

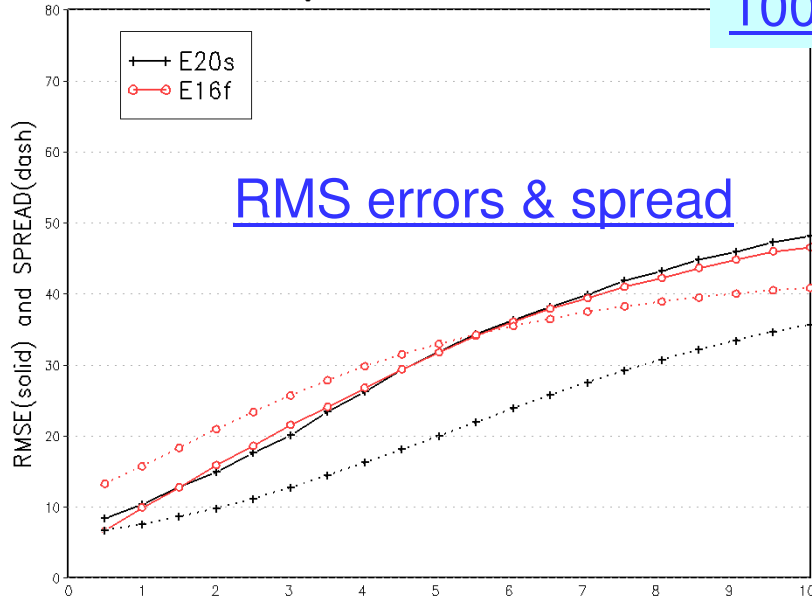
# Review of FNMOC ensemble

Yuejian Zhu

Reviewed from NAEFS workshop

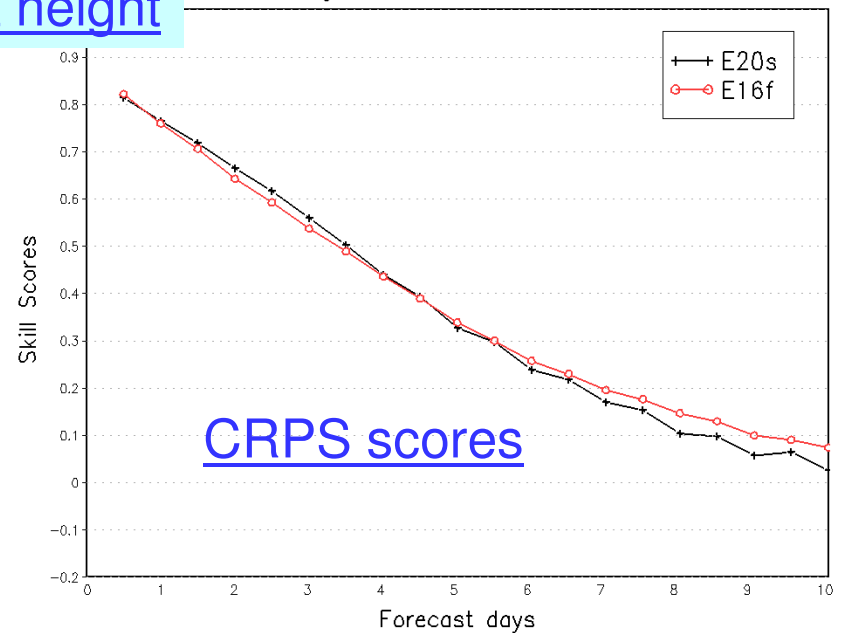
Northern Hemisphere 1000hPa Height  
Ensemble Mean RMSE and Ensemble SPREAD  
Average For 20080805 – 20080914

1000hPa height



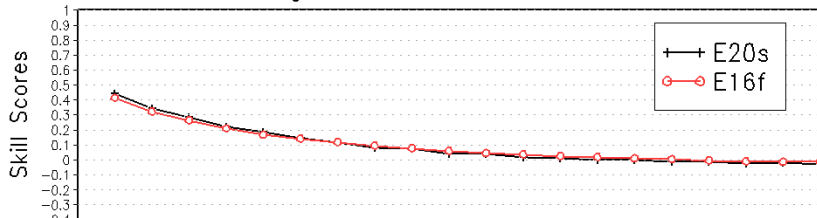
RMS errors & spread

Northern Hemisphere 1000hPa Height  
Continuous Ranked Probability Skill Scores  
Average For 20080805 – 20080914

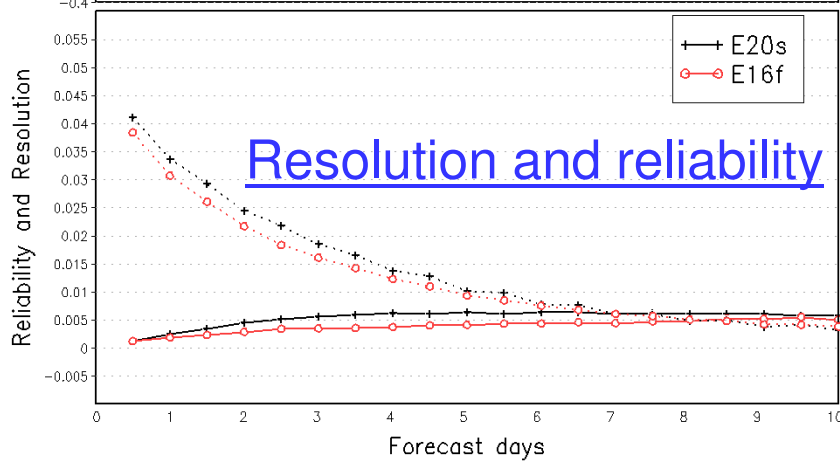


CRPS scores

Northern Hemisphere 1000hPa Height Brier Skill Scores (BSS)  
Average For 20080805 – 20080914



