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T-MEDNET: A CLIMATIC NETWORK FOR LARGE SCALE, HIGH RESOLUTION AND LONG TERM MONITORING OF MEDITERRANEAN COASTAL WATERS THERMAL STRATIFICATION

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Abstract: T-MedNet initiative is devoted to spread the acquisition of climatic series in Mediterranean coastal waters, as well as to facilitate data sharing and analysis. In the NW Mediterranean, shifts in species' distribution and mass mortality events (MME) reported during the last decades have been related to significant warming and positive anomalies (1999, 2003 and 2006). Given actual warming projections for the Mediterranean, the repetition of new MMEs is extremely likely. In this context, gaining robust data sets on coastal waters thermal stratification at the appropriate (high resolution) temporal and spatial scales is critical to assess conditions to which benthic species have adapted, detect extreme events and critically evaluate biological impacts. In T-MedNet, temperature is being recorded *in situ* by autonomous sensors fixed to the rocky substrate every 5 m from 5 to 40 m depth and set to collect hourly records. To date, high resolution temperature records are being collected in more than 21 sites across the NW Mediterranean. The portal <http://www.t-mednet.org> provides information on high resolution temperature records currently available, methodological support on "how to" implement new high resolution

temperature series and new tools for the management and analysis of the high resolution temperature series. The development of T-MedNet, a concerted initiative by scientists and managers for the acquisition of climatic series and knowledge sharing, will be crucial for increasing our detection, understanding and forecasting abilities of climate change impacts on Mediterranean coastal ecosystems. These abilities will be key to implement sound conservation and management plans for the conservation of the rich Mediterranean biodiversity.

Keywords: Mediterranean coastal ecosystems - sea water temperature - stratification regime - positive temperature anomalies - climate change impacts

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