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**ENSEMBLES stream 1 seasonal simulations  
1991-2000**

November start dates (14 months forecasts)

**SST**

&

**precipitation**

**multi-model at different regions**

Multi-model: initial condition ensembles of  
IFS/HOPE (ECMWF), GloSea (MetOffice), Arpege/OPA (MeteoFrance),  
ECHAM5/MPI-OM1 (IfM Kiel) and DePreSys (MetOffice)

15 February 2007

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**Individual models:**

**IFS/HOPE (ECMWF)**

**GloSea (MetOffice)**

**Arpege/OPA (MeteoFrance)**

**ECHAM5/MPI-OM1 (IfM Kiel)**

**DePreSys (MetOffice)**

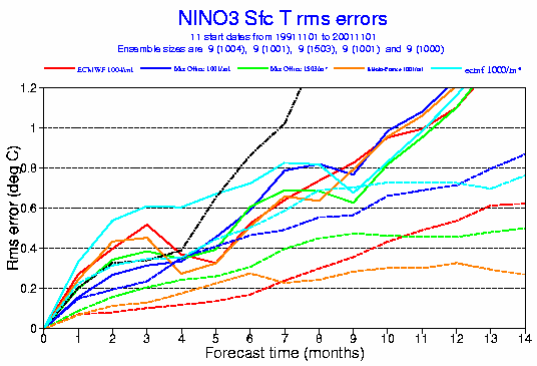
Solid coloured lines: RMSE

Dashed coloured lines: ensemble spread

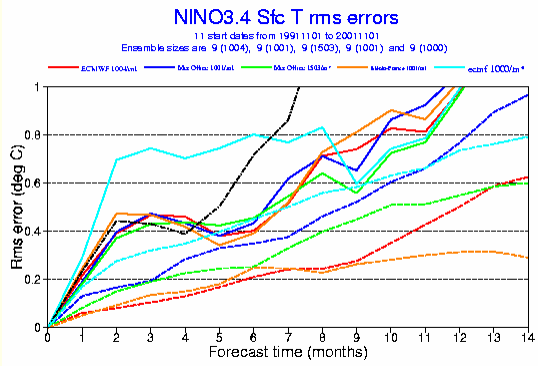
Dashed black line: RMSE of persistence forecast (reference)

