IIOE-2 STEERING COMMITTEE MEETING NO. 2

Held at the Grand Mercure Kemayoran Hotel, Jakarta, Indonesia, 19 – 21 March 2018

Meeting Minutes

IIOE-2 JPO contacts: Nick D'Adamo: nick.dadamo@bom.gov.au (Ph +61 409 680247);
Rajan Sivaramakrishnan: rajan.s@incois.gov.in

Minutes in italics.

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 summary of presentations delivered during the meeting is provided in **Appendix 2**. Copies of the full presentations are available through the JPO. A list of consolidated action items is provided in **Appendix 3**.

Monday 19 March 2018

Time	Agenda Items and Meeting Minutes (minutes in italics)	Action Items
0900-1030	**Welcoming Remarks and Keynote Talk** • Welcome by local hosts - Zainal Arifin (Earth Sciences / LIPI) • Setting the meeting agenda by co-sponsor representatives and approval of agenda – Peter Burkill for SCOR; Vladimir Ryabinin for IOC; Satheesh Shenoi for IOGOOS • Report on IIOE-2 SC1 Meeting (Perth, 2-4 Feb 2017) - Nick D'Adamo (JPO) • IIOE-2 Joint Project Office Report – Nick D'Adamo for the Australian JPO Node and Rajan Sivaramakrishnan for the Indian JPO Node • Keynote talk: UN Decade of Ocean Science for Sustainable Development 2021-30 and relevancy to IIOE-2 both now and beyond 2020 – Vladimir Ryabinin	
1100-1500	**Science Theme Progress Reports** - delivered by ST team chairs and chaired by Raleigh Hood (on behalf of Hermann Bange, Science Themes Coordinator) *Raleigh Hood gave a brief overview of each of the six science themes, noting the broad and highly interdisciplinary nature of the IIOE-2 Science Plan. Each ST team chair or co-chair then gave a 20-minute summary on the progress of each ST.* These included: • ST1 Human benefits and impacts – Ben Milligan • ST2 Boundary current dynamics, upwelling variability and ecosystem impacts – Yukio Masumoto • ST3 Atmospheric and monsoon variability and ecosystem response – Joaquim Goes	

	• ST4 Circulation, climate variability and ecosystem change – Jerome Vialard • ST5 Extreme events and their impacts on ecosystems and human populations – Chari Pattiaratchi • ST6 Unique geological, physical, biogeochemical and ecological features of the Indian Ocean – Jerome Dyment	
1530-1720	**<u>Working Groups Progress Reports</u>** - delivered by WG team Chairs and chaired by Rajan Sivaramakrishnan (on behalf of Shailesh Nayak, Working Groups Coordinator). *Rajan Sivaramakrishnan gave a brief overview of the purpose of the Working Groups, noting that WGs essentially constitute the link between the Science Themes, the Stakeholder aspirations and policy initiatives. WG team leaders then each gave a 20-minute progress report on each WG.* These included: • WG1 Science and Research – Raleigh Hood (on behalf of Hermann Bange) • WG2 Data and Information Management – Cynthia Chandler • WG3 Capacity Development – Nugroho Hananto (on behalf of Zainal Arifin)	
Tuesday 20 March 2018		
0900-1030	**<u>Working Groups Progress Report (continued).</u>** Progress reports from WG team leaders continued with the following presentations: • WG4 Operational Coordination – Rajan Sivaramakrishnan • WG6 Translating Science for Society – Rezah Badal • WG 7 Resources and Sponsorship – Rajan Sivaramakrishnan **<u>Progress Reports: IOC regional bodies</u>** *Representatives present from invited IOC Regional Body members of the Steering Committee gave 20-minute presentations on their organisations' contributions to IIOE-2.* These included: • IOC WESTPAC – Kentaro Ando (on behalf of Somkiat Khokiattiwong) • IOCINDIO – M.A. Atmanand • IOCAFRICA – Did not present **<u>Reflection: Do the Science Themes work optimally & what can be done to improve this?</u>** *Peter Burkill chaired a group discussion on the effectiveness of IIOE-2 Science Themes and encouraged participants to use this as an opportunity to give feedback to the IIOE-2 Executive Core Group and JPOs. The discussion centred on three reflective questions posed by the Chair:* *1) Science Plan. Is it working? Will it be accomplished by 2020?* *2) Implementation Stratgey. Is it working? Will it be accomplished by 2020?* *3) Is the infrastructure underpinning the IIOE-2 fit for purpose?*	

	Key discussion points and comments made during the discussion included the following: • *SC members agreed that the IIOE-2 Science Plan and Implementation Strategy are working but are unlikely to be achieved by 2020. It was noted that the Science Plan was designed to be broad and ambitious. It was never anticipated that all IIOE-2 scientific goals would be reached.* • *They considered the potential benefits of extending the IIOE-2 beyond 2020 and supported the idea of a 10-year IIOE-2 program (ie out to 2025, and perhaps beyond, also noting in this context Vladimir Ryabinin's address on the relevancy of the UN Decade of Ocean Science for Sustainable Development 2021-30 (DECADE) and the role that IIOE-2 could and should naturally play within the DECADE framework).* • *They reiterated the importance of IIOE-2 as a platform for fostering interdisciplinary science and the need to engage those scientific disciplines (e.g. concerned with upper trophic levels) and countries currently underrepresented within the IIOE-2 community.* • *They also called for greater scientific effort and collaboration in the West Indian Ocean.* • *They agreed that the STs were very broad and might benefit from some practical consolidating.*	
1100-1230	**<u>Reflection: Do the Working Groups work optimally & what can be done to improve this?</u>** *Peter Burkill chaired a group discussion on the effectiveness of IIOE-2 Working Groups based on these three reflective questions:* *1) Science Plan. Is it working? Will it be accomplished by 2020?* *2) Implementation Stratgey. Is it working? Will it be accomplished by 2020?* *3) Is the infrastructure underpinning the IIOE-2 fit for purpose?* *Key discussion points and comments made during the discussion included the following:* • *The need for greater effectiveness and output with respect to capacity building and communications.* • *The importance of identifying 'heroes' who can drive interest and engagement in IIOE-2 in those regions currently underrepresented.* • *The role of the IOC in encouraging greater science engagement and capacity building through IIOE-2.* • *The possibility of narrowing the scope of the IIOE-2 Science Plan to focus on a few key questions.* • *The idea of a periodical turnover of WG and ST leaders.* • *Noting that many WG leaders lack time and resources for their IIOE-2 commitments, it was suggested that the JPOs could take on much of the work of WGs 3-7.* • *The Committee agreed that the Core Group and JPO should review the ST/WG structure over the following 12 months, in liaison with relevant ST and WG stakeholders, with a view to presenting a simplified structure at the IIOE-2 SC3 in (early) 2019.* **<u>IIOE-2 National Committee Reports</u>** *Each IIOE-2 National Committee chair gave a 10-minute progress report on the work of their National Committees. These are archived and curated by the JPO.* These included:	**ACTIONS** *The Core Group and JPO to review and simplify, in liaison with relevant ST and WG stakeholders, the ST/WG structure and report to IIOE-2 SC3 in early 2019.*