Resolution and reliability



NCEP/GEFS .vs FNMOC/GEFS

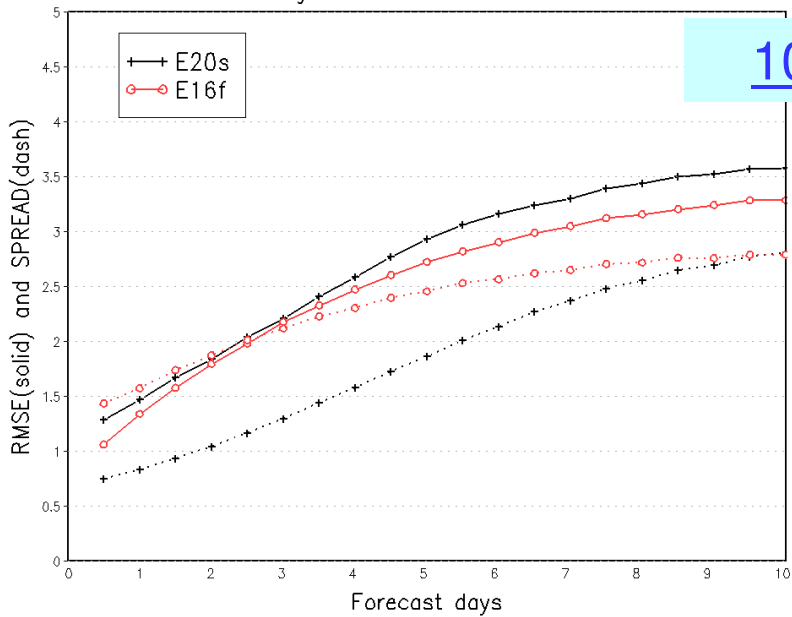
Raw ensemble forecasts

Very closed skills

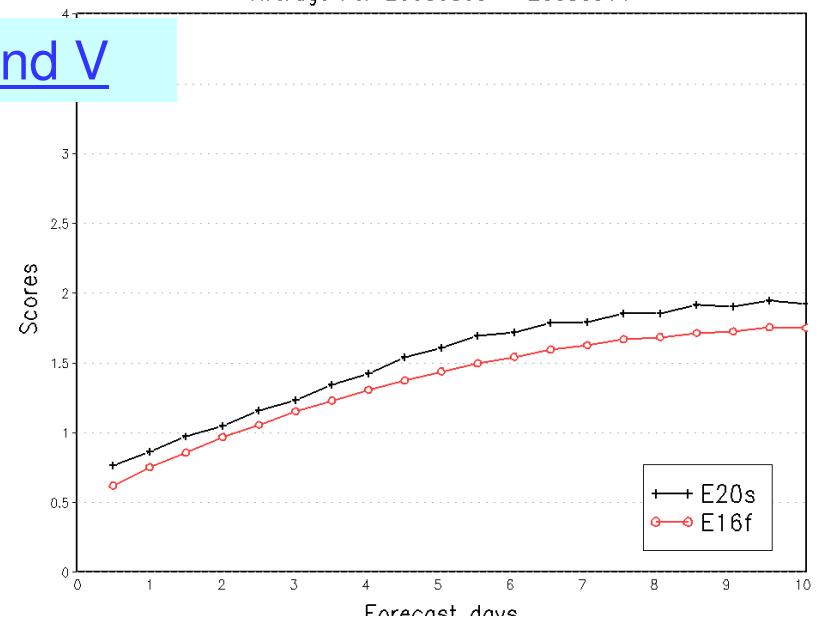
NCEP has more resolution

FNMOC is more reliable

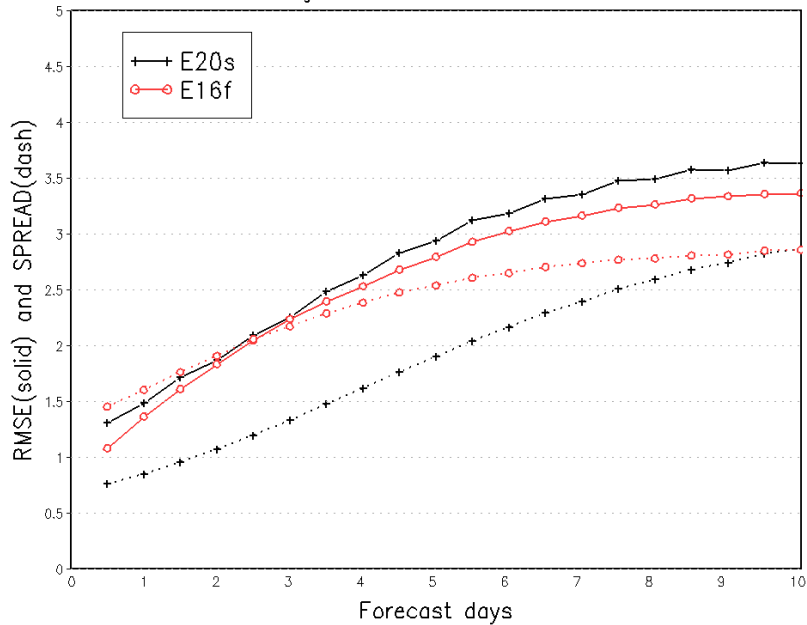
Northern Hemisphere 10 Meter U(wind)  
Ensemble Mean RMSE and Ensemble SPREAD  
Average For 20080805 - 20080914



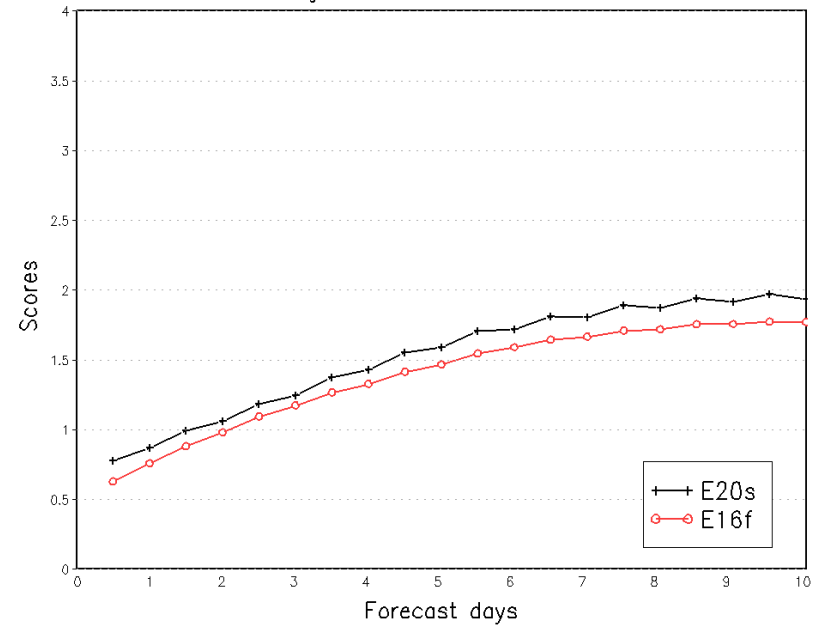
Northern Hemisphere 10 Meter U(wind)  
Continuous Ranked Probability Scores  
Average For 20080805 - 20080914



Northern Hemisphere 10 Meter V(wind)  
Ensemble Mean RMSE and Ensemble SPREAD  
Average For 20080805 - 20080914