# seasonal forecasts 1991-2001 Nov dates: RMSE and spread

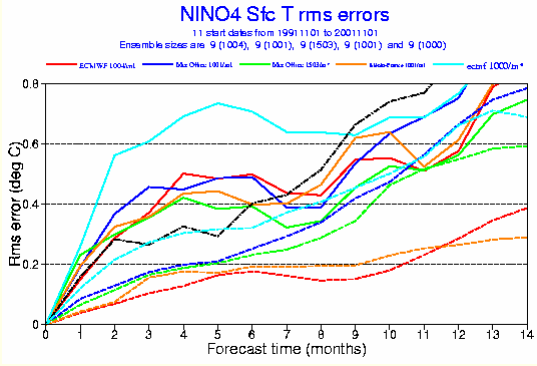
## SST Nino3



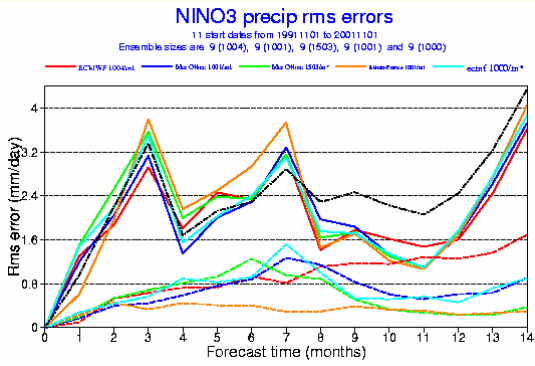
## SST Nino3.4



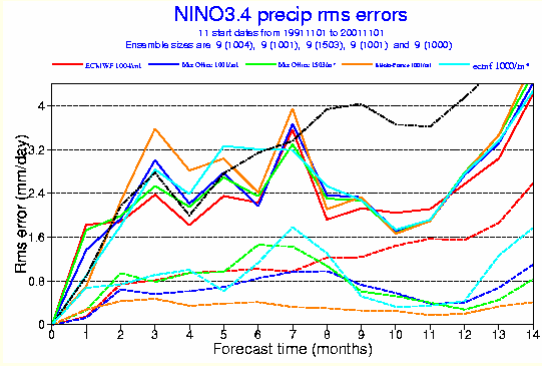
## SST Nino4



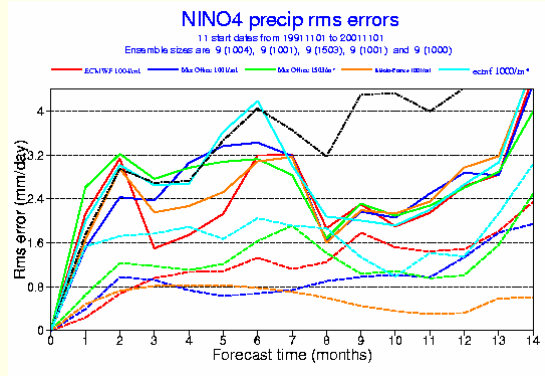
## precip Nino3



## precip Nino3.4

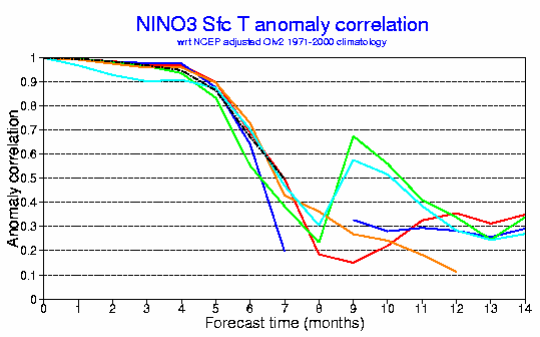


## precip Nino4

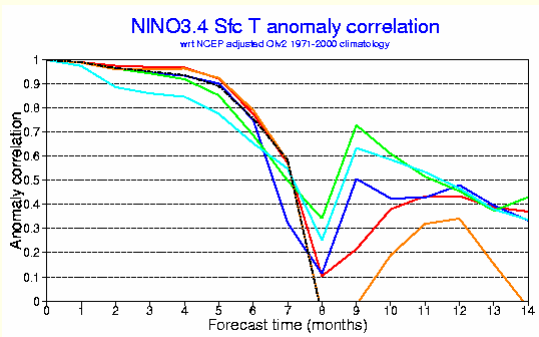


# seasonal forecasts 1991-2001 Nov dates: Anomaly correlation

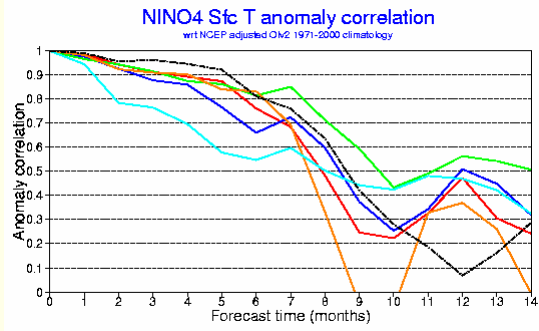
## SST Nino3



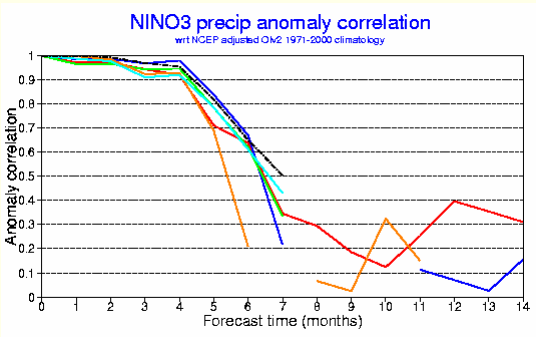
