multi-disciplinary platform for marine scientists to advance their scientific knowledge, catalyzing international and cross-disciplinary collaboration towards the improvement of management practices and decision-making processes for sustainable development of ocean and coastal resources. Dr. Somkiat ended with a briefing on ongoing and scheduled activities of WESTPAC.

The Southern Ocean Observing System (SOOS) by Dr. Nick D' Adamo

Dr. Nick D' Adamo presented of Dr. Tim Moltmann. The Southern Ocean's dynamical connections and relationships to other southern hemisphere was emphasized, with reference to it forming a key site of important water mass formation, driving the global ocean circulation, its capacity to absorb CO_2, its relationship to global sea level and its unique and vulnerable ecosystems. The formation of SOOS and the SOOS relevance to the user community in terms of providing new data and products was outlined. The mission of SOOS was given as "To establish a multidisciplinary system to deliver the sustained observations of the Southern Ocean that are needed to address key challenges of scientific and societal relevance, including climate change, sea-level rise and the impacts of global change on marine ecosystems". Dr. Nick listed the members of SOOS Scientific Steering Committee and outlined the SOOS Science Themes. To achieve the mission of SOOS, it integrate with many international / national programmes to (i) design and implement an observing system in the SO (ii) advocate and guide development of new technologies, (iii) unify current observation efforts and leverage further resources, (iv) integrate / communicate between nations, international and national projects, and across traditional disciplinary boundaries and (v) facilitate and develop a data system with seamless access to essential data and data products. The strategies employed, and progress thereof in achieving the above, were detailed. One of SOOS's key output goals is to develop a unified Southern Ocean data portal to enable easy access to relevant data and data products. This requires investment but it is believed that the investment will result in scientific and societal returns of significantly greater value.

IOGOOS Engagement in Celebrations of 50 years of IIOE

Dr. Raleigh Hood provided an update on a growing movement with an interest in celebrating the 50th anniversary of IIOE (IIOE-2). Dr Hood referred to existing proposals, including that of Prof Lynnath Beckley (Murdoch University, Australia; and SIBER Member) for a 2015 survey of the original IIOE 110° East line survey region, as discussed at the SIBER-2 meeting. Dr. Hood outlined the emerging plans to combine NIO's (Goa, India) own 50th anniversary (late 2015) and a SIBER Open Science Conference as contributions to a prospective IIOE-2 initiative. Dr. Hood also indicated that there is interest in the IOGOOS community (ie in IOP, SIBER and IRF) of considering a joint the NIO, SIBER, IOP, IRF and IOGOOS event for late 2015, so that all groups could meet in harmony and jointly contribute to a IIOE-2 relevant event.

Dr Hood ended by seeking IOGOOS's consideration of it 'championing' the prospective IIOE-2, with reference to the wide regional reach and IOC connectivity that IOGOOS has in the context of what an IIOE-2 might set out to achieve, both scientifically and in terms of societal benefit.

Discussions on ASCLME – WIO Alliance Resolution

Dr. Nick D'Adamo presented on a proposal to establish a Western Indian Ocean (WIO) alliance and the related proposed draft resolution for such submitted for IOGOOS's consideration by Dr Vousden of ASCLME. IOGOOS discussed this, examined the details of the draft resolution. Dr. David Vousden requested IOGOOS endorsement of the resolution. Dr. Andreas, Chair, IOGOOS and Dr. T. Srinivasa Kumar submitted that IOGOOS should support this alliance. In response to some members seeking clarification on whether the Alliance would lead to duplication of coordinating work already in place in the region, it was clarified that ASCLME is offering a form of Secretariat resources and that there is no intention to create duplication. A query was then raised on the mode of reporting proposed for the new alliance / in the present Governance structure of IOGOOS. The response was to invite IOGOOS to consider how it best wanted to see such reporting undertaken. With minor modifications, IOGOOS members were happy with the draft resolution, as attached at **Annexure 3.**

IOGOOS ANNUAL MEETING

Report by Acting Chairman, IOGOOS

Dr. T. Srinivasa Kumar, Acting Chair, IOGOOS welcomed the Members of IOGOOS and other invitees to the IOGOOS Annual meeting. Dr. Kumar briefed members on progress made by IOGOOS during the past.

