

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

Humidity

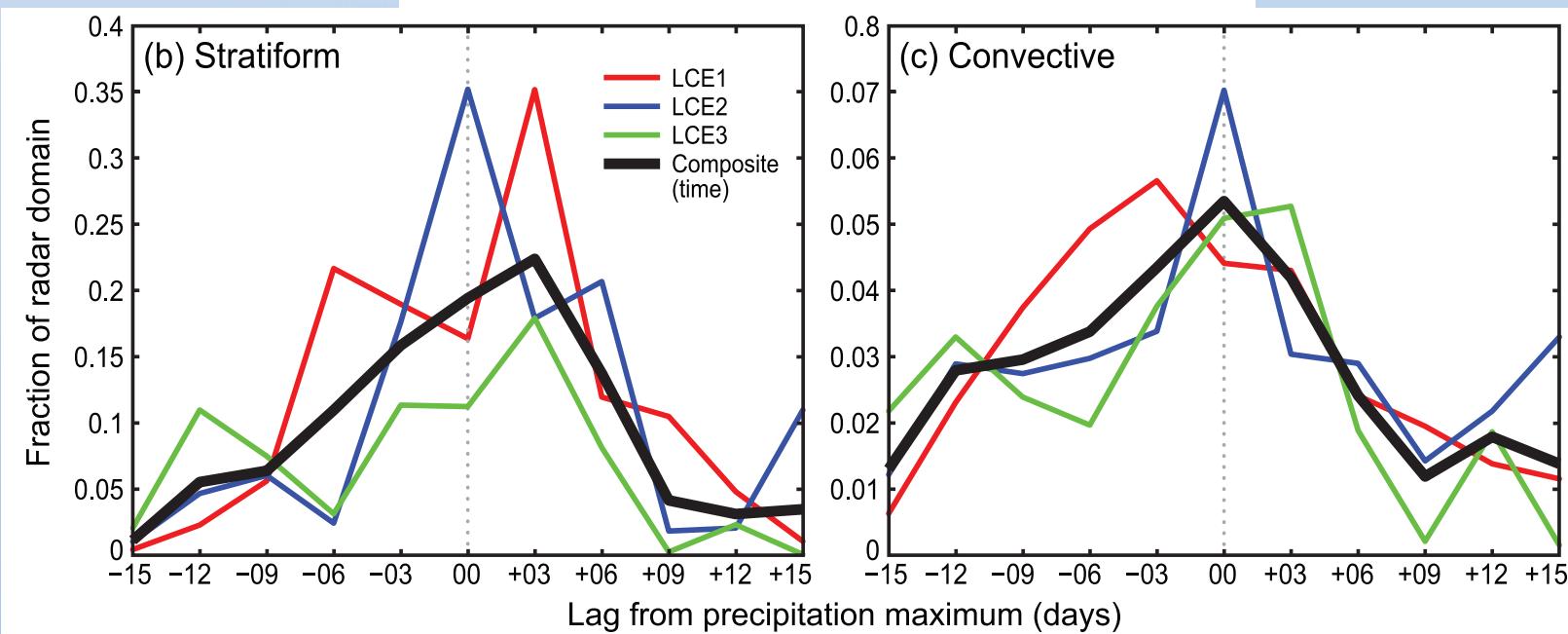
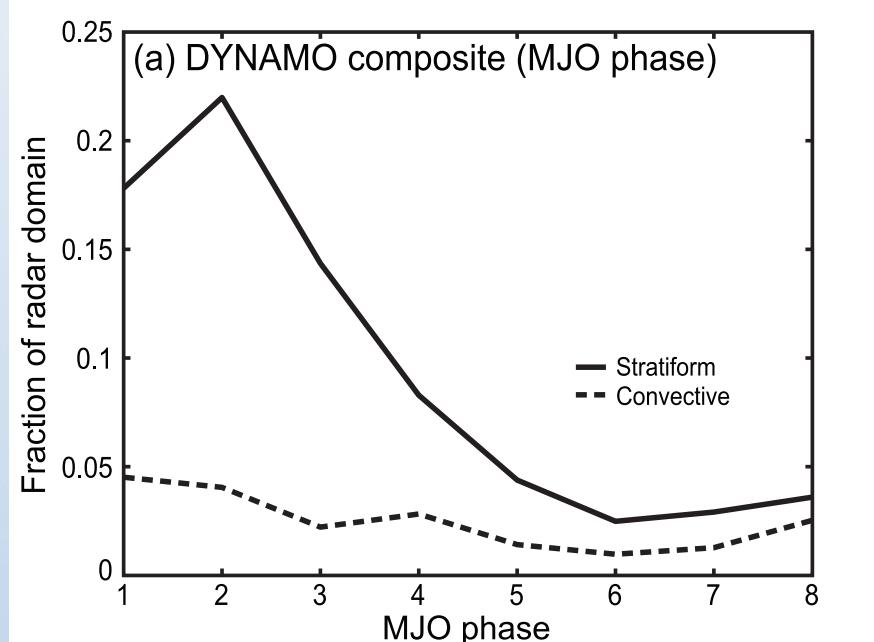
Convection

