

# Scientific Results using a Decade of Data Collected by the PNBOIA Program in the South Atlantic

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## 1 Introduction

- The Program
- Data Statistics
- Temperature and Velocity Fields
- Variability and Trends

# Roteiro

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# Programa Nacional de Bóias - PNBOIA

- Brazilian National Drifter Program
- Activities since 1997 under the GOOS/Brazil program
- Part of the Global Drifter Program
- Main goal: To obtain and distribute oceanographic and meteorological measurements on the Atlantic through an array of drifting and moored buoys;
- Universities, research institutions, government and private sectors, and the Navy (responsible for launching operations).

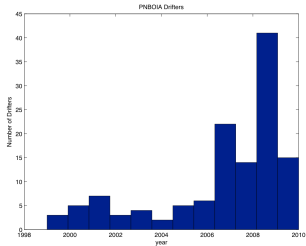


# Some specifics of the drifters

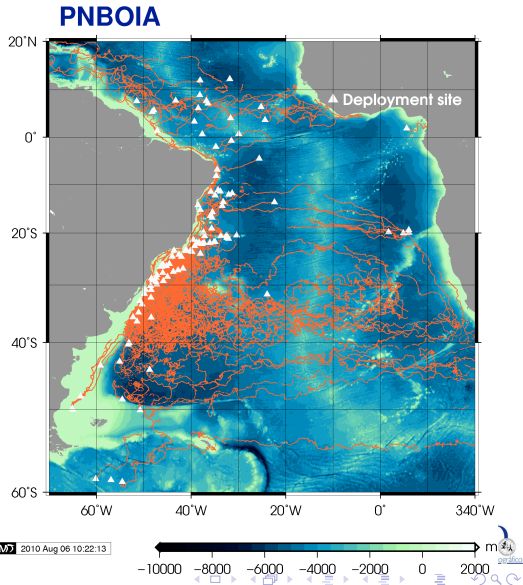


- Surface Velocity Program (SVP) drifter with a 15 m drogue (holey-sock)
- Measurements:
  - 1 Water temperature (20-30 cm under the surface)
  - 2 Position and time  $\rightsquigarrow$  velocity at 15 m
  - 3 Atmospheric pressure (SVP-B)

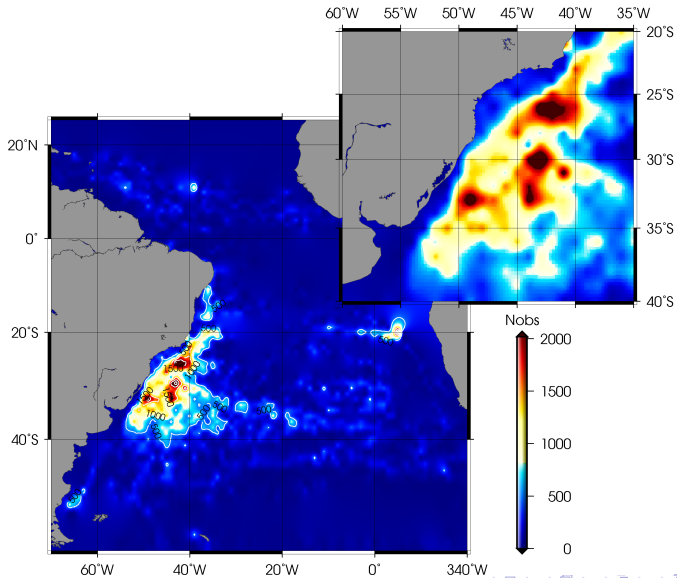
# Spaghetti Plot - Drifters deployed since 1999