	• Australia - Lynnath Beckley • France – Francis Marsac	
1330-1500	**<u>(IIOE-2 National Committee Reports. Cont…)</u>** • India – Sateesh Shenoi • Japan – Yukio Masumoto • UK – Greg Cowie • USA - Raleigh Hood • South Africa – Jenny Huggett (submitted to the 2018 International Indian Ocean Science Conference, presented at SIBER-8) **<u>Contingency session. Invited IIOE-2 Endorsed Project presentations not covered by National Committee talks</u>** *In this session presentations were delivered on:* • NOAA's IIOE-2 Partnership Activities 2018 – Sidney Thurston • Eastern Indian Ocean Upwelling Research Initiative (EIOURI) – Yukio Masumoto • EAF-NANSEN Project (R/V Dr Fridtjof Nansen Surveys – SW Indian Ocean) – Rezah Badal • Western Indian Ocean Upwelling Research Initiative (WIOURI) – Mike Roberts (submitted to the 2018 International Indian Ocean Science Conference, presented at SIBER-8)	
1530-1700	**<u>Are the National Committee programs and endorsed projects optimally integrated into IIOE-2? Are they well linked with ST and WG teams? Can we collaborate better? Are there new opportunities?</u>** *A 20-minute general discussion on this topic was chaired by Satheesh Shenoi. Key discussion points raised included:* • *The challenges in convincing proponents of Indian Ocean science projects/programs to seek IIOE-2 endorsement as well as the lack of awareness by many researchers that there exists an IIOE-2 National Committee in their respective countries.* • *The benefits of streamlining the endorsement process with a view to increasing the number of IIOE-2 endorsed projects.* • *The idea of introducing a two-tired, or multi-tiered, endorsement structure in order to include those projects that are not yet able to fulfil all of the endorsement criteria (e.g. data sharing). One suggestion put forward was to create a two-tiered system comprising, respectively, 1) fully endorsed projects and 2) ancillary or affiliated projects.* • *Overall, National Committee chairs indicated that they were satisfied with their current level of engagement in the IIOE-2.* **<u>Early Career Scientists Network (ECSN)</u>** *Riaan Cedras (ECSN Co-Coordinator) gave a 15-minute progress report on the work of the IIOE-2 Early Career Scientists Network. This was followed by a discussion, chaired by Satheesh Shenoi, on the effectiveness of the ECSN and how well it is integrated with the broader IIOE-2 science program.* Key discussion points raised included: • The need for greater coordination both within the ECSN and between the ECSN and the IIOE-2, particularly in the West Indian Ocean. • The need for the ECSN community as a whole to finalise its IO-wide representative structure, governance and working arrangements.	**ACTIONS:** *Riian Cedres to report back to IIOE-2 Coordinator, Danielle Su, on the outcome of the ECSN discussion at IIOE-2 SC2 which referred to the need to develop and finalise the IIOE-2 ECSN stakeholder framework (ie the governance structure) for IIOE-2 ECSN and the associated operational modus operandi for the ECSN going forward.*

Wednesday 21 March 2018		
0830-1130	**<u>Grand Opening Ceremony for IIOSC 2018 at BMKG</u>** *The IIOSC 2018 Grand Opening Ceremony was held at the headquarters of the Indonesian Agency for Meteorological, Climatological and Geophysics (BMKG). It began was a traditional Saman dance performed by the BMKG folkloric dance group.* *This was followed by welcoming speeches from:* • Prof. Dr. Arief Rachman, Executive Chair of the Indonesian National Commission for UNESCO. • Prof. Dr. Shahbaz Khan, Director of the UNESCO Cluster Office in Jakarta and Regional Bureau for Science in Asia and the Pacific. • Ir. Hari Purwanto, Representative for the Ministry of Research, Technology and Higher Education of the Republic of Indonesia. • Prof. Dr. Ir. Bambang Subiyanto, Acting Chariman of the Indonesian Institute of Sciences • Dr. Herizal, Deputy for Climatology at BMKG. IIOSC 2018 participants were then escorted on guided tours of BMKG's forecasting centre and Tsumani Early Warning System before being transported back to the conference venue.	
1200-1300	**<u>Our future – plenary discussion</u>.** *Peter Burkill chaired the IIOE-2 SC2's concluding session on future planning. Key questions and discussion points included:* ***Will IIOE-2 be complete by 2020?*** • *It was agreed that the scientific objectives of the IIOE-2 would not be completed by 2020, as was always the expectation given the agreed ambitious nature of the science pursuits in IIOE-2, and also given the growing number of committed projects to be implemented in the coming 2-3 years (ie 2018-20) along with the time that will be needed for required data analyses, reporting and publications to come beyond that period, and also given the high likelihood of many more projects to emerge for endorsement henceforth.* • *Furthermore, it was recognized that the emerging 'big picture' science issues aligned with the Science Plan will require time frames to develop and manifest as projects that will take them out to well beyond 2020.* • *Hence, there was strong support for continuing the IIOE-2 beyond 2020 – variously people spoke of 5 and even 10 years more.* • *The idea of continuing IIOE-2 received in-principle support from sponsors (IOC, IOGOOS and SCOR) though it was highlighted that continued sponsorship would hinge on the IIOE-2 community demonstrating the IIOE-2's respective achievements and relevancy to the three sponsors' specific constituencies, and their benefits to society as well as elaborating and making a compelling case as to why a continuation is necessary.* • *It was noted that the IIOE-2 would potentially play an important role in the implementation of recommendations arising from the IndOOS Review, due to be completed by late 2018 or early 2019.* • *It was also suggested that a combined representation of IndOOS and the IIOE-2 at OceanObs'19 in September 2019 would be a good way to raise awareness of these programs.*	**ACTIONS:** *Raleigh Hood, Jerome Vialard and Nick D'Adamo to coordinate a joint IndOOS/IIOE-2 submission to OceanObs'19.* *Core Group and JPOs to discuss the nature of an updated/revised IIOE-2 Science Plan to be implemented if the IIOE-2 is extended beyond 2020.*

