

Report of the CLIVAR/GEWEX Monsoons Panel

17-18 September 2016, Qingdao, China



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Attendees:

Dr Paul Dirmeyer- Co-Chair
Dr Andrew (Andy) Turner - Co-Chair
Dr Serge Janicot - Member
Dr Ramesh Krishnan - Member
Dr Tianjun Zhou - Member
Dr Alice Grimm - Member
Dr Rokkam R Rao - International CLIVAR Monsoon Project Office (ICMPO)
Dr Ramesh Kripalani- ICMPO

Guests:

Dr Roxy Mathew (Indian Ocean Regional Panel) and Ms Aditi Modi

Absentees:

Dr Alessandra Giannini - Member
Dr François Kamga - Member
Dr Cathryn Birch - Member
Dr Françoise Guichard - Member

Dr Andy Turner welcomed the attendees and briefly introduced the agenda for the panel meeting. He emphasized that besides the discussions during the presentation, future plans also need to be discussed. Presentations received from Dr H Annamalai, Dr Aurel Moise and Dr Kunio Yoneyama would be discussed in absentia. Dr Mike Sparrow (WCRP) and Dr Detlef Stammer (CLIVAR SSG Co-Chair) would be joining for short durations.

1. Agenda Items

Actions to be taken are given with an indicative deadline where applicable.

1.1. Field observations, India 2016 (Dr Andy Turner)

India INCOMPASS (Interaction of Convective Organization with Monsoon Precipitation, Atmosphere, Surface and Sea) field campaign (Summer 2016) as part of the NERC / MoES Monsoon Programme.

Dr Turner outlined the grand objective and specific objectives of INCOMPASS, and how the objectives could be achieved. He described the ground instrumentation for surface flux observations, flux towers, radiosondes, and aircraft campaigns undertaken.

Dr Paul Dirmeyer enquired whether these experiments would continue in 2017-2018 and whether measurements on aerosols, air quality were done. Dr Turner said a portion of the measurements would continue.

Key Issues:

Grand objective: Improve the skill of rainfall prediction in operational weather & climate models by better understanding/representation of interactions between land surface, boundary layer, convection, the large-scale environment and monsoon variability on range of scales.

Specific objectives:

1a) Document and evaluate characteristics of monsoon rainfall on sub-daily to intraseasonal scales, as influenced by surface, thermodynamic and dynamic forcing, as monsoon air moves from the ocean inland and across the subcontinent.

1b) Evaluate representation of these processes in MetUM at various resolutions, indicating priorities for model development.

2) Quantify land surface properties & fluxes, using *in-situ* and remote sensing measurements, as they interact with the monsoon on hourly-to-monthly and km-to-continental scales.

3a) Quantify role of Indian land surface in progression of monsoon onset, and in monsoon variability (and relate it to role of ocean).

3b) Evaluate impact of improved land-surface representation on monsoon prediction and make recommendations for future land-atmosphere modelling strategy

4a) Evaluate influence of local and short-term structures in convection and boundary layer, on rainfall variability on intraseasonal and seasonal timescales, using observations, idealized models and a range of operational models

4b) Make recommendations for priorities in the parameterization of convective rainfall in the monsoon system

1.2. CORDEX update and role for the Monsoons Panel (Dr Ramesh Krishnan)

Dr R Krishnan gave an update of the Coordinated Regional Downscaling Experiment (CORDEX) South Asia project undertaken at IITM and the data sets available via the Earth System Grid Federation (ESGF). Issues discussed include: communication with the broader CORDEX community and between it and monsoon researchers; recommendations from MP to CORDEX; whether CORDEX models are giving better monsoon representation than the Coupled Model Intercomparison Project Phase 5 (CMIP5) models. It was agreed that important value is added from high resolution modeling of monsoons. No FPS (Flagship Pilot Studies) projects have so far been awarded that are related to monsoons.

Key Issues:

- CORDEX updates
- How can monsoons research be better communicated between the CORDEX community and other monsoons researchers?
- Possible recommendations from the Monsoons Panel to CORDEX in terms of experiment design
- Are CORDEX models giving better monsoons representation than CMIP5?

Actions:

- Tianjun and Krishnan to prepare a two-page summary document to inform CORDEX of the benefit of coupled regional modeling in certain areas.

