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## Transport of Excess Heat at 24.5°N

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Repeated hydrographic surveys have allowed for the monitoring of the 24.5°N trans-Atlantic transect of volume and heat transports since the middle of the last century. However, identifying the geographic origins and the temporal characteristics of full depth ocean heat content (OHC) anomalies is still at the frontier of global ocean warming research albeit it is critical to the understanding of the current warming of the ocean and its future evolution. To address this gap, we combine volume transports at 24.5°N with an historical reconstruction of excess heat, which we define as the heat gained across the section since the year 1850 to present. The reconstruction is based on a maximum entropy approach that links the location and time of the last entry into the ocean of a series of transient and geochemical tracers to their full depth in situ measurements in the interior. Here, we apply it to tracers measured on the hydrographic sections at 24.5°N since 1992. This methodology is a step forward in exploring the coherence of the OHC distributions at 24.5°N over time with the variability of the SST in the source regions and the role of the AMOC, all genuinely based on observations. We find that the AMOC ranges from 16 to 19 Sv, heat transport from 0.9 to 1.5 PW and excess heat transport from 19 to 31 TW. The excess heat is transported northward across 24.5°N thus reinforcing the warming of the North Atlantic Ocean.