Performance of MOM4 in CFSv2

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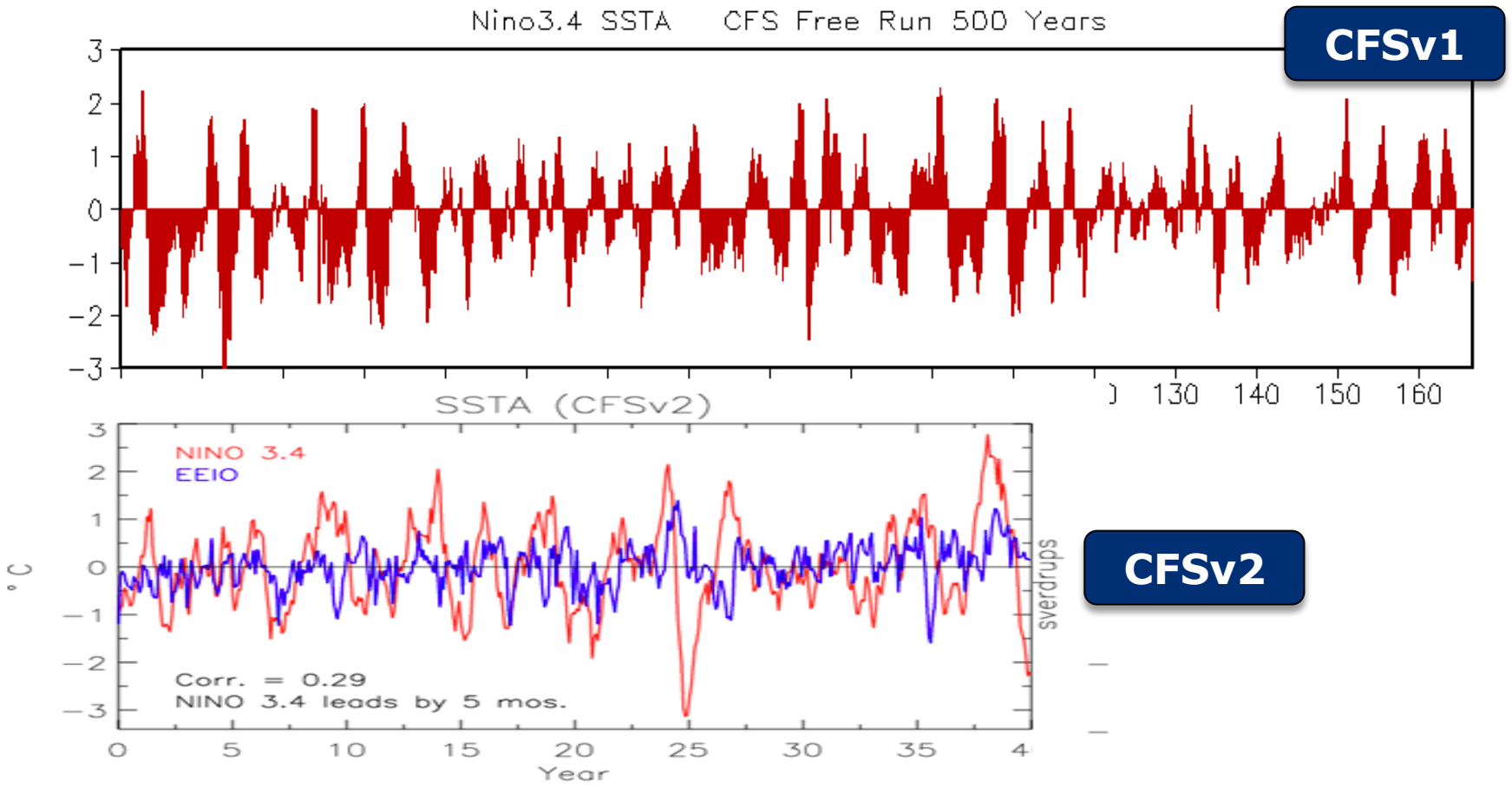
Climate Prediction Center

