Issues for Ocean Modeling in the South Atlantic

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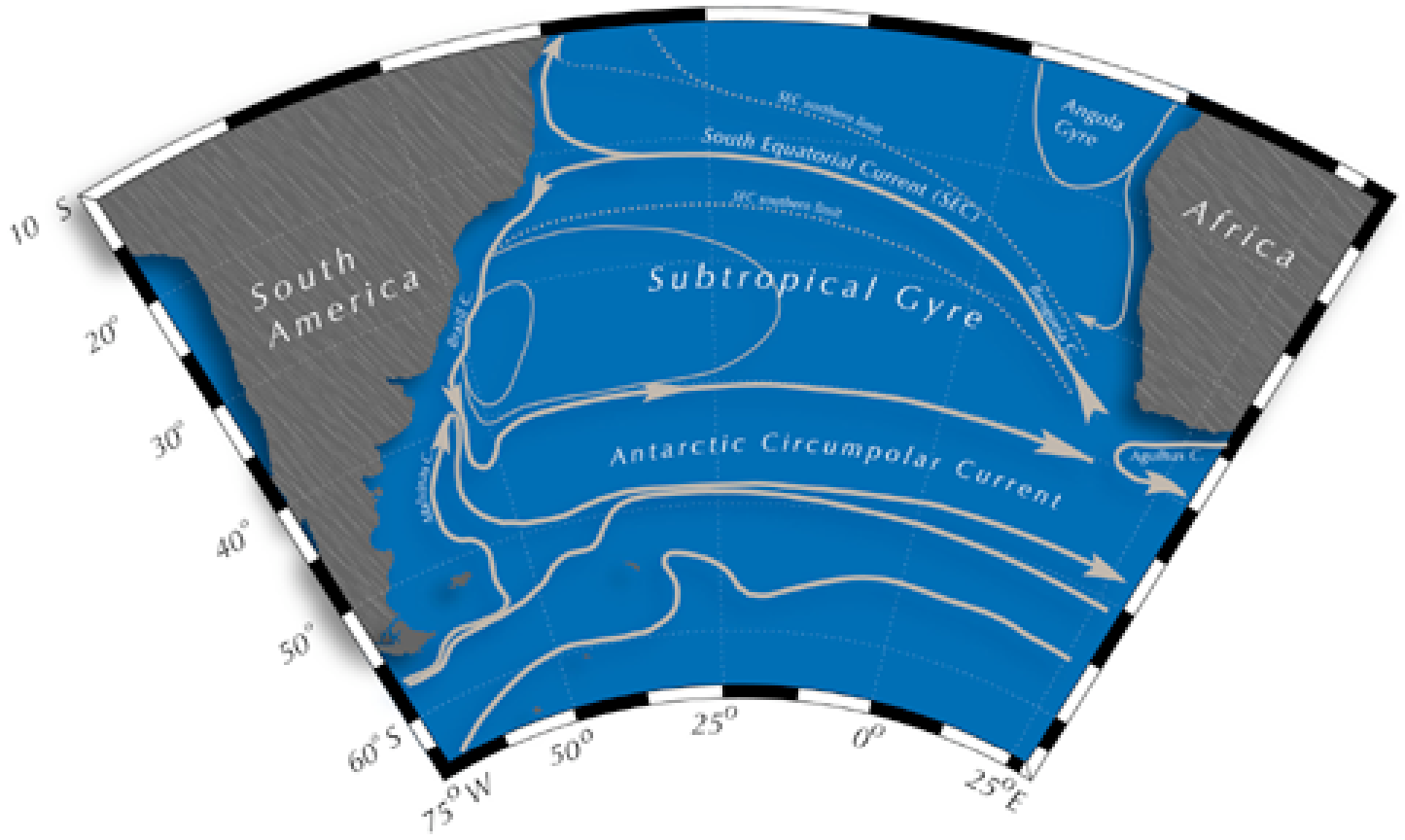
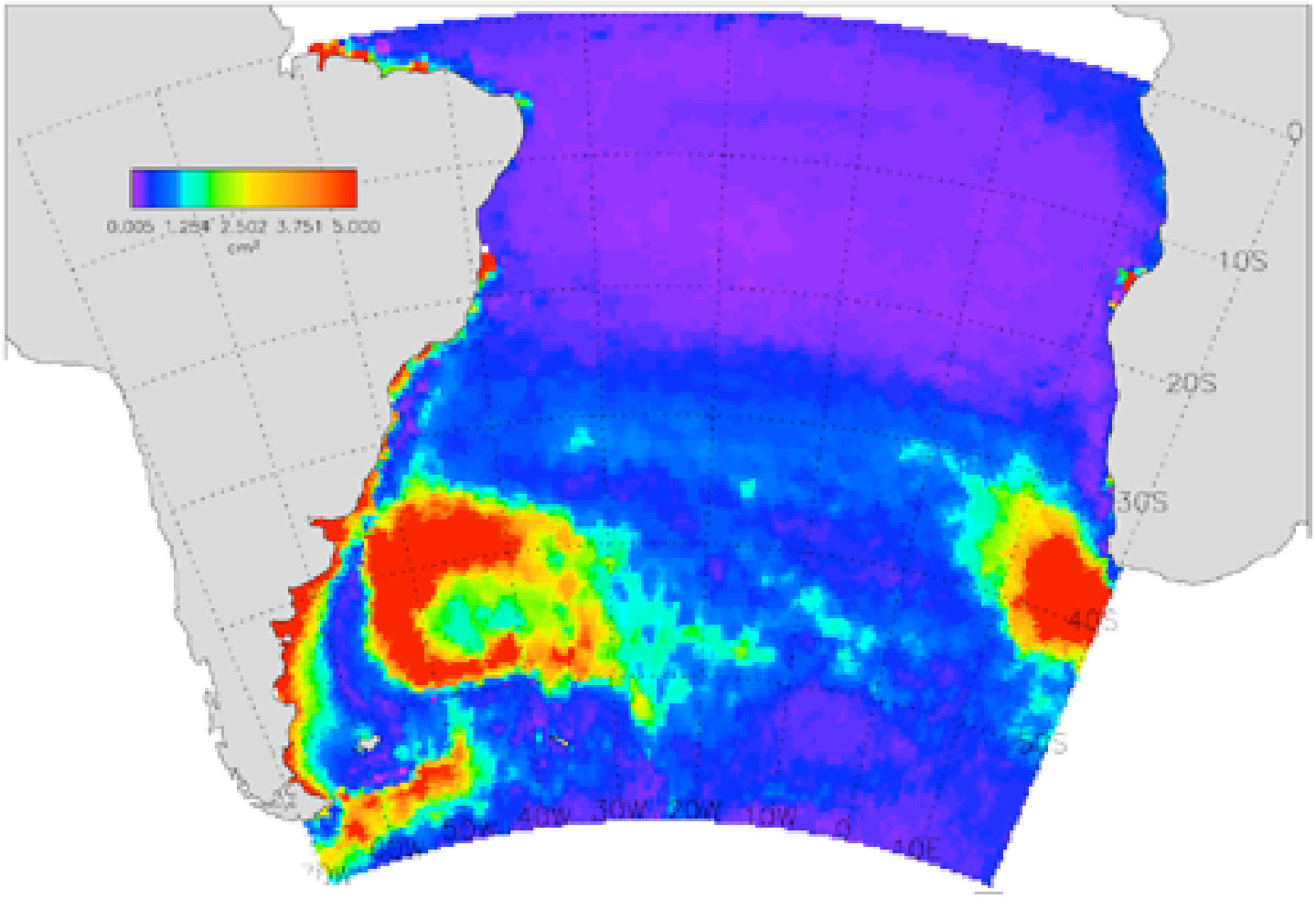
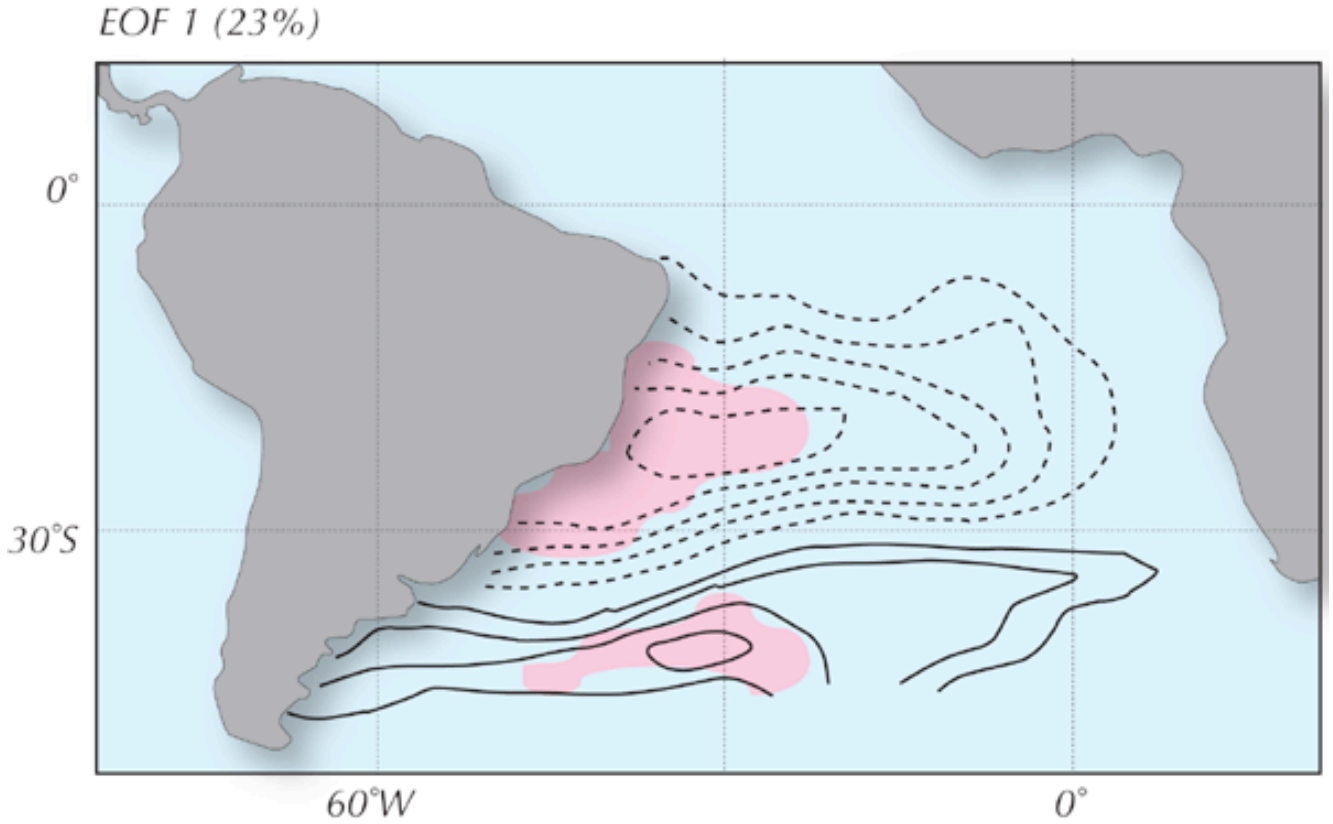


