NMME: Accomplishments

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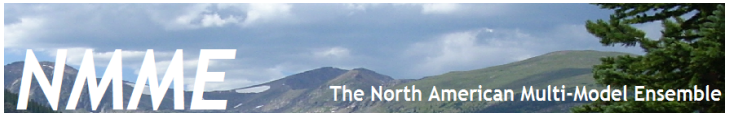

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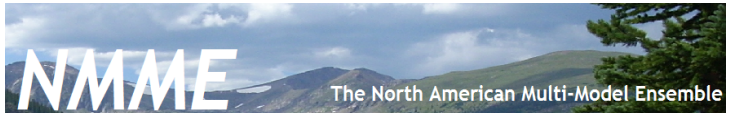
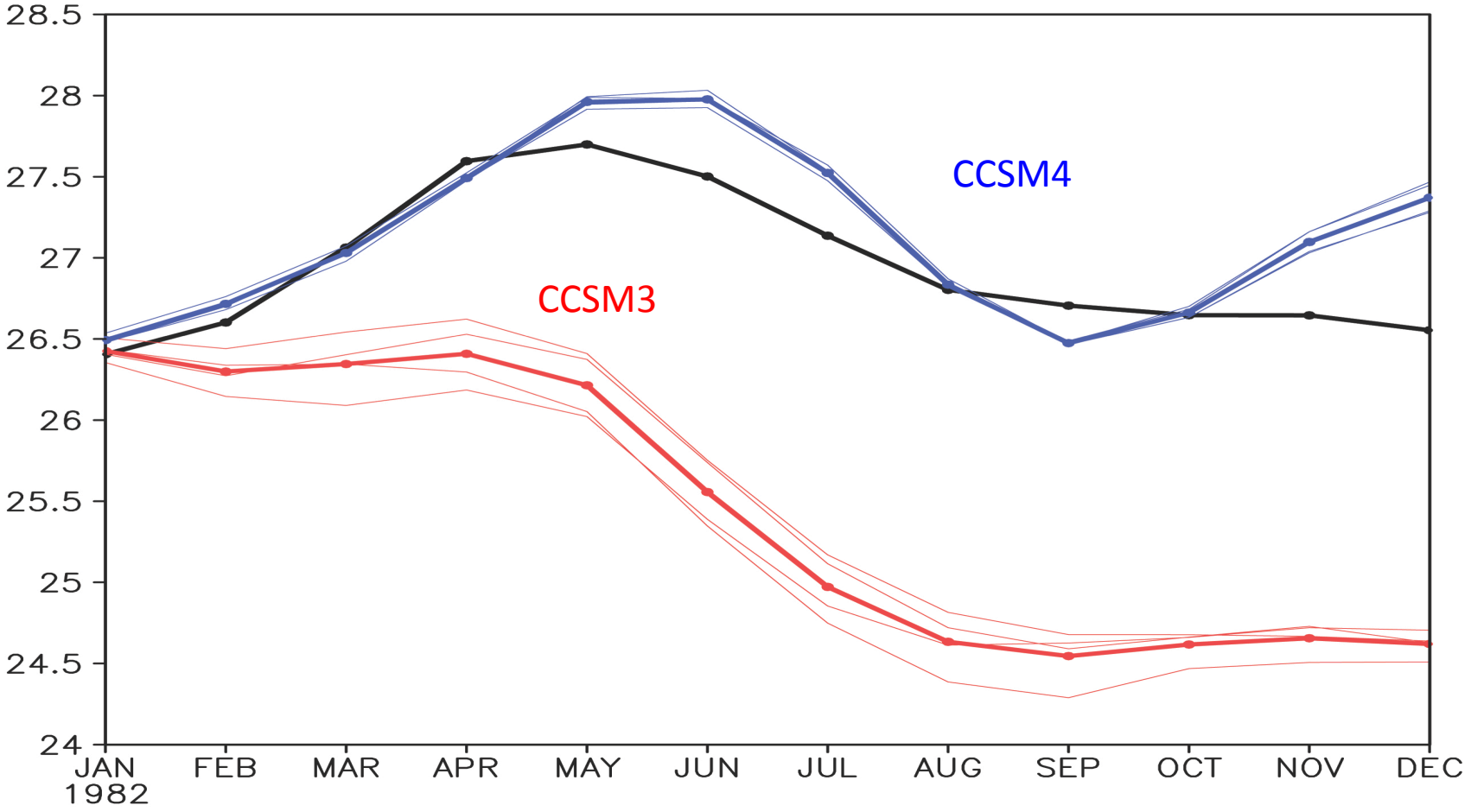
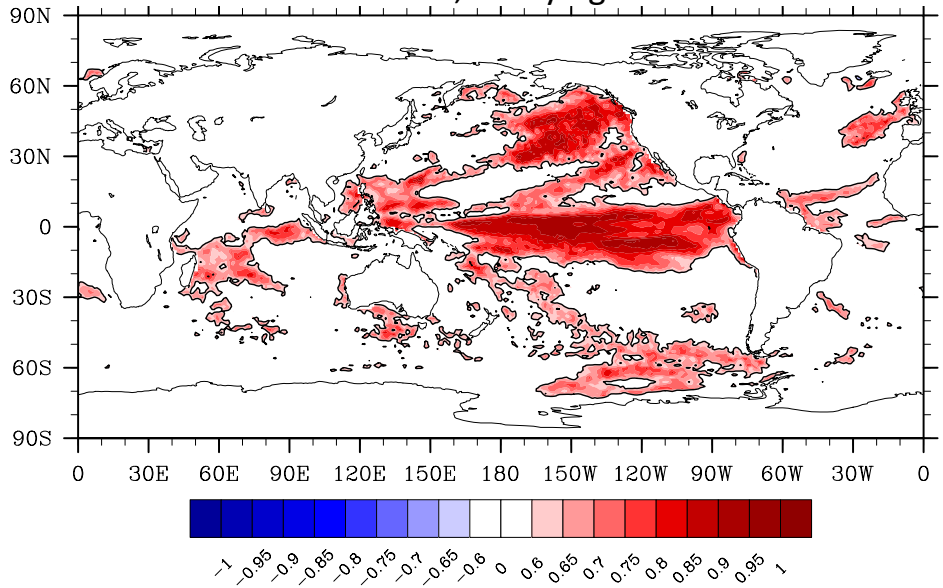


CCSM3 vs. CCSM4
Systematic Error - January Starts



CCSM3 SST Anomaly Correlation
Jan Start, Verifying JFM



CCSM4 SST Anomaly Correlation
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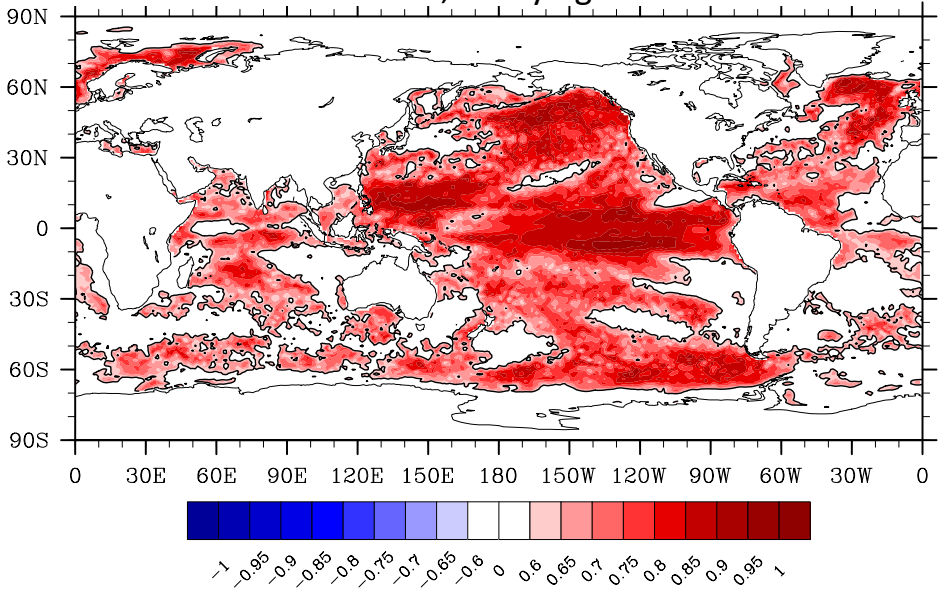