Presentation of Secretariat Report

Mr. M. Nagaraja Kumar, Secretary, IOGOOS gave the IOGOOS Secretariat Report in which he presented details of actions taken against the items identified from the last annual meeting in addition to various activities carried out by the IOGOOS Secretariat, including preparation of IOGOOS VIII Annual report, planning and preparations for IOGOOS IX and various capacity building activities. The detailed actions that have been undertaken are attached at **Annexure 4.**

Accounts and Financial Summary

Mr. M. Nagaraja Kumar, Secretary, IOGOOS tabled the Statement of Accounts of IOGOOS for the period April 01, 2011 to September 30, 2012. The major sources of income and the expenditures incurred in organizing various IOGOOS workshops / meetings were listed. Dr. Alfonse Dubi, IOGOOS Officer, was nominated as scrutinizer of the accounts and financial summary tabled by the IOGOOS Secretariat. Dr. Alfonse Dubi verified the Receipts and Payments of Account for the period April 1, 2011 to September 30, 2012 and certified the correctness of the account. The certified Statement of Accounts of IOGOOS is provided at **Annexure 5.**

Confirmation of new memberships

Mr. M. Nagaraja Kumar, Secretary, IOGOOS informed the meeting that the Institute of Marine Sciences and Fisheries (IMSF), University of Chittagong, Bangladesh conveyed their willingness to become a Member of IOGOOS. The signed copy of the IOGOOS MoU by Dr. Ashraful Azam Khan, Director, IMSF,

University of Chittagong was tabled at the IOGOOS meeting for seconding / approving of this new Membership request. IOGOOS members were unanimously seconded and agreed to the membership of IMSF in IOGOOS. Members roundly welcomed IMSF as a new member.

Elections (Chair and Officer Positions)

The IOGOOS Secretariat had sent out a notification of positions vacant for IOGOOS Officers for the period 2012 – 2014. These notifications are attached at **Annexure 6.** Mr. M. Nagaraja Kumar, Secretary, IOGOOS tabled the nominations received (from Dr. Andreas Schiller, CSIRO, Australia for the position of IOGOOS Chair and from Dr. Rezah Badal, Mauritius and Dr. Kamal Tennakoon, Sri Lanka for the position of IOGOOS Officers).

It was proposed to elect the Officers in accordance with the revised governance structure proposed during the current meeting (see Figure 2, above). Dr. Andreas Schiller was unanimously elected as the new Chair, and in so doing will also represent Eastern Indian Ocean. Dr. Rezah Badal was elected as an IOGOOS Officer (representing the Western Indian Ocean). Dr. S Kumar retains his role as Officer, representing the Central IO region). Members now need to be sought for the positions of two more IOGOOS Officers, and members recommended that these be sought inter-sessionally through IOP and SIBER, respectively.

Next meeting date, venue and hosting – to be considered with joint input from IOGOOS, IOP, SIBER and IRF Chairs

The Annual meeting noted the kind hosting offers received from Dr. Weidong Yu, IOP Co-Chair, and Dr. Rezah Badal, MOI, Mauritius, for the next annual meeting. It was also noted that IOP, SIBER and IRF has already accepted a hosting offer by Dr. Weidong Yu (China/IOP) and plan to meet in Li Jiang, China, around mid-2013. With these advisories in mind, the IOGOOS Secretariat was requested to coordinate the process of venue/date selection for IOGOOS-10, inter-sessionally and with the facilitation of the IOGOOS Officers.

Concluding Session

The annual meeting ended with thanks and appreciation expressed to the retiring Officers Dr. Somkiat Khokiattiwong and Dr. Alfonse Dubi. The IOGOOS Chair, Officers, Dr. Nick D' Adamo and IOGOOS Secretariat warmly acknowledged and thanked the South African Weather Service (SAWS) and Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project office for their critical and dedicated underpinning support of the IOGOOS-9 meeting and it was noted that the related IOP, SIBER and IRF meetings also benefited greatly from SAWS's and ASCLME's facilitation. IOGOOS especially thanked Dr. Nick D' Adamo, Head, IOC Perth Regional Programme Office and IOC / UNESCO for their continuous technical and financial support towards the success of the meeting and for acting as the financial and local coordinating host for the IOGOOS-9 meeting.

ANNEXURE 1: AGENDA OF THE MEETING

IOGOOS Workshop and Ninth Annual Meeting (IOGOOS-IX)

October 19 – 20, 2012

Protea Sea Point Hotel, Cape Town, South Africa

Provisional Agenda

Thursday, October 18, 2012	
18:00 Hrs to 21:00 Hrs	Welcome Dinner hosted by UNESCO IOC Perth Regional Programme Office • Incorporating a networking opportunity with invited IOGOOS stakeholders from IOP. SIBER, IRF, the South African ocean observing and modelling community and the IOC Sub-Commission for Africa and Adjacent Island States.
Friday, October 19, 2012	
08:30 Hrs to 09:00 Hrs	Registration

09:00 Hrs to 09:30 Hrs	• Opening Ceremony:
	  ➢ Welcome Address by Dr. T. Srinivasa Kumar, Acting Chair, IOGOOS
	  ➢ Opening Remarks by Dr. Shailesh Nayak, Former Chair, IOGOOS and Chair, IRF
	  ➢ Opening Remarks by Dr. Somkiat Khokiattiwong, IOGOOS Officer (& Chair, IOC Sub-Commission for the Western Pacific)
	  ➢ Opening Remarks by Dr. Alfonse Dubi, IOGOOS Officer
	  ➢ Opening Remarks by Dr. Andreas Schiller, IOGOOS Officer
	  ➢ Opening Remarks by Dr. Nick D'Adamo, Officer in Charge, IOC-Perth Regional Programme Office
	• Organization of the Meeting (including confirmation of agenda and additional agenda items) by Dr. T. Srinivasa Kumar, Acting Chair, IOGOOS

