

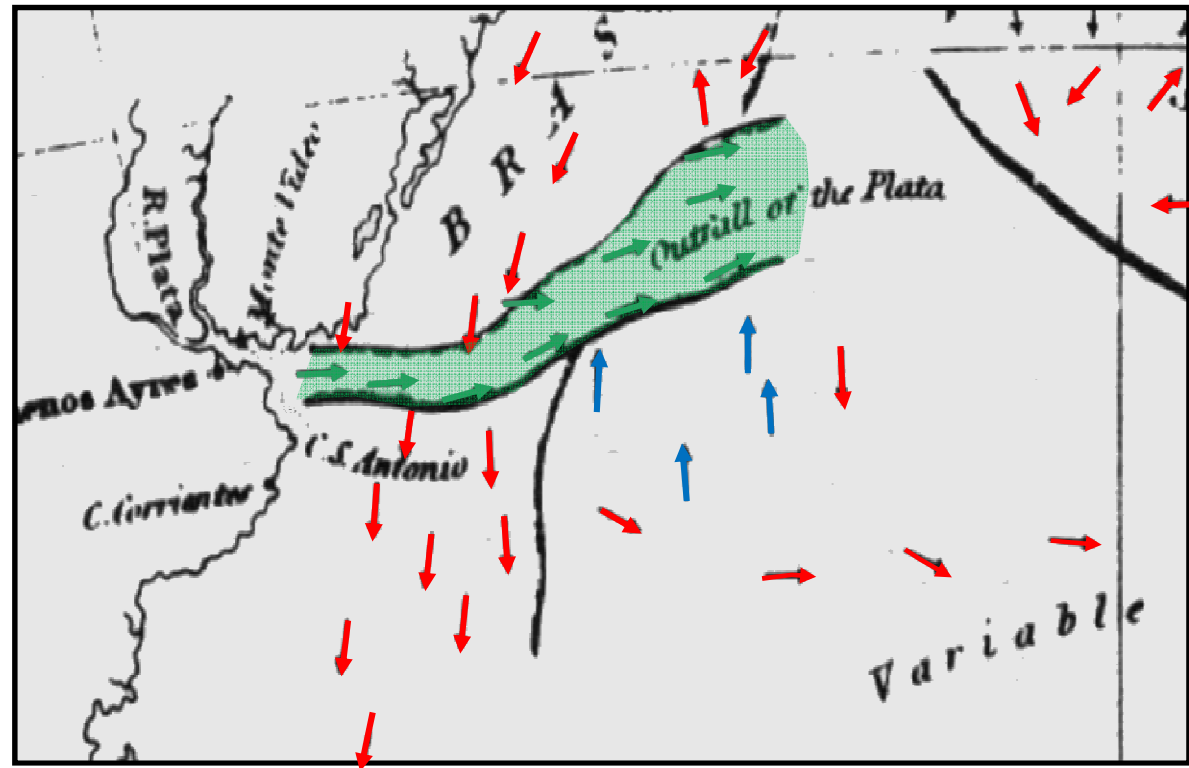
# The salinity signal of the shelf/deep-ocean exchanges in the Southwestern Atlantic: *in-situ* observations

A.R. Piola, D. Valla, R.A. Guerrero, H. Fenco, O.O. Möller, R.P. Matano, V. Combes, Y. Chao, E.D. Palma, L.A. Ruiz Etcheverry, P.T. Strub and M. Saraceno

[apiola@hidro.gov.ar](mailto:apiola@hidro.gov.ar)



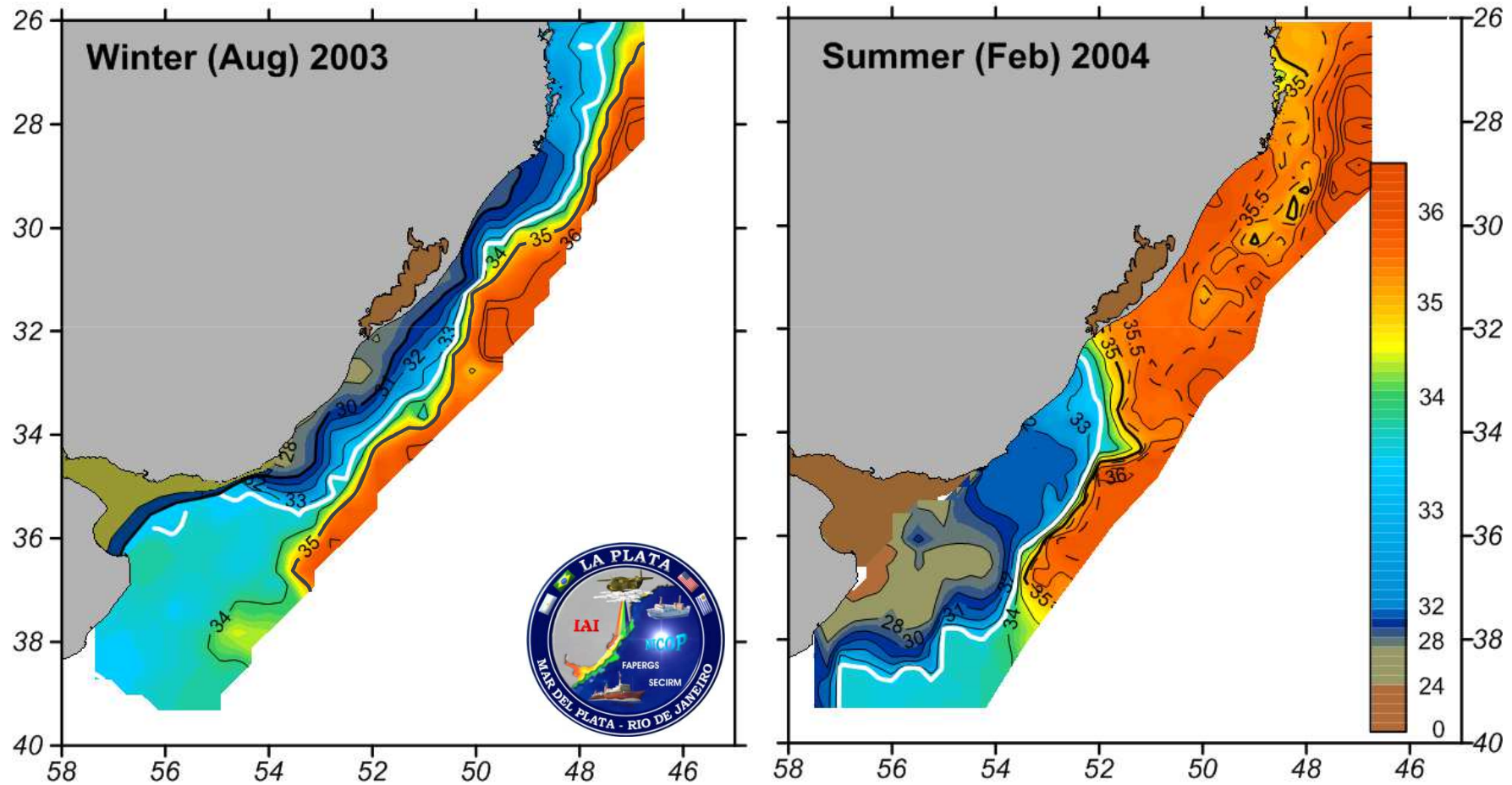
# The salinity signal?



