

Radar-based and Large Scale Views of Convection and Humidity during AMIE-DYNAMO

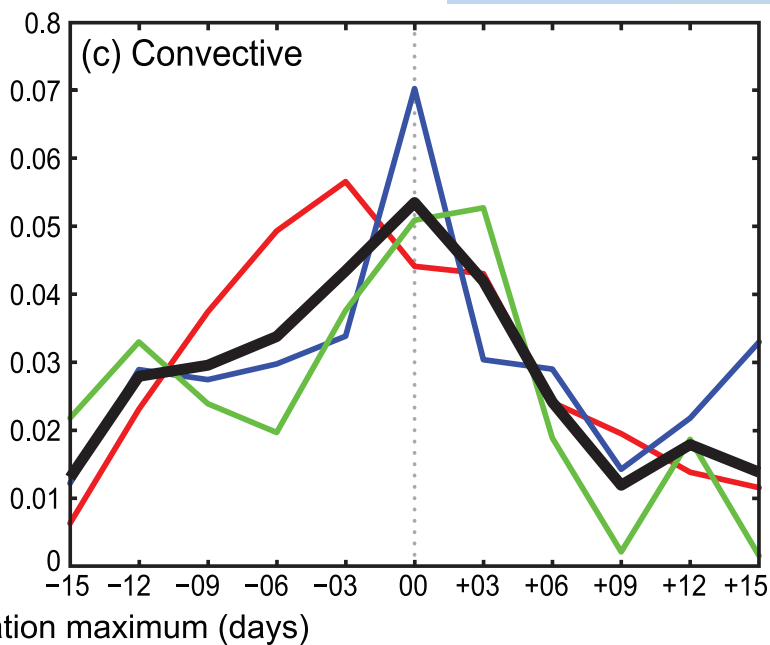
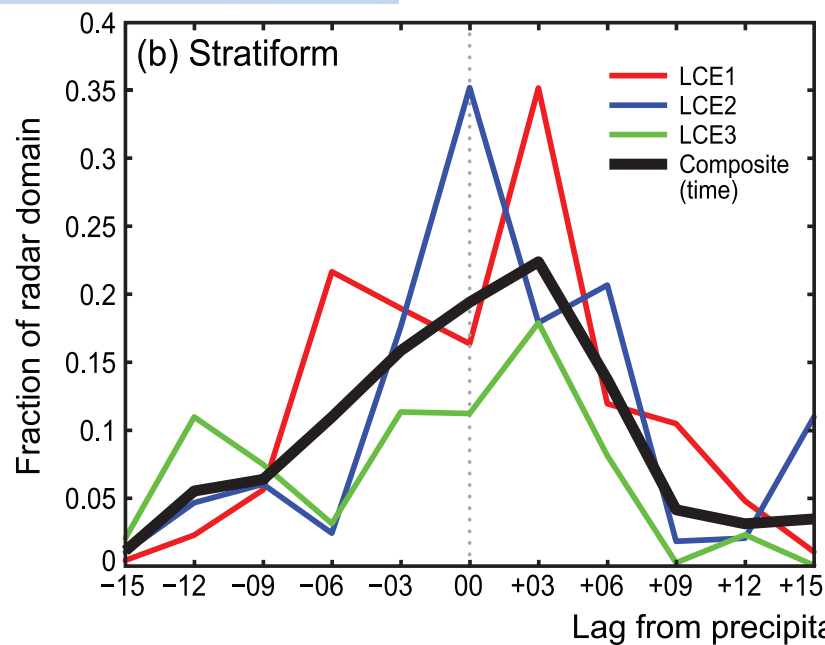
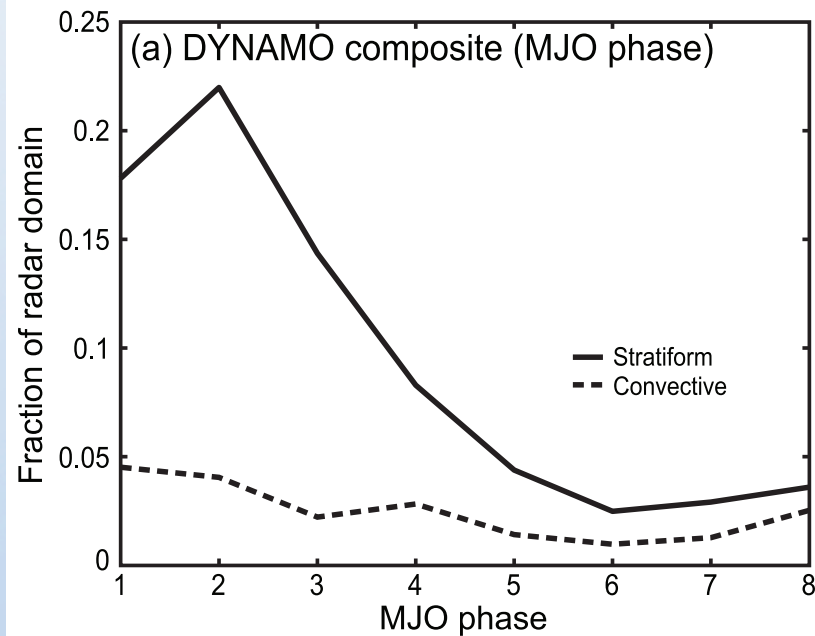