	How do we see IIOE-2 metamorphosing? • *It was suggested that IIOE-2 could be framed as an Indian Ocean focal point for the upcoming UN Decade of Ocean Science for Sustainable Development 2021-30, which itself has a major focus on the UN Sustainable Development Goals (and most specifically on SDG14, being the principal 'ocean related' SDG). Thus the revised IIOE-2 science objectives could be aligned with the UN SDGs* • *While it was agreed that the UN Decade of Ocean Science for Sustainable Development would be a driving force in the next decade, the SC agreed that it was important to keep the IIOE-2's science goals broad so as not to lose other sources of funding.* • *It was agreed that the Core Group and JPOs should deliberate on the nature of an updated/revised IIOE-2 Science Plan and report back to IIOE-2 SC3 in 2019.* • *The idea that the next stage of the IIOE-2 should foster more active engagement with private partners was also strongly supported.* **Next meetings** **2019 IIOE-2 Steering Committee 3 (SC3)** • *There was strong support for the idea of IIOE-2 SC3 being held in the Western Indian Ocean region. South Africa (two potential sites- Port Elizabeth and Cape Town), Tanzania, Mauritius and Seychelles were mentioned as potential locations by stakeholders with relationships to potential hosts in those regions. Several members offered to explore these various options and report back to the SC within one month: Mike Roberts (South Africa, Tanzania), Francis Marsac (Seychelles) and Rezah Badal (Mauritius, Seychelles).* • *As back-up plans: Nelly Florida (i.e. on behalf of BMKG, Jakarta) indicated that Indonesia could host the next SC meeting if required; and Nick D'Adamo (i.e. on behalf of UNESCO IOC PPO, Perth) also offered to host SC3 in Perth if required.* • *It was suggested that January-March would be the best time for the SC3. Members were asked to identify key dates (i.e. when major conferences are being held) with which the SC3 should avoid overlapping.* • *In terms of meeting format, it was agreed to adhere to the practice of holding it in collaboration with associated meetings (annual meetings of SIBER, IORP, IOGOOS, IRF).* • *It was also suggested that the ST and WG leaders should convene a 2-day workshop to be followed by a 3-day SC3, which would include planning for the 2020 Science Symposium.* **2020 IIOE-2 Science Symposium** • *The SC agreed to hold a Science Symposium in 2020 to bring together and reflect on the outcomes of the IIOE-2.* • *In order to align with the meeting dates for the IOC and SCOR in 2020, it was agreed that the Symposium should be held early in the year, preferably late January/early February.* • *It was noted that the 2020 AGU Ocean Sciences Meeting would be held on 11-16 February 2020 and that these dates should be avoided.* • *India offered to host the Symposium in Goa and agreed to report back to the SC on the symposium duration and dates.* • *In order to facilitate planning, it was agreed that the scientific themes/format of the symposium should be confirmed as early as possible.*	*JPO to liaise with potential IIOE-2 SC-3 hosts and confirm the meeting venue/dates ASAP, followed by JPO leading a planning committee (involving the five groups) to plan the 2019 meetings.* *Sateesh Shenoi to confirm details of 2020 IIOE-2 Science Symposium.* *IIOE-2 Core Group and JPOs to work with WG/ST leaders in confirming the science themes for the 2020 Symposium, and JPO to lead a planning committee to plan for the 2020 overall integrated meetings of the five groups.*

	• *It was also agreed that broad geographical representation would be important at the Symposium. One idea put forward was to invite at least 2 people from each of the Indian Ocean rim countries to attend and to come up with a plan for funding their attendance.* **<u>Closing comments</u>** *Closing remarks were given by Nick D'Adamo and Rajan Sivaramakrishnan (for the JPO), Peter Burkill (for SCOR and as IIOE-2 Steering Committee Co-Chair), Satheesh Shenoi (for IOGOOS and as IIOE-2 Steering Committee Co-Chair) and Nelly Florida (on behalf of BMKG and LIPI).*	
End of meeting: 1300 hrs, Wednesday 21 March 2018		

Appendix 1: IIOE-2 SC2 List of Participants

No.	FIRST NAME	LAST NAME	AFFILIATION	COUNTRY	EMAIL ADDRESS
1	Atmanand	MA	National Institute of Ocean Technology	India	atma@niot.res.in
2	Ben	Milligan	University College London	UK	b.milligan@ucl.ac.uk
3	Charitha	Pattiaratchi	University of Western Australia	Australia	chari.pattiaratchi@uwa.edu.au
4	Cynthia	Chandler	Woods Hole Oceanographic Institution	USA	cyndchandler@gmail.com
5	Diane	Erceg	UNESCO IOC PPO	Australia	diane.erceg@bom.gov.au
6	Dongxiao	Wang	South China Sea Institute of Oceanology	China	dxwang@scsio.ac.cn
7	Francis	Marsac	Institute of Research for Development	France	francis.marsac@ird.fr
8	Gang	Pan	South China Sea Institute of Oceanology	China	gpan@scsio.ac.cn
9	Greg	Cowie	University of Edinburgh	UK	glcowie@glg.ed.ac.uk
10	Jerome	Vialard	Institute of Research for Development	France	jerome.vialard@ird.fr
11	Jerome	Dyment	Institut de Physique du Globe de Paris & CNRS	France	jdy@ipgp.fr
12	Jerry	Wiggert	University of Southern Mississippi	USA	jerry.wiggert@usm.edu
13	Jing	Li	International CLIVAR Project Office	China	jing.li@clivar.org
14	Joaquim	Goes	Columbia University	USA	jig@ldeo.columbia.edu
15	Justin	Ahanhanzo	UNESCO IOC	France	j.ahanhanzo@unesco.org
16	Kentaro	Ando	JAMSTEC	Japan	andouk@jamstec.go.jp
17	Lin	Liu	First Institute of Oceanography	China	liul@fio.org.cn
18	Lynnath	Beckley	Murdoch University	Australia	L.Beckley@murdoch.edu.au
19	Michael	Landry	Scripps Institution of Oceanography	USA	mlandry@ucsd.edu
20	Mike	Roberts	Mandela University	South Africa	mike.roberts@mandela.ac.za
21	Mike	McPhaden	NOAA/PMEL	USA	michael.j.mcphaden@noaa.gov
22	Nagaraja	Kumar Masuluri	INCOIS/IOGOOS Secretariat	India	raja@incois.gov.in
23	Nelly	Florida Riama	BMKG	Indonesia	nelly.florida@bmkg.go.id
24	Nick	D'Adamo	UNESCO IOC PPO	Australia	nick.dadamo@bom.gov.au
25	Nugroho	Hananto	LIPI	Indonesia	nugroho.dwi.hananto@lipi.go.id
26	P.N.	Vinayachandran	Indian Institute of Science	India	vinay@iisc.ac.in