*"Here the remarkable circumstance of the passage of the current of the Plata, across and over the southerly current, takes place: beyond which, to the south, the Brazil Current again appears ..."*

*(J. Rennell, 1832)*

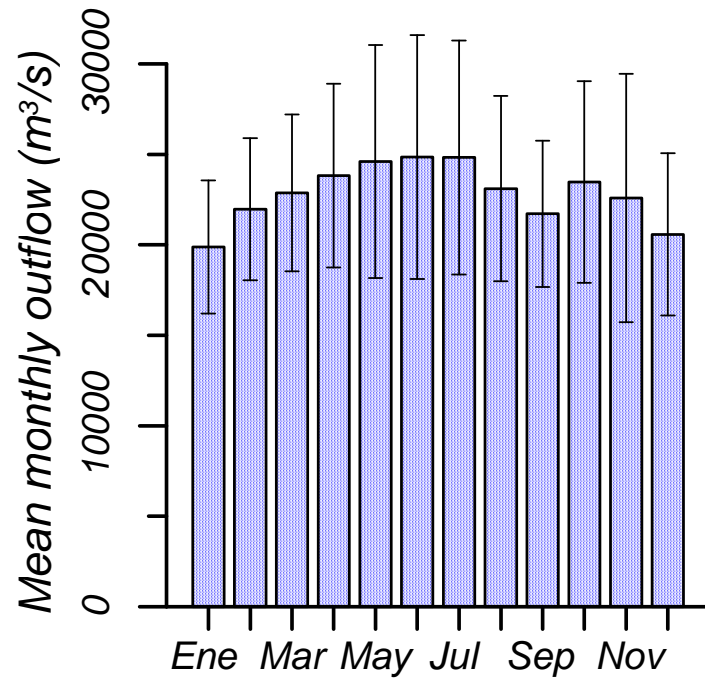
# Seasonal surface salinity changes



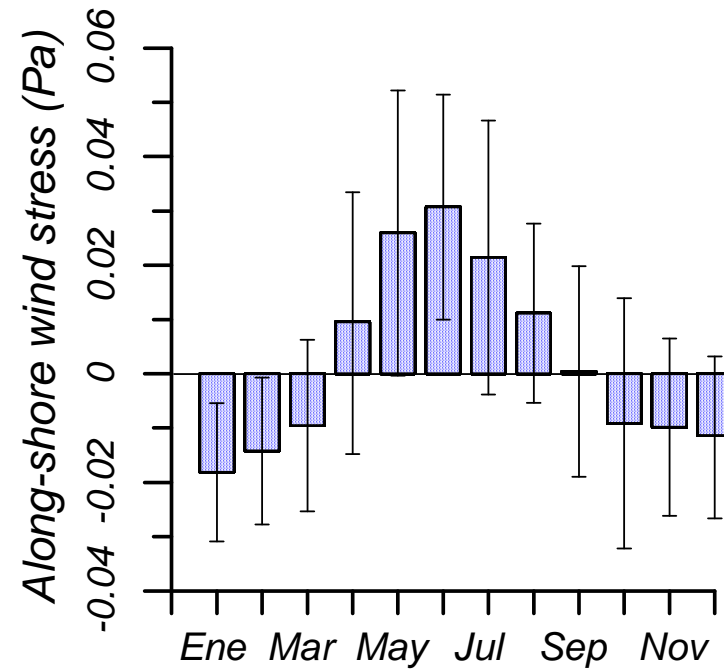
Adapted from Möller et al., *CSR*, 2008

# Climatological forcing

Main forcing 1949-2001 statistics

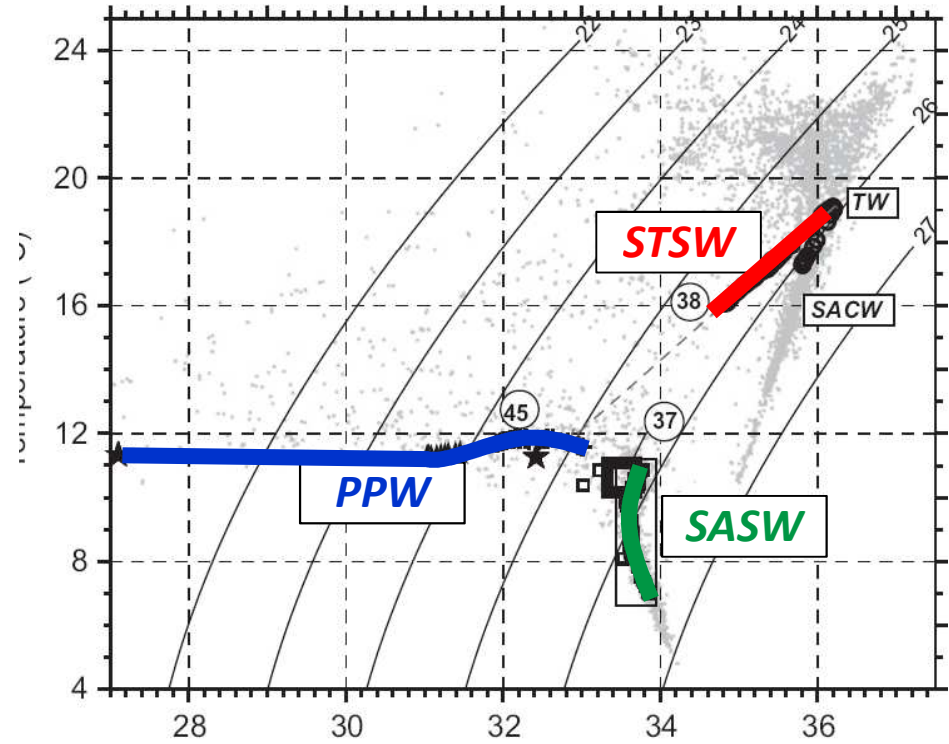
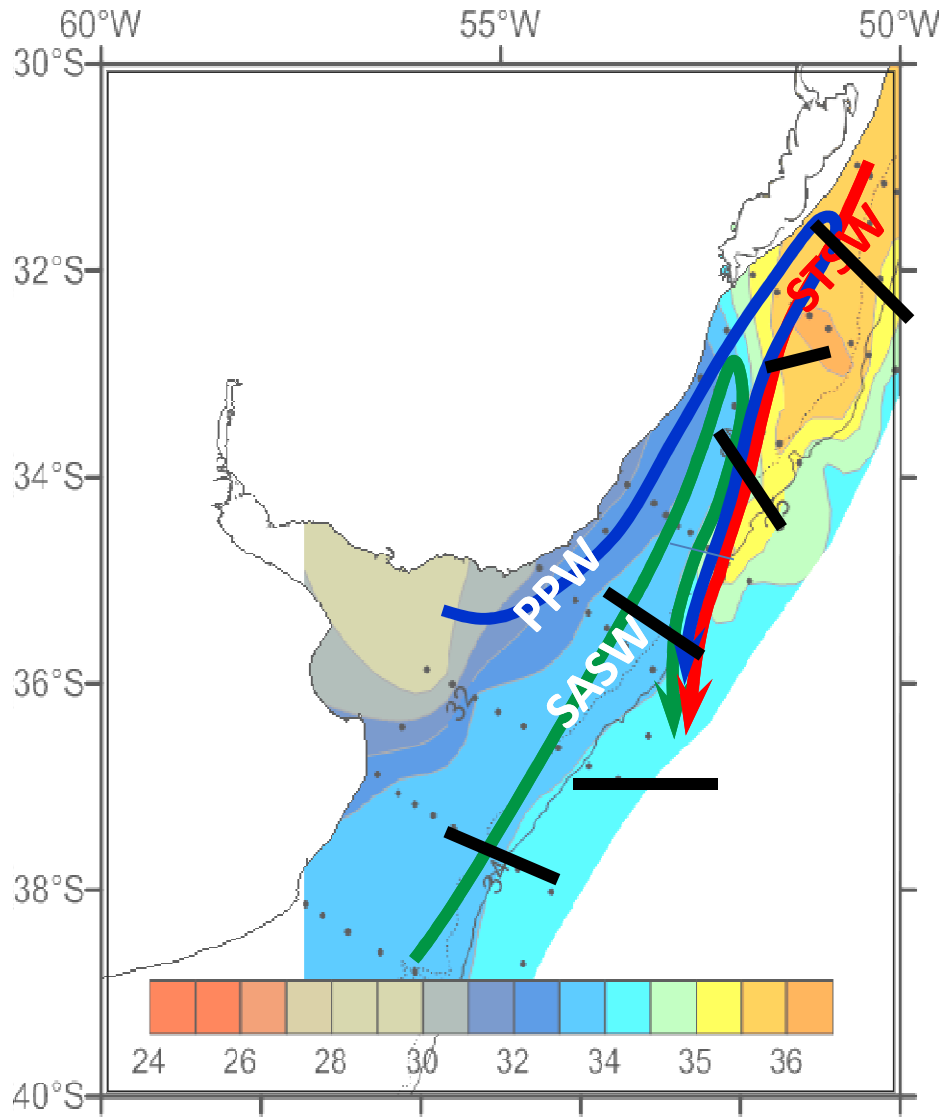