## SST Nino3.4



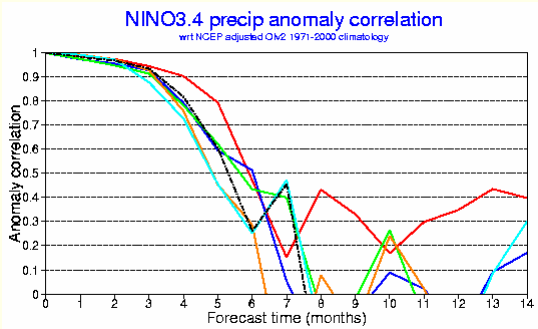
## SST Nino4



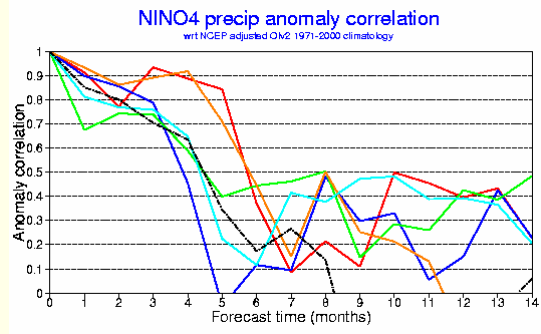
## precip Nino3



## precip Nino3.4

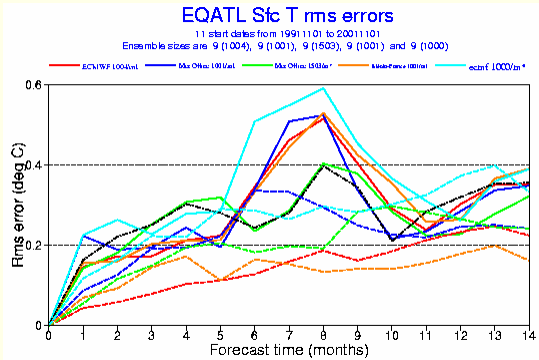


## precip Nino4

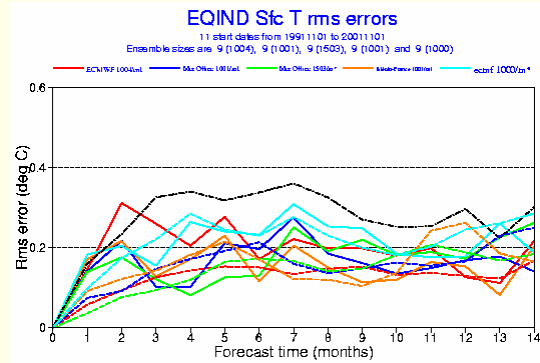


# seasonal forecasts 1991-2001 Nov dates: RMSE and spread

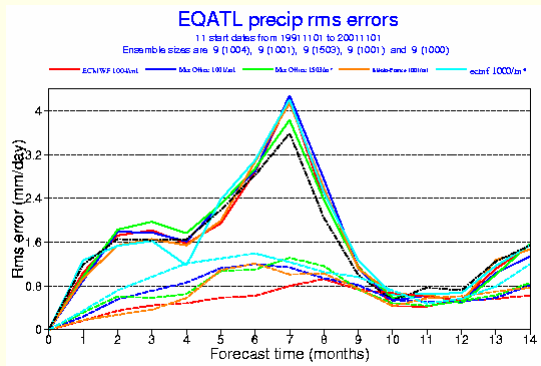
## SST eq. Atlantic



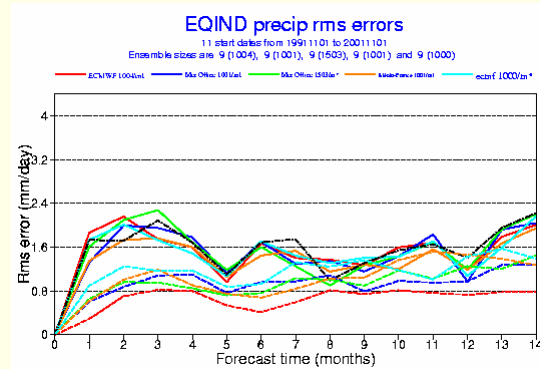
## SST eq. Indian Ocean



## precip eq. Atlantic

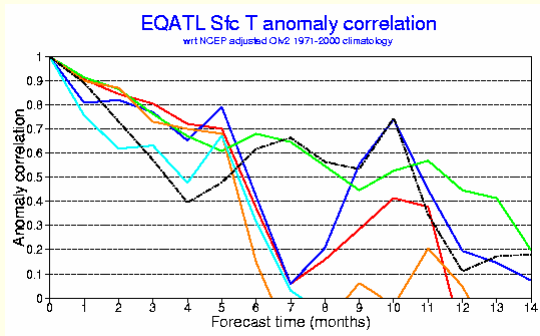


## precip eq. Indian Ocean

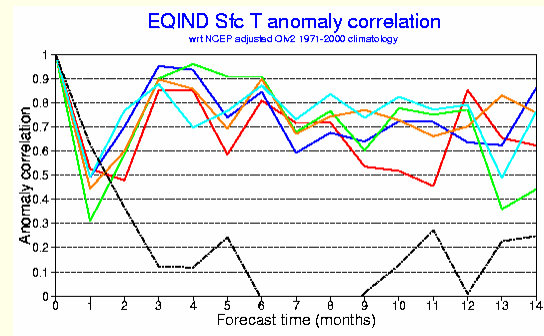


