

Minutes for telecon of the MJO-TF on 05 March 2014, 13 GMT.

TF members on-line: Ken Sperber, Matt Wheeler, Eric Maloney, Rich Neale, Charlotte DeMott, Steve Woolnough, Tomoki Miyakawa, Jon Gottschalck, Camille Risi, Prince Xavier

Others: Xianan Jiang, Nicholas Klingaman, Min-Seop Ahn, Jihyun Oh,

1) Discussion of Past Action Items (lead by Matt)

Matt reviewed progress on action items resulting from the telecon in December. The action items are listed here sequentially, with their status.

A1) Check with APCC whether any additional modelling centres has joined the BSISO forecasting activity.

Hae-Jeong Kim (APCC) has reported that the Central Weather Bureau of Taiwan has asked to join.

A2) Charlotte to send email to air sea interaction oriented members of the TF to organize work on the review and other activities, as well as present at the next telecon. Complete. Charlotte with the help of Nick and Steve will lead the review paper, who she is visiting in March. Charlotte also presented at this telecon.

A3) Duane asked the MJOTF to provide comments on the planning document of the joint S2S/MJOTF project on the Maritime Continent before the S2S telecon in January. Steve reported that the document was discussed at the S2S telecon and was given their support. One issue is whether there will be any resources available to meet the deliverables. **Followup Action:** Steve suggested that the MC project plan could be further refined by shortening the list of possible research topics.

A4) Matt/MJOTF to supply Michel/WMO with a list of requests for travel support to Montreal.

Matt has done this, with a reply arriving from Michel this week. Budget constraints mean that only 6 of the 8 requests can be covered. **Followup Action:** Matt to communicate further with Michel and those who requested support and try to think of alternative funding for the 2 who missed out.

A5) Daehyun and Eric to work with Xianan to assess radiative feedbacks and other terms of the MSE budget in a unified framework in the long 20-year simulations of GASS/MJOTF model database.

Item is ongoing. Xianan has conducted some initial model diagnosis in this framework. **Followup Action:** Check status during next telecon.

2) Update on next MJO-TF face-to-face meeting in Montreal (Matt)

Our face-to-face meeting is going ahead on Saturday 16th August in Montreal (presumably at the same or nearby location to the WWOSC). Information on the

travel funding requests is provided above. Our MJO-TF meeting is for the full day, with the WWOSC commencing in the evening on the 16th. The abstract deadline for the WWOSC has been extended to 10th March.

ACTION: Matt to send another reminder about this to everyone.

3) Process-oriented diagnostics based on the momentum budget (Xianan)

Xianan sent a presentation of 21 slides to discuss, titled: "Charactering the Vertical Structure of Convective Momentum Transport Associated with the MJO".

CMT refers to the vertical transport of horizontal momentum that takes place due to the updrafts and downdrafts in convective clouds. Traditional theories of the MJO have emphasized the role of convective clouds in transporting heat and moisture, and in driving large-scale circulations through latent heat release. Budget analysis based on CFS-R reanalysis suggests that vertical u-wind transport associated with the MJO is largely a balance between sub-grid CMT and mean u-wind transported by the intraseasonal vertical velocity. This may indicate the importance of accounting for the CMT in a GCM to obtain a realistic simulation of the MJO circulation.

Xianan has also begun the analysis of CMT in the multi-model 20-year simulations of the MJOTF/GASS project on MJO vertical structure and diabatic heating. So far it is difficult to see any relationship between the computed CMT structures and the fidelity of the MJO in the different models. Further work is planned looking at CMT in cloud resolving models with Tomoki. Extension of the analysis to the DYNAMO period will also be done.

4) Year of Maritime Continent (YMC) discussion (Eric)

Chidong Zhang has been preparing a whitepaper for the proposed field program called the Year of the Maritime Continent. This whitepaper has already undergone 2 rounds of revision with Eric and Matt, and was sent to the MJOTF a week before the telecon for their comments. Also included is an appendix on the particular importance of the MJO for the YMC, with the expectation that appendices focussing on other phenomena and aspects of the field program will be added. The proposed dates of the YMC are April 2017 to October 2018.

Prince made the comment: "MSS/CCRS Singapore would be keen to develop a white paper Annex that focuses on particular issues of concern for forecasting in the western Maritime Continent region. This would include developing better understanding of the scale interactions (e.g. ENSO, MJO, monsoon surges, local convection, aerosols etc.). One possible contribution would be to work with partners (UKMO using Unified Model, regional and national university partners) and develop a regional reanalysis system for the MC with an enhanced analysis over specified sub-regions for the YMC. Of course satellite observations will play a key role. The system could be established ahead of the YMC and during special observing periods enhanced analysis could be carried out. We would aim to work with university groups, UKMO, BoM etc and set up the reanalysis runs in Singapore."

Based on the plan provided by Chidong, Eric recommended endorsement by the MJOTF. Steve seconded that. Ken asked if the concept had been passed by the

parameterization developers as represented by GASS. Steve, who is a member of GASS, thinks it had not. **ACTION:** to recommend to Chidong to send the whitepaper to the GASS group ASAP so that it can be discussed in their next telecom and included for discussion in the GEWEX conference in the Hague in June (several MJOTF members said that they will be present at this meeting).

5) MJO Air-Sea interaction (Charlotte)

Charlotte opened by giving a status update of the air-sea interaction review paper. She has volunteered to lead it with close help from Nick and Steve, who she is visiting in ~2 weeks. Charlotte then discussed the 15 slides that she sent on the topic "Why does ocean coupling improve the MJO?", which is the topic of a journal paper that she has nearly completed. The work uses a set of both coupled and uncoupled simulations (with SP-CAM, CAM3 and CAM4) where the uncoupled simulations use SSTs derived from the coupled model but filtered with a 5-day running mean or monthly mean. To explain the results she examines each of the components of the surface latent heat flux. One result is that latent heat fluxes vary with model physics and ocean treatment, and are dominated by wind speed variability. However, sensitivity of wind speed variability to ocean treatment appears complex and non-local. Charlotte argued that wind-induced fluxes that support strong convection in the Indian Ocean aid propagation across the Maritime Continent by causing stronger moistening by horizontal advection.

Eric asked precisely how coupling helps support Indian Ocean convection in this paradigm. Steve suggested some ideas to more precisely assess how coupling affects event evolution, specifically in initialized runs with and without coupling to assess differences in process details. Nick argued that coupling could be shut off in specific ocean basins or regions to aid this endeavour. Camille asked how radiative cooling enhancement in the Pacific could aid propagation.