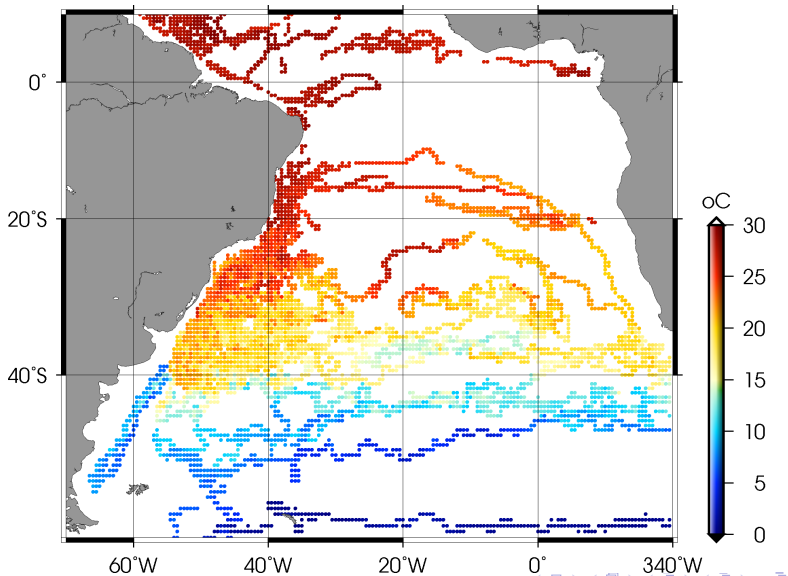
- 75 drifters predicted to be deployed in 2010.



