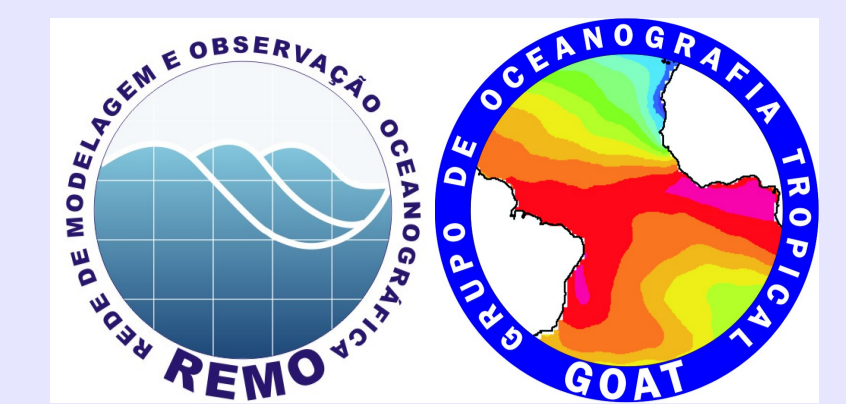


Sensitivity experiments in a 1/24 ROMS configuration along the Southeast Brazilian region



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Abstract:

A set of sensitivity tests were conducted to study the model response to different data forcing sources and temporal and spatial resolution, for the Southeast Brazilian region. The chosen period of simulation was 10 years, from 2004 to 2013.