# seasonal forecasts 1991-2001 Nov dates: Anomaly correlation

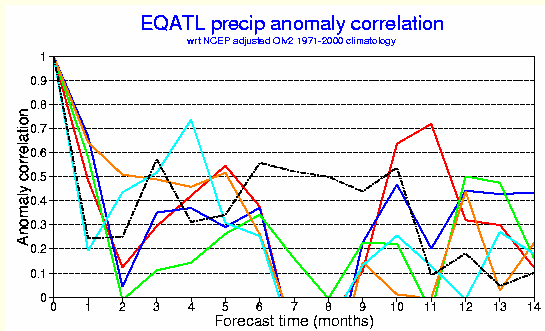
## SST eq. Atlantic



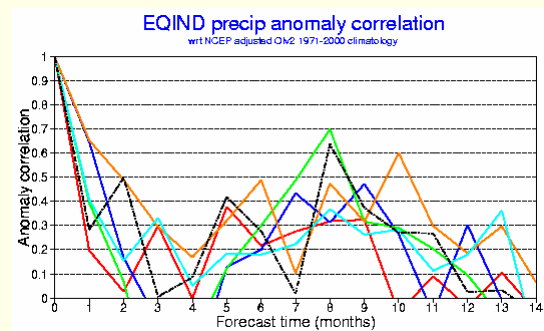
## SST eq. Indian Ocean



## precip eq. Atlantic

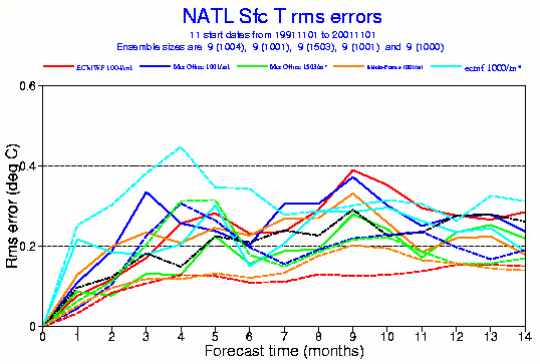


## precip eq. Indian Ocean

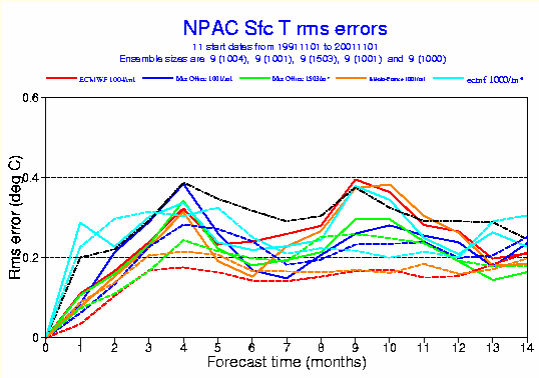


# seasonal forecasts 1991-2001 Nov dates: RMSE and spread

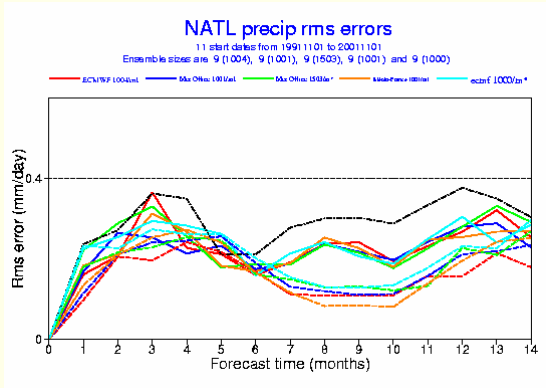
## SST North Atlantic



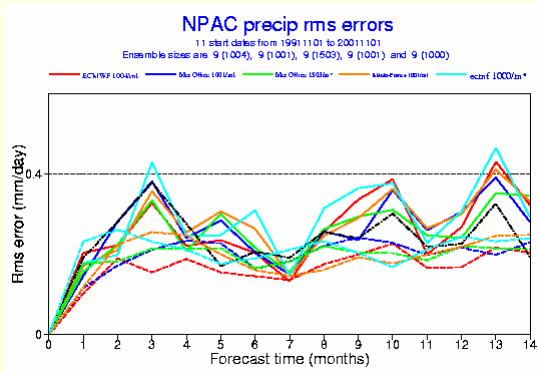