# Data Distribution ( $1^\circ \times 1^\circ$ )

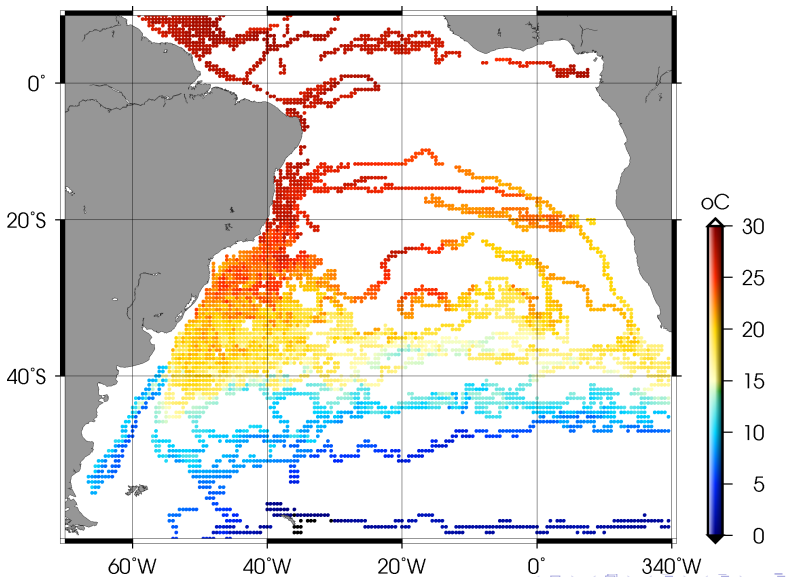


# SST measured by the drifters

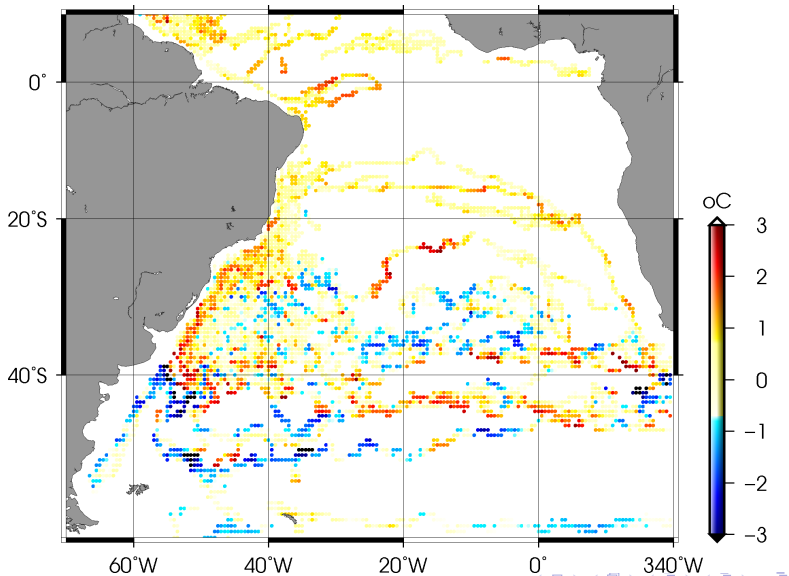




# WOA09 monthly mean SST

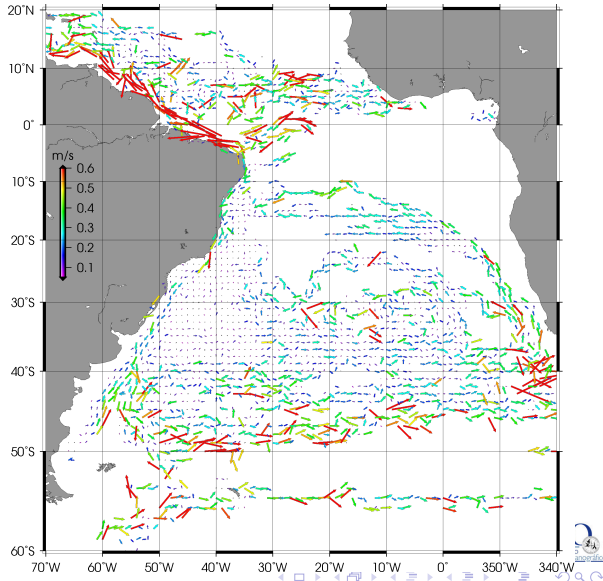


# SST difference (PNBOIA minus WOA09)

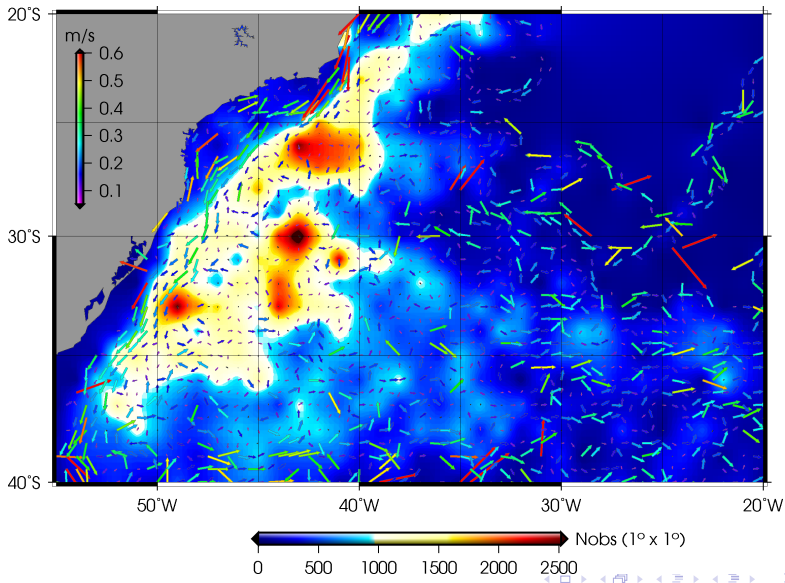


# Near-Surface Current Velocity: $1^\circ \times 1^\circ$

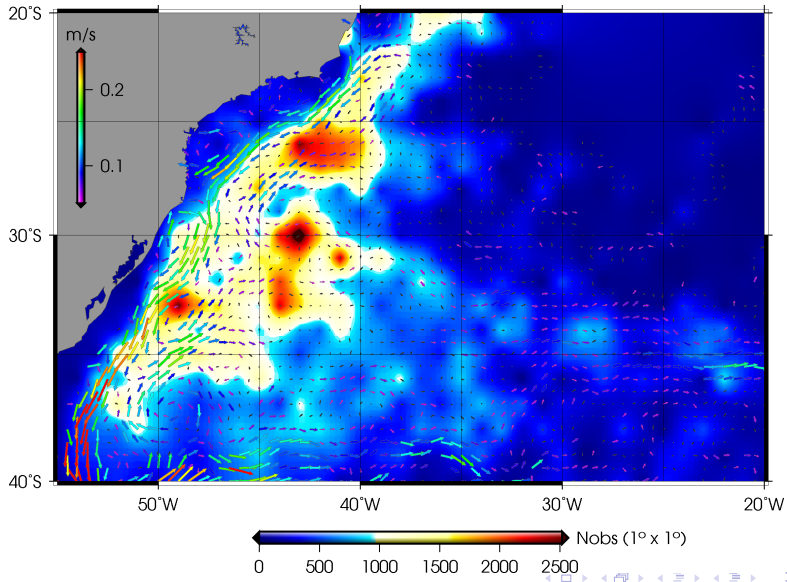
- Hansen and Poulin (1996) scheme to filter the temperature and velocity;