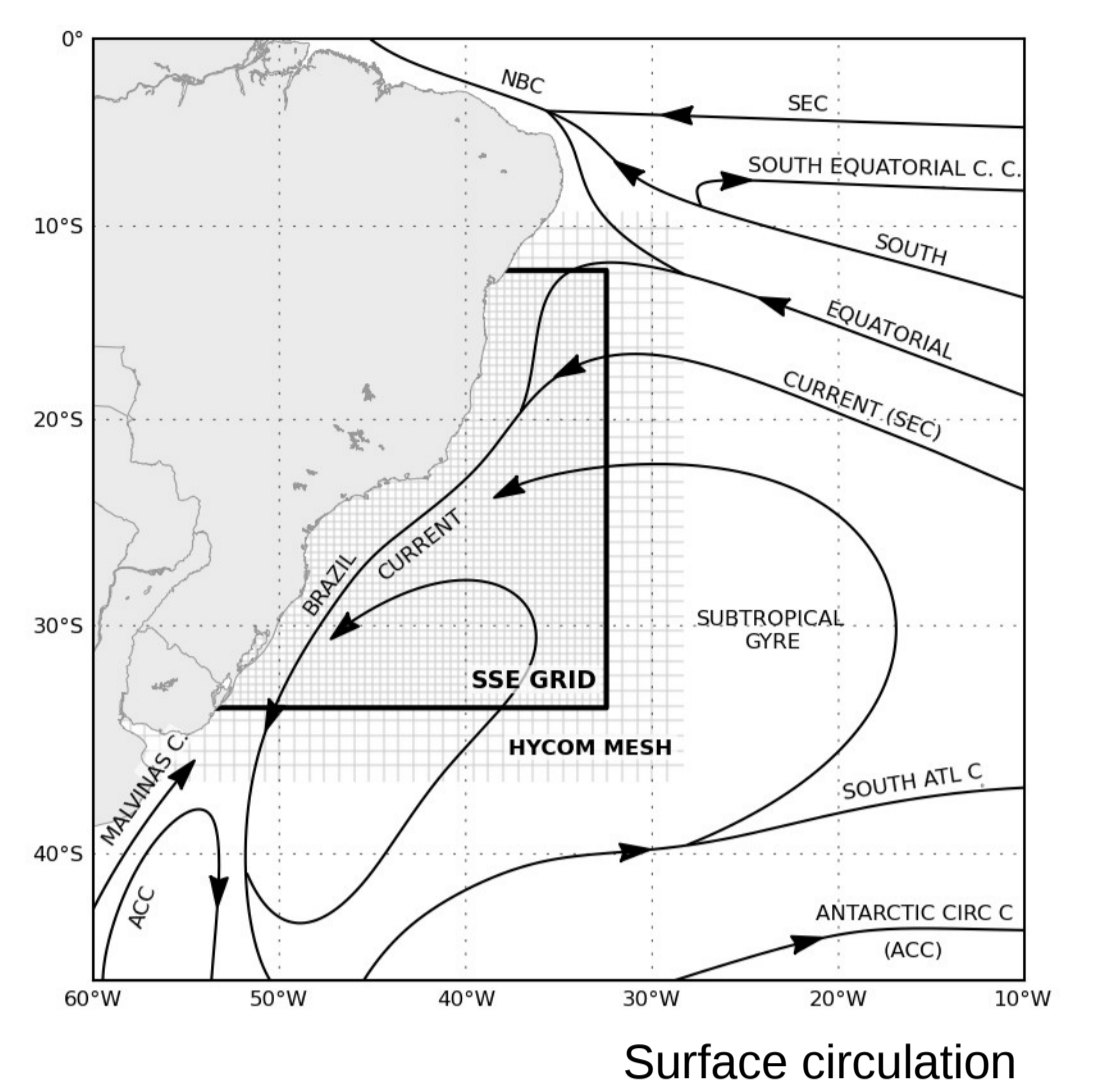
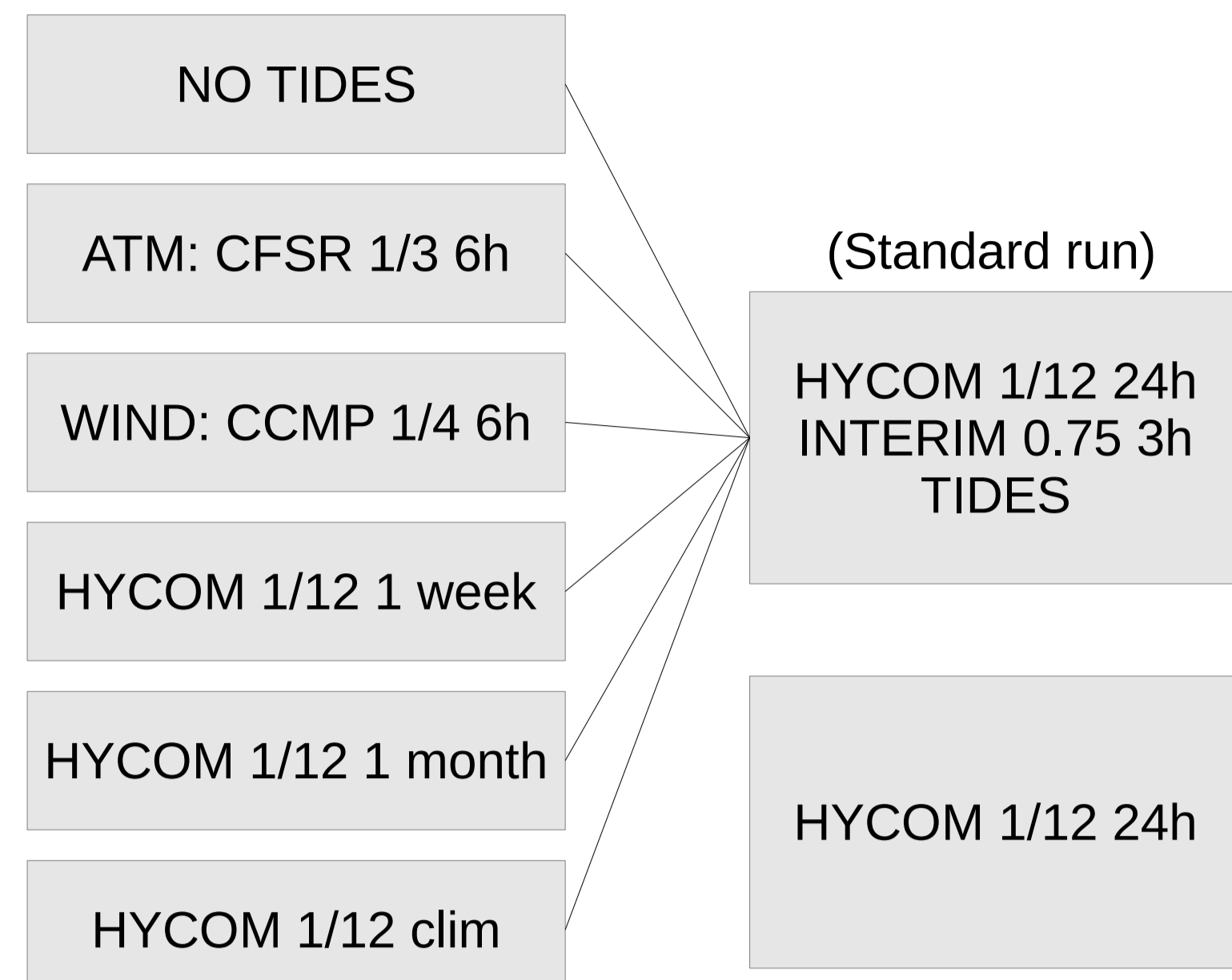
The objectives were:

- i) to identify the best combination of available oceanic and atmospheric forcings and
- ii) to access the model response to events resolved at different temporal and spatial scales.

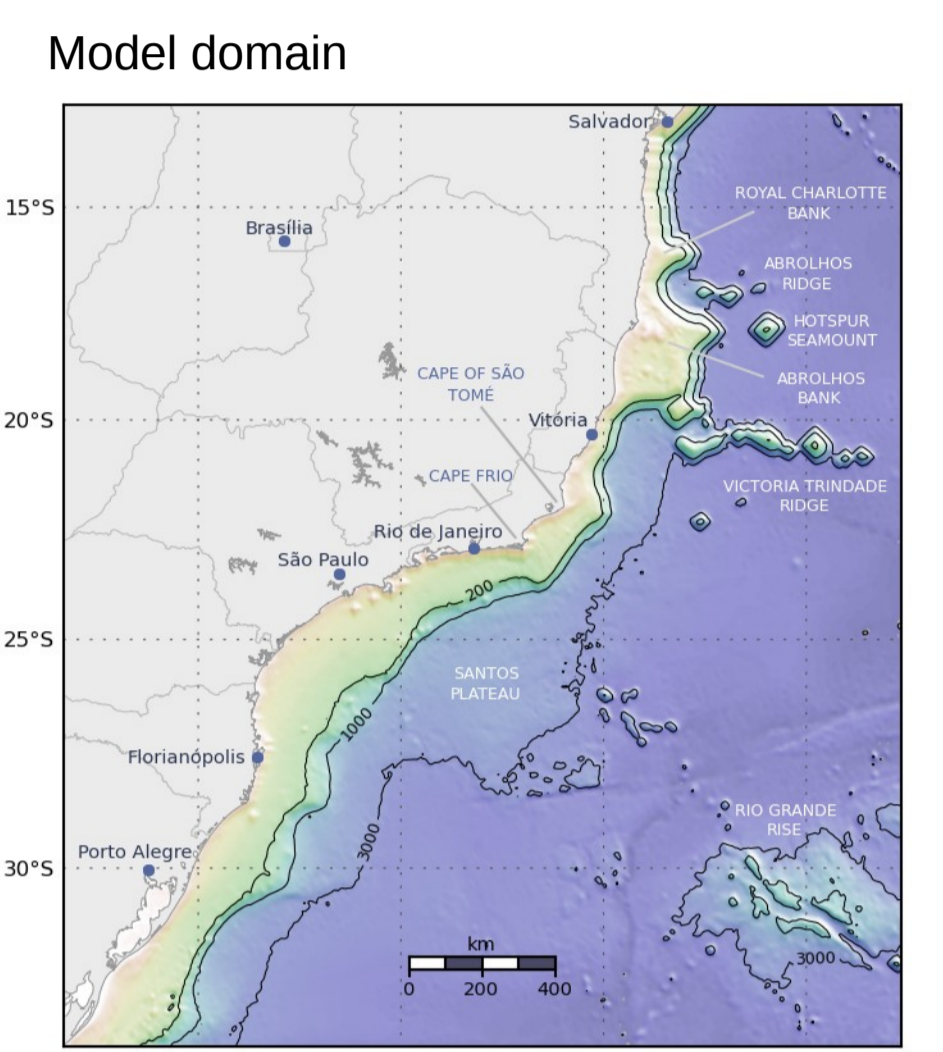
The control run was forced with lateral data from the global model HYCOM/NCODA 1/12, with tides from TPXO and surface data from ERA-INTERIM.