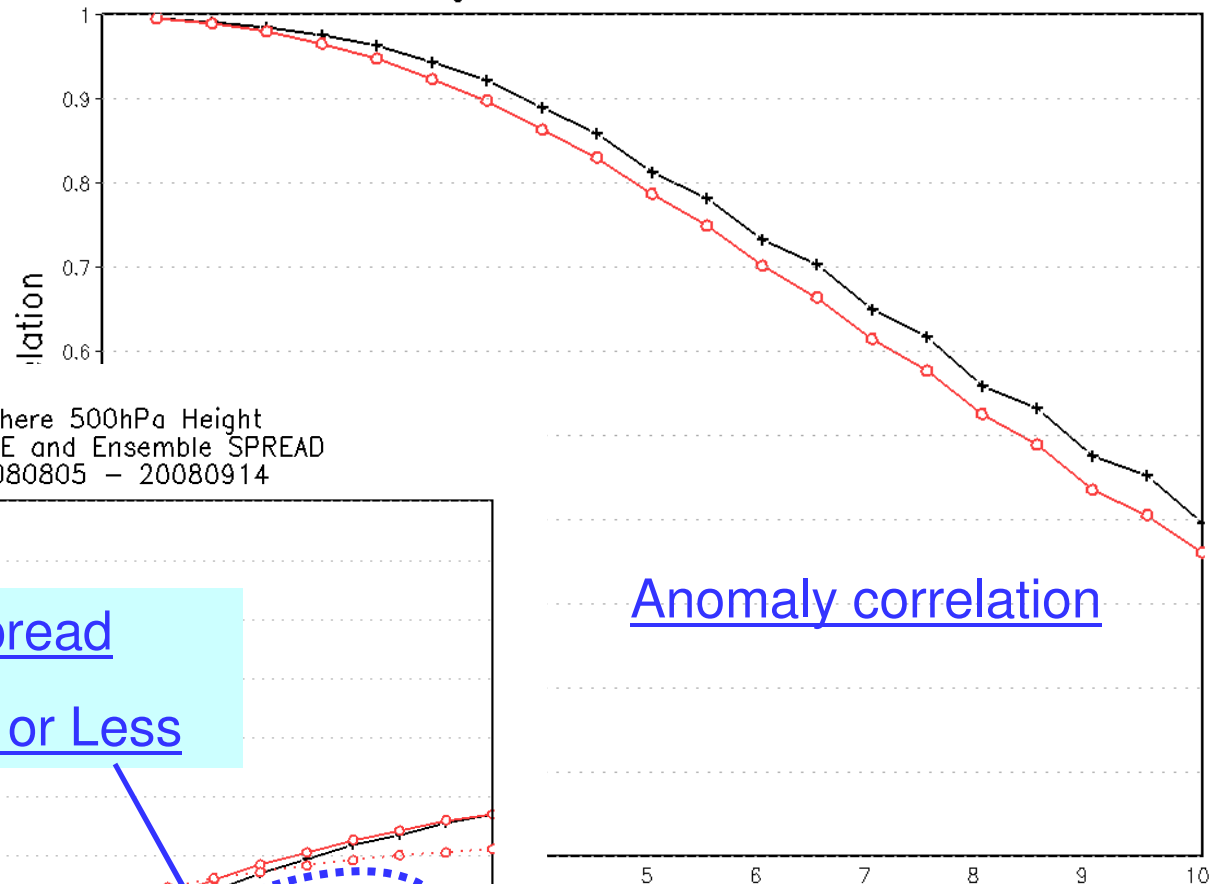


Northern Hemisphere 10 Meter V(wind)  
Continuous Ranked Probability Scores  
Average For 20080805 - 20080914

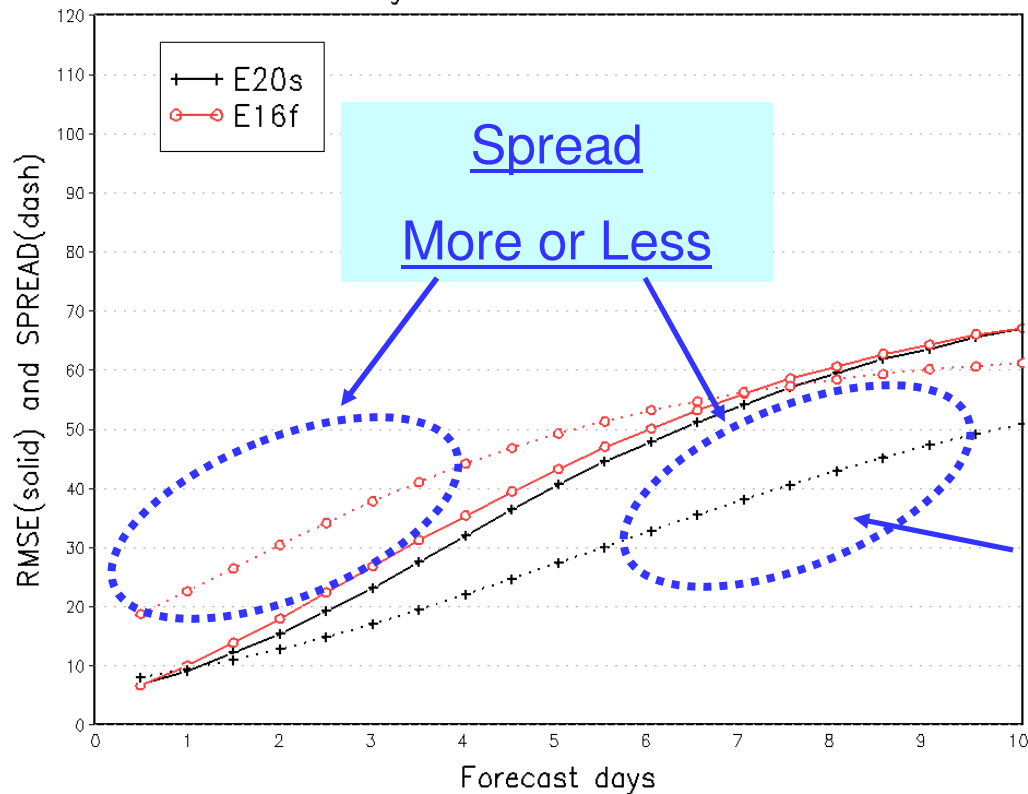


## 500hPa height

Northern Hemisphere 500hPa Height  
Ensemble Mean Anomaly Correlation  
Average For 20080805 - 20080914



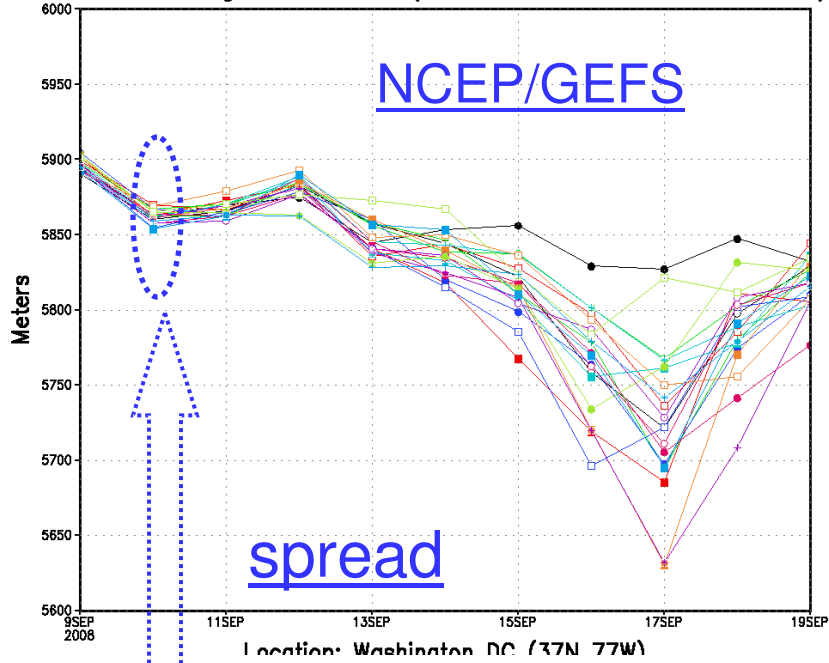
Northern Hemisphere 500hPa Height  
Ensemble Mean RMSE and Ensemble SPREAD  
Average For 20080805 - 20080914