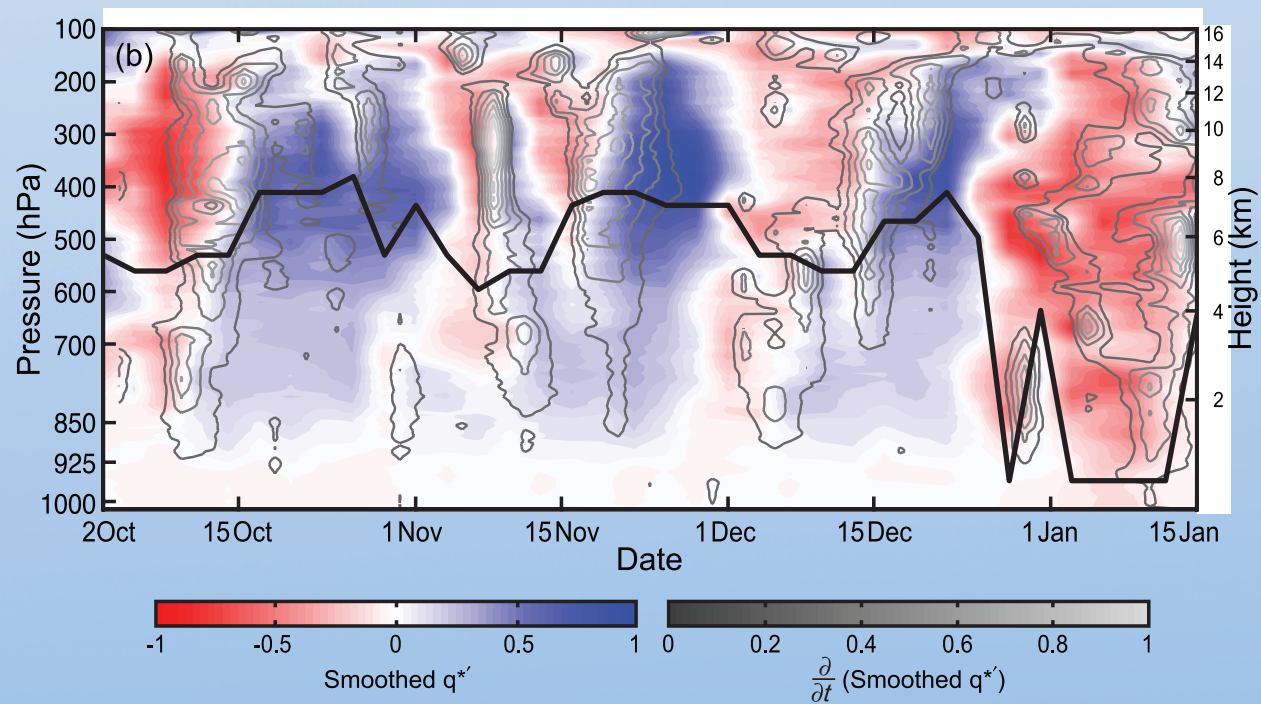
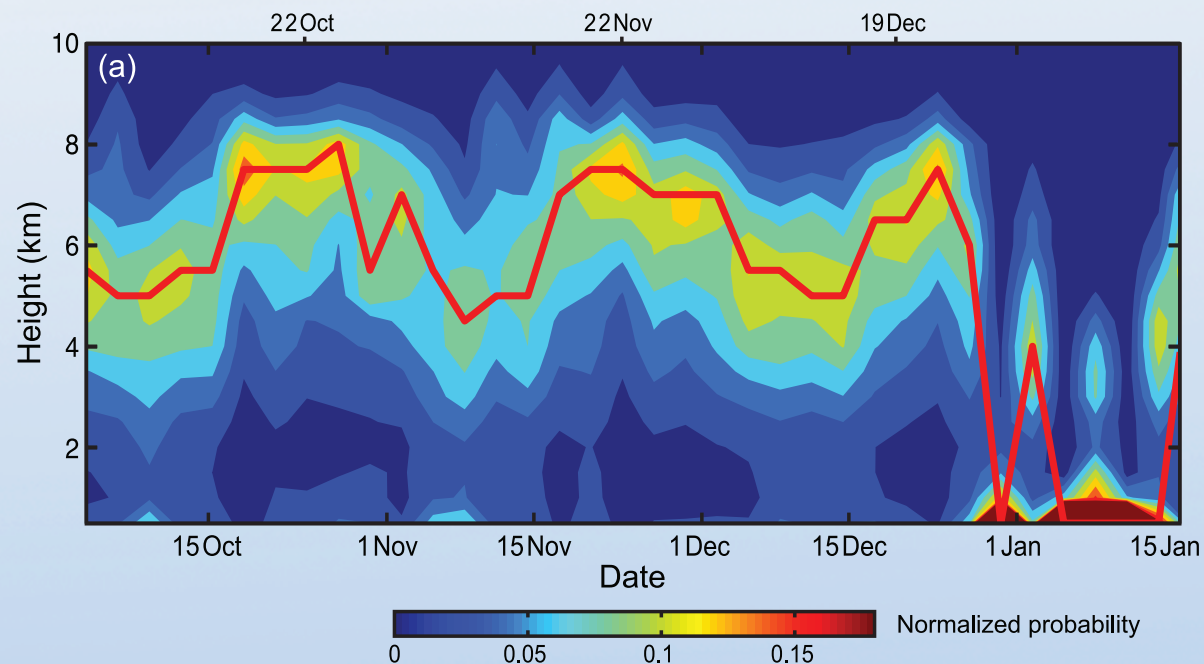
Convection

Humidity

*Scott W. Powell
University of Washington
November 5, 2013
ASR Fall Working Group Meeting, Rockville, MD*