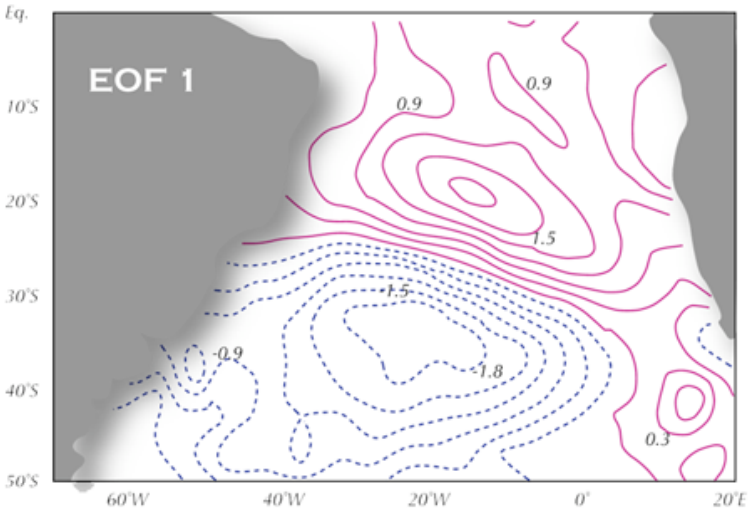
SSH's rms variability (Topex/Poseidon)

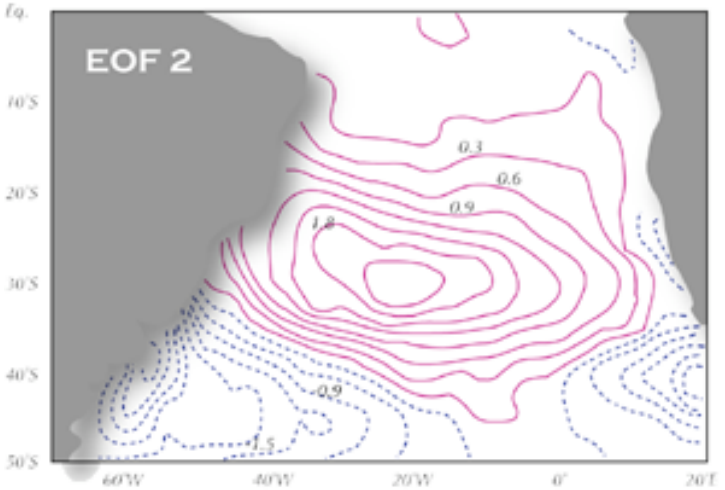


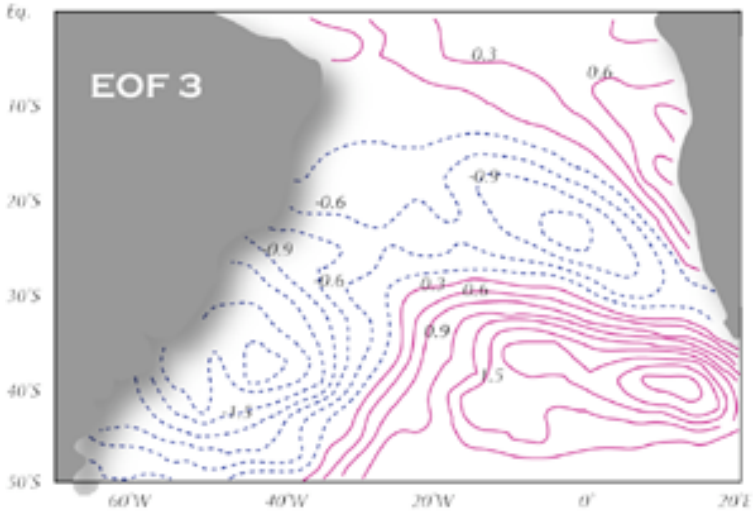
SST's AND CLIMATE



SST's



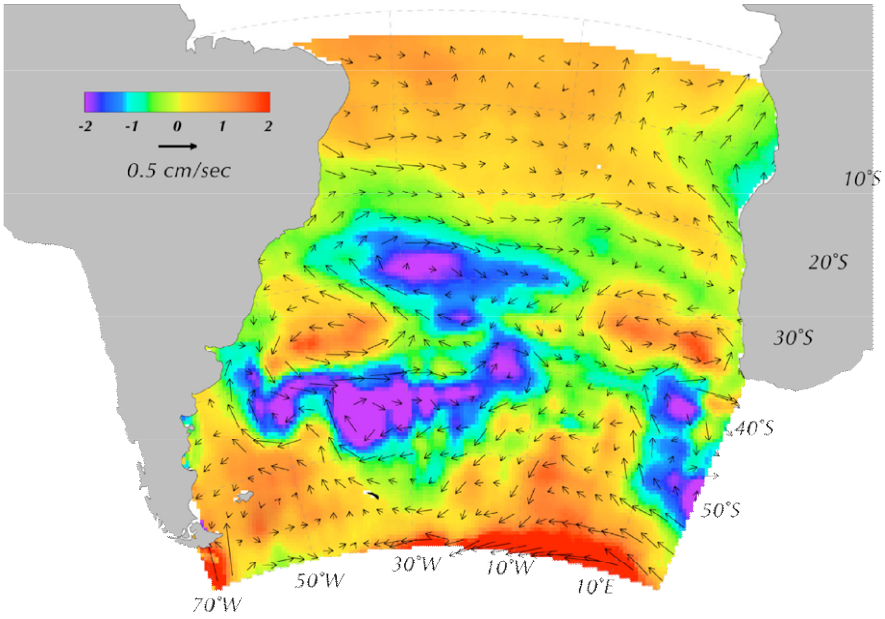


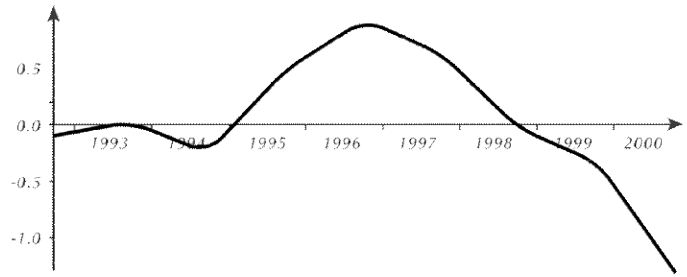


After Palastanga et al (2003)

