







Minutes of CLIVAR/GEWEX Monsoons Panel Meeting

MEETING INFORMATION

Meeting Number	2025-3	Meeting Title	CLIVAR/GEWEX Monsoons Panel Meeting
Objective/Purpose	Discuss on the Agenda Items and progress on action items		
Time & Date	21 May 2025 16-17:30 UTC	Venue	Microsoft Teams Video Conference

MEETING DETAILS

Chairperson(s)	Leila Carvalho (MP Co-Chair)	Rapporteur	E.N. Rajagopal
Attendees	MP: Leila Carvalho, Rondrotiana Barimalala, Vasubandhu Misra, Jhan-Carlo Espinoza, Luis Brito-Castillo, Samson Hagos, Hui Su, Thea Turkington, Hanh Nguyen, IMPO: E.N. Rajagopal, Rupakumar Kolli		
Absentees	MP: Suryachardra Rao A., Hiroshi Takahashi, Annalisa Cherchi, Satyaban Ratna, Fengfei Song IMPO: Susmitha Joseph		

ACTIONS

Deadline	Action	Responsible
Ongoing	Continue to build connections with other panels and Light House Activities (LHA) of WCRP and make strong linkages with partner projects.	MP members & Co-Chairs
Ongoing	MP members to participate in WG meetings of their interest and collaborate on any activity.	MP members & Co-Chairs
As and when required by MP	WGs to provide PPT slides of their scientific results for projecting in MP's presentations in CLIVAR/GEWEX SSG and WCRP JSC meetings	WGs, MP Co- chairs & IMPO
15 June 2025	Response to CLIVAR and GEWEX SSGs on their feedbacks on MP's 2025 Annual Report	MP Co-chairs
30 June 2025	Updation of monsoon content in MP's webpage for IMPO's new webpage	MP members & IMPO
Next MP meeting	Members to present their views on the proposed MP's new Observational cum Modelling project planned to be submitted to CLIVAR/GEWEX/WCRP for approval/funding	MP members

Deadline	Action	Responsible
Ongoing	Members to actively get involved in GPEX and its Working Groups' activities by providing ideas for the experiment and supporting in the augmentation of existing precipitation datasets.	MP and all WGs

AGENDA AND KEY OUTCOMES

Agenda Point	Description			
	Opening Remarks (Leila):			
1	Leila (Co-Chair) welcomed all the members to the meeting. Screenshots of the in-progress online meeting can be found in Appendix-I.			
	Updates from the Regional Working Groups:			
	❖ WG on Asian-Australian Monsoons [WG-AAM]: - (Thea)			
	Activity Highlights:			
	➤ Last meeting of the WG was held on 15 May 2025			
2	 Subgroup updates: Dynamics & Teleconnections - 2024/25 monsoon review will be led by this subgroup. Extreme rainfall and teleconnection to ISO (Maheswar) R2O in SE Asia Continue to work on two papers. Zizhen taking over Thea as co-lead (May), Tieh Yong remains the co-lead of the group. High-impact Weather Meeting in March 2025 – What makes a useful warning (Gill) Update on CLIVAR workshop proposal: Scope broadened to Asia, focus on prediction and downstream tools (based on suggestions and questions by CLIVAR) Suggestion that now broader, to update the aim to be sharing between regions, and potentially with a paper on common themes around 'good rules of thumb for monsoon related climate services in Asia' 			
	 AI/ML at Met Office and around the world – Role of WG-AAM: Gill Discussion around the role of WGAAM on AI-Monsoon (probably not enough expertise currently to do much). Suggestion in the next WG-AAM membership revision cycle can rope in AI/ML expertise into the membership and establish a subgroup dealing with AI/ML. 			
	❖ WG on African Monsoons [WG-AFM] (Rondro):			
	Activity Highlights:			
	 List of the 25 new working group members is now out and will be having the first meeting on the 6th June. 			
	Comments from members:			
	Samson:			
	 The workshop summary of the UCAR Africa Initiative Workshop held during 21-22 March 2024 has been prepared by WG-AFM members and submitted to BAMS. It 			

