Report of the Tenth Session of the Forum on Regional Climate Monitoring-Assessment-Prediction for Asia (RAII)

FOCRAII

23-25 April 2014

Beijing, China

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1. Executive Summary

Having met in Beijing, China, from 23 to 25 April 2014, the Forum participants agreed on the following findings and recommendations:

- In addition to the contributions from CMA, JMA, and KMA, experiences from other WMO Association Regions were shared. This is greatly appreciated by the participants.
- The Forum reaffirmed the importance of the continuation and long-term sustainability of Climate Monitoring, Application and Prediction (CliMAP) programs and activities, including increased research and model developments, multi-model ensemble techniques and downscaling methods involving development of statistical downscaling and regional climate models (RCMs), education, training, capacity building, and outreach and urged the advanced climate centers within the region such as BCC, TCC and NEACC to continue to host training and capacity building programs for the region on a regular basis.

- The Forum discussed the outputs from various climate system models (BCC/CMA, JMA, and APCC) and used these outputs, to produce a most likely seasonal climate outlook (attached as Appendix I to this report) for the RA II region for summer (June-July-August) of 2014. The prediction was also partly based on the predictions by the participants from China, China Hong Kong, China Macao, Indonesia, Japan, Republic of Korea, Laos, Malaysia, Mongolia, Pakistan, Russia, Thailand and Yemen for their own countries/regions with various statistical and dynamic methods. Indeed, several suggestions have been discussed to improve the prediction by taking into account of model skills, regional patterns, etc. The prediction in the appendix should therefore be considered the results from an exercise rather than anything directly targeted to specific users.
- It is agreed that BCC's Initiatives of Pilot Projects for User Interface Programme is constructive. The communications between the end-users of climate products and services and the producers are important to improve the products and the services. In the meantime, the end-users can obtain a better understanding and make better use of the products.
- It is agreed that improvement in cooperation between RCC and NMHSs especially in data exchange and sharing is needed for better climate monitoring, prediction and assessment.
- The Forum encouraged more WMO RA II regional climate/monitoring centers to participate and share experiences in future forums.

2. General Features of the Forum

The FOCRAII held in Beijing, China, during 23-25 April 2014, sponsored by WMO and CMA, cosponsored by State Administration of Foreign Expert Affairs, National Development and Reform Commission of China and WMO East Asian Monsoon Activity Center/BCC, and hosted by the Beijing Climate Center of CMA, was a response to addressing the needs of the RA II region for CliMAP (see Appendices III & IV for Final Agenda and List of Participants).

The main objectives of the Forum are:

- To review the progress made in the CliMAP programs and the activities both within RA II and the world with a specific focus on the challenges and opportunities in seasonal to inter-annual climate prediction methodologies and systems unique to the RA II region.
- To provide a platform for the members of RA II to share and exchange experience and knowledge on CliMAP.
- To build collaborations and partnerships among the members of RA II in the CliMAP programs as well as other international partners and activities.

- To discuss collaborations among the members of RA II and other international partners to build an Asia-Pacific network of climate extreme events monitoring and assessment.(Or Building Plan for Monitoring and Assessment System of Extreme Weather-climate Events in Asia)

There were totally 80 participants from 19 countries/territories (China, China Hong Kong, China Macao, DPR of Korea, Egypt, Ghana, Indonesia, Japan, Kenya, Lao PRD, Malaysia, Maldives, Mongolia, Pakistan, Republic of Korea, Russia, Thailand, United States, Yemen and). Mr. Yu Jixin, Representative of CMA, Mr. Yuan Xudong, Representative of SAFEA and Ms. Cui Jing, Representative of NDRC attended the Forum.

The Forum was organized in six sessions including invited lectures and oral presentations (see Appendix III for details).

3. Outcomes of the Forum

A "consensus" prediction of the summer climate in the RA II region and a CD-ROM including all presentations were produced.
Broad consensus in enhancing cooperation between RCC and NMHSs for producing better climate information for RA II.

4. Feedbacks from the Participants

In the summary session, many participants took the chance to comment on the Forum, especially on how to improve discussing and exchanging of the seasonal forecast in Asian monsoon region. To further foster our common understanding and capability on the prediction of Asia summer monsoon, the Asian monsoon variation and the associated influencing factors of it should also be comprehensively diagnosed and predicted. Thus, the consensus interpretation of prediction can based on our common scientific understanding these important phenomena, such as the Asian Monsoon, ENSO, climate change including decadal variations, which are considered to have close relationship with climate variability in Asia.