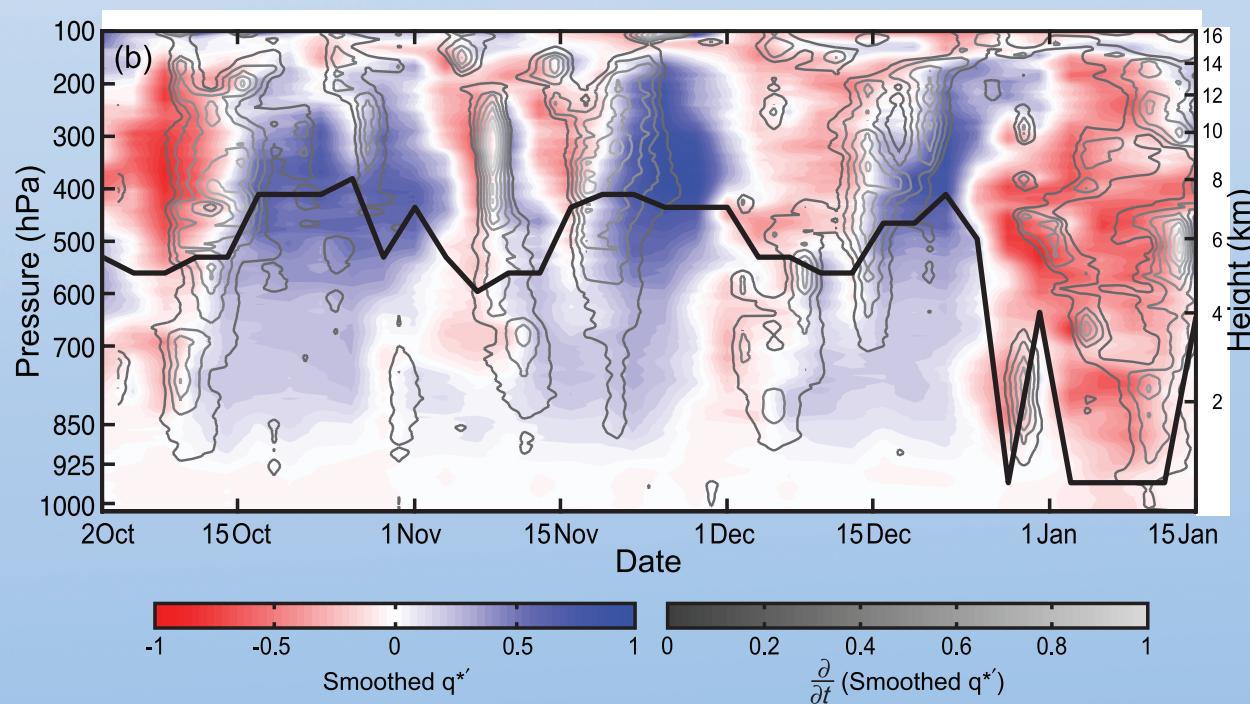
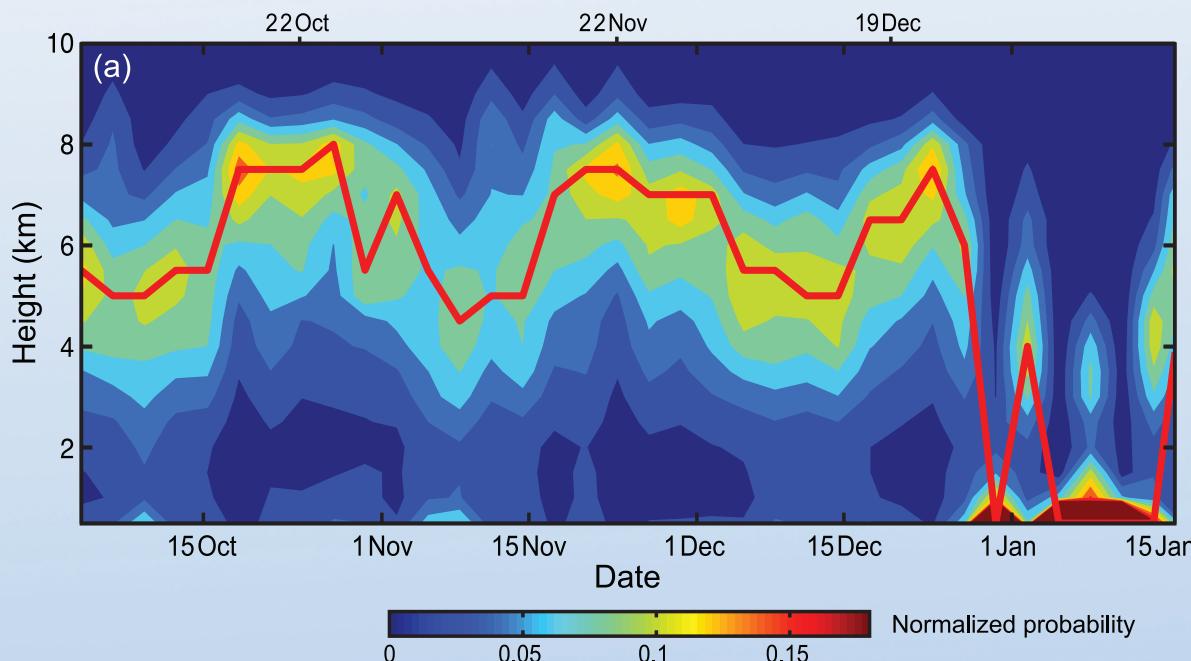
Scott W. Powell

