



New insights into Tropical Atlantic salinity variability from SMOS

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Observations from the SMOS satellite are used to reveal new aspects of Tropical Atlantic sea surface salinity (SSS) variability. The first full year of data from SMOS in 2010 shows the variability is dominated by eastern and western basin SSS poles, with seasonal ranges up to 6.5 pss, that vary out of phase by 6 months and largely compensate each other. A much smaller SSS range (0.08 pss) is observed for the region as a whole. The dominant processes controlling SSS variability are investigated using GPCPv2.2 precipitation (P), OAFlux evaporation (E) and Dai and Trenberth river flow (R) datasets. For the western pole, SSS varies in-phase with P and lags R by 1-2 months; a more complex relationship holds for the eastern pole. The synthesis of novel satellite SSS data with E, P and R enables a new approach to determining variability in Tropical freshwater fluxes and its potential impacts on the Atlantic ocean circulation. The analysis for 2010 will be extended to include SMOS data in subsequent years and the extent to which the processes identified above operate at multi-annual timescales will be discussed.