NCEP, NOAA

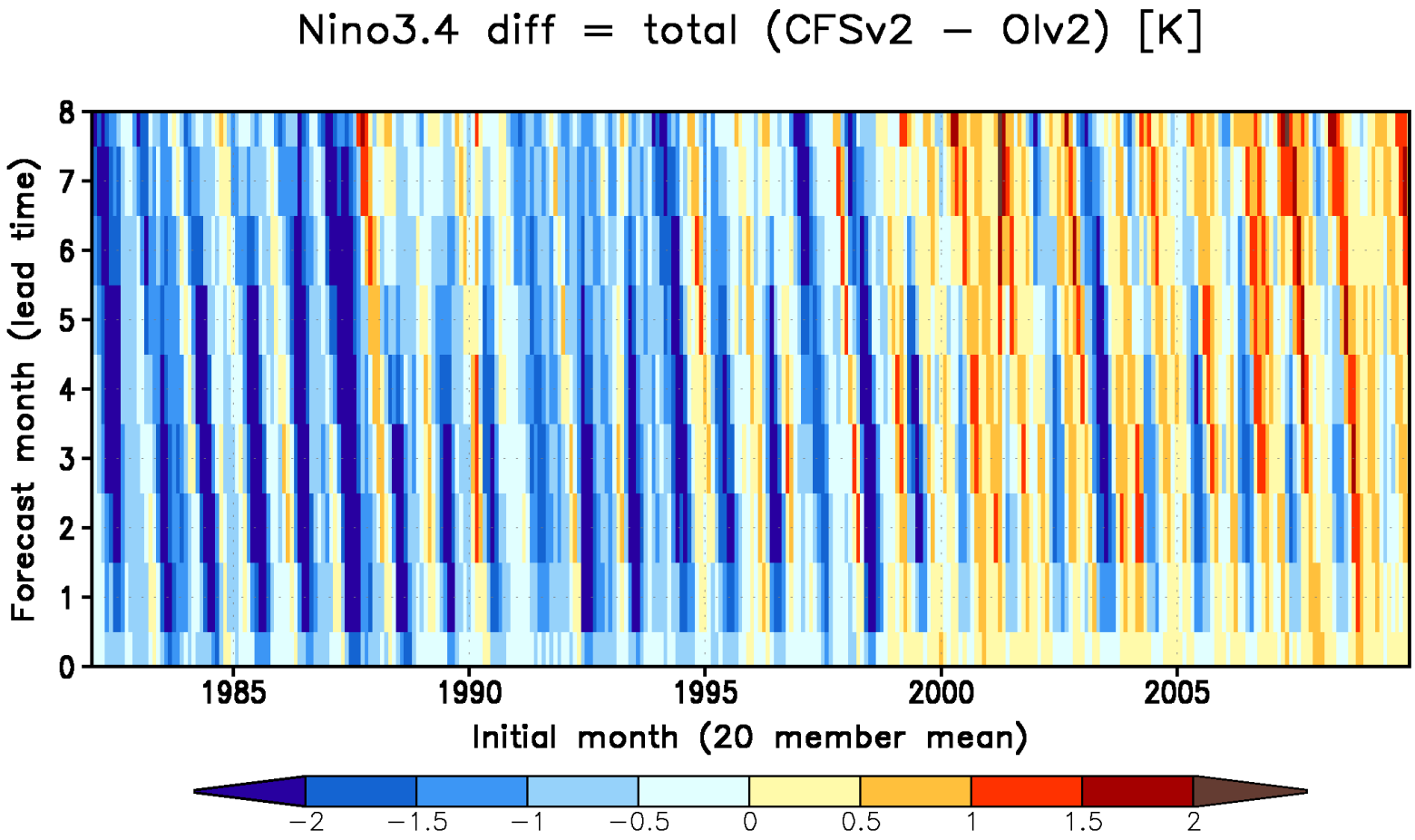
Acknowledgement: Mingyue Chen, Wanqiu Wang, Yan Xue,


Nino3.4 SSTA CFS Free Run 500 Years
3
2
1
0
−1
−2
−3
130
140
150
160
SSTA (CFSv2)
NINO 3.4
EEIO
°C
sverdrups
Corr. = 0.29
NINO 3.4 leads by 5 mos.
0
5
10
15
20
25
30
35
Year