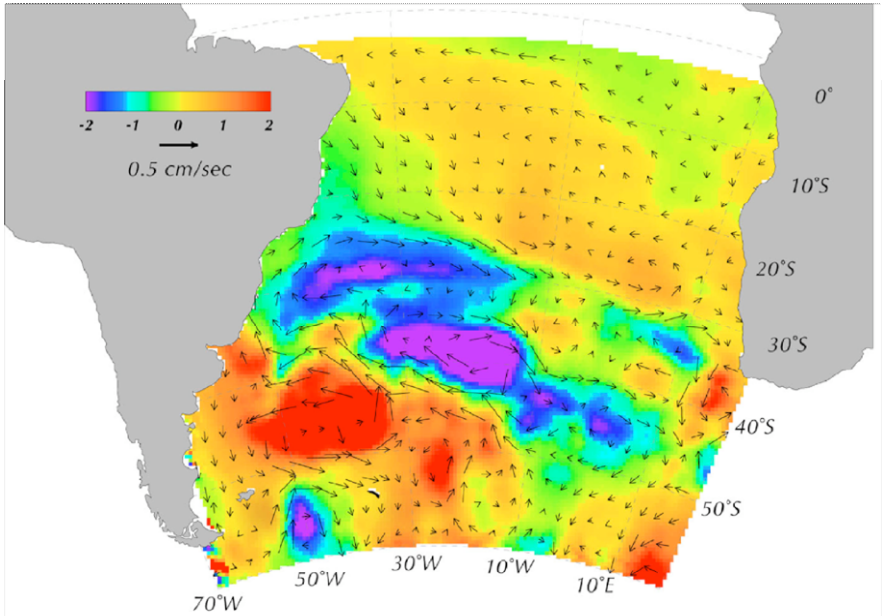
SSH's

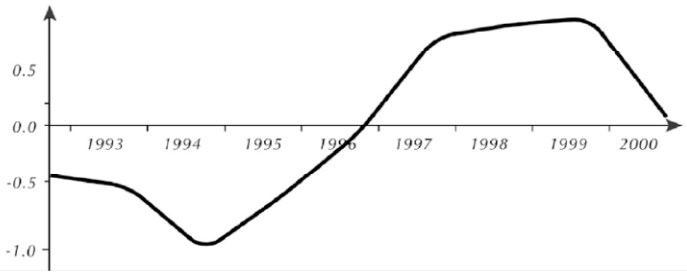
EOF 1



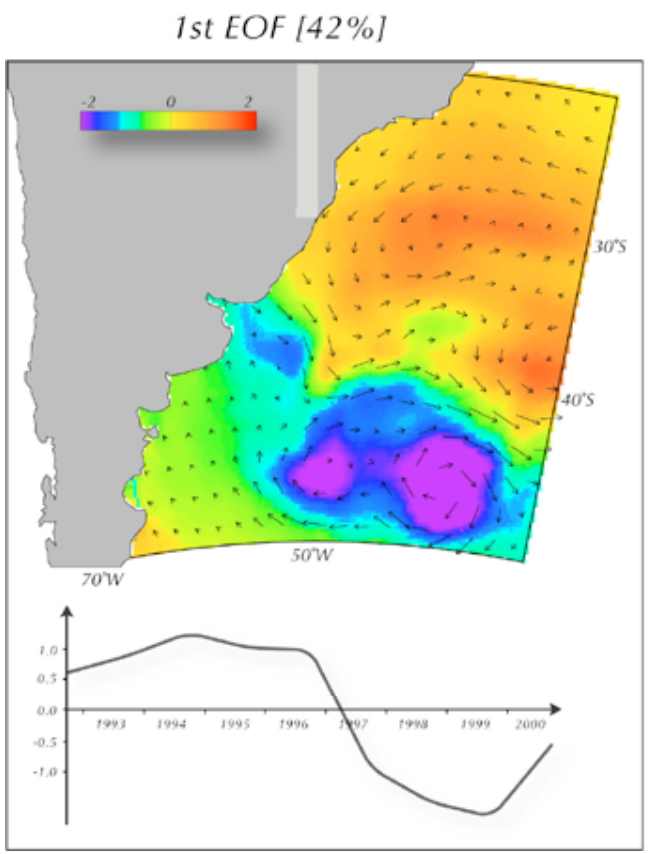


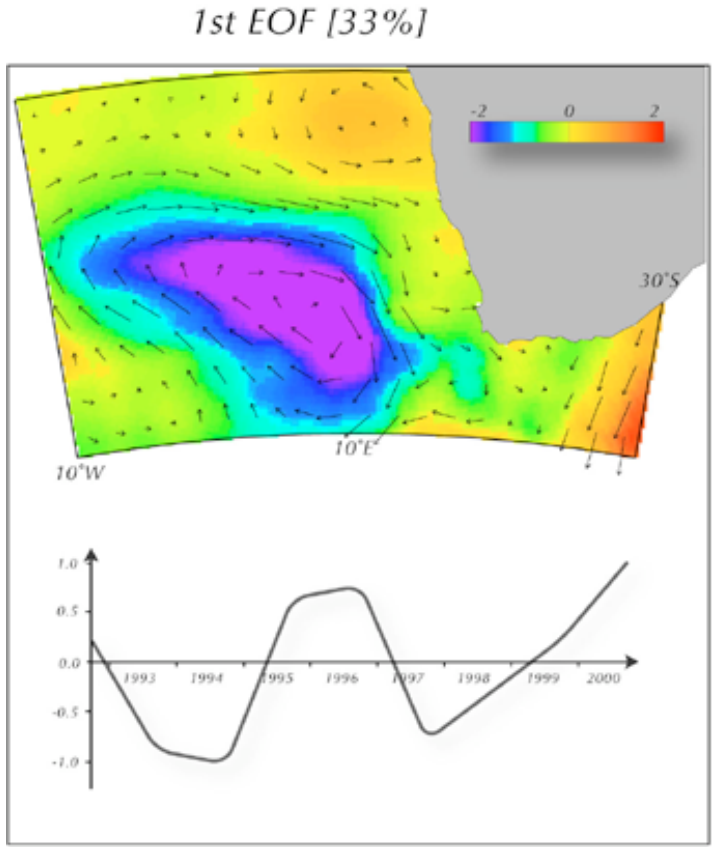
EOF 2

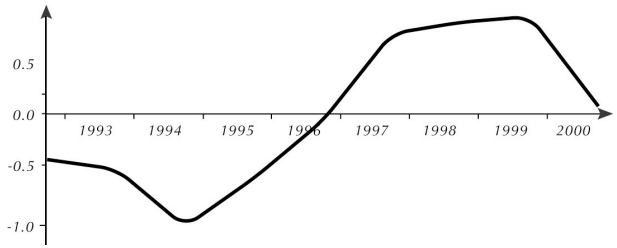




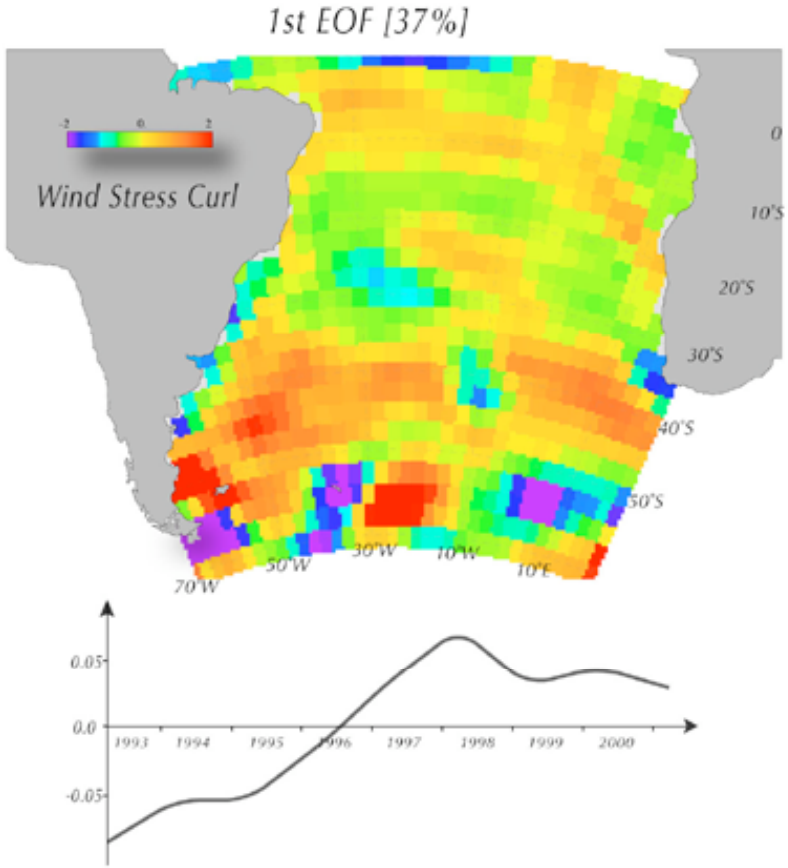