27	Peter	Burkill	University of Plymouth/SCOR	UK	peter.burkill@plymouth.ac.uk
28	R. Dwi	Susanto	University of Maryland	USA	dwisusa@umd.edu
29	Rajan	Sivaramakrishnan	INCOIS	India	rajan.s@incois.gov.in
30	Raleigh	Hood	University of Maryland	USA	rhood@umces.edu
31	Riaan	Cedras	University of the Western Cape	South Africa	rcedras@uwc.ac.za
32	Roxy	Matthew Koll	Indian Institute of Tropical Meteorology	India	roxy@tropmet.res.in
33	Satheesh	Shenoi	INCOIS	India	shenoi@incois.gov.in
34	Satya	Prakash	INCOIS Hyderabad	India	satyap@incois.gov.in
35	Shoichiro	Kido	University of Tokyo	Japan	skido@eps.s.u-tokyo.ac.jp
36	Sidney	Thurston	NOAA Global Ocean Observations	USA	sidney.thurston@noaa.gov
37	Susan	Wijffels	Woods Hole Oceanographic Institution	USA	swijffels@whoi.edu
38	Toshiaki	Shinoda	Texas A&M University-Corpus Christi	USA	toshiaki.shinoda@tamucc.edu
39	Vladimir	Ryabinin	UNESCO IOC	France	v.ryabinin@unesco.org
40	Yukio	Masumoto	University of Tokyo	Japan	masumoto@eps.s.u-tokyo.ac.jp
41	Zainal	Arifin	LIPI	Indonesia	zainal.arifin@lipi.go.id

Appendix 2: IIOE-2 SC2 Presentation Summaries

Monday 19 March 2018		
0900-1030	**Welcome by hosts & JPO**	
	Zainal Arifin (LIPI)	Welcomed IIOE-2 Steering Committee members and all 2018 International Indian Ocean Science Conference participants to Jakarta.
	Scene-setting talks by IIOE-2 Co-Chairs	
	Peter Burkill (SCOR)	Noted that we are halfway through a very ambitious 5-year programme. Considered that this meeting should address three questions: 1) What have we found out so far that is new, exciting and worthwhile? 2) What important research challenges remain to be tackled? 3) What time scale is needed to address them?
	Vladimir Ryabinin (IOC)	Welcomed IIOE-2 Steering Committee. Thanked sponsors especially LIPI and BMKG. Highlighted the critical role of Indian Ocean science and the IIOE-2 to society. Stated that the UN Decade of Ocean Science for Sustainable Development 2021-30 is highly relevant to the IIOE-2.
	Satheesh Shenoi (IOGOOS)	Welcomed participants and thanked local hosts. Reiterated that the IIOE-2 was supporting our understanding of the Indian Ocean and thus beneficial to decision-makers. Sees the IIOE-2 as being directly relevant to the UN Sustainable Development Goals and a precursor to the UN Decade. This meeting will help us to see what has been achieved in the first two years of IIOE-2.
	Report from JPOs	
	IIOE-2 SC1 Meeting (Perth, 2-4 Feb 2017) – Nick D'Adamo (IOC PPO, Australian JPO)	- Highlighted Action Items completed since SC1 e.g. establishment of an IIOE-2 SC Executive Core Group (Action Item 14) - Of the 19 Action Items arising from SC1, six are still pending.
	Australian JPO Report – Nick D'Adamo	- Outlined the structure of IIOE-2 WGs and STs. 7 IIOE-2 National Committees have now been established. - Highlighted the work of JPO to profile IIOE-2 at international forums - Need to consider the effectiveness and functionality of WG and ST teams.
	Indian JPO – Rajan Sivaramakrishnan	- Overviewed the work of the Indian JPO including updates to the IIOE-2 website. In Jan-Feb 2018, 1687 visitors from 62 countries. - Highlighted growth in IIOE-2 project endorsement. From 8 projects by 10 countries in Feb 2017 to 26 projects in 23 countries in March 2018. - JPO work to develop an IIOE-2 Metadata Portal, Web GIS Portal for IIOE-2 projects and publish IIOE-2 newsletter, Ocean Bubble.
	Keynote talk	
	UN Decade of Ocean Science for Sustainable Development 2021-30 and relevancy to IIOE-2 both now and beyond 2020 – Vladimir Ryabinin	- Overviewed UN Sustainable Development Goals. Ocean science plays a strong role in achieving UN SDGs. The IIOE-2 a key Indian Ocean focal point for The Decade. - The Decade to focus on transformative science that is useful for policy and decision-making. - Potential science breakthroughs: complete ocean bottom mapping; knowledge of deep sea and ocean floor; ocean literacy in schools and comprehensive genetic picture of ocean – eDNA.