The sensitivity experiments included the periodicity of the lateral forcings, the absence of tidal forcing and changes in the sources of atmospheric data to include CFSR and CCMP (wind only).

The model response to regional and seasonal aspects were analyzed. The results were validated against sea surface satellite temperature and salinity as well as available ARGO profiles during the simulation period.

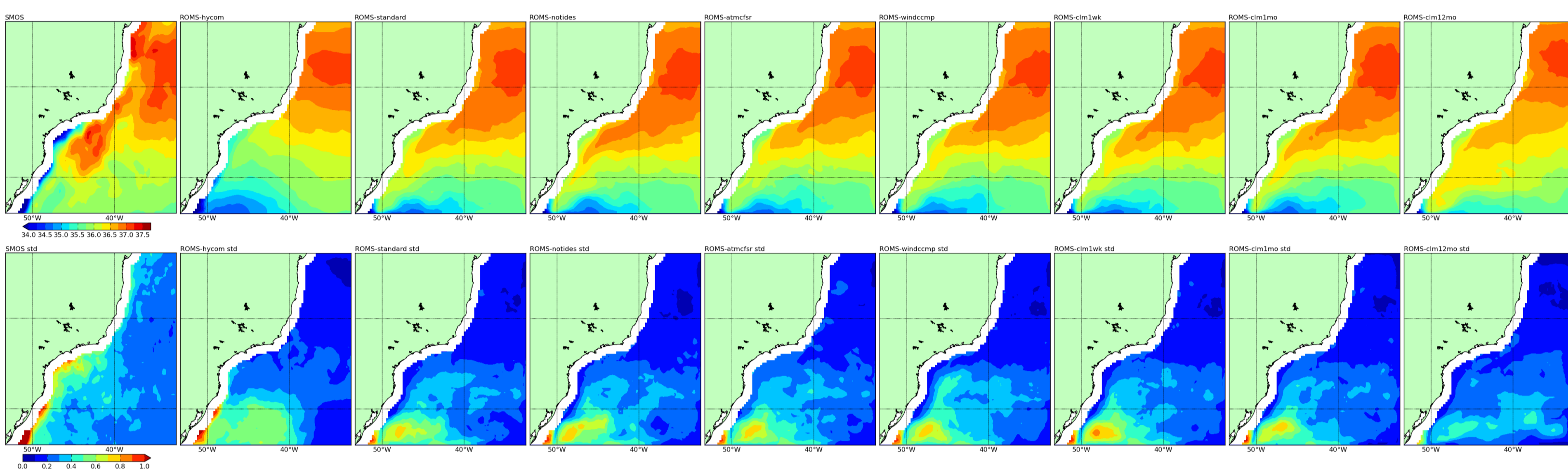


Surface circulation



Model domain

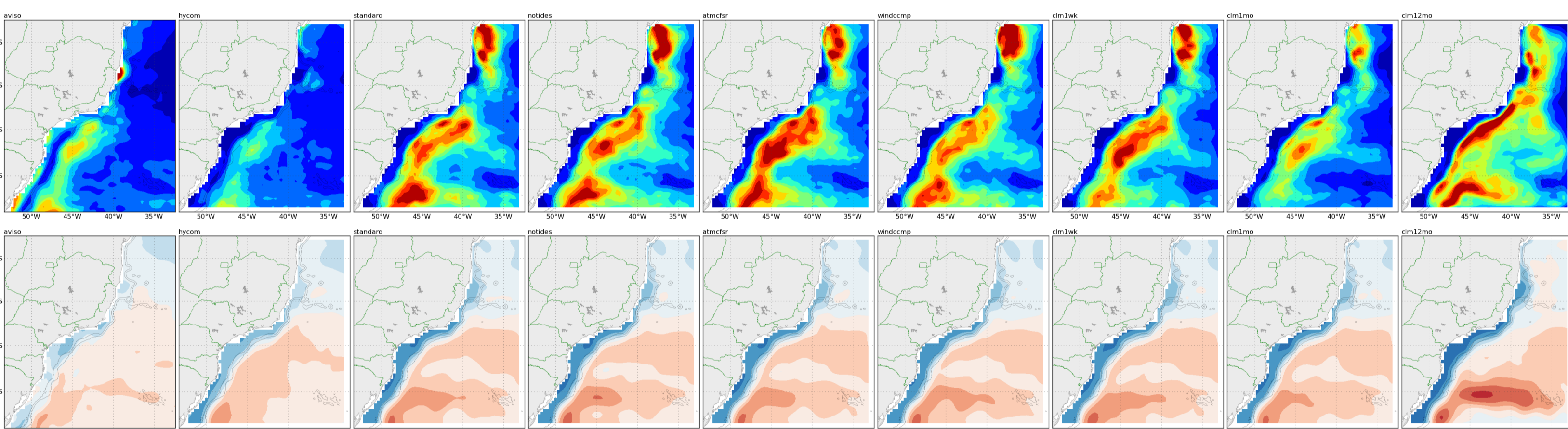
- Standard run + 6 sensitivity tests + parent model = 8 datasets
- 10 years (2004..2013)
- 1/12 horizontal resolution; 32 s-levels



avg

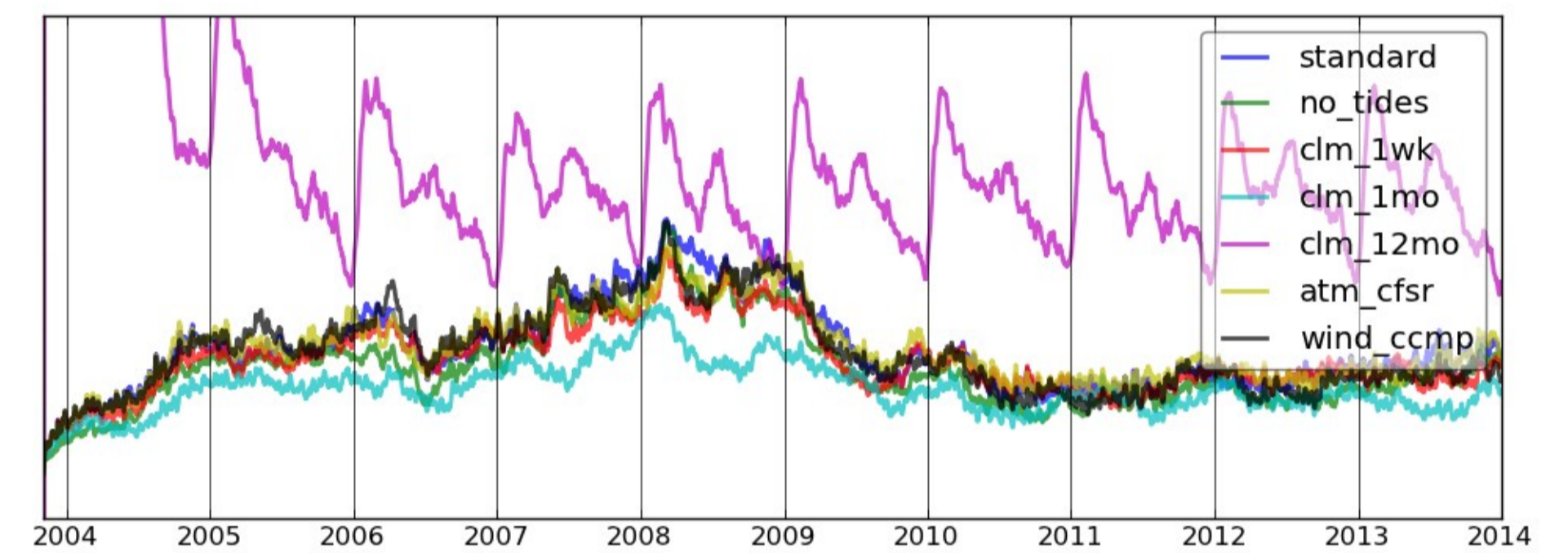
SMOS (sea surf salinity)
Years: 2010,2011,2012
Resolution: 0.25°
Dt: 10 days

