

IIOE-2 STEERING COMMITTEE MEETING NO. 5

Held virtually, 21 – 25 March 2022

Hosted by the IIOE-2 Joint Project Office (JPO) Nodes
(respectively at INCOIS India and IOC Perth Programme Office
Australia)

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Draft Meeting Minutes

Version: 26 March 2022

For review by the IIOE-2 SC5 participants

A copy of the agenda and the presentations/reports (linked in the agenda) delivered during the meeting can be accessed via the meeting website portal:

<https://iioe-2.incois.gov.in/IIOE-2/SC5.jsp>

The minutes are in *italics* throughout the flow of the agenda below.

These minutes present an account of the meeting, reflecting significant and substantive points or issues interpreted to have arisen from associated questions and discussions on the agenda items, including the presentations.

A list of participants is provided in **Appendix 1**. A list of consolidated action items is provided in **Appendix 2**.

Copies of the full presentations/reports are available from <https://iioe-2.incois.gov.in/IIOE-2/SC5.jsp> or through the JPO (India).

Period: March 21-22, 2022

Time: 1030 – 1500 Hrs UTC

Provisional Agenda

Sl. No.	Time (in UTC)	Agenda Item	
Day 1: March 21, 2022			
1.	1030 – 1045 Hrs	<p>Welcome by Co-Chairs (5 mins each)</p> <ul style="list-style-type: none">- Dr. Vladimir Ryabinin, IOC- Dr. Marie-Alexandrine Sicre, SCOR- Dr. Satheesh Shenoi, IOGOOS <p><i>On behalf of IOC co-chair Dr. Vladimir welcomed the SC members and appreciated INCOIS team for successfully conducting IIOSC,2022. He mentioned the theme of his discussion for the later part as the ocean science for sustainable development. In the IOC discussions for transforming the regional committee for the central part of the Indian Ocean to into sub commission for Indian Ocean which require strong interaction with IOC Africa and also the western part. He discussed about forming the new sub commission by incorporating the neighboring countries including the IOGOOS. He mentioned the Australian government ceased the support for the IIOE-2 Australia JPO Node- Dr. Nick DÁdamo. In the absence of Marie-Alexandrine Sicre on behalf of SCOR Dr. Patricia welcomed the SC members and remembered the valuable contribution of Dr.Satya Prakash as the Indian JPO node.</i></p> <p><i>Co-chair Dr. Satheesh Welcomed SC members on behalf of IOGOOS. He mentioned that IIOE-2 is launched in 2015 and now 7 years are completed and at the second phase of the IIOE-2, The results presented in the IIOSC speaks about the success of the program. He pointed out the importance of upgrading IIOE into operational level in order to be endorsed by the ocean decade. He mentioned it time for him to step down as co -chair for steering committee because he served 7 years in the position and invited new leadership.</i></p>	<p><i>Dr. Shenoi conveyed his wish to step down from the co-chair position of the steering committee, and asked IOGOOS, SCOR and IOC to suggest nominees for the new leadership.</i></p> <p>(No action items)</p>