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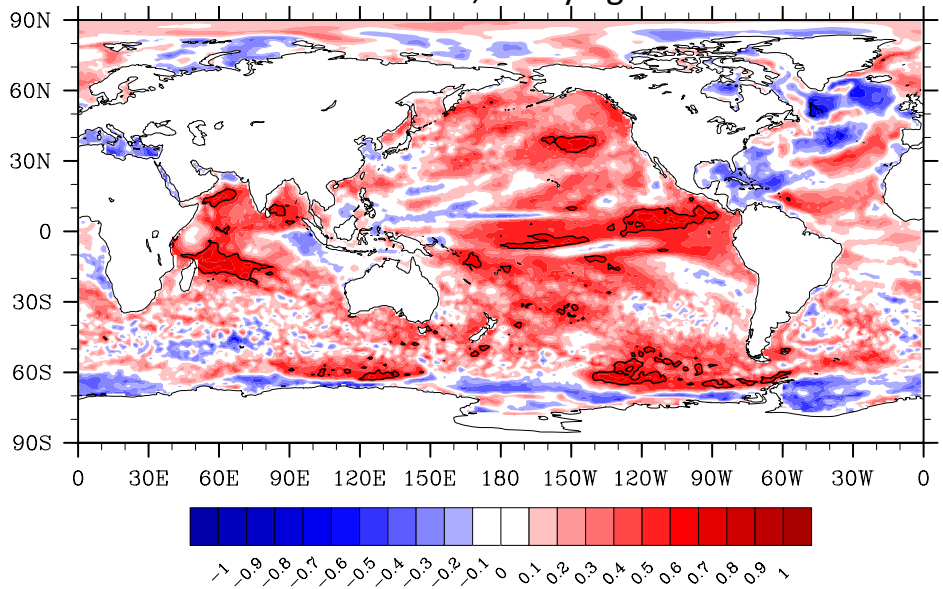

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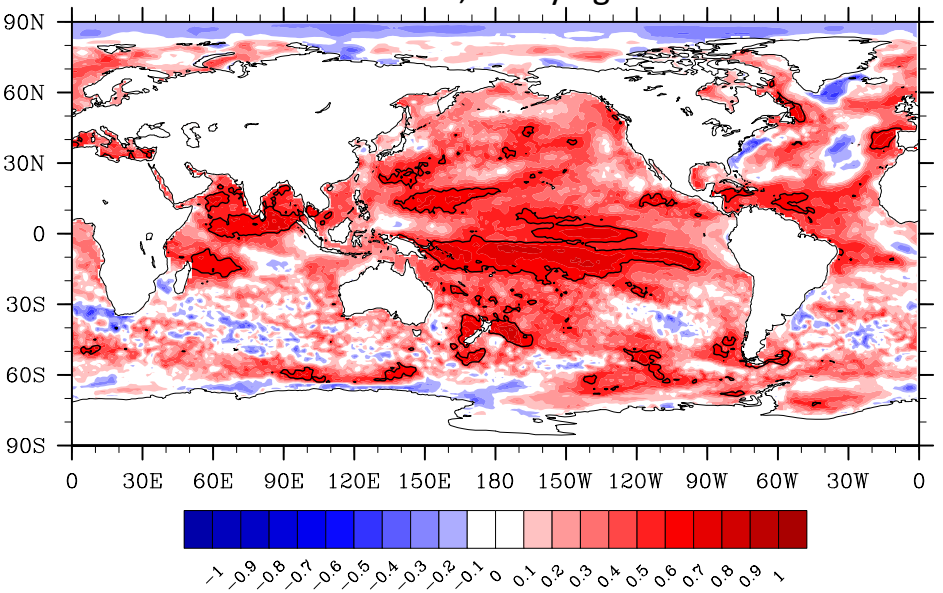
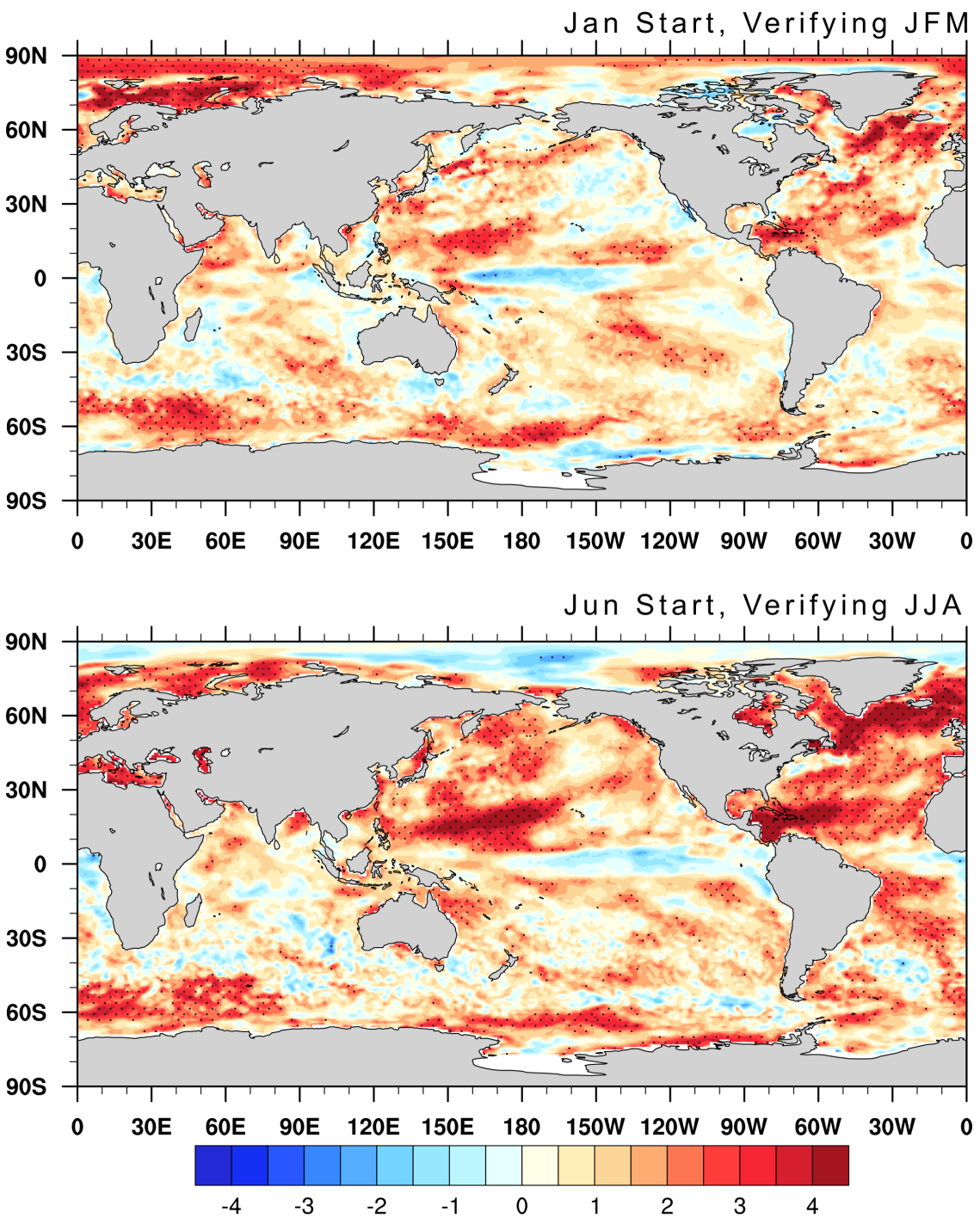
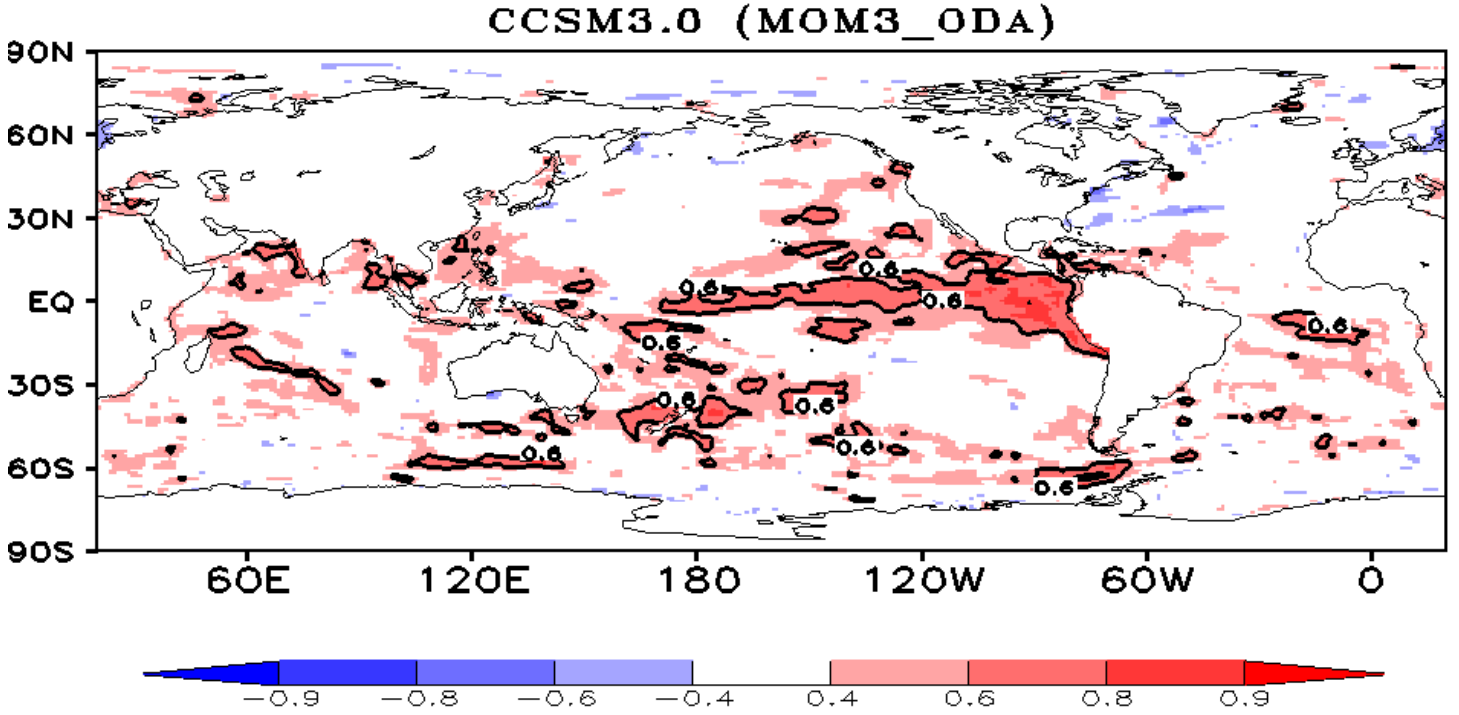


