



Climate-driven episodic events in the continental margins of the Mediterranean Sea and their effects on deep-sea ecosystems

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Natural episodic events, such as gravity flows, submarine landslides, and benthic storms can determine severe modifications in the structure and functioning of deep-sea ecosystems. Here, we report and compare the ecosystem effects produced by dense water formation events that occurred in the Gulf of Lions (NW Mediterranean) and the Aegean Sea (NE Mediterranean). In both regions, the rapid sinking of cold dense waters, driven by regional meteorological forcings, results in important immediate modifications that can be summarised in: i) increased organic matter content in the deep basin, ii) diminished benthic abundance and iii) changes of benthic biodiversity. At longer time scale the analysis reveals, however, different resilience times in the two regions. The Gulf of Lions is characterized by a very fast (months) recovery whereas the Aegean Sea shows much longer (> 5 years) resilience time. New long-term studies are further needed to identify the potential effects that changes in the duration, intensity and frequency of episodic events could have on the structure, biodiversity and functioning of the deep Mediterranean Sea under environmental and climate change scenarios.