

Brief Technical Report on

**Integrated meetings of IOGOOS 14 annual meeting and
its allied program meetings at Jakarta, Indoensia**

March 18 – 23, 2018

Introduction

The IOGOOS 14th annual meeting was successfully held at Jakarta, Indoensia under the theme of “International Indian Ocean Science Conference – 2018” during March 18 – 23, 2018. The meeting was held in conjunction with its allied projects Indian Ocean Panel (IOP), Sustained Indian Ocean Biogeochemistry and Ecosystem Research (SIBER), Indian Ocean Observing System (IndOOS) Resources Forum (IRF) and International Indian Ocean Expedition (IIOE-2) Steering Committee meetings. The detailed agenda of these integrated meetings is provided at **Annexure 1**. The IIOE-2 SC meetings were held during the first three and half days followed by the business meetings of IORP, SIBER, IIOE-2 Data and information Management Workshop and the IndOOS Review Meeting. The IOGOOS 14th Annual general body meeting was held on the last day where all the sub-groups have reported back to IOGOOS with the progress on the respective activities.

IOGOOS 14th Annual Meeting:

The IOGOOS 14th annual meeting was representated by the member countries from India, Indonesia, IOC, Madagascar, Mauritius, USA and other observers. Dr. Ken Antaro, JAMSTEC is representing Prof. Shirayama to present the concerns with regard to IRF. Dr. S. S. C. Sheno, Chair, IOGOOS welcomed all the members and recollected the IOGOOS

Dr. Rezah Badal, in his opening remarks, thanked INCOIS and IOGOOS secretariat for the support extended and mentioned that the Indian Ocean is benefitted from the presence of IOGOOS in the region, especially with its new activity of IIOE-2. Dr. Badal opinioned that the other avenues of interest that IOGOOS can play a role in complete marine spatial plan for every country that is possible only through the access of the data for which the ocean observations are important.

Dr. Atmanand, Member of IOGOOS and Chair, IOCINDIO mentioned that the IOCINDIO is in infancy state and will continue to interact with the IOGOOS. Dr. John Bemiasa, Madagascar briefed the members about the status of the ocean observing system in Madagascar and the new programs and projects taken up towards improving the ocean observing system. Dr. Bemiasa mentioned that the Madagascar would like to take part in all IOGOOS activities and the IIOE-2.

Dr. Nick D’Adamo, in his opening remarks thanked the IOGOOS secretariat and India for providing the resources required for hosting of the meeting as well as to carry out the secretariat activities.

Reporting to IOGOOS:

The chair and co-chair of IORP and SIBER were making the presentations at the IndOOS Review meeting, as the IOGOOS 14th annual meeting is preponed, they couldn't able to join the meeting. However Dr. Nick D'adamo has carried their words and the reports from the respective groups were sought out of session.

Report from IORP: The main activity of IORP over the past year or so has been to lead a Decadal Review of the Indian Ocean Observing System (IndOOS), convening two 2-day workshops, in Perth (Feb 2017) and Jakarta (March 2018) with over 20 speakers and chapter authors, including SIBER panel members, and an invited board of six expert reviewers.

The main product of the review will be a list of Actionable Recommendations that will guide IndOOS into the next decade so that it can successfully provide sustained observations to (i) advance our understanding of key phenomena, (ii) track the evolving state of the ocean, (iii) support calibration and validation of satellite missions, and (iv) improve forecasting and predictions of climate variability and change.

While the final report is not anticipated until early 2019, some of the imperatives for implementation and resources have become clear through the first draft and review process. Namely, an expansion of the tropical array (RAMA) into the Arabian Sea, biogeochemistry measurements basin-wide (BGC-Argo), with emphasis on oxygen minimum and upwelling zones, and an observing system in the subtropics to capture Indian Ocean heat and nutrient budgets, including enhanced monitoring of the Indonesian Throughflow, Agulhas, and Leeuwin Currents.

