

## Conversion of GISP2-based sediment core age models to the North GRIP ice core chronology

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The early portion of the last glaciation is beyond the range of reliable radiocarbon dating. This is problematic for assigning ages to an important period in human history that includes the migration of modern humans out of Africa and their eventual replacement of Neanderthals. In addition to the assignment of absolute age, this also complicates understanding the relative deposition timing of stratigraphic layers from distant sites. While correlation to Greenland ice core records provides an alternate dating means, paleoclimate records generated over the past 15 years often have incompatible time scales due to significant revisions in the ice core chronologies.

Creation of a compatible chronology is required prior to quantitative analysis of spatial and temporal climate variability. Here we present an automated mathematical function that updates GISP2-based chronologies to the newer, NGRIP GICC05 age scale. This is done using the original author's own age tie points and does not effect relative phasing with Greenland stadial-interstadial variations. The script is modular in design, allowing substitution of our isotope matching for the more comprehensive volcanic matching, once available. Usage of this function highlights on the NGRIP chronology, for the first time, the series of global millennial events related to the large and rapid millennial climate events of the Last Glaciation.