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# Simulation of the last sapropel event using high-regional oceanic model

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Since decades, the simulation of sapropel events remains a challenge. These events, occurring periodically in the Mediterranean Sea produce a strong stratification of the water column and break intermediate and deep convection, thereby leading to a decrease in deep water oxygen, of which evidence are recorded in marine sediment cores. Data from Mediterranean sediments have thus helped to better understand the anoxia process, in particular for the last sapropel event, S1, lasting 3000 years about 10 kyrs ago. However the causal link between insolation changes and the African monsoon variations – thought to be the trigger of sapropel events –, and anoxia has still to be quantified. From a modelling point of view, a requisite for studying sapropel events is to capture seasonal winds that are instrumental in producing convection in the Med Sea. Recently, the development of high-resolution several models studies intend to fill this gap, building different scenarios (Grimm et al, 2015). Combining an atmospheric GCM (LMDZ4) and a high-resolution oceanic model (NEMOMED8, resolution of 1/8 degree) dedicated to the Med Sea, our first objective is to test whether monsoon precipitation triggered by insolation changes can increase the Nile run-off enough to stratify the East Mediterranean Sea. We notably show that a 15 mSv Nile runoff increase triggers a large decrease of convection in the whole Eastern Mediterranean Sea associated with strong anoxia in bottom waters.. Comparisons of our first experiments with $\delta$18O and $\varepsilon$-Nd data will also be presented. Future work includes extending our simulations to investigate whether sapropel events can be maintained on longer time scales.