- describes the challenge and opportunities in research in climate, land- atmosphere interactions and air quality over Africa.
- We are still working on the field campaign proposal focusing on East Africa, which
 was originally submitted it to U.S. Department of Energy and the reviews were very
 good in terms of scientific merit, but due to the security concern in the region, they
 declined proposal.
- O Hence, we have now approached NSF with a white paper, and they have requested us to submit a full proposal about a year from now for the deployment in East Africa 2028 or 2029. The idea is to deploy it in Kenya on the western shore of Lake Victoria, so as to get a chance to sample the initiation of convection to the east over East African Highlands and development of MCS over the Lake Victoria to the West.
- Leila: It is important to have more field campaigns in monsoon regions because all we
 know is based on models and very sparse observational data sets. We need badly to
 have field campaigns in these areas to better understand the mechanisms to calibrate
 models. Will NCAR be involved in the campaign?
- Samson: All NSF instrumentation platforms will be deployed in the campaign. So, as NCAR manages NSF platforms, NCAR will be naturally involved in the campaign.
- Leila: It is important to get support from the from locals because they will care about it, they will take care of the instruments and its safety.
- Vasu: Are you are also planning to accommodate looking at diurnal variability of rainfall
 in the region, because in our recent work in that area we find that Lake Victoria seems
 to offer some very interesting in modulation of the diurnal variations.
- Samson: Yes, the diurnal cycle is an important component of the campaign. The idea of having that location is to look at variability and how the Highlands contrast influence the diurnal cycle. The point is that once you have the radar located there in the mornings, for example, it could scan a lot of shallow cloud development to the east in the Highlands. We can study the impacts of land surface heterogeneity, as it is very heterogeneous place with a lot of urban areas, agriculture, crop forests and so on. So, for example, the radar can scan in the eastern direction in the morning and later it could face West in the evening and late night to study the development of MCS over the water.
- Vasu: The modulation of the diurnal variations also offers an opportunity to build bridges
 with the GPEX. You can explore and see if you will be able to leverage GPEX resources
 as well.

❖ WG on American Monsoons [WG-AMM]: - (Leila)

Activity Highlights:

- The WG has been reconstituted and they are planning to have a meeting very soon. The Co-chairs are very excited about rebuilding the working group they have.
- The Co-chairs have provided an updated content on American Monsoons for displaying in IMPO's new webpage.

Updates from IMPO (Rajagopal):

1) Activity Highlights:

- IMPO has played a pivotal role in the organization of the IWM-8 at IITM Pune during 17-21 March 2025:
 - Participated in the Inaugural Session of IWM-8 on dais and proposed the Vote of Thanks.
 - Successfully managed the organization of the 12 Oral sessions of IWM-8, which had 28 Invited talks and 53 Contributory talks.

- Successfully managed the organization of the 5 Poster sessions and in the selection of 10 best poster presentations under each of the 5 themes of the workshop.
- Supported in the organization of an Early Career Researchers Session on 19th March 2025.
- Played a key role in drafting the invitation letters to invited speakers/special invitees and in finalizing the contents for IWM-8 Banner/Standees
- IMPO played a key role in the organization of the Monsoons Panel's online meeting held on 11th March 2025
 - Organized the MS teams meeting. Video recording was shared with all members after the meeting. The MoM was finalized and circulated.
- IMPO played a key role in the 2025 reconstitution of the WG on African Monsoons (WG-AFM):
 - Drafted the 2025 Membership revision proposal of WG-AFM and submitted to the Monsoons Panel for their suggestions/approvals.
 - Finalized the 2025 Membership revisions in the WG-AFM on obtaining approval from the Monsoons Panel.
 - Formal appointment letters were issued to the 13 continuing members and to the 12 new members.
 - WG-AFM webpage on IMPO website was also updated with their 2025 Membership revisions.
 - Coordinated with ICPO for updating emails of all members in the group email <u>mpwg-afm@clivar.org</u>
- IMPO played a key role in the 2025 reconstitution of the WG on American Monsoons (WG-AMM):
 - Drafted the 2025 Membership revision proposal of WG-AMM and submitted to the Monsoons Panel for their suggestions/approvals.
 - Finalized the 2025 Membership revisions in the WG-AFM on obtaining approval from the Monsoons Panel.
 - Formal appointment letters were issued to the 5 continuing members and to the 9 new members.
 - WG-AMM webpage on IMPO website was also updated with their 2025 Membership revisions.
 - Coordinated with ICPO for updating emails of all members in the group email "mpwg-amm@clivar.org"
 - IMPO created the Doodle poll and notified to all MP members to ascertain the preferable date/time of the next MP meeting in May 2025 during 16-18 UTC.
 Meeting Link and Agenda were prepared and circulated.
- IMPO organized and participated in WG-AAM meeting scheduled held on 15th May 2025 during 7-9 UTC.
- Development of a <u>new IMPO webpage</u>:
 - Efforts are ongoing to update the monsoon related content of MP and all WGs. Inputs from all WGs on their monsoon description have been received. MP's inputs are awaited.