Action: Krishnan and Tianjun; by April 2017

- Krishnan to alert future calls under the CORDEX FPS (Flagship Pilot Studies) scheme to the Monsoons Panel, via the International CLIVAR Monsoon Project Office (ICMPO), so that the Regional Working Groups can develop proposals.

Action: Krishnan/ICMPO; Ongoing

- Send mail to Carlos to find out how the Monsoon Panel can make suggestions or recommendations to an external organization (e.g. CORDEX).

Action: ICMPO; ASAP

1.3. S2S monsoons update (Dr Paul Dirmeyer)

S2S (Subseasonal-to-Seasonal) monsoons update (including International S2S & related US activities)

Dr Paul Dirmeyer briefed the panel on the S2S project, the new S2S Teleconnection subproject, the S2S Monsoon subproject and the S2S database.

He also mentioned a forthcoming book entitled “Sub-seasonal to Seasonal prediction – bridging the gap between Weather and Climate Forecasts”.

Key Issues:

- International S2S panel <http://www.s2sprediction.net/>
- New S2S teleconnections subproject
- Monsoons subproject of S2S
- S2S Database - Models and Specification
- Current state of skill at S2S time scales
- S2S Extremes Workshop 2016 at IRI (Palisades, New York, USA)
- S2S Book planned (Sub-seasonal to Seasonal Prediction - Bridging the gap between weather and climate forecasts)
- New NOAA S2S Prediction Task Force and Terms of Reference
- Near-term future of the S2S Task Force

Action:

- Establish communication with Andrew Marshall, who is taking over the leadership role in the International S2S Project’s sub-project (as per conversation with Harry Hendon following the MP meeting).

Action: Paul and Andy, November 2016

1.4. GMMIP update (Dr Tianjun Zhou)

GMMIP (Global Monsoons Modeling Inter-comparison Project) update, timeline, implementation and its relation to CMIP6; discussion on activities with regional Working Groups

Dr Tianjun Zhou summarized the goals, main experiments and the primary scientific questions to be addressed by GMMIP. 21 international modelling groups have committed to participate in the GMMIP experiments.

Key Issues:

- What is GMMIP?
- Collaboration between GMMIP and other CMIP6-endorsed MIPs
- Modelling Groups' participation commitment
- Primary scientific questions of GMMIP
- Goals of GMMIP
- Relationship to WCRP Grand Challenges

- Main experiments
- Tiered experiments

Actions:

- Monsoons Panel to suggest names to Tianjun for the GMMIP SSC, taking input from Regional Working Groups.

Action: Andy and Paul; Ongoing

- Tianjun and Andy to act with Jim Kinter (GMMIP Co-Chair with Andy and Tianjun) to produce terms of reference for GMMIP SSC.

Action: Tianjun and Andy; by December 2016

- Alice, Serge and Andy to collate interested regional working groups for performing analysis.

Action: Alice, Serge and Andy; by end 2017

1.5. Global-scale diagnostics and proposed analysis for GMMIP (Dr M Hawcroft, University of Exeter; presented in absentia by Dr Andy Turner)

Cross-equatorial energy transports and the ITCZ: GMMIP diagnostics

Dr Turner gave a brief account of diagnostics for inter-hemispheric energy and moisture transports and their relationship to ITCZ biases in GCMs – this information could form a useful package of global-scale model comparison diagnostics for the GMMIP experiments.

1.6. Update on the Asia-Australia Monsoons Working Group (Dr H Annamalai and Dr Aurel Moise via slides with recorded audio)

Dr Annamalai detailed the short-term goals along with the list of 2 Co-Chairs and 10 members of the recently constituted AAM-WG. He emphasized the need for regular discussions with the WG members. Dr Aurel also mentioned the desire to engage with the Regional Climate Outlook Forums such as EASCOF, FOCRAII, SASCOF, ASCEANCOF and PICOF. He also made a mention of the inputs given to the WCRP JNU Training School on Monsoon Variability in Changing Climate to be held in Jeju, South Korea during January 2017.

