

MINUTES

Fourteenth meeting of the Indian Ocean Observing System (IndOOS) Resource Forum (IRF-14)

1030AM-1230PM UTC, Thursday 24 March 2022

DRAFT MINUTES AS AT 24 MAY 2022

(formulated as inserts in italics within the flow of the IRF-14 Agenda) FOR

Note: IRF-14 MINUTES FOR RATIFICATION AT IRF-15, 9 FEBRUARY 2023

Meeting Title	Fourteenth Meeting of the Indian Ocean Observing System (IndOOS) Resource Forum (IRF-14)
Date	Thursday 24 March 2022
Time & Duration	UTC 1030-1230 (Please see below for specific major city times). Duration – allow maximum 2.0 hours.
Location	Remote Access Via GoToMeeting https://meet.google.com/ruh-uvpu-zaf?authuser=0&hs=122
Chair	Sidney Thurston, Ph.D.
Convener	Nick D'Adamo, Ph.D.
Rapporteur	Nick D'Adamo or TBA
Invited Participants	IRF members, IRF ex-officios and IRF-13 observers. Additional observer attendance welcomed by request to Chair. Convener can also facilitate requests via nick.dadamo@uwa.edu.au <i>See email invitation list for IRF-14, below*.</i>

Host	IRF-14 to be hosted by the US National Oceanic and Atmospheric Administration (NOAA), through Chair Sidney Thurston.
Remote Access	Remote Access Via GoToMeeting https://meet.google.com/ruh-uvpu-zaf?authuser=0&hs=122

- **IRF-4 email invitation list**

tara.clemente@noaa.gov <tara.clemente@noaa.gov>; srinivas@incois.gov.in <srinivas@incois.gov.in>; Secretary MoES <secretary@moes.gov.in>; rhood@umces.edu <rhood@umces.edu>; COWIE Gregory <Dr.Greg.Cowie@ed.ac.uk>; shankar@nio.org <shankar@nio.org>; anil@ncaor.gov.in <anil@ncaor.gov.in>; david.legler@noaa.gov <david.legler@noaa.gov>; Roxy Mathew Koll <roxy@tropmet.res.in>; joseph.naughton@noaa.gov <joseph.naughton@noaa.gov>; venkat@niot.res.in <venkat@niot.res.in>; vhormann@ucsd.edu <vhormann@ucsd.edu>; Nelly Florida Riama <nelly.florida@bmkg.go.id>; Brett Molony (Guest) <brett.molony@csiro.au>; pattabhi <pattabhi@incois.gov.in>; Meredith Kurz - NOAA Federal <meredith.kurz@noaa.gov>; Gilbert.Siko@dst.gov.za <Gilbert.Siko@dst.gov.za>; raja@incois.gov.in <raja@incois.gov.in>; Motoki Nagura <nagura@jamstec.go.jp>; Nick D'Adamo <nick.dadamo@uwa.edu.au>; atandon@umassd.edu <atandon@umassd.edu>; Michelle.Heupel@utas.edu.au <Michelle.Heupel@imos.org.au>; paluszt@onr.navy.mil <paluszt@onr.navy.mil>; Jim Costopulos <jcostopulos@global-oceans.org>; AHANHANZO, Justin (J.Ahanhanzo@unesco.org) <J.Ahanhanzo@unesco.org>; AHANHANZO, Justin (J.Ahanhanzo@unesco.org) <J.Ahanhanzo@unesco.org>; andouk@jamstec.go.jp <andouk@jamstec.go.jp>; shikha@tropmet.res.in <shikha@tropmet.res.in>; Deb Huff <dhuff@minderoo.org>; inioas@inio.ac.ir <inioas@inio.ac.ir>; Alan Jamieson <alan.j.jamieson@uwa.edu.au>; Indi Hodgson-Johnston <indiah.hodgsonjohnston@utas.edu.au>; Juliet <jc.hermes@saeon.nrf.ac.za>; Jose Santos <jose.santos@clivar.org>; elmc@norceresearch.no <elm@norceresearch.no>; wdyu@dhu.edu.cn <wdyu@dhu.edu.cn>; faizayamani@gmail.com <faizayamani@gmail.com>; Dr Vladimir Ryabinin SC Co-Chair IOC <v.ryabinin@unesco.org>; Aneesh <aneesh@incois.gov.in>; chenzhi@nmefc.cn <chenzhi@nmefc.cn>; Jing Li <jing.li@clivar.org>; Tony Worby <tworby@minderoo.org>; Michael Mcphaden - NOAA Federal <michael.j.mcphaden@noaa.gov>; smasuda@jamstec.go.jp <smasuda@jamstec.go.jp>; Sidney Thurston - NOAA Federal <Sidney.Thurston@noaa.gov>; Jenny Huggett <jenny.huggett@gmail.com>; Nick D'Adamo <nick.dadamo@bom.gov.au>
Cc: Julian Partridge <julian.partridge@uwa.edu.au>; Nicole Jones <nicole.jones@uwa.edu.au>; Charitha Pattiaratchi <chari.pattiaratchi@uwa.edu.au>; Gilles Bessero <gbessero@monacoexplorations.org>; Carl Gustaf Lundin <carl.lundin@bluewin.ch>; Francois Simard <francois.simard.suisse@gmail.com>