std

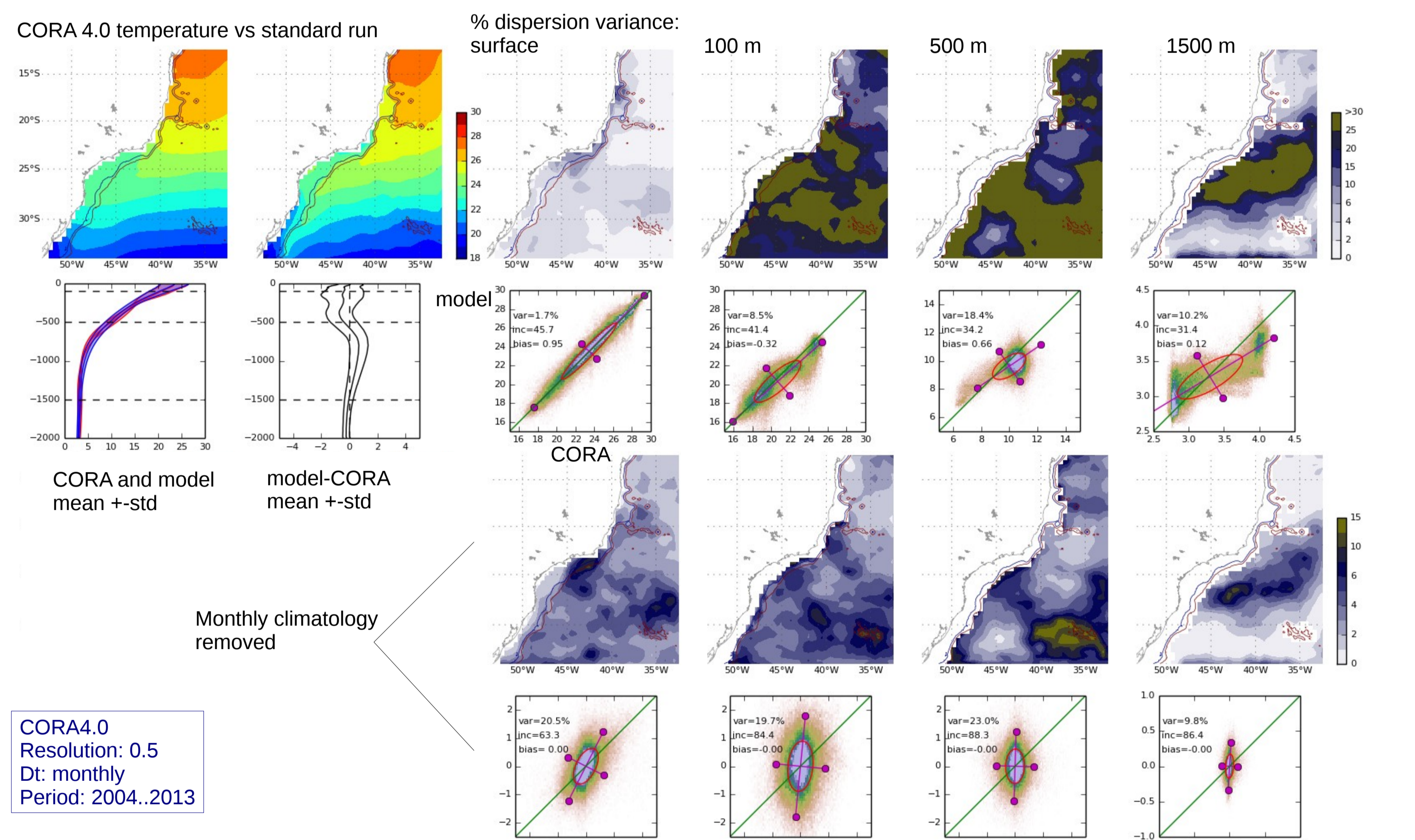


Aviso EKE & ADT
Years: 2004..2013
Resolution: 0.25°
Dt: 7 days

Volume avg kinetic energy

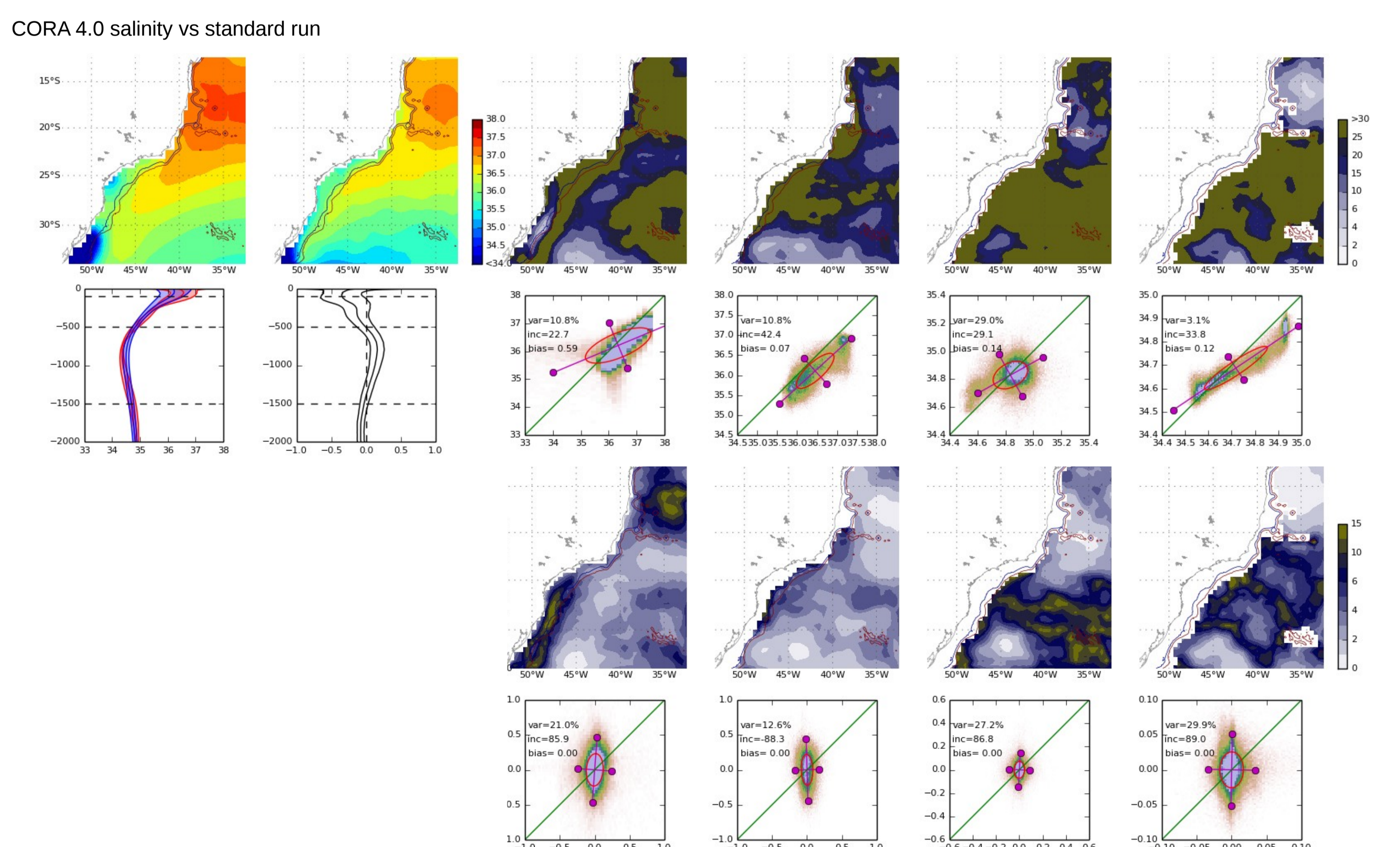


