

FINAL DRAFT AGENDA

**Eighteenth meeting of the Indian Ocean
Observing System (IndOOS) Resource Forum
(IRF-18)**

09:30-10:30 hrs Korea Standard Time (00:30-01:30 UTC)

Thursday 19th March 2026

As part of the Integrated Annual Meetings of the IOGOOS and its allied programs

Meeting Title	Eighteenth Meeting of the Indian Ocean Observing System (IndOOS) Resource Forum (IRF-18)	
Date	Thursday 19 th March 2025	
Time & Duration	09:30-10:30 hrs Korea Standard Time (00:30-01:30 UTC) Thursday 19th March 2026 (00:30-01:30 UTC, Thursday 19 March 2026) <i>Note: duration is planned for 1 hr</i>	
Location	A meeting room will be advised for delegates present at the Integrated Annual Meetings of the IOGOOS and its allied programs. or Click on the link to join the meetings virtually	
	Meeting Link	https://teams.microsoft.com/meet/4251766116467?p=RP5HEdF4JdI0FE7TaY
Chair	Nick D'Adamo	
Convener	Aneesh Lotliker	
Rapporteur	Aneesh Lotliker	
Invited Participants	IRF members, IRF ex-officios and previous meeting's (IRF-17) observers. Additional observer attendance welcomed by a priori request, Chair / Convener via nick.dadamo@uwa.edu.au / aneesh@incois.gov.in	
Hosts	Korea Institute of Ocean Science and Technology (KIOST), Busan, South Korea	

Hosts and Conference Venue

For details on the Integrated meetings of IOGOOS and its projects and programs, refer to the information Booklet for Participants

(https://incois.gov.in/documents/IOGOOS21/InformationBooklet_IntegratedMeetings_IOGOOS_Korea_March2026.pdf)

Meeting agenda

1. Chair's welcome & objectives, confirmation of agenda, and identification of "any other business" for the agenda. **(IRF Chair, All – 5 minutes)**
 - Review of the membership: Thanks to outgoing members (if any), and welcome to any new members.
 - An overview of the IRF-18 agenda was circulated before the meeting.
 - Any other business **(for Agenda Item 7)**.
2. Convener's brief report. **(IRF Convener – 5 minutes)**
 - Report on key issues, including:
 - Draft minutes of IRF-17, for ratification **(as had been circulated before IRF-18)**.
 - Status of Action Items **(Please see Appendix 1)**
 - Updated IRF membership as of IRF-18 for ratification and/or further advice from members **(Please see Appendix 2)**.
 - For noting and reference, as a standing item – IRF ToR **(Please see Appendix 3)**.
3. Brief updates in IndoOS progress from IORP and SIBER perspectives.
 - a. Shikha Singh or Janet Sprintall for IORP (15 mins)
 - b. Greg Cowie or Raleigh Hood for SIBER (15 Mins)
4. Invitation to IORP and SIBER Co-Chairs to highlight high level concerns and/or resource needs for IndoOS – for IRF noting and future consideration.
 - a. Shikha Singh and Janet Sprintall for IORP (5 mins)
 - b. Greg Cowie or Raleigh Hood for SIBER (5 Mins)
5. Discuss the process to select the new Chair in the future to replace Nick D'Adamo. (Led by IOGOOS through IOGOOS Interim Chair Brett Molony or nominated alternate TBA – 10 mins).
6. Identify any Action Items for the next IRF Meeting
(IRF Convener –5 minutes)
7. Any other business
(IRF Chair to lead – 5 mins or time remaining)
8. Next meeting IRF-19 (Chair)

Draft minutes of IRF-17

Meeting agenda

1. Chair's welcome & objectives, confirmation of agenda, and identification of "any other business" for the agenda. (IRF Chair, All – 10 minutes)

- **Review of the membership:** Thanks to outgoing members (if any), and welcome to any new members.

Done. Nick D'Adamo voluntarily agreed to hold the position of IRF Chair until the nomination of new by IOGOOS. IRF members thanked Dr D'Adamo for his contribution and for providing voluntary service.

- **An overview of the IRF-17 agenda was circulated before the meeting.**

Done

- **Any other business (for Agenda Item 8)**

Added one item to be discussed for agenda item no. 8

2. Convener's brief report. (IRF Convener – 10 minutes)

- Report on key issues, including:

- Draft minutes of IRF-16, for ratification (**as had been circulated before IRF-17**).

Ratified

- Status of Action Items (**Please see Appendix 1**)

Noted

- Updated IRF membership as of IRF-16 for ratification and/or further advice from members (**Please see Appendix 2**).

