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Surface salinity variability in the Atlantic Ocean (50°N-10°S) at pluri-annual to interdecadal time scales (1896-2013)

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Surface salinity data have been collected across the north and tropical Atlantic often by ships of opportunity (SOP) since the mid-1890s. Until the 1950s and even for some regions after, this SOP remains the main source of knowledge on past surface salinity variability Iin this ocean. Ship-of-opportunitySOP surface sampling has continued afterwards and up to now, either from buckets or since the 1990s from thermosalinographs, but in parallel with other means of collections, including station bottles, CTD casts, or more recently profiling floats. We will present to which extent these different sets are consistent and with which accuracy. An attempt to reconstruct past pluri-annual variability over vast sub-regions of the Atlantic, mostly north of 10°S was is then made for the period 1896 to 2013. It often portrays rather similar pluri-annual variability in the different seasons, as we earlier found in the subpolar North Atlantic. The pluri-annual deviations from the seasonal cycle are rather different between the equatorial, the subtropical North Atlantic, and further north at mid latitudes between eastern and western Atlantic. Pluri-decadal variability seems prominent in most of these regions, and seems unlikely to have originated from residual biases in some of the subsets. When combining data from these different regions, thus through the whole North and equatorial Atlantic, there is no significant trend that emerges . Comparisons with SST evolution will be made, in particular for pluri-decennal variability.