**Please join IRF-14 from your computer, tablet or smartphone:
14th IndoOS Resource Forum (IRF-14)**

10.30AM-12.30PM UTC, Thursday, 23 March 2022

Remote Access Via GoToMeeting

<https://meet.google.com/ruh-uvpu-zaf?authuser=0&hs=122>

IndOOS Resource Forum IRF-14, selected City Times

City	UTC	Meeting start time 10:30 Hrs UTC	Meeting end time 12:30 Hrs UTC
Melbourne	UTC + 10 Hrs	21:30	23:30
Perth	UTC + 8 Hrs	18:30	20:30
Hyderabad	UTC + 5:30 Hrs	16:00	18:00
Paris	UTC + 1 Hrs	11:30	13:30
Cape Town	UTC + 2 Hrs	12:30	14:30
London	UTC + 0 Hrs	10:30	12:30
New York / Washington DC	UTC - 4 Hrs	06:30	08:30
Jakarta	UTC + 7 Hrs	17.30	19.30
Tokyo	UTC + 9 Hrs	19.30	21.30
California	UTC - 7 Hrs	03:30	05:30

Fourteenth Meeting of the Indian Ocean Observing System Resource Forum (IRF-14) 10.30AM-12.30PM UTC Thursday 24 March 2022

Final Draft Agenda as at 19 March 2022

1. Chair's welcome & objectives, confirmation of agenda, and identification of "any other business" for the agenda. (IRF Chair, All – 5 minutes)
 - Thanks to outgoing members, and welcome to new members.

Done.

 - Overview of the IRF-14 agenda which was circulated ahead of the meeting.

Done.

 - Any other business (for Agenda Item 6).

Done added.
2. Convener's brief report. (IRF Convener – up to 10 minutes)
 - Report on key issues, including:
 - Draft minutes of IRF-13, for ratification (**Please see Separate IRF-13 Draft Minutes**).

IRF-13 minutes accepted and ratified with no further changes.

- Status of Action Items from IRF-13 (**Please see Appendix 1**)

Status of Action Items noted.

RE: Action Item 13.3 on status of convener, Nick D'Adamo advised he was happy to continue.

- Updated IRF membership as at IRF-14, for ratification and/or further advice from Members (**Please see Appendix 2**).

Membership updates are inserted within the membership table (see below, in Appendix 2 of IRF-14), and follow up actions in respect to various member vacancies are embedded throughout the table.

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

Noted.

3. Brief updates on existing initiatives and introductions to new initiatives and projects relevant to IRF and IndoOOS. (IRF Chair to lead, 90 mins)

