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Spatial and temporal variability of eastern Pacific radiocarbon and carbon chemistry from the ice age to today

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Proxy records of seawater radiocarbon ($^{14}C/C$) provide strong constraints on how changes in ocean ventilation contributed to the increase in atmospheric CO_2 during the termination of the last ice age (»18,000-to-12,000 years ago). Here, new and published glacial-interglacial benthic foraminiferal $^{14}C/C$ records map the spatial and temporal variability of the intermediate-depth water mass containing the deglacial Eastern Tropical North Pacific $^{14}C/C$ anomaly. These results clearly show that the ETNP deglacial $^{14}C/C$ anomaly develops near the GoC mouth, concomitant with local hydrothermal systems. Considering these results alongside new paleo-pH measurements (boron isotopes), we argue that the input of pH-neutral geologic carbon from hydrothermal vents near and within the GoC could explain the anomalous intermediate-depth $^{14}C/C$ values both during the deglaciation and today.