Regional Modes

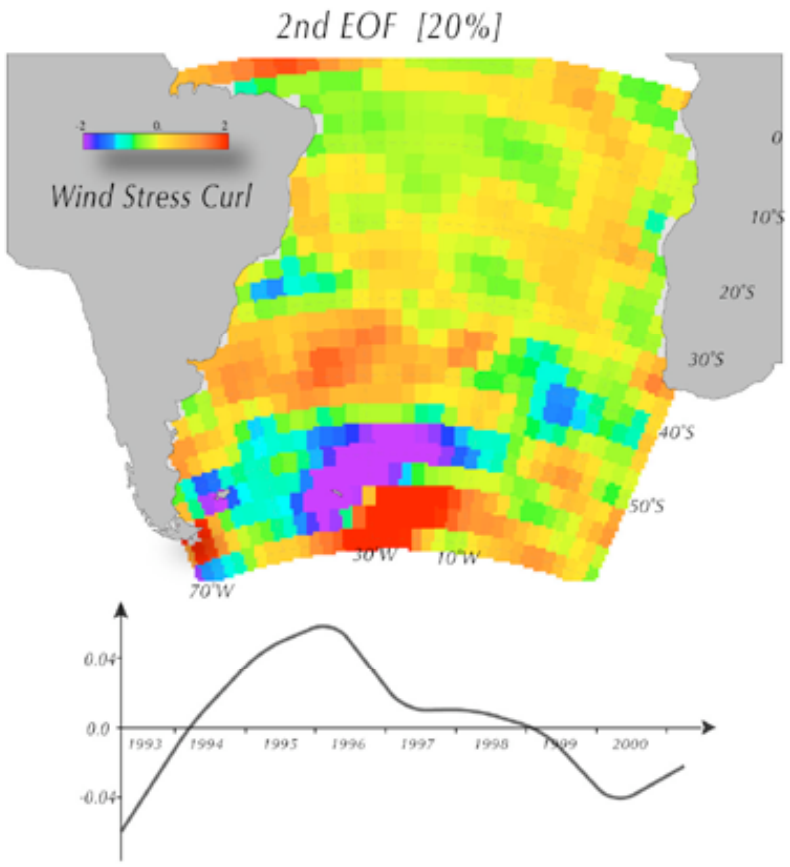




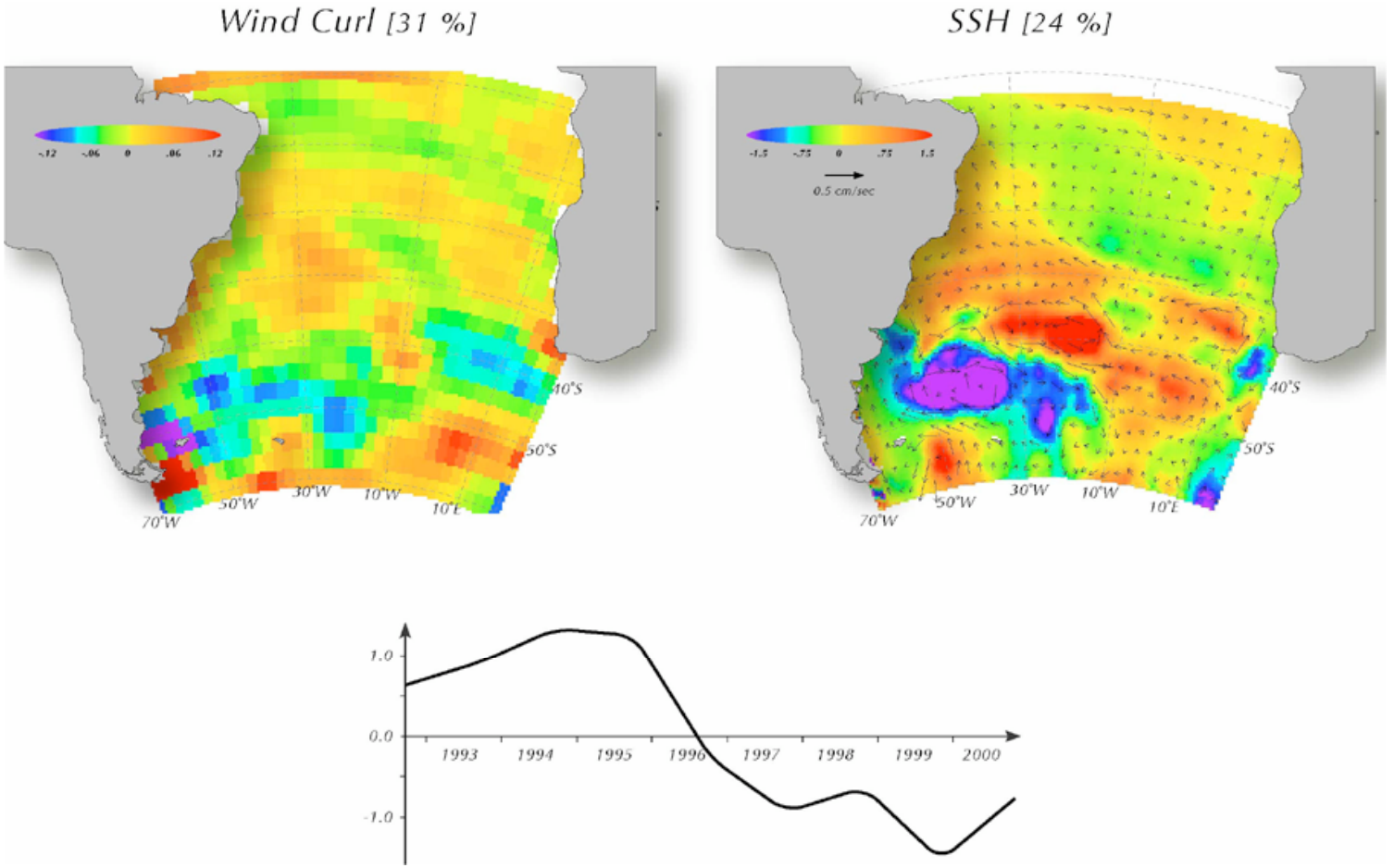


Wind Stress Curl

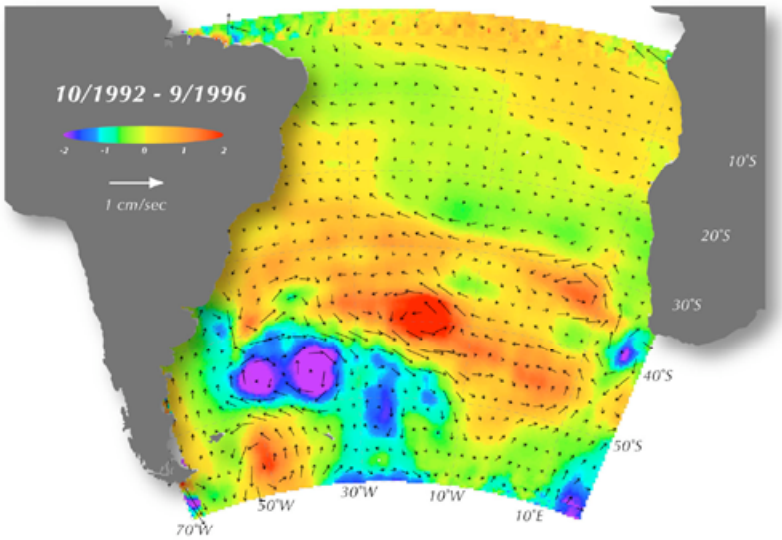


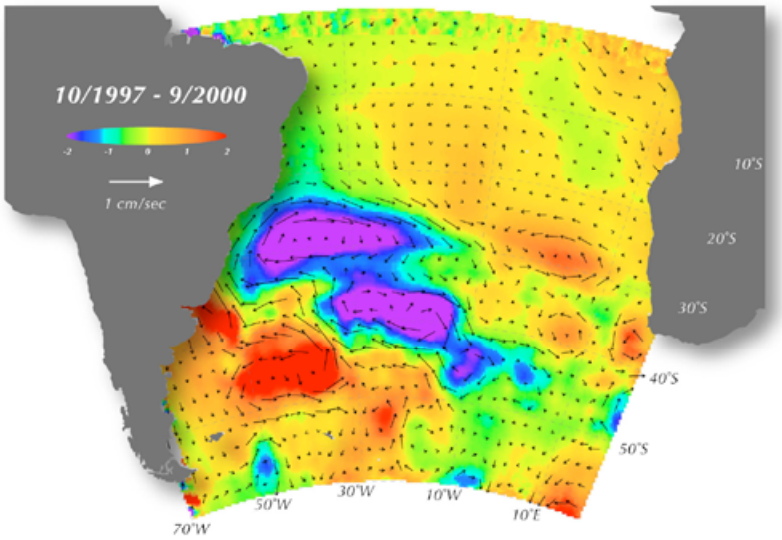


Principal Estimator Patterns (Davies, 1978)