- I. MoES-NOAA Indian Ocean Data Portal Launch update (IRF Chair or Secretary MoES - 10 mins)
- II. Update on ongoing Indian Ocean RAMA Cruise Preparations (end of 2021 and 2022) (IORP rep - TBA, IORP – 5 mins)
- III. IORP update, tracking IndoOOS implementation (~~Roxy Koll & Juliet Hermes, IORP~~ Dr Sidney Thurston - 10 mins)
- IV. Update on IndoOOS related activities from Sun Yat-sen University (Weidong Yu, School of Atmospheric Sciences, Sun Yat-Sen University - 5 mins)
- V. Brief report on relevancies to IndoOOS from [IIOSC-22](#) March 14-18, 2022 in Goa (Srinivasa Kumar, INCOIS - 5 mins)
- VI. Brief report on relevancies to IndoOOS from IIOE-2 Steering Committee No 5 (21 March 2022) (~~Nagaraja Kumar, IIOE-2 Project Office, INCOIS~~ – 5 mins Dr Sidney Thurston - 10 mins)
- VII. Further considerations on conceptual Indian Ocean Test Bed Prototype for the GOOS Co-Design (Dr Sidney Thurston - 10 mins)
- VIII. India-USA-EKAMSAT – Enhancing Knowledge of the Arabian Sea Marine Environment through Science and Advanced Training (Prof Amit Tandon – 10 mins)
- IX. Global Ocean Acidification Observing Network (GOA-ON) - DBCP-37 is suggesting broadening platform observations to potentially include BGC (TBA - 5 mins)
- X. Update on [MARV](#) Research and Observation Platforms for the [Indo-Pacific Region](#) - Proposed Annual Indian Ocean Transect to include early career scientists and capacity building (Jim Costopulos, Global Oceans - 5 minutes)

- XI. Update on [GBON](#), SOFF, new WMO Unified Data Policy (Sidney Thurston, NOAA, 5 mins)
- XII. India's Deep Ocean Project – update on how the IRF can facilitate? (Srinivasa Kumar or TBA, INCOIS - 5 mins)
- XIII. Monaco Exploration Society *Indian Ocean Expedition* – update. (Nick D'Adamo, University of Western Australia – Oceans Institute - 5 mins)
- XIV. Update on concept and decision for an [20th Anniversary](#) Issue on [IOGOOS](#) achievements (Sidney Thurston, IRF Chair, All – 5 minutes)

Comments on the above items as a whole:

- *C Pattiaratchi and Pattabhi Rao highlighted that there are significant gaps in Argo coverage in the Indian Ocean.*

Action Item 14.1. Members to advise IRF (through Dr Pattabhi Rao, on behalf of the MoES-NOAA Joint OMNI-RAMA Indian Ocean Data Portal) of any prospective cruises that could be relevant to Argo deployment opportunities, to help facilitate enhanced deployments of Argo to redress emergent gaps in the Indian Ocean's Argo network.

- *Regarding the IOGOOS's 20th anniversary (1st meeting Mauritius 2002), S Thurston referred to the significant progress that has been made in building an IndOOS since that time, most recently with the important enhancement of RAMA with the complementary Indian OMNI network.*
- *S Thurston also referred to the recent US Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act), signed by President Biden on 15 Nov 2021, which will result in significant support for oceanic observations, services and related needs globally, and with context to IndOOS.*
- *Dr Motoki Nagura reported in respected to IORP's interests in obtaining regular updates from Members on national progress for IndOOS, and that very few have so far been submitted, and (with support from Juliet Hermes, also for IORP) urged Members to attend to this important informational need for IndOOS.*

Action Item 14.2. Include a new standing agenda item for IRF meetings: that reports to be given by members who can speak to national progress on IndOOS.

- *It was noted for Members' benefits, that information on IndOOS progress, in respect to its various elements (Argo and other GOOS deployment types), can always be accessed via respective Steering Committee reports for each of the GOOS components, and also annually through the GOOS Report Cards via <https://www.ocean-ops.org/>.*
- *S Thurston commented that it would be important for the IndOOS project if significant emerging contributions to IndOOS, across its spectrum of components, be effectively communicated to help build awareness of and increase the constituency for IndOOS.*

Action Item 14.3. Members are requested to communicate through their own most effective means significant emerging contributions to IndOOS, across its spectrum of components, to help build awareness of and increase the constituency for IndOOS.

Action Item 14.4. Members are requested to provide documented summaries at IRF meetings of emerging nascent projects that build IndOOS and which involve 'co-design' across providers of ocean observations and benefits to users.

