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Deglacial Mediterranean-basins link: old carbon-enriched eastern waters and collateral consequences for western aragonite mounds growth

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A Mediterranean Thermohaline Circulation slowdown related to deglaciation and monsoon dynamics have largely been discussed, but it yet remains insufficiently constrained. With the aim of investigating changes in water mass residence time (as a key parameter to elucidate inter-basin communication variations) and its potential environmental impacts, we present a multi-proxy-archive study in the Western Mediterranean mid-depth based on cold water corals radiocarbon ventilation ages, along with foraminiferal O_2 and [CO_3^{2-}] qualitative inferences. At ~300m, we find: 1) two aged-water pulses at Younger Dryas and ~8.2 event, respired carbon enriched and coincident with low CWC mound growth, and 2) a well-ventilated water pulse in between, parallel to a CWC mound flourishing stage. Our results allow changes in ventilation rates to be shown, quantified, and timed in association with periodical phases of MedTHC weakening, as well as suggesting enriched respired carbon episodes as a potential cause of decreased mound growth rates via aragonite dissolution.