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Repeat hydrography and Deep-Argo reveal a warming-to-cooling reversal of overflow-derived water masses in the Irminger Sea during 2002-2021.

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Sustained shipboard hydrography surveys along the A25-Ovide section (2002 – 2018) are combined with data from a regional pilot array of Deep Argo floats (2016 – 2021) to estimate the decadal variability and linear trends in the temperature of overflow-derived waters in the Irminger Sea. Removing local or remote dynamical influences (heave) enables to identify a new statistically-significant trend reversal in Iceland Scotland Overflow Water (ISOW) and Denmark Strait Overflow Water (DSOW) core temperatures (spice). The latter took place in 2014 and interrupted a long-term warming of those water masses that was prevailing since the late 1990's. Deep-Argo floats further reveal an overall acceleration of this cooling since 2014, with a mean rate of change estimated at -18 m°C yr^{-1} during 2016 – 2021, as well as a boundary-intensified pattern of change. This, along with the absence of apparent reversal in the Nordic Seas and with DSOW warming and cooling twice as fast as ISOW, points out the entrainment of subpolar intermediate signals within the overflow plumes near the Greenland-Iceland-Scotland sills as a most likely driver.