Key Issues:

a) The short-term goals of the AAM-WG are (but not limited to):

- Building a collection of process-based diagnostics for AAM
- Stronger engagement in focused research on the winter monsoon over South and SE Asia

- Assessing predictive skill in current forecast models (sub-seasonal to seasonal [S2S])
 - Direct engagement with stakeholders in the monsoon region
- b) Linkages among regional monsoons. The AAM-WG will make efforts to coordinate assembly of a "Tool Kit" that contains a suite of diagnostics, to be used by research and user communities.

Actions :

- Arrange participation of Andrew and/or Paul in the next telecon of the AAM-WG, consistent with their mutual desire for the same. Inform Annamalai and Aurel of their participation. If the current date range 28-30 September is unsuitable, another Doodle poll for date and time to be conducted if agreed by AAM-WG Co-Chairs.

Action: ICMPO, End Sep, 16 (completed)

- The Monsoons Panel and Regional Monsoon Working Groups have a need for a working web space for active editing of material on an individual basis (e.g. a wiki facility). Permission and functionality to be explored with Nico Caltabiano and raised with CLIVAR SSG.

Action: ICMPO; ASAP

- Find out from Nico whether US CLIVAR workshop funding calls are annual or otherwise.

Action: ICMPO (completed)

1.7. Update on the Africa Monsoons Working Group (Dr Serge Janicot)

Dr Janicot defined the main objectives of the WG and made a mention of the 11 currently established WG members – one more member still needs to be determined. He listed the priority topics with main focus on CORDEX-Africa and also contribution to Climate Services.

Key Issues:

- Defining a membership relevant to cover academic research and research-society links for all of regional monsoon systems (west, central, east, south Africa).
- Addressing scientific burning issues common to all of regional monsoon systems and providing some added-values to related existing activities shared between west, central, east and south Africa.
- Setting-up priority activities.
- Identifying regional funding opportunities.

Action:

- Serge to clarify the basis of providing recommendations to CORDEX-Africa and draft a list of recommendations (1-2 pages).

Action: Serge; July 2017

1.8. Update on Years of Maritime Continent activity (Andy on behalf of Dr Kunio Yoneyama)

Dr Turner presented an update on the purpose of the Years of the Maritime Continent (YMC), including the intensive observations planned, its provisional deployment with timelines over Southeast Asia.

Objective:

Improving our understanding and prediction skill of local multi-scale variability of the MC weather-climate systems and its global impact.

Key Issues:

- YMC provides an opportunity for coordination among participants especially with MC countries
- Period: July 2017 ~ July 2019
- Key Five Science Themes
 - Atmospheric Convection (DC, MJO, etc.)
 - Ocean and Air-sea interaction
 - Stratosphere-Troposphere Interaction
 - Aerosols
 - Prediction
- Five Main Activities
 - Data sharing
 - Field Campaign
 - Modeling
 - Prediction & Applications
 - Outreaching & Capacity Building

Action:

- Monsoons Panel to write to YMC to find out what assistance the Monsoons Panel can give.

Action: Andy; ASAP

1.9. Update on the Americas Monsoon Working Group (Dr Alice Grimm)

Dr Grimm mentioned the membership and the goals of this WG and how this WG could contribute to the South American Monsoon System and also gave an account of her recent studies.

Key Issues:

- a) Exploiting the S2S database for the South American monsoon, in order to assess its possibilities for subseasonal prediction of several aspects of the American monsoons. In this regard, assess the skill of S2S participating models in:

- 1) Simulating the MJO impacts on the American monsoons, regarding precipitation anomalies and associated teleconnections;
 - 2) Predicting the onset and demise of the monsoons;
 - 3) Predicting active and break periods of the monsoons;
 - 4) Predicting extreme events in densely populated regions during the monsoon season.
- b) Development of metrics (indices) for active/break periods onset/demise of the monsoon, which are more skillfully predicted by the models and which provide dynamical linkages, so as to give some insight into model error.
- c) Provision of some demonstration forecast products.
- d) Assessment and attribution of climate variability and predictability on intraseasonal, interannual and interdecadal time scales, analyzing the large-scale influence with its teleconnections, and local forcing mechanisms; evaluation of CMIP5 and/or future CMIP6 models in this regard on interannual and interdecadal time scales.
- e) Assessment of the relationship between climate variability and extreme events.

Actions:

- Alice to circulate the CVs of three members from the Americas Monsoons WG who could be invited to join the Monsoon Panel.

