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A new surface-water temperature record for the Oligocene-Miocene Transition from the western North Atlantic (IODP Site U1405)

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The Oligocene represents an early stage of the Cenozoic icehouse world and is characterized by a high variability in the δ^{18}O of deep-sea benthic foraminifera and high-amplitude sea-level fluctuations probably related to southern hemisphere ice sheet instability. This variability culminates in a major glaciation event during the earliest Miocene $\sim$23 Million years ago (Mi-1 event). High-quality data sets based of well-preserved planktic foraminifera across the Mi-1 event are scarce and limited to the low-latitudes and southern hemisphere. During IODP Expedition 342 expanded sequences covering the Oligocene to early Miocene transition have been drilled at J-Anomaly Ridge off Newfoundland. These sediments contain exceptionally well-preserved calcareous microfossils and are characterized by high sedimentation rates. Pristinely preserved, "glassy" planktic foraminiferal tests were analyzed at a resolution of $\approx$20 kyrs to unravel the long-term climate evolution during the magnetochron interval C6AAr.2n/C6AAr.3r to C6Cn.3n/C6Cr across the Oligocene-Miocene Transition. To achieve this goal, a dual-proxy approach (δ^{18}O, Mg/Ca) has been employed to estimate sea-surface and thermocline temperatures based predominantly on *Globigerinoides primordius* and *Catapsydrax dissimilis*, respectively. This approach allows for the reconstruction of North Atlantic surface ocean response to the Mi-1 event and how it has been influenced by global climate dynamics. First results show a very high variability in δ^{18}O and Mg/Ca for both mixed-layer and thermocline dwelling taxa pointing towards highly variable climatic and oceanographic conditions in the northwestern Atlantic. Both habitats record a distinct shift to heavier δ^{18}O and lower Mg/Ca values across the Mi-1 event, implying decreasing temperatures.