		- IIOE-2 and IOCINDIO may help the Indian Ocean Region to create a strong plan for the Decade in the Region, and expand IIOE-2 stakeholders/partnerships.
1100-1500	**Science Theme Progress Reports**	
	ST1 Human benefits and impacts – Ben Milligan	- Placed IIOE-2 activities in a policy and political context. - Science Theme 1 activities in 2017: pursuit of funding opportunities, mapping & connecting to other initiatives, discussions about organisation of data, call for evidence document. - 2018 planned activities: evidence synthesis, guidance documents, data collection and organisation (indirect). - Outlined funded projects connected with ST1: SOLSTICE WIO, IIED/SIDA, WWF activities in the region, UK NERC Strategic Programme proposal.
	ST2 Boundary current dynamics, upwelling variability and ecosystem impacts – Yukio Masumoto	- Introduced ST2 members. Noted that they have been exchanging info on ST2-related activities via email e.g. cruises/research plans, research highlights, thoughts on future directions. - Outlined Indian Ocean boundary regions and highlighted current projects. - Western Boundary: Agulhas System Climate Array (ASCA); Gliders in the Agulhas (GinA). - Eastern Boundary: R/V Mirai MR17-08 Cruise; 2018 Hakuho-maru EIO Cruise; Throughflow Indonesian seas, Upwelling and Mixing Physics (TRIUMPH). - Central Boundary: Bay of Bengal Boundary Layer Experiment (BoBBLE) 2016; Trans-disciplinary Research for improved forecasting of Indian Marine Fisheries (TRIMFish); Biogeochemistry-Atmosphere Processes in the Bay of Bengal (BIOCAT IIOE2). - Open Ocean Upwelling: Korean Ship R/V Isabu, Columbo-Mauritius, 2-26 July 2017; NOAA Ship Ronald H. Brown, February-April 2018. - Considers ST-2 related observations are taking place and planning underway at national/bilateral/multi-lateral level. Science outcomes are emerging. - Need more coordination among the projects and consideration for data management and dissemination.
	ST3 Atmospheric and monsoon Variability and ecosystem response – Joaquim Goes	- Overviewed ST3 core science questions, systems or modes of monsoon variability and ecosystem response. - Current ST3-related projects: BoBBLE (Bay of Bengal Boundary Layer Experiment) Ocean-Atmosphere Interaction and its Impact on the South Asian Monsoon; ELO (Equatorial Line Observations) Convectively Coupled Kelvin Waves; Asian Monsoon Gateway Monitoring; ThRoughflow Indonesian seas, Upwelling and Mixing PHysics (TRIUMPH); Trans-disciplinary Research for improved forecasting of Indian Marine Fisheries (TRIMFish); Decision and Information System for the Coastal waters of Oman (DISCO).
	ST4 Circulation, climate variability and ecosystem change – Jerome Vialard	- Overviewed decadal, interannual and intraseasonal variability in Indian Ocean circulation as well as relationship between Indian Ocean warming and monsoonal variability. - Outlined ST4-relevant endorsed projects, 17 in total - ST4 accomplishments: BoBBLE, OMM-ASiRI, Challenger (EP08-1 cruise), RAMA servicing (Feb-April 2018), NOAA ship Ronald H. Brown (Feb-April 2018).

		- Future projects: Centre for Southern Hemisphere Ocean Research (CSHOR) Indo-Pacific Interbasin Exchange (2017-2020); RV Investigator Voyage – 13th May-13th June 2019 – 110°E, 40°S-10°S: A coupled bio-physical, ecosystem-scale, examination of Australia's historical (IIOE-1 of 1959-65) International Indian Ocean Expedition line; R/V Hakuho-maru. - Outlined IndOOS (Review) and relationship to IIOE-2. IndOOS provides background for IIOE-2 process experiments while IIOE-2 cruises are great opportunities to service/complete IndOOS. Encouraged more collaboration between the two. - Suggestions that at time of IIOE-2 endorsement, when cruise funded, planned: systematically inform IIOE-2 relevant ST leaders; and systematically inform IORP, SIBER, IRF.
	ST5 Extreme events and their impacts on ecosystems and human populations – Chari Pattiaratchi	- Gave overview of core ST5 questions - Examples of extreme events: hurricanes, droughts, severe storms, floods, heat waves, cold snaps – can have costly and far-reaching impacts on society. - Addressed misconceptions of extreme events. Unscientific predictions. e.g. colossal earthquakes and mega tsunamis. Important to articulate science to general public. - Challenges: this ST does not have cruises, small membership, difficult to attract members - One possibility: to document extreme events prediction systems and identify how IIOE-2 can contribute/add value to them.
	ST6 Unique geological, physical, biogeochemical and ecological features of the Indian Ocean – Jerome Dyment	- Gave on overview of the unique geological features of the Indian Ocean: ridges, hot spots, basins, subductions. - Role of ST6 not entirely clear to members - Actions of ST6 thus far: raising awareness of IIOE-2 and encouraging projects to seek IIOE-2 endorsement; SCOR has proposed that InterRidge hold a joint meeting on the Geology of the Indian Ocean in late 2018. SCOR/ST6 members have begun organising. - Thinks the best way to attract geoscientist interest to IIOE-2 is to acquire and make readily available "piggy-back data" (e.g. multibeam bathymetry, gravity, magnetics).
1530-1720	**Working Group Progress Reports**	
	WG1 Science and Research – Raleigh Hood (on behalf of Hermann Bange)	- Gave an overview of WG1 objectives and the extent to which they are being achieved. Most are, but WG1's influence not always clear. - Summarised the relevant publications and endorsed projects associated with each Science Theme: ST1 = 2 pubs, 0 projects; ST2 = 3 pubs, 3 projects; ST3 = 1 pub, 10 projects; ST4 = 1 pub, 9 projects; ST5 = 1 pub, no projects; ST6 = 2 pubs, 7 projects. - Update on IIOE-2 research initiatives: YMC, EIOURI, WIOURI, RAMA Cruises - Summary of national IIOE-2 efforts. Noted high level of participation at national level. - Status of the IIOE-2 DSR II Special Issues on IIOE-2. Vol 1: 21 manuscripts submitted and under review. Vol 2: new accepting submissions. Deadline: 31 May 2018.
	WG2 Data and Information Management – Cynthia Chandler	- Reviewed progress on addressing WG2 ToRs. - Draft IIOE-2 Data Policy to be reviewed this week in D&IM workshop. Supports FAIR data principles. Aligned with IOC policies. - Data exchange: encouraged members to use ORCiD (person ID) and DOI (Digital Object ID). - Long-term IIOE-2 data storage a combination of IODE network of NODCs and ADUs (OBIS nodes) and INCOIS IIOE-2 data portal.