Action: Alice, with review by Andy and Paul, by end Sep, 2016

- Alice to prepare a 2-page document justifying the scientific and societal need for a workshop on the American monsoon systems or South American monsoon, together with key workshop topics. This document will be in readiness to take advantage of funding opportunities and potential venues.

Action: Alice; ASAP

2. Any other business

2.1. Suggestions for MP-IORP Interaction: Dr Jérôme Vialard

Inputs for the IndOOS (Indian Ocean Observing System) were reviewed and the influence of the Indian Ocean on the Indian monsoon was also discussed. It was proposed to set up a small group from IORP and MPs to work on a review paper.

Actions:

- Monsoon Panel to nominate a person to participate in the IndOOS Review of IORP.

Action: Andy and Paul; ASAP

- Monsoon Panel to define leadership team for a review paper on the relationship between Indian Ocean and surrounding monsoons; paper to be scoped and written with involvement of Indian Ocean Panel.

Action: Andy and Paul; ASAP

2.1 Closed Panel Business

Attended by Andy Turner, Paul Dirmeyer, Rokkam Rao and Ramesh Kripalani

The following issues were discussed:

- Plans for the remainder of the OSC (participation in Town Hall meetings) and SSG
- Membership rotation and leadership
- Next meeting and 2017 funding request for SSG

2.2. Monsoons Panel Actions

- Monsoon Panel web site to be mirrored or linked from the CLIVAR website to GEWEX

Action: Paul; ASAP

- Monsoon Panel to contact Fred Kucharski to explore how ICTP can host on-going regional workshops based around the Working Groups (Americas, Africa and Asia-Australia) now that the formal arrangement between IITM, COLA and ICTP for targeted training activities and workshops on monsoons has finished.

Action: Andy and Paul; July 2017

- Nico to be informed about induction of two new members to MP. Aurel Moise and Annamalai (as Co-Chairs of AAM-WG; representing interests of the Australian monsoon interests in stakeholder engagement and Asian monsoon and process diagnostics, respectively) are proposed for one position. Another person representing the Americas monsoon will be proposed based on two nominations selected from three CVs to be received from Alice (see item 13).

Action: Andy; ASAP

2.3. ICMPO Actions

- ICMPO to continue dialogue with Ms Karin for the next MP meeting at Cape Town
- ICMPO to prepare funding request for CLIVAR SSG based on expect travel needs (namely airfares) to Cape Town, SA from MP members' home countries

Action: Wednesday 21 Sep 2016 (completed)

All the Action Points are listed in Annex 2.

Annex 1 - Agenda

Saturday 17th September

12:00 – 13:00 Lunch

13:00 – 13:30 India “INCOMPASS” field campaign, summer 2016 [Andy Turner]

13:30 – 14:15 CORDEX update and role for the MP [R. Krishnan]

14:15 – 15:00 S2S monsoons update (including International S2S & panel US activities); discussion on role for the Panel and Regional WGs [Paul Dirmeyer]

15:00 – 15:30 Coffee break

15:30 – 16:15 GMMIP update, timeline and implementation; discussion on activities with Regional WGs [Tianjun Zhou]

16:15 – 17:00 Asia-Australia Monsoons WG [in absentia; Aurel Moise & H Annamalai recorded video and slides]

17:00 – 17:45 Africa Monsoons WG [Serge Janicot]

17:45 Saturday close of meeting

Sunday 18th September

08:45 – 09:15 Year of Maritime Continent update [Andy on behalf of Kunio Yoneyama]

09:15 – 10:00 Americas Monsoons WG [Alice Grimm]

10:00 – 10:30 Coffee break

10:30 – 11:00 Any other business (incl. inputs from Indian Ocean Panel; workshop planning)

11:00 – 12:00 Closed Panel business

- Plans for the remainder of the OSC and SSG
- Membership rotation & leadership
- Next meeting & 2017 funding request for SSG

12:00 – 13:00 Lunch, Close of Monsoons Panel meeting

Annex 2

(1a) Tianjun and Krishnan to prepare a two-page summary document to inform CORDEX of the benefit of coupled regional modeling in certain areas.