2.	1045 – 1050 Hrs	Report on IIOE-2 SC4 Meeting <i>Attendees took the minutes as read.</i>	
3.	1050 – 1100 Hrs	<p>IIOE-2 Joint Project Office Report (5 mins each)</p> <ul style="list-style-type: none"> - Australia JPO Node (Dr. Nick D'Adamo) <i>The Australian IIOE-2 JPO Node ceased operation on 30 Sep 2021, following the cessation of underpinning funding to PPO from the Western Australian State Government, having been its principal cash sponsor. Dr. Nick D'Adamo agreed to assist IIOE-2 as best he can for little longer, on a pro bono basis. Dr D'Adamo added that through his honorary Adjunct Research Fellow role at the Oceans Institute of the Uni of Western Australia, IIOE-2 SC6 can be hosted by UWA, at the Indian Ocean Marine Research Centre, as was the case in 2017 for IIOE-2 SC1. There seemed general support for the offer by IIOE-2 SC5 participants.</i> - India JPO Node (Dr. Aneesh Lotliker) <i>After the sad demise of Dr. Satya Prakash, Dr. Aneesh Lotliker took in charge as IIOE-2 JPO in India The JPO reports were presented.</i> 	<p>1) IIOE-2 to be endorsed by UN Ocean Decade, fresh bid/application or not to be pursued further?</p> <p>2) Rationalizing STs and WGs</p> <p>3) To formulate IIOE-2 data policy</p>
4.	1100 – 1230 Hrs	<p>IIOE-2 National Committee Reports by National Committee Chairs / Reps. (10 mins each) <i>Each IIOE-2 National Committee Chair/Representative gave a 10-minute progress report on the work of their National Committees.</i></p> <p><i>These included:</i></p> <ul style="list-style-type: none"> - Australia (Dr. Lynnath Beckley) - France (Dr. Francis Marsac) - Germany (Dr. Hermann Bange) - India (Dr. Aneesh Lotliker) - Japan (Dr. Yukio Masumoto) - South Africa (Dr. Jenny Huggett) - UK (Dr. Greg Cowie) - USA: (Dr. Raleigh Hood) - Any other country 	<i>(No action items)</i>
5.	1230 – 1300 Hrs	Comfort Break	
6.	1300 – 1320 Hrs	<i>Opportunity for Q&A – Discussions on the national committee reports in relation to the implementation strategy and science plans of IIOE-2</i>	<i>(No action items for IIOE-2)</i>

	<p><i>Pattabhi Rama Rao mentioned that according to ARGO steering committee there have been reduced deployment particularly in the western Indian Ocean and the international ARGO committee is looking for any opportunities by working along with the national committees of IIOE-2. Vladimir offered the support from IOC in this regard.</i></p> <p><i>Vladimir reflected based on the national committee reports on sharing data and products from vast cruises conducted in the Indian Ocean into standard repositories, which aligns with the objectives of the IIOE-2 platform. He also encouraged IIOE program to undertake studies focusing on reanalysing certain parts of the Indian Ocean from the data covered from the cruise observations.</i></p> <p><i>He said regarding the UN-Decade, In the sustainable development goal, there is always an issue regarding the knowledge about the state of the ocean, acidification, and Oxygenation. So sharing the data within standard platforms will be helpful. IOC is preparing the first pilot report called “State of Ocean Report”. It will be presented to the executive council of IOC in June based on IOC’s network. There will be some analysis like what is happening at the different parts of the ocean in terms of elements like temperature, Oxygen, Acidification, PH etc. and how many countries are using the special Maritime planning, which comprises a quick view in what is happening in the ocean. He discussed capitalising on the data provided by multiple energetic cruises, deployment opportunities and participation in meeting related to the IIOE program.</i></p> <p><i>Dr Francis Marsac pointed out there are a lot of cruises happening, and sometimes there is overlapping of the objectives to avoid that more coordination is required. There are restrictions in data sharing policies within the EEZ, especially for the biological samples, which have to be addressed in agreement with the respective countries where the cruise is conducted. He pointed out the advantages of sharing data in standard data repositories for the Indian Ocean scientific communities in the framework of IIOE-2. Vladimir agreed that data under IIOE-2 can</i></p>	
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		<p><i>be shared in terms of biogeochemical observations and physical observations.</i></p> <p><i>Francis mentioned the need for researchers from developing countries to be fully embedded in the collaborative research activities and design programs and publications instead of developed countries providing them with a namesake involvement to avoid the parachute research activities.</i></p> <p><i>Dr Nimit and Francis discussed the Indian Ocean Tuna Commission(IOTC) and the marine special planning(MSP) regarding integrating environmental data into tuna fisheries.</i></p>	
7.	1320 – 1335 Hrs	<p><i>Update on UN Decade of Ocean Science for Sustainable Development 2021-30 and relevancy to IIOE-2 both now and beyond 2021 (Dr. Vladimir Ryabinin)</i></p> <p><i>Vladimir reported the progress of the UN decade program and also the possibility of consider the IIOE-2 as a decadal programme. He introduced the ocean decade coordination unit, Advisory Board. As the result of a call for decade actions on 2020, there are already 31 global programmes. He mentioned the requirement for the IIOE-2 for considering a decadal program which involves integrating various projects, exchanging data, and generating relevant products.</i></p> <p><i>He mentioned a second call for decadal actions, which focus on 3 out of 10-decade challenges</i></p> <ol style="list-style-type: none"> <i>1. Understand and beat marine pollution</i> <i>2. Protect and restore ecosystem and biodiversity</i> <i>3. Unlock ocean-based solutions to climate change</i> <p><i>There are 25 national decadal committees in Ocean decade. He recommended that IIOE-2 can propose a regional initiative to Ocean for decades for approval rather than presenting itself as a decadal program. He described that the UN decade is trying to promote the leadership of decadal activities by least developed countries and offer mentoring roles for them. The third call for the ocean decade focuses on the themes like food generated from the ocean and the sustainable ocean economy.</i></p>	<p><i>IIOE-2 can be presented itself as a regional initiative to national committees of UN decade program to get the approval</i></p> <p><i>Except that (No other action items for IIOE-2)</i></p>

