



## **Low-frequency thermohaline variability in the Subtropical South Atlantic pycnocline during 2002-2013**

Nicolas Kolodziejczyk (1), Gilles Reverdin (1), Fabienne Gaillard (2), and Alban Lazar (1)

(1) LOCEAN, paris, France (nicolas.kolodziejczyk@gmail.com), (2) LPO/Ifremer, Brest, France

Low-frequency variability of spiciness is observed in the Subtropical South Atlantic over the period 2002-2013 with the Argo gridded product ISAS. Within the pycnocline, spiciness anomalies propagate at a mean speed of  $0.04 \pm 0.02$  m.s<sup>-1</sup>, the same speed as the gyre mean circulation, from the Agulhas Retroflexion region off South Africa ( $\sim 35^\circ\text{S}$ - $20^\circ\text{E}$ ) towards the South American coast ( $\sim 18^\circ\text{S}$ - $35^\circ\text{W}$ ). After 2010, propagation is still found, but stationary local spiciness generation is also found over the Subtropical South Atlantic. This spiciness increase is associated with high values of vertical Turner angle below the mixed layer base during late winter. This suggests spice injection resulting from penetrative convective mixing due to air-sea buoyancy loss. These features may have an impact on the low-frequency warm and salty signal produced by the Agulhas leakage in Subtropical South Atlantic and the upper branch of the Atlantic Meridional Overturning Circulation.