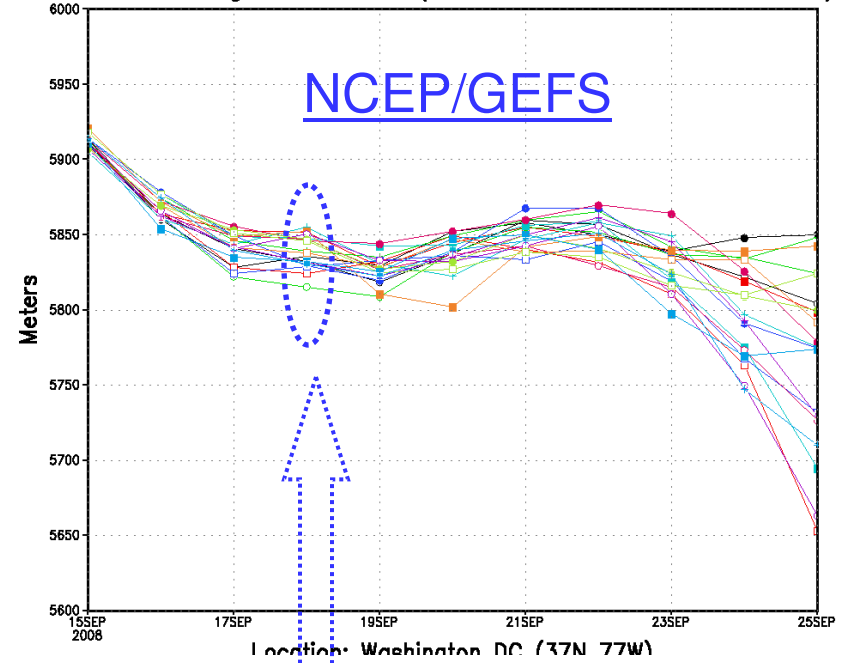
## Anomaly correlation

It will be much improved from coming NCEP/GEFS implementation, through introduce stochastic scheme and high orders horizontal diffusion

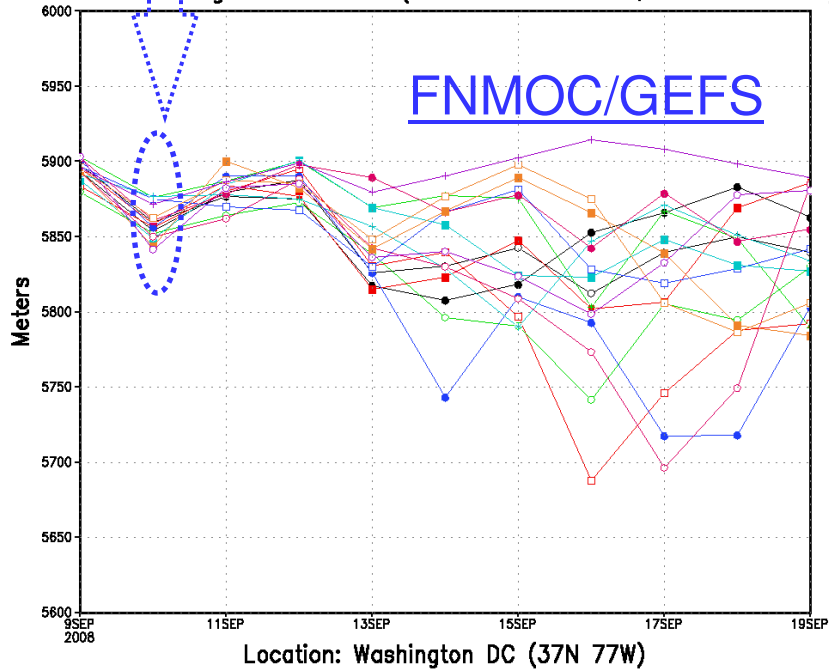
500hPa Height Forecast (Ini: 2008090900; NCEP 20m)



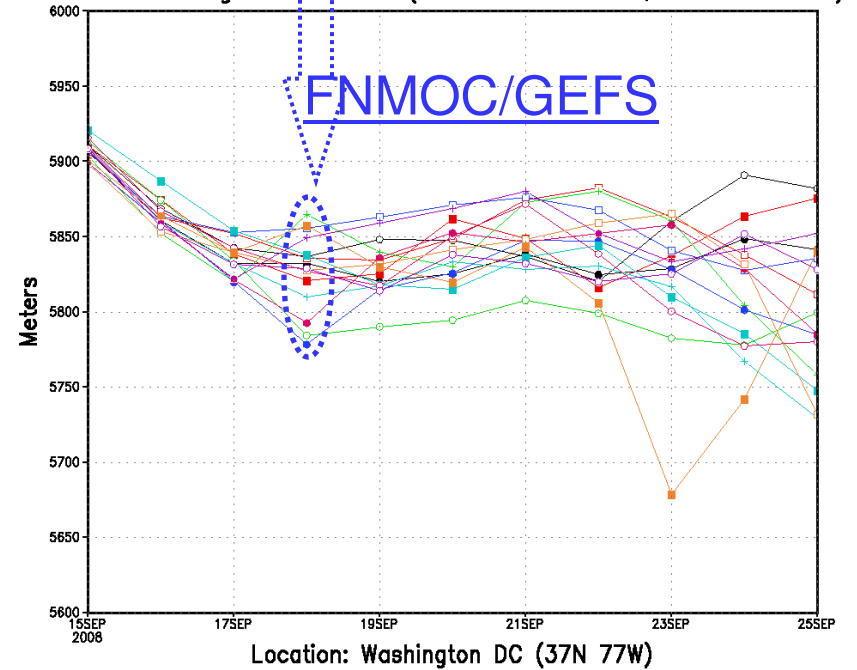
500hPa Height Forecast (Ini: 2008091500; NCEP 20m)



500hPa Height Forecast (Ini: 2008090900; FNMOC 16m)