## SST North Pacific



## precip North Atlantic

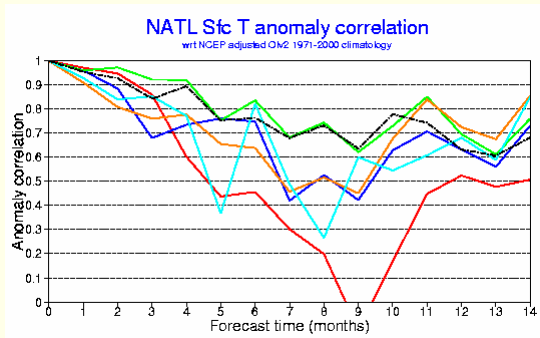


## precip North Pacific

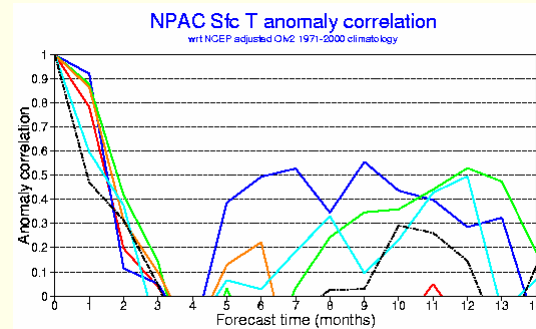


# seasonal forecasts 1991-2001 Nov dates: Anomaly correlation

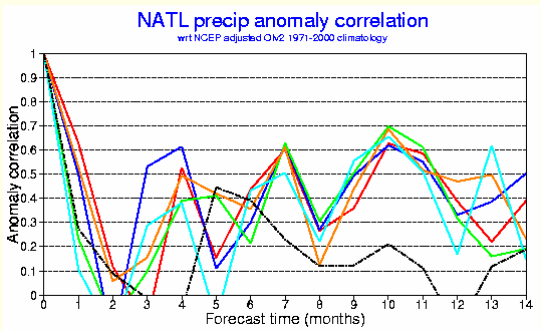
## SST North Atlantic



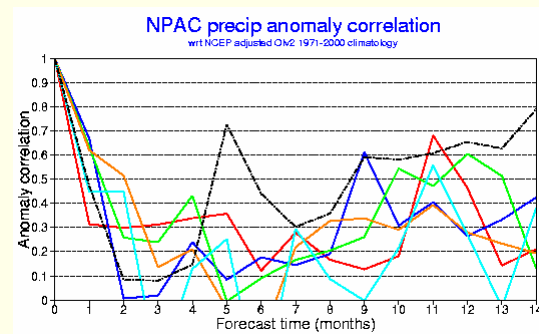
## SST North Pacific



## precip North Atlantic



## precip North Pacific

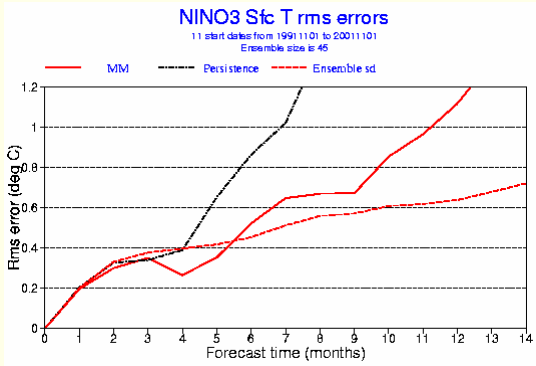


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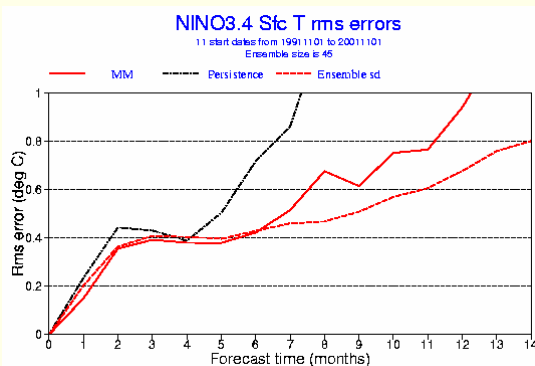
**Individual models combined into multi-model**