University of Washington

November 5, 2013

ASR Fall Working Group Meeting, Rockville, MD





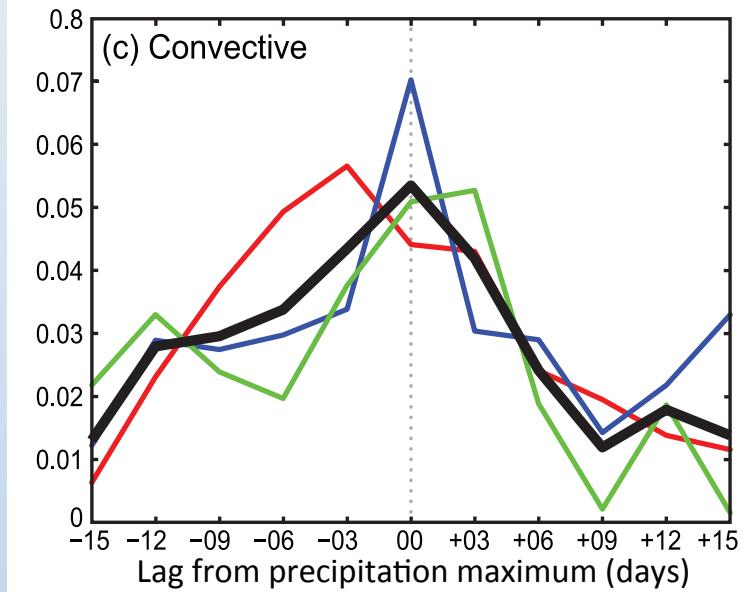
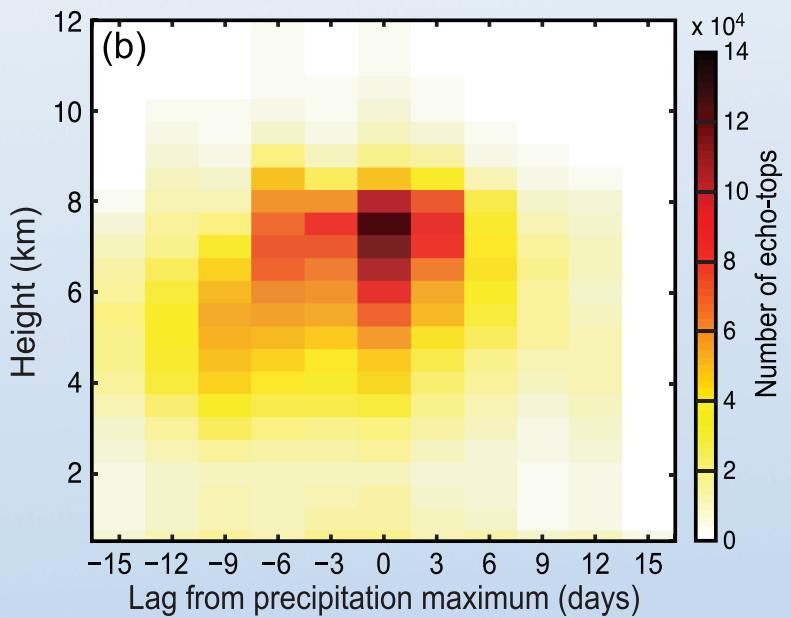
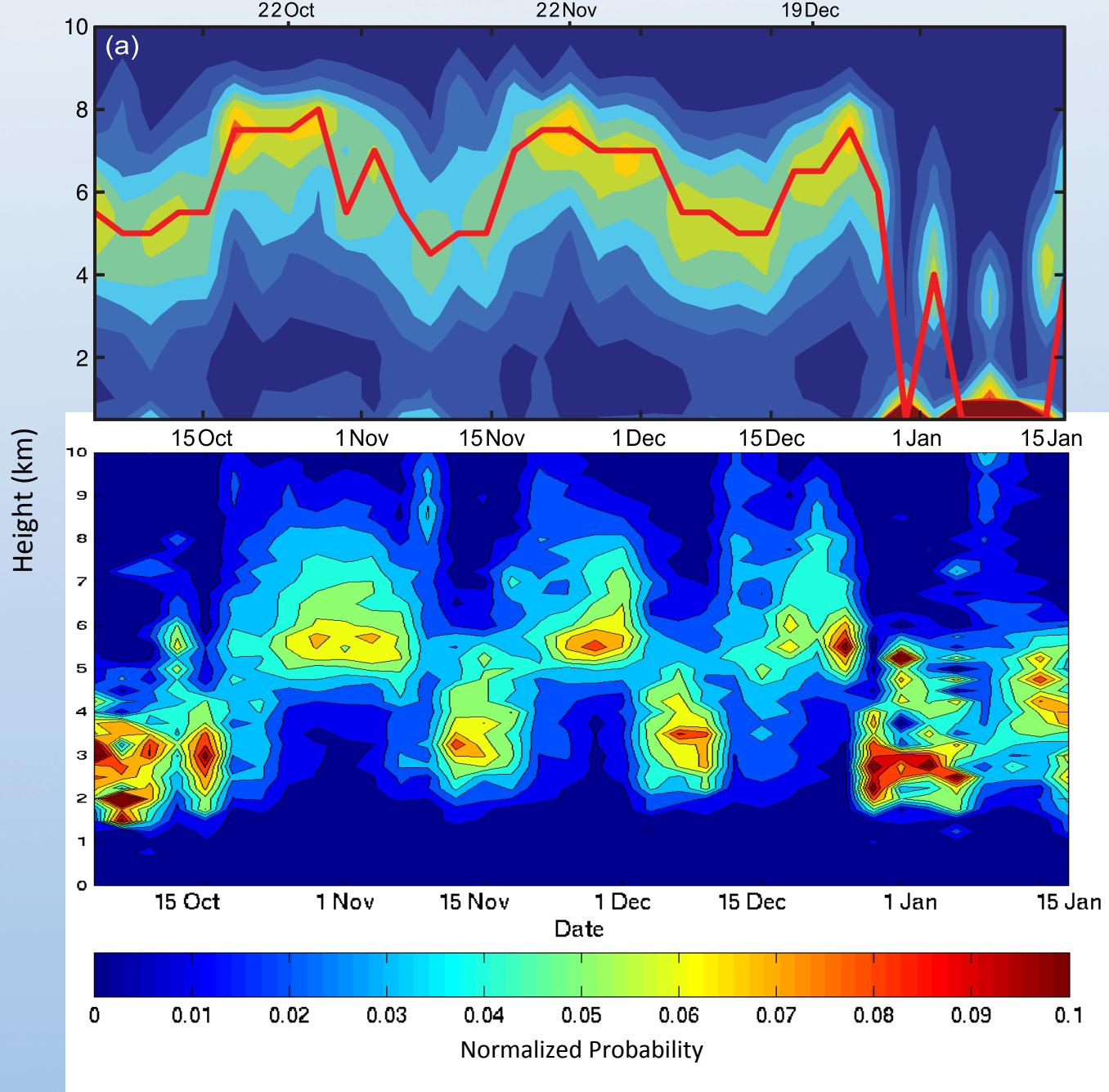