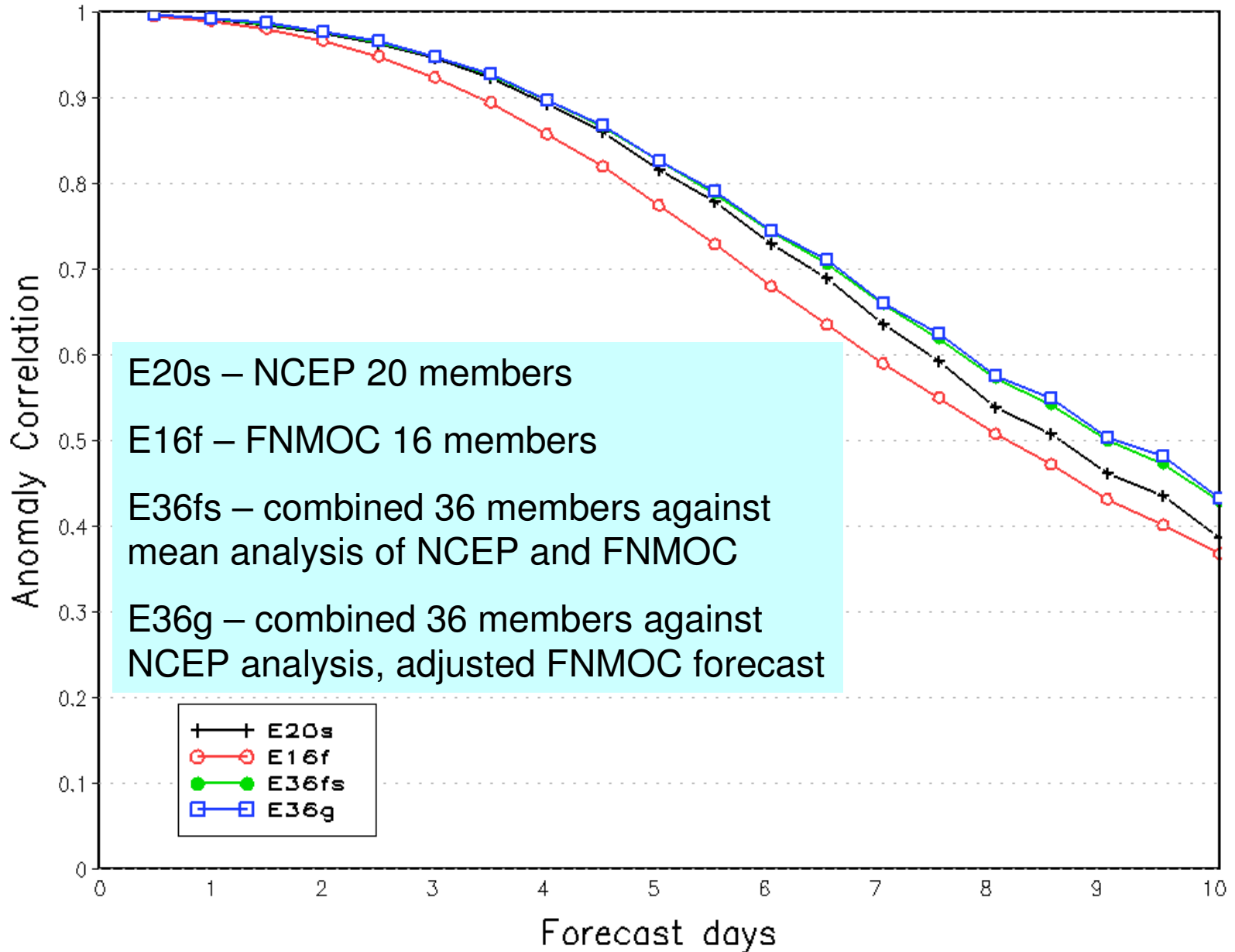


500hPa Height Forecast (Ini: 2008091500; FNMOC 16m)



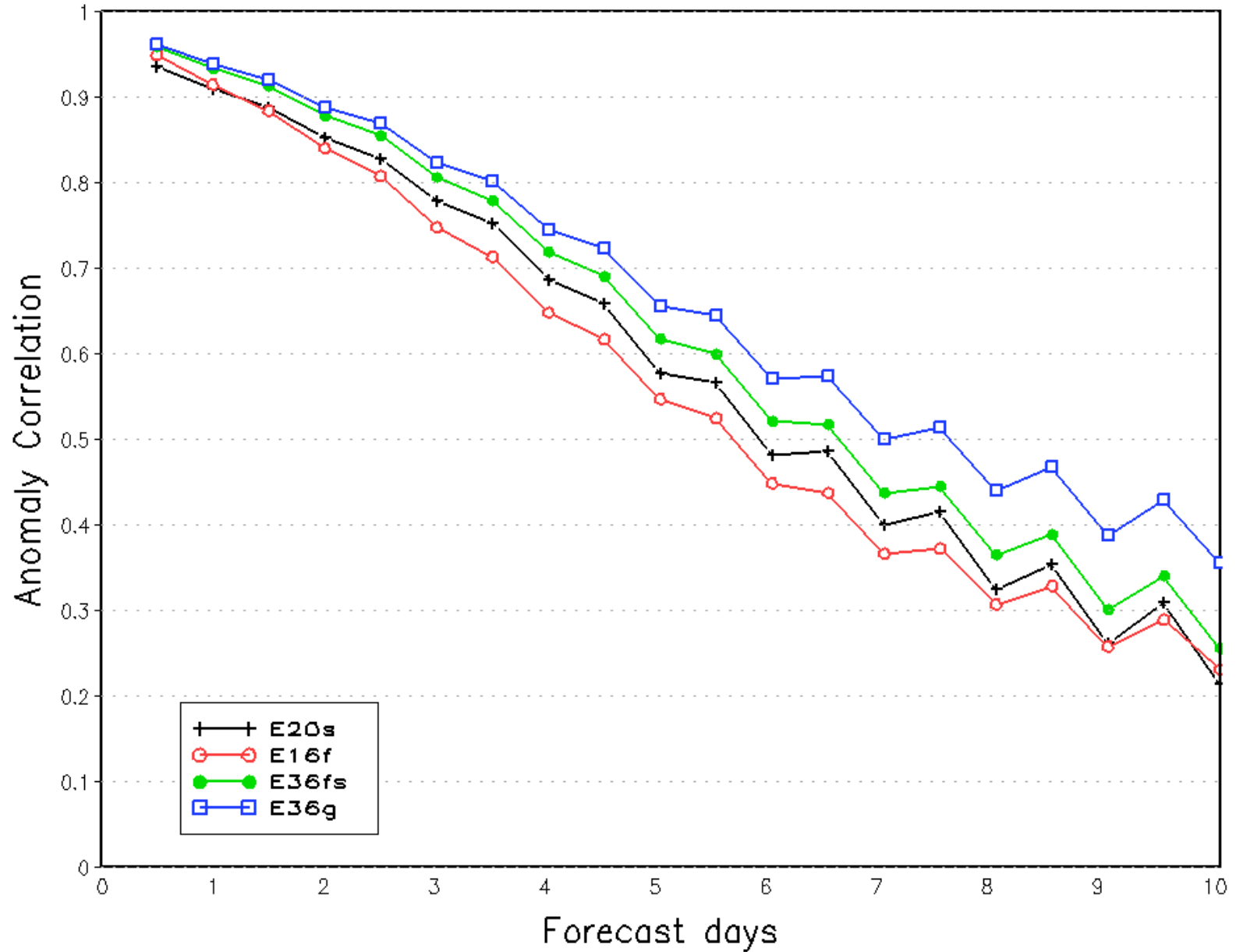
Longer period, quick comparison

Northern Hemisphere 500hPa Height  
Ensemble Mean Anomaly Correlation  
Average For 20080805 – 20081010