2) Future Activities:

- IMPO will be involved in the preparation of the Meeting Summary of IWM-8 for its submission to BAMS.
- IMPO will be participating in the next IPOs & WCRP Secretariat Group meeting scheduled on 5thJune 2025 during 12-14 UTC
- IMPO will be participating in the first meeting of the newly reconstituted WG-AFM scheduled on 6thJune 2025 during 11-12:30 UTC
- IMPO will continue to be involved in the development of the new IMPO webpage

Comments from members:

- Thea: What is the timeframe for updating the MP's main page in the new website?
- Rajagopal: It is required as soon as possible to release the new webpage at an early date. The current web page content will be shared to all for their suggestions.
- Thea: I think someone needs to take ownership of this and do the revision properly.
- Rupakumar.
 - There is kind of duplication between IMPO's new page and CLIVAR's MP webpage. It may be better if we can request the ICPO to stop populating monsoon panel pages on their website and just give a link to IMPO webpage. If it is done that way visitors can only focus on one location for all updates and there won't be also any inconsistency between the two locations. Otherwise, maintaining two different websites can be a problem.
 - The other thing is about populating the web pages with more interesting material, which we have been discussing for many, many years, but somehow, we don't have people available to spend some time on this and as Thea mentioned, it is not just about creating once, you need to constantly keep it monitored and make sure that everything is up to date. So, there is some kind of overhead, if Members can actually share some responsibilities, we can prepare some kind of an outline of specific tasks to Members this is something that we can explore.
 - O GEWEX is of the opinion that as Monsoons Panel is a joint CLIVAR-GEWEX panel, and it should have an independent webpage. GEWEX doesn't have any a separate webpage for Monsoons Panel in their webpage. If we can follow a similar logic for CLIVAR and then we can make IMPO webpage as the core source for all information related to the monsoons.
- Rajagopal: IMPO can explore this with ICPO.

Discussions on the participation in the Pan-CLIVAR meeting at Bali, Indonesia during 22-26 September 2025):

Comments from members:

- Rajagopal: The exact number of members participating in the meeting is still unknown. Need to contact Agus (ICPO) to find out. Surya had planned to attend, will check.
- Thea: Submitted abstract, but not registered yet (last date for registration 15th June).
- Vasu: Submitted abstract, requested for travel support awaiting response from ICPO.
- Hui Su: Was planning to go but have not decided yet as she is also waiting for the funding situation.
- Rajagopal:
 - MP has requested for 15K CHF for the CLIVAR meeting. There is an unspent 5K CHF allotted for IWM-8 (which could not be utilized as the allocation came late. There maybe also around 5K CHF from GEWEX's allocation of 10K CHF for IWM-8 (not fully utilized due to last minute cancellation by WG-AFM member from Brazil).
 - o There should be at least 5-6 members on-site to have the hybrid 7th Session of MP

Members views on the proposed MP's new Observational cum Modelling project planned to be submitted to CLIVAR/GEWEX/WCRP for approval/funding (All)

Comments from members:

Rajagopal: We still cannot take up this because Surya was supposed to generate a
document for this observation cum modeling project and Surya is absent today. His idea
was to generate a Google Doc on this project and circulate to all members to get their
inputs. I shall pursue with him on this.