09:30 Hrs to 10:30 Hrs	▪ Plenary science talks focusing on IndOOS / IOGOOS and related initiatives (15 minute presentations and 5 minute questions) – Chair: Dr. Shailesh Nayak ➢ Near surface circulation and downward ocean heat pumping induced by Tropical Cyclones in the Bay of Bengal by Dr. Weiqing Han, Member, Indian Ocean Panel (IOP) ➢ Basin wide Impact of the Indian Ocean Dipole on Biophysical Processes by Dr. Jerry Wiggert, Secretary SIBER ➢ DBCP In-Region capacity building workshops in the SW IO relevant to IOGOOS by Dr Sidney Thurston, Chair, DBCP Task Team on Capacity Building
10:30 Hrs to 11:00 Hrs	**Tea Break**
11:00 Hrs to 12:00 Hrs	▪ Plenary science talks (continued)... ➢ GODAE OceanView and related activities in the Indian Ocean by Dr. Andreas Schiller (GODAE OceanView Co-Chair) ➢ JCOMM linkages in the context of IOGOOS by Dr. Johan Stander, Co-President, JCOMM ➢ Persian Gulf – Persian Gulf and Gulf of Oman Oceanographic Study (PG-GOOS) by Dr. Vahid Chegini, Director, INIO
12:00 Hrs to 14:00 Hrs	**Lunch Break and Visit to S. A. Agullhas II**
14:00 Hrs to 15:30 Hrs	▪ Reporting to IOGOOS (15 minute presentations and 5 minute questions) – Panel of Chairs [IOGOOS, IRF, SIBER & IOP ➢ Report from the Indian Ocean Panel (IOP Chair) ➢ Report from Sustained Indian Ocean Biogeochemistry and Ecosystem Research (SIBER Chair) ➢ Report from IndOOS Resource Forum (IRF Convener) ➢ Report from Modeling for Ocean Forecasting and Process Studies Project (Project Leader) ➢ Report from the IOGOOS Pilot Project: Indian Ocean Core Remote Sensing Project IOGOOS (Project Leader)
15:30 Hrs to 16:00 Hrs	▪ **Tea Break**

16:00 Hrs to 17:30 Hrs	▪ Pilot Projects: general discussion in plenary (30 minutes)– Chair: Nick D'Adamo and Dr. T. Srinivasa Kumar ➢ Wave forecasting updates and Ocean Hazards by Dr. Said Mazaheri, INIO ➢ Modeling for Ocean Forecasting and Process Studies ➢ Indian Ocean Core Remote Sensing Project ▪ Chlorophyll-a Mapping Project ▪ Keystone Ecosystem Project ▪ Shoreline Changes Monitoring Project ▪ Plenary review of the status and viability of IOGOOS Pilot Projects by Mr. Nagaraja Kumar
SATURDAY, OCTOBER 20, 2012	
09:30 Hrs to 10:30 Hrs	▪ IOGOOS Membership and Governance – Chair: Dr. Andreas Schiller ➢ Examination of overall IOGOOS membership. Development of a strategy to reactivate member engagement or replace inactive or resigning members by Mr. M. Nagaraja Kumar ➢ Discussions on possible re-organization of IOGOOS Governance Structure by Dr. T. Srinivasa Kumar ➢ Discussions on structure of future joint IOGOOS / IOP / SIBER/ IRF meetings
10:30 Hrs to 11:00 Hrs	Tea Break
11:00 Hrs to 12:30 Hrs	▪ Establishment of strategic linkages between IOGOOS and regional bodies – Chair: Dr. Nick D'Adamo ➢ Talk by Dr. Mika Odido,Coordinator, IOC/ UNESCO South Africa ➢ Talk by Dr. Somkiat Khokiattiwong, Chairman, SEAGOOS ➢ Talk by Dr. Somkiat Khokiattiwong, Chairperson, WESTPAC ➢ Talk by Dr. Tim Moltman on Southern Ocean Observing System (presented by Dr. Nick D' Adamo) ➢ IOGOOS Engagement in Celebrations of 50 years of IIOE ➢ Discussions on ASCLME – WIO Alliance Resolution
12:30 Hrs to 14:00 Hrs	Lunch Break

14:00 Hrs to 16:00 Hrs	IOGOOS Annual Meeting. Chair, Dr. T. Srinivasa Kumar ➢ Report by Acting Chairman, IOGOOS ➢ Presentation of Secretariat Report ➢ Accounts and Financial Summary ➢ Confirmation of new memberships ➢ Elections (Chair and Officers positions) ➢ Next meeting date , venue and hosting - to be considered with joint input from IOGOOS, IOP, SIBER and IRF Chairs ➢ Any other final items
16:00 Hrs to 16:30 Hrs	Concluding Session
18:00 Hrs to 21:00 Hrs	Closing Dinner Reception by UNESCO IOC Perth Regional Programme Office

