MJO-TF Telecon minutes

Date: 6th September 2016

On call: Daehyun Kim, Steve Woolnough, Charlotte DeMott, Nick Kingaman, Eric Maloney, Tomoki Miyakawa, Camille Risi, Matt Wheeler, Prince Xavier, Mich Rixen

- **MJO Isotope Work - Camille**

Camille presented her ongoing work on the diagnosis of moistening processes in the MJO through isotopic analysis. Goal is to develop isotope based process-based metrics to relate to MJO performance.

In the Indian Ocean, observations tend to show clockwise evolution in q-δD space. Simulations of LMDZ nudged to observed winds tend to show too linear evolution in some cases. Analysis suggests that this linear evolution is associated with too early onset of deep convection and associated δD depletion and too early enrichment by large scale advection.

Sensitivity experiment in LMDZ – can isotope analysis distinguish between moistening and dehydrating processes in simulations with a version of the model which has better MJO simulations. Sensitivity experiments, when winds are nudged, have very similar humidity evolution and q-δD cycle look very similar as well.

Discussion

DK found similar "diagonal behaviour" in GISS-GCM (free run). Discussed possibility of intercomparison activity, Camille will get some data from the GISS model runs to compare to LMDZ.

Suggested alternative ways forward

1) Try looking at diagnostics not directly linked to MJO evets e.g. δD cycle as a function of precipitation c.f. GASS intercomparison diagnostics of dq/dt.
2) Analysis of different q-δD cycle during different MJO events within one version/model and relate to MJO evolution.

- **MJO analysis in CMIP5 - Daehyun on behalf of Min-Seop**

MJO in CMIP analysis by Min-Seop, manuscript ready to go to JAMES, DK will circulate when submitted.

- **MJO Indices in S2S - Steve**

SW reported that following the meeting in Singapore FV had asked the TF to review and verify his method for calculating MJO indices from S2S database. These are likely to be widely used, important that they are right.

Action item: SW to circulate FV's codes and documentations to whole TF. SW, EM, MW and others to look through at earliest opportunity.

- **Air-sea interaction diagnostics in S2S hindcasts - Charlotte**

Charlotte presented hers and Nicks work on extending the air-sea interaction diagnostics to use for S2S hindcasts, key is how to calculate the mean state by running averages. Presented different approach for forecasts initialized daily in which we can reconstruct a lead1, lead2, lead3 … forecast timeseries, which is trivial to "smooth" and for burst ensembles where they propose interpolating between successive e.g. lead1 to produce the "mean field" and using only available days to look at anomalies from the mean. How do calculate the "overbar" in hindcasts?

There followed a brief discussion on the objective, is it to say what does air-sea interaction look like at different lead times in the forecast, for which this is the right approach (and that is the objective) as opposed to looking at air-sea interaction in the evolution of a particular forecast in which case it isn't.

- **Removing the diurnal cycle in the Maritime Continent - Charlotte**

Charlotte presented some initial results from experiments in which she had "removed" the diurnal cycle from the Maritime Continent islands by appropriately fixing the solar zenith angle in the region. Results from a short simulation in CAM which has a poor MJO anyway, suggested that removing the diurnal cycle helps the eastward propagation slightly. There were also some small impacts on the basic state, which we discussed. This is inevitable, and means care needs to be taken in presenting the experiments and the results, stressing the that the effect of the diurnal cycle is on both the basic state and the MJO, and it might be either the basic state or the DC directly which is important. We also discussed the possibility to repeat these experiments in other models.

- **Next Face-to-Face meeting - Daehyun**

We discussed the possible location of our next face to face meeting.

TYK had suggested some ideas offline: EGU Vienna; Atmopshere Ocean Fluid Dynamics, Portland; AOGS, Singapore. NK also proposed IAMAS/IAPSO Cape-Town. EM reported that Tim Li had offered to host and support a meeting in Nanjing if we wanted. MR noted the systematic error workshop in Montreal but there may be some constraints on size.

MR noted that WMO may not be able to offer as much financial support as in previous years.

Action item: DK will set up poll or google doc to indicate our likely attendance at the various options, including our ability to self-fund travel.

- **GASS Data - Steve**

The simulations participated in the GASS/MJOTF/YoTC intecomparison project is currently stored at JPL for free but we have been informed that they want to begin charging for this archive. The costs are prohibitive so we need to either seek and alternative solution, or accept that we will lose the archive.

Action item: Nick will begin discussions with Bryan Lawrence at CEDA about the possibility of them hosting the data, although CF compliance and metadata may be issues.

- **Australian YMC proposal - Matt**

Matt supplied a 1-page summary of their proposal for ship activity in the YMC field campaign, questions to Matt via e-mail.

- **AOB**

MR asked about other involvement in YMC field campaign?

EM replied that it was quite depressing on the US side in terms of YMC funding with the main YMC proposal not funded, but PISTON has been funded with a focus, BSISO in South China sea, but probably not ideally located from a YMC point of view.

SW replied that a UK led project including SW, NK, AM and PX had not been successful and PX noted that the Met Office don't have any plans at the moment.

NK – advertised the recently completed BoBBLE field campaign in the Southern Bay of Bengal