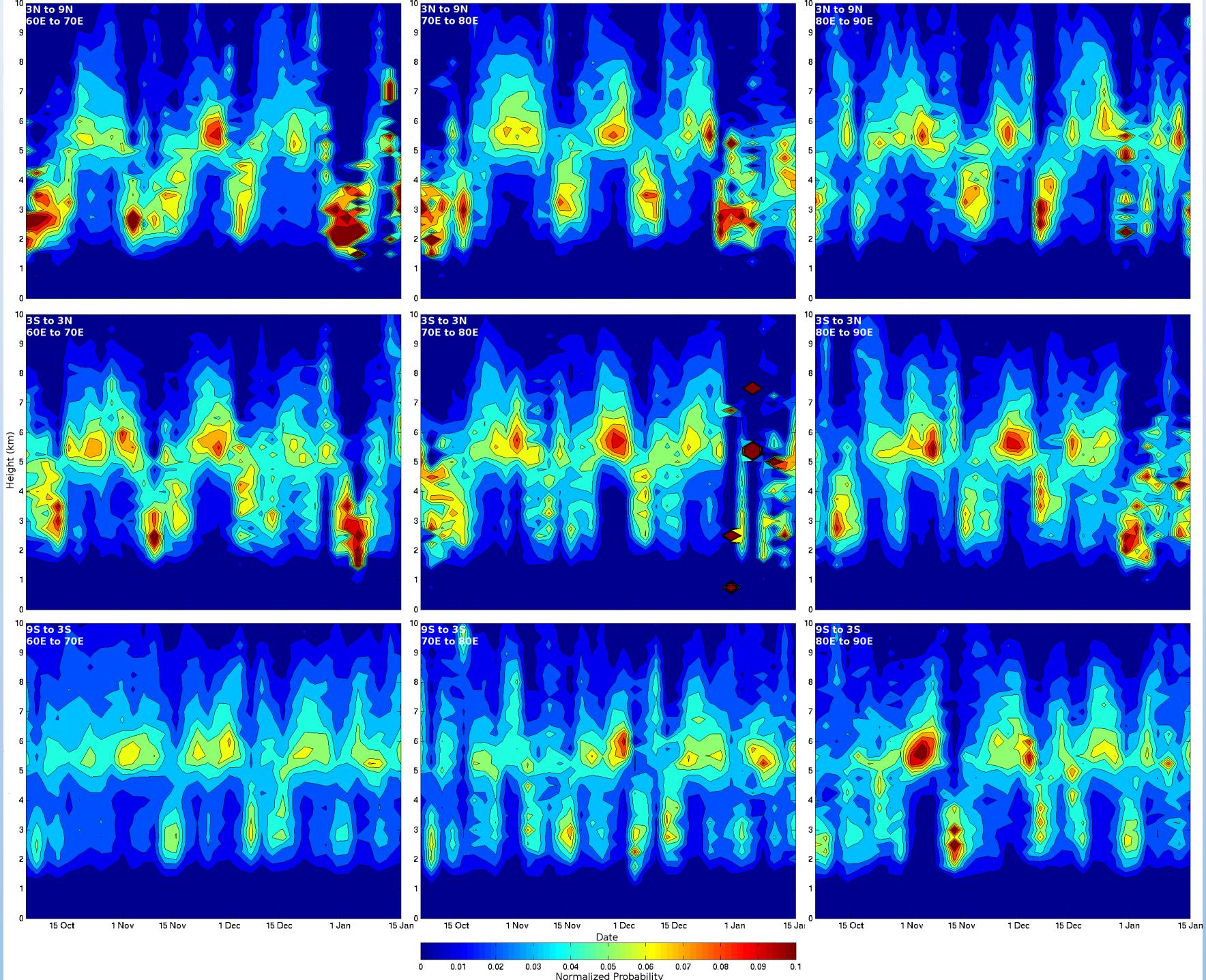
Table 3. Maximum Lagged Cross-Correlation Coefficients (With Lag in Hours in Parentheses) Between Convective/Stratiform Areal Coverage and Unfiltered, Unsmoothed Specific Humidity Anomalies for 1 October to 15 January Using Various Smoothing Periods^a

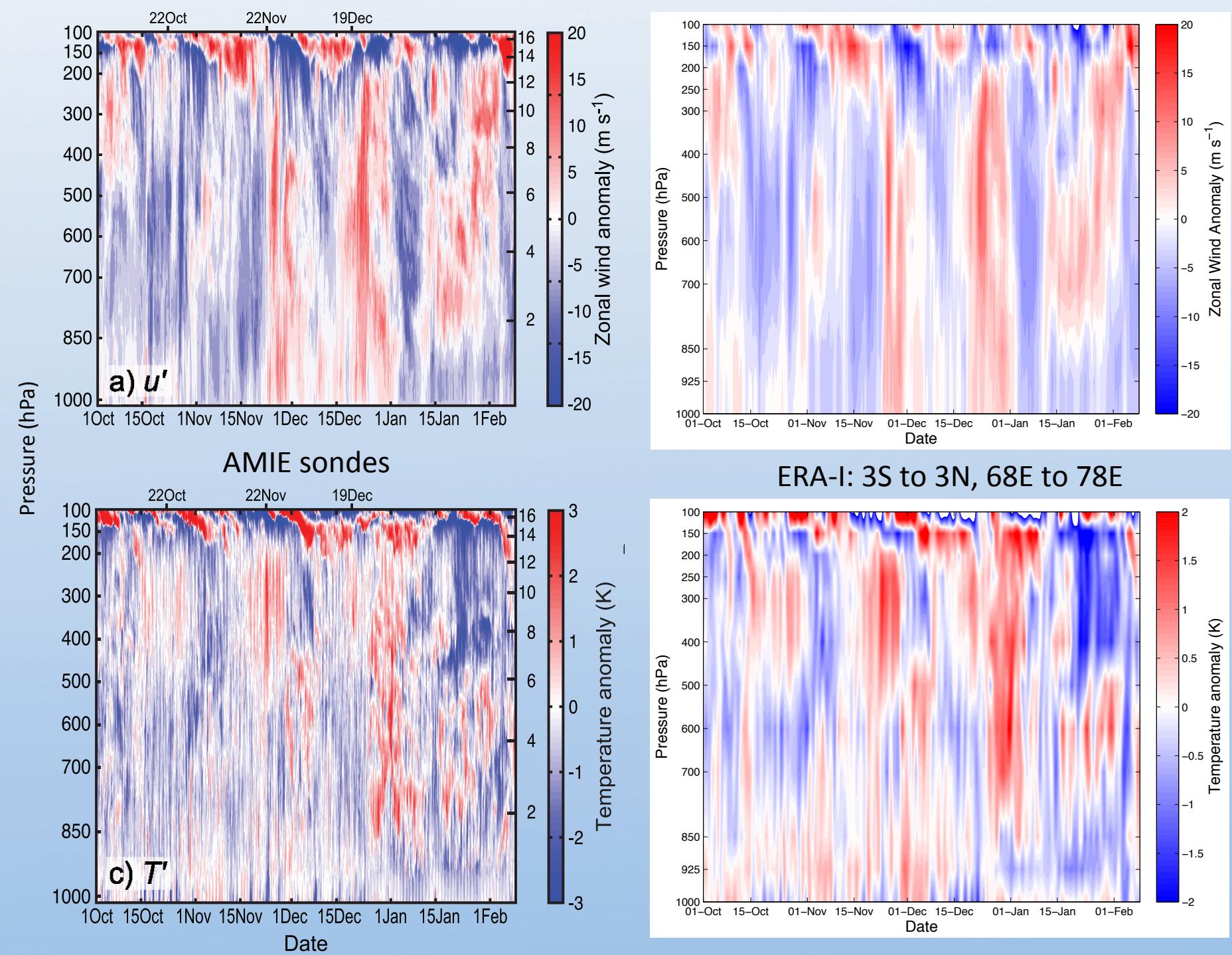
Var. 1	Var. 2	Smoothing Interval					
		None	6 h	12 h	24 h	36 h	72 h
Conv	q'_{850}	0.45 (0)	0.49 (0)	0.54 (0)	0.60 (0)	0.61 (0)	0.69 (0)
Conv	q'_{700}	0.50 (+3)	0.53 (0)	0.58 (0)	0.66 (0)	0.70 (0)	0.80 (0)
Conv	q'_{500}	0.49 (+6)	0.51 (+6)	0.54 (+12)	0.61 (+24)	0.61 (+36)	0.73 (+72)
Conv	q'_{300}	0.44 (+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).

