

**US CLIVAR SSMJO WG**

**Telecon Discussion Items**

May 31, 2006; 12:00-1:30pm US West Coast

[1-818-393-2747](tel:1-818-393-2747)

- 1) **Metrics – probably spend most time on first item.**
  - **Update on GCM simulation metrics (Ken)**
  - **Update on Forecast metrics (Duane)**
- 2) **Simulation and Forecasting Resources Update (Siegfried)**
- 3) **Planning for Working Group Meeting in July (Duane)**

Expected Attendees: Waliser, Sperber, Zhang, Maloney, Weickmann, Moncrieff,  
Expected Absences: Schubert, W. Wang, Donner (maybe we can get a GFDL substitute)  
Not entirely certain: B. Wang  
International and other Additions: Hendon, Woolnough, Higgins
- 4) **Discuss recent issues passed around regarding time and multiple, conflicting, complementary meetings in relation to Workshop plans in 2007 (Ken/Bin)**
- 5) **Web site and Outreach Issues (Duane – see below)**
- 6) **Next Telecon(s)**

## **Text to be included in upcoming CLIVAR VARIATIONS**

In spring 2006, US CLIVAR established the Madden-Julian Oscillation (MJO) Working Group (MJOWG). The formation of this 2-year limited lifetime WG was motivated by: 1) the wide range of weather and climate phenomena that the MJO interacts with and influences, 2) the fact that the MJO represents an important, and as yet unexploited, source of predictability at the subseasonal time scale, 3) the considerable shortcomings in our global climate and forecast models in representing the MJO, and 4) the need for coordinating the multiple threads of programmatic and investigator level research on the MJO. Near-term tasks involve the development of metrics for assessing model performance in both climate simulation and extended-range/subseasonal forecast settings, as well as designing and coordinating multi-model experimentation and analysis to diagnose and improve model shortcomings and assess MJO predictability characteristics and present-day prediction skill. In addition, the WG will help to coordinate MJO-related activities across other programmatic bodies (e.g., GEWEX, International CLIVAR, Thorpex) and will explore the applications and potential user base for subseasonal predictions based on the MJO. Workshops that address these issues are being planned, with results being communicated in summary reports and peer-reviews articles. For additional details, see [www.usclivar.org/Organization/MJO\\_WG.html](http://www.usclivar.org/Organization/MJO_WG.html).

## WEB “RESULTS OF THE MONTH”

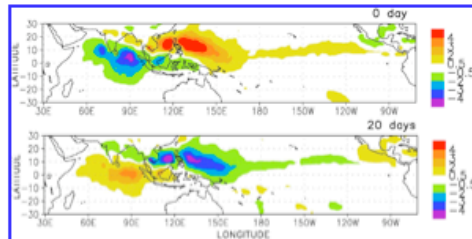
During last telecon, Waliser agreed to send two examples of possible formats / level-of-detail for our CLIVAR web page outreach/results oriented section. In this regard, I was wondering if we could maybe consider the following: rather than put any arbitrary MJO-related results, we focus these items more towards applications and or interactions with other parts of our weather / climate system (e.g., hurricanes, ENSO, monsoon, NAO, ocean). Given the types of clients we might wish to visit the web page, we might be more interested in peaking their enthusiasm for the phenomena and its breadth rather than the more nitty-gritty details of MJO simulation for theory for example. Apart from this virtue, it also helps maybe to educate us in areas we might be less aware of and helps us to address more directly the outreach/applications area. What do you think?

In any case, it is still envisioned that these are simple one page highlights in order to be brief and not too taxing on the person being asked to put them together. They can link to other sites, figures or manuscripts. Enclosed below are two examples of this sort of thing (done for JPL mgmt/admin level). In one case, there is more discussion and less of a figure and in the other a little more figure and main items bulletized. These are just fodder for discussion of this topic and in any case whatever the form would be put into web format and fit closely within a page/screen or two.

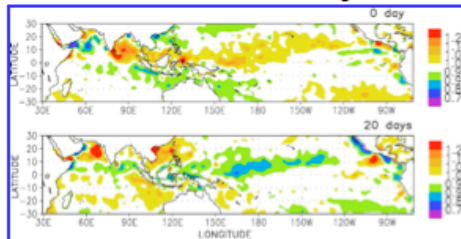
### Tropical Distribution and Prediction of Ocean Chlorophyll

Waliser, Murtugudde, Strutton, Li, 2005, GRL

Active and Break Phase of Summer Monsoon Rainfall



Associated Fractional Change in Chl



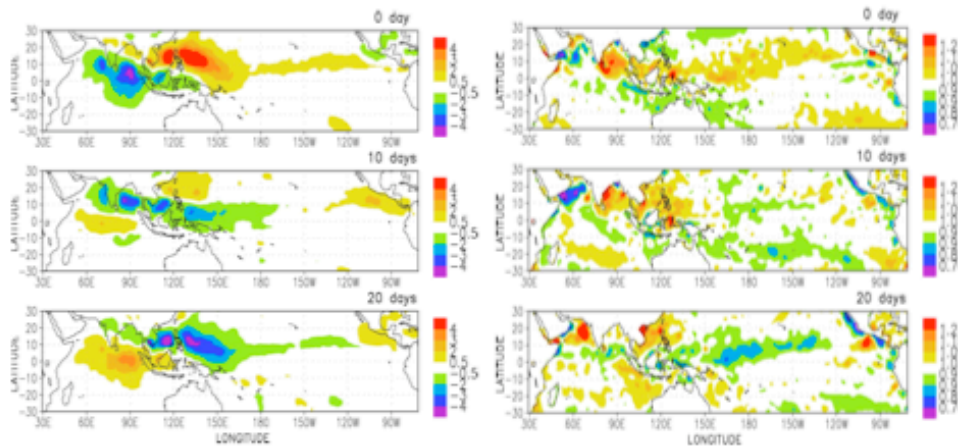
- Can atmospheric intraseasonal variability influence variations in ocean Chlorophyll (Chl)?
- Analysis of satellite-based ocean color and rainfall data by shows that tropical intraseasonal cloud variability [e.g. active/break monsoon phases, Madden-Julian Oscillation(MJO)] produces systematic variations in Chl in the tropical Indian and Pacific Oceans.
- Given that the monsoon/MJO is predictable with lead times of 2-3 weeks implies that large-scale changes in Chl might also be predictable at these lead times which is likely to be a valuable asset to the ocean fishing industry and public health sectors concerned with Cholera due to their close links to Chl.

## Subseasonal Organization of Ocean Chlorophyll: Prospects for Prediction Based on the Madden-Julian Oscillation

Waliser, Murtugudde, Strutton, Li, GRL, 2005

### Summary

Analysis of satellite ocean color and rainfall data shows that the Madden-Julian Oscillation (MJO) – the dominant form of tropical atmospheric variability with a time scale of about 50 days – produces systematic and significant variations in ocean surface Chlorophyll (Chl) in a number of regions across the tropical Indian and Pacific Oceans. The results are seasonally dependent, with the main regions of variation in boreal summer (*see figure below*) being the northern Indian Ocean, a broad expanse of the northern tropical Pacific Ocean and a number of regions in the far eastern Pacific Ocean. In the boreal winter, MJO-induced variations are strongest in the northwest Indian Ocean, over broad areas of the western and central Pacific, and coastal Mexico. Examination of the corresponding surface wind data indicates that vertical entrainment of nutrients at the base of the ocean mixed layer is an important contributing mechanism. Given evidence that the MJO is predictable with 2-3 week lead-times, surface Chl may also be predictable at similar lead times with implications for the fishing industry and public health sectors concerned with cholera epidemics.



(left panel) Composite Northern Hemisphere (NH) summer rainfall anomalies ( $\text{mm day}^{-1}$ ) associated with the Madden Julian Oscillation (MJO). Lags start at 0 days (top), +10 days (middle) and +20 days (bottom), which together account for about one half of a complete MJO event. (right panel) Same, except for ocean surface Chlorophyll from SeaWiFS, where the values are normalized by the seasonal means (e.g., 1.2 indicates 120% of the N H. summer mean)

**DRAFT MAY 25, 2006**

## **TERMS OF REFERENCE**

- Develop a set of metrics to be used for assessing MJO simulation fidelity and forecast skill.
- Develop and coordinate model simulation and prediction experiments, in conjunction with model-data comparisons, which are designed to better understand the MJO and improve our model representations and forecasts of the MJO.
- Raise awareness of the potential utility of subseasonal and MJO forecasts in the context of the seamless suite of predictions.
- Help to coordinate MJO-related activities between national and international agencies and associated programmatic activities.
- Provide guidance to US CLIVAR and Interagency Group (IAG) on where additional modeling, analysis or observational resources are needed.

## DRAFT WEB LINKS

### MEETINGS

- Link to Trieste Meeting which still retains presentations.
- WG meeting in July
- Monsoon Meeting in Bangalore in Jan 07.
- Systematic Errors workshop in Feb 07
- OTHERS?

### DOCUMENTS

- Our prospectus.
- Report from ENSO-MJO workshop
- Report from NASA subseasonal workshop
- Report from NASA/USCLIVAR MJO workshop
- Report from ECMWF-MJO workshop. (only a link to presentations I believe – report is not online)
- OTHERS?
- Weather – Climate link documents – any?

### LINKS

- CPC Intraseasonal monitoring
- CPC hazards assessment
- CDC MJO experimental prediction website
- CDC MJO monitoring page
- BOM MJO monitoring and prediction web site (wheeler)
- Other real-time efforts (*Webster?, Jones?, etc*)
- *A number of others that can be lifted from CDC MJO web page*
- OTHERS?

### PAPERS

- Do we need this?
- Easy to give a long litany of publications.
- How to decide?
- Should we focus on reviews and overviews?