Outflow



Wind

# Subsurface water masses

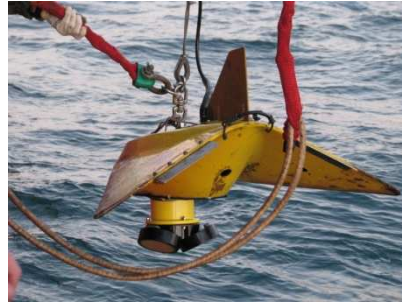


# Recent observations: STSF Cruise 2-12 Oct 2013

CTD/samples/L-ADCP



U-ADCP



Plankton



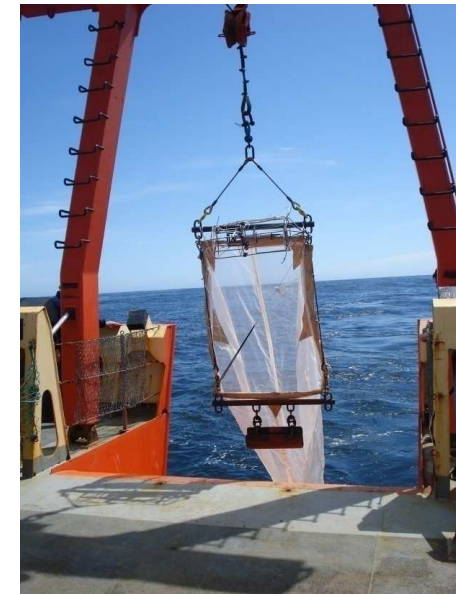
O<sub>2</sub>/  