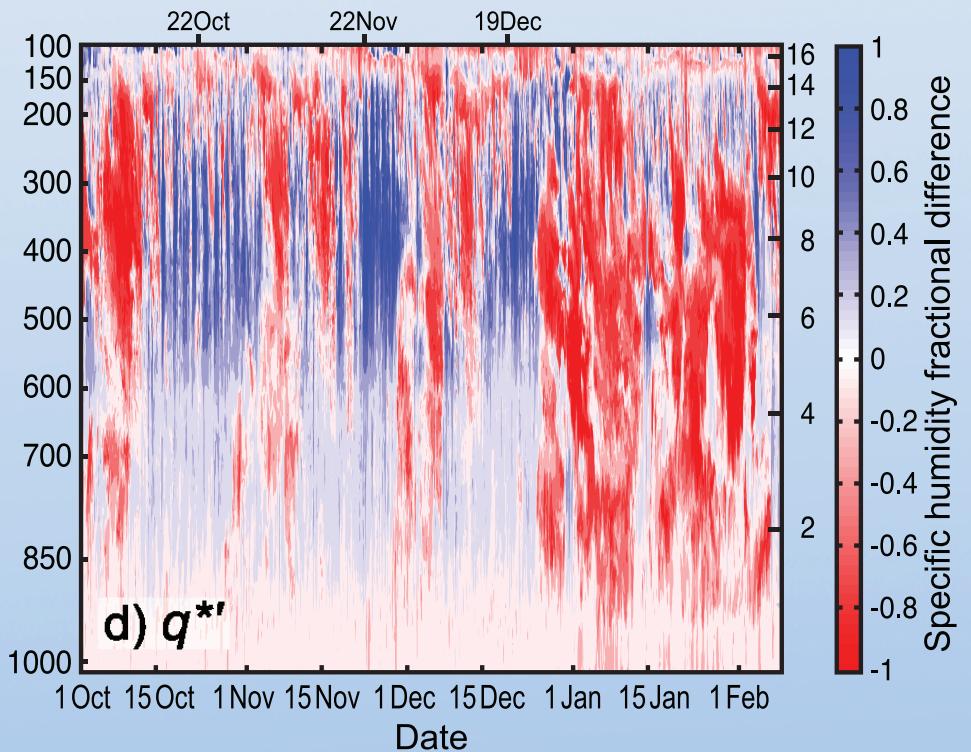


Top: S-Pol, Bottom: TRMM Composite: 3S to 3N, 70E to 80E

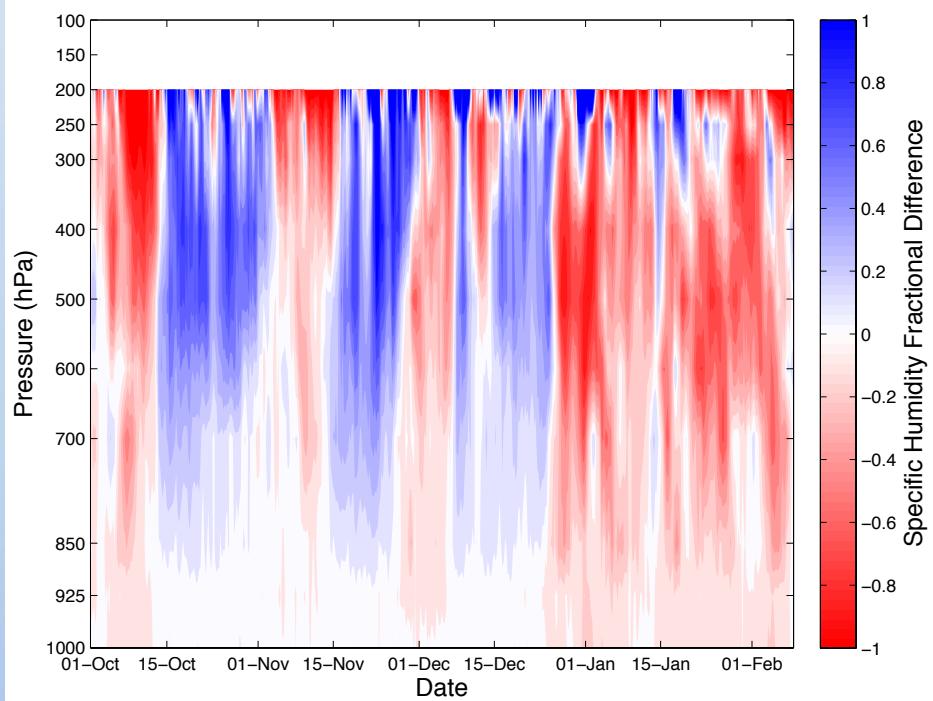