Powell and
Houze: *JGR*,
accepted





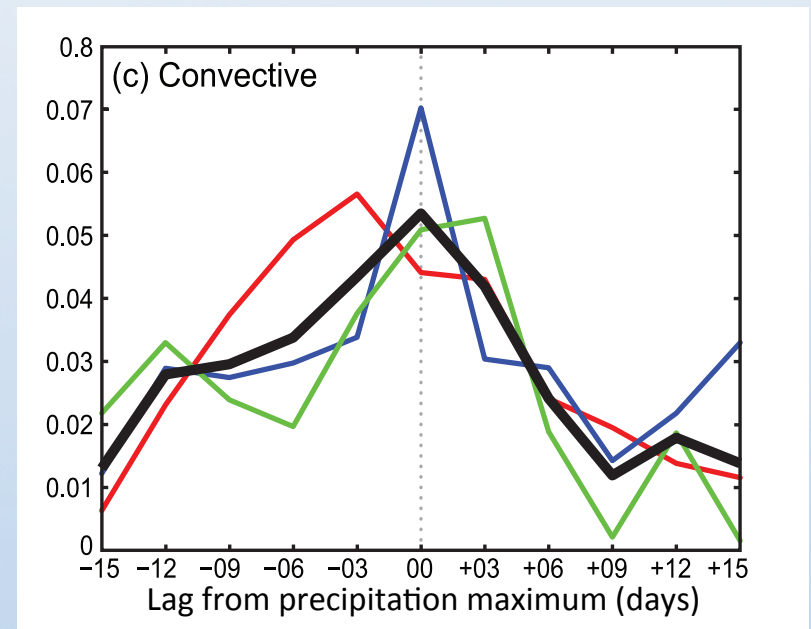
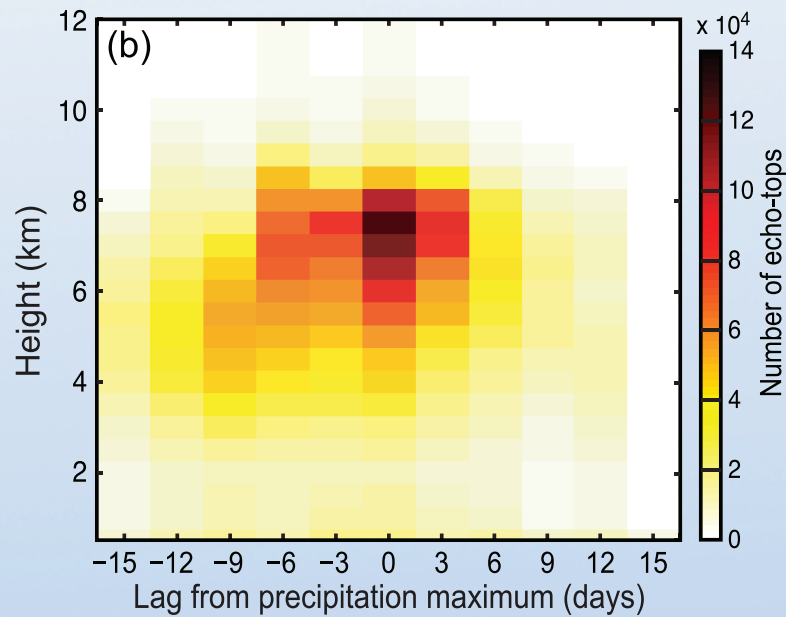
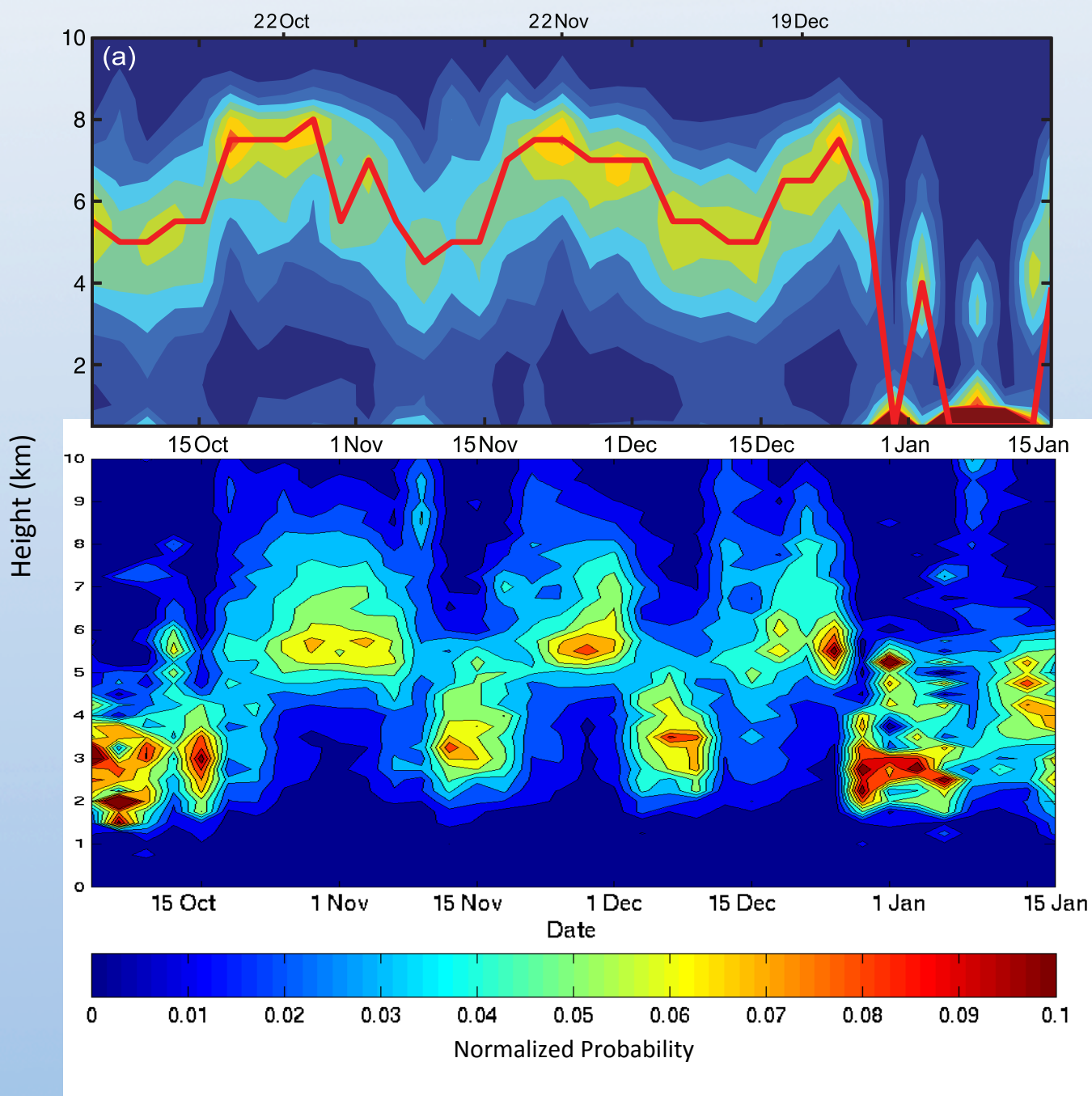