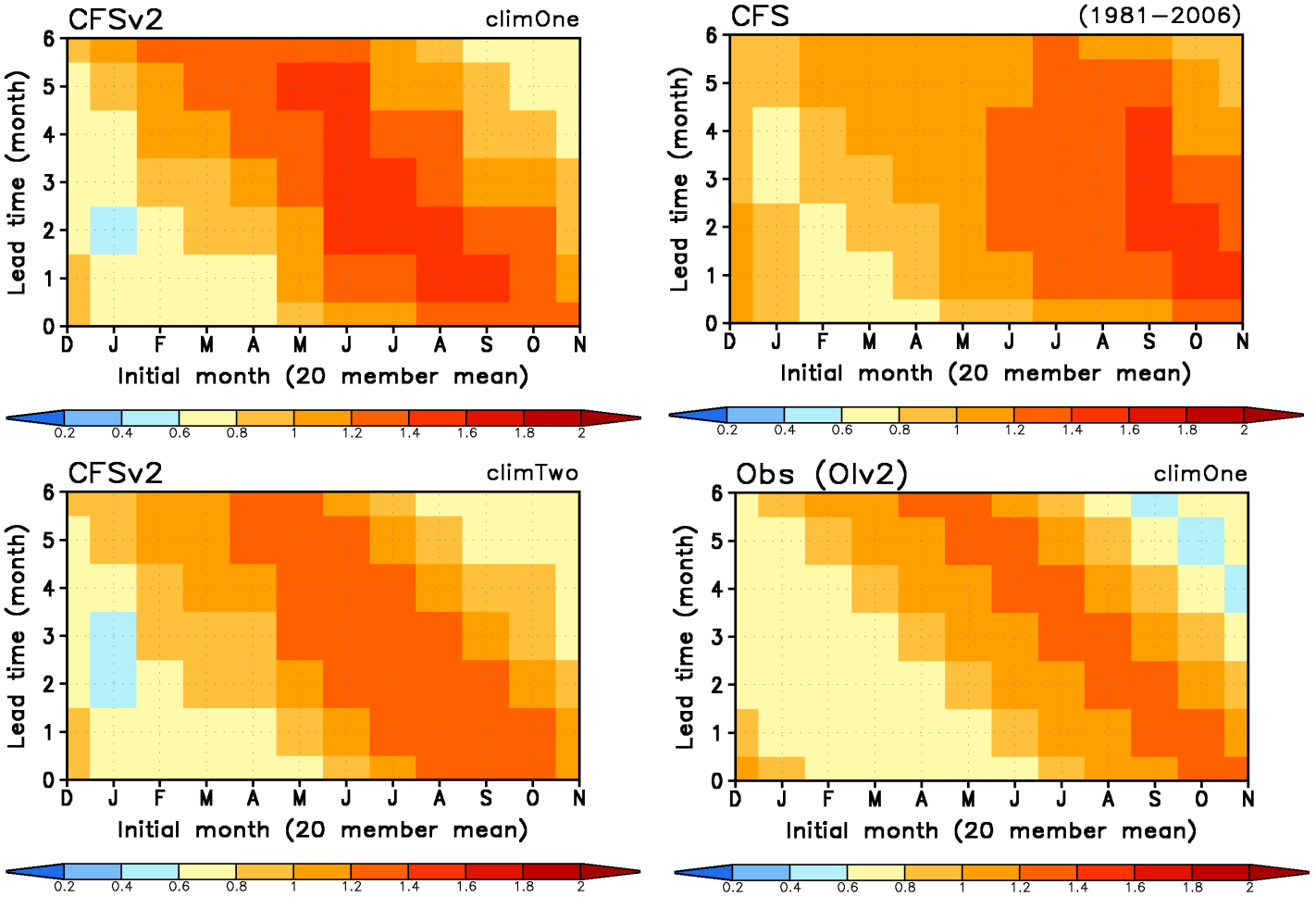
CFSv1

CFSv2

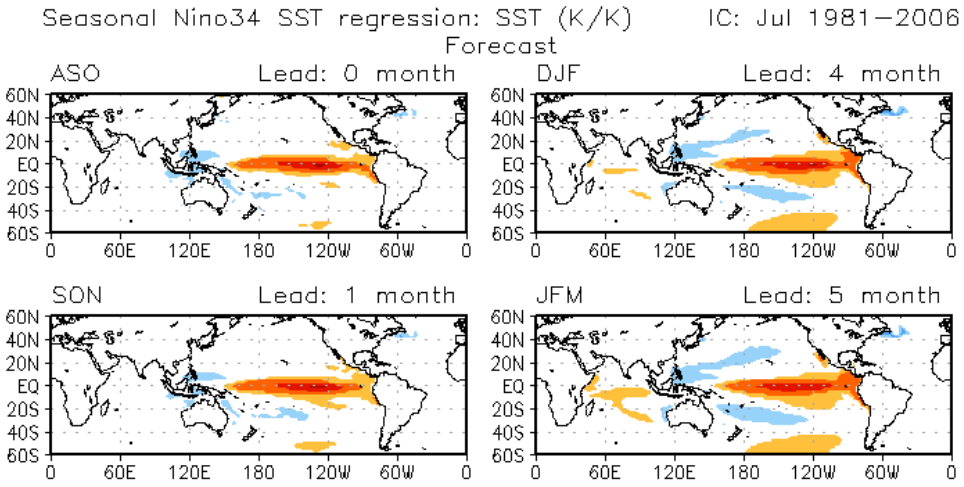
A Distinct Change in Forecast Bias for SST After 1999



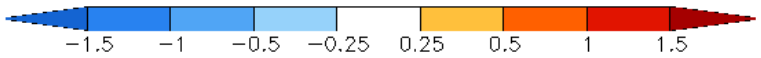
Nino3.4 SST Seasonal Mean Forecast Standard Deviation (K)