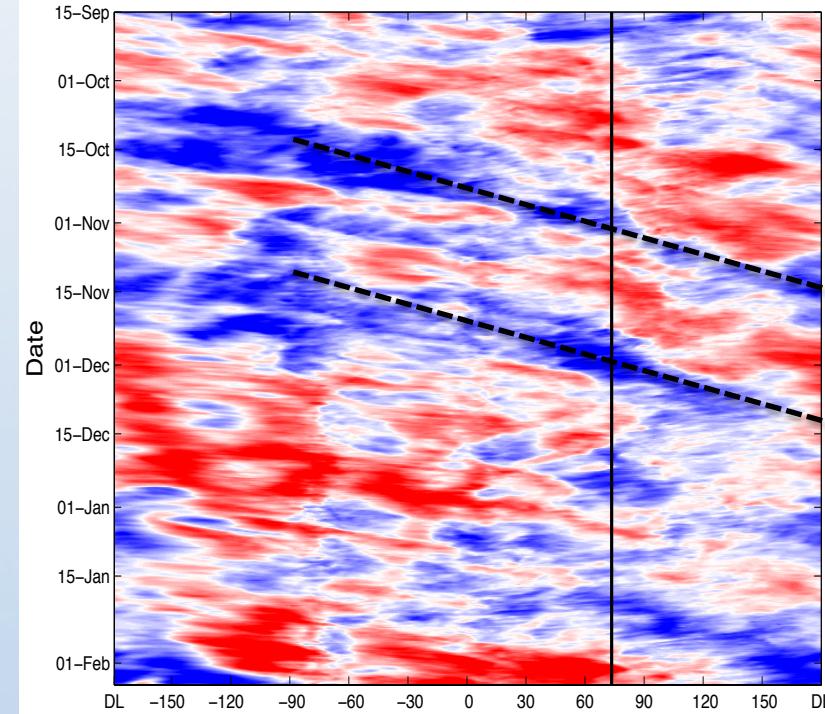


AMIE sondes

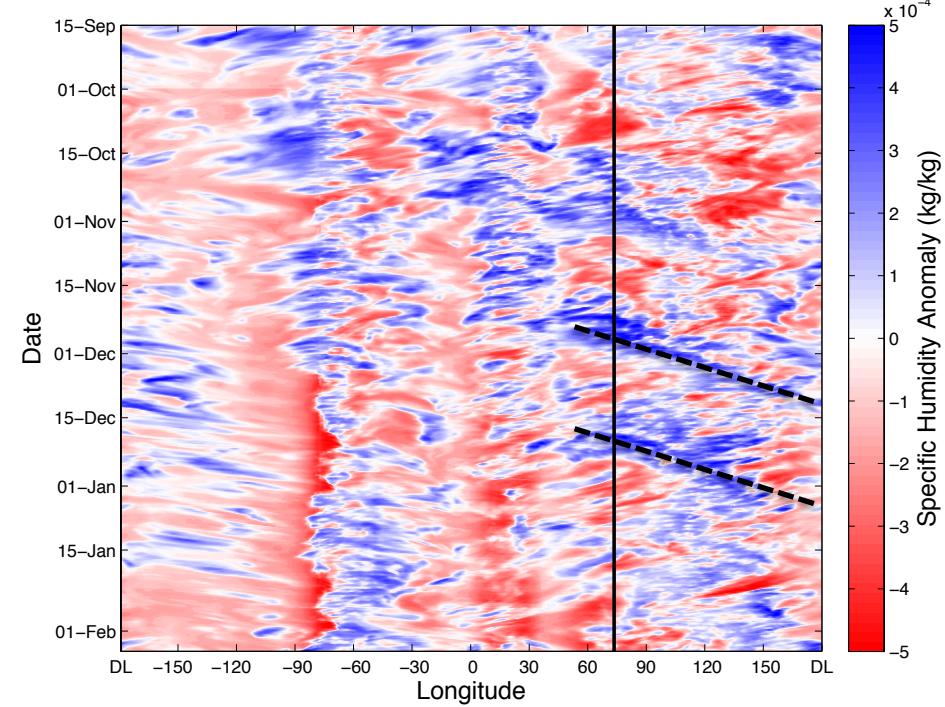
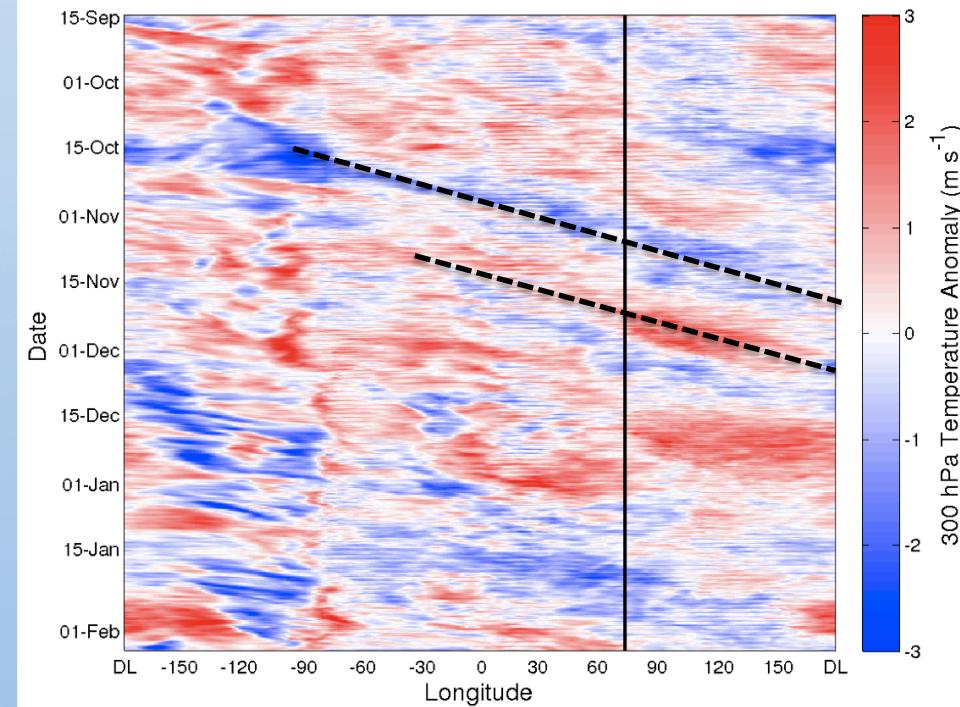


