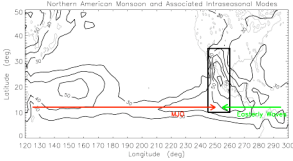


# North American Monsoon, African Monsoon and Associated Intraseasonal Modes Simulated by IPCC AR4 Coupled GCMs

Jia-Lin Lin, Brian E. Mapes<sup>2</sup>, George N. Kiladis<sup>1</sup>, Klaus M. Weickmann<sup>1</sup>, Siegfried D. Schubert<sup>3</sup>, Max J. Suarez<sup>3</sup>, Julio T. Bacmeister<sup>3</sup>, and Myong-In Lee<sup>3</sup>

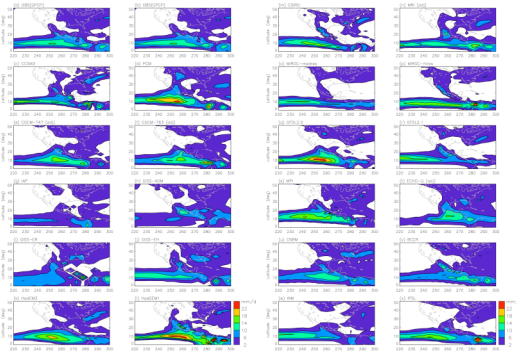
<sup>1</sup>NOAA ESRL/CIRES Climate Diagnostics Center, Boulder, CO; <sup>2</sup>University of Miami, FL; <sup>3</sup>NASA GSFC/GMAO, Greenbelt, MD

## 1. North American Monsoon and associated intraseasonal modes

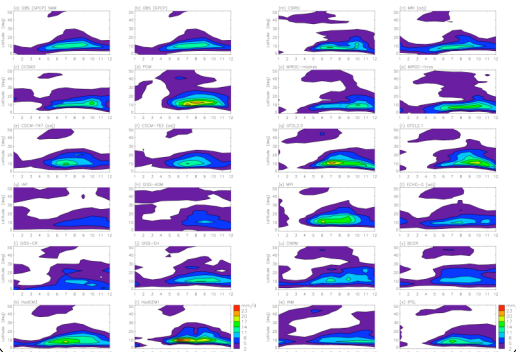


### (1) Seasonal mean and seasonal variation

Horizontal map of July mean precipitation

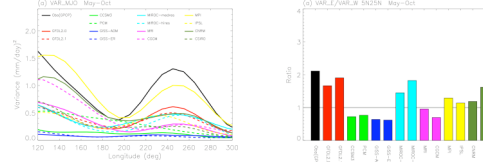


Seasonal variation along 245E-260E

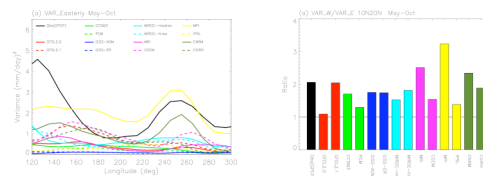


## (2) Intraseasonal modes

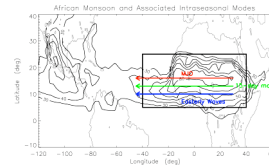
MJO



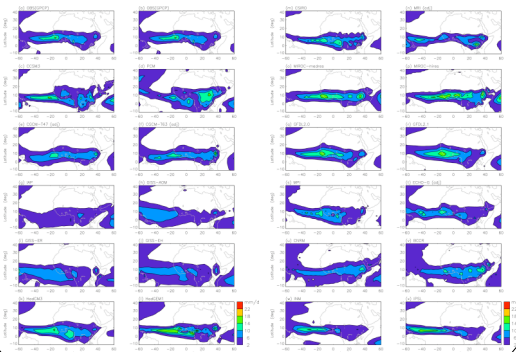
Tropical easterly waves



## 2. African Monsoon and associated intraseasonal modes

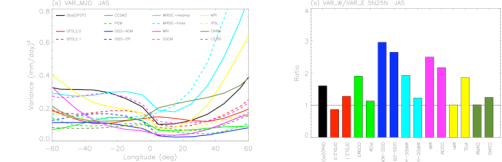


### (1) Seasonal mean

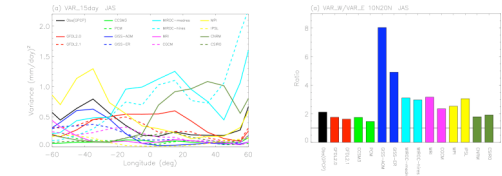


## (2) Intraseasonal modes

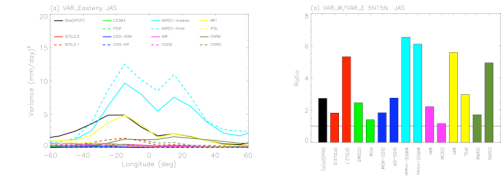
MJO



15-day mode



Tropical easterly waves



## 3. Summary

- (1) Biases in seasonal mean and seasonal variation;
- (2) Overly weak variances for most of the intraseasonal modes;
- (3) Poor eastward propagation for MJO in North American Monsoon;
- (4) Good westward propagation for many other modes.

## REFERENCES

- Lin, J. L., G. N. Kiladis, B. E. Mapes, K. M. Weickmann, K. R. Sperber, W. Y. Lin, M. C. Wheeler, S. D. Schubert, A. Del Genio, L. J. Donner, S. Emori, J.-F. Guérémy, F. Hourdin, P. J. Rasch, E. Roeckner, and J. F. Scinocca, 2006: Tropical intraseasonal variability in 14 IPCC AR4 climate models. Part I: Convective signals. *J. Climate*, 19, 2665-2690.
- Lin, J. L., B.E. Mapes, K.M. Weickmann, G.N. Kiladis, S.D. Schubert, M. J. Suarez, J. Bacmeister, and M.-I. Lee, 2006: North American monsoon and associated intraseasonal variability simulated by IPCC AR4 coupled GCMs. *J. Climate*, in revision.
- Lin, J. L., G.N. Kiladis, K.M. Weickmann, B.E. Mapes, S.D. Schubert, M. J. Suarez, J. Bacmeister, and M.-I. Lee, 2006: Intraseasonal variability associated with African monsoon simulated by 14 IPCC AR4 coupled GCMs. *J. Climate*, to be submitted.
- Lin, J. L., 2006: The double-ITCZ problem in IPCC AR4 coupled GCMs: Ocean-atmosphere feedback analysis. *J. Climate*, in press.