Overall, the participants were very happy with the preparations and conduct of the Forum. Also, majority of the participants was happy with the communications with the organizers on the objectives, content and necessary preparatory actions expected by the participants. Logistics arrangements were generally very satisfactory.

5. Host of the 2nd EASCOF

JMA will host the 2nd EASCOF (East ASia winter Climate Outlook Forum) which is formerly the Joint Meeting for the Seasonal Prediction of the East Asian Winter Monsoon. The time and place will be informed later.

APPENDIX I: 2014 Climate Outlooks for RA II Region

1. Monitoring and Outlook on ENSO

Since the mid of February 2014, sea surface temperature (SST) in large portions of the equatorial eastern Pacific has increased, and then by the mid of March, the positive SST anomalies has covered most of Nino regions except Nino 1+2 and correspondingly the subsurface warm water has dominated the eastern equatorial Pacific. Meanwhile the twice strongly westerly burst events occurred in early the year, which led to weaken the northeasterly trade wind and intensify the convection activities near dateline. In early April 2014, a new westerly anomaly that is beneficial to El Nino event appeared to develop in the western tropical Pacific. In addition, the studies showed that both signal factors of the past winter negative SST anomalies in the northwestern Pacific and the last spring air temperature difference between over the eastern and western tropical Pacific all favor an El Niño event since summer 2014.

Based on the prediction of models and current development trend of the sea and atmospheric status, SST anomalies in Nino regions are expected to stand up at 0.5 degrees Celsius during end of May to June 2014, and continue to shape into an at least moderate El Niño event by the end of the year.

2. Consensus Prediction of precipitation and temperature for JJA 2014
a) Summer monsoon prediction

Based on common scientific understanding on the mechanism of Asia summer monsoon, including the India summer monsoon and East Asian summer monsoon, and interpretation of prognostic and climate model products of it, the Indian summer monsoon is predicted to be near normal, but the East Asia summer monsoon is predicted to be stronger than normal or near normal during the coming summer.

b) Precipitation prediction

The predictions of precipitation are based on consensus on possible influence of external forcing factors and summer monsoon circulation. The deterministic consensus prediction (Fig. 1A) mainly focuses on positive precipitation anomalies in North China, DPR. Korea, northern Japan, northern Pakistan. Normal precipitation will be seen in Russia, Mongolia, most Japan, most Indonesia, and Thailand. Negative

precipitation anomalies will occur in Central and southern China, Korea, southern Pakistan, and Yemen in the coming summer. The results of precipitation prediction from dynamical models including ECMWF, MOHC, CFS, TCC, APCC and BCC are shown as Fig. 1B.

c) Temperature prediction

The consensuses of deterministic temperature prediction are reached on that temperature is above normal or near normal over Asian region except northern Northeast China, northern Japan, and northern Pakistan during the coming summer (Fig. 2A). The results of temperature prediction from dynamical models are shown as Fig. 2B.

3. Methods used in Predictions

The methods used in prediction are surveyed for all participants. The results showed that there are 37.5% predictions made by both dynamical and statistical methods, 25% predictions by statistical methods, 37.5% predictions by dynamical methods.

