Paleoceanographic inferences from borehole PRAD1-2 from MIS1 to MIS10 in the Central Adriatic (EC-PROMESS 1 project)

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Here we present a paleoceanographic reconstruction of borehole PRAD1-2 by means of quantitative and semiquantitative data of planktic and benthic foraminifera assemblages, their O and C stable oxygen records, performed on planktic (*G. bulloides*) and benthic (*B. ex gr. marginata*) foraminifera, integrated by information from reference cores collected nearby. Although the Central Adriatic is a landlocked basin, a climatic cyclicity that spans a time interval from MIS 1 to MIS10 and is well correlatable with other Mediterranean records has been recognised in the borehole. The warm stages are dominated by warm/temperate species (such as *G. ruber*, *Orbulina*, *G. sacculifer* and *G. inflata*), whereas the cold stages show, at least in some cases (MIS 2, MIS 8 and MIS 10), very scarce or absent planktic foraminifera (mainly *G. quinqueloba*). Other glacial intervals (MIS 4 and MIS 6) are instead characterised by abundant planktic forams reflecting cold-water assemblages (*G. quinqueloba*, *G. bulloides* and *N. pachyderma* r.c.). These very different conditions can be related to the change of the water column depth, because of both the eustatic signal and the depositional and geological history of the area. The measurements of sea surface temperature (SST) using the alkenones usually range between 4ºC and 21ºC. They show the expected glacial and interglacial variability with 19-21ºC for the interglacial periods and 4-9ºC for the

glacials. The top core value is 15ºC. Moreover, during the warm stages the benthic assemblage indicates relatively well-oxygenated bottom waters, while during the cold stages the overall condition was suboxic, except during the MIS2, where several levels characterised by dysoxic conditions are reported. The planktic assemblage presents several "anomalies" corresponding to Sapropel equivalent levels. These levels may present (like in the case of S5 and S7) two phases: an oligotrophic phase dominated by *G. ruber* pink, with thin test and inflated chambers, and a high productivity phase dominated by *G. quinqueloba*, *G. bulloides* and *N. pachyderma* r.c. In other cases (S3, S4, S6, S8, S9 and S10) only the high productivity phase is present. The S1 equivalent presents only the oligotrophic phase, as already reported in the literature. In most of these sapropel equivalents (except S1, S3 and Si) the benthic assemblage suggests bottom conditions ranging from suboxic to anoxic. This fact implies that cold deep water, presently forming in the Northern Adriatic and ventilating the Eastern Mediterranean basin, did not form during these intervals. This is also supported by the greater dilution of the surface water (recording an interval of enhanced rainfall?) indicated by the $\delta^{18}O$ record particular in S5, S6, S7, S8 and S10. In contrast, during S3 and in particular during S1, deep water somehow formed, as testified by the benthic assemblage present in the entire Central Adriatic.