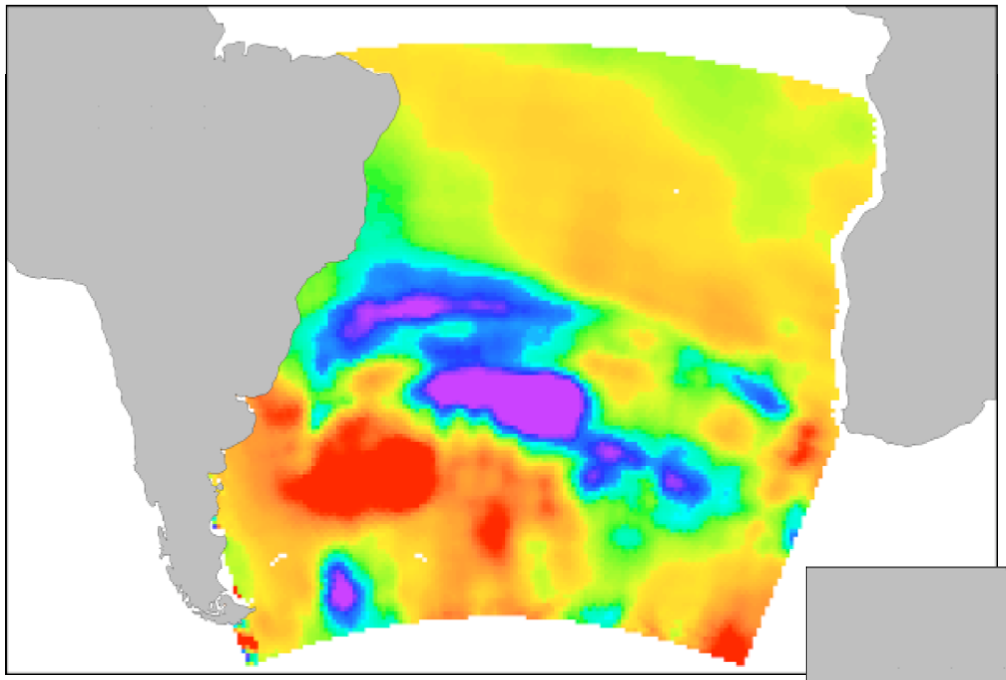


Climatological averages

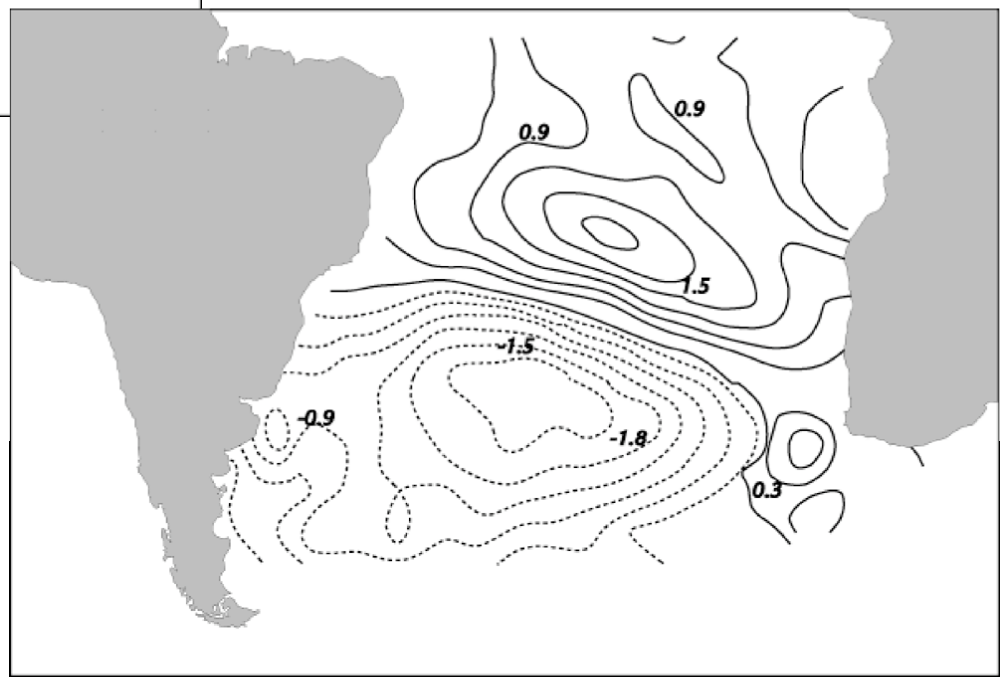




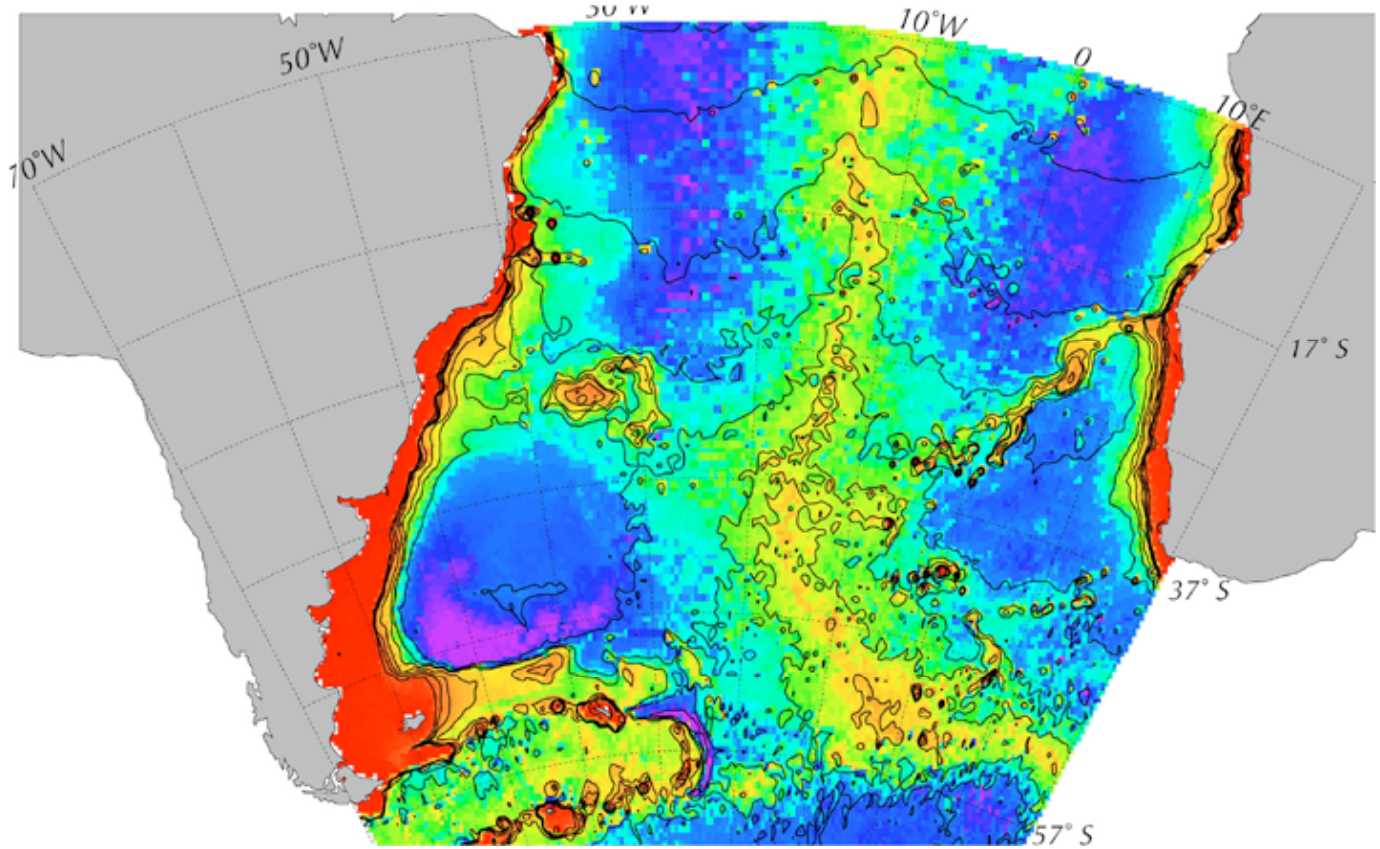