ERA-I: 3S to 3N, 68E to 78E

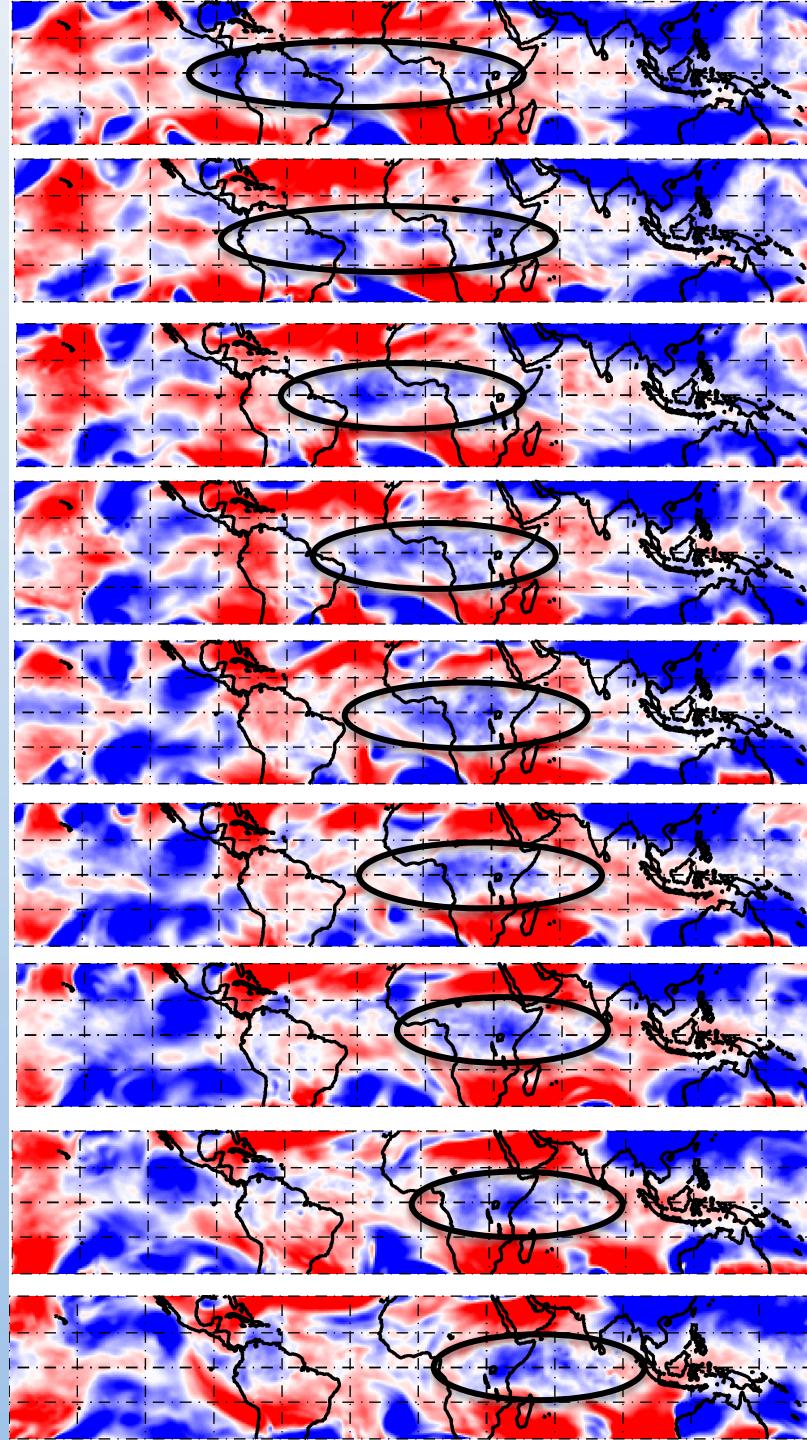




Top, left: u_{150}'
 Bottom, left: T_{300}'
 Bottom, right: q_{300}'



T_{300}



24 Oct

25 Oct

26 Oct

27 Oct

28 Oct

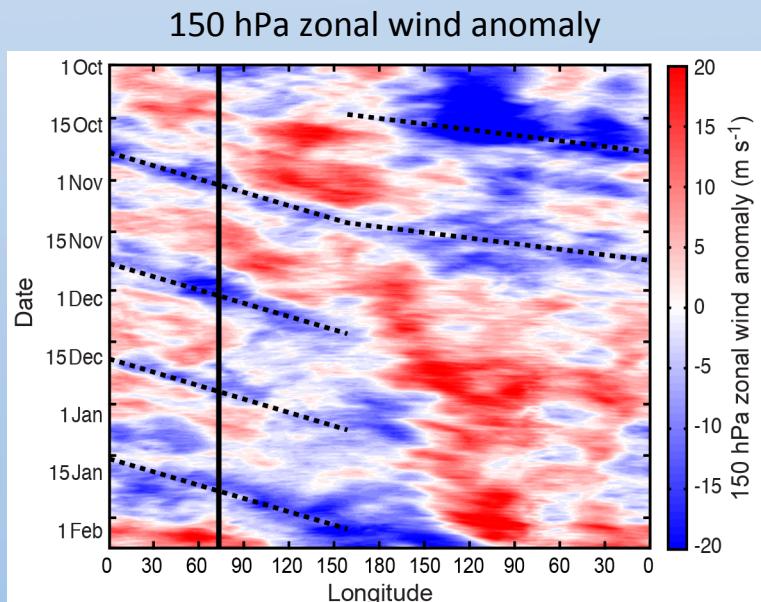
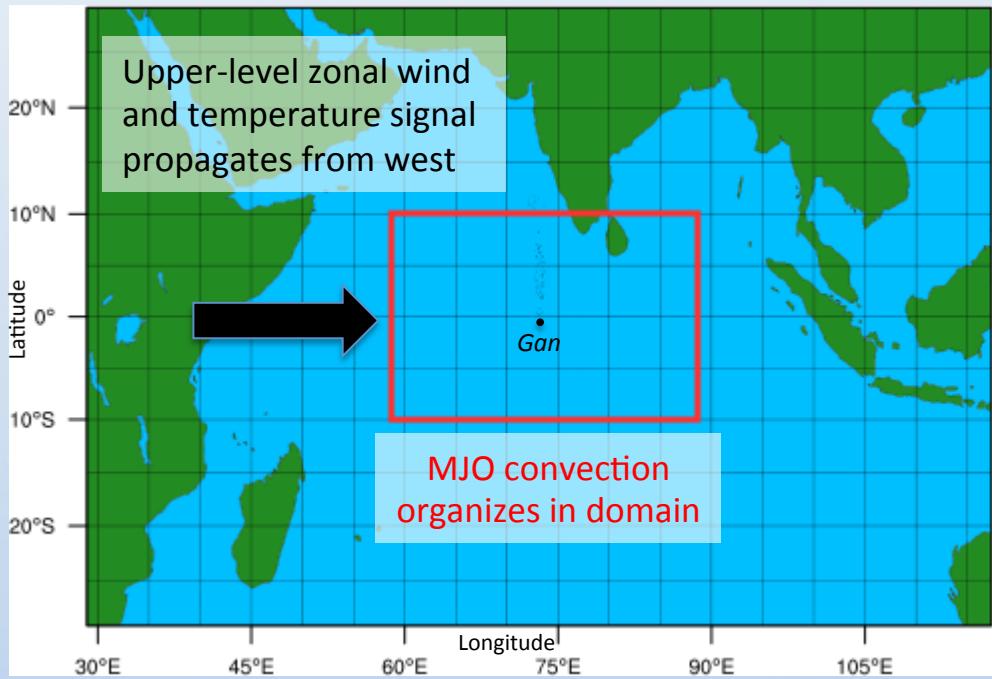
29 Oct