- *N D'Adamo reported that the Monaco Explorations Society's planned 'Indian Ocean Expedition' (IOE) (<https://www.monacoexplorations.org/en/>) is slated for Oct/Nov 2022, with a major research vessel from the IO region being considered. The IOE will focus on improving the bio-physical inventory and understanding of the ecological characteristics of Aldabra Atoll and Saya Dee Malha Bank of the West Indian Ocean.*

4. Identify Action Items for next Quarterly IRF Remote Access Meetings
(IRF Convener –5 minutes)

See above/below, Action Items 14.1 to 14.5.

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

None.

6. Forward meeting planning:
a. Next 'quarterly' IRF meeting.

Aim for around July 2022.

Action Item 14.5. N D'Adamo to coordinate planning for next quarterly meeting of IRF (ie IRF-14), aiming for around July 2022.

- b. 2023 'major' IRF meeting that would be held, as customary, in conjunction with IIOE-2, IOGOOS, IORP & SIBER.

Nick D'Adamo confirmed an offer by UWA - Oceans Institute to host the major annual IRF meeting in 2023 as follows:

"The Oceans Institute of the University of Western Australia offers to host the IIOE-2 SC6 and annual meetings of IOGOOS, IRF, SIBER and IORP at the Indian Ocean Marine Research Centre and would suggest the meeting period week be during early February 2023.

<https://www.uwa.edu.au/Facilities/Indian-Ocean-Marine-Research-Centre>".

Action Item 14.6. N D'Adamo to coordinate planning for and provide timely advice on the prospect of hosting major (annual) meetings of IRF with IIOE-2, IOGOOS, IORP, SIBER, at University of Western Australia Indian Ocean Marine Research Centre early Feb 2023.

(IRF Chair).

End.

IRF 14 - APPENDIX 1

For reference of IRF-14 meeting

With the addition of IRF-14 Action Items

IRF Convener's live progress table for IRF-13 Action Items Status as of 19 March 2022 (includes reference to any carry-over Actions from recent IRF meetings) <i>(With the addition of IRF-14 Action Items)</i>		
Action Item No.	Action item	Progress, comments
<i>14.1</i>	<i>Members to advise IRF (through Dr Pattabhi Rao, on behalf of the MoES-NOAA Joint OMNI-RAMA Indian Ocean Data Portal) of any prospective cruises that could be relevant to Argo deployment opportunities, to help facilitate enhanced deployments of Argo to redress emergent gaps in the Indian Ocean's Argo network.</i>	
<i>14.2</i>	<i>Include a new standing agenda item for IRF meetings: that reports to be given by members who can speak to national progress on IndOOS.</i>	
<i>14.3</i>	<i>Members are requested to communicate through their own most effective means significant emerging contributions to IndOOS, across its spectrum of components, to help build awareness of and increase the constituency for IndOOS.</i>	
<i>14.4</i>	<i>Members are requested to provide documented summaries at IRF meetings of emerging nascent projects that build IndOOS and which involve 'co-design' across providers of ocean observations and benefits to users.</i>	
<i>14.5</i>	<i>N D'Adamo to coordinate planning for next quarterly meeting of IRF (ie IRF-14), aiming for around July 2022.</i>	
<i>14.6</i>	<i>N D'Adamo to coordinate planning for and provide timely advice on the prospect of hosting major (annual) meetings of IRF with IIOE-2, IOGOOS, IORP, SIBER, at University of</i>	