# seasonal forecasts 1991-2001 Nov dates: RMSE and spread

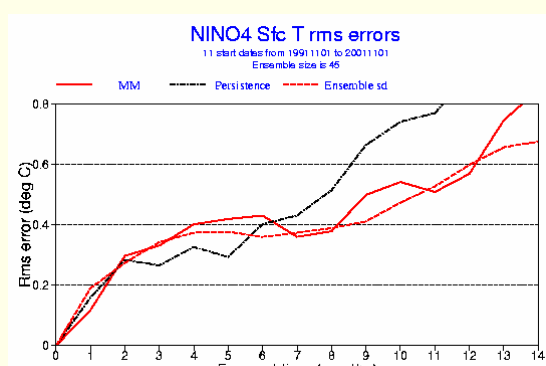
## SST Nino3



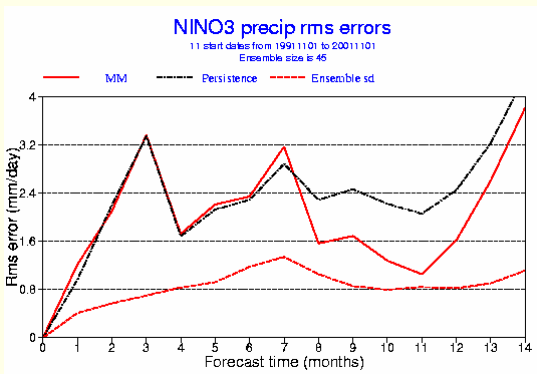
## SST Nino3.4



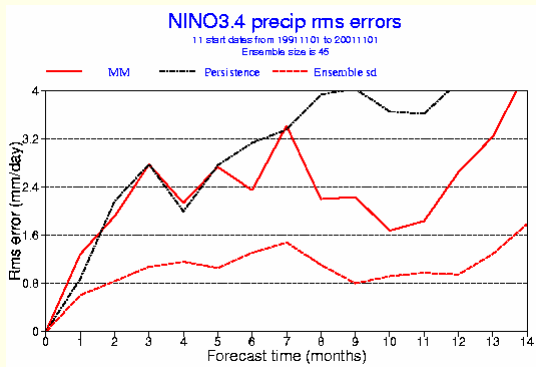
## SST Nino4



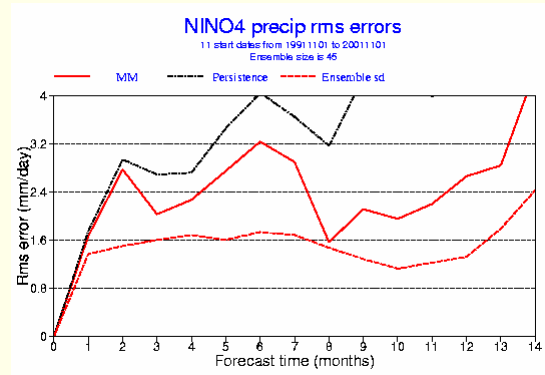
## precip Nino3



## precip Nino3.4

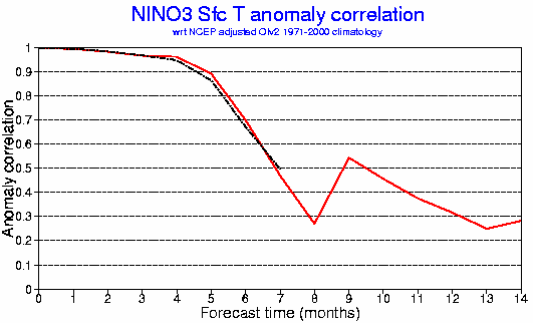


## precip Nino4

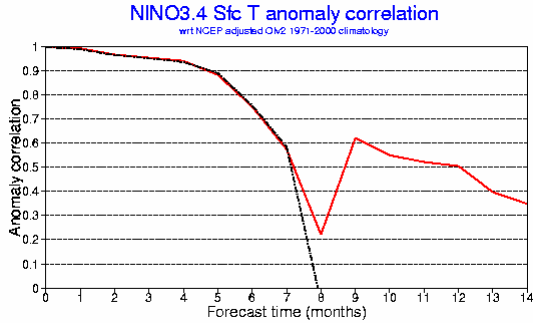


# seasonal forecasts 1991-2001 Nov dates: Anomaly correlation

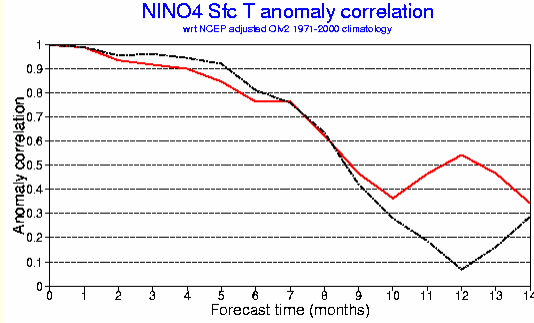
## SST Nino3



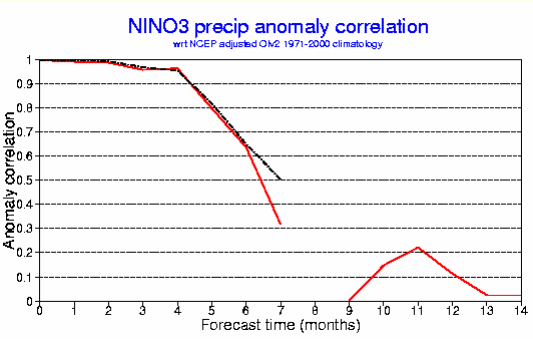
## SST Nino3.4



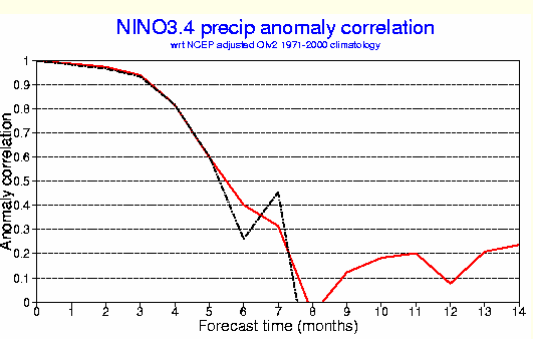
## SST Nino4



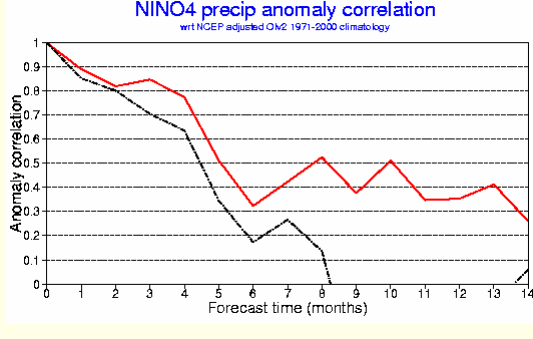