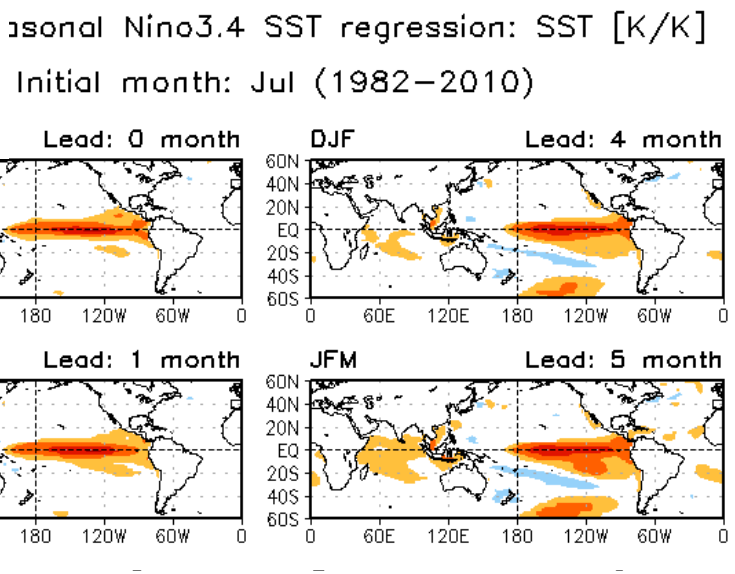
Regression with Nino 3.4



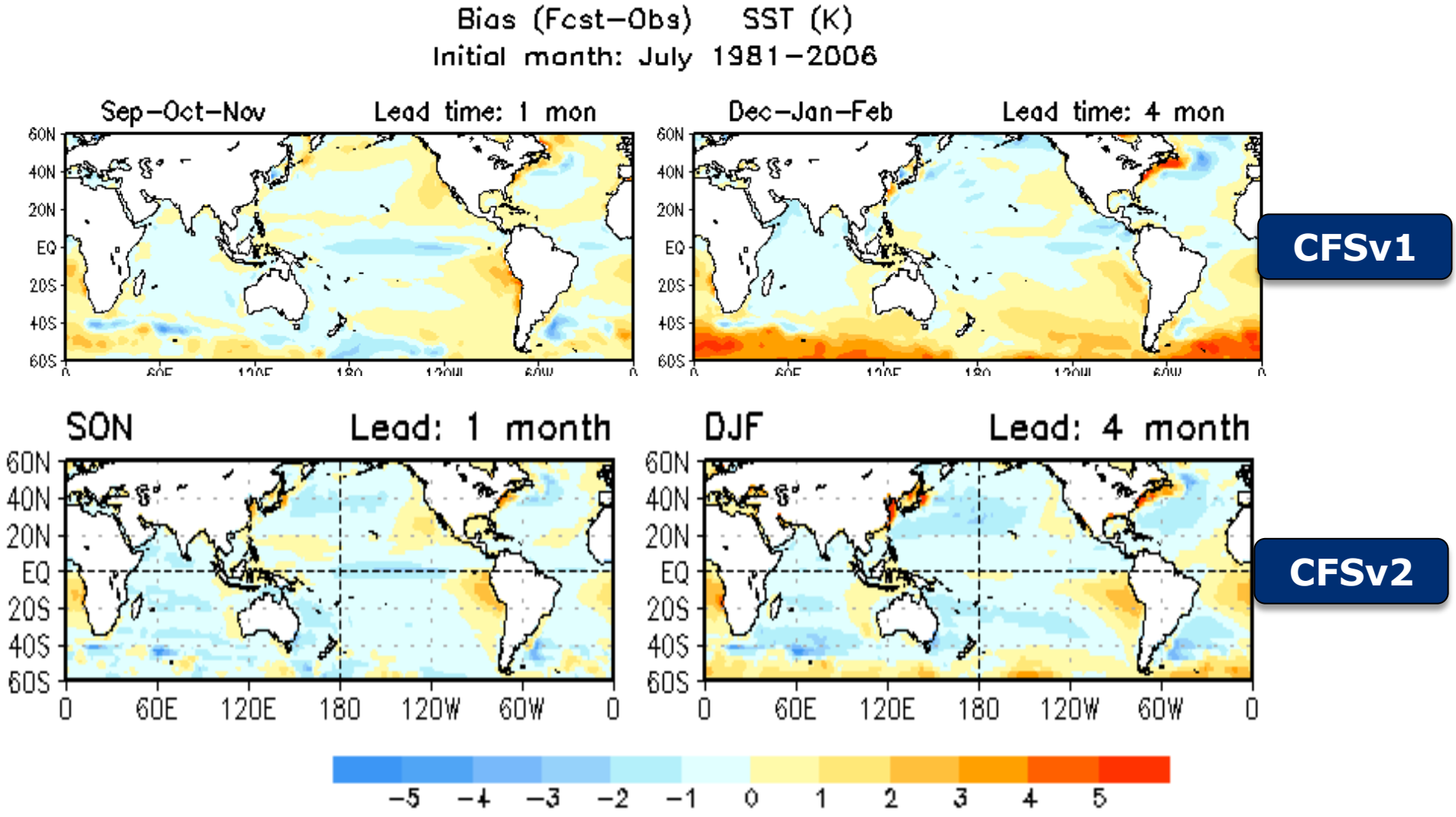
CFSv1



CFSv2

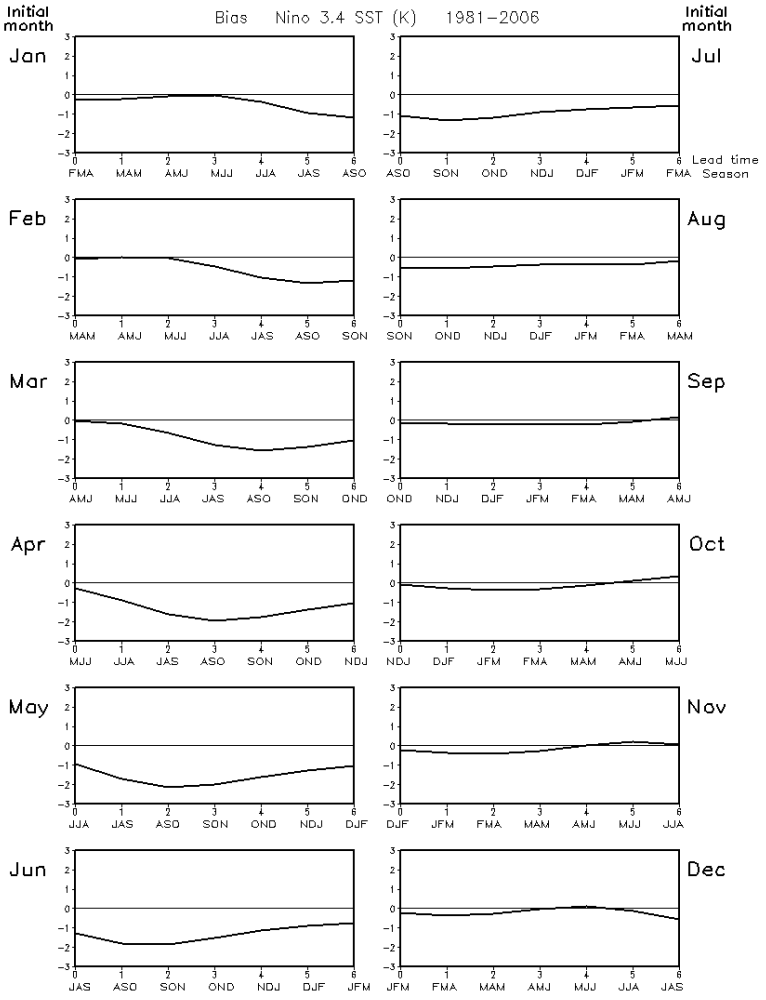


SST Bias

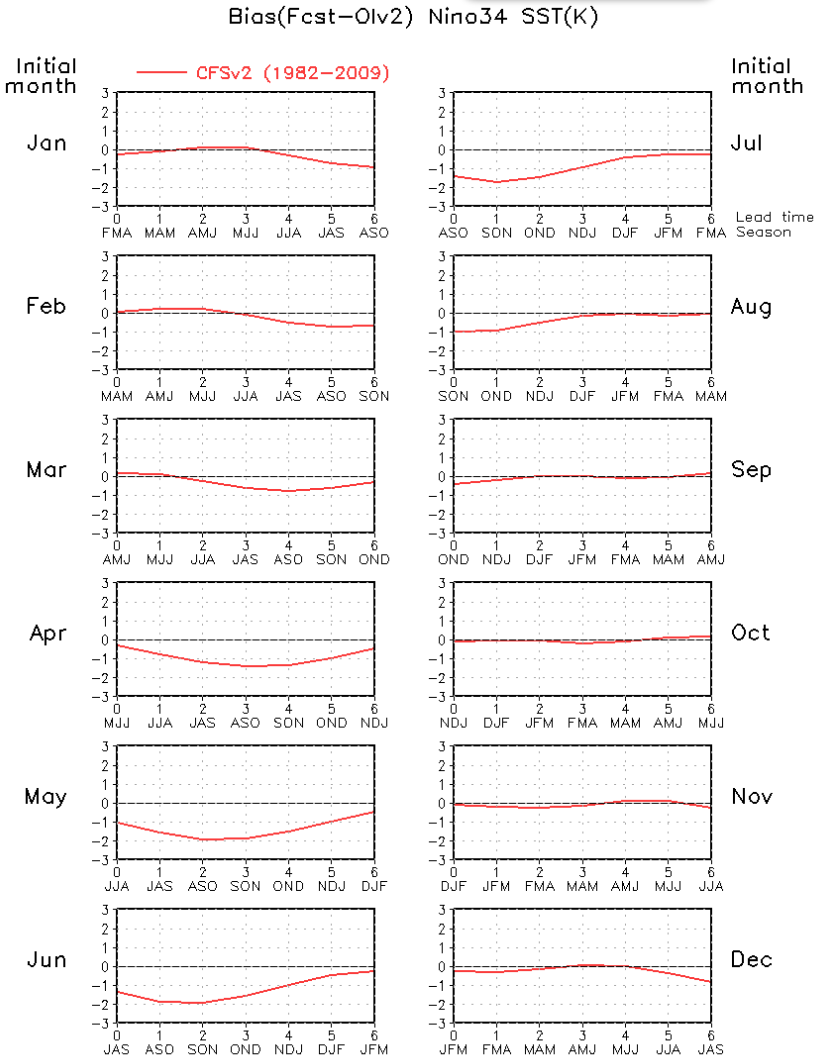

Bias (Fcst−Obs) SST (K)
Initial month: July 1981−2006
Sep−Oct−Nov
Lead time: 1 mon
Dec−Jan−Feb
Lead time: 4 mon
CFSv1
SON
Lead: 1 month
DJF
Lead: 4 month
CFSv2
60N
40N
20N
EQ
20S
40S
60S
0
60E
120E
180
120W
60W
−5 −4 −3 −2 −1 0 1 2 3 4 5