SSH

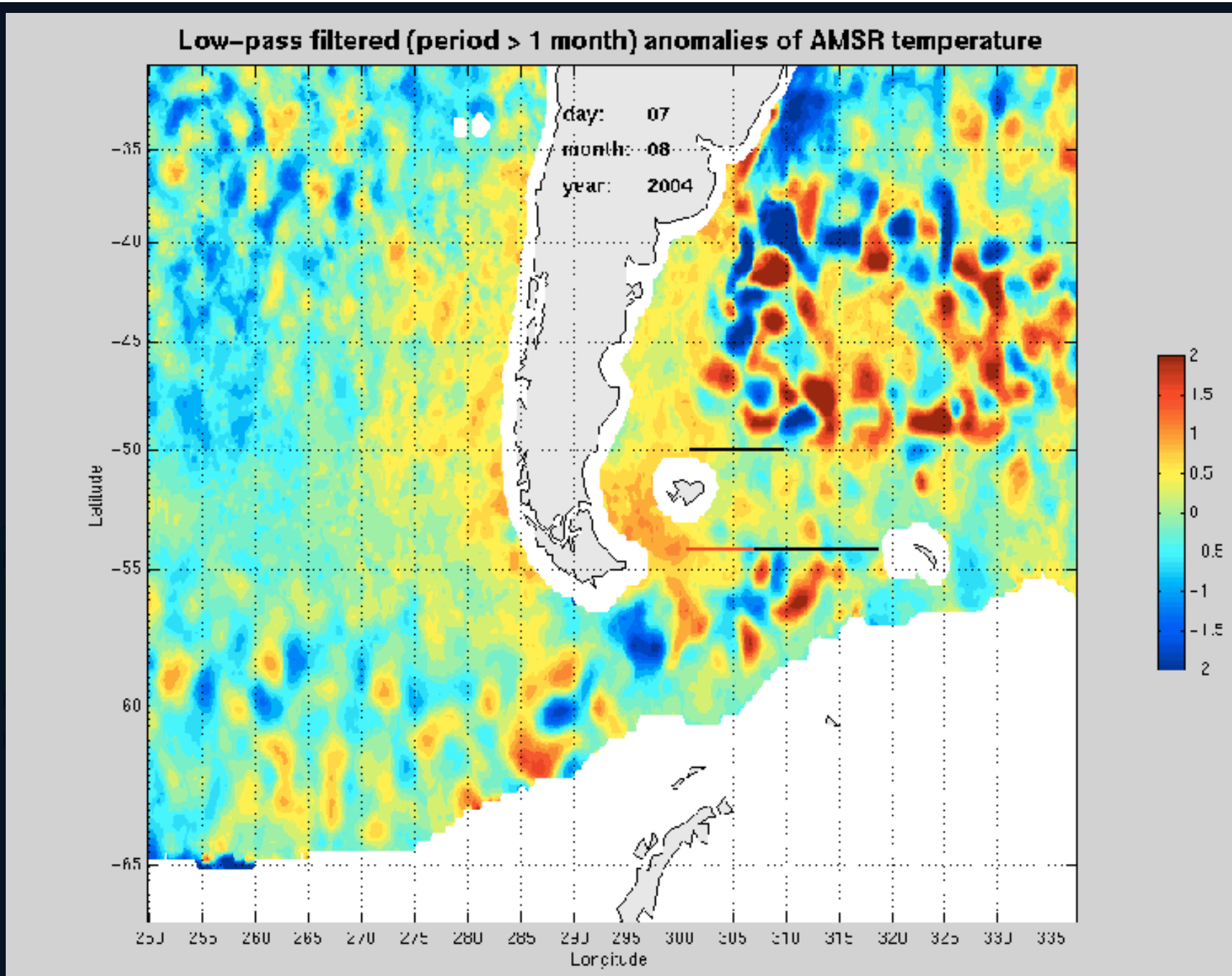


SST

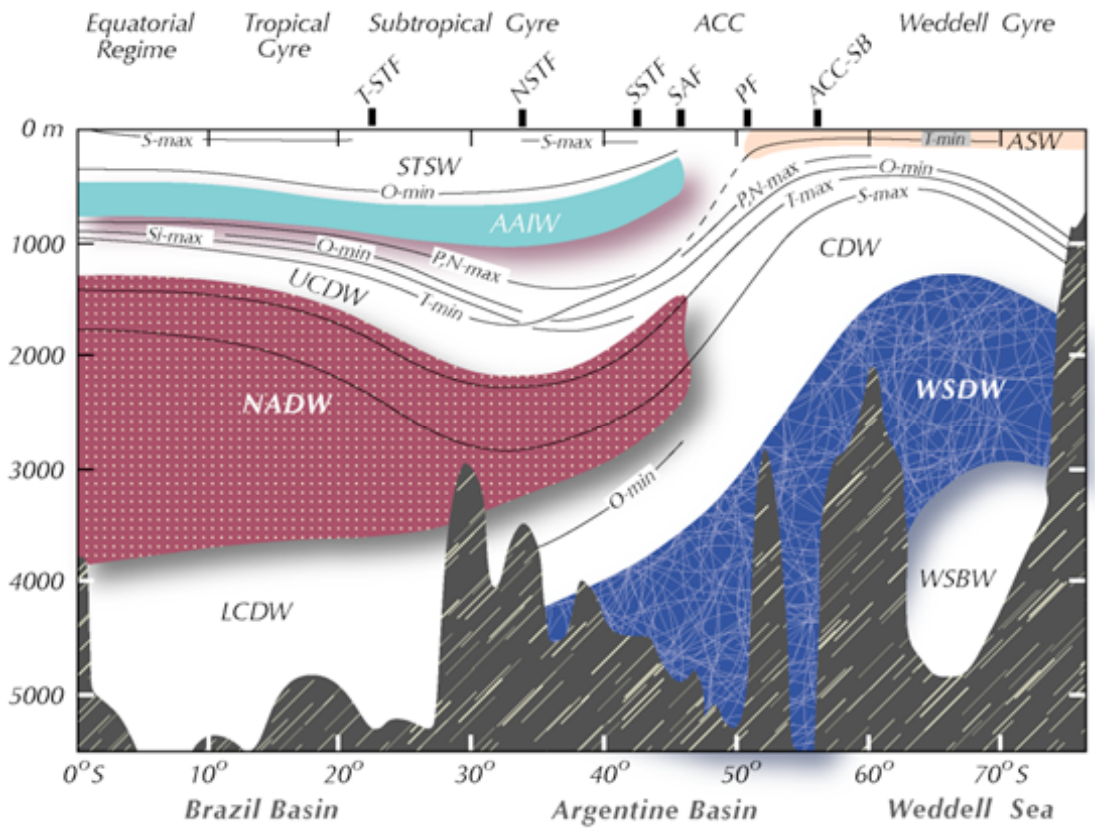


Planetary vorticity (f/h)