	<i>Western Australia Indian Ocean Marine Research Centre early Feb 2023.</i>	
13.1	<i>IOGOOS to write to Dr Zhi to confirm and formalize Dr Zhi's Membership role as China Member.</i>	<i>Convener emailed IOGOOS Chair and IRF Chair 4 Mar 2022 to progress this item.</i> <i>Dr Weidong Yu advised IOGOOS & IRF Chairs (email 11 Mar 2022) that Dr Feng Zhou of the China MNR (Ministry of Natural Resources agency) is the nominee to replace Dr Chen Zhi. IOGOOS consideration is pending.</i>
13.2	<i>Members requested to provide IORP a brief paragraph on IndoOS progress from their own constituent's perspective, for the 2020 and 2021 calendar years, for use as input to IORP IndoOS 'Progress Reports'.</i>	<i>Reminders sent to all by Convener as part of advisories for IRF-14.</i>
13.3	<i>IOGOOS to advise on status of Convener position.</i>	<i>IOGOOS Chair invited to update.</i>
13.4	<i>Convener to coordinate planning for IRF-14.</i>	<i>Done.</i>
12.1	<i>All participants to agree on a method to update IndoOS-2 tracking sheet. (ii) Roxy to update on IndoOS tracking at next IRF Meeting.</i>	<i>Roxy invited to update on any progress.</i>
12.2	<i>Jim to work with IRF participants intersessionally to develop an initial draft brief for a collaborative cruise to bring to the next IRF meeting for discussion.</i>	<i>Jim invited to update on any progress.</i>
12.4	<i>Sidney to lead discussions with participants intersessionally to develop key milestones for preparing the supplement to meet the anniversary.</i>	<i>Sid invited to update on any progress.</i>
12.5	<i>Nick to provide an update on the Monaco Exploration Society's Indian Ocean Expedition 2022 at the next IRF meeting.</i>	<i>Nick invited to update on any progress.</i>
11.1	<i>Roxy to send IRF participants the link to the online IndoOS-2 track sheet.</i>	<i>If necessary, Roxy to confirm link</i>
11.2	<i>(i) Sidney, Nick and Roxy to work together offline to contact China re candidate representative(s) on IRF.</i> <i>(ii) Sidney to contact to Nelly Florida re an alternate representative to attend IRF.</i> <i>(iii) Sidney to contact to KIOS re a</i>	<i>(i) Done. See Membership table for progress.</i> <i>(ii) Done. See Membership table for progress.</i>

	<p><i>representative to attend IRF.</i></p> <p><i>(iv) Nick to contact Gilbert Siko via Juliet Hermes regarding an alternate representative to attend IRF.</i></p>	<p><i>(iii) Sidney Thurston invited to update on any progress.</i></p> <p><i>(iv) Juliet invited to update on any progress</i></p>
11.4	<p><i>(i) Ming to continue dialogue with relevant agencies to develop TFS consortium.</i></p>	<p><i>Ming invited to update on any progress.</i></p>
11.5	<p><i>Venkat to connect Jim Costopulos with Graham at JCOM.</i></p>	<p><i>Venkat invited to update on any progress.</i></p>
11.9	<p><i>GOOS Implementation Plan to be presented at next meeting by a relevant GOOS leader/stakeholder, to be identified via the GOOS Project Office/Secretariat, Paris.</i></p>	<p><i>Nick invited to update on any progress.</i></p>

IRF 14 - APPENDIX 2

For reference of IRF-13 meeting

IRF Membership as revised by Convener for IRF-14 on 24 March 2022. Including:

- **Any routine changes in membership that have occurred during the intervening period between IRF-14 and previous meetings; and**
- **Outstanding membership issues as noted.**

IRF Members (and alternates, where provided)		
IRF Members – National links		Alternate
Chair	Dr. Sidney Thurston Overseas Program Development, NOAA Global Ocean Monitoring and Observing Program (<u>GOMO</u>) 1315 East West Highway Silver Spring, MD 20910-5603, USA <u>Sidney.Thurston@noaa.gov</u>	
Australia	Ms. Michelle Heupel Director, Integrated Marine Observing System (<u>IMOS</u>) University of Tasmania Private Bag 110 Hobart TAS 7001, Australia Email: <u>Michelle.Heupel@utas.edu.au</u>	<i>Former Alternate, Dr Indi Hodgson-Johnston was thanked by IRF as an outgoing member.</i> <i>IMOS is invited to nominate a new Alternate.</i>
China	Dr. Chen Zhi Deputy Director General Department of Ocean Prediction and Disaster Reduction Ministry of Natural Resources No. 64 Fu-Cheng-Men-Nei Ave, Beijing 100812, P. R. China Email: <u>chenzhi@nmefc.cn</u>	<i>Dr Weidong Yu advised IOGOOS & IRF Chairs (email 11 Mar 2022) that Dr Feng Zhou of the China MNR (Ministry of Natural Resources agency) is the nominee to replace Dr Chen Zhi. IOGOOS consideration is pending.</i> <i>Dr Feng Zhou's nomination was formally accepted by Chair IOGOOS (email to Convener and Chair IRF, 24 May 2022)</i> <i>A note of thanks will be sent by IOGOOS to Dr Chen Zhi for his support of IRF during his Membership and to Dr Feng Zhou thanking and welcoming Dr Zhou to IRF.</i>
France	Yet to be represented. <i>Dr Marie Alexandrine-Sicre advised that she would check on this matter.</i>	
India	Dr M Ravichandran Ministry of Earth Sciences (<u>MoES</u>)	Dr. Srinivasa Kumar