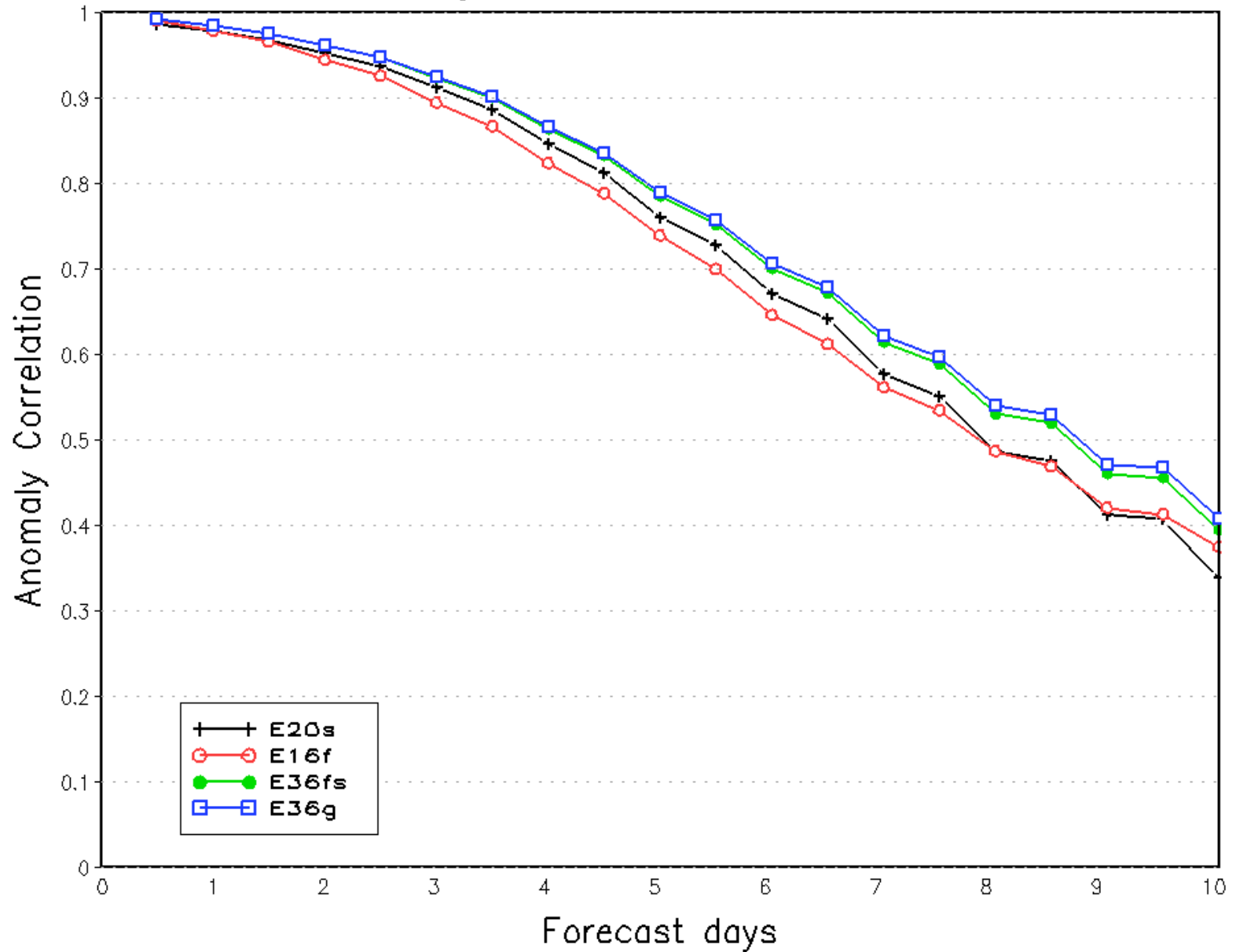




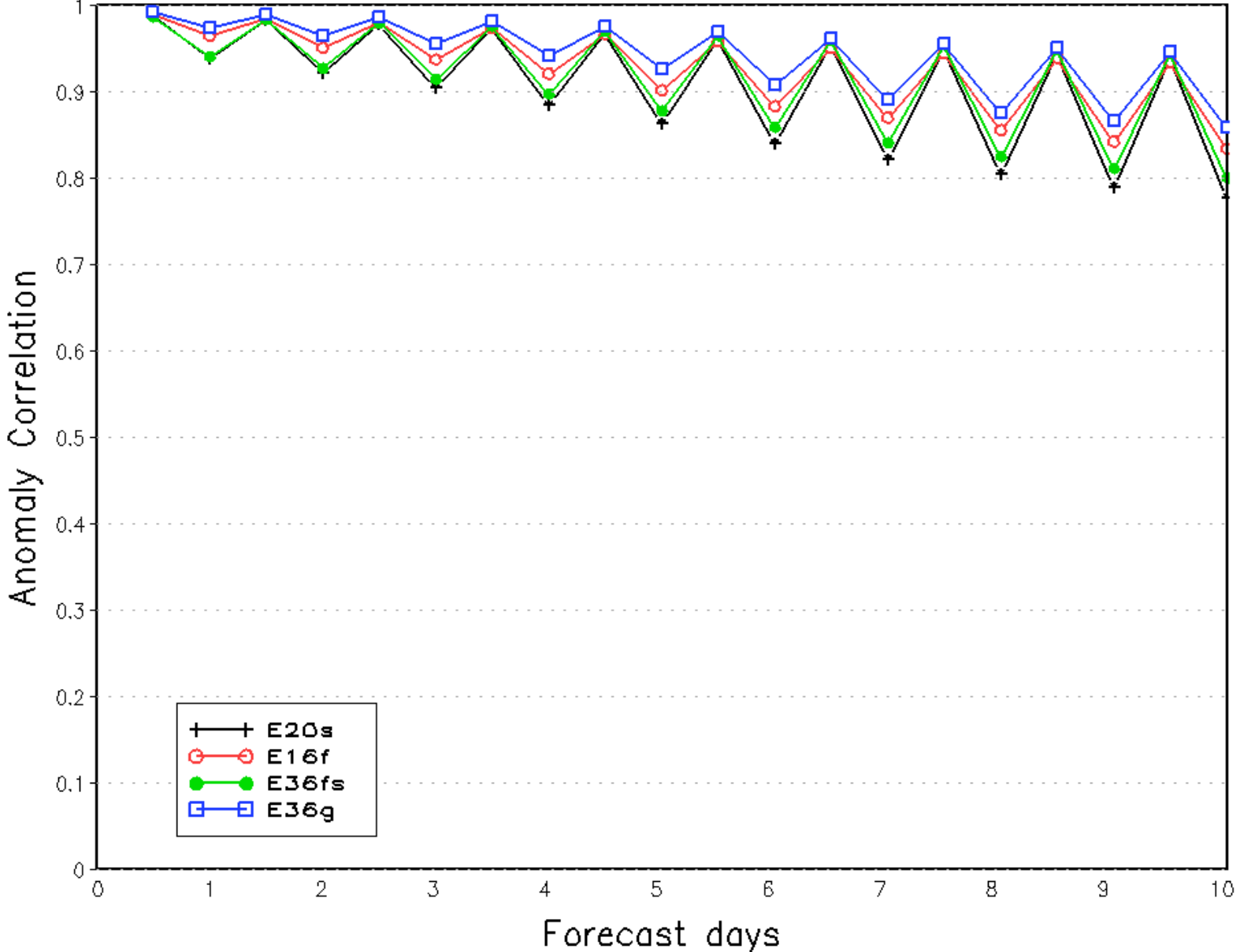
Northern Hemisphere 10 Meter U(wind)  
Ensemble Mean Anomaly Correlation  
Average For 20080805 - 20081010