4

Discussions on involvement in GPEX and its Working Groups' activities (Lead: Annalisa via email)

- After last week WCRP JSC meeting in Paris, with Robert (Jeff) Trapp (the other cochair of GPEX) we have some ideas to narrow down the broad objectives that were identified so far, but we need to have a discussion with SSG and WG co-chairs in our next meeting (likely beginning of June).
- So, I would be happy to present more details about GPEX at the next MP meeting.
- Activities within MP to link with GPEX may include field campaigns on precipitation over monsoon regions (could we have a shared document with a list of field campaigns to measure precipitation in monsoon regions in place or planned for the coming years?) but also extend to precipitation uncertainties and specific predictability studies.

Comments from members:

- Rajagopal: We again have an opportunity here as GPEX looking for collaboration with MP. Earlier Annalisa was a member of the GPEX Tiger Team which submitted the white paper on GPEX and now she is the Co-chair. So, she should be able to get MP involved in GPEX activities.
- Samson: I am a Co-chair of GPEX's WG1: Coordinated Field Campaigns. The objectives of the WG are:
 - Advance our understanding of Monsoons, Tropical Cyclones, MCSs and ARs
 using targeted deployment and innovative use of state-of-the-art observational
 facilities such as dual polarization Doppler radars, aircraft and shipborne sensors
 and autonomous systems as well as leveraging existing global observing
 networks.
 - Promote international scientific collaborations and contributing to enhancement of local community capacity and involvement, with particular attention to regions of vulnerable to impacts of precipitation extremes.
- Samson: Right now, the WG is in being formed, it is halfway in terms of the membership it will double soon from the current 5 to 10. Currently different field campaigns being under different stage of development in the world. <u>AsiaPEX</u> is the most relevant here, but there are other field campaigns related to atmospheric rivers (<u>AR-RECON</u>), <u>TEPEX</u> in Pacific Ocean, <u>TEAMx</u>, etc. IITM director mentioned about the possibility of having an Indian Monsoon field experiment to celebrate 50 years of MONEX-79. More details are available in the PPT that is shared to all.
- Leila: In the ongoing observational campaigns shown in the map, there is no efforts being done in South America. So, this is one of the areas we should in the coming years foster an experiment in the region where we consider the monsoon being active in South America.

Discussions on the newly reconstituted WG-AFM and WG-AMM

- Rajagopal:
 - This has been discussed under the agenda point 3. The WGs have been reconstituted and they are going their meetings in June. We have 2 representatives from WG-AFM and 3 from WG-AMM attending today's meeting.
 - There is one important activity that the identified members from both these WGs should regularly update the <u>Monsoons Panel Notebook</u>, like the way WG-AAM has been doing regularly through Thea. In case they have any problem, they send their updates before the MP meeting to IMPO.
 - All other WCRP projects are also shifting to Microsoft OneNote based reporting framework as it is easy to share documents and make all information available online at a single location for ready reference.

6

Discussions on the CLIVAR and GEWEX SSG's feedback on the Monsoons Panel Annual Report

- The SSG's Feedbacks are given below:
 - First, thank you for your efforts in leading the panel, and congratulations on the various activities and publications that the panel members have contributed to in the past year.
 - We note, however, that these tend to be based on individual members' contributions, rather than resulting from a coordinated and collective effort by the panel as a whole.
 - While those contributions and participations are valuable, we suggest that for the next annual reports, the panel focuses primarily on activities and publications that result from collective panel efforts. These can be, for instance, reports from a workshop/training school that the panel initiates and organises (we acknowledge MP's intention to organise a training school in 2026), journal article(s) resulting from a collective review on the current state of knowledge on monsoons, a study on coordinated model experiments, or a coordinated field campaign.
 - If you would like to discuss and seek some suggestions on the above, please feel free to reach out to us. We can have an online meeting.
 - We also note that often having a couple of Ex-Officio members (e.g., from CLIVAR and GEWEX SSG members) on the panel can help provide ideas for activities that can drive the panel as a whole forward.
 - Please give this consideration and propose a few potential efforts that the panel can collectively take on over the next few years along with a few potential Ex-officio names (from CLIVAR and GEWEX SSG members) for us to consider.