## precip Nino3



## precip Nino3.4

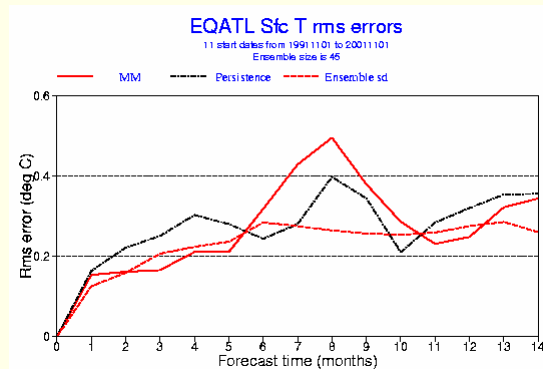


## precip Nino4

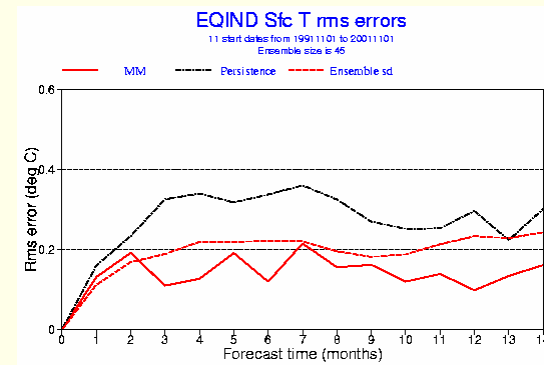


# seasonal forecasts 1991-2001 Nov dates: **RMSE and spread**

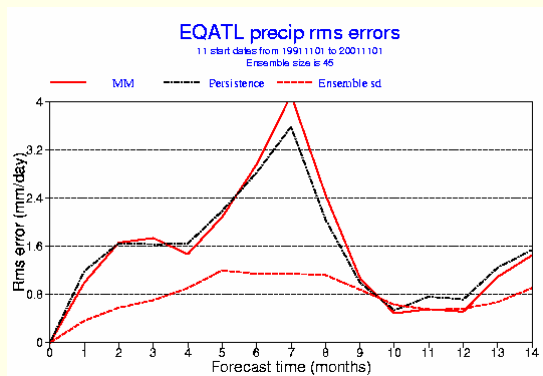
## SST eq. Atlantic



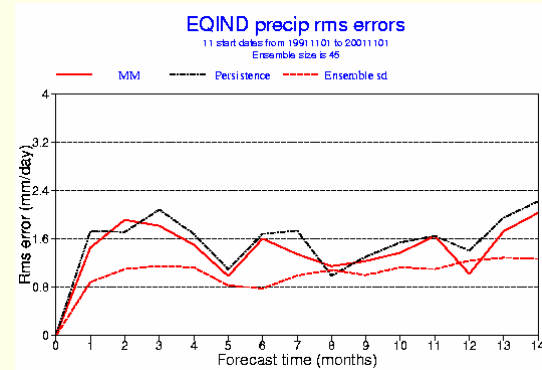
## SST eq. Indian Ocean



## precip eq. Atlantic

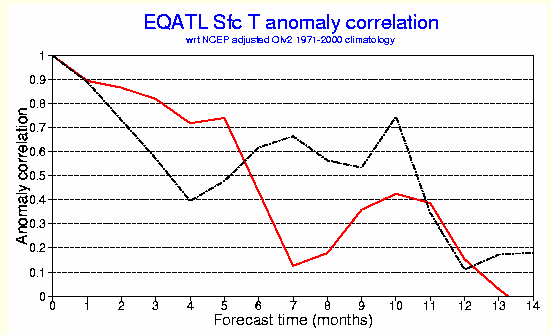


## precip eq. Indian Ocean

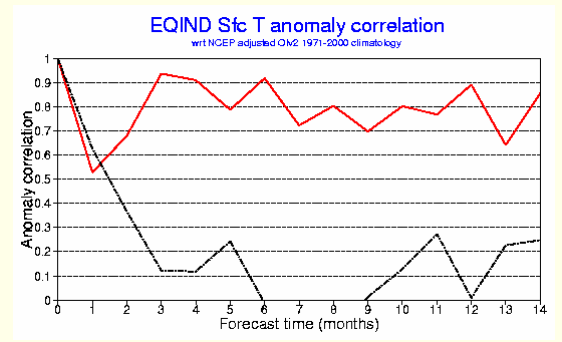


# seasonal forecasts 1991-2001 Nov dates: Anomaly correlation

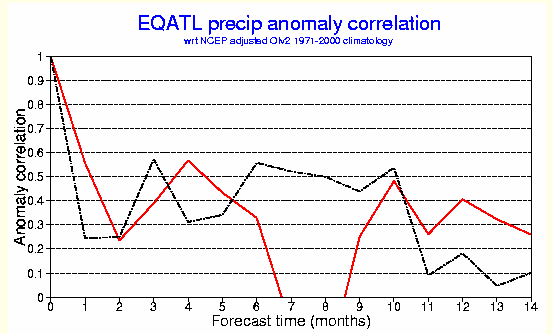
## SST eq. Atlantic



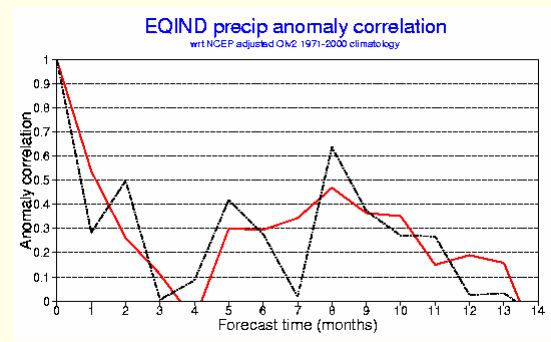
