



## **Marine-based multi-proxy reconstruction of Atlantic multi-decadal variability**

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Atlantic multi-decadal variability (AMV) is known to impact climate globally, and knowledge about the persistence of AMV is important for understanding past and future climate variability, as well as modeling and assessing climate impacts. The short observational data do not significantly resolve multi-decadal variability, but recent paleo-proxy reconstructions show multi-decadal variability in North Atlantic temperature prior to the instrumental record. However, most of these reconstructions are land-based, not necessarily representing sea surface temperature. Proxy records are also subject to dating errors and micro-environmental effects. We extend the record of AMV 90 years past the instrumental record using principle component analysis of five marine-based proxy records to identify the leading mode of variability. The first principal component is consistent with the observed AMV, and multi-decadal variability seems to persist prior to the instrumental record. Thus, we demonstrate that reconstructions of past Atlantic low-frequency variability can be improved by combining marine-based proxies.