Noted

- For noting and reference, as a standing item – IRF ToR (**Please see Appendix 3**).

Noted

3. Ocean Observing System and Data in the Indian Ocean (E Pattabhi Rama Rao – 20 min)

E Pattabhi Rama Rao from India delivered an invited talk on Ocean Observing System and Data in the Indian Ocean - India's Contributions. The presentation outlines India's comprehensive contributions to observing, understanding, and forecasting the Indian Ocean, led primarily by the Indian National Centre for Ocean Information Services (INCOIS) under the Ministry of Earth Sciences (MoES). It traces the evolution of Indian Ocean observations from early international expeditions to today's integrated observing system that combines satellites, in-situ platforms, modelling, and data management within the Global Ocean Observing System (GOOS) framework. The talk also highlighted India's operational ocean services, and emphasizes sustained observations, data assimilation, and research campaigns to improve understanding of monsoon dynamics, air-sea interactions, climate variability, and extreme events.

4. Brief updates in IndoOS progress from IORP and SIBER perspectives.

a. Shikha Singh and Janet Sprintall for IORP (10 mins)

Dr Shikha Singh, Co-Chair, CLIVAR-IORP presented the importance, current status, and challenges of the Indian Ocean Observing System (IndOOS), emphasizing its critical role in monitoring ocean–atmosphere interactions. The talk also outlined the scientific and societal drivers behind IndOOS, its regeneration framework guided by international coordination through IRF and the complementary design of multiple observing platforms to ensure robust, real-time data for models and forecasts.

b. Greg Cowie or Raleigh Hood for SIBER (10 Mins)

Prof Raleigh Hood, Co-Chair, SIBER reported the status, achievements, and challenges of SIBER. The presentation highlighted SIBER’s leadership structure, strong international participation, and close alignment with IIOE-2, including coordinated cruises, Bio-Argo deployments, and synthesis activities. Major scientific outputs include multiple special journal issues, more than 80 Deep-Sea Research papers, and an interdisciplinary book published in 2024. New initiatives such as MOSAIC coastal observatories and the low-cost Coastal Observation Lab in a Box (COLaB) aim to strengthen sustained observations, capacity building, and regional data sharing.

5. Invitation to IORP and SIBER Co-Chairs to highlight high level concerns and/or resource needs for IndoOS – for IRF noting and future consideration.

a. Shikha Singh and Janet Sprintall for IORP (10 mins)

Dr Shikha Singh, Co-Chair, CLIVAR-IORP raised concern regarding severe disruption to IndOOS caused by the COVID-19 pandemic, including major losses in the RAMA mooring array and sharp declines in data return. Dr Singh stressed regional partnerships, recovery efforts, and proposed international working group to assess data loss impacts, optimize the observing system, strengthen capacity building, and ensure IndOOS outputs remain accessible and relevant for science, services, and policy.

b. Greg Cowie or Raleigh Hood for SIBER (10 Mins)

Prof Raleigh Hood, Co-Chair, raised serious concern over deteriorating core funding that threatens SIBER’s continuity. Prof Hood requesting stronger integration of SIBER under IIOE-2 and continued international and regional support to sustain biogeochemical and ecosystem observations critical for science, services, and policy in the Indian Ocean. Prof Hood requested financial assistance of an like amount of USD 7500.00.

IRF – 17 to report to IOGOOS to year mark funds for the SIBER.

- 6. Discuss the process to select the new Chair in the future to replace Nick D’Adamo. (Led by IOGOOS through IOGOOS Interim Chair Brett Molony or nominated alternate TBA – 10 mins).**

IOGOOS Secretariat had approached Dr David Legler, Director, Global Ocean Monitoring & Observing, National Oceanic and Atmospheric Administration to Chair IRF. However, Dr Legler has expressed his inability to accept the position.

Dr Nick D’Adamo was requested to hold the IRF Chair until IOGOOS (as the patron of IRF) will find a new IRF Chair to take over.

- 7. Identify any Action Items for the next IRF Meeting (IRF Convener –5 minutes)**

Provided in Appendix-1

- 8. Any other business (IRF Chair to lead – 10 mins or time remaining)**

It is proposed to modify Item No. 5.4 of ToR as “IOGOOS will appoint a convenor to provide secretarial support to the IRF” which was accepted by the members.

- 9. Next meeting IRF-17 (Chair)**

The next IRF (IRF-17) meeting will be convened along with the annual integrated meeting of the IOGOOS, IIOE-2, IORP and SIBER. The IOGOOS Secretariat will intimate the meeting venue.