	<p>Delhi, India Email: secretary@moes.gov.in</p> <p>(Note: Replacing former Secretary. To be formally confirmed at IRF-13)</p>	<p>Director, Indian National Centre for Ocean Information Services (INCOIS) (Ministry of Earth Sciences, Government of India) "Ocean Valley", Pragathi Nagar, Nizampet P.O Hyderabad - 500 090, India Email: srinivas@incois.gov.in</p>
Indonesia	<p>Nelly Florida Director for Research Badan Meteorologi, Klimatologi, Dan Geofisika (BKMG) Jakarta, Indonesia Email: nelly.florida@bkmkg.go.id</p>	<p>Convener to contact: invite as new member.</p> <p><i>Convener checked with IOGOOS Chair and Dr Florida on this matter (by email 4 Mar 2022).</i></p> <p><i>IOGOOS Chair Dr Srinivasa Kumar welcomed Dr Nelly Florida as the new Member for Indonesia (via emailed confirmation on 5 March 2022)</i></p>
Iran	<p>Professor Behrooz Abtahi Director, Iranian National Institute for Oceanography and Atmospheric Science (INIOAS) #3 Etemad Zadeh St., Fatemi Ave Tehran, Iran inioas@inio.ac.ir</p>	
Japan	<p>Dr Shuhei MASUDA Japan Agency for Marine-Earth Science and Technology (JAMSTEC) Director, Global Ocean Research Centre, Research Institute for Global Change (RIGC) 2-15 Natsushima, Yokosuka, 237-0061, Japan smasuda@jamstec.go.jp</p>	<p><i>Dr. Kentaro Ando (former IRF Member for Japan) nominated Dr MASUDA. IOGOOS Chair is formalizing the appointment, as per the IRF ToR.</i></p> <p><i>IOGOOS Chair Dr Srinivasa Kumar is to advise on IOGOOS's consideration of Dr Shuhei Masuda as a proposed Member for Japan.</i></p>
Kuwait	<p>Dr. Faiza Al Yamani, IOGOOS Officer West Indian Ocean KISR, Kuwait Email: faizayamani@gmail.com</p>	<p><i>IOGOOS Chair Dr Srinivasa Kumar is to advise on IOGOOS's consideration of Dr Faiza Al Yamani as a proposed Member for Kuwait.</i></p>
South Korea	<p>Yet to be advised.</p> <p><i>IRF Chair Dr Sidney Thurston advised that he would check on this matter.</i></p>	<p>Yet to be advised.</p> <p><i>IRF Chair Dr Sidney Thurston advised that he would check on this matter.</i></p>
South Africa	<p>Dr Dismore Gilbert Siko Director – Marine and Polar Research, Paleosciences. Department of Science and Innovation (DSI), Pretoria 111111, South Africa</p>	<p><i>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.</i></p>

	Gilbert.Siko@dst.gov.za	
USA	Dr David Legler Director, NOAA Global Ocean Monitoring and Observing Program (GOMO) 1315 East West Highway Silver Spring, MD 20910-5603, USA david.legler@noaa.gov	Dr Sidney Thurston (alternate) Overseas Program Development, NOAA Global Ocean Monitoring and Observing Program (GOMO) 1315 East West Highway Silver Spring, MD 20910-5603, USA Sidney.Thurston@noaa.gov
<u>IORP</u>	Dr. Roxy Mathew Koll, IORP Co-Chair Centre for Climate Change Research, Indian Institute of Tropical Meteorology, Pashan, Pune - 411 008, India. http://www.climate.rocksea.org/ Email: roxy@tropmet.res.in	
IORP	Dr. Juliet Hermes, IORP Co-Chair Manager: SAEON Egagasini node jc.hermes@saeon.nrf.ac.za A/Professor, Department of Oceanography, University of Cape Town, jc.hermes@uct.ac.za Honorary Professor, Institute for Coastal and Marine Research, Nelson Mandela University, juliet.hermes@mandela.ac.za Cell (+27) (0)834729159 South African Environmental Observation Network https://orcid.org/0000-0001-7858-514X https://www.nrf.ac.za/email-legal-notice.php http://www.nrf.ac.za/email-legal-notice.php	
<u>SIBER</u>	Prof. Raleigh R. Hood, SIBER Co-Chair Horn Point Laboratory University of Maryland Centre for Environmental Science P.O. Box 775 Cambridge, MD 21613 email: rhood@umces.edu	
SIBER	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	