		- Metadata catalog completed (by JPO/INCOIS) and now publically available. Encouraged contributions. - Proposed flow of IIOE-2 data: Acquisition to National Data Centre to INCOIS. - Training Courses: IOC/IIOE2-OTGA and IORA 2016 Joint Training Course, Research Data Management; IODE OTGA online course.
	WG3 Capacity Development –Nugroho Hananto (on behalf of Zainal Arifin)	- Facilities to support Capacity Development (Indonesia): 1) Regional Training and Research Center for Marine Biodiversity and Ecosystem Health (MarBEST Centre) - Floating School: 1) ASEAN – IOC WESTPAC Summer Floating School on Marine Geoscience and Geohazard; 2) FUSION: Floating University of the Southwestern Indian OceaN; 3) South Java Deep Sea Expedition for Deep Sea Marine Biodiversity
Tuesday 20 March 2018		
0900-1030	**Working Group Progress Reports (continued)**	
	WG4 Operational Coordination – Rajan Sivaramakrishnan	- Overview of WG4 structure; has oversight of all WGs. - WG4 chair convened the first telephonic hookup meeting with the Chairs of the other WGs on 30th May, 2017. - WG Chairs/Co-Chairs asked to provide a short write-up on the plans of their respective WGs in implementing the IIOE-2 goals. - Outlined WG4 objectives & progress: developed a WebGIS application on status/progress of endorsed; currently expanding application to include relevant, non-endorsed projects; liaising with JCOMMOPS to gain access to operations that support maintenance of observation systems in the Indian Ocean; as first step, INCOIS is overlaying the existing data buoy locations with details on the IIOE-2 WebGIS application.
	WG6 Translating Science for Society – Rezah Badal	- Gave an overview of WG6 ToRs. - Indian Ocean Conference on 'Marine Spatial Planning – Towards Sustainable Use of the Indian Ocean', held 22-23 November 2017 in Mauritius, included a session on IIOE-2 data collection and initiatives. Aim of the session: to channel all information gathered previously during the conference and come up with concrete ways to make society benefit from Ocean Science & Research. - Way forward/strategic plan: 1. Are there science-to-society components in your projects/studies? Users end/ benefit to society/ Communication Media/ (Extreme events, PFZ,) 2. What are the scientific results of direct benefit to society? CC variability/ Resource management/Mixed Layer processes/ 3. How and when are society involved in the programme/projects?
	WG 7 Resources and Sponsorship –Nick D'Adamo & Rajan Sivaramakrishnan	- Sources of financial and in-kind support to IIOE-2: 1) Support of ST and WG chairs: SCOR 20-25K per year, in-kind support from Chairs' host institutions to attend meetings; Support of IOGOOS members: IOGOOS (10K/yr); 3) Support of ECSN members; 4) Catalytic funding to underpin new ideas, meetings: SCOR - -InterRidge meeting 2018 (10K).

		- IOC PPO (via its three principal sponsors) supports the IOC IIOE-2 Coordinator. - Australian govt: Bureau of Meteorology provides staff, admin for JPO (Australia-Node). This includes full administrative hosting at BoM's Perth office, as well as financial management and a limited sponsorship fund for admin support. - BoM Australia provides the IOC PPO Program Manager (based at IOC PPO) who, amongst other PPO related roles, also supports the Coordinator for IIOE-2. - UNESCO IOC provides IOC IIOE-2 Coordinator with limited resources enabling strategic and operational engagement in helping to run the IIOE-2 through JPO Australia Node role. - IIOE-2: Endorsed projects ~30 cruises. The monetary value of these projects is large: for example, basing the value of deep ocean cruises (which are involved in almost all of the endorsed projects), one use a value of say $50-70K USD per day plus the added value of human resources involved (e.g. scientists, operational support personnel, associated administrators, data management, curation etc), and also the value of follow up follow up research. - INCOIS: operational day-to-day resourcing for activities of the JPO (India-Node); financial support for one full-time person plus the requisite administrative and hosting resources for coordinating the IIOE-2 activities; facilitates WG4 activities; establishing and managing of a Regional Coordination Unit for IIOE-2 Data and Information Management; Coordination and implementation of selected Capacity Development projects under IIOE-2, including through ITCOcean in Hyderabad.
	Progress Reports: IOC Regional Bodies	
	IOC WESTPAC – Kentaro Ando (on behalf of Somkiat Khokiattiwong)	- WESTPAC established an IIOE-2 WG. - WESTPAC members' IIOE-2 efforts include: Chinese-Indonesian joint cruise off Sumatra region for understanding the upwelling dynamics by using Baruna Jaya; Japan to conduct the Hakuho-Maru cruise in December 2018 in the eastern Indian ocean; Korean-US RAMA cruise. - WG recognised Eastern Indian Ocean observations and research as a capacity building opportunity for WESTPAC Member States. - WG recommend supporting the IIOE-2 via the EIOURI project and its associated CD activities; a draft plan for supporting the two activities is under discussion.
	IOCINDIO – M.A. Atmanand	- Gave overview of IOCINDIO mandate, purpose and mission. - IOCINDIO reactivated in June 2009; IOCINDIO-VI held in Kuwait City, Kuwait, from 24 to 25 May 2017. - IOCINDIO endorsed projects: A) Effects of human induced changes: Ocean acidification, eutrophication, hypoxia, harmful algal blooms (HABs) in coastal waters of the Northwestern Indian Ocean; B) Coastal vulnerability assessment for sea level rise and storm surges; C) Ocean observations, coastal zone management,

		circulations and fisheries; D) Monitoring with Responsible Response of Oil Spill in inner ROPME Sea Area; E) 2050 Integrated Ocean Policy Advice for Proactive Planning and Managements for IOCINCIO Member States; F) Blue Economy Business opportunities in the context of climate change adaptation and Disaster Risk Reduction; G) IOCINDIO Networking Research Infrastructures, Facilities and Human Resources. - IOCINDIO invites IIOE-2 SC2 participants to indicate their preference for any of the 7 areas of the above project proposals and to attend next IOCINDIO meeting. - Hope to hold IOCINDIO-VII back to back with IIOE-2 related meetings or other Indian Ocean science conference.
1100-1500	**IIOE-2 National Committee Reports**	
	Australia - Lynnath Beckley	- Australian IIOE-2 Nat Committee formed in May 2015, comprises representatives of about 20 institutions; Representatives provide conduit into most institutions engaged in Indian Ocean research. - 100+ Australian-led Indian Ocean research projects. - Important role of IMOS in research by Australia in IIOE-2: Moorings, gliders, Argo, radar, remote sensing, acoustics. - IIOE-2 endorsed projects: 1) Challenger glider mission; 2) Physical drivers of Arafura Sea Large Marine ecosystem; 3) 110°E repeat line. - Aims of 110°E line: Quantification of change from 1960s benchmark in the physical, chemical & biological properties of the water column along 110^{o}E (since IIOE-1).
	France – Francis Marsac	- French Nat Comm formed in June 2014. - Gave overview of France's IIOE-2 projects by Science Theme. - ST1: SINDIA project; ST2: Physical processes of the Agulhas leakage, Role of the Agulhas in the Benguela current system; ST3: PHYSINDIEN: Marginal sea outflow dynamics and regional consequences; ST4: Water cycle and circulation in Bay of Bengal, Physical and biogeochemical responses, Climate change in the Arabian Sea; ST5: IFCPAR project (IRD-NIO): Global assessment of tropical cyclones intensity; ST6: RHUM-RUM project (France-Germany 2012-2016), MIRAGE project (France-Indonesia-Singapore 2016-2020), MAGOFOND project (France-Israel-Japan 2017-2020). - Feedback from French IIOE-2 groups: Atmospheric interface well represented in IIOE-2 themes, does not look to be the case for the continent-ocean interface; Improve international collaboration in designing/developing research cruises - processes occurring at different space-time scales require cruises developed on a synchronized way; IIOE-2 cruises should strengthen IndOOS (contact CLIVAR Indian Ocean Region Panel). IndOOS provides observations to cruises, in return cruises can assist in deploying instruments; Stimulate projects endorsement by IIOE-2; Better