Status of Action Items

(includes reference to any carry-over Actions from recent IRF meetings)

Action Item No	Action item	Progress, comments
15.1	Identifying representative from France & South Korea	To be discussed during IRF-18
16.1	Clarification is required from IORP on the current status of ICPO (International CLIVAR Project Office) following advice received by IRF that the ICPO Executive Director and Head of Secretariat have retired	To be discussed during IRF-18
16.2	Co-Chair(s) IORP and SIBER to send IRF Convener Brief update in IndoOS progress from IORP perspective, as presented at IRF-16	Communication sent to the Co-Chair(s) IORP and SIBER To be discussed during IRF-18
16.3	Co-Chair(s) IORP and SIBER to send IRF Convener IORP's annual statement RE: Resources Request as mooted at IRF-15.	Communication sent to the Co-Chair(s) IORP and SIBER To be discussed during IRF-18
16.4	IOGOOS (as the patron of IRF) will find a new IRF Chair to take over at IRF-17 in Mauritius	IOGOOS Secretary send a communication to Dr. David Legler seeking his willingness to chair IRF. However, Dr Legler expressed his unavailability. Further update will be obtained from the IOGOOS Secretary during IRF-17. To be discussed during IRF-18
16.5	IOCINDIO to be contacted to nominate someone to be a Member of the IRF	The first intergovernmental session of the IOCINDIO is scheduled at Ras Al Khaimah, UAE, from 19 - 23 May 2025, during which the officer's elections will take place. Subsequently, the convener will contact IOCINDIO to nominate someone to be a Member of the IRF To be discussed during IRF-18
16.6	The next IRF (IRF-17) meeting will be convened along with the annual integrated meeting of the IOGOOS, IIOE-2, IORP and SIBER	Completed
17.1	Obtain nomination from Dr Ravichandran for alternate member to represent India at IRF	Completed Dr T M Balakrishnan Nair is nominated as an alternate member to represent India at IRF

17.2	IOCINDIO to be contacted to nominate someone to be a Member of the IRF. Convener would draft the necessary letter (or email would suffice) for the IRF Chair to sign, then (or endorse) and have it sent to the IOCINDIO Chair via Convener.	To be discussed during IRF-18
17.3	To facilitate a working group to assess data loss impacts, optimize the observing system, strengthen capacity building, and ensure IndoOS outputs remain accessible and relevant for science, services, and policy (From IORP)	To be discussed during IRF-18
17.4	Report to IOGOOS to year mark funds to support SIBER.	Completed Informed IOGOOS during XII major meeting at Mauritius 08 May 2025.
17.3	The next IRF (IRF-18) meeting will be convened along with the annual integrated meeting of the IOGOOS, IIOE-2, IORP and SIBER.	Completed

Membership as of IRF-16 for reference of the IRF-17 meeting

IRF Members (and alternates, where provided)			
National links			
Role	Member	Alternate	Remarks
Chair	Dr Nick D'Adamo Adjunct Research Fellow, Oceans Institute of the University of Western Australia. Email: nick.dadamo@uwa.edu.au		Nick D'Adamo continued as interim Chair in a voluntary capacity, pending resolution of Chair replacement by IOGOOS (to be addressed at IRF-17)
Australia	Ms. Michelle Heupel Director, Integrated Marine Observing System (IMOS), University of Tasmania, Australia Email: Michelle.Heupel@utas.edu.au	Dr Paul van Ruth, IMOS Senior Science Officer Email: Paul.vanRuth@utas.edu.au	Former Alternate, Dr Indi Hodgson- Johnston was thanked by IRF as an outgoing member. Dr Paul van Ruth communicated that he is no longer part of the IMOS program. For IMOS related issues please contact Mark Scognamiglio (mark.scognamiglio@utas.edu.au) Received communication from Michelle Heupel that she will be the contact going forward.
China	Dr. Chen Zhi Deputy Director General, Department of Ocean Prediction and Disaster Reduction, Ministry of Natural Resources Email: chenzhi@nmefc.cn	Dr Feng Zhou Senior Research Scientist, Director, Laboratory of Satellite Ocean Environment Dynamics, Second Institute of Oceanography,	Dr Feng Zhou's nomination was formally accepted by Chair IOGOOS (email to Convener and Chair IRF, 24 May 2022)