ANNEXURE 2: LIST OF PARTICIPANTS OF IOGOOS IX

Tentative List of IOGOOS IX Participants
October 19 – 20, 2012
Cape Town, South Africa

Sl. No.	Country	Name and Address of the Participant
1.	ASCLME	Dr. David Vousden, Regional Director, Agulhas and Somali Current Large Marine Ecosystems Project, ASCLME House, 18, Somerset Street, PBag 1015, Grahamstown, 6140, South Africa. Cell: +27-(0)79-038-6802 Office: +27-(0)46-636-2984 Fax: +27-(0)46-622-6621 Email: david.vousden@asclme.org
2.	Australia	Dr. Andreas Schiller, Senior Principal Research Scientist, Marine CSIRO Marine and Atmospheric Research - Hobart Castray Esplanade Hobart TAS 7000, Australia Phone: +61 3 6232 5300 Email: Andreas.Schiller@csiro.au
3.	India	Dr. Shailesh Nayak, Secretary, Ministry of Earth Sciences, Chairman, IndOOS Resource Forum, Ministry of Earth Sciences, Govt.of India, Prithvi Bhavan, IMD Campus, Opp. India Habitat Centre, Lodi Road, New Delhi – 110003, INDIA Tel: 0091 40 24629771 / 24629772 Fax: 0091 40 24629777 Email: secretary@moes.gov.in
4.	India	Dr. Sateesh Shenoi, Director, Indian National Centre for Ocean Information Services (INCOIS), 'Ocean Valley', Pragathi Nagar BO, Nizampet SO, Hyderabad-500054, Andhra Pradesh, India Tel:0091 40-23895000 Fax: 0091 40 2389 5001 Email: shenoi@incois.gov.in
5.	India	Dr. M. Ravichandran, Head, Modelling and Ocean Observations Group (MOG), INCOIS & Co-Chair, IOP, Pragathi Nagar BO, Nizampet SO, Hyderabad-500054, Andhra Pradesh, India Tel:0091 40-23895004 Fax: 0091 40 2389 5001 Email: ravi@incois.gov.in
6.	India	Dr. T. Srinivasa Kumar, Head, Advisory Services and Satellite Oceanography Group (ASG), INCOIS & Officer, IOGOOS, Indian National Centre for Ocean Informaiton Services (INCOIS), 'Ocean Valley', Pragathi Nagar BO, Nizampet SO, Hyderabad-500054, Andhra Pradesh, India Tel:0091 40-23895006 Fax: 0091 40 2389 5001 Email: srinivas@incois.gov.in
7.	India	Dr. Satya Prakash Scientist, Ocean Sciences and Information Services Group (ISG) & Executive, SIBER IPO, Indian National Centre for Ocean Information Services (INCOIS), "Ocean Valley", Pragathi Nagar (BO); Nizampet (SO); Hyderabad - 500 090, India. Email: satyap@incois.gov.in, satya29prakash@gmail.com Phone No.: 0091 040 23886093(Off.); 23894922(Res.); Mob: 0091 9492856218
8.	India	Mr. M. Nagaraja Kumar, Secretary, Indian Ocean Global Ocean Observing System (IOGOOS) & Scientist In-charge, PFZ Mission, Indian National Centre for Ocean Informaiton Services (INCOIS), 'Ocean Valley', Pragathi Nagar BO, Nizampet SO, Hyderabad-500054, Andhra Pradesh, India Tel:0091 40-23895013 Fax: 0091 40 2389 5014