		inform Regional Fisheries Management Organisations on progress, knowledge gained and explore ways of collaboration.
	India – Sateesh Shenoi	- Indian IIOE-2 Nat Committee formed in 2015. - 8 Indian IIOE-2 endorsed projects. - Played a lead role in organising Dec 2015 International Symposium in Goa commemorating 50th anniversary of IIOE, whilst also including the launch of IIOE-2 at the same event (4 Dec 2015), which was symbolically associated with the embarkation of the 1st IIOE-2 endorsed project as a cruise from Goa to Mauritius, reimagining the 1st cruise of the original IIOE-2 also Goa to Mauritius). - First meeting July 2017. Decisions and recommendations included: exploring feasibility of synergising IIOE-2 India activities with the planned National Mission on Deep Ocean Research; endorsing projects in the Indian sector of the Southern Ocean; initiating data management, capacity building and outreach exercises directed at the Indian Ocean Rim countries, utilising the facilities and expertise in India; developing an integrated multi-institutional National Science Plan focused on the (Northern) Indian Ocean within the overall goals of IIOE-2. - ASEAN-India Research Training Fellowship.
	Japan – Yukio Masumoto	- Japanese IIOE-2 National Committee will officially form on 3rd April, 2018 under the SCOR sub-commission of Science Council of Japan. - Present interests: Dynamics of Ocean/Climate Variations; Nitrogen Cycle in the Bay of Bengal; Mapping of biogeography and biogeochemistry; Bio-Physical Relations in Upwelling Regions. - Cruises include: Repeat Hydrography in GO-SHIP; R/V Mirai MR17-08 Cruise; 2018 Hakuho-maru EIO Cruise; planned R/V Hakuho-maru cruise in August/September 2020. - Gave overview of Japanese research results relevant to IIOE-2**.**
	UK – Greg Cowie	- Gave overview of recently endorsed UK IIOE-2 projects: Bay of Bengal Boundary Layer Experiment (BoBBLE), Equatorial Line Observations (ELO), SOLSTICE. - Other funded UK IIOE-2 activity: IIOE2-EP25 - Integrated Heat Dynamics of the Indian and Global Oceans; IIOE2-EP28 - Responses of biological productivity and fisheries to changes in atmospheric and oceanographic conditions in the upwelling region associated with the East African coastal current (PEACC). - UK Nat Committee did not know about these other projects. Asks that relevant endorsements by communicated back to Nat Comms. - Chagos Archipelago – MPA studies. - NEKTON Deep Sea Exploration has been communicating with us. GANGA BOB – UK/India joint project. Announced by end of March 2018 and meeting June 2018. Not endorsed yet.
	USA - Raleigh Hood	- Introduced US IIOE-2 Steering Committee and Terms of Reference.

		- Indian Ocean Science Workshop convened at Scripps Institution of Oceanography, San Diego, USA, September, 11-13, 2017 to identify scientific priorities to guide US participation in IIOE-2. - Five research themes and a draft document emerged: 1) Physical, Biogeochemical and Ecological Dynamics of the Seychelles-Chagos Thermocline Ridge; 2) Inter-Ocean Physical and Biogeochemical Exchanges; 3) Monsoon dynamics; 4) Physical, Biogeochemical and Ecological Contrasts Between the Arabian Sea and the Bay of Bengal; 5) Marine Geology and Deep Ocean Biogeochemistry and Ecology. - Next steps: Draft implementation plan to be reviewed and NSF/OCB community and program managers. Motivate coordinated proposal submissions to NSF, NASA and NOAA in 2018/2019. Secure funds for a US project office?
	South Africa – Jenny Huggett Note: This presentation was submitted to the 2018 International Indian Ocean Science Conference and presented at SIBER-8.	- IIOE-2 EP 26: Regional Research Cruises in the Western Indian Ocean. First cruise on SA *Agulhas II* (17 October – 13 November 2017). Sampling approaches included meteorology, physical, chemical and biological oceanography, benthic biodiversity, seabird and mammal observations, and marine geology/bathymetry. Training & capacity development: 55 trainees onboard (30 men, 25 women) from eight countries. Second cruise planned for June/July 2018. - Other projects/initiatives: The Algulhas System Climate Array (ASCA); African Coelacanth Ecosystem Programme (ACEP); RV *Angra Pequena* research, conservation and training vessel. - RV Nansen Survey Jan/Feb 2018 – ASCA and South African East Coast survey. New book: 'The RV *Dr Fridtjof Nansen* in the Western Indian Ocean', published 2017. - New publication - Ramanantsoa et al (2018) Uncovering a New Current: The Southwest Madagascar Coastal Current. *Geophysical Research Letters*, 45.
	Contingency session. Invited IIOE-2 Endorsed Project presentations not covered by National Committee talks	
	NOAA's IIOE-2 Partnership Activities 2018 – Sidney Thurston	- Long-term Partnership with India's Ministry of Earth Sciences (MoES). - Goa Science Colloquium, June 11-13, 2018, building a foundation for the next decade of NOAA-MoES ocean-climate collaborations. - InaPRIMA/RAMA Partnership with BMKG: 12th Annual Workshop held Bali May 2017; a synergy between BMKG and NOAA for Delivery of Information for Climate Decision Support Services. - New Partnership with Korea's Institute for Ocean Science and Technology (KIOST): cruise on R/V Isabu Columbo-Mauritius, 2-26 July 2017. - NOAA Ship Ronald H. Brown 2018 Multidisciplinary Expedition to the Indian Ocean.