Are The Differences in the Correlation Significant?

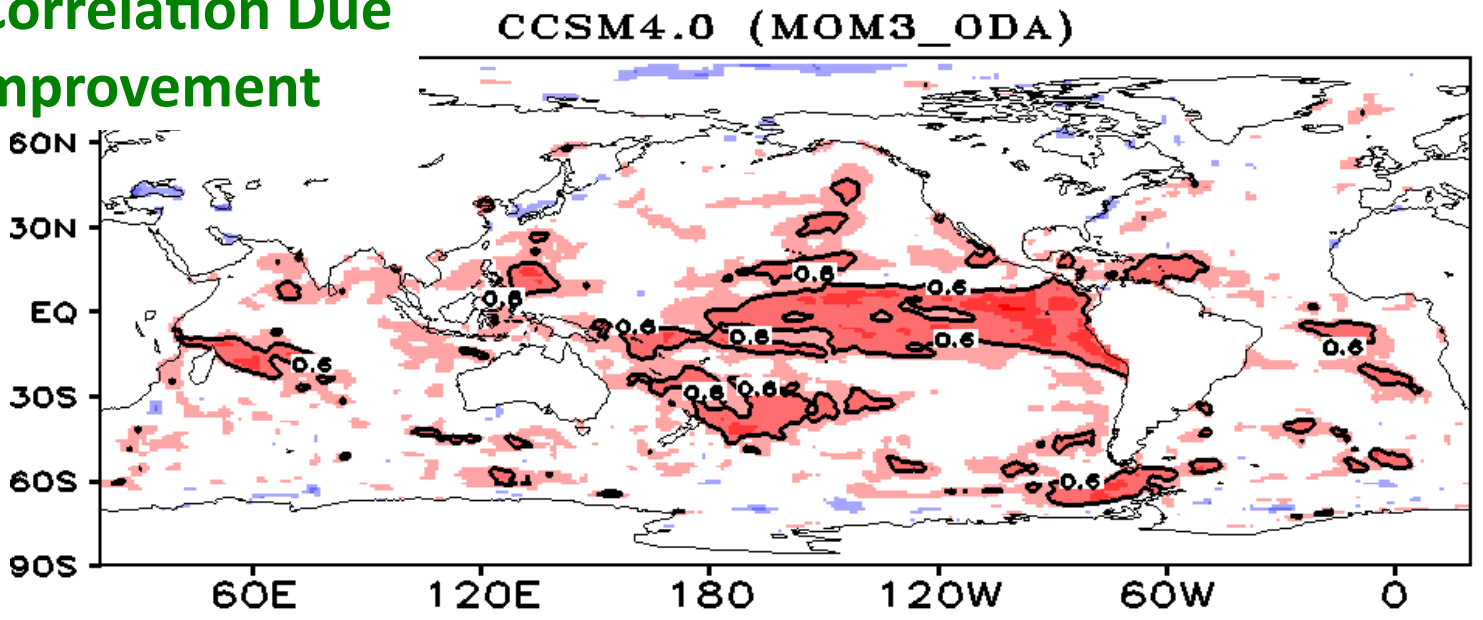
Z-Statistic



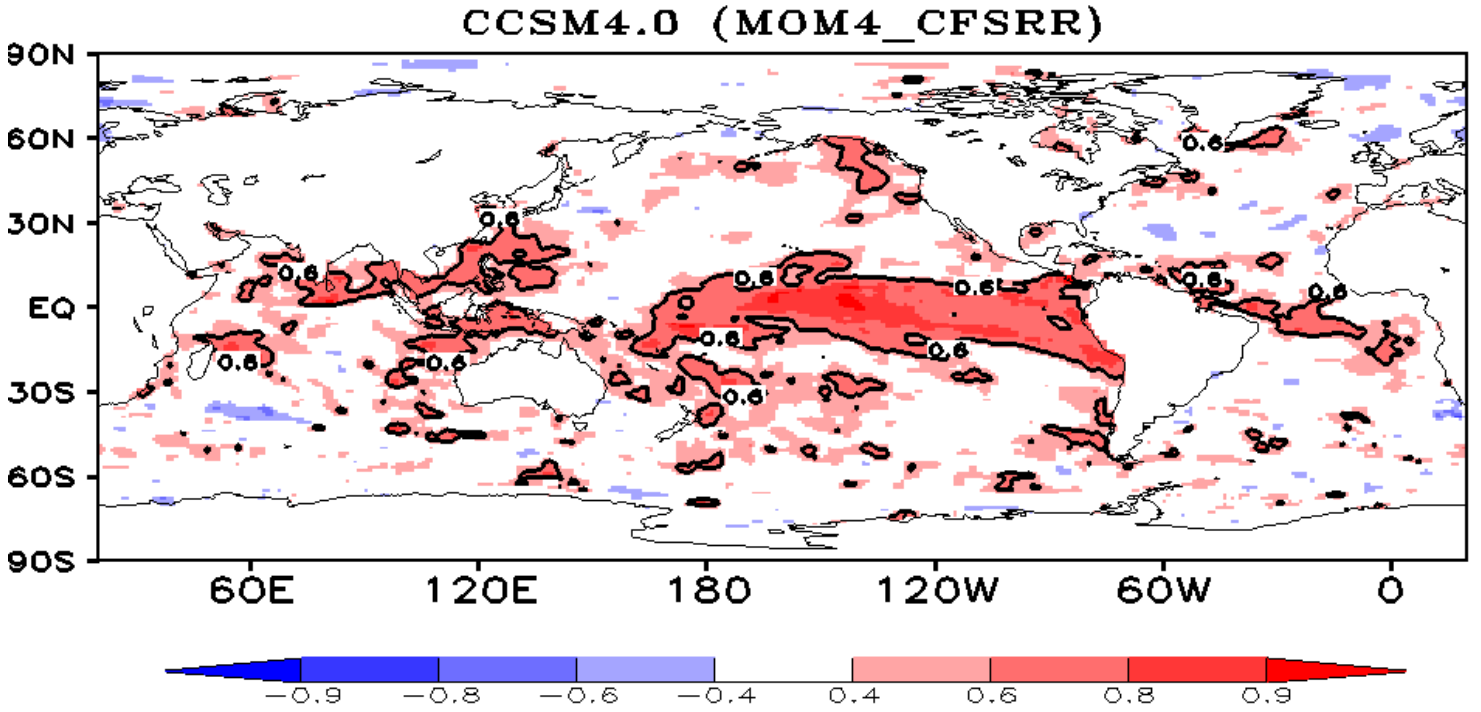
May Initial Conditions 3-Months Lead



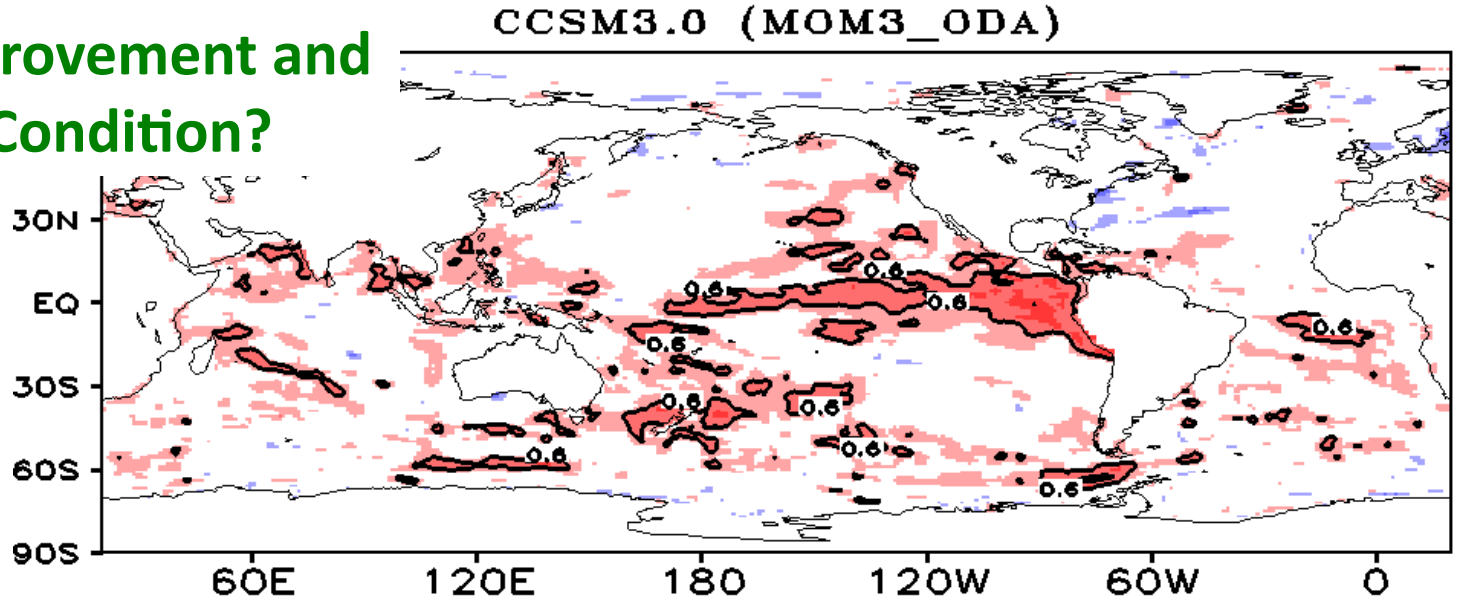