Action: Krishnan and Tianjun; by April, 2017

(1b) Krishnan to alert future calls under the CORDEX FPS (Flagship Pilot Studies) scheme to the Monsoons Panel via the ICMPO, so that the Regional Working Groups can develop proposals.

Action: Krishnan / ICMPO; Ongoing

(1c) Send mail to Carlos to find out how the Monsoon Panel can make suggestions or recommendations to an external organization e.g. CORDEX.

Action: ICMPO; ASAP

(2) Establish communication with Andrew Marshall who is taking over the leadership role in the International S2S Project's sub-project (as per conversation with Harry Hendon following the MP meeting)

Action: Paul and Andy; by November, 2016

(3a) Monsoon Panel to suggest names to Tianjun for GMMIP SSC, taking input from Regional Working Groups.

Action: Andy and Paul; Ongoing

(3b) Tianjun and Andy to act with Jim Kinter (GMMIP Co-chair with Andy and Tianjun) to produce terms of reference for GMMIP SSC

Action: Tianjun and Andy; by December, 2016

(3c) Alice, Serge and Andy to collate interested regional groups for performing analysis.

Action: Alice, Serge and Andy; by End 2017

(4) Arrange participation of Andy and/or Paul in the next telecom of the AAM-WG, consistent with mutual desire for the same. Inform Annamalai and Aurel of their participation. If the current date range 28 - 30 September is unsuitable, another Doodle poll for date and time to be conducted if agreed by AAM-WG Co-Chairs.

Action: ICMPO, end September 2016 (completed)

(5) The Monsoons Panel and Regional Monsoon Working Groups have a need for a web space for active editing of material on an individual basis (e.g wiki facility). Permission and functionality to be explored with Nico Caltabiano and raised with CLIVAR SSG

Action: ICMPO; ASAP

(6) Find out from Nico whether US CLIVAR workshop funding calls are annual or otherwise

Action: ICMPO (completed)

(7) Serge to clarify the basis of providing recommendations to CORDEX-Africa and draft a list of recommendations (1-2 pages).

Action: Serge; by July, 2017

(8) Monsoon Panel to write to YMC to find out what assistance the Monsoon Panel can give.

Action: Andy; ASAP

(9) Alice to circulate the CVs of three members from the American Monsoons WG who could be invited to join the Monsoon Panel

Action: Alice with review by Andy and Paul by end Sep 2016

(10) Alice to prepare a 2-page document justifying the scientific and societal need for workshop on the American monsoon systems or South American monsoon, together with key workshop topics, The document will be in readiness to take advantage of funding opportunities.

Action: Alice; ASAP

(11a) Monsoon Panel to nominate a person to participate in the IndOOS Review of IORP.

Action: Andy and Paul; ASAP

(11b) Monsoon Panel to define leadership team for a review paper on relationship between Indian Ocean and surrounding monsoons: paper to be scoped and written with involvement of Indian Ocean Panel

Action: Andy and Paul; ASAP

(12) Monsoon Panel web site to be mirrored or linked from the CLIVAR website to GEWEX

Action: Paul; ASAP

(13) Monsoon Panel to contact Fred Kucharski to explore how ICTP can host on-going regional workshops based around the Working Groups (Americas, Africa and Asia-Australia) now that the formal arrangement between IITM, COLA and ICTP has finished.

Action: Andy and Paul; by July, 2017

(14) Nico to be informed about induction of two new members to MP. Aurel Moise and Annamalai (as Co-Chair of AAM-WG, representing interests of the Australian monsoon, interests in stakeholder engagement and Asian monsoon and process diagnostics respectively) are proposed for one position. Another person representing the Americas monsoon will be proposed based on two nominations selected from three CVs to be received from Alice (see item 13).

Action: Andy; ASAP

(15) ICMPO to continue dialogue with Ms Karin for the next MP meeting at Cape Town

Action: ICMPO; ongoing

(16) ICMPO to prepare funding request for CLIVAR SSG based on expected travel needs (namely airfares) to Cape Town, SA from MP members' home countries

Action: ICMPO by Wednesday 21 Sep 2016 (completed)

Monsoon Panel Meeting Minutes prepared by International CLIVAR Monsoon Project Office, Indian Institute of Tropical Meteorology, Ministry of Earth Sciences, Govt. of India, Pune 411 008, India.

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