Report from SIBER: The SIBER has several updates in terms of its membership and executive committee as well as improved version of the SIBER website hosted at INCOIS, Hyderabad. The SIBER website was updated with the write-up's on SIBER, its linkages, responsibilities and timeline, data portal, meeting reports, etc. The India National SIBER program initiated by Dr. Wajih Naqvi and funded by Ministry of Earth Sciences has strong national participation with 6 projects on open ocean cluster and 8 projects on estuaries and coasts cluster. India's national SIBER program was funded for more than few years and the program now has come to an end. The New program MOSAIC: Marine Observation System Along Indian Coast is being established by INCOIS with the aim of establishing sustained coastal observatories to monitor and understand the coastal processes for now-casting and forecasting water quality. The SIBER SSC has been working on various review papers based on the SIBER science plan research themes. SIBER also exploring the hot topics in Indian Ocean biogeochemical and ecosystem research as potential new SIBER research themes / initiatives / proposals / papers and list of such hot topics was listed.

SIBER biogeochemical sensors were deployed in Indian Ocean at three sites viz. BOBLME CO₂ and pH at RAMA Bay of Bengal Flux Reference Site (November 2013), Pilot deployment of a Fluorometer and backscatter sensor at the EQ, 80°E Mooring and Fluorometer and backscatter sensor was deploy at 26°S, 97° E (September 2012). It was also

updated to IOGOOS that as part of the joint Indian –Australian project, led by Nick Hardman-Mountford, Australia and M. Ravichandran, India, Bio-Argo deployments were made in the Northern Indian Ocean and in the Southern Indian Ocean with sensors such as Temperature, salinity, fluorescence, oxygen, nutrients. Many interesting results were emerged. SIBER's major focus is towards 2nd International Indian Ocean Expedition and exploring the ship of opportunities and collaborations under IIOE-2 proposals to make the SIBER BGC measurements.

Report from IndOOS Resource Forum: Dr. Nick D'Adamo tabled three issues viz IRF Members' issues, SIBER's and IORP's submission with regard to the need for assistance, facilitation, and resources for IndOOS and BGC measurements. These submissions were taken as read by IRF. The specific submissions from IORP and SIBER will be submitted by the respective project leaders to IRF Convener after the IndOOS review meeting and Dr. Nick will be following up the same. Dr. Nick indicated that there was a strong interest to revitalize the IRF Membership. It was recalled that the IRF Members are leaders of operational institutions from which many scientists from IORP and SIBER derive. IRF was created (2010) for pragmatic reasons to benefit IORP and SIBER (and related IndOOS objectives) – including addressing piracy, support for RAMA (it had, at the time of IRF inception, been only 20-30% implemented). In fact, IRF was seen as a useful forum to provide IORP and SIBER with a mechanism to advocate annually to their own operational constituents (ie their respective members' host institutions involved in ocean science operations) for support (eg for IndOOS and related research). Operationally and practically, the role of IRF as a forum for advocacy for resources was seen as the key an imperative.

With regard to the IRF Chairing, it is recalled that under Dr. Shailesh Nayak as first chair, IRF achieved much in first few years. IRF representatives attended the annual IRF meetings in person during first 3-4 years. Then they began to meet out of session. Then there was a natural decline in members' engagement. Last year, IRF Members (full, associated, ex-officio) discussed, whether they felt we still needed the IRF. Yes was the resounding response – albeit everyone thought it could continue to meet out of session – as it was believed it could still achieve its aims without necessarily requiring IRF members having to spend valuable time travelling etc for annual ½ - 1 day meetings. At IORP-8, in light of the IndOOS Review, IORP (and this reflected SIBER's views also) wanted the IRF to be reconstituted and for membership to be renewed. IOC PPO is tasked with reinvigorating IRF. IOC PPO seeks IOGOOS's support to collate suitable IRF membership in conjunction with SIBER and IORP to reinvigorate / reconstruct membership. The chairs of IORP and SIBER indicated that they will present their requests to the reconstituted IRF once it is formed.