Improved Correlation Due to Model Improvement



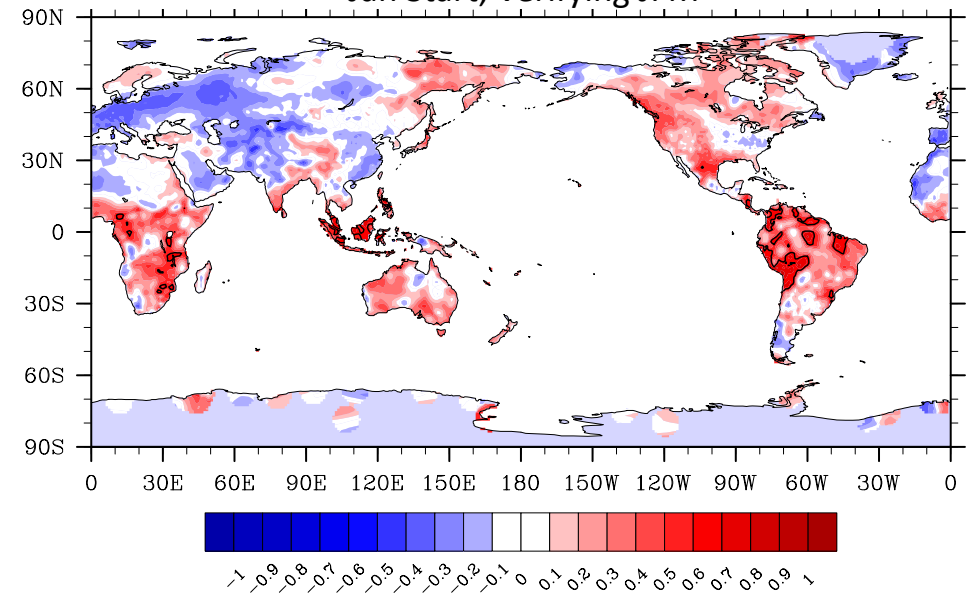
May Initial Conditions 3-Months Lead



Improved Correlation Due to Model Improvement and Better Initial Condition?