obs HYCOM standard run HYCOM atm CFSR wind CCMP clim 1 week clim 1 month clim

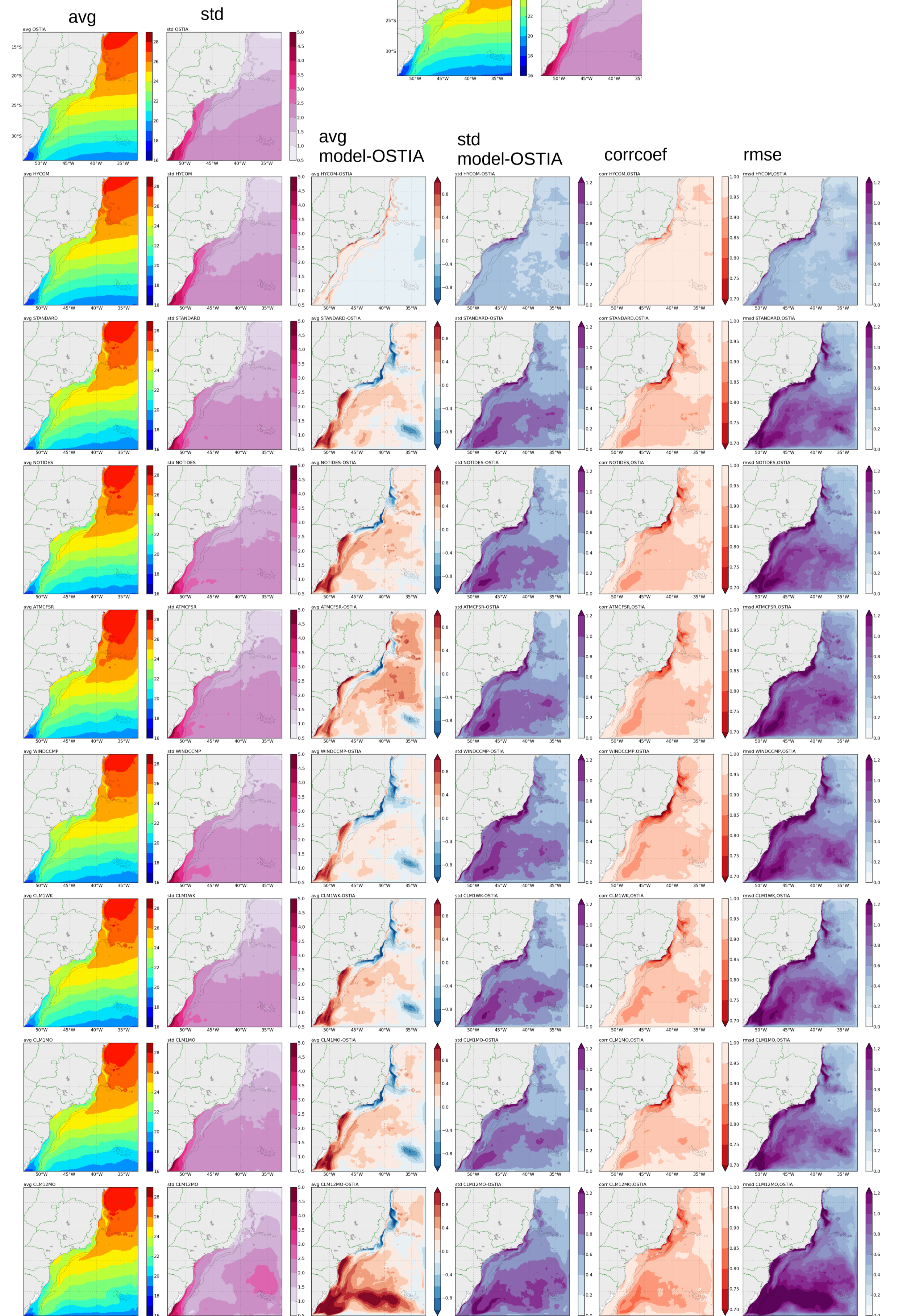


CORA4.0
Resolution: 0.5
Dt: monthly
Period: 2004..2013

Monthly climatology removed



OSTIA SST
Resolution: 1/20°
Dt: daily
Period: 2004..2014



RTG SST
Resolution: 1/12
Dt: daily
Period: 2006..2013