		Ministry of Natural Resources (SIOMNR), China Email: zhoufeng@sio.org.cn	
France	Yet to be represented		Dr Marie Alexandrine-Sicre advised that she would check on this matter.
India	Dr M Ravichandran Secretary, Ministry of Earth Sciences (MoES), New Delhi, India. Email: secretary@moes.gov.in	Dr. Srinivasa Kumar Director, Indian National Centre for Ocean Information Services (INCOIS), Email: srinivas@incois.gov.in	Dr Srinivasa Kumar assumed charge as Head Indian Ocean Tsunami Warning and Mitigation System (IOTWMS) Secretariat and cannot continue as alternate member.
Indonesia	Nelly Florida Director for Research, Badan Meteorologi, Klimatologi, Dan Geofisika (BMKG), Jakarta, Indonesia Email: nelly.florida@bmkg.go.id		Convener checked with IOGOOS Chair and Dr Florida on this matter (by email 4 Mar 2022). IOGOOS Chair Dr Srinivasa Kumar welcomed Dr Nelly Florida as the new Member for Indonesia (via emailed confirmation on 5 March 2022)
Iran	Professor Behrooz Abtahi Director, Iranian National Institute for Oceanography and Atmospheric Science (INIOAS) Email: inioas@inio.ac.ir		
Japan	Dr Shuhei MASUDA Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Director, Global Ocean Research Centre, Research Institute for Global Change (RIGC) Email: smasuda@jamstec.go.jp		Dr. Kentaro Ando (former IRF Member for Japan) nominated Dr MASUDA. IOGOOS Chair is formalizing the appointment, as per the IRF ToR. IOGOOS Chair Dr Srinivasa Kumar is to advise on IOGOOS's consideration of

			Dr Shuhei Masuda as a proposed Member for Japan
Kuwait	Dr. Faiza Al Yamani IOGOOS Officer West Indian Ocean KISR, Kuwait Email: faizayamani@gmail.com		IOGOOS Chair Dr Srinivasa Kumar is to advise on IOGOOS's consideration of Dr Faiza Al Yamani as a proposed Member for Kuwait
South Korea	Yet to be advised		IRF Chair Dr Sidney Thurston advised that he would check on this matter
South Africa	Dr Dismore Gilbert Siko Director – Marine and Polar Research, Paleosciences, Department of Science and Innovation (DSI), South Africa Email: Gilbert.Siko@dst.gov.za		IRF Convener to check on whether the lead person for the South African research vessel, S.A Agulhas II, may be amenable to becoming a Member of IRF
USA	Dr David Legler Director, NOAA Global Ocean Monitoring and Observing Program (GOMO), USA Email: david.legler@noaa.gov	Dr Sidney Thurston Overseas Program Development, NOAA Global Ocean Monitoring and Observing Program (GOMO), USA Email: Sidney.Thurston@noaa.gov	
IORP	Dr. Roxy Mathew Koll, IORP Co-Chair, Centre for Climate Change Research, Indian Institute of Tropical Meteorology, India. Email: roxy@tropmet.res.in		Dr Koll due to retire as Co-Chair IORP ahead of IRF-16. Due to be replaced by Dr Janet Sprintall Dr Janet communicated that Dr Shikha Singh is also a co-chair of IORP and will provide updates on behalf of IORP.
IORP	Dr. Juliet Hermes IORP Co-Chair, Manager: SAEON Egagasini node Email: jc.hermes@saeon.nrf.ac.za		To be replaced by Dr Shikha Singh

	<p>A/Professor, Department of Oceanography, University of Cape Town Email: jc.hermes@uct.ac.za</p> <p>Honorary Professor, Institute for Coastal and Marine Research, Nelson Mandela, University Email: juliet.hermes@mandela.ac.za</p>		
SIBER	<p>Prof. Raleigh R. Hood SIBER Co-Chair, Horn Point Laboratory, University of Maryland Centre for Environmental Science, MD, USA email: rhood@umces.edu</p>		
SIBER	<p>Dr. Greg Cowie SIBER Chair, University of Edinburgh, Centre for Earth System Dynamics, School of Geosciences, Global Change, Oceans and Past Climate Email: Dr.Greg.Cowie@ed.ac.uk</p>		
SIBER	<p>Dr Aneesh Lotliker SIBER Secretary, Indian National Centre for Ocean Information Services, India Email: aneesh@incois.gov.in</p>		Dr Aneesh Lotliker was thanked and welcomed by IOGOOS Chair
IOGOOS	<p>Dr. Srinivasa Kumar Director, Indian National Centre for Ocean Information Services (INCOIS), India Email: srinivas@incois.gov.in</p>		Dr Srinivasa Kumar has stepped down as IOGOOS chair after assumption of the charge as a Head Indian Ocean Tsunami Warning and Mitigation System (IOTWMS) Secretariat.