		Emaill: raja@incois.gov.in ; raja.masuluri@gmail.com
9.	IOC/ Africa	Dr. Mika Odido Coordinator, IOC Sub Commission for Africa and the Adjacent Island States, UNESCO Regional Bureau for Sciences in Africa, UN Gigiri Complex Block C, P.O. Box 30592 00100 Nairobi, Kenya Tel: +254 20 7621244 Email: m.odido@unesco.org
10.	IOC/Perth	Dr Nick D'Adamo Head- Perth Regional Programme Office of the IOC, UNESCO c/- Bureau of Meteorology 5th floor, 1100 Hay Street (corner of Harvest Tce), West Perth 6005, Western Australia. Ph (direct) +61-8-92262899 or (reception) +61-8-92632222 Fax +61-8-92260599 Email nick.d'adamo@bom.gov.au
11.	Iran	Dr. Ahmad Taghdimi, Head of Cultural and Educational Affairs Budget Department, President Deputy Strategic Planning and Control of IR. Iran, Safi Ali shah St., Baharestan square, Tehran, 1149943141, IR Iran. Tel: 0098 2133271
12.	Iran	Dr. Said Mazaheri Assistant Professor of Offshore Engineering, Invited Lecturer, Faculty of Engineering, IUST, Head of Ocean Engineering and Technology Research Center (OETRC), National Institute for Oceanography No. 3, Etemadzadeh, Fatemi Garbi Tehran, Iran Tel. & Fax: +98 21 66566962 Email: said.mazaheri@gmail.com, said.mazaheri@inio.ac.ir
13.	Japan	Dr.Weidong Yu, First Institute of Oceanography, State Oceanic Administration, Qingdao 266061, China. E-mail: wdyu@fio.org.cn
14.	Maldives	Dr. Abdulla Naseer Permanent Secretary Ministry of Fisheries and Agriculture Velaanaage, Ameer Ahmed Magu, Male'- 20096, Republic of Maldives Tel: (960) 3322625; Fax: (960) 3326558, Email: abdulla.naseer@fishagri.gov.mv
15.	Mauritius	Dr. Rezah Badal, Officer-In charge, Mauritius Oceanography Institute France Centre, Victoria Avenue Quatre-Bornes, Mauritius Voice : (230) 427 4434 Fax : (230) 427 4433 Email: rezahmb@moi.intnet.mu
16.	South Africa	Mr Johan Stander, Regional Manager, Western Cape, Northern Cape, National Marine Service, Antarctica and Islands South African Weather Service, Head Office P O Box 21, Cape Town International Airport Cape Town 7525, South Africa Telephone: + 27 (21) 934-0450 Fax: + 27 (21) 934-4590, E-mail: johan.stander@weathersa.co.za
17.	Sri Lanka	Prof. Kanthi K. A. S. Yapa Department of Physics University of Ruhuna Matara, Sri Lanka. Email: kanthi@phy.ruh.ac.lk
18.	Tanzania	Prof. Dr Desiderius CP MASALU Director, Institute of Marine Science, University of Dar es Salaam, PO Box 668, Mizingani Road, Zanzibar, TANZANIA Phone: +255 24 2230741/2232128 Fax: +255 24 2233050 Email: director@ims.udsm.ac.tz
19.	Tanzania	Prof. Alfonse M. Dubi Deputy Vice Chancellor - Planning, Finance and Administration The Nelson Mandela African Institute of Science and Technology Nelson Mandela Rd., P.O. Box 447 ARUSHA, TANZANIA

		Tel.: +255-27-2970003 Direct line Fax: +255-27-2970016, Cell.: +255-786-198-740, +255-754-462-417, Email: alfonse.dubi@nm-aist.ac.tz
20.	Thailand	Dr. Somkiat Khokiattiwong, Chair, SEA-GOOS, Phuket Marine Biological Center, Thailand Department of Marine and Coastal Resources, 51, Dhidate Road, P.O. Box 60, PHUKET, 83000 THAILAND Tel: +66 76 391128; Fax: +66 76 391127, Email: skhokiattiwong@gmail.com
21.	USA	Prof. Raliegh Hood, Chair-SIBER, Professor, Horn Point Laboratory, University of Maryland, PO Box 775, Cambridge, MD 21613 Tel: 410-221-8434 Fax: 410-228-3890 Email: rhood@umces.edu
22.	USA	Dr. Jerry Wiggert, Secretary, SIBER, Assistant Professor, Dept. of Marine Sciences, Univ. of Southern Mississippi, 1020 Balch Blvd. Stennis Space Center, MS 39529-9904, Tel: 228-688-3491 / 228-688-3177 (Dept.), Fax: 228-688-1121 Email: jerry.wiggert@usm.edu

ANNEXURE 3: DRAFT RESOLUTION ON ASCLME – WIO ALLIANCE

DRAFT JOINT RESOLUTION FROM INDIAN OCEAN PANEL, INDIAN OCEAN OBSERVING SYSTEM RESOURCES FORUM, IOGOOS AND SIBER

Cape Town, 15th – 20th October 2012

The 9th Annual meeting of the Indian Ocean Global Ocean Observing System

The 9th Annual meeting of the CLIVAR/IOC-GOOS Indian Ocean Panel

The 3rd Annual meeting of the Scientific Steering Committee for the Sustained Indian Ocean Biogeochemistry and Ecosystem Research of IMBER/IOGOOS

The 3rd Annual Meeting of the Indian Ocean Observing System Resources Forum

The participants to the aforementioned 2012 integrated meetings have noted the advances within the Western Indian Ocean over the last decade in relation to building a better understanding of the Large Marine Ecosystems of this region, the ocean-climate drivers that are the foundation to these ecosystems, their living marine resources, the goods and services that they provide to coastal communities and to the overall socioeconomic welfare of the region, and the challenges that relate to the long-term management and sustainability of those goods and services.

The participants have also noted the progress made by the Agulhas and Somali Current Large Marine Ecosystems Project in building partnerships to promote the sustainable management and shared governance of WIO ecosystems for present and future generations through the development and endorsement of a Strategic Action Programme for the Sustainable Management of the Western Indian Ocean Large Marine Ecosystems.