nutrients



Chlorophyll/  
picoplankton

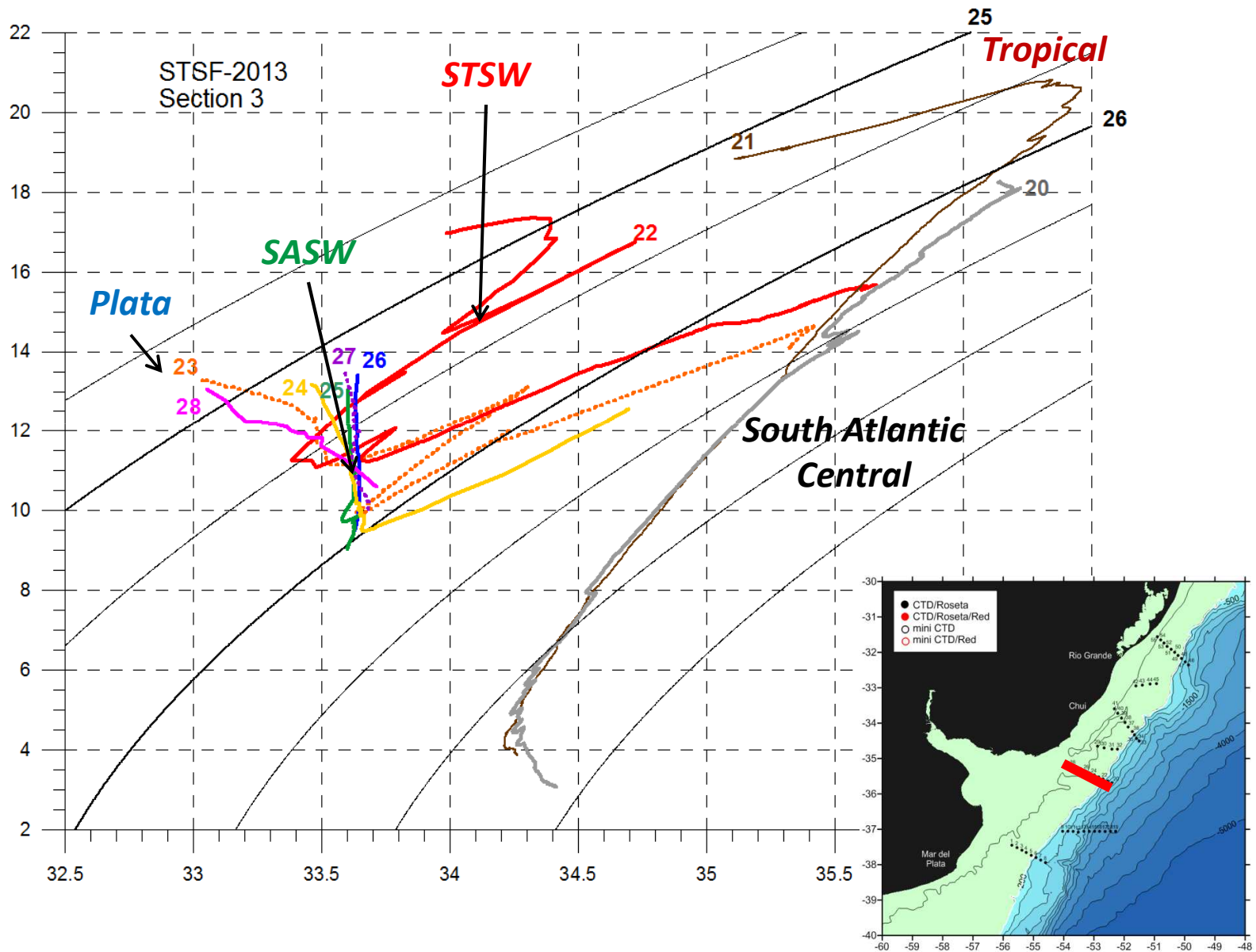


Alkalinity/  
Total Carbon

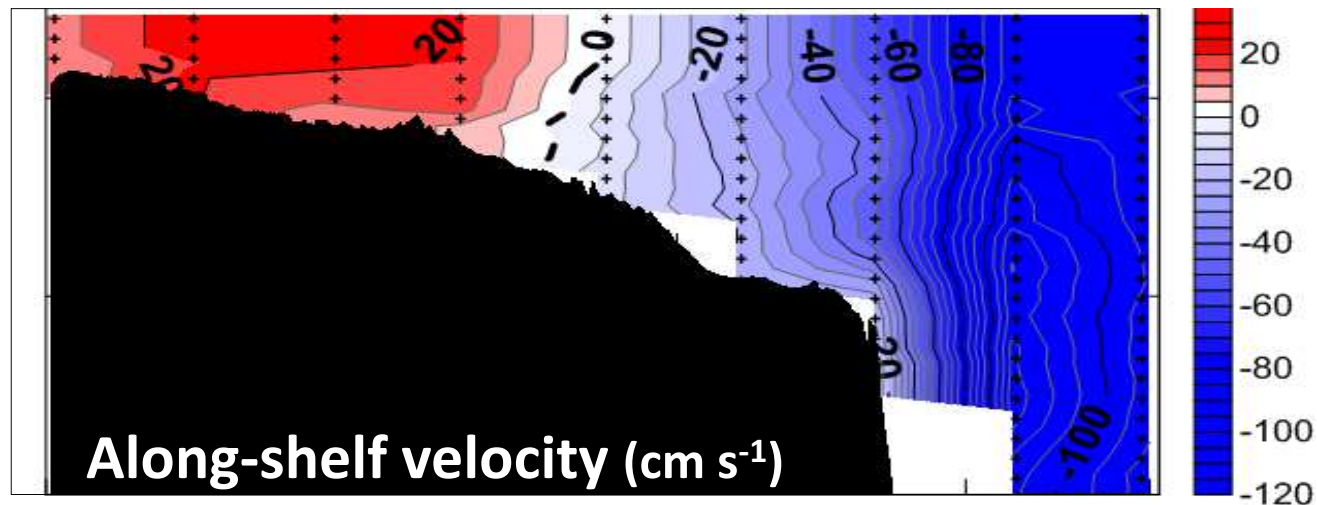
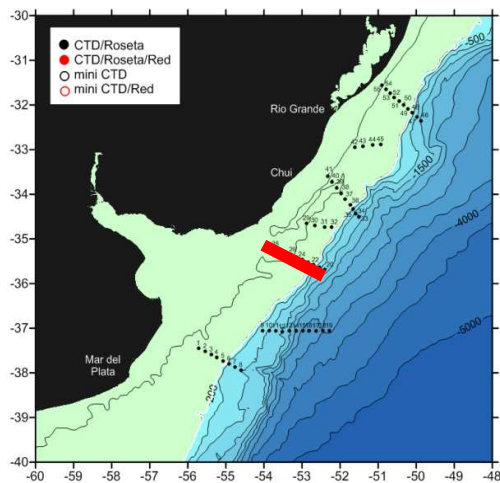
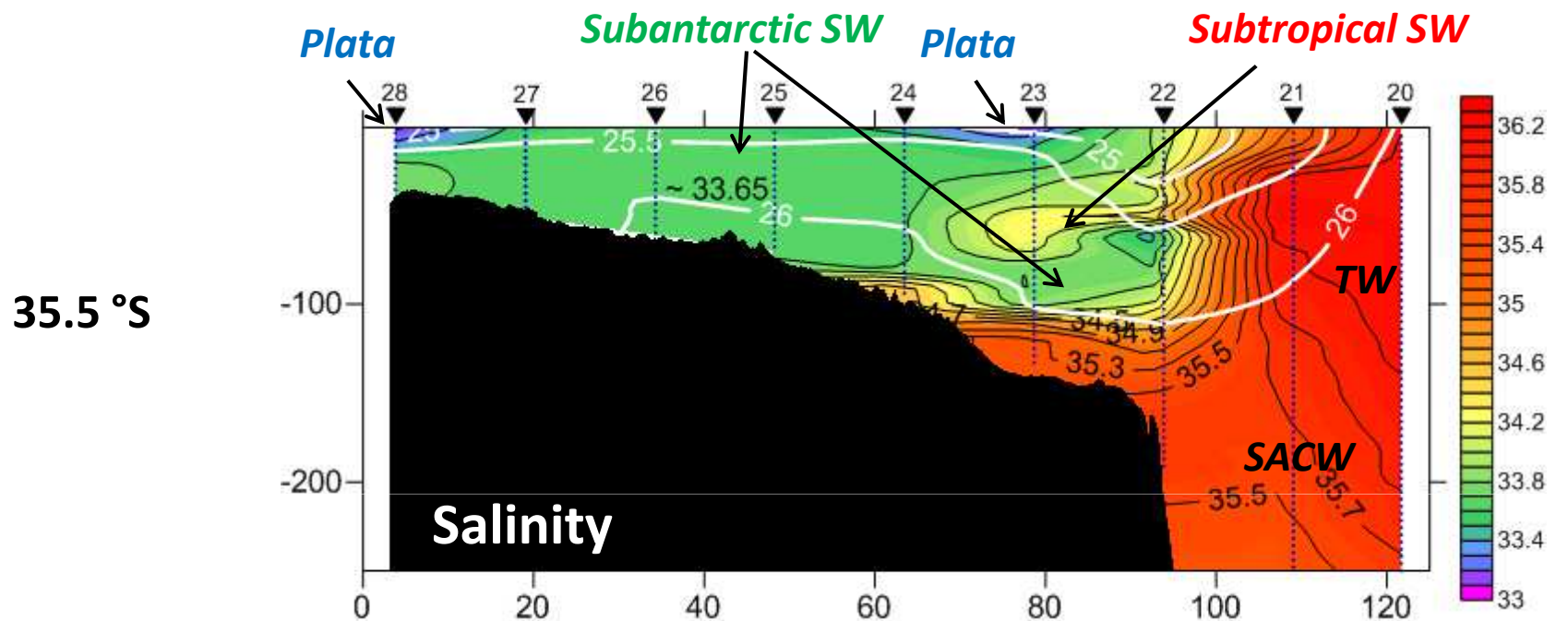