Northern Hemisphere 1000hPa Height  
Ensemble Mean Anomaly Correlation  
Average For 20080805 - 20081010

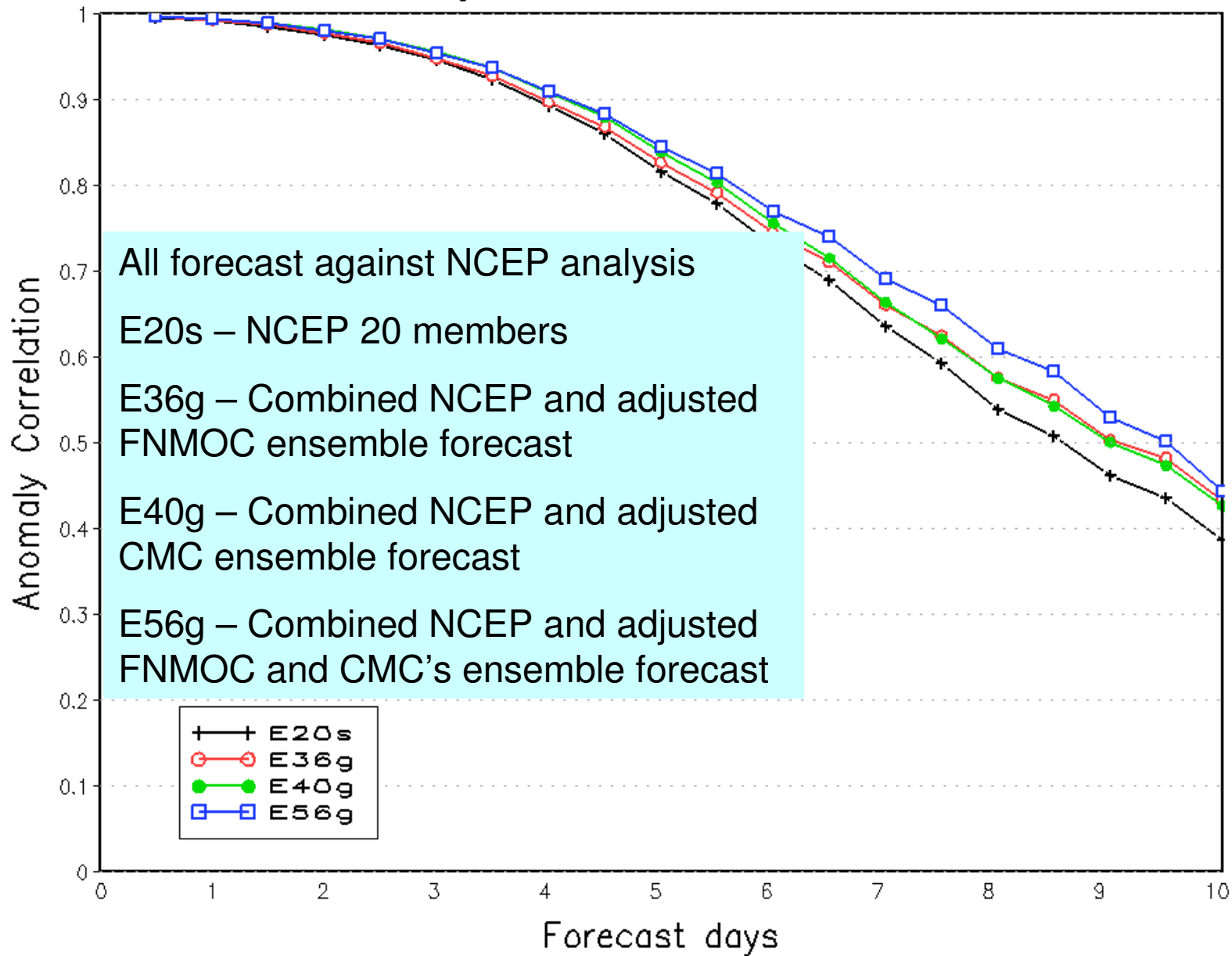


Northern Hemisphere 2 Meter Temp.  
Ensemble Mean Anomaly Correlation  
Average For 20080805 – 20081010