The Participants recognize the adoption by the 28th Session of the Joint WMO/IOC-UNESCO Data Buoy Cooperation Panel in Fremantle, Australia (26th October 2012) of a recommendation to 'Establish a Western Indian Ocean Science Alliance to be led by the Agulhas-Somali Current Large Marine Ecosystem (ASCLME)'. Within this context the Participants noted that it would be more appropriate to recognise ASCLME as facilitating the establishment of an Alliance rather than leading it.

The Participants therefore recognize the overall need for an Alliance of partners working within the WIO region to commit themselves to cooperating in the monitoring of the Large Marine Ecosystems of this region and to assisting in building better capacity within the institutions of the region to undertake such monitoring.

The Participants further recognize the importance and necessity to translate scientific data and knowledge into management advice and policy guidelines within an ecosystem–based governance mechanism

Within this context, the Participants request the ASCLME Project to facilitate the following activities on their behalf and within the context of a Strategic Action Programme for the Sustainable Management of the Western Indian Ocean Large Marine Ecosystems:

1. To negotiate and enable a formal Alliance of scientific partners and collaborators working within the region, based on existing bilateral agreements between ASCLME and other parties.

2. To work closely with these partners, with the countries of the region and with the intergovernmental organisations to formulate and adopt a 5-year Ecosystem Monitoring and Science Programme for the region.

3. To identify the specific areas of cooperation and responsibility that each of these Alliance partners can agree to adopt as part of this 5-year Ecosystem Monitoring and Science Programme.

4. To identify the gaps and needs that are highlighted within such an Ecosystem Monitoring and Science programme in relation to such cooperation and responsibility and to further identify existing or new partners that can address these gaps and needs.

5. To develop a 5-year Programme for Capacity Building and Training and to identify potential partnerships within the Alliance to deliver such a Programme at both the national and regional levels.

6. To develop a Science-Based governance mechanism that can translate the results of scientific studies, research and monitoring into reliable management guidelines and policy advice for the countries of the region.

7. To identify a long-term coordination and reporting mechanism to support this process within the region that is sustainable beyond the finite lifetime of such projects as the ASCLME Project.

The Participants request that this facilitation process be undertaken with due consideration to, and consultation with, any other existing coordination mechanisms in the western Indian Ocean region.

The Participants further request that the ASCLME Project report progress on the above activities to the appropriate coordinating bodies and meetings of IOGOOS, IOP, SIBER and IRF from time-to-time and at formal meetings of these bodies.

ANNEXURE 4: IOGOOS SECRETARIAT REPORT

IOGOOS Workshop and 9th Annual Meeting (IOGOOS-IX)
October 19 – 20, 2012 at Cape Town, South Africa
Agenda Item (ii) of the Annual Meeting

Action Taken report from IOGOOS Secretariat Report

Sl. No.	Item	Status / Progress
1.	**IOGOOS Annual Meeting**	
1.1	IOGOOS VIII Annual Report	• Two Delegates (Thailand and Tanzania) were supported for participating in the IOGOOS VIII Annual meeting through sponsorship from IOC Perth Regional Programme Office. • Finalised and circulated the IOGOOS VIII Annual Report in collaboration with Officers and IOC Perth Office.
1.2	Conduct of IOGOOS IX	• Notification, Invitations, Agenda, and Mobilization of funds for IOGOOS IX delegates participation. • Funding from IOC Perth Office (USD 18,000) to partially / fully sponsor 09 delegates.
2.	**Capacity Building**	
2.1	NF-POGO	• A Training programme on "Application of ocean colour remote sensing in Primary Productivity and Ecosystem Modeling" was conducted at INCOIS, Hyderabad and Andhra University, Visakhapatnam, India during February 05 – 26, 2012 in collaboration with NF-POGO, Andhra University and NIO-RC, Visakhapatnam. Representatives from Kenya, Indonesia, Tanzania and Yemen from the IO rim countries were facilitated in the programme. • INCOIS

3.	**IOGOOS Projects**	
3.1	Secretariat was requested to coordinate a process for review of all IOGOOS projects through the formation of an IOGOOS Project Review Group. The group is to comprise five IOGOOS members. The group is to undertake its work in a systematic and timely manner ahead of the next IOGOOS meeting and report its recommendations at IOGOOS-IX in the form of a project assessment report. The report is to make clear recommendations as to which projects to continue with, which to cease and which require further information for possible continuance.	• The Review committee to be constituted by IOGOOS Officers. Action has been initiated. However the project members are not active and no response was reported to the Project Leaders. Hence, tabled for discussions for the IOGOOS IX meeting.
3.2	IOGOOS Secretariat to contact IMS, Tanzania to request for an alternative nomination due to the retirement of Dr. Greg Wagner from the group.	Action Completed. Director, IMS, Tanzania has nominated Dr. Charles Lugomela, a Senior Lecturer at the Department of Aquatic Sciences and Fisheries, College of Natural and Applied Sciences, University of Dar es Salaam, Tanzania
3.3	IOGOOS Secretariat to circulate the draft project document on the KEY project and Shoreline Changes project to focal points from participating countries and IOGOOS-VII working group participants, requesting their active engagement in the project or for appropriate nominations of alternative member. IOGOOS Secretariat to obtain and update contact details of members from the participating countries	Action partially completed. Secretariat has sent a invitation email to all the members of Shoreline Changes project and sought their active participation and/ or for nomination of alternative expert.
4.	**Governance**	
4.1	IOGOOS Secretariat to reflect the new elected positions in its communications and communicate to all the members	• Action Completed