# Water Masses east of the estuary Oct 2013



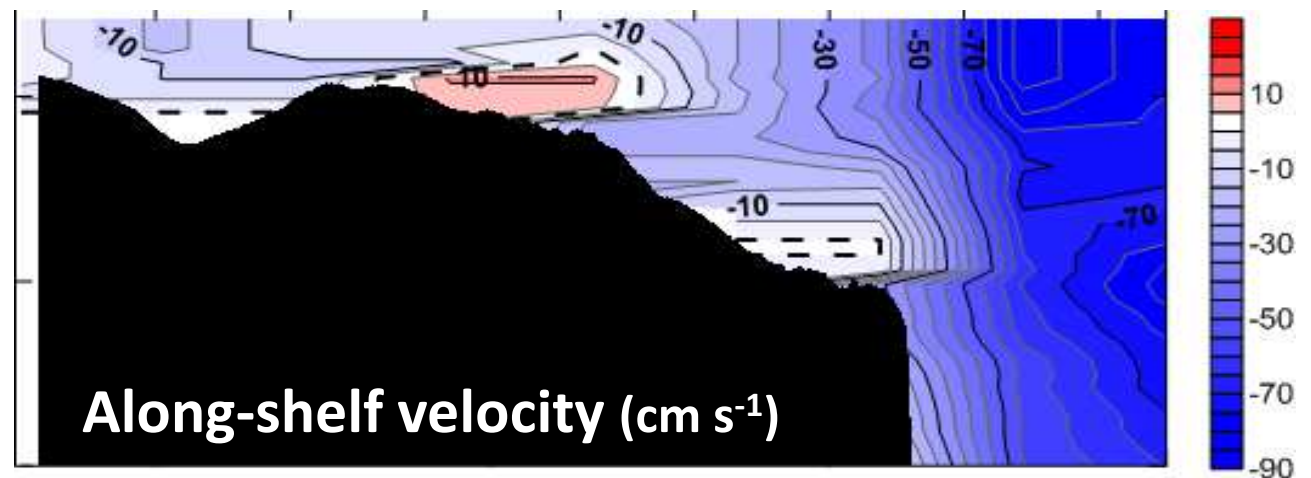
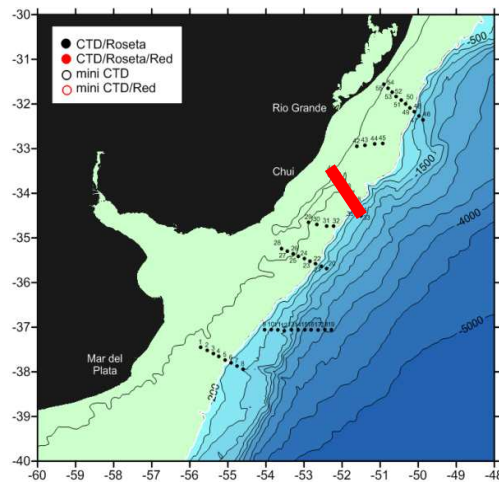
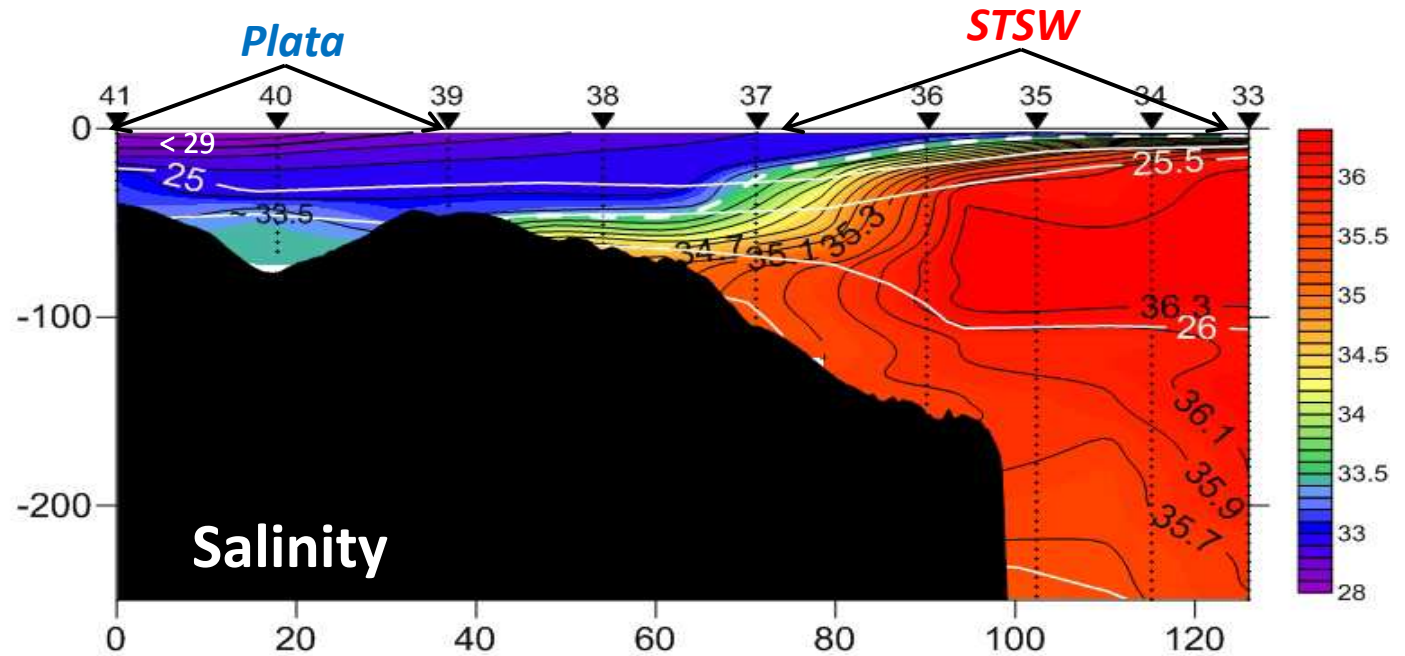
# East of the Plata Estuary