30 Oct

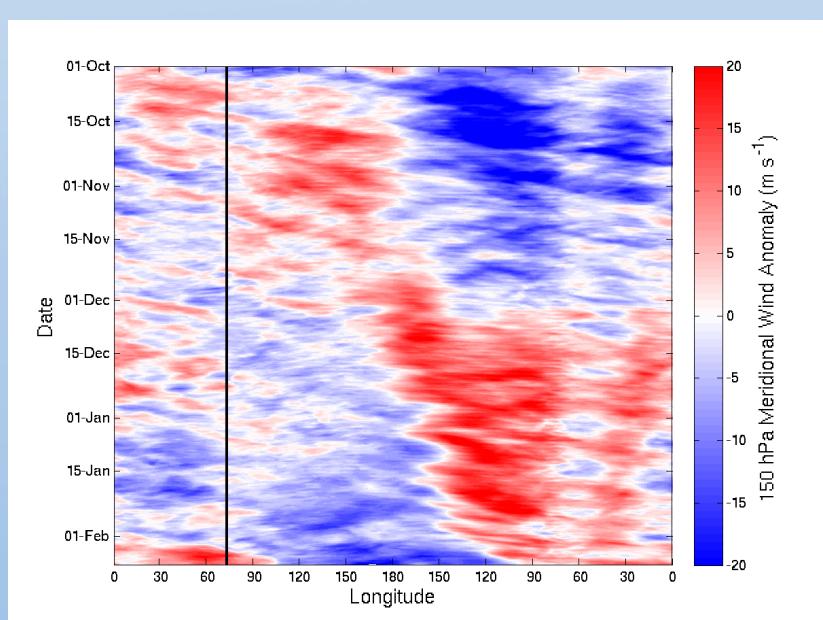
31 Oct

1 Nov

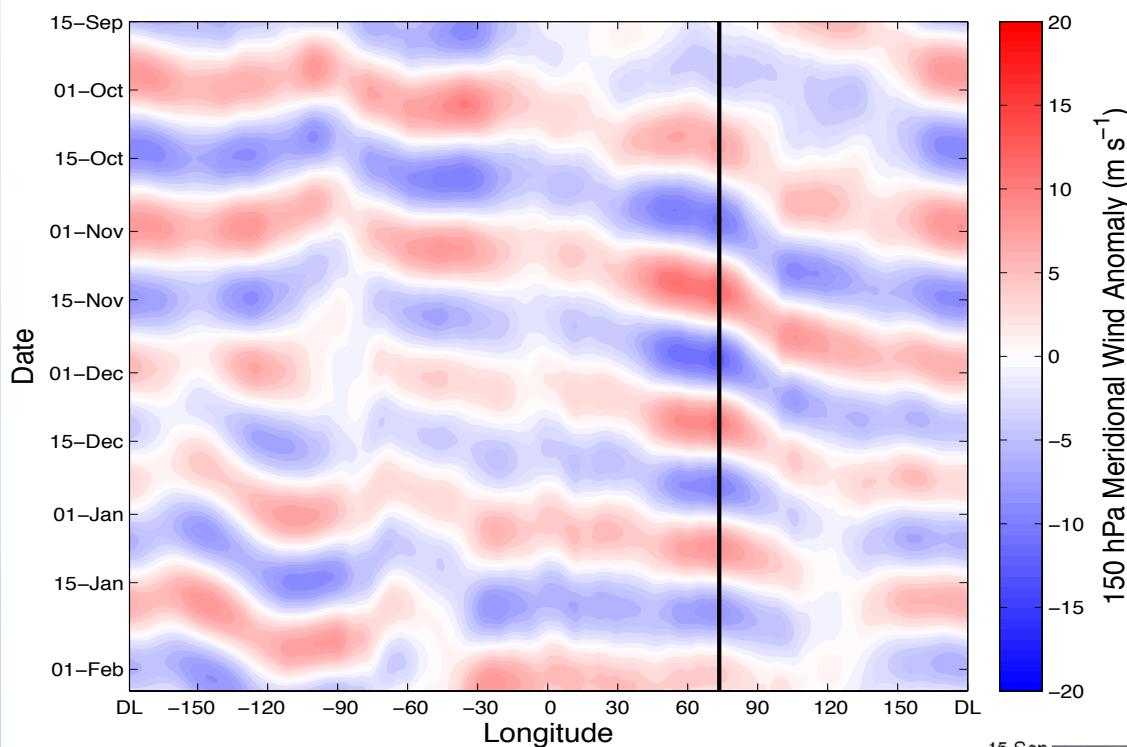
- Simulated cloud structures using a variety of MP schemes can be validated against S-Pol and KAZR observations.
- Quantify MSE and moisture budgets within MCSs and between MCSs and LS environment
- Test model sensitivity to UT dynamics



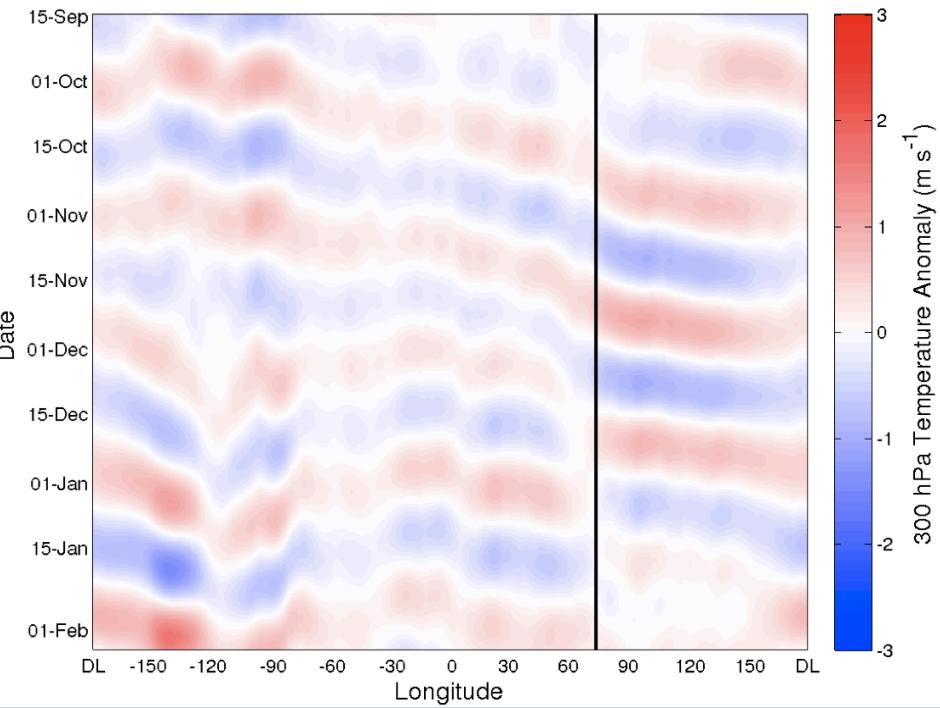
Remove
“MJO”
signal



End



u_{150}'



T_{300}'