4.2	IOGOOS Members	• Bay of Bengal Large Marine Ecosystem (BOBLME), a project of FAO, has joined IOGOOS as Associate Member. • Sultan Qabbus University, Sultanate of Oman has been communicated about the acceptance of the change in nomenclature.
4.3	IOGOOS Secretariat will coordinate an opportunistic side meeting at the forthcoming 25th IOC Assembly meeting (IOC25) (21 June to 6 July 2011) in Paris if there is the possibility of making the same advocacy in person to appropriate national representatives who may be present at the IOC25 meeting	• Could not able to arrange the side meeting.
5.	**Finance**	
5.1	Membership Fees for 2009-10	• Requests are to be sent to the Members for remittance of the Annual Membership fee for the period 2010-11. Contacts are to be established for few member countries as the original signed dignitaries are not available.
5.2	Audit	• Completed Financial Accounting and Audit for the Period July 2010 – February 10, 2011). • Statement of Account is being submitted for verification and approval. The status is attached as Annexure – 2. Will be tabled as Agenda Item xi of the Annual Meeting

Specific actions with respect to IOP, SIBER, Modelling and Remote Sensing project initiatives will be presented by the respective project leaders

ANNEXURE 5: IOGOOS SECRETARIAT FINANCIAL STATEMENTS

INDIAN OCEAN GLOBAL OCEAN OBSERVING SYSTEM (IOGOOS)
"OCEAN VALLEY", PRAGATHINAGAR (BO), NIZAMPET (SO), HYDERABAD – 500 090, INDIA

Receipts and Payments Account for the year ending 31st March 2012

Receipts		Amount Rs.	Payments		Amount Rs.
Opening Balances:			Refund of unspent balance of IOGOOS 8th Annual Meeting held at Tehran, Iran during Feb 22-24, 2011 to IOC Perth Regional Programme Office, Bureau of Metrology, Australia	5,23,678.00	5,53,678.00
i) Andhra Bank, Pragathi Nagar Branch, Hyderabad, Account No. 171410100022355		3,00,794.00			
ii) Andhra Bank, Pragathi Nagar Branch, Hyderabad, Account No. 171410100022346		14,81,297.00			
			Audit Fee for F.Y.2006-2011	30,000.00	
Subscription from Members:		3,36,849.00			
Foreign Contributions	1,78,171.00		Bank Charges:		84.00
Domestic Contributions	1,58,678.00		Foreign Contributions Savings Account at Bank	56.00	
			Domestic Contributions Savings Account at Bank	28.00	
Interest received from Savings Accounts at Banks		41,237.00			
			Closing Balances:		
			i) Andhra Bank, Pragathi Nagar Branch, Hyderabad, Account No. 171410100022355		4,38,449.00
			ii) Andhra Bank, Pragathi Nagar Branch, Hyderabad, Account No. 171410100022346		11,67,966.00
Total		**21,60,177.00**	**Total**		**21,60,177.00**

Certified
Prof. A.M. Dubi
IOGOOS Officer
20th Oct. 2012

(S.NAGESWARA RAO)
Accounts Officer

(K.K.V.CHARY)
Senior Administrative Officer

M. Nagaraja Kumar 11/10/12
(M NAGARAJA KUMAR)
Secretary, IOGOOS

Place : HYDERABAD
Date : 11-10-2012

INDIAN OCEAN GLOBAL OCEAN OBSERVING SYSTEM (IOGOOS)
"OCEAN VALLEY", PRAGATHINAGAR (BO), NIZAMPET (SO), HYDERABAD – 500 090, INDIA

Receipts and Payments Account for the year ending 30th September 2012

Receipts	Amount Rs.	Payments	Amount Rs.
Opening Balances:			
i) Andhra Bank, Pragathi Nagar Branch, Hyderabad, Account No. 171410100022355	4,38,449.00		
ii) Andhra Bank, Pragathi Nagar Branch, Hyderabad, Account No. 171410100022346	11,67,966.00		
		Closing Balances:	
Sponsorship for IOGOOS 9th Annual Meeting received from IOC Perth Regional Programme Office, Bureau of Metrology, Australia	9,59,069.00	i) Andhra Bank, Pragathi Nagar Branch, Hyderabad, Account No. 171410100022355	4,46,035.00
		ii) Andhra Bank, Pragathi Nagar Branch, Hyderabad, Account No. 171410100022346	21,48,907.00
Interest received from Savings Accounts at Banks	29,458.00		
Total	**25,94,942.00**	**Total**	**25,94,942.00**