Comments from members:

Rajagopal:

- o GEWEX has four <u>panels</u> and each of them have their own independent running projects, which are coordinated and steered by the panel members.
- During the 6th Session of Monsoons Panel at GEWEX OSC in Sapporo, Japan, Xubin Zeng (Co-Chair) suggested that the Monsoons Panel should also have its own program in collaboration with other panels and should be able to steer it.
- On the other hand, CLIVAR panels are regularly organizing training workshops, etc. Their Climate Dynamics Panel organizes annual workshops, last time they did was in Australia in February 2025 on "Weather & Climate Interactions – observations, theory, and modelling".
- The SSGs are pointing out that there are no projects which are independently initiated and managed by the Monsoons Panel.
- Surya who has been attending the recent GEWEX SSG meetings in-person has been reiterating about the scientific projects of other GEWEX panels and that is why he wants MP members to get involved in the development of the proposal for MP's Observational cum Modelling project, which was mentioned earlier. Surya had proposed this in the 6th Session of Monsoons Panel at Sapporo, Japan in July 2024, however, nothing much has happened since then.
- Now that this point is mentioned in the SSG's Annual report feedback, something
 will have to be done. Request all members to visit <u>CLIVAR</u> and <u>GEWEX</u>
 webpages to understand more on the activities of their other panels and help in
 developing MP's *Observational cum Modelling project* under consideration.
- o All members can also re-examine the <u>Terms of Reference of the Monsoons Panel</u> to understand more on the expectations from the panel and its members.

Rondro:

 The panel consider organizing a training workshop on predictability using AI/ML as a joint activity between WCRP and ICTP. There has been some targeted

training on monsoons at ICTP, which were organized with ICTP in the past. MP could think about combining global monsoon predictability and use of AI.

Vasu:

- These days I am somewhat more thrilled with interactions across time scales, especially, diurnal and intra seasonal and inter annual scales. I have also been working with the NASA group, the GPM Group that produces rainfall globally at half hourly interval and the issue is that the diurnal variability of rainfall in that dataset is calibrated to stations in the United States and then the dataset is provided for the rest of the world. I strongly believe that there is significant amount of variability in the diurnal variability of rainfall across many counties in the global tropics. It would good if this panel can coordinate this effort to put together all the observations (ground truth) across the global tropics and recalibrate the GPM dataset as it would serve a lot of purposes besides just providing ground validation for the remotely sensed products, model validation.
- The other thought is that MP also needs to look at the diversity of the monsoons in the different parts of the world and highlight the diversities and challenges in each of these regional monsoons, which could be both from an observational perspective as well as from a modeling perspective.

• Annalisa (via email):

- One thing I would like to propose: last week at the WCRP JSC meeting I have seen the presentation of CLIVAR (I also had a chat with Gokhan and Francois) and it would be great to think of some collective activities within the monsoon panel to link the regional monsoons WGs:
- for example, a joint cross WG group that could work on common aspects/specific information (length of the monsoon season, and/or onset and demise phases)?
- In particular, are we able to think/provide new assessment/review/results of use for IPCC, also thinking to regional and local literature?
 - As a general contribution of MP to WCRP community: in terms of monsoons impacts and regions what to we miss within the community or in the general understanding that need to be stressed out?
- Could we start a brainstorming on this and identify a timeline to achieve some common objective within the coming year? and then plan something more for longer timescales?
- Leila: There is lot of sense in these, and it will be important to start this discussion in a little more formal way with everybody giving their input in a shared document, which Surya will share soon (Surya to be reminded).

Rajagopal:

- Suggest all Members to have a look at the feedback and think how well the panel can counter that and show something to make them feel that the panel is going to do something.
- The panel Jhan-Carlo, who is the Co-chair of the Regional Hydroclimatic Program for the Andes, ANDEX supported by GEWEX. Maybe the panel can consult him on how MP can connect with GEWEX's GHP and GLASS panels.
- The suggestion of the SSGs to co-opt few GEWEX and CLIVAR SSG members on the panel can help in getting ideas for activities that can drive the panel as a whole forward and they maybe be able to put some pressure on their other panels to have collaboration with MP.
- Surya and Leila should have a separate online meeting with CLIVAR and GEWEX SSG Co-chairs at the earliest and then provide an appropriate response to this feedback from SSGs.