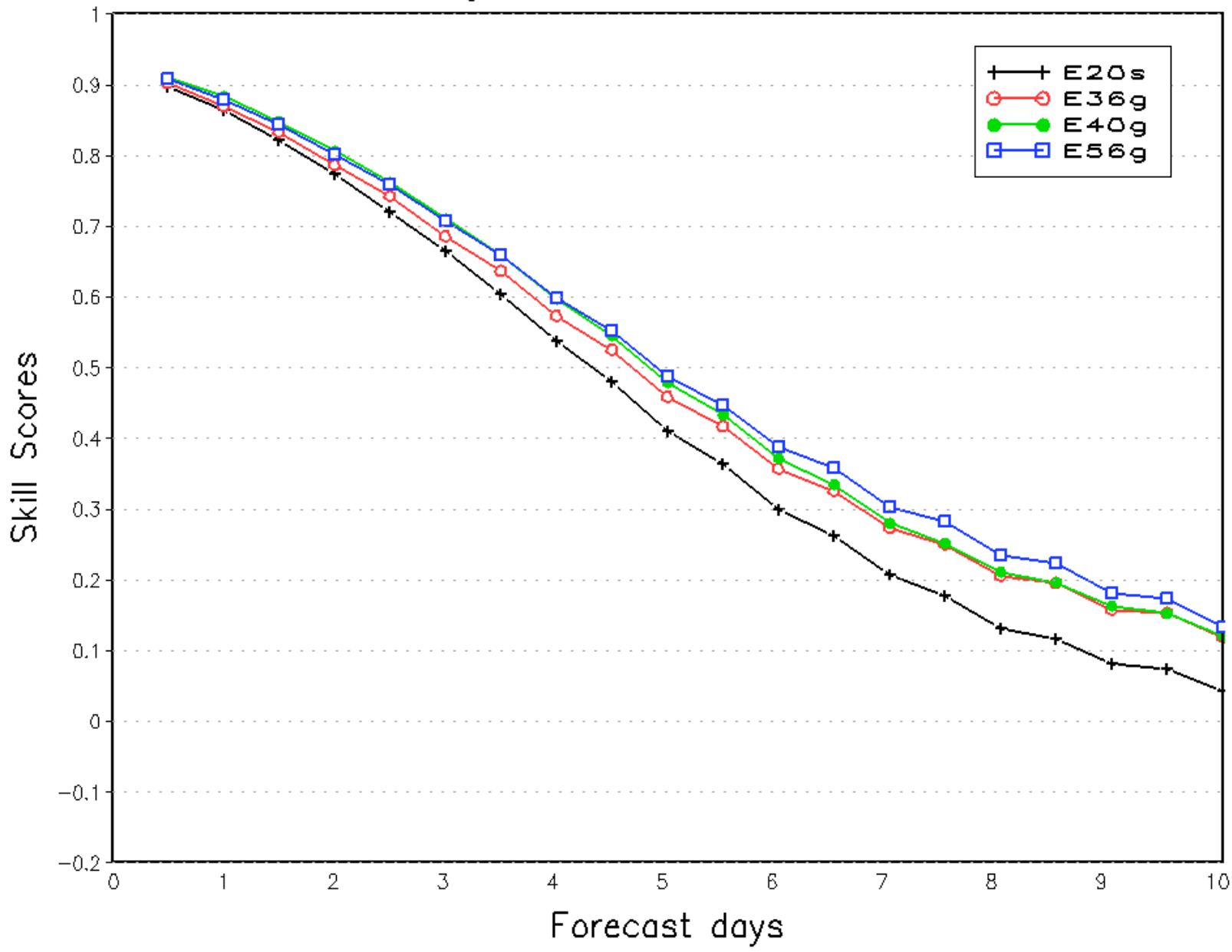


Longer period, varied combination (joined ensemble)

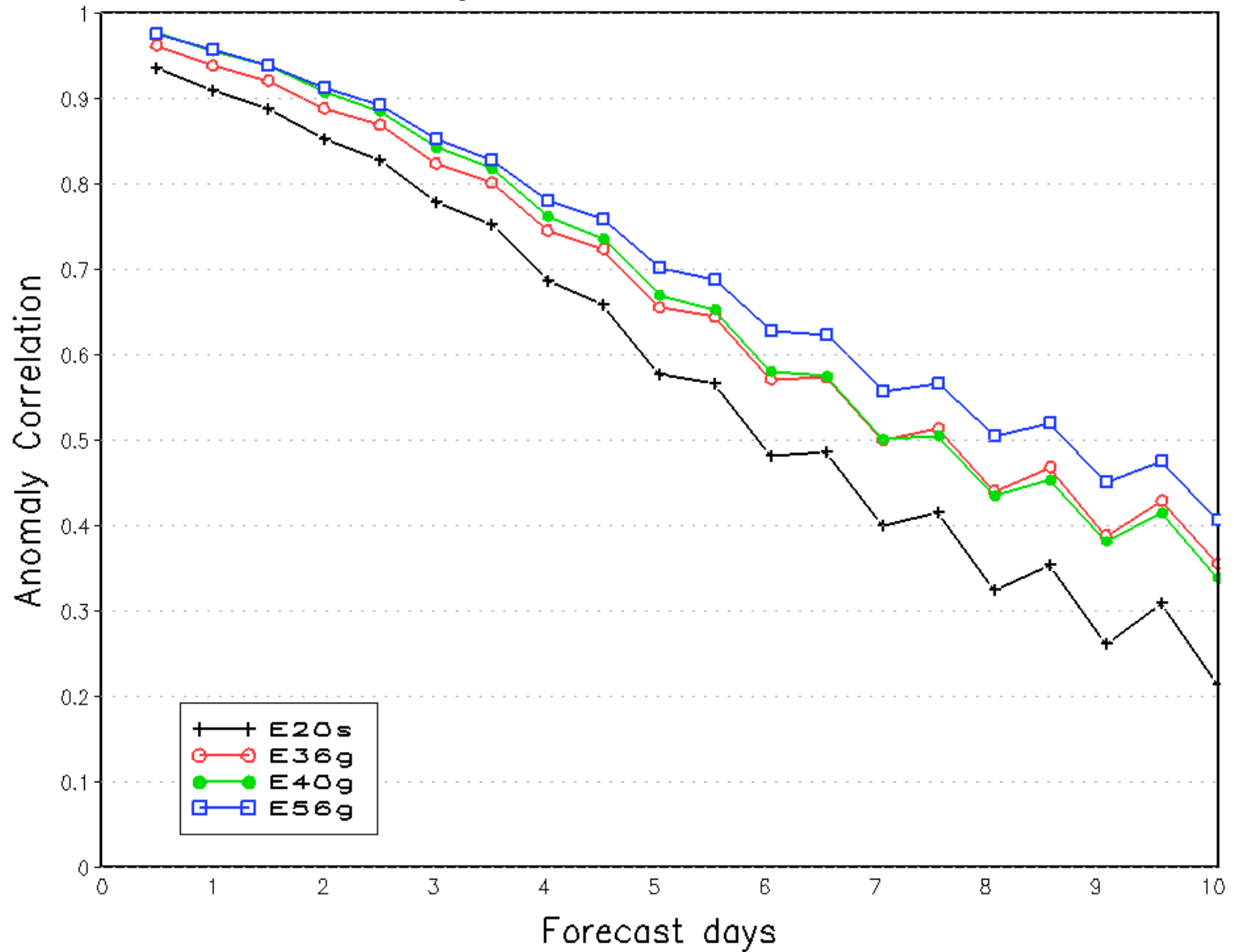
Northern Hemisphere 500hPa Height  
Ensemble Mean Anomaly Correlation  
Average For 20080805 – 20081010



Northern Hemisphere 500hPa Height  
Continuous Ranked Probability Skill Scores  
Average For 20080805 - 20081010



Northern Hemisphere 10 Meter U(wind)  
Ensemble Mean Anomaly Correlation  
Average For 20080805 – 20081010



Northern Hemisphere 10 Meter U(wind)  
Continuous Ranked Probability Skill Scores  
Average For 20080805 - 20081010

