

**Air temperature variations on the Atlantic – Arctic boundary since 1802:  
the low-frequency pattern in observations and 20<sup>th</sup> Century Reanalysis (V. 2)**

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A two-hundred year instrumental record of annual surface air temperature (SAT) in the Atlantic – Arctic boundary region was reconstructed from four station-based composite time series. Credibility is supported by ice core records, other temperature proxies, and historical evidence. This record (designated  $T_{NA}$ ) provides long term perspective in a region where unexplained low-frequency climate variations were observed during the 20<sup>th</sup> century. No obvious analog was detected over the preceding 100 years. However, evidence of a strong teleconnection between  $T_{NA}$  (and related SAT records) and SST anomalies in the western boundary current – southern recirculation gyre (WBC) region of the North Atlantic Ocean provides an opportunity to reframe the problem of low-frequency variability in the region in terms tractable to theory and empirical investigation. Here we examine the imprint of observed low-frequency SAT and SST variations in the 20<sup>th</sup> Century Reanalysis and related subsidiary data sets.