Nino 3.4 Bias

CFSv1

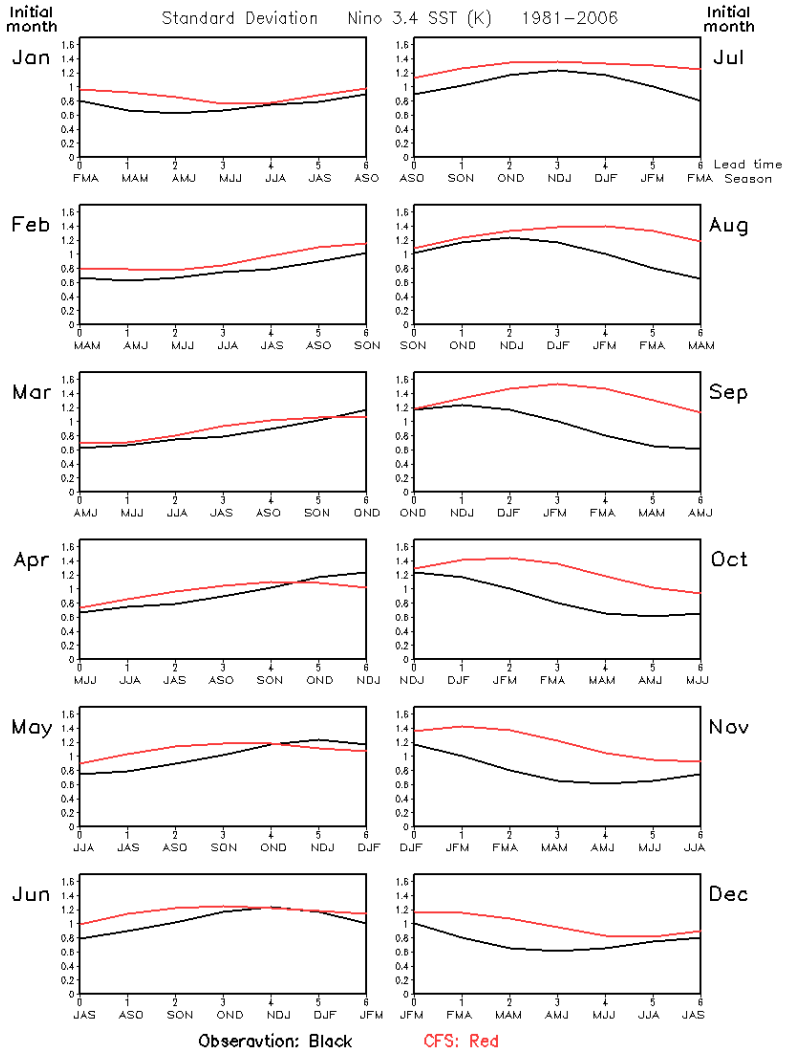


CFSv2

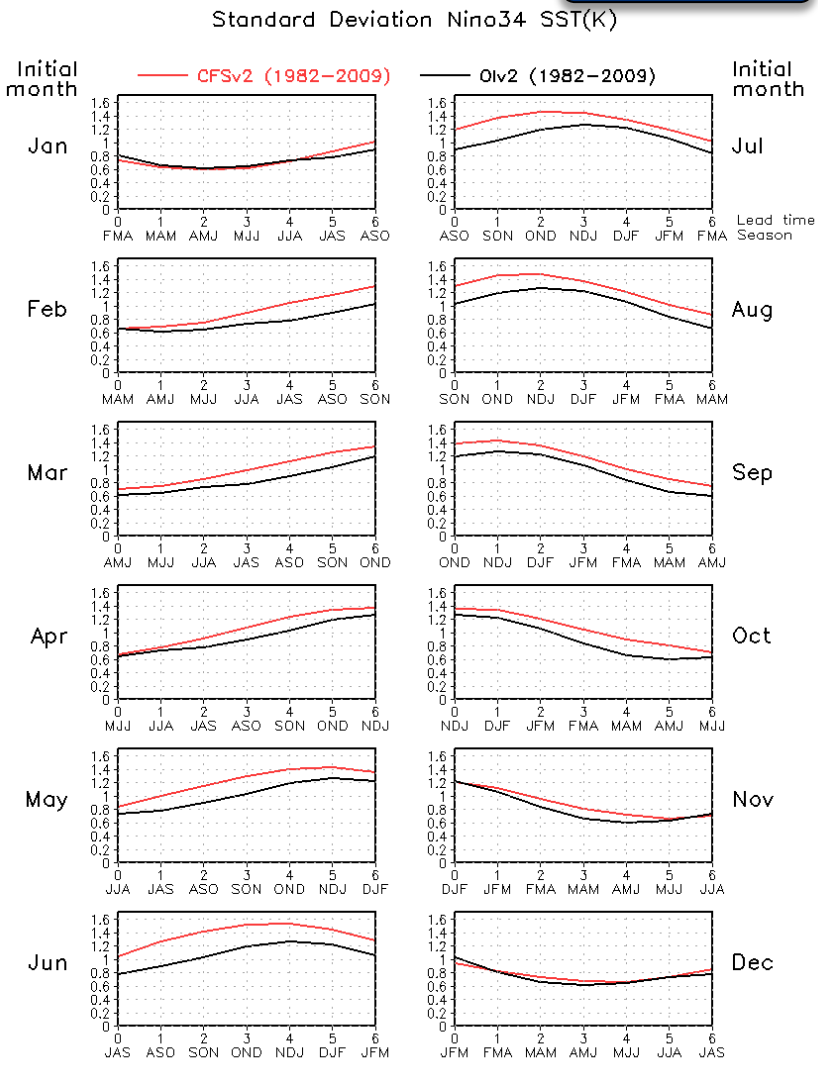


Nino 3.4 Std. Dev.