Dr. Ken Ando (on behalf of IRF Member from Japan) asked how it was proposed to reconstitute the IRF. Dr. Nick D'Adamo, on behalf of SIBER / IORP indicated that he would draft a proposal for consideration by the IRF Current membership. Dr. Rezah Badal sought information on the criteria that would be used for the reconstitution of IRF. Dr. Nick D'Adamo indicated that the current criteria for membership were still valid – where essentially the IORP and SIBER members source nominations for IRF Membership, in line

with the fact that it is for their own needs that Membership should be chosen. The constitution of a renewed IRF membership is tasked to IRF convener to be taken up by end of June 2018. Dr. Shenoi, Chair, IOGOOS thanked IRF Convener Dr. Nick for helping to revitalize the IRF and sought the convener's help in focusing IRF's work updating its sToR, consolidating its formal structure and processes (eg. in calling for resource needs proposals / submission for IORP and SIBER and having those proposals submitted well ahead of each year's meetings so that action is possible in response to them). Dr. Ken noted that the TPOS Resources Forum (in comparison to IRF) was quite formal in nature, but that he felt the IRF could remain less formal without necessarily needing face to face meetings.

Dr. Shenoi agreed, noting that the IndOOS and IRF had been in operation now for many years, had worked effectively, and hence we can build on what we have, rather than make major changes. Dr. Nick pointed out that in the early years of IRF, the then Convener Dr. Gary Meyers was paid by IOC PPO for the role, but with budget limitations these days, less is possible. IOC PPO has taken the role on (Convener). Albeit with less budget, much can still be achieved via IRF. Dr. Ken, in response to current budgetary limitations, indicated that he felt (as he believed some others did) that there seems to be many groups operating in the Indian Ocean marine space with seemingly overlapping objectives (eg IOGOOS, IOCINDIO, IORP, SIBER, IRF etc). He asked whether there could be synergies, amalgamations etc. Dr. Nick responded (with his own opinion and perspective) acknowledging it is understandable why this may seem the case. But Dr. Nick pointed out that in adjacent regions (eg IOC WESTPAC, there were still many similar alliances and projects groups, but it is just that they (in terms of visibility and naming) were more embedded under the over-arching WESTPAC structure, but that nonetheless they also existed in operational terms as somewhat distinct groups, akin to what we see in the Indian ocean. Furthermore, the reality is that the family of respective IO groupings does in fact have many objectives that are principally related to their own missions, but with collegial overlap with other IO groupings.

Report on the status and progress of IIOE-2: Dr. Nick has briefed IOGOOS about the status of the IIOE-2 and indicated the following salient recommendations from the recent meetings of the IIOE-2 executive core group.

- 1) Confirmed that there will be a major IIOE-2 science symposium in late January / early February 2020. India agreed to host; probably in Goa; IIOE-2 science will be showcased; conjoint meetings will be held with IIOE-2 SC, IORP, SIBER, IOGOOS and IRF. The event will act as a forum to highlight scientific achievement of the IIOE-2, acting as a platform to consider and likely launch IIOE-2 as a continuing program into the next decade. This was in the context of IIOE-2 not only achieving greater benefit for society in its own right, but also as a prospective important contribution to the now proclaimed (6 Dec 2017) UN Decade of Ocean Science for Sustainable Development 2021-30.
- 2) There has been agreement that as a natural revision of governance in IIOE-2, consideration should be given to rationalizing the overall framework of Science Themes and Working Groups in IIOE-2, to make the framework more efficient and

targeted. Having gauged practicalities and how best to operate those, IIOE-2 SC suggested a rationalization, from 13 entities down to perhaps 9 or 10. The memberships of those existing groups will be embedded into the new structure.

- 3) It was also confirmed that the IIOE2- SC should meet (as it does annually) again in early 2019, with the venue hopefully (host offer and associated resources notwithstanding) in the Western IO. Some possible localities mentioned were South Africa, Mauritius, Seychelles, with Perth and Indonesia as back-ups if required.

Dr. Rezah Badal indicated that there are about 30 endorsed projects under IIOE-2 and it would be good to highlight the 4-page brochure as an output for IOGOOS too.

