Intermediate water temperature and radiocarbon records from the North Atlantic and Southern Ocean across the most recent glacial termination

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Intermediate waters play an important role in global heat transport; therefore, changes in intermediate water circulation can strongly impact global climate over glacial-interglacial transitions. We present intermediate water clumped isotope temperature and radiocarbon timeseries spanning the most recent glacial termination, based on deep-sea *Desmophyllum dianthus* corals. North Atlantic and Southern Ocean radiocarbon records are variable and close to the contemporaneous atmosphere during Heinrich Stadial 2, scattering around their modern ocean offsets. During the LGM and the early part of Heinrich Stadial 1, radiocarbon values are more depleted and less variable. During the late part of Heinrich Stadial 1, radiocarbon values are more variable again, but still depleted. During the ACR/Bølling-Allerød, radiocarbon values in the Southern Ocean and North Atlantic are enriched compared to their modern ocean offsets and highly variable, especially in the Southern Ocean. North Atlantic and Southern Ocean temperature records drop during Heinrich Stadial 2 from relatively warm values of ~8 and 6.5 °C, respectively at 26 ka to cooler values of ~4.5 ºC at 23 ka. Southern Ocean temperatures rise again during the LGM to ~7 ºC, drop through the middle of Heinrich Stadial 1, and rise again before the start of the Bølling. There is a gap in the North Atlantic record during the LGM, but temperatures also rise from the middle to the late part of Heinrich Stadial 1. Through this interval, the North Atlantic is also consistently colder than the Southern Ocean. These intermediate-depth warming trends during Heinrich Stadial 1 are consistent with other intermediate-depth warming trends during this time documented in the Equatorial Atlantic (Weldeab et al., 2016) and North Atlantic (Thiagarajan et al., 2014).