8.	1335 – 1415 Hrs	<p>Status and Review of the ST / WG frameworks and reports by ST/WGs</p> <ul style="list-style-type: none"> - WG 1 Report - WG 2 Report - WG 3 Report <p>Q & A</p> <p><i>The co-chair of science and research working group (WG1) Dr. Raleigh Hood presented the report. Special Issues on IIOE-2 with 6 set of synthesis papers on the Indian Ocean is published in EGU Journals. Fourth volume of Deep-sea Research Special Issues on IIOE-2 came with more than 45 papers published thus so far. A plan for publishing an interdisciplinary book of 20 synthesis chapter on the Indian Ocean in Elsevier is also discussed. He has also elaborated the 3 research initiatives of IIOE-2 like 'The Eastern Indian Ocean upwelling', The western Indian Ocean upwelling' and 'The Year of the Maritime Continent'. IIOE-2 has 45 endorsed projects with 18 countries involved.</i></p> <p><i>The co-chair E. Pattabhi Rama Rao presented work report for the group-2 on Data and information. The group has prepared the draft for data policy and developed a metadata and data portal with a catalogue for projects, cruises, moorings, datasets, publications etc. He discussed the plans of quality control/quality assurance for all data types to be gathered during IIOE-2 scientific activities and discussed the programs related to data and information management capacity development.</i></p> <p><i>On behalf of the third working group Dr. S.Rajan presented the progress report on 'Operational coordination'. Dr. Shailesh Nayak has expressed to step down from the co-chairmanship of this working group because of other commitments, considering the functionality of this working group which is well aligned with JPO, India in INCOIS, He suggested to someone from INCOIS to take over the co-chairmanship of this group.</i></p>	<p><i>Dr. Shailesh Nayak has expressed to step down from the co-chairmanship of this working group because of other commitments, considering the functionality of this working group-3 which is well aligned with JPO, India in INCOIS, He suggested to someone from INCOIS to take over the co-chairmanship of this group.</i></p> <p>Except that (No other action items for IIOE-2)</p>
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9.	1415 – 1430 Hrs	<p><i>Summary and close of Day 1 Vladimir identify the lack of coordination among various IIOE projects, even though individual projects have made good results he recommend generating combined products together like the general bathymetry product by the Nippon foundation- GEBCO Seabed 2030 project.</i></p>	<p><i>IIOE-2 need to have consultation in capitalizing the scientific knowledge for sustainable development</i></p>

