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Unveiling the variation in intermediate water mass circulation and its potential effects on Tunisian cold-water coral mound development during the last glacial cycle

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To date, most thriving cold-water coral assemblages in the Mediterranean Sea are found within the water depths bathed by the Levantine Intermediate Water (LIW). In a similar way, coral mound development in this basin has been partly linked to the distance between the mounds' summit and the water mass interface found at the transition from Atlantic Water (AW) to LIW (ca. 200-250 m water depth). Water mass interfaces are characterised by sharp density gradients that promote the accumulation of particulate matter, mainly consisting of plankton. Additionally, the interaction between two water masses might promote the creation of internal waves that propagate along the interface, increasing sediment resuspension and vertical mixing, which could ultimately promote enhanced transfer of organic matter to the depths were the corals are found. Nonetheless, due to glacio-eustatic changes and other paleoclimatic variations, the depth and intensity of the AW-LIW interface are likely to change through time. In this regard, the present study aims to use gravity cores collected from on- and off-mound areas of the Tunisian Coral Mound Province to assess the potential variations in intermediate water mass circulation during the last glacial cycle and its effects on coral mound development. Specifically, we aim to use Nd isotopic analyses from both corals and foraminifera to describe the changes of water-mass influence in the area. These analyses will be complemented with grainsize and U/Mn data, extracted from foraminifera, in order to acquire a better understanding of the changes in intensity and oxygenation of the water mass bathing the mounds. The analyses of the samples is currently underway and thus, the preliminary data together with a corresponding discussion will be presented.