CCSM3 T2m Anomaly Correlation
Jan Start, Verifying JFM



CCSM4 T2m Anomaly Correlation
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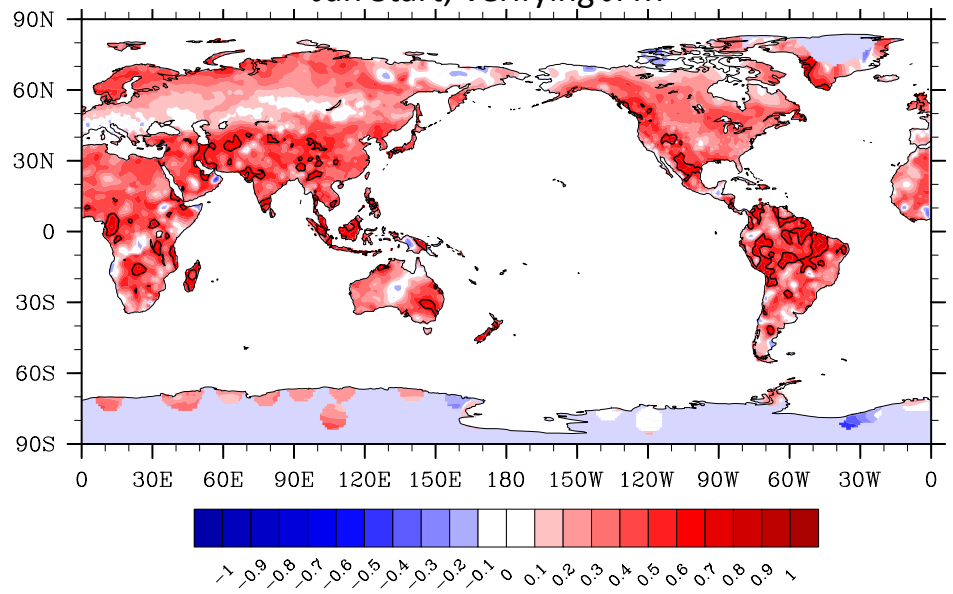

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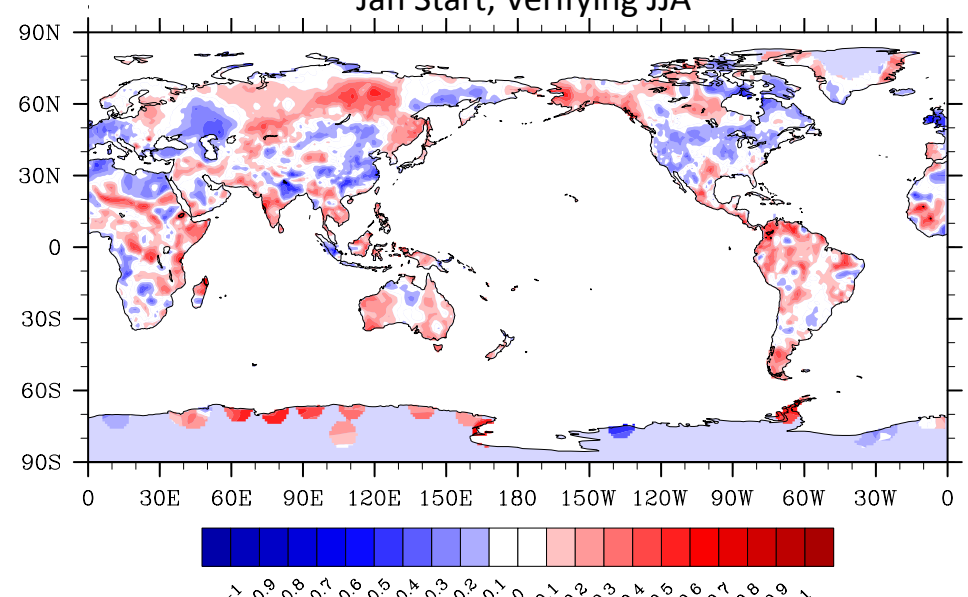

