

Lateglacial temperature and vegetation in western Ireland

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INTRODUCTION

Here we present a high-resolution reconstruction of Lateglacial summer temperature changes and vegetation development in western Ireland. The study site is located close to the Atlantic Ocean, which makes its vegetational history exceptionally sensitive to climatic changes associated with changes in ocean circulation.

For the first time, we quantify summer temperature changes associated with observed changes in the Lateglacial vegetation development.



Coring at Fiddaun

RESEARCH SITE AND METHODS

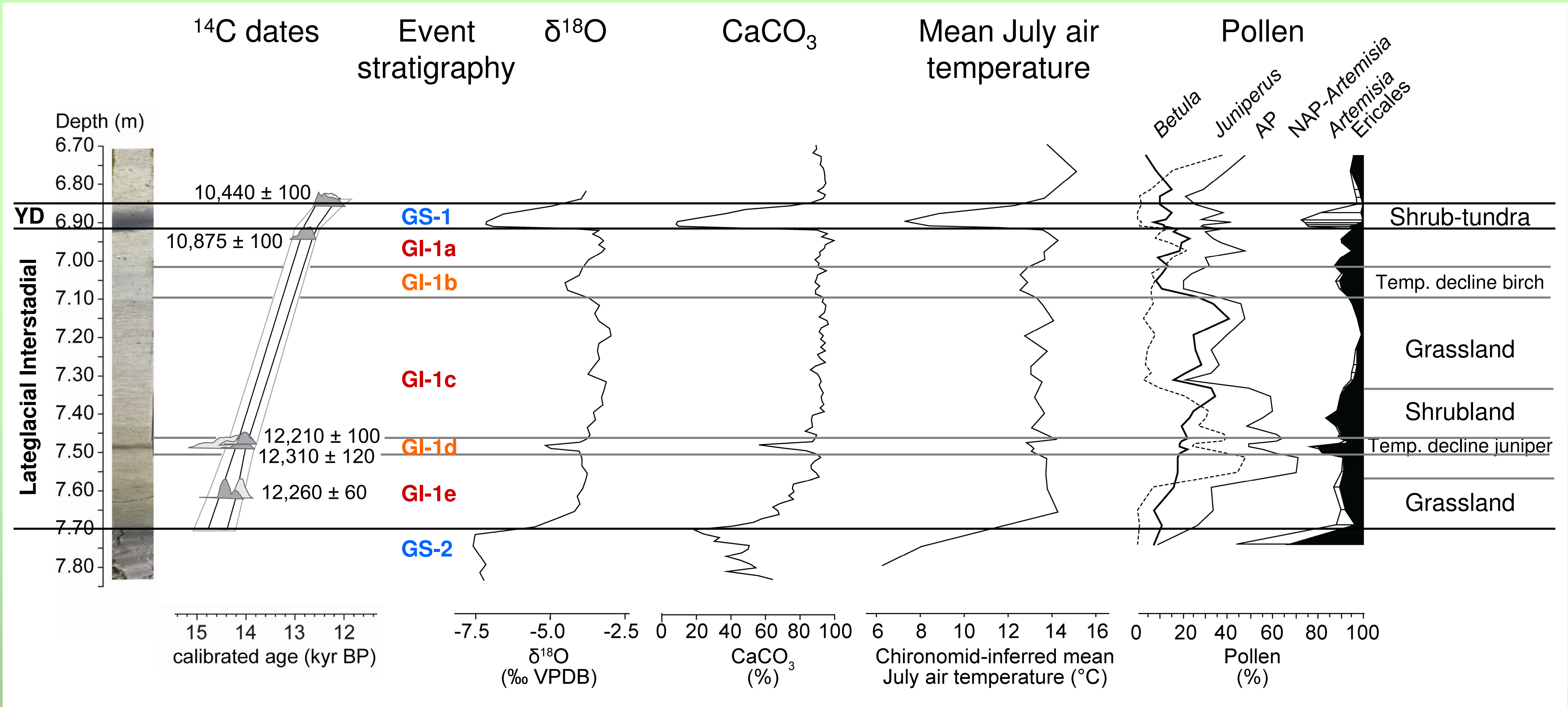
We obtained a lacustrine sediment record from Fiddaun, western Ireland (53°00'56"N, 08°52'03"W).

The core was analysed for lithology, oxygen isotopes of bulk carbonates, fossil chironomids and pollen; chronology was based on radiocarbon dates. Chironomid assemblages were used to infer mean July air temperatures.



Sampling site

RESULTS



DATA SUMMARY AND CONCLUSIONS

- Mean July temperatures of ~12.5-14.5 °C are reconstructed for the Lateglacial Interstadial.
- Two short-lived cold oscillations are discerned in the Interstadial, these are correlated to GI-1b and GI-1d.
- These cold oscillations led to a temporary reduction of juniper and birch shrub regeneration.
- It seems the first oscillation (GI-1d) was the more severe in western Ireland, as carbonate precipitation decreