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Simulation of the Intraseasonal Variability Over the Eastern Pacific ITCZ in Climate Models

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Disclaimer

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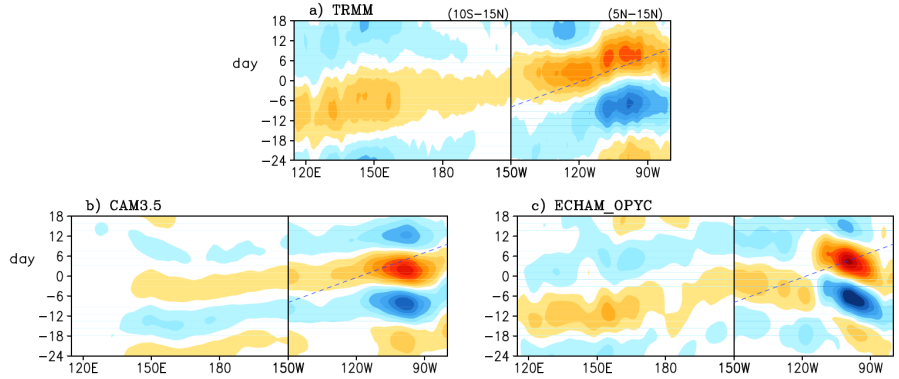
Objectives

- Evaluate boreal summer intraseasonal and quasi-biweekly rainfall variability over the tropical East Pacific in climate models
- Investigate model physics to determine configurations favorable for the simulation of these modes of variability

Approach

- Analyze 6 atmospheric models and 3 coupled models
- Use extended EOF analysis to evaluate how well the models simulate the two leading modes of 10-90 variability
- Evaluate the life-cycle and propagation characteristics

Examples of eastward propagation



Impact

- Four models simulate the eastward and northward propagation of the intra-seasonal mode, but the period is too fast
- Convective parameterization that permits the build-up of sufficient tropospheric moisture yields improved simulation of these modes of variability
- High horizontal resolution appears to be favorable for simulating the quasi-biweekly mode

Jiang, X., D. E. Waliser, D. Kim, M. Zhao, K. R. Sperber, W. F. Stern, S. D. Schubert, G. J. Zhang, W. Wang, M. Khairoutdinov, R. B. Neale, and M-I. Lee, 2011: Simulation of the intraseasonal variability over the Eastern Pacific ITCZ in climate models. *Climate Dynamics.* (in press; http://climvar.org/jiang/pub/jiang_iso_epac_gcms.pdf)