		<p><i>Marie-Alexandrine discussed the necessary actions to be taken to make the IIOE-2 an endorsed program of ocean decade and suggested an active interaction between the scientists and the stakeholders pointing out the results from Mediterranean Sea project. Dr. Vladimir agreed upon the need to deliver the scientific excellence produced by the IIOE-2 projects for the sustainable development.</i></p> <p><i>Dr Nimit discussed the role of Early career scientist Network in endorsing the IIOE-program as an Ocean Decadal program. Dr. Francis mentioned the need to share the acquired knowledge through IIOE programs towards policy makers and society.</i></p> <p><i>Dr. Vladimir and Dr. Alexandrine identified the need for IIOE-2 to have consultation in capitalising the scientific knowledge for sustainable development</i></p>	<i>(No other action items for IIOE-2)</i>
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Day 2: March 22, 2022			
1.	1030 – 1035 Hrs	<p>Welcome on behalf of hosts / house keeping and Review of the meeting agenda by the IIOE-2 co-sponsor's rep (5 mins)</p> <p>(Dr. Vladimir Ryabinin, IOC or Dr. Marie-Alexandrine Sicre, SCOR or Dr. Satheesh Sheno, IOGOOS)</p> <p><i>Dr. Sateesh Sheno again welcomed everyone and reviewed the Day 2 agenda.</i></p>	
2.	1035 – 1230 Hrs	<p>Science Theme Progress Reports- Chaired by Raleigh Hood or Herman Bange</p>	<p><i>Action to be taken:</i></p> <p><i>Body to be contacted:</i></p>

		<p>Introduction / overview by Dr. Raleigh Hood / Hermann Bange (10 min)</p> <p><i>Dr. Raleigh Hood and Dr. Herman Bange chaired the session on Science Theme Progress Reports. Raleigh Hood gave a brief introduction to the session.</i></p> <p><i>Raleigh pointed out that there has been a discussion about whether there should be any change in leadership in the science theme leads. He encouraged the chairs if they had any comments on those lines and requested them to voice their views.</i></p> <p><i>Each ST team chair or co-chair then gave a 15-minute summary of the progress of each ST. Also, the schedule was rearranged slightly and presented in the following order.</i></p> <p>ST Reports (15 minutes each)</p> <ul style="list-style-type: none"> • ST5 Extreme events and their impacts on ecosystems and human populations: Chari Pattiaratchi <p><i>Summarized the results on prediction of the transport, distribution and bleaching characteristics of floating microplastics in the northern Indian ocean. And listed the publication from the previous project.</i></p> <ul style="list-style-type: none"> • ST6 Unique geological, physical, biogeochemical and ecological features of the Indian Ocean: Jerome Dyment • <i>Dr. Raleigh thanked Jerome for his continuous participation and leadership. Raleigh pointed out that</i> 	<p><i>Intergovernmental coordination group. The Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS). And the person to be contacted is Rick Bailey, Secretariat from the IOC office in Perth. Srinivas Tummala was head of that office. Another person in charge is in Indonesia from the Bureau of Meteorology. Vladamir said that he would put Dr. Jerome into contact with the concerned people.</i></p> <p><i>Replacement for Dr Ben Milligan as ST1 leader.</i></p> <p><i>Suggestions to be sent to JPO.</i></p> <p><i>Approach IMBER.</i></p> <p><i>Plan for stakeholders meeting for transforming IIOE to UN decade project.</i></p>
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it is crucial engaging with colleagues from marine geology and geoscience and appreciated for continuing his leadership in this endeavor.

- *Dr. Hermann enquired about the Russian participation and if they are still in contact or continuing with the project. Jerome said he did not contact Russia, and they have not presented anything in IIOSC. But he said that he would get them soon. Hermann insisted on keeping in contact with the Russian people.*

- *Vladimir thanked Jerome and asked what is happening around Mayotte Island should be reported to the Indian Ocean Tsunami warning mitigation system because the risk of major Tsunami is increasing, and maybe some special measures are required to cope with this risk.*

- *Jerome explained the setting up two observatories, one in terms of marine expeditions and the other as a classical observatory on the island to monitor the situation. Dr. Jerome assured the chair that he would report to the person in charge.*

Action to be taken:

Body to be contacted: Intergovernmental coordination group. The Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS). And the person to be contacted is Rick Bailey, Secretariat from the IOC office in Perth. Srinivas Tummala was head of that office. Another person in charge is in Indonesia from the Bureau of Meteorology. Vladimir said

that he would put Dr Jerome with the concerned people.