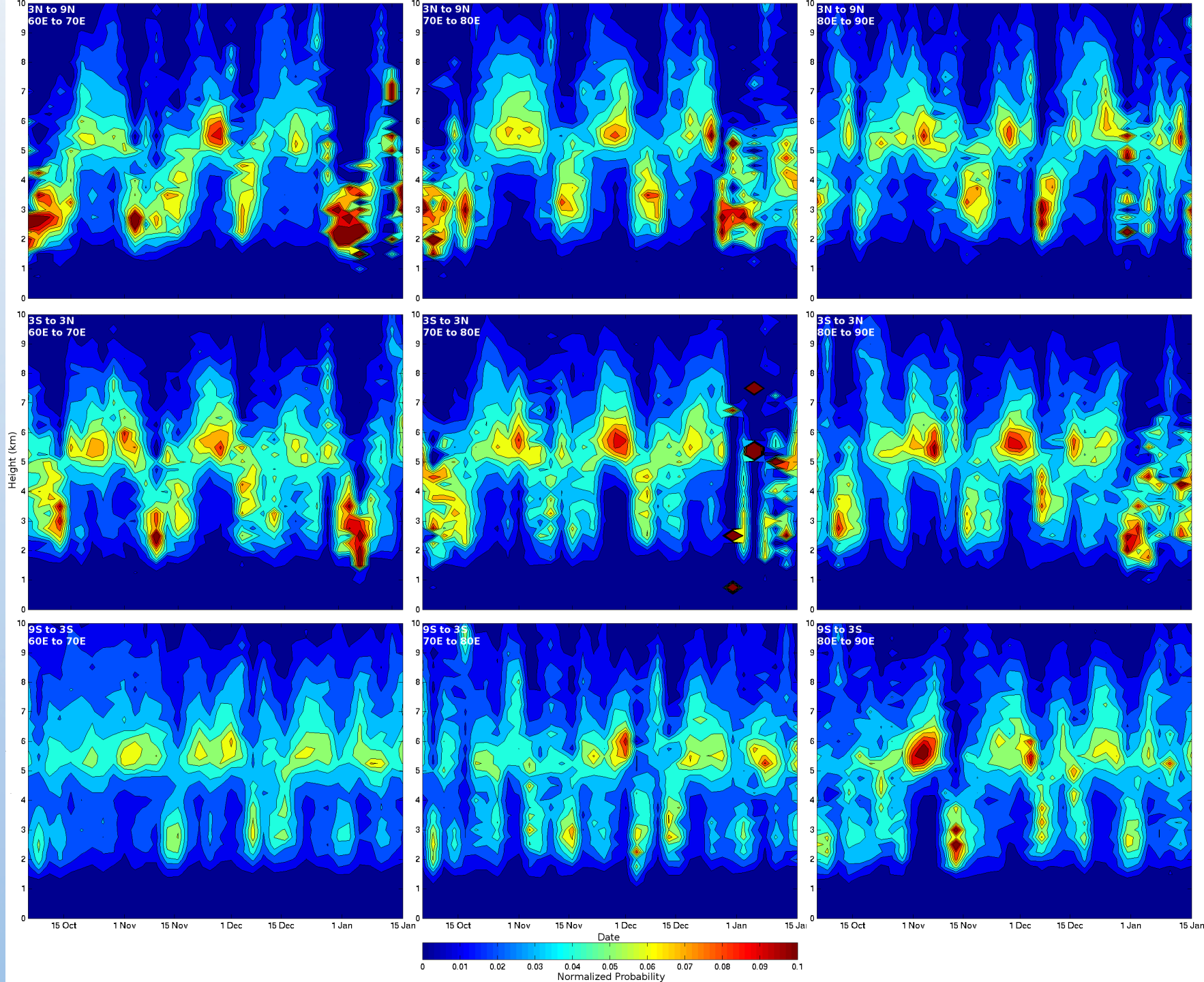
Table 3. Maximum Lagged Cross-Correlation Coefficients (With Lag in Hours in Parentheses) Between Convective/Stratiform Areal Coverage and Unfiltered, Unsmoothed Specific Humidity Anomalies for 1 October to 15 January Using Various Smoothing Periods^a

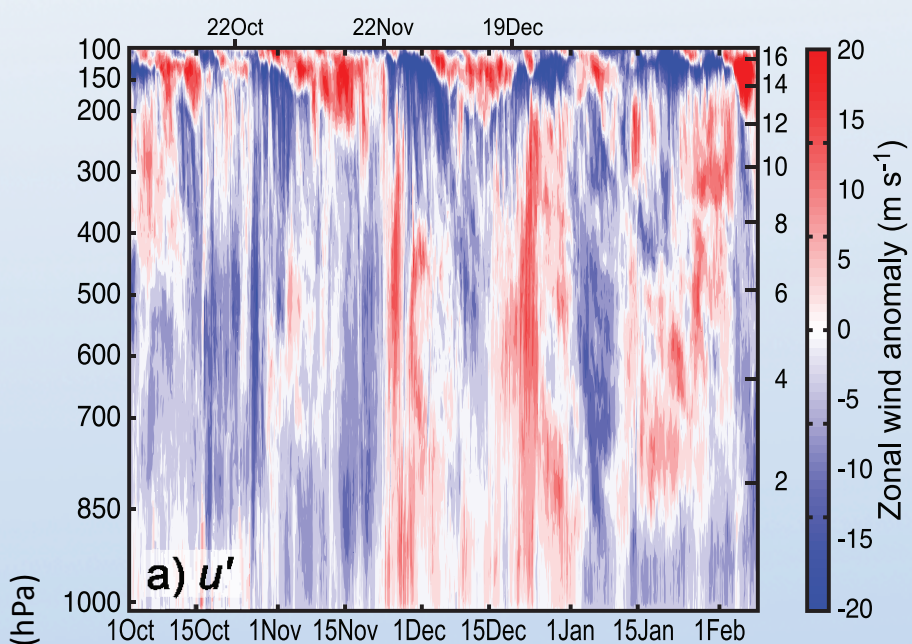
		Smoothing Interval					
Var. 1	Var. 2	None	6 h	12 h	24 h	36 h	72 h
Conv	q'_{850}	0.45 (0)	0.49 (0)	0.54 (0)	0.60 (0)	0.61 (0)	0.69 (0)
Conv	q'_{700}	0.50 (+3)	0.53 (0)	0.58 (0)	0.66 (0)	0.70 (0)	0.80 (0)
Conv	q'_{500}	0.49 (+6)	0.51 (+6)	0.54 (+12)	0.61 (+24)	0.61 (+36)	0.73 (+72)
Conv	q'_{300}	0.44 (+9)	0.47 (+6)	0.51 (+12)	0.50 (0)	0.51 (+36)	0.59 (+72)
Strat	q'_{850}	0.34 (−3)	0.37 (−6)	0.39 (−12)	0.42 (−24)	0.46 (−36)	0.54 (−72)
Strat	q'_{700}	0.45 (−3)	0.47 (0)	0.50 (0)	0.55 (0)	0.61 (0)	0.77 (0)
Strat	q'_{500}	0.55 (+3)	0.57 (0)	0.60 (0)	0.65 (0)	0.70 (0)	0.76 (0)
Strat	q'_{300}	0.52 (+3)	0.56 (0)	0.61 (0)	0.66 (0)	0.68 (0)	0.74 (0)
Conv	Strat	0.81 (+3)	0.80 (+6)	0.76 (0)	0.80 (0)	0.82 (0)	0.81 (0)

^aAll correlation values that are in bold are statistically significant at the 95% level. Variables correlated are shown in columns 1 and 2. Positive lags indicate that Variable 1 comes first. (Conv = Convective areal coverage; Strat = Stratiform areal coverage).