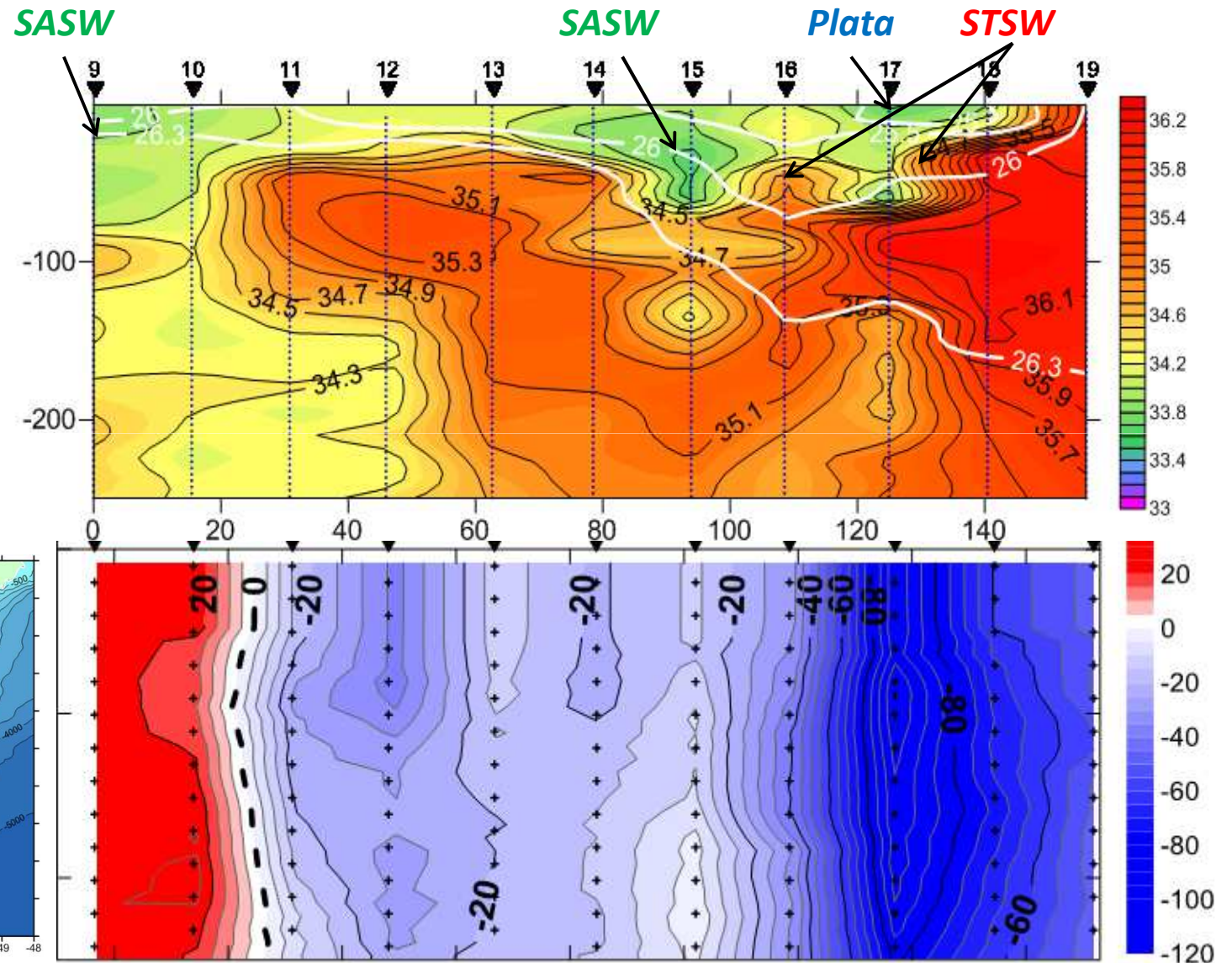
# Southern Brazilian Shelf

34 °S



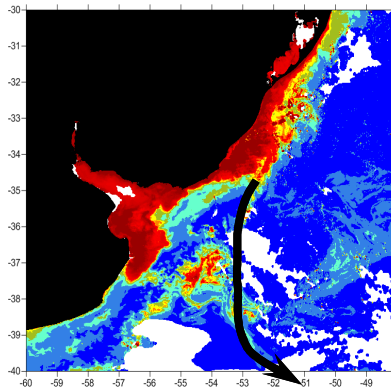