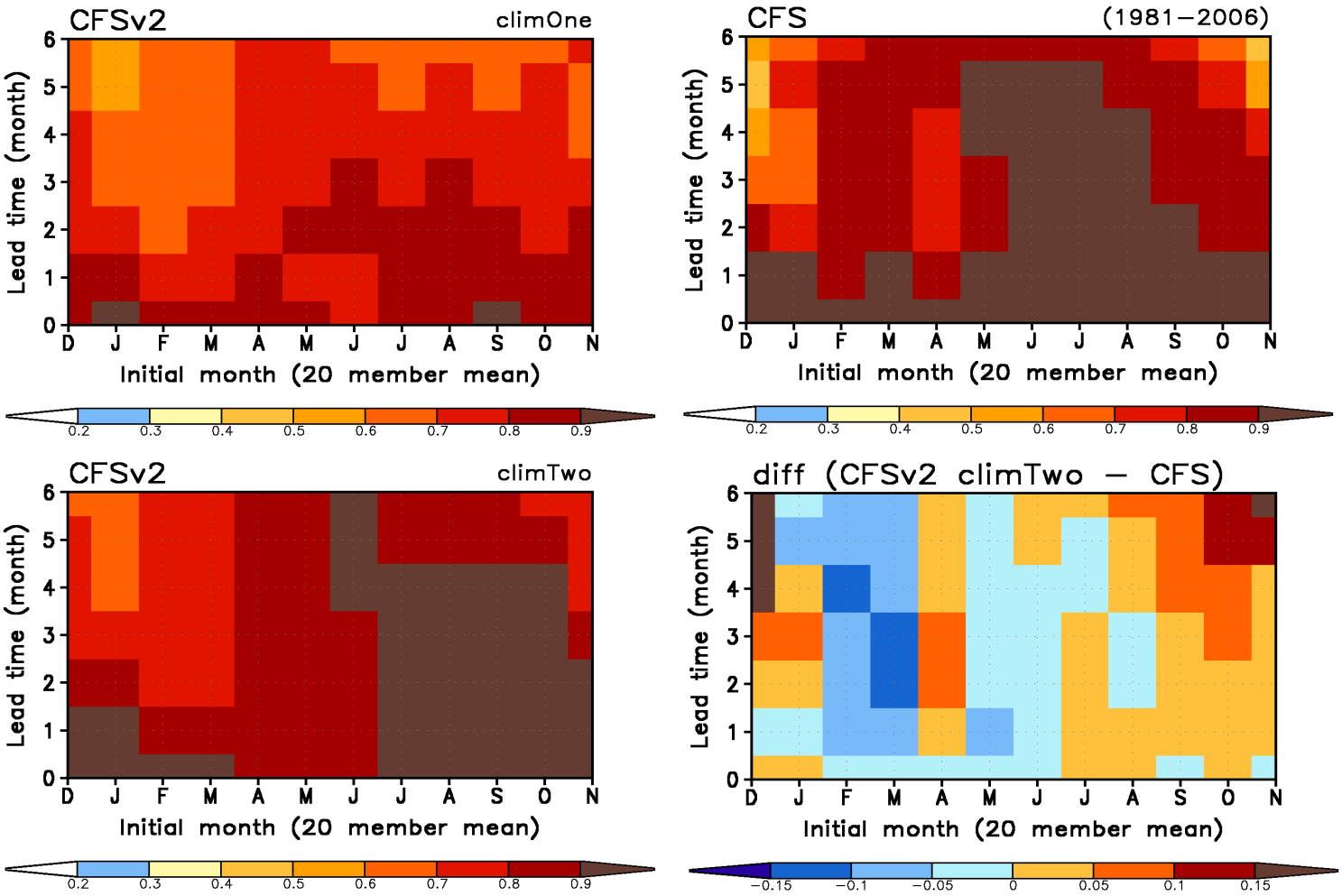
CFSv1



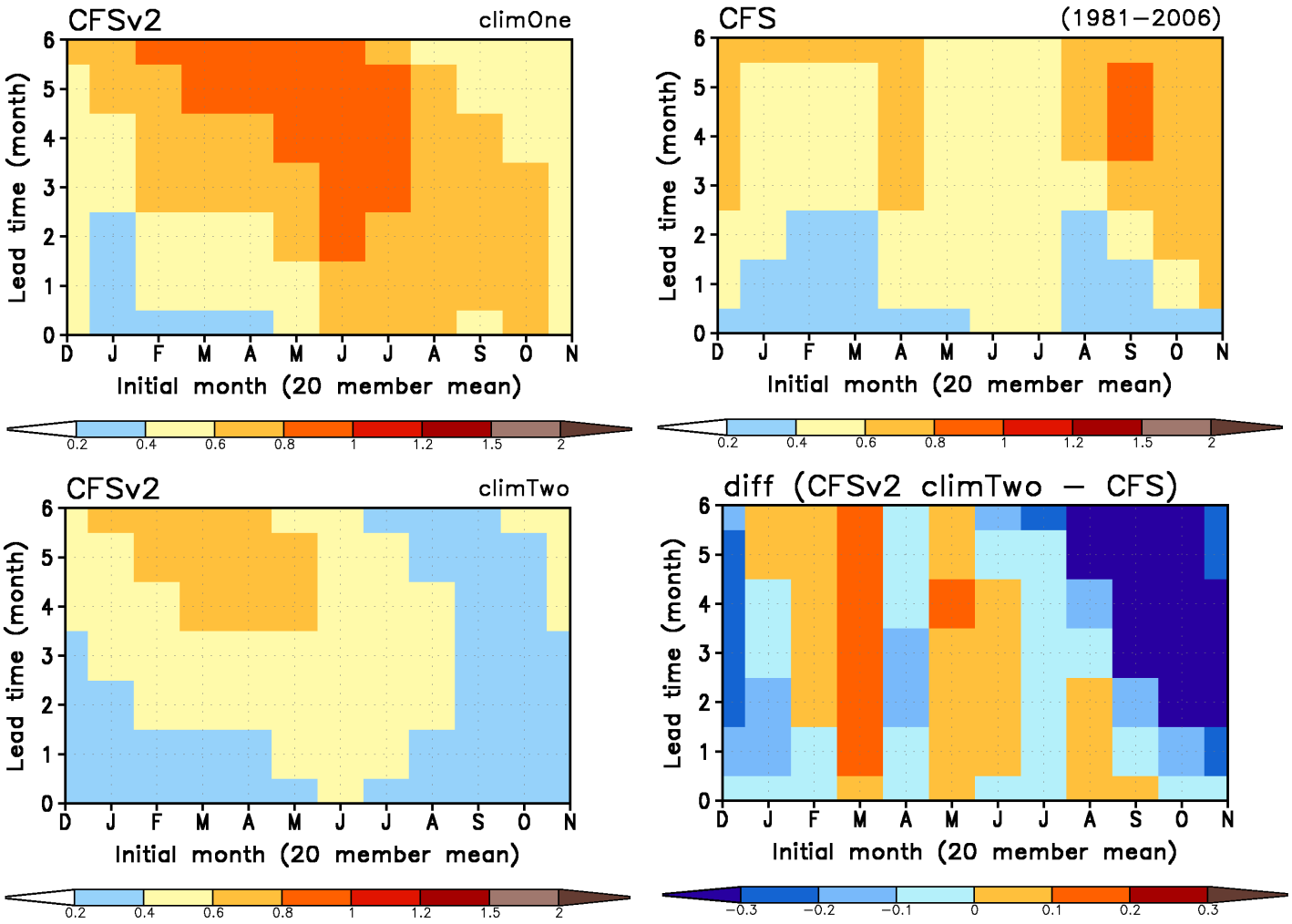
CFSv2



Nino 3.4 Anomaly Correlation



Nino 3.4 RMSE


CFSv2
climOne
CFS
(1981–2006)
CFSv2
climTwo
diff (CFSv2 climTwo – CFS)
Lead time (month)
Initial month (20 member mean)
D J F M A M J J A S O N
0 1 2 3 4 5 6
0.2 0.4 0.6 0.8 1 1.2 1.5 2
−0.3 −0.2 −0.1 0 0.1 0.2 0.3