## SST eq. Indian Ocean



## precip eq. Atlantic

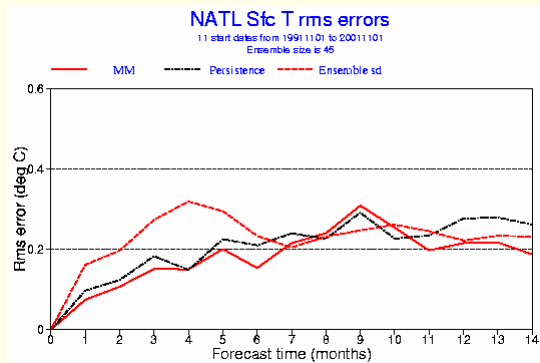


## precip eq. Indian Ocean

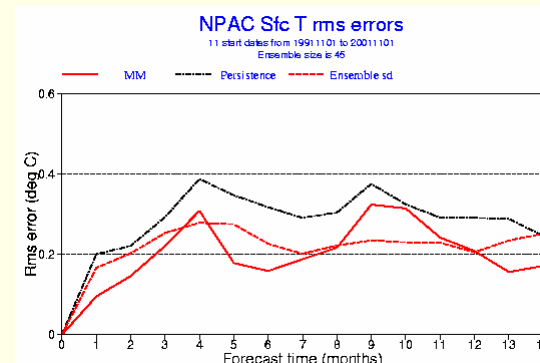


# seasonal forecasts 1991-2001 Nov dates: **RMSE and spread**

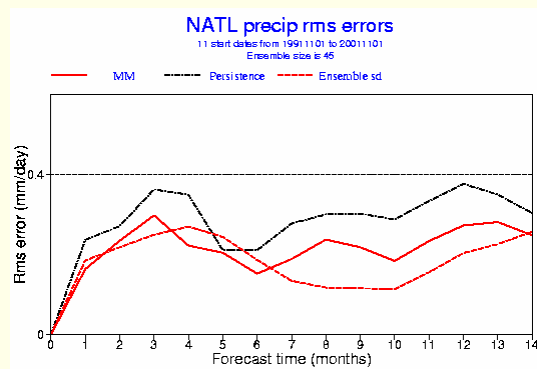
## SST North Atlantic



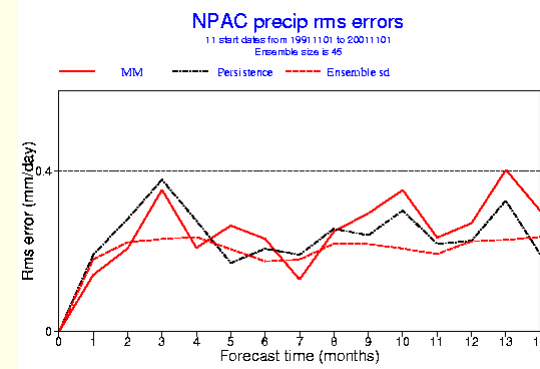
## SST North Pacific



## precip North Atlantic

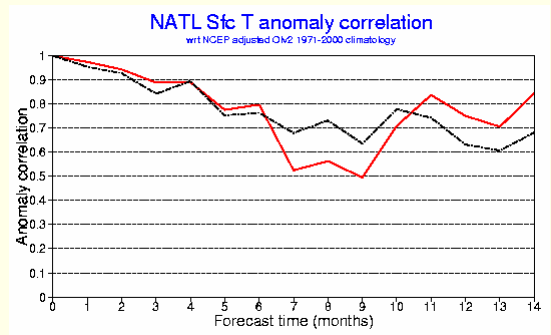


## precip North Pacific

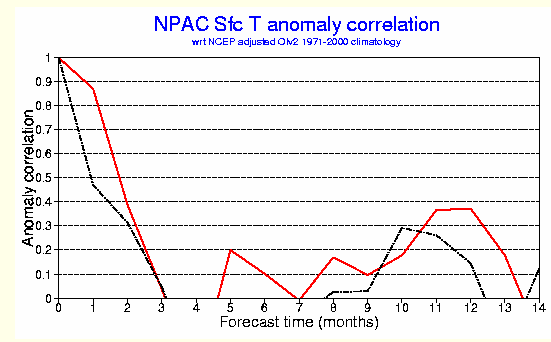


# seasonal forecasts 1991-2001 Nov dates: **Anomaly correlation**

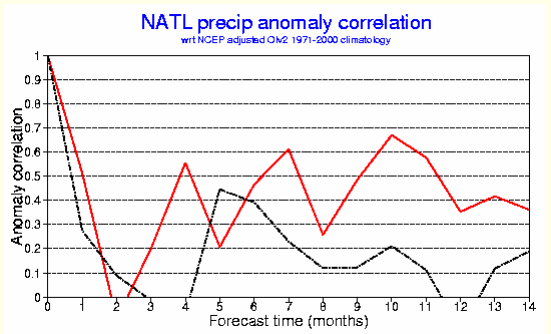
## SST North Atlantic



## SST North Pacific



## precip North Atlantic



## precip North Pacific