Report from the Modeling for Ocean Forecasting and Process Studies Project: Dr. Nick D'Adamo. Reported that there was no progress in MOFPS this past year due to lack of budget to reconvene the MOFPS constituency following the earlier successful series of gatherings/workshops and resulting reports. However, in the past 5 years many new ocean forecasting systems/models have emerged and the IO community can access these quite readily (ref GODAE OceanView). IOC PPO will continue to provide facilitation as required for the MOFPS constituency, and will keep trying to find resources to revitalize the workshops etc that characterized the earlier efforts in MOFPS. Dr. Shenoi suggested that a proposal be prepared to IORA to conduct a training workshop to train IOGOOS members in modeling / ocean forecasting, and that India can be the host (ie in Hyderabad / INCOIS where the ITCOOcean facility resides and where the prospective next UNESCO Cat II Center will be based). Dr. Rezah Badal indicated that he would scope this out with the IORA Secretariat that is based in his country (Mauritius).

Report from the Indian Ocean Core Remote Sensing Project: Mr. Nagaraja Kumar initiated the discussions and indicated that Dr. T. Srinivasa Kumar was the project leader and presently he left INCOIS due to his new role at ICG/IOTWS Secretariat. There is a need to replace his position. Mr. Nagaraja briefed that the remote sensing products for various countries (as sought by respective countries earlier) are still being continued and the same can be accessed from INCOIS Website. IOGOOS secretariat to send email to all members about the project status and their interest.

IOGOOS 14th Annual General Body Meeting:

Dr. Shenoi, Chair IOGOOS has presented his report to the annual meeting. The chair has participated in the GOOS annual meeting and Dr. Nick and Dr. Venkatesan, representing IOGOOS, have participated at the 8th GOOS Regional Forum meeting held at Singapore during September 5-7, 2017. It was brought to the notice that IOGOOS Chair (Dr. Shenoi) would be taking up the role of vice chair from 2018 onwards. The Chair also mentioned that IOGOOS is participating in the IIOE-2 SC core group meetings being held every two months.

Dr. Sidney Thurston expressed that we need to see how active is IOGOOS relative to other GOOS alliances and what did we take home from Singapore, as far as activity, formal

structure, process is concerned. Dr. Shenoi responded that activity-wise IOGOOS is more active within the Indian Ocean, where as other GOOS RAs are more visibility and participation in various projects, wherein the IOGOOS pilot projects are dormant with no focal point to take forward and interest from the member countries. Dr. Ken also responded stating that SEA-GOOS is operational and collecting the data and seeking the pilot studies only.

Accounts and Financial Summary of IOGOOS by Secretariat: Mr. Nagaraja Kumar has presented the accounts and financial summary of the IOGOOS accounts. He briefed the details of expenditures made and the income for the past one year. He requested Chair to nominated an officer for verification of the accounts and approve it. Chair nominated Dr. Rezah Badal and after verification of the accounts and statement of expenditures, Dr. Rezah has approved the same.

Confirmation of Membership: Mr. Nagaraja Kumar, Secretary, IOGOOS has mentioned that there were no new membership requests.

Election of Officers: Mr. Nagaraja Kumar, Secretary has indicated that one position fell vacant during the last annual meeting and the secretariat was tasked to fill the position out of session. Secretary briefed that two member countries shown interest during the last annual meeting held at Perth have not come forward and indicated their unwillingness to take up the role. Hence, the position is still vacant. Chair mentioned that as there is no full quorum of member institutes, the filling up of position may further be taken up out of session by the Secretariat.

Discussion on amendment of IOGOOS MoU: Mr. Nagaraja Kumar briefed about the interest shown by Department for Continental Shelf, Maritime Zones Administration & Exploration, Prime Minister's Office, Mauritius to join IOGOOS as member. However, it was requested that the word "Ministries" and "Departments" could be included in the Article 1: Creation of IOGOOS of IOGOOS MoU to facilitate the signing of their department. The members have agreed to the amendment. The secretariat can revise the same in the MoU and inform the members.

