

Persistent multi-decadal Greenland temperature fluctuation through the last millennium

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Future Greenland temperature evolution will affect melting of the ice sheet and associated global sea-level change. Therefore, understanding Greenland temperature variability and its relation to global trends is critical. Here, we reconstruct the last 1,000 years of central Greenland surface temperature from isotopes of nitrogen and argon in air bubbles in an ice core. This technique provides constraints on decadal to centennial temperature fluctuations. We found that northern hemisphere temperature and Greenland temperature changed synchronously at periods of about 20 years and 40-100 years. This quasi-periodic multi-decadal temperature fluctuation persisted throughout the last millennium, and is likely to continue into the future.

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