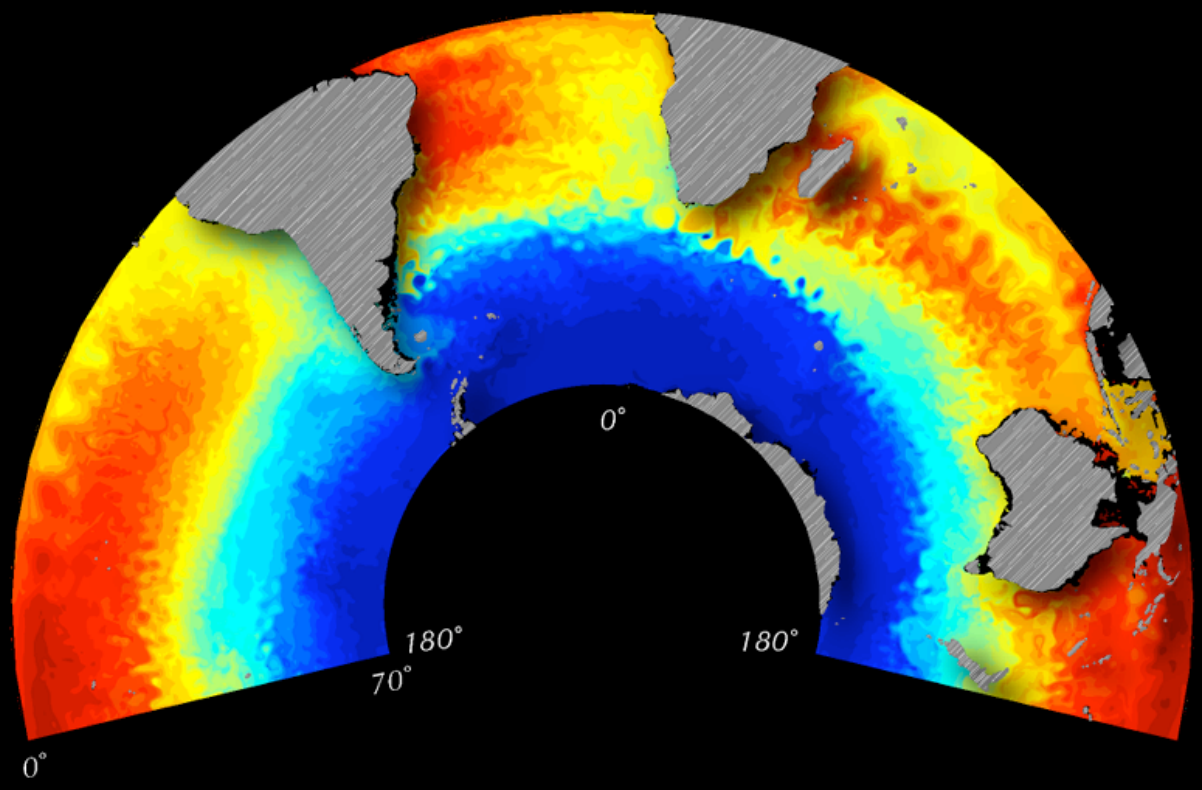



Low-pass filtered (period > 1 month) anomalies of AMSR temperature
day: 07
month: 08
year: 2004
Latitude
Longitude
-35
-40
-45
-50
-55
60
-65
255
260
265
270
275
280
285
290
295
300
305
310
315
320
325
330
335
2
1.5
1
0.5
0
0.5
-1
-1.5
2

The SA and the thermohaline circulation



Parallel Ocean Climate Model (POCM-4C)



