



Sea Surface Salinity variability in the North Atlantic subtropical gyre during the 2012-2013 Strasse/SPURS experiment and from the SMOS salinity mission

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Sea surface salinity (SSS) is investigated in the subtropical North Atlantic Ocean during the subtropical Atlantic surface salinity experiment Strasse/SPURS in August 2012 - September 2013. More than 100 drifters were deployed during this experiment which provide measurements of temperature and salinity, and 15m depth near surface currents. In addition, Level3 salinity products of the Soil Moisture and Ocean Salinity (SMOS) mission corrected from consistent biases are used to retrieve mesoscale salinity features. The comparison between corrected SMOS SSS data and drifter's in situ measurements shows a reasonable agreement, especially during winter time with rms differences on the order of 0.2 pss. The contribution of meso-scales eddies to mixed layer salinity seasonal budget is estimated both from Drifter in situ data and from combination of SMOS SSS and AVISO surface currents. Then, this mesoscale contribution is compared to Ekman and atmospheric freshwater seasonal flux components, which are known to be leading terms in this region. The mesoscales salinity eddy flux contributes to a substantial freshening in the central high salinity region of the subtropical gyre. The estimate derived from SMOS is compared with the one from the drifters, in order to identify possible sampling biases in drifter coverage.