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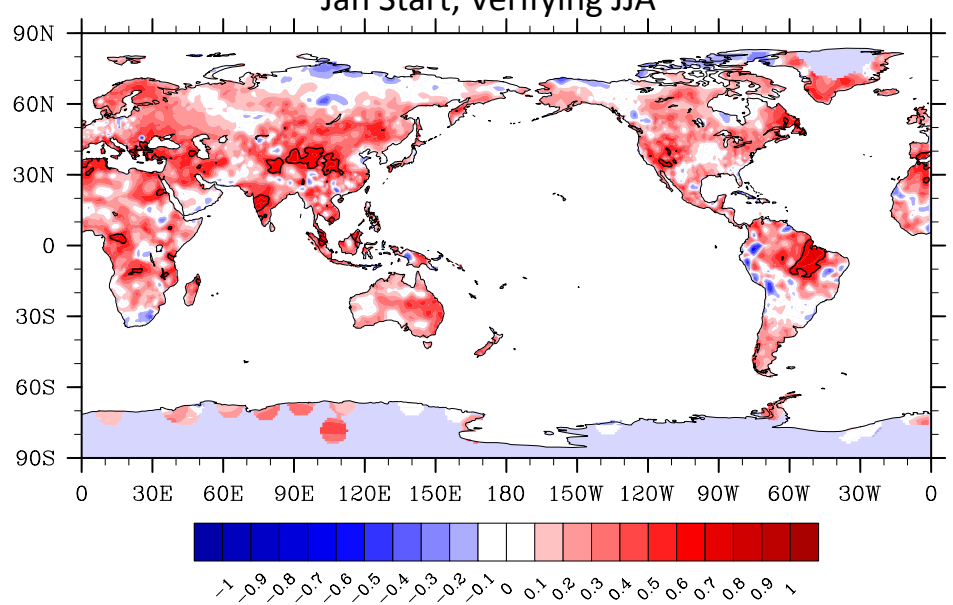
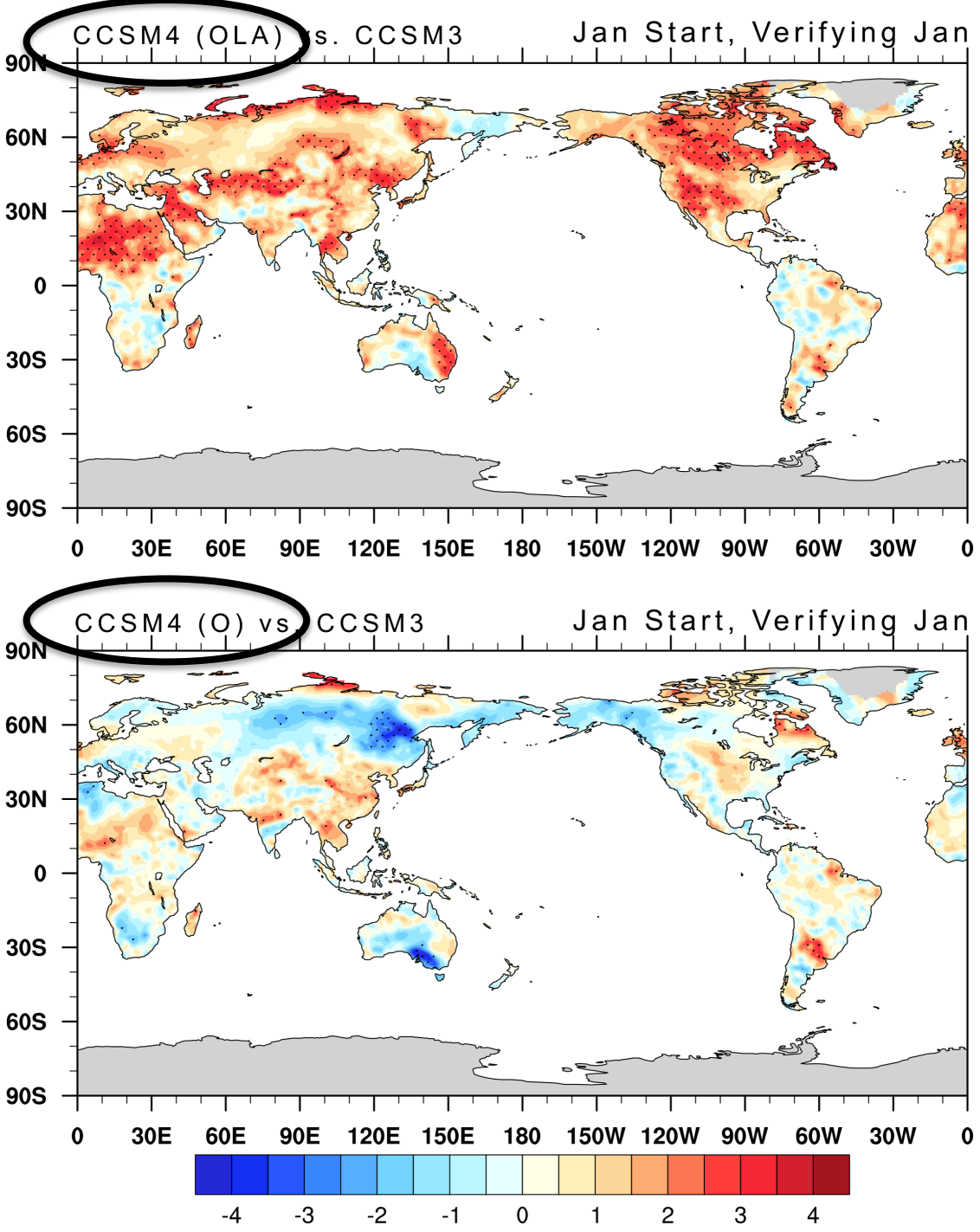
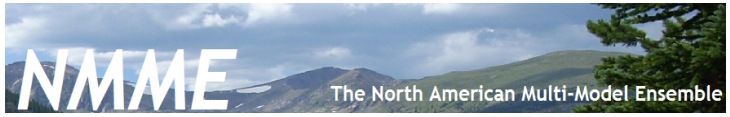


Better Model vs. Better L/A Initial Condition



Model Diversity

- **Comparing CFSv2 with NMME**
  - **Skill Comparison: Model Diversity or Ensemble Size**
  - **Mini-NMME vs. CFSv2**



Brier Skill Score for T2m Northern Hemisphere Extra-tropics Land (23N-75N)

	A/N/B	Lead 0	Lead 1	Lead 2	Lead 3	Lead 4	Lead 5
CFS (24 Members)	Above	0.10	0.03	0.01	0.01	0.01	0.01
	Normal	-0.03	-0.04	-0.04	-0.04	-0.04	-0.04
	Below	0.10	0.04	0.03	0.02	0.02	0.02
Mini-NMME (24 Members)	Above	0.12	0.05	0.03	0.03	0.02	0.02
	Normal	-0.02	-0.04	-0.04	-0.04	-0.04	-0.04
	Below	0.11	0.05	0.04	0.03	0.03	0.03
Full NMME	Above	0.14	0.07	0.06	0.06	0.05	0.05
	Normal	0.00	-0.01	-0.01	-0.01	-0.01	-0.01
	Below	0.14	0.08	0.06	0.06	0.06	0.05

Brier Skill Score for Nino3.4

	A/N/B	Lead 0	Lead 1	Lead 2	Lead 3	Lead 4	Lead 5
CFS (24 Members)	Above	0.54	0.45	0.39	0.33	0.28	0.25
	Normal	0.10	0.05	0.03	0.03	0.03	0.02
	Below	0.49	0.43	0.40	0.38	0.36	0.35
Mini-NMME (24 Members)	Above	0.68	0.60	0.55	0.48	0.42	0.37
	Normal	0.34	0.24	0.18	0.15	0.13	0.09
	Below	0.66	0.59	0.56	0.53	0.49	0.45
Full NMME	Above	0.68	0.61	0.55	0.49	0.43	0.38
	Normal	0.35	0.25	0.19	0.16	0.14	0.11
	Below	0.65	0.58	0.54	0.52	0.49	0.46