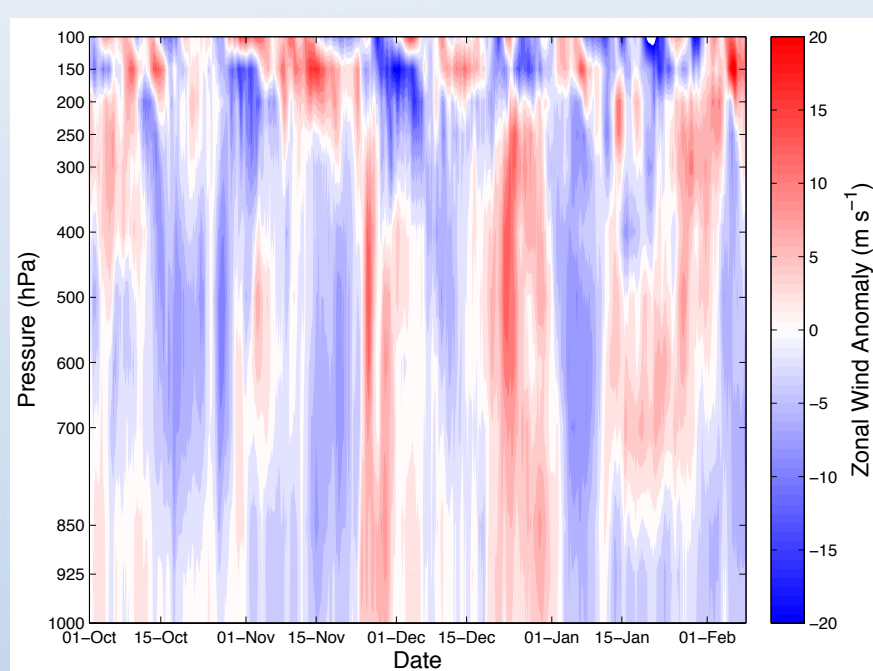


Top: S-Pol, Bottom: TRMM Composite: 3S to 3N, 70E to 80E

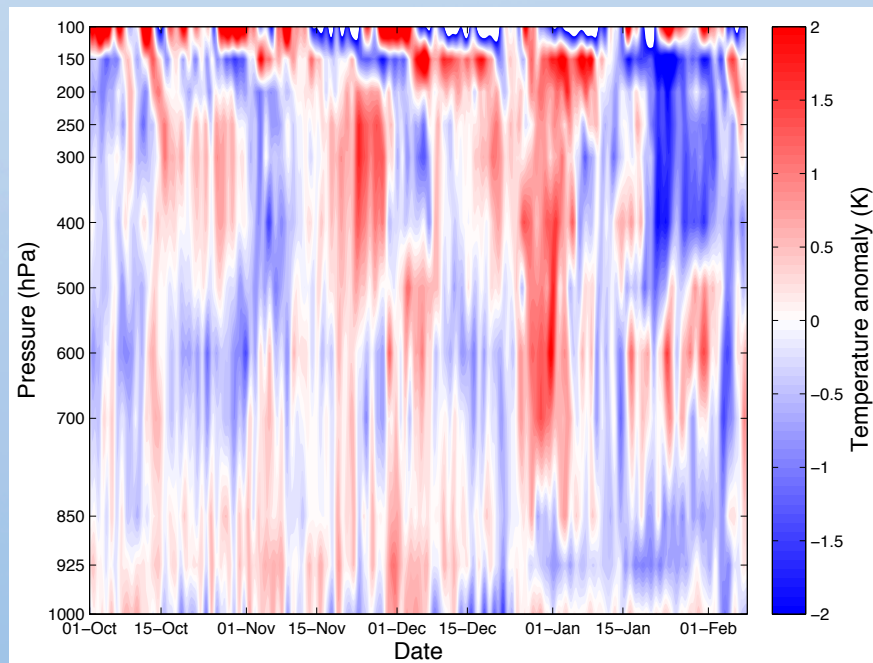
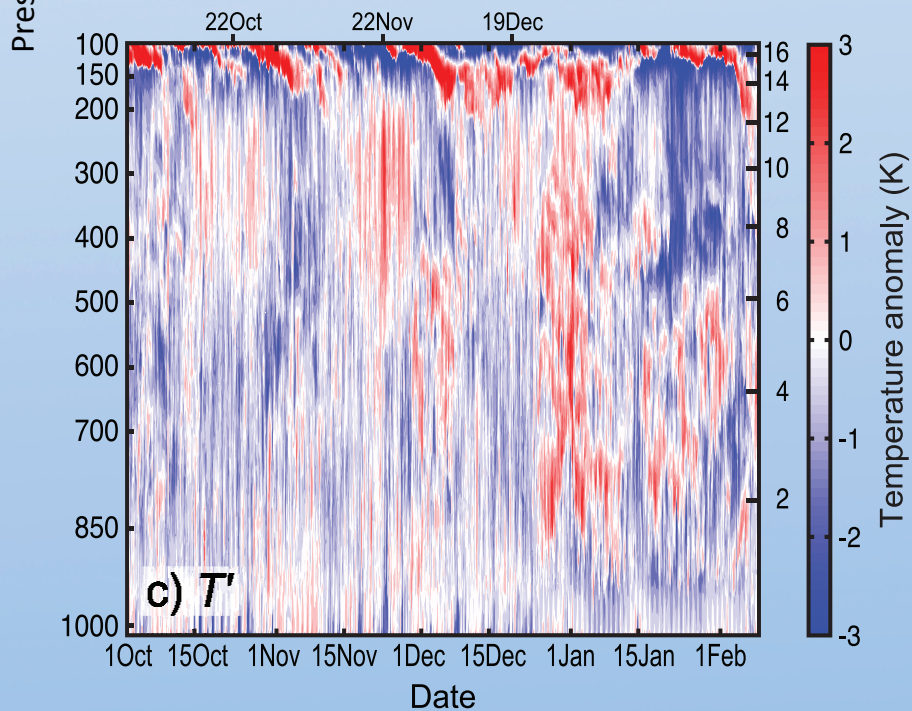