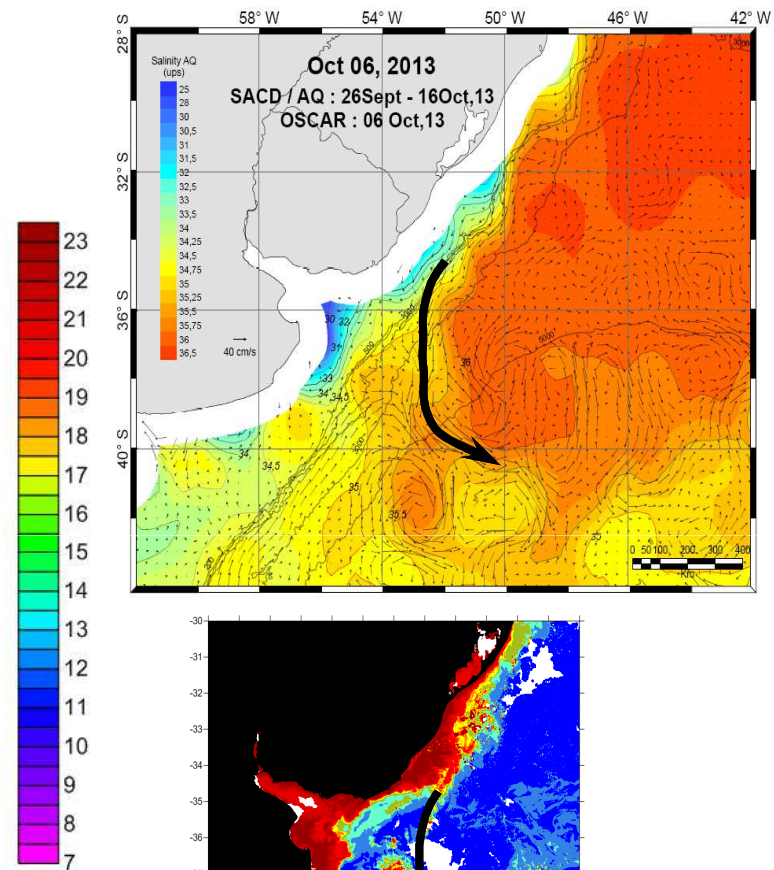
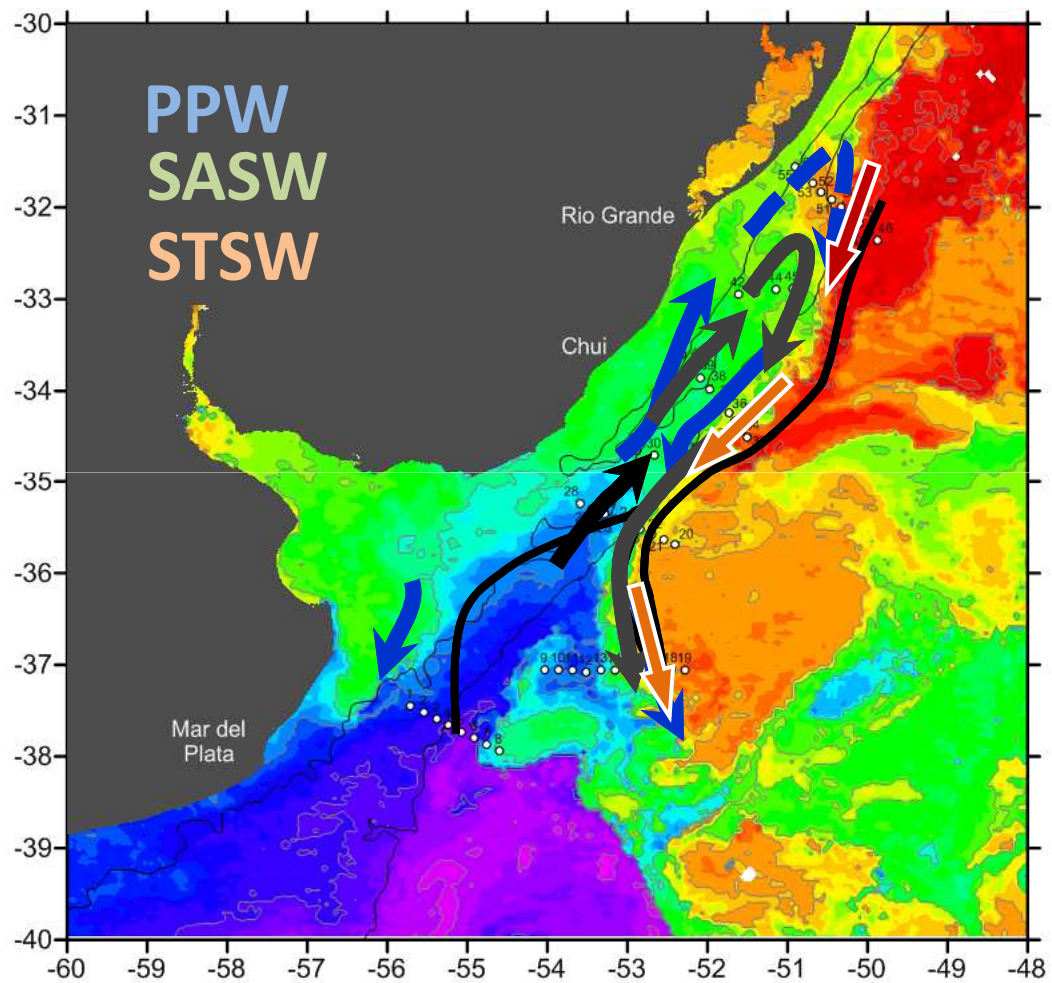
# Brazil/Malvinas Confluence