SIBER	<p>Dr. Aneesh Lotlicker SIBER Secretary Indian National Centre for Ocean Information Services (INCOIS), Ministry of Earth Sciences (MoES), Govt. of India "Ocean Valley", Pragathi Nagar (BO), Nizampet (SO), Hyderabad, Andhra Pradesh-500 090, India Email: aneesh@incois.gov.in</p>	<i>Dr Aneesh Lotlicker was thanked and welcomed by IOGOOS Chair.</i>
<u>IOGOOS</u>	<p>Dr. Srinivasa Kumar, IOGOOS Chair Director, Indian National Centre for Ocean Information Services (INCOIS) (Ministry of Earth Sciences, Government of India) "Ocean Valley", Pragathi Nagar, Nizampet P.O Hyderabad - 500 090, India Email: srinivas@incois.gov.in</p> <p>(Note: Replacing former Director. To be formally confirmed at IRF-13)</p>	
IOGOOS	<p>Mr. M. Nagaraja Kumar, IOGOOS Secretary, Indian Ocean Global Ocean Observing System (IOGOOS), Scientist In-charge, PFZ Mission, Indian National Centre for Ocean Information Services (INCOIS), 'Ocean Valley', Pragathi Nagar BO, Nizampet SO, Hyderabad-500054, Andhra Pradesh, India Email: raja@incois.gov.in ; raja.masuluri@gmail.com</p>	
IOGOOS	<p>Dr. Brett Molony, IOGOOS Officer – East Indian Ocean CSIRO, Perth, Western Australia Email: brett.molony@csiro.au</p>	
IOGOOS	<p>Dr. Faiza Al Yamani, IOGOOS Officer West Indian Ocean KISR, Kuwait Email: faizayamani@gmail.com</p>	
IOGOOS	<p>Dr. Jenny Huggett, IOGOOS Officer, Project Representative Email: jenny.huggett@gmail.com</p>	
IOGOOS	<p>Dr. Elaine McDonough, IOGOOS Officer, Project Representative</p>	

	Email: elmc@norceresearch.no	
IRF Convener	Dr Nick D'Adamo. Adjunct Research Fellow, Oceans Institute of the University of Western Australia. Email: nick.dadamo@uwa.edu.au <i>Note: Nick D'Adamo continues as interim Convener in a voluntary capacity, pending resolution of Convener replacement by IOGOOS (to be addressed at IRF-13)</i>	
IRF Members – International Organisations		Alternate
<u>IOC</u>	Dr. Vladimir Ryabinin Executive Secretary, UNESCO IOC, 7 Place de Fontenoy, 75007, Paris, France Email: v.ryabinin@unesco.org	<i>UNESCO IOC was invited to nominate an Alternate.</i>
<u>ICPO</u>	Dr Jose Luis Santos Davila Executive Director International CLIVAR Project Office (ICPO) c/- First Institute of Oceanography, MNR 6 Xianxialing Rd Laoshan District Qingdao, China, 266061 Email: jose.santos@clivar.org	Dr Jing Li Staff Scientist International CLIVAR Project Office First Institute of Oceanography, MNR Qingdao, China 266061 Tel: +86-532-88891090 Email: jing.li@clivar.org

IRF-14 APPENDIX 3

IndOOS Resource Forum

Terms of Reference (TOR)

Revised Version as ratified at IRF-12 on 16 March 2021

1. Establishment

The IndOOS Resource Forum (IRF) was established by resolution of 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-yearly 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 2 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 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; and
- 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 organised 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 seek Secretariat support for the Forum from the UNESCO IOC Perth Programme Office. This role will be referred to as the IRF Convenor.