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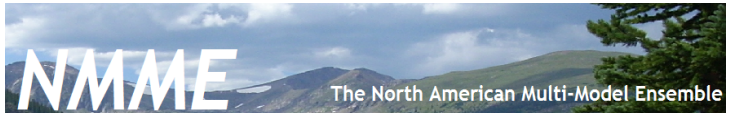
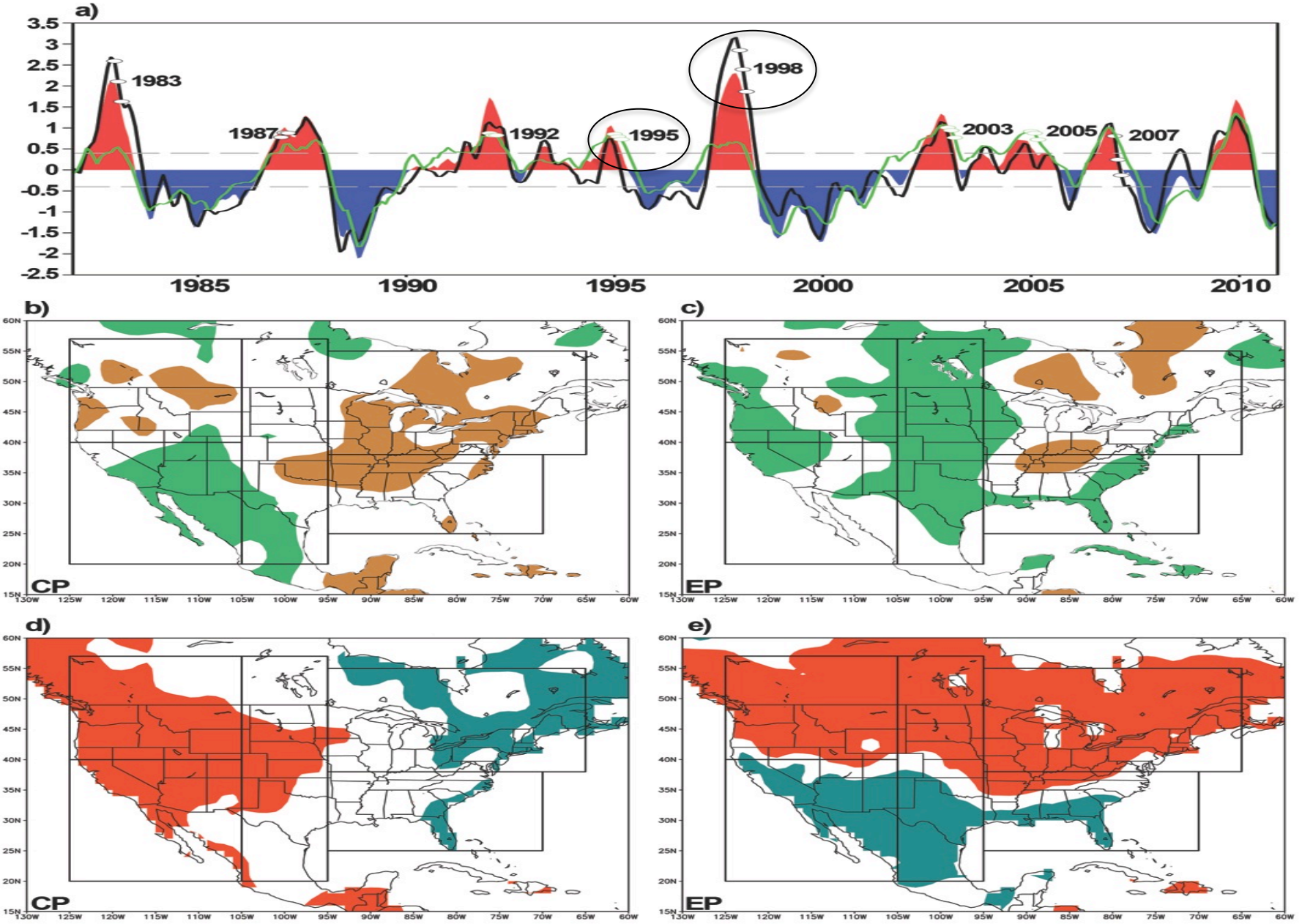
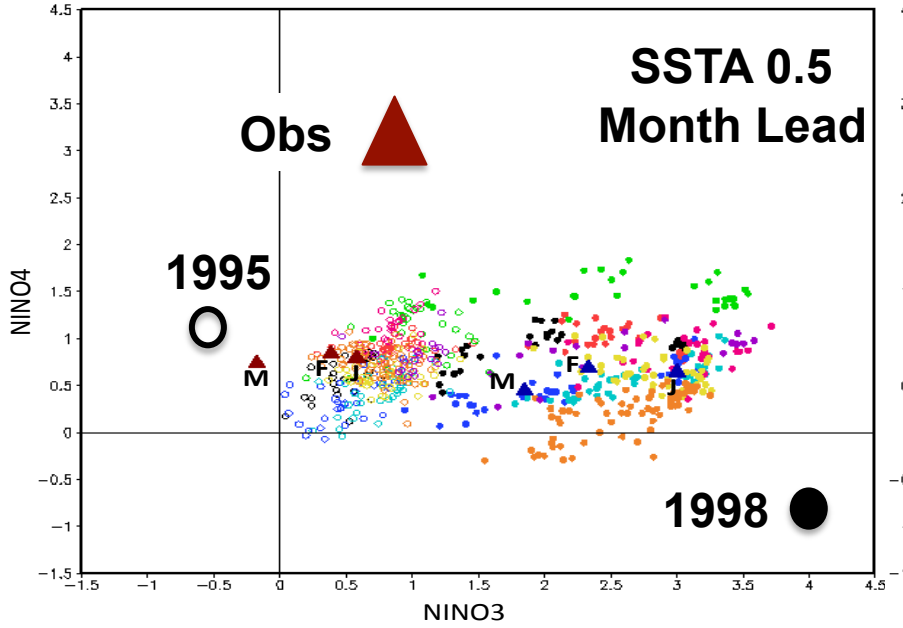
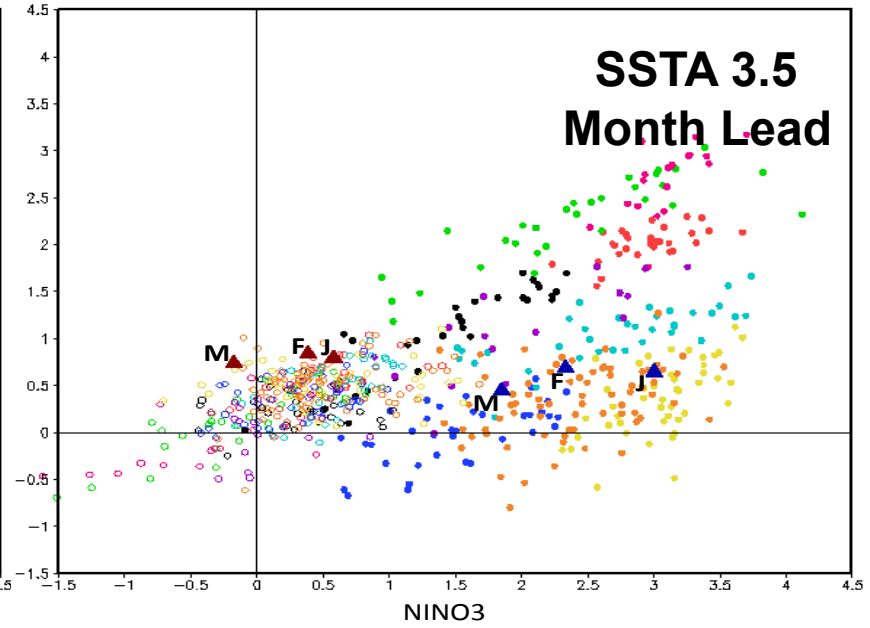


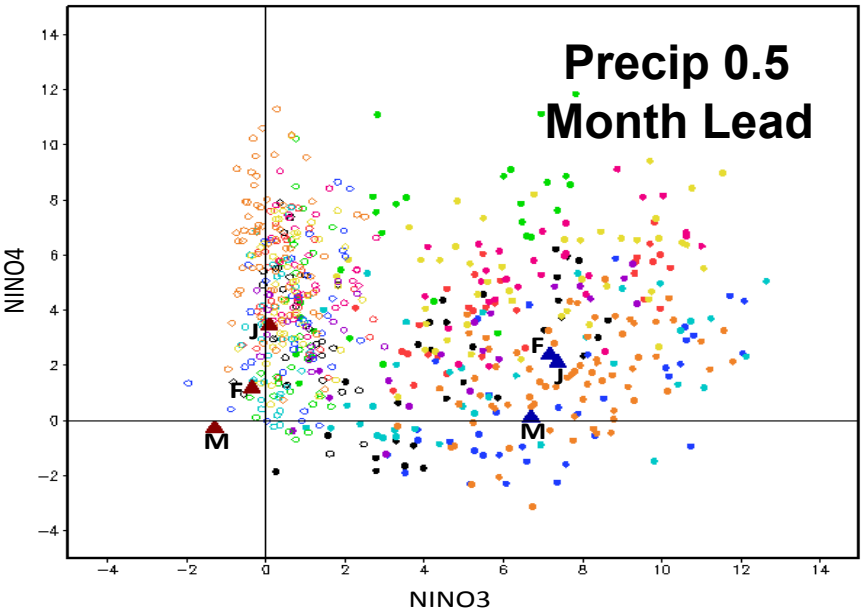
Central Pacific vs. East Pacific Warm Events

