



Is the Western Mediterranean Transition showing up in the Strait of Gibraltar?

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Physical and chemical properties (temperature, salinity, pH) of the Mediterranean outflow near the seafloor at Espartel sill, at the westernmost section of the Strait of Gibraltar, have been measured by a monitoring station aimed at following the changes that are taking place in the Mediterranean Sea. Presently, temperature and salinity series are longer than 13 years and they show a slight positive trend (warmer and saltier) that has increased after year 2013. The possibility of this increase being the result of the arrival of the so-called Western Mediterranean Transition (WMT), which started in year 2005 after the huge production of new and denser-than-usual Western Mediterranean Deep Water (WMDW), has been considered. The hypothesis that the water of the WMT is now showing up in the Strait has been put forward by some authors and gets strong support from the pH time series recorded at the station, which shows a sudden and sustained decrease (acidification) starting in early 2016. This decrease is consistent with the fact that the water now being observed flowing out is younger, i.e. has been in contact with the atmosphere more recently, than the WMDW it used to flow out previously to this year. It was only after the large new WMDW production of the harsh winters of 2012 and 2013 and the expected uplift of older layers of WMDW they caused that WMT waters were made available to flow out the Mediterranean Sea.