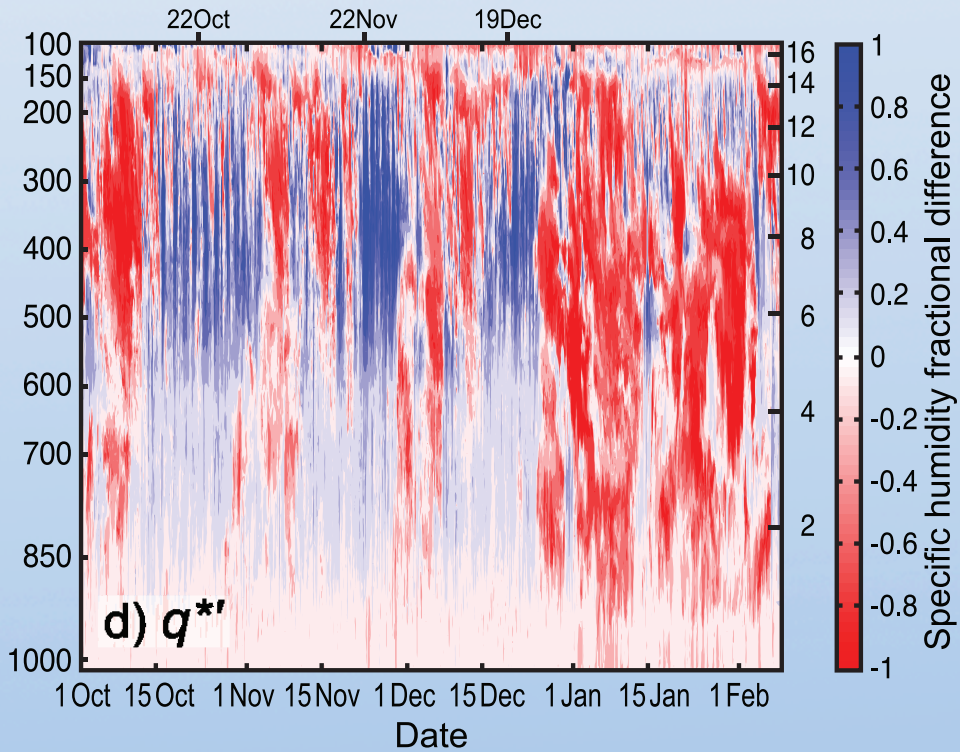
AMIE sondes



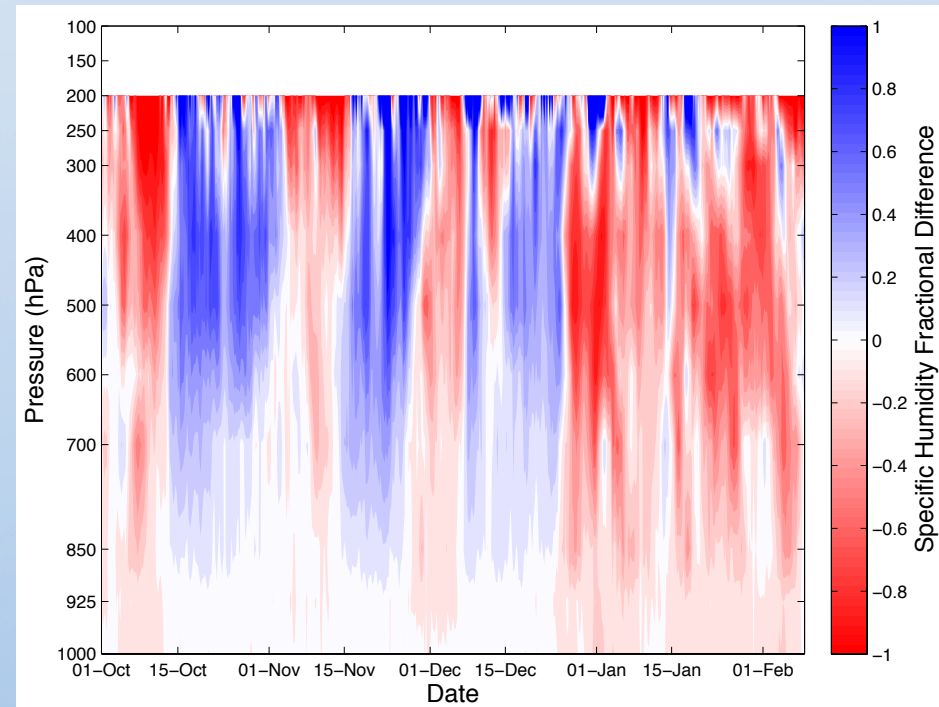
ERA-I: 3S to 3N, 68E to 78E

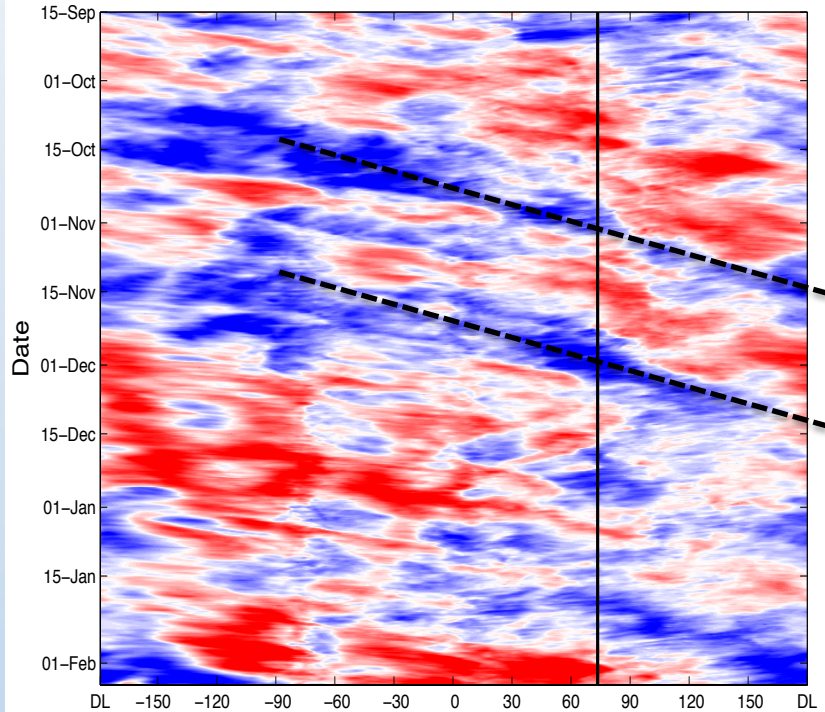


AMIE sondes

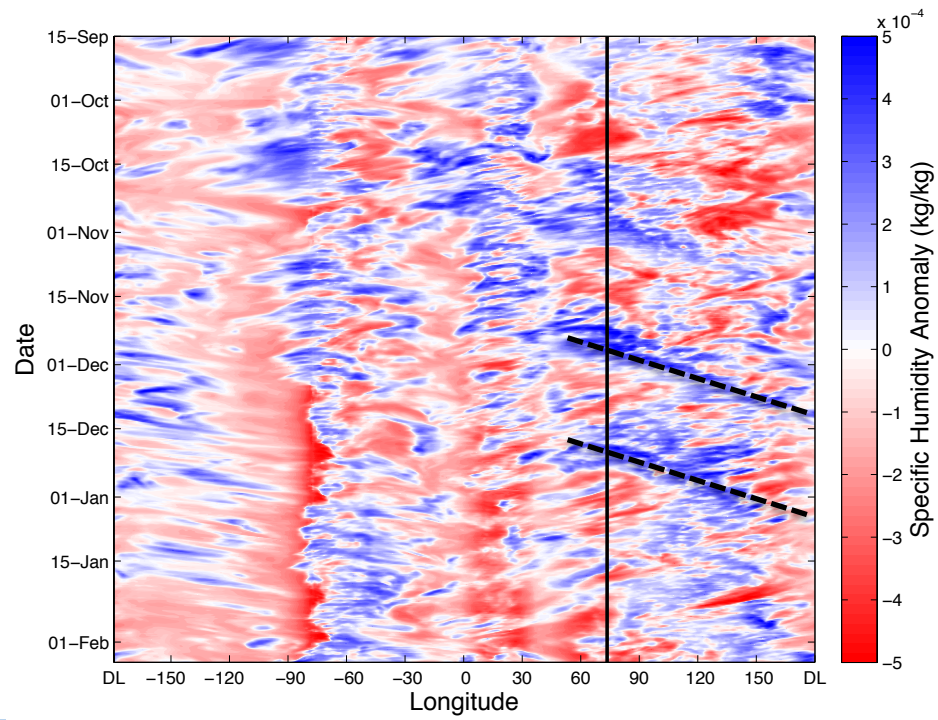