Based on these surveys, the details of precipitation and temperature prediction for JJA 2014 by different participants are also synthesized and shown in Fig. A and Fig. B respectively. It should be kept in mind that the predictions in Fig A and B contain uncertainty in some particular areas. Therefore, caution should be taken in using the information. It remains as a future challenge to seek methodologies for appropriately representing uncertainty of prediction. In addition, it is stressed that these predictions are relevant only to seasonal time scales and relatively large areas.
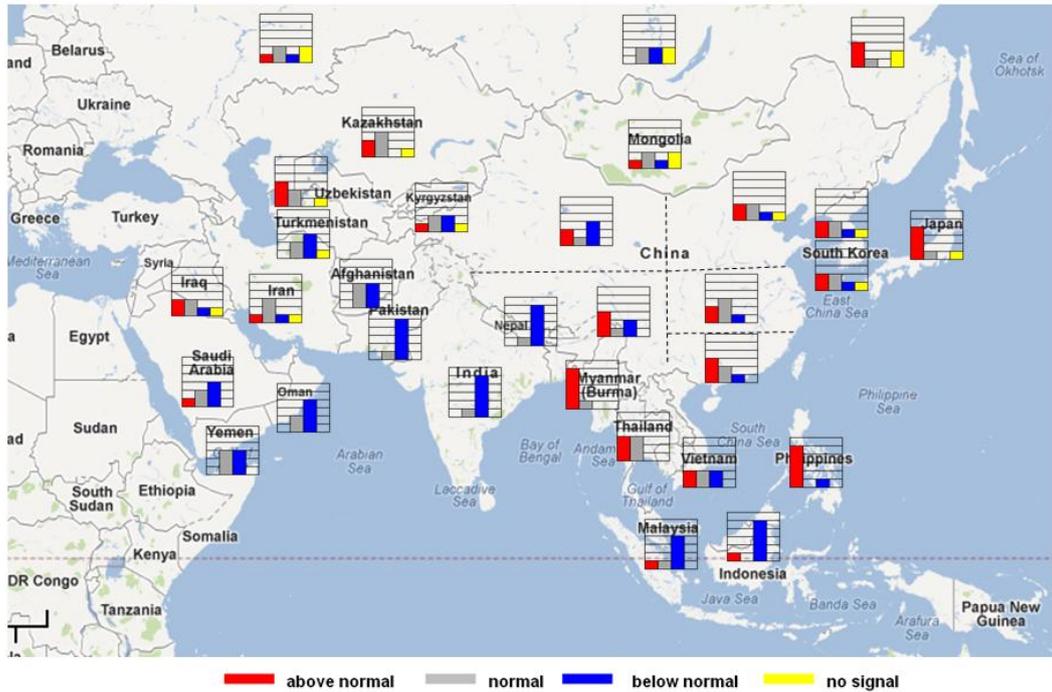
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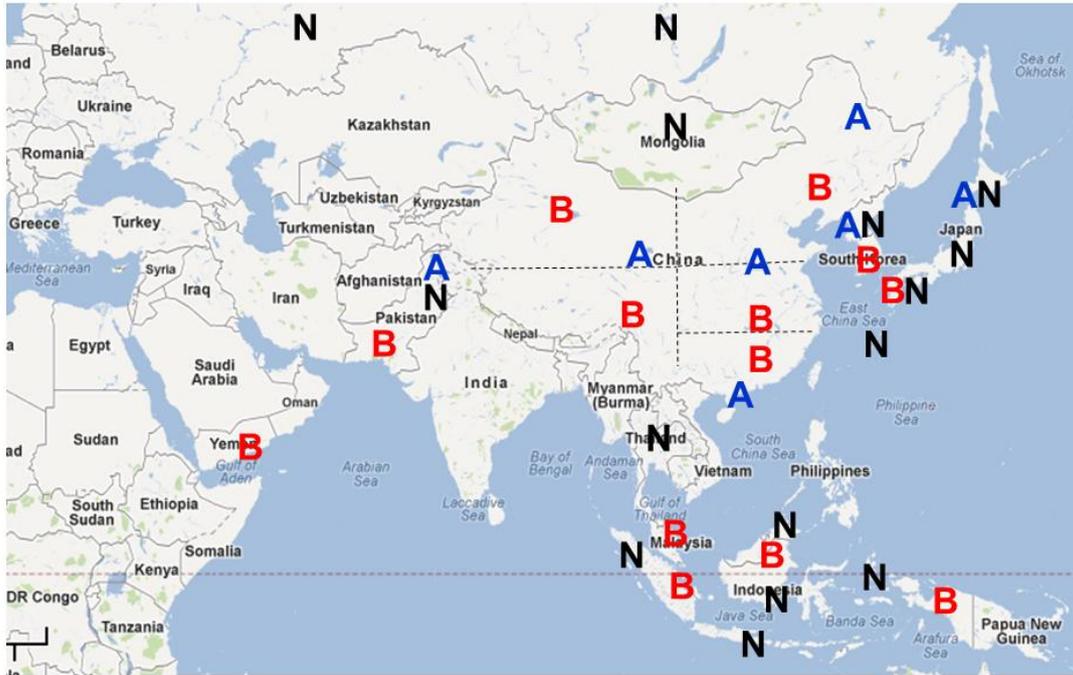
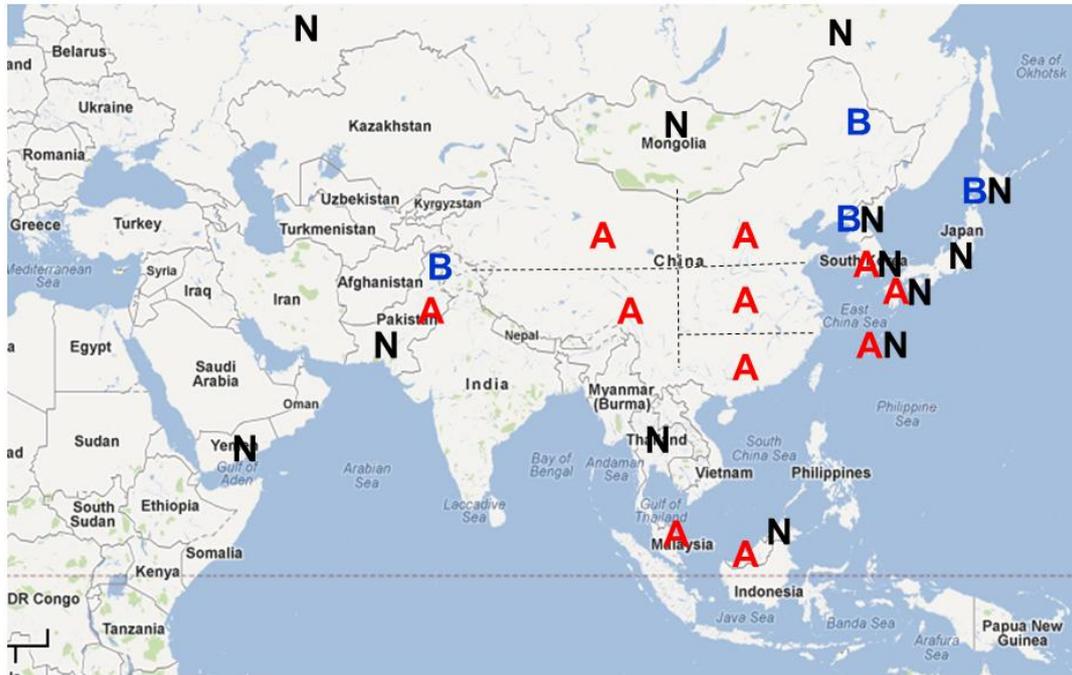