Certified
Prof. A.M. Dubi
IOGOOS Office
20th Oct 2012

(S.NAGESWARA RAO)
Accounts Officer

(K.K.V.CHARY)
Senior Administrative Officer

M. Nagaraja Kumar 11/10/12
(M NAGARAJA KUMAR)
Secretary,IOGOOS

Place : HYDERABAD
Date : 11-10-2012

ANNEXURE 6: NOTIFICATION OF IOGOOS CHAIR AND OFFICER POSITIONS

Notification for the position of IOGOOS Chairman and Officers

Rules for Nomination of IOGOOS Chair / Officers:

- The Officers should be broadly representative of the regions of the Indian Ocean. viz. Central Indian Ocean, East Africa, Eastern Indian Ocean, Southern Africa and Indian Ocean Islands
- Officer shall serve in an individual capacity for a period of 2 years, up to a maximum of two terms. With the unanimous agreement of all members, in exceptional cases, an Officer can be extended for a further term of 2 years.
- If an Officer does not attend two consecutive Annual Meetings, the position of that Officer will be considered vacant and an election will be conducted for the position.
- If an Officer resigns, the position shall remain vacant until the next Annual Meeting. However, if the Chair is unable to serve, one of the Officers will be nominated by the Officers, to act as a Chair, till next Annual Meeting.
- IOGOOS Secretariat shall notify to all Members about the vacancies of the posts (Chair / Officers) and request nominations from members for the position of Chair of IOGOOS and for other Officers three months prior to the Annual Meeting.
- In the event of more nominations than vacant Officer Positions, an Election Return Officer, who is not a voting Member, shall be appointed, to oversee the election. Each member shall have a number of votes equal to the number of vacancies.

IOGOOS Chair and Officers: The following is the status of the Tenure of Chair and Officers of IOGOOS:

Term	2002 - 2004	2004 - 2006	2006 - 2008	2008 - 2010	2010 - 2012	2012-14	Representation
Chair	Dr. K. Radhakrishnan	Dr. K. Radhakrishnan	Dr. Shailesh Nayak	Dr. Shailesh Nayak	Dr. Mitrasen Bhikajee, Mauritius – Stepped down during 2011. **Later:** Nominated Dr. T. Srinivasa Kumar, IOGOOS Officer as Acting Chair	**Vacant**	Indian Ocean Islands
Officer	Dr. Johnson	Dr. Johnson	Dr. Alfonse Dubi	Dr. Alfonse Dubi	Dr. Alfonse	Three terms	East Africa

	Kazungu	Kazungu			Dubi	were completed and became **Vacant**	
Officer	Prof. Anthony Forbes	Prof. Anthony Forbes	Dr. Somkiat Khokiattiwong	Dr. Somkiat Khokiattiwong	Dr. Somkiat Khokiattiwong	Three terms were completed and became **Vacant**	North Eastern
Officer	Dr. Harry Ganoo	Dr. Mitrasen Bhikajee	Dr. Mitrasen Bhikajee	Dr. Mitrasen Bhikajee	Dr. T. Srinivasa Kumar, INCOIS, India	**Eligible for second term**	Central Indian Ocean
Officer	Dr. Neville Smith	Dr. Neville Smith	Dr. Neville Smith	Vacant	Dr. Andreas Schiller, CSIRO, Australia	**Eligible for second term**	Eastern Indian Ocean

- Dr. Mitrasen Bhikajee was unable to serve as Chair, IOGOOS due to his resignation at MOI, Mauritius and in his new role in IOC.
- Dr. Alfonse Dubi and Dr. Somkiat Khokiattiwong representing the East Africa and North Eastern region, respectively have completed three terms of two years and the positions are now vacant.
- Dr. T. Srinivasa Kumar and Dr. Andreas Schiller representing Central Indian Ocean and Eastern Indian Ocean respectively are eligible for Second term as IOGOOS Officers.

- Nominations are invited from interested Members for the position of IOGOOS Chair in place of Dr. Mitrasen Bhikajee and two vacancies of IOGOOS Officer to replace Dr. Alfonse Dubi and Dr. Somkiat Khokiattiwong.

ANNEXURE 7: ACTION ITEMS OF THE MEETING

- ✓ IOGOOS was suggested to communicate the activities and applications to partner countries and users, for example in the areas of coral bleaching, circulation, sea level, hazards, etc.
- ✓ IOGOOS to consider the request of JAMSTEC to become Associate Member
- ✓ IOGOOS should send a letter to members to ascertain their membership status, and in that context, encourage them to better engage in IOGOOS or seek a clear understanding that they wish to resign from IOGOOS
- ✓ IOGOOS to request IOP and SIBER for the nominations of IOGOOS Officers from their own respective memberships
- ✓ IOGOOS Secretariat was requested to coordinate the process of venue/date selection for IOGOOS-10, inter-sessionally and with the facilitation of the IOGOOS Officers


TEL
N T
ROTEA HOT
EA POIN