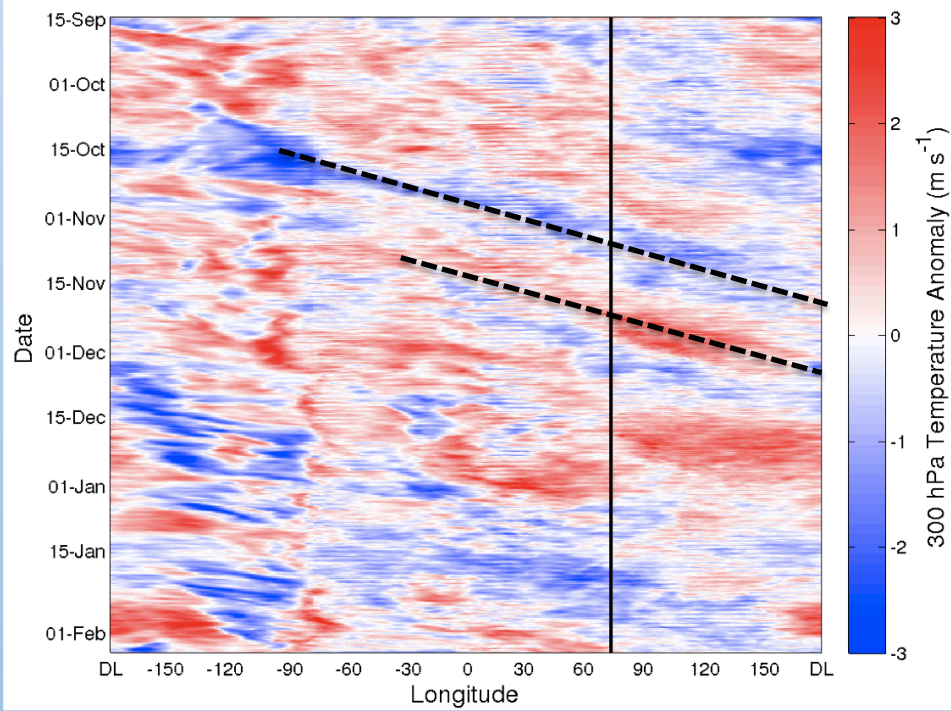


ERA-I: 3S to 3N, 68E to 78E

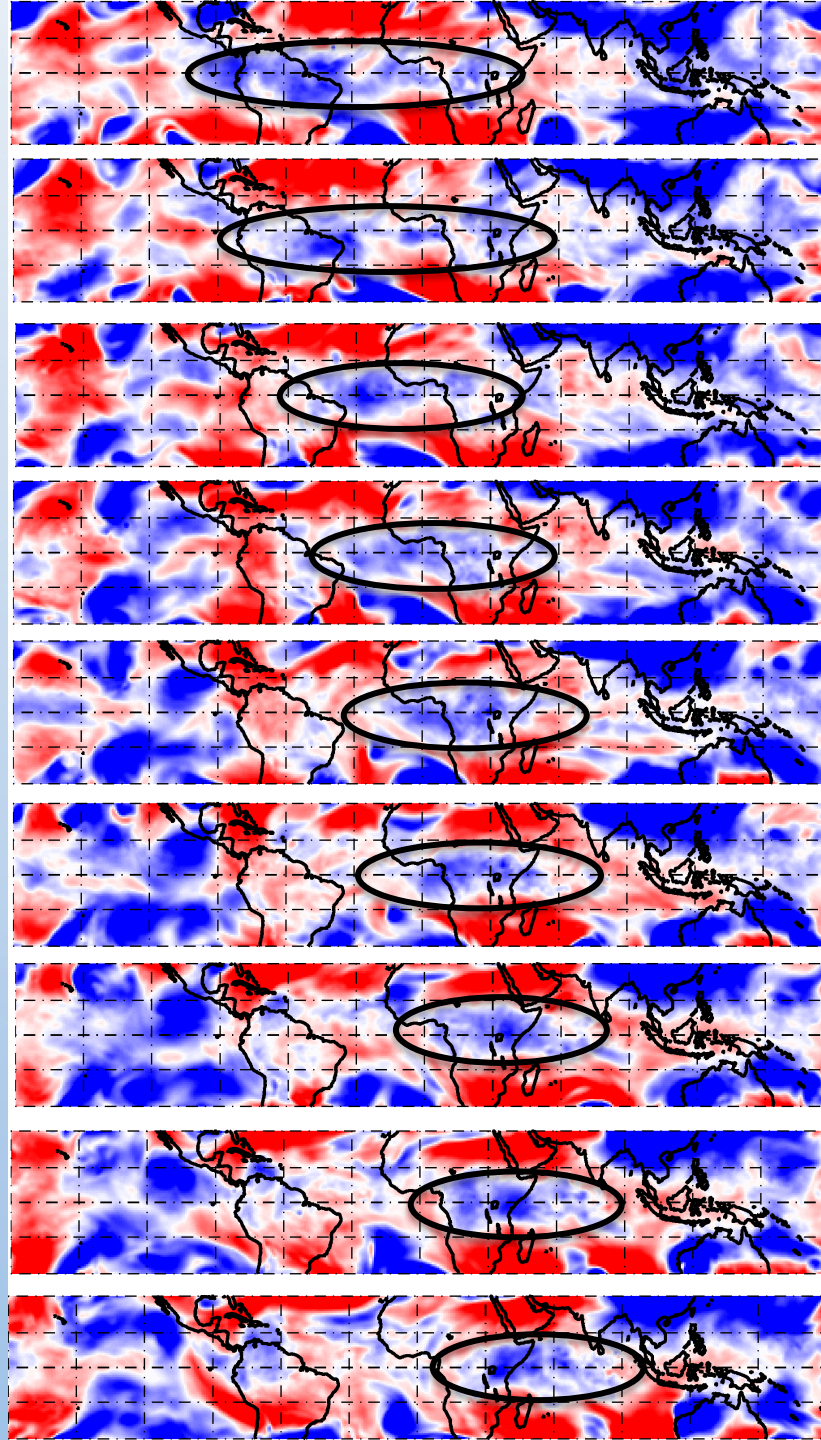




Top, left: u'_{150}
 Bottom, left: T'_{300}
 Bottom, right: q'_{300}



T_{300}'