A: above normal; N: near normal; B: below normal

Fig. 1A Deterministic precipitation prediction for summer 2014 from feedback (A: above normal; N: near normal; B: below normal)

2014 JJA Precipitation Prediction from Dynamical Models

above normal   normal   below normal   no signal

Fig. 1B Precipitation prediction from dynamical models for summer 2014

2014 JJA Deterministic Temperature Prediction from Feedback

A: above normal; N: near normal; B: below normal

Fig. 2A The same as Fig. 1A, but for temperature

2014 JJA Temperature Prediction from Dynamical Models
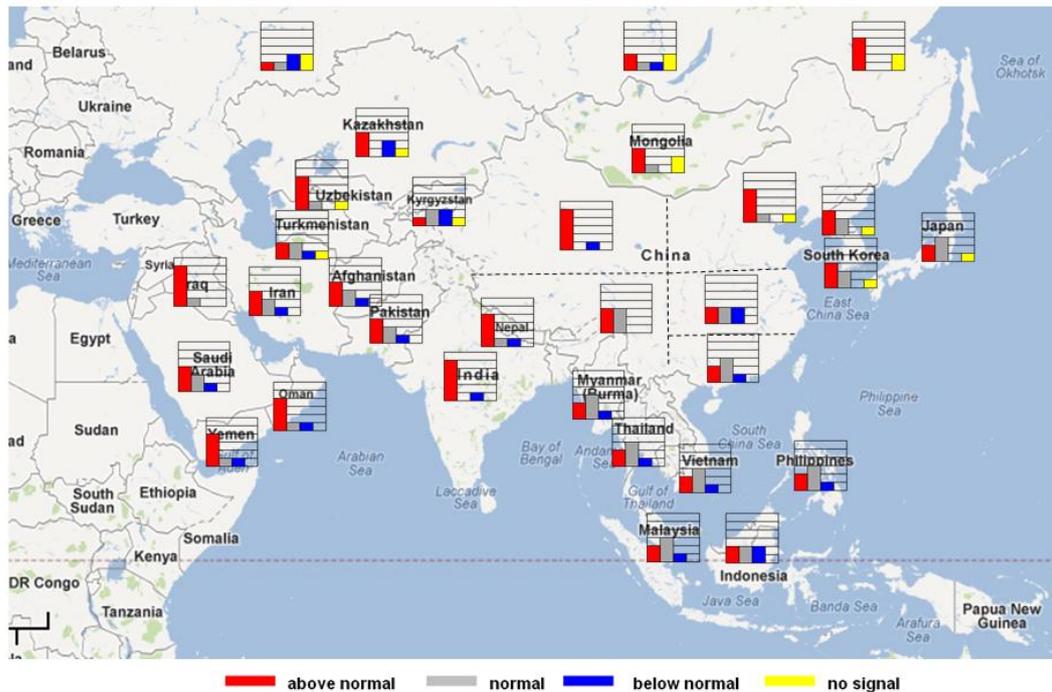

above normal   normal   below normal   no signal

Fig. 2B The same as Fig. 2A, but for temperature