			Dr Brett Molony is now the interim chair of IOGOOS.
IOGOOS	Mr. M. Nagaraja Kumar, IOGOOS Secretary, Indian Ocean Global Ocean Observing System (IOGOOS), Scientist-F & Divisional Head, Operational Ocean Services, Indian National Centre for Ocean Information Services (INCOIS), India Email: raja@incois.gov.in		
IOGOOS	Dr. Brett Molony IOGOOS Officer – East Indian Ocean, CSIRO, Perth, Western Australia Email: brett.molony@csiro.au		
IOGOOS	Dr. Faiza Al Yamani IOGOOS Officer West Indian Ocean KISR, Kuwait Email: faizayamani@gmail.com		
IOGOOS	Dr. Jenny Huggett, IOGOOS Officer, Project Representative Email: jenny.huggett@gmail.com		
Convener	Dr Aneesh Lotliker Scientist-F & Divisional Head, Ocean Observation Network, Indian National Centre for Ocean Information Services, Email: aneesh@incois.gov.in		Nick D’Adamo continued as interim convener in a voluntary capacity and replaced by Aneesh Lotliker at IRF-16
International Organisations			
IOC	Dr. Vladimir Ryabinin Executive Secretary, UNESCO IOC, 7, Place de Fontenoy, 75007, Paris, France		UNESCO IOC was invited to nominate an Alternate

	Email: v.ryabinin@unesco.org		
ICPO	Former rep retired TBA Executive Director, International CLIVAR Project Office (ICPO)		Former rep retired TBA International CLIVAR Project Office

IndOOS Resource Forum

Terms of Reference (TOR)

Revised Version as ratified at IRF-17 on 08 May 2025

1. Establishment

The IndOOS Resource Forum (IRF) was established by resolution of the Indian Ocean -Global Ocean Observing System (IOGOOS), incorporating the institutions that are currently committing resources to the Indian Ocean Observing System (IndOOS).

2. Composition

Members and **Ex-Officios** of the IRF will be invited by the Chair of IOGOOS.

- **Members** will be comprised of representatives of institutions/organizations allocating or facilitating resources to accomplish the overall goals of IndOOS. The initial term for each member is two years, with possible extensions on a two-year basis.
- **Ex-Officios** will be Co-Chairs of the CLIVAR/IOC-GOOS Indian Ocean Region Panel (IORP) and the Chair and Co-Chairs of the Scientific Steering Committee of Sustained Indian Ocean Biogeochemistry and Ecosystem Research (SIBER) and representatives from the Indian Ocean Global Ocean Observing System (IOGOOS).

The Forum will review membership at each meeting and invite additional members as required.

A member shall be deemed to be inactive if he/she does not attend an IRF meeting for two consecutive years and they are not actively contributing to the functions of the Forum. In these circumstances, the Secretariat will advise the Forum and write to that member notifying them that they will be rotated off the Forum.

3. Functions

The main function of the IRF is to provide a multi-institutional forum to facilitate the alignment of resources for the implementation of IndOOS, including the following:

- 3.1 To review the requirements for the implementation of IndOOS
- 3.2 To facilitate and coordinate resources that may be applied to the system, especially ship time for the Research Moored Array for African-Asian-Australian Monsoon Analysis and Prediction (RAMA)
- 3.3 To encourage scientific and technological initiatives in the participating countries to meet the objectives of IndOOS
- 3.4 To enhance and facilitate data and information sharing with regard to IndOOS
- 3.5 To report on its activities to the Heads of the institutions providing resources.

4. Scientific and Technical Advisory Bodies

In performing its tasks, the IRF should be guided by the scientific objectives and research strategy formulated by the IORP and the SIBER Scientific Coordinating Committee, which are regarded as the main scientific bodies to advise the IRF.

5. Organization of Meetings

5.1 The meetings of IRF will be organized annually. IRF will hold meetings at dates and places to be decided at the previous meeting. The Secretariat will be responsible for arranging meetings and will send invitations to attend to:

- All IRF Members and Ex-Officios
- Experts invited as Observers by the Chair of the IRF, as deemed necessary for the deliberations in that specific session of the IRF.

5.2 At the close of every other meeting (i.e. every 2 years), the IRF will elect from its members a Chair who will serve in that capacity for the next 2 years. An individual shall normally serve no more than two consecutive terms as Chair (i.e. 4 years total). However, if the IRF membership believes it is in the interests of IRF to retain an effective Chair for longer than two consecutive terms, then this may be done by consensus of the IRF at the close of every other meeting (i.e. every 2 years). In the event of periods for which the Chair position is not designated and vacant, the IRF Convenor will represent that role as a pending measure.

5.3 Sessions will be conducted in English and reports published in that language.

5.4 IOGOOS will appoint a convenor to provide secretarial support to the IRF.

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