24 Oct

25 Oct

26 Oct

27 Oct

28 Oct

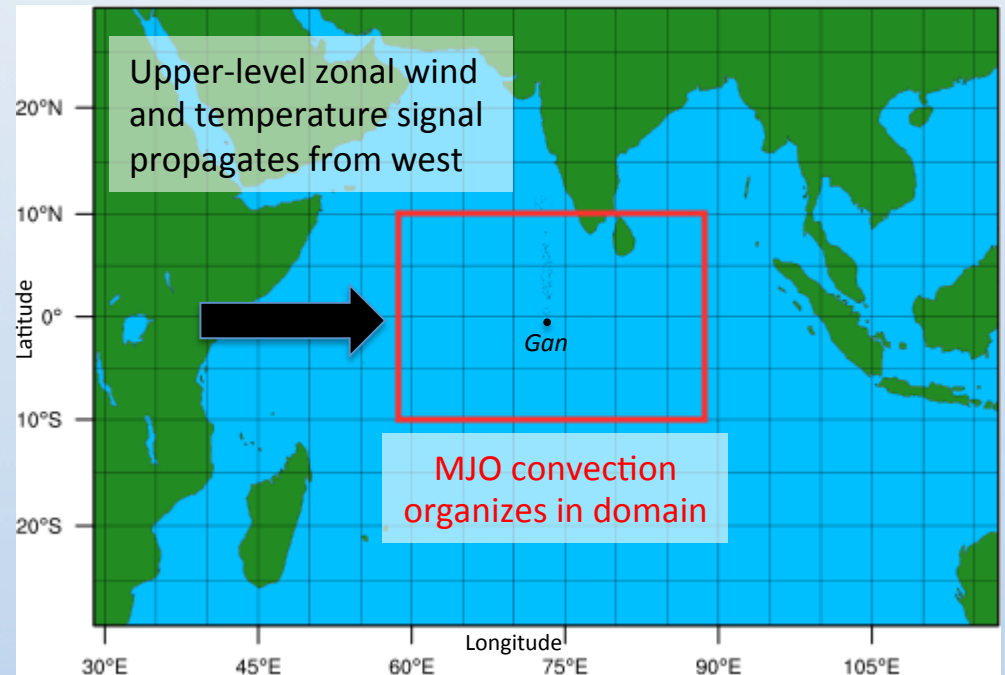
29 Oct

30 Oct

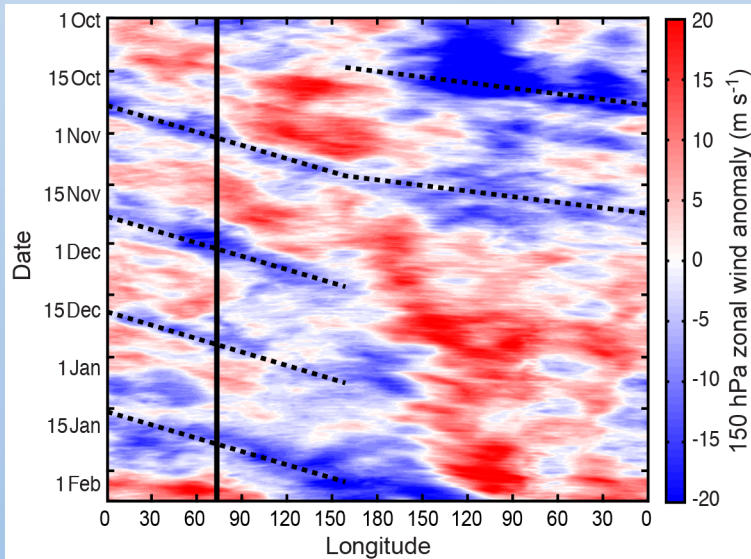
31 Oct

1 Nov

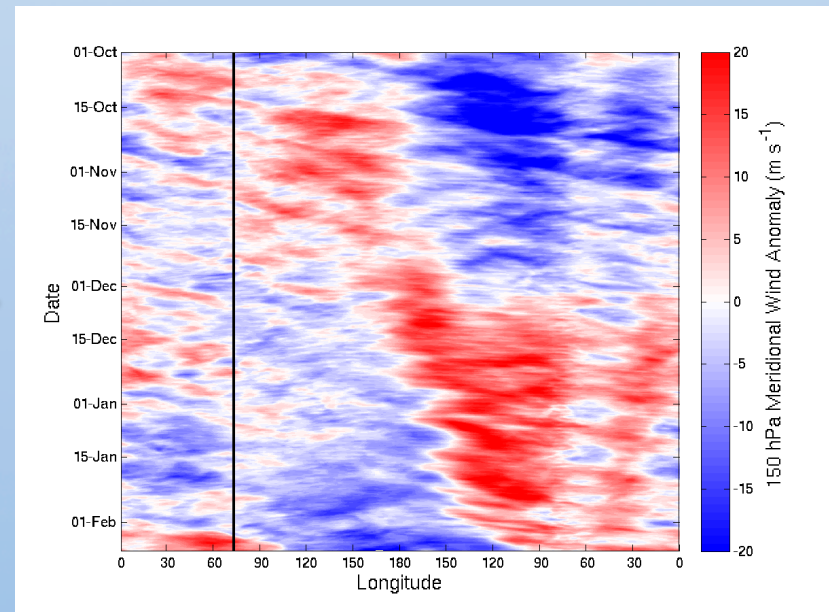
- Simulated cloud structures using a variety of MP schemes can be validated against S-Pol and KAZR observations.
- Quantify MSE and moisture budgets within MCSs and between MCSs and LS environment
- Test model sensitivity to UT dynamics



150 hPa zonal wind anomaly



Remove
"MJO"
signal



End

This research was supported by Department of Energy Grant DE-SC0008452
and National Science Foundation Grant AGS-1059611