Discussion on merger of IRF into IOGOOS: Elaborate discussions were held on this and keeping in view of the interests and requests by the IORP and SIBER groups on revitalizing the IRF, no merger of IRF is proposed.

Discussions o ODINCINDIO: It is recollected that IOGOOS has recognized ODINCINDIO as a tool for the capacity building on data management for IOGOOS region. IODE is supporting IOGOOS for its Capacity building on data management through ODINCINDIO, it was clarified that ODINCINDIO is still part of IODE only. Mr. Pattabhi has briefed that during last year's IODE meeting in Malaysia, keeping in view of the coming IIOE-2 activities and ITCOOcean center, it is recommended that ODINCINDIO can be continued. IOGOOS also welcomed the same.

Discussions on Membership Fees: Mr. Nagaraja Kumar briefed that as per MoU, each member institute has to pay US\$ 500 per year towards the membership and it was noticed that most of the members are not responding to the membership payment requests due to change in the initial focal points or individuals no more working in the same position, etc. Chair has requested the secretariat to keep updating the details of the focal points and send the individual invoices, instead of the email communication alone. It was briefed that the secretariat is regularly trying to update and could able to bring few members back where as some are not responding at all and in some member countries, there is lack of information on whom to contact alternatively.

The next meeting venue is to be finalized with joint inputs from IOGOOS, IORP, SIBER, IRF and IIOE-2 chairs.

While concluding, IOGOOS Chair was requested to write a letter of thanks to Prof. Shirayama from Japan, who has served as an active member of IRF and who (via Dr. K. Ando) has indicated that he will be stepping down also requested to seek advice from Prof. Shirayama on a replacement member. Chair thanked all the members and concluded the meeting.

Financial Report:

Most of the delegates found their own source of funding towards their participation. IOC/UNESCO through its Sub-Commission for Africa has agreed to sponsor USD 18000 towards these integrated meetings. The sponsorship was utilized towards funding of 08 delegates to participate in the integrated meetings of IOGOOS, IOP, SIBER, IRF and IIOE-2 SC. IOGOOS Secretariat, through the host institute INCOIS, has made a contract with IOC/UNESCO Sub-Commission for Africa towards the above. IOGOOS Secretariat has provided the sponsorship amount to the delegates in the form of reimbursements towards their return air tickets, Daily Subsistence Allowance (DSA) and Registration Fees. UN Operational Rates for available at <http://treasury.un.org/operationalrates/OperationalRates.aspx> were used for conversion of foreign currency. An amount of USD 14356.34 was credited to the IOGOOS Secretariat account against the transfer of USD 14400 transferred by IOC UNESCO towards first installment. An amount of USD 16219.50 was spent towards the reimbursement to the delegates for their participation in the IOGOOS meetings and towards the bank charges incurred. The additional expenditure of USD 1863.16 need to be reimbursed by IOC/UNESCO office. The list of the delegates participated with the IOC/UNESCO sponsorship and break-up of amounts reimbursed to individuals delegates were provided at the Annexure 2 below. The Utilization Certificate, Statement of Expenditures and the supporting bills & receipts were also being submitted.

Acknowledgements

The IOGOOS Secretariat greatly acknowledges IOC/UNESCO for sponsoring the integrated meetings of IOGOOS. We also would like to place on record the great support extended by

IOC Perth Programme Office, IOC/UNESCO Sub-Commission for Africa and its staff towards facilitating this sponsorship. The IOGOOS Secretariat also thanks and appreciates government of Indonesia and their colleagues for hosting this important meeting and for providing the local support.