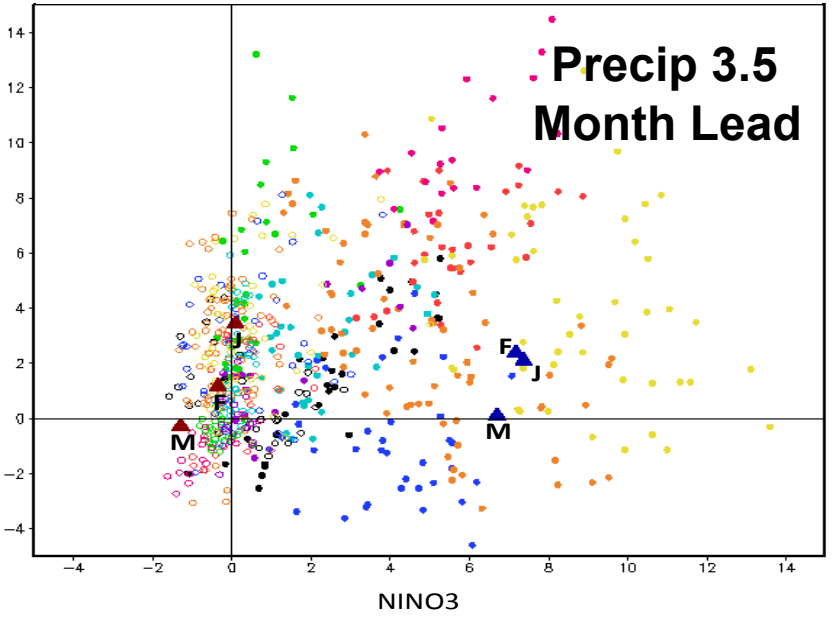


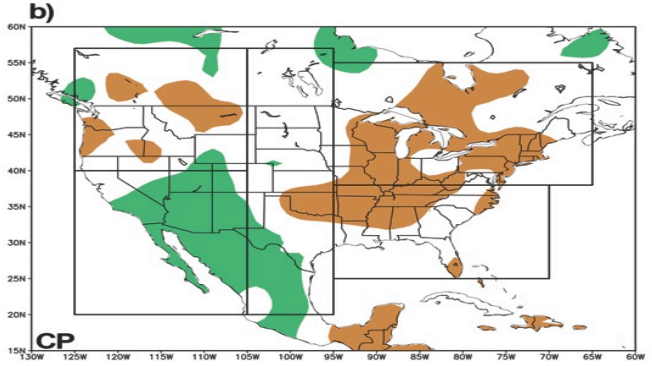
Infanti and Kirtman 2014, JClim

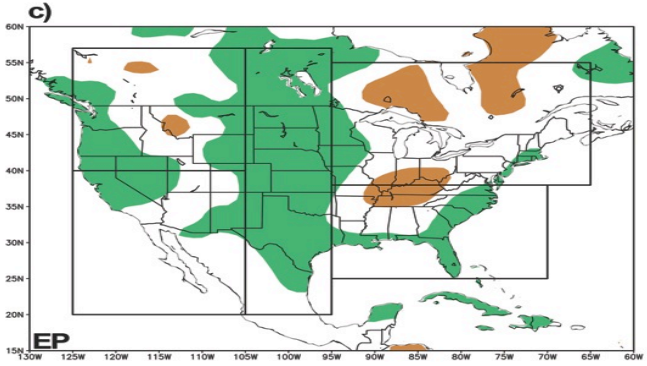

SSTA 0.5
Month Lead
Obs
1995
1998
NINO4
NINO3


SSTA 3.5
Month Lead
NINO3


Precip 0.5
Month Lead
NINO4
NINO3

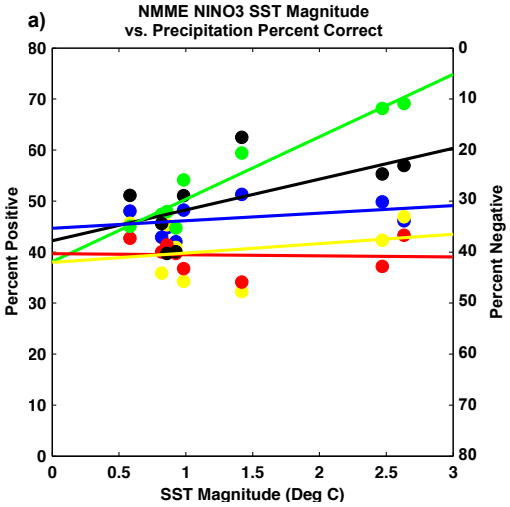

Precip 3.5
Month Lead
NINO3

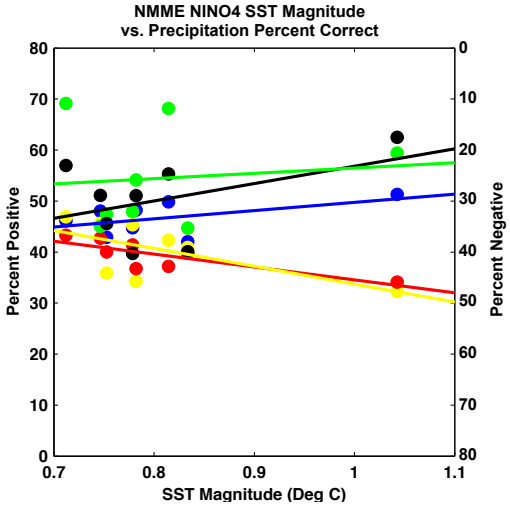




Observed Rainfall Composites

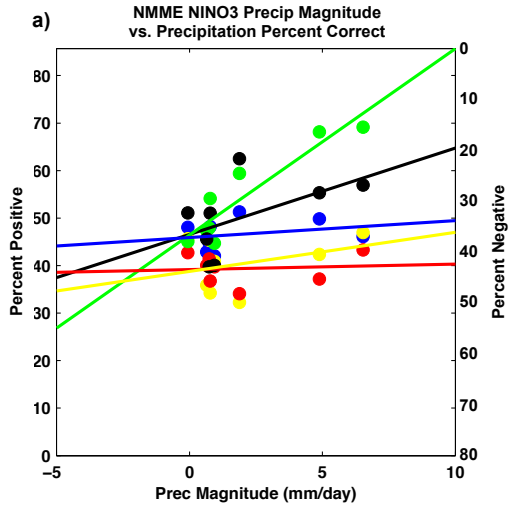
Tropical "SSTA" Forcing

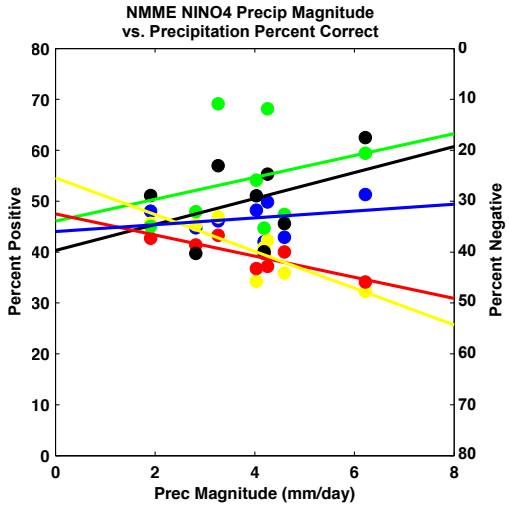




SW
SE
NW
NE
GP

Tropical "Precip" Forcing





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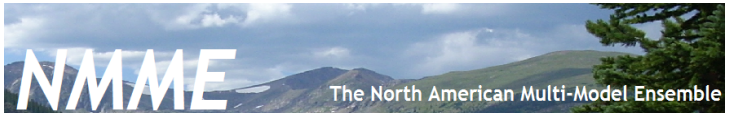
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