



Tidal Records as Liquid Climate Archives for Large-Scale Interior Mediterranean Variability

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As in the global ocean, in the Mediterranean Sea a robust assessment of past state and variability of the interior dynamics is prevented by sparseness and shortness of historical subsurface observations and uncertainties affecting oceanographic reconstructions. In the present contribution, a novel approach to infer past large-scale interior ocean variability in the Mediterranean Sea with unprecedented accuracy and temporal resolution is proposed. It exploits links between stratification due to “large-scale” water mass distributions and local dynamics. We characterize interannual variability in the Mediterranean Sea in the early 20th century contained in tidal measurements in the Strait of Messina, and discuss the general applicability of our method, which paves the way to a new approach to analyze historical oceanographic records. So, regions where different water masses are known to collide can act as magnifying glasses for basin-scale interior ocean variability and hence provide “liquid archives” for oceanography and climatology.