



Stable isotopes of water vapor during the Strasse cruise in the sub-tropical North Atlantic; atmospheric boundary layer composition in relation to local evaporation.

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During the Strasse cruise, a PICARRO L2130-i equipment was installed on the top deck of RV Thalassa with air pumped at an altitude of 20m above the sea surface. With this installation, the isotopic composition of water vapor was continuously measured from mid-August 2012 to mid-September 2012 in the North Atlantic subtropical gyre, mostly around 26°N/36°W. The sea surface water was also regularly collected as well as rain water during a few showers during the cruise. The isotopic composition of these water samples was measured after the cruise at LOCEAN. Two weather packages were continuously measuring relative humidity, air temperature, strength and direction of wind, which provide data close to where the air was pumped, and allow to estimate net evaporation. Radiosondes were also launched during part of the survey in the morning and evening to get information on the lower atmosphere vertical structure. These measurements allow a better understanding of the budget of the atmospheric mixed layer during the cruise in this region of high excess evaporation. In particular, we will comment a two-day event of large deviation in water vapor isotopic composition. We will also discuss to which extent the atmospheric boundary layer acquires its isotopic composition during exchanges with the surface ocean.