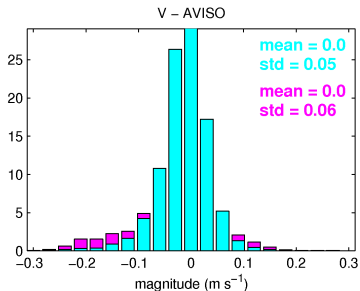
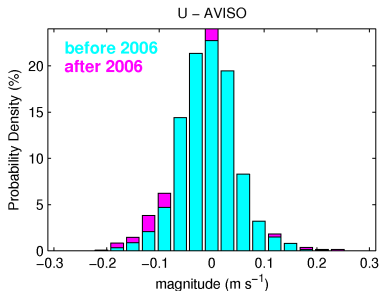
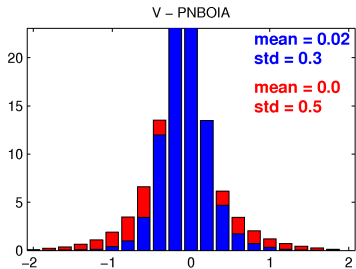
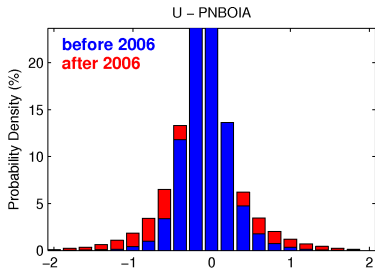
# Surface Velocity Field at the SW Corner from Buoys



# Surface Velocity Field from Altimeters - AVISO

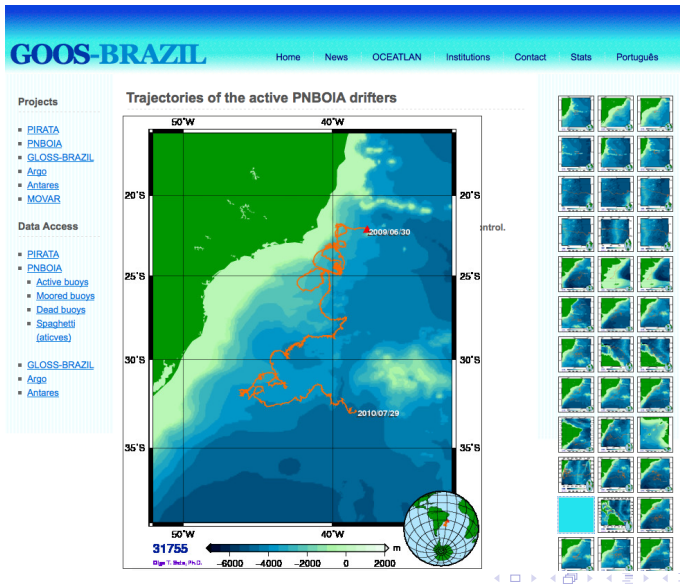


# Velocity Variability at the SW Corner



# Conclusions 12

- Some of the main dynamical features of the Atlantic is captured by the statistical analysis of the trajectories of the drifters, e.g., boundary currents, recirculation regions, etc.
- There are indications of warming and cooling trends in some parts of the South Atlantic as measured by drifters in comparison with climatology; at the Brazil–Malvinas confluence this evidence is clearer.
- The analysis of the current velocities measured by the drifters shows an increase of its variability after 2006. This trend is corroborated with altimeter derived velocities as well.





# Thank You!