37 °S





# Synthesis



# Gracias – Thank you



# Summary

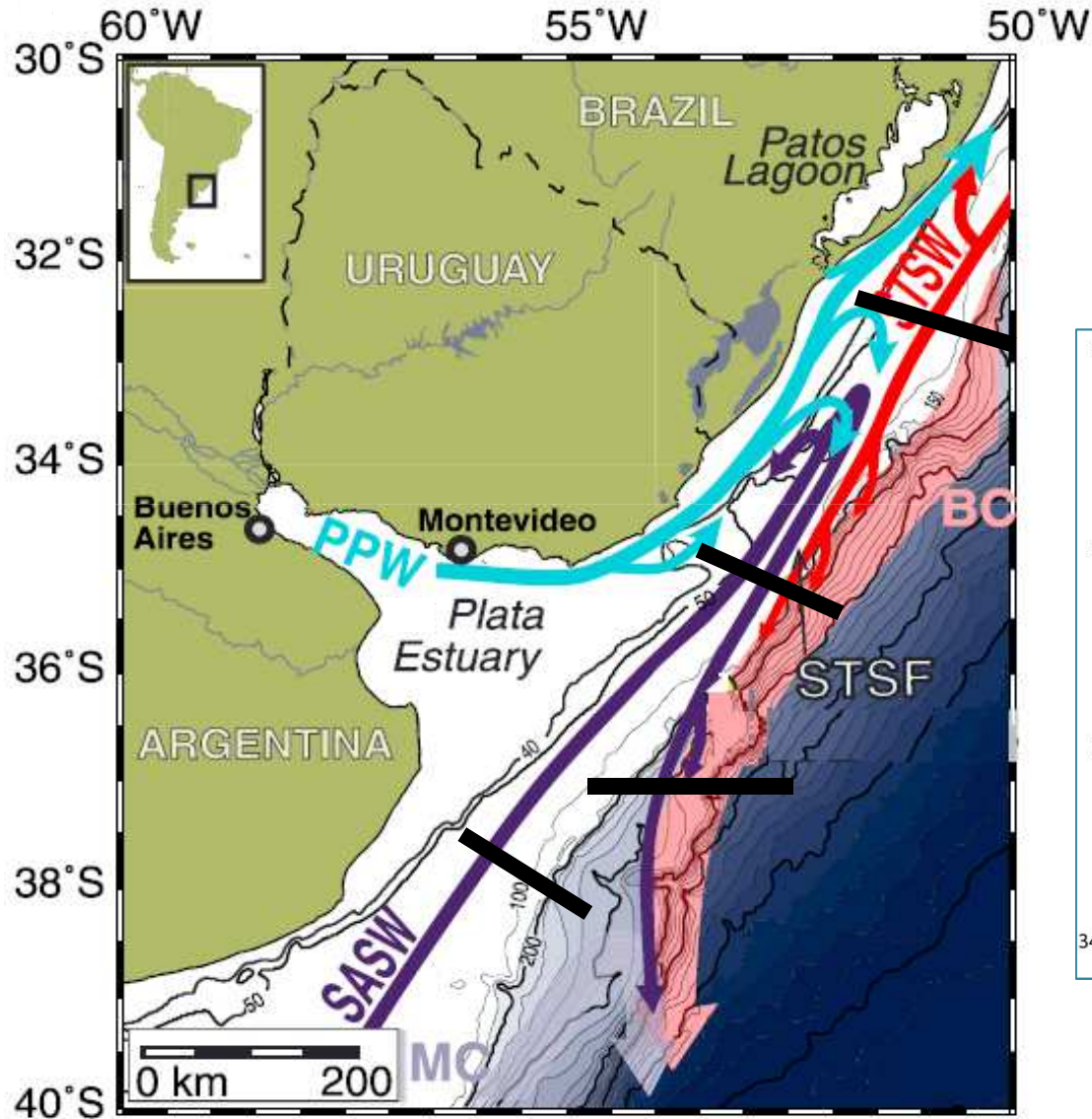
Hydrographic observations from the outer shelf and upper slope reveal that the offshore flux contains the three varieties of shelf water masses.

The Plata water and the warm-salty STSW form relatively thin and narrow filaments near the shelf break

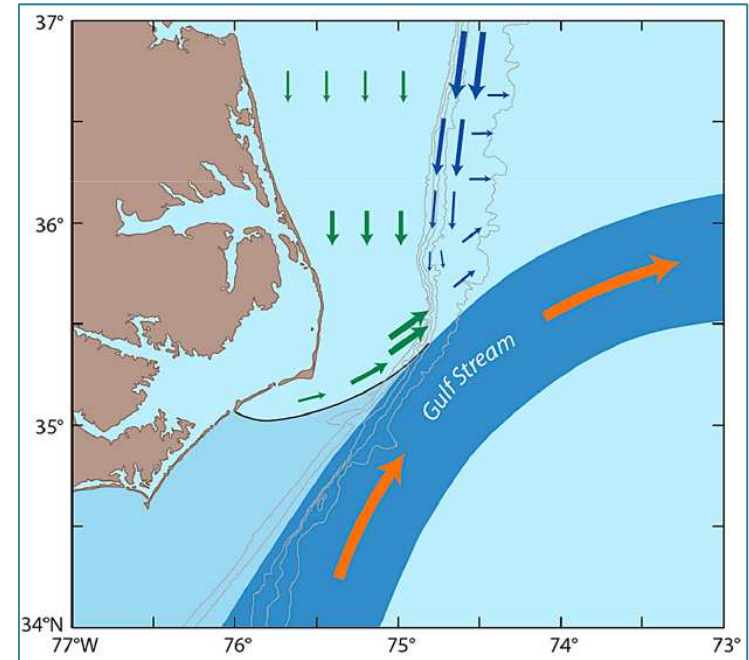
Thin, narrow filaments of Plata waters are observed along the Confluence, while the core of SASW, which is the main contributor to the export of shelf waters, subducts to ~ 30-60 m depth



# Subsurface circulation



## The Hatteras Front



Churchill & Gawarkiewicz, JGR, 2012