International Indian Ocean science conference

IOGOOS-13/IOP-13/SIBER-7/IRF-7 Bio-Argo and IIOE-2 SC Integrated Meeting Schedule

Perth, Australia. Mon 30 Jan to Sat 4 Feb, 2017

Co-Hosts: UWA (Ref Chari Pattiaratchi), IOC PPO / BoM (Ref Nick D'Adamo, Louise Wicks)

REVISED - 091216

Date	Meeting/Event
Mon 30 Jan 2017 0830-1700	IndOOS Review Workshop: IORP/SIBER/IOGOOS/IRF –solicited review talks on IndOOS components, new observing technologies, hot IOP & SIBER science questions <ul style="list-style-type: none"> - Invited expert talks (30 minutes, 10 minutes question/discussion)
Mon 30 Jan 2017 1715-1800	Formal Opening & Welcome Short welcoming speech from: <ul style="list-style-type: none"> - Dignitaries (TBC) - Co-hosts IOCPO & UWA - Co-sponsors: CSIRO, BoM, WA Government and IOC Traditional welcome to country
Mon 30 Jan 2017 Evening	Ice-breaker Cocktail Function
Tue 31 Jan 2017 0830-1730	IndOOS Review Workshop: IORP/SIBER/IOGOOS/IRF –solicited review talks on IndOOS components, new observing technologies, hot IOP & SIBER science questions <ul style="list-style-type: none"> • Invited expert talks (30 minutes, 10 minutes question/discussion) Inc. Separate SIBER business session (0830-1130)
Tue 31 Jan 2017 1900 -2100	IRF-7 Annual Meeting (incl. leadership of IOGOOS, IOP and SIBER) as Dinner meeting with WebEx/Video conference option
Wed 1 Feb 2017 0835-1530	IOP/ SIBER/IOGOOS joint strategic discussions around IndOOS review
Wed 1 Feb 2017 1600-1730	IOP and SIBER Business meetings
Wed 1 Feb 2017 Evening	Joint Dinner – IOGOOS/IOP/SIBER/IRF & IIOE-2 Steering Committee
Thurs 2 Feb 2017 0800-1100 (includes working tea)	IOGOOS-13 Annual Meeting (to incl. leadership of IOP, SIBER and IRF).
Thurs 2 Feb 2017 0900-1030	IIOE-2 SC Parallel Prep discussions: <ul style="list-style-type: none"> - Science Theme group

	- Working Group group
Thurs 2 Feb 2017 1100-1730	Formal start IIOE-2 Steering Committee meeting
Fri 3 Feb 2017 Full day	Bio-Argo workshop Objective: To collaborate with the IO ocean observing community on the results of the AISRF Bio-Argo project and international developments towards a global Biogeochemical-Argo network in the context of the future development and operation of a Biogeochemical-Argo network as a component of IndoOOS. Participants: Bio-Argo Australia and Indian research team, invited early career researchers and key experts from IO / Biogeochemical Argo observing community (invited participants from SIBER, IOP, IOGOOS, IRF).
Fri 3 Feb 2017 0900-1730	IIOE-2 SC Meeting – cont. from Thursday
Fri 3 Feb 2017 Evening	IIOE-2 SC Dinner - TBC
Sat 4 Feb 2017 0900-1730	IIOE-2 Steering Committee meeting – cont. from Friday

Annexure 2

Break-up of sponsorship amount reimbursed to the delegates participated in the IOGOOS 14th meeting

(Amount in USD)

Sl. No.	Delegate Name	Airfare	Registration Fees	DSA	Deductions in DSA	Reduced DSA	Total (Rounded off)
1.	Peter Dexter	1152.29	92.08	310	100	210	1454.00
2.	Cyndy Chandler	1450.21	238.97	1085	225	860	2550.00
3.	Jaona Bemiasa	2096.47	138.14	620	150	467	2702.00
4.	Rajan Sivaramakrishnan	586.469	276.24	1085	250	835	1698.00
5.	Riaan Cedras Brinley	957.28	230.2	930	225	705	1892.00
6.	Venkata Shesu	592.495	143.86	620	150	470	1206.00
7.	Rezah Badal	1544.13	230.2	930	225	705	2479.00
8.	Diane Erecg	790.35	276.24	1395	250	683.1	1749.00
		9169.69		6975		4938.1	15730.00

Conversion Rates as per UN Exchange rates: 1 USD = 13679 IDR; 1 USD = 64.89 INR; 1 USD = 1.278 AUD