		- Western Indian Ocean Capacity Building Workshops.
	Eastern Indian Ocean Upwelling Research Initiative (EIOURI) – Yukio Masumoto	- EIOURI planning underway; focusing on the upwelling regions that develop seasonally off Java, Sumatra, and northwestern Australia. - EIOURI cruises: Dec 2015 – Feb. 2016 : R/V Mirai cruise (GO-SHIP I10); Nov 2017 – Jan 2018 : R/V Mirai cruise (YMC); Nov 2018 – Dec 2018: R/V Hakuho-maru cruise; late 2018: FIO-LIPI cruise (Through TRIUMPH); mid 2020: R/V Hakuho-maru cruise (proposal submitted). - EIOURI webpage created; Science Plan available for download; Research activities outlined online. - Recent progress: EIOURI is cooperating with SCOR Working Group 155 "Eastern boundary upwelling systems (EBUS): diversity, coupled dynamics and sensitivity to climate change". - IIOE-2 / EIOURI related session at 15th annual AOGS meeting, June 2018; all encouraged to participate.
	EAF-NANSEN Project (R/V Dr Fridtjof Nansen Surveys – SW Indian Ocean) – Rezah Badal	- Characterising the Marine Ecosystem and Morphology of the Saya de Malha Bank. - Marine landscape map of Saya de Malha Bank was created using data derived from surveys conducted by Soviet vessels. - 2018 surveys designed to enhance knowledge on the marine ecosystem and morphological structure of the Saya de Malha Bank - Outlined track survey and Sampling design: Optimisation of seafloor mapping (bathymetry data acquisition); Identification of appropriate stations to validate the marine landscape map; Samplings for benthic habitat assessment: depths > 10 m; Pelagic trawls (zooplankton sampling): depths > 50 m; Replicate survey stations of 2008 ASCLME cruise for comparison. - Opportunities for Nansen programme: Local Scientist to develop organization skills; Cruise plan elaboration; Take leadership role in MSR; Partake in exchange of expertise; Capacity building.
	Western Indian Ocean Upwelling Research Initiative (WIOURI) – Mike Roberts Note: This presentation was submitted to the 2018 International Indian Ocean Science Conference and presented at SIBER-8.	- The broad WIOURI science plan was published in CLIVAR Exchanges. The more detailed project science plan still not complete. Intention was for a region-wide workshop to be held in Oman to produce this but lack of funding prevented the workshop. - Rollout of projects depends on where and when funding can be found. The first regional project, funded between South Africa and France on the Madagascar Ridge (referred to as MADRidge) had two cruises in 2017-18. These data are being worked up into a special issue for DSR II (December 218). This should comprise some 18 papers on ecosystem functioning. - Biggest problem in the WIO is the lack of research capacity. - Funding was secured, however, from the UK Grand Challenge Research Fund (GCRF) to build an innovation research network between the UK, South Africa (NMU), Kenya and Tanzania, as well as to kick-start ecosystem projects on the Agulhas Bank, the North Kenya Banks, and the Pemba Channel, respectively.

		- Field campaigns will start in March 2019 in SA, and June 2019 in Kenya and Tanzania.
1530-1700	**Early Career Scientists Network (ECSN)**	
	ECSN Progress Report – Riaan Cedras	- Background: IIOE-2 ECSN established during IIOE-2 symposium in India in 2015 to provide a platform for early career scientists to demonstrate and present their work; Contributed to IIOE-2 publications and ECSN research featured in Indian Ocean Bubble; Early Career Scientist Session at IIOSC 2017 in Perth, Australia. - A thematically related (to IIOE-2) "WIO-ECSN" was also formed through WIOMSA to strengthen the capacity of early career scientists in the region through partnership with relevant stakeholders. - Challenges facing early career researchers: Improved training; Shared access to technical help; Accessing on innovative research tools; Administrative assistance; Data management; Grant writing resources/post graduate training. - Support/initiatives: Scholarships and Fellowships for BSc, MSc and postdoc; Archive/database of abstracts of theses and publications of ECS; Capacity development programs (trainings and workshops); Role players/Mentors.

Appendix 3: IIOE-2 SC-2 Action Items

No	Action	Responsible Members (principal focal point(s) shown, to combine an share action with co-chairs where applicable)
1	The Core Group and JPO to review and simplify, in liaison with relevant ST and WG stakeholders, the ST/WG structure and report to IIOE-2 SC3 in early 2019.	Peter Burkill, Vladimir Ryabinin, Satheesh Shenoi, Rajan Sivaramakrishnan, Hermann Bange, Shailesh Nayak, Nick D'Adamo
2	Riian Cedres to report back to IIOE-2 Coordinator, Danielle Su, on the outcome of the ECSN discussion at IIOE-2 SC2 which referred to the need to develop and finalise the IIOE-2 ECSN stakeholder framework (ie the governance structure) for IIOE-2 ECSN and the associated operational modus operandi for the ECSN going forward	Riian Cedres
3	Raleigh Hood, Jerome Vialard and Nick D'Adamo to coordinate a joint IndOOS/IIOE-2 submission to OceanObs'19.	Raleigh Hood, Jerome Vialard and Nick D'Adamo
4	Core Group and JPOs to discuss the nature of an updated/revised IIOE-2 Science Plan to be implemented if the IIOE-2 is extended beyond 2020.	Peter Burkill, Vladimir Ryabinin, Satheesh Shenoi, Rajan Sivaramakrishnan, Hermann Bange, Shailesh Nayak, Nick D'Adamo
5	JPO to liaise with potential IIOE-2 SC-3 hosts and confirm the meeting venue/dates ASAP, followed by JPO leading a planning committee (involving the five groups) to plan the 2019 meetings.	JPO (Nick D'Adamo & Rajan Sivaramakrishnan)
6	Confirm details of 2020 IIOE-2 Science Symposium to be held in Goa, India.	Sateesh Shenoi
7	IIOE-2 Core Group and JPOs to work with WG/ST leaders in confirming the science themes for the 2020 Symposium, and JPO to lead a planning committee to plan for the 2020 overall integrated meetings of the five groups.	Peter Burkill, Vladimir Ryabinin, Satheesh Shenoi, Rajan Sivaramakrishnan, Hermann Bange, Shailesh Nayak, Nick D'Adamo and WG/ST leaders.
8	JPO to draft the minutes from the meeting and liaise with participants to finalise the minutes, including collating and making available all PPTs from the meeting.	JPO (Nick D'Adamo & Rajan Sivaramakrishnan) in liaison with IIOE-2 SC2 members.