- *Vladimir noted the improvement of seabed 2013 data as the Indian Ocean remains a vast area that should be improved enormously. It was improved from 6% to 20% so far. Also, he mentioned that everyone should get engaged and take measures where there is no data and exchange the data.*

- *Vladimir told Jerome that he could also put him in contact with the seabed 2013 people and centers worldwide that are focusing on the Indian Ocean.*

- *Jerome highlighted that the information regarding who is holding the data should also be known.*

- ST1 Human benefits and impacts: **Ben Milligan**

No update was given.

- ST2 Boundary current dynamics, upwelling variability and ecosystem impacts: **PN Vinayachandran and/or Yukio Matsumoto**

- *PN Vinaychandran presented on the theme and explained that they had been primarily engaged in science and publishing papers. He highlighted the northern coast of the Arabian Sea and the eastern coast of the Bay of Bengal are the least observed sectors and must continue the efforts to fill the data gap with a*

		<p><i>high temporal and spatial resolution using observations and modeling.</i></p> <ul style="list-style-type: none"> <i>Raleigh thanked Vinaychnadran for a lot of progress under this theme. Seeing the research initiatives taken over the eastern Indian Ocean and its vast progress which is really encouraging.</i> ST3 Atmospheric and monsoon Variability and ecosystem response: Adrian Mathew and/or Joaquim Goes <p><i>No update given</i></p> <ul style="list-style-type: none"> ST4 Circulation, climate variability and ecosystem change: Amit Tandon and/or Helen Phillips <p><i>No update given</i></p> <p>Discussions / Q & A (15 minutes)</p> <ul style="list-style-type: none"> <i>Dr. Raleigh raised the most significant concern with ST1 and new leadership changes. He mentioned there had been an action item to be addressed, and the names for ST1 leadership were discussed.</i> <i>Considering the substantial component of human and societal impacts in the IMBER program, Rayleigh suggested contacting the steering committee members of IMBER to take up the ST1.</i> <i>Rayleigh also expressed his complete faith in Amit/Helen and</i> 	
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Adrian/Joaquim for handling the ST3 and ST4.

- *Dr. Hermann and Dr. Vladimir agreed with Raleigh. Greg Coy also supported Rayleigh in putting IMBER as the right suggestion.*

- *Vladimir proposed a meeting to see the context of the future regional decade program. He noted that the education program can be co-designed with the potential involvement of IMBER and SIBER.*

- *Marie pointed out that SCOR has been organizing workshops every 3 or 4 years, and we have not done them for a long time. She proposed a need for a workshop around these questions.*

- *Shenoi also agreed with the other chair members in changing the leadership of ST1. He also mentioned that a lot of time was wasted in reconstituting the ST1. He asked everyone to send a couple of names to JPO who could be the appropriate members for ST1 so that a meeting of core group/interim co-chairs can be formulated soon, maybe within a month. He suggested quicker action to identify the co-chairs of ST1 at the earliest.*

Summary:

- *Replacement for Dr. Ben Milligan.*

- *Suggestions to be sent to JPO.*

		<ul style="list-style-type: none"> • <i>Approach IMBER.</i> • <i>Plan for stakeholders meeting for transforming IIOE to UN decade project.</i> 	
3.	1230 – 1300 Hrs	Comfort Break	
4.	1300 – 1340 Hrs	<p>New proposals submitted for IIOE-2 Endorsement (10 minutes each)</p> <ul style="list-style-type: none"> • Valuing the Gascoyne Marine Park by Dr. John Keesing, CSIRO, Australia <p><i>Dr. John was on the cruise and Dr. Aneesh presented the details about the project.</i></p> <ul style="list-style-type: none"> • Bluefin Larvae in Oligotrophic Ocean Foodwebs: Investigation of Nutrients to Zooplankton – Indian Ocean by Dr. Michael laundry, Scripps Institute of Oceanography, USA • Quantifying vertical and lateral ocean transport due to submesoscale fronts and eddies by Dr. Nicole Jones, University of Western Australia <p>Discussions and Q & A (10 minutes)</p> <p><i>All the new projects were endorsed by the chair members. Dr. Vladimir expressed that the three projects are almost done in the same area.</i></p> <ol style="list-style-type: none"> 1. <i>First project: Classical dynamic oceanography analyzes the eddies, fronts, shallow waves, and internal waves.</i> 2. <i>Second project: Ecological description of that area</i> 3. <i>Third project: Going much deeper into ecology at different timescales</i> 	

		<ul style="list-style-type: none"> • <i>He also added since IIOE is a way of integrating science, and these three projects must interact among themselves. Interaction of the projects, consolidation, and co-design is what is essentially needed and contributes to sustainable development. He noted this element is missing in the present capacitance of IIOE2.</i> • <i>Dr. Sheno and Dr. Raleigh agreed with the observations of Dr. Vladimir and endorsed the three projects. Recommended but strongly encouraged to co-design in that area.</i> 	
5.	1340 – 1350 Hrs	<p><i>Early Career Scientists Network (ECSN) – General status report by Dr. Arvind Singh</i></p> <p><i>Dr. Daneeja Mawren presented on behalf of Dr. Fehmi Dilmahamad. She explained the activities and achievements and introduced the new core members and workshops.</i></p> <ul style="list-style-type: none"> • <i>Dr. Marie enquired about the participation of the people from eastern African countries. She suggested including those people who have experience working with local communities so that it would benefit.</i> • <i>Dr. Rayleigh thanked Dr. Daneeja and asked to let the core group members know if there was any need for early career scientists to support the activities.</i> • <i>He strongly encouraged ECSN to submit to the special issue series on the IIOE newsletters. He also requested to circulate the news among the early career scientists.</i> • <i>Vladimir suggested opening ESCN to the social sciences as he had seen</i> 	

		<p><i>only hardcore science in the current team. And he encouraged them to attend the forum created for the decade.</i></p>	
6.	1350 – 1420 Hrs	<p>Response to ST & ECSN Talks / general discussions on science plans (TBA)</p> <ul style="list-style-type: none"> • <i>Dr. Rayleigh informed about the invitation from UWA to convene joint meetings in February 2023 in Perth. Dr. Vladimir proposed a hybrid meeting in Perth. Chari confirmed that UWA could facilitate the hybrid version of meetings.</i> • <i>Vladimir suggested that there should be discussions among the projects that are doing similar things in the region so that it can also benefit society. He encouraged writing a paper in the Bubble and sharing it with others.</i> • <i>A request from the early career scientists: a need for a training program for the ECS and by the ECS. A request was raised if such capacity building program can be done through proposals. Dr. Vladimir noted that it could be approved as a flagship activity. (Action addressed by ECSN as response to the CFDA03)</i> • <i>Dr. Shenoj is stepping down as chair of IOGOOS. He expressed his desire to step down and asked to nominate someone to co-chair IIOE2. He has been happy to be part of the IIOE since its inception and welcomed the new leadership and ideas. Being one of the formulators, he expressed his interest in continuing associating with the team in the future. Shenoj thanked everyone for their operation and support for the past seven years.</i> 	<p><i>Integration of science themes</i></p>

		<ul style="list-style-type: none"> • <i>Dr. Herrman thanked Dr. Sheno for the excellent support and services he rendered to IIOE.</i> • <i>Dr Marie-Alexandrine Sicre enquired about how to proceed with the integration of the science themes. Dr. Herrman noted that they should establish a mechanism for the science themes to communicate with each other, which is missing in the IIOE2.</i> 	
7.	1420 – 1435 Hrs	Summary and close of the meeting	