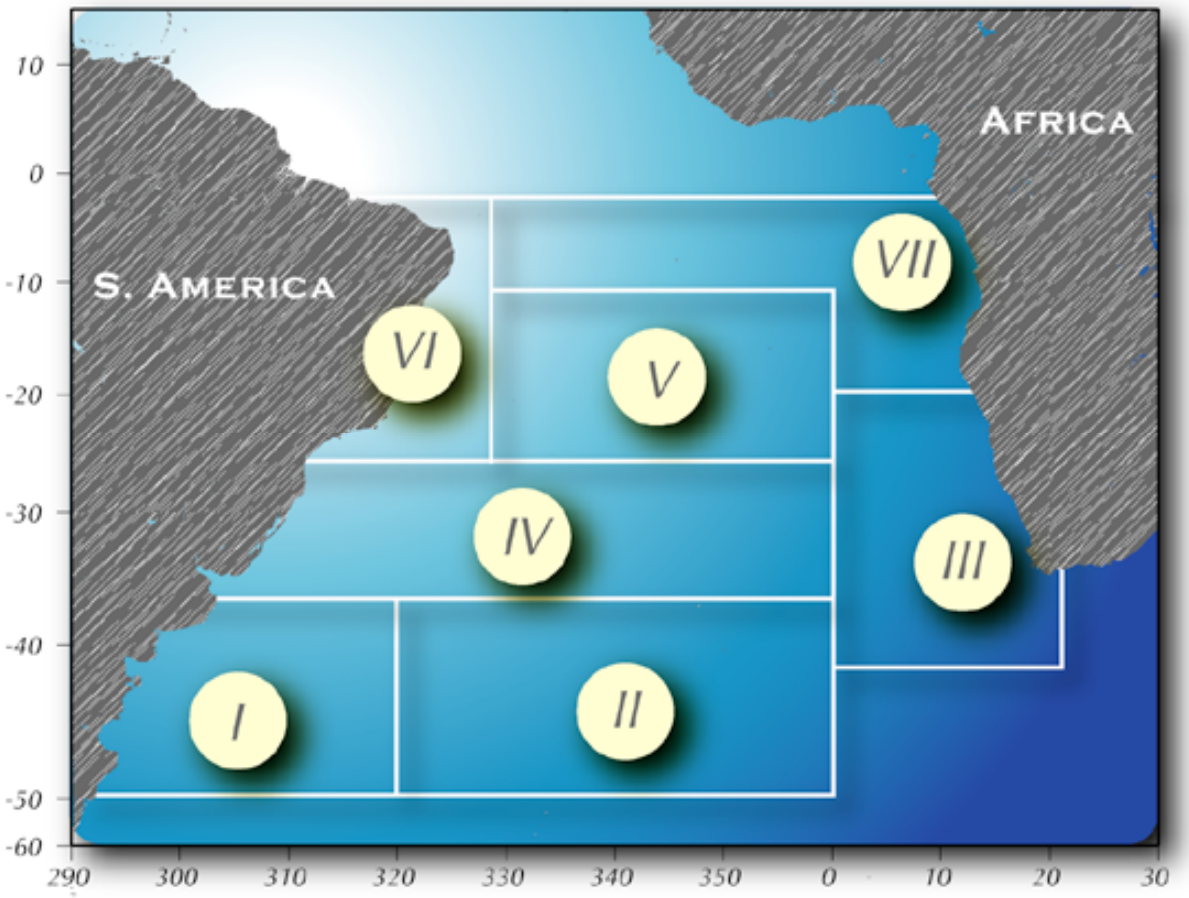
Global domain

1/4° average resolution

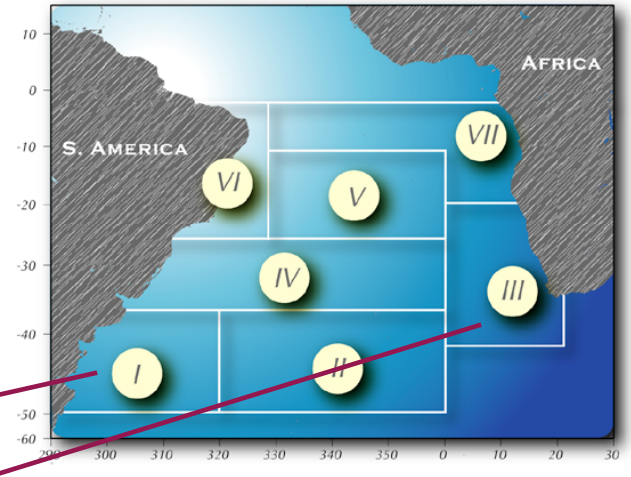
20 vertical levels

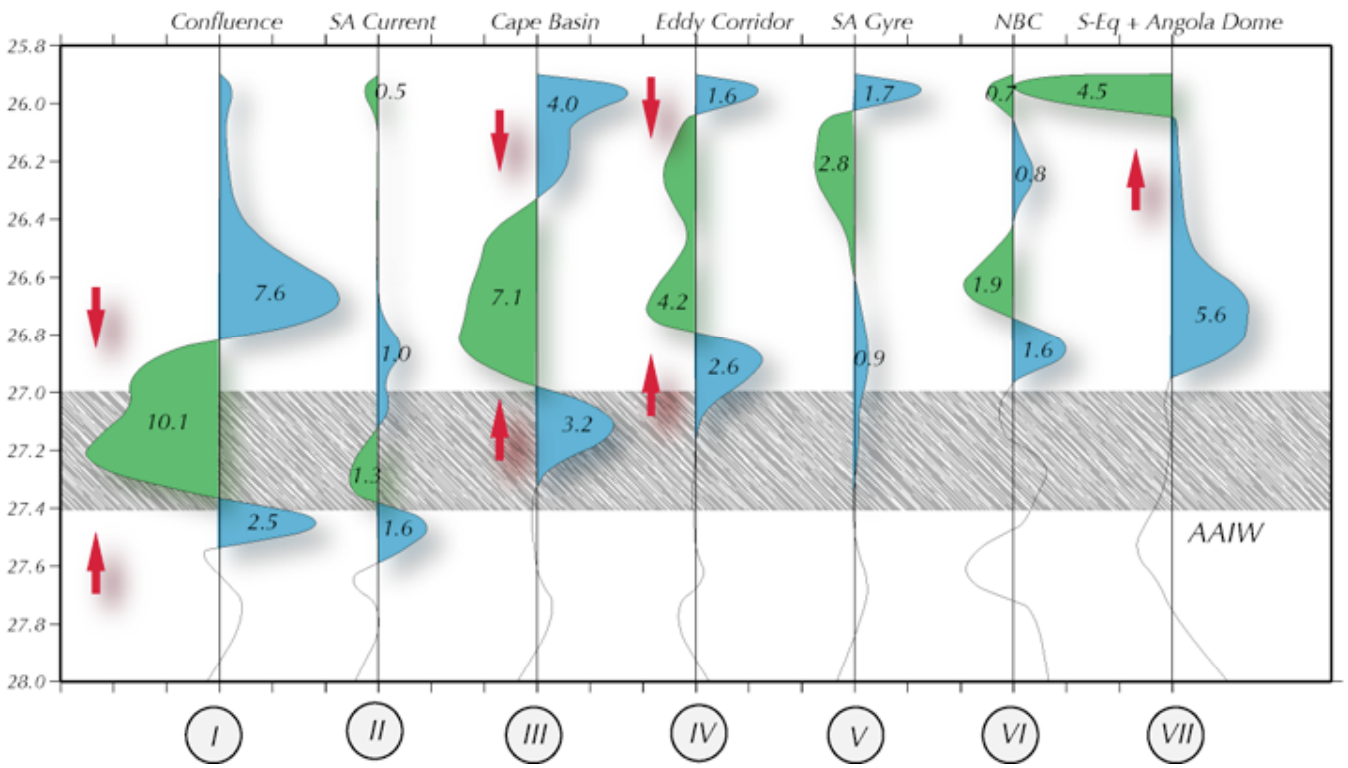
1979-1994 ECMWF reanalysis

1995-1998 operational fields

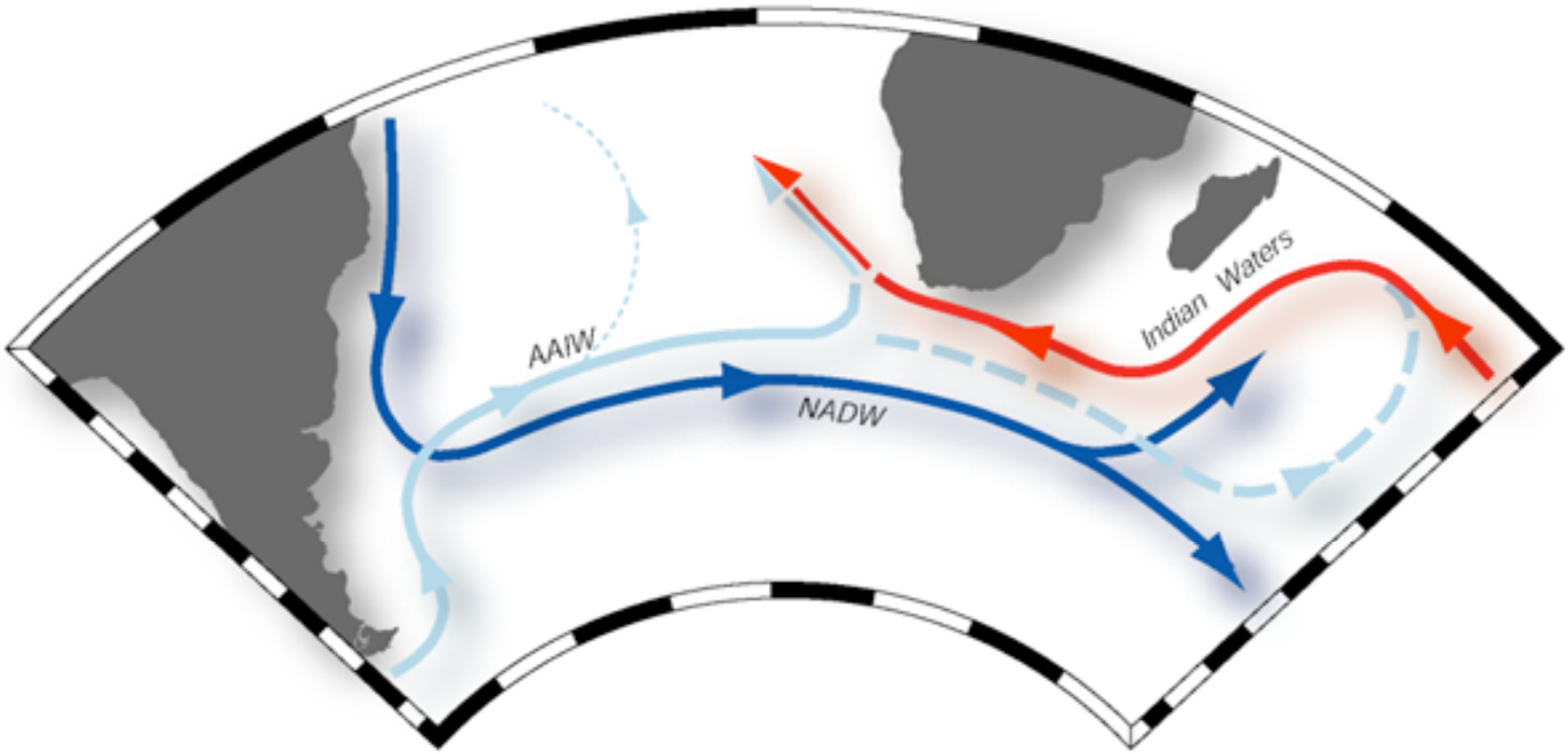

AFRICA
S. AMERICA
VII
VI
V
IV
III
II
I
10
0
-10
-20
-30
-40
-50
-60
290
300
310
320
330
340
350
0
10
20
30

The South Atlantic volume flux divergences





The South Atlantic branch of the global thermohaline circulation



Summary

T< 10 years

- *Analysis of satellite data suggests that the geostrophic component of the SA circulation has a substantial influence in the low-frequency (T> month) structure of the SST variability.*

T>10 years

- *Model results suggest that the meso-scale variability of South Atlantic circulation actively contributes to the global water mass conversions.*