Open Discussion on the ongoing MP & WG activities (All)

- Annalisa (via email):
 - The monsoon special issue in Advances in Atmospheric Sciences, one can see the status at the <u>link</u> (some manuscripts are not able to be submitted by the deadline, will check with Jenny Lin if something can be done for them)
 - One question to Surya and Leila: in one presentation from WMO last week at WCRP JSC-46, I have seen "WMO seasonal climate updates", do we have activities within our MP and regional monsoons WG addressing/contributing to this? In the presentation they gave I have seen only ENSO and multi-annual forecast, that is not actually seasonal climate.

Rupakumar:

- o The WMO Global Seasonal Climate Updates are available at https://www.wmolc.org/gscuBoard/list. I co-lead a WMO Expert Team responsible for this product and have been involved right from the beginning. If the MP is interested in contributing to this real-time activity, I can help with the linkages. MP can actually look at how monsoons are described in this real-time forecast product for the next 3 monthly season generated on monthly basis. It is being led by CPC/NCEP/NOAA. MP can look at how the monsoons have been described in the recent monthly updates for improving the product or even get involved with team in real-time. The seasonal scale product has more amount of descriptive material, but at the same time it is still an evolving product and so, there is definitely good scope for the MP to get involved.
- There is also another product which is called the global annual to decadal climate update, which is currently being produced once a year. The draft of this update of the forecast up to 5 years will soon become public. UK Met office is the lead centre for this activity. MP can look at how the monsoons have been described within the decadal climate update.

Any other business:

- Hanh Nguyen: Just came to my mind that about the working group membership. As
 you know we had a problem with a person in WG-AFM membership. We had
 requested to have a document on what to do steps to follow in selection of members
 to the WGs, to avoid that sort of incidents in the future. Has that been addressed?
- Rajagopal: Thanks for the reminder. We will prepare a document and circulate. The procedure to be followed is:
 - WG Co-chairs, must provide the list prospective members identified through the Open call or through WG's nominations to IMPO.
 - o IMPO will seek more information from the nominees, if required.
 - o IMPO will draft the membership proposal in a standard template for the approval of MP after it is vetted by WG Co-chairs.
 - Once approved by MP, IMPO will intimate the same to the WG Co-chairs and subsequently, issue the invitation letters to the approved list of members.
 - The Co-chairs should not be communicating about selection to the prospective members.
- Rajagopal: The above-mentioned procedure was followed by WG-AAM and WG-AMM. The issue in WG-AFM arose as the WG Co-chairs communicated the selection of 35 members without consulting IMPO and without the approval of MP.
- Rajagopal: Additionally, there is a <u>WCRP code of conduct</u> which every member is requested to read and understand in what way members have to function.

9

Date/time of next meeting:

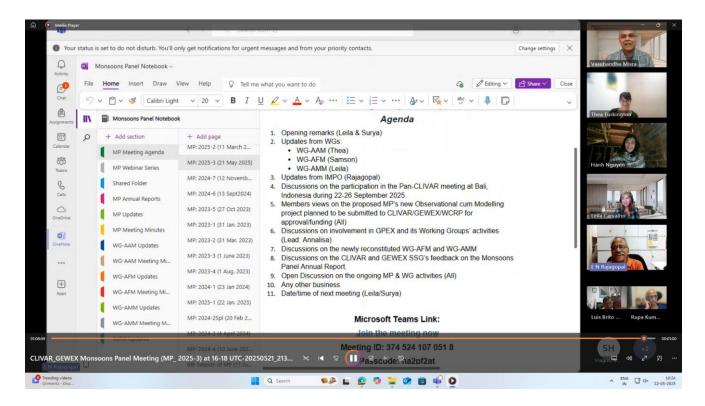
11

The next meeting will be in July 2025 second half at a time convenient to the members from Europe and African Continents.

NEXT MEETING

Meeting Number	2025-4	Meeting Time & Date	13-15 UTC in the 2 nd half of July 2025
Location	MS Teams Online Meeting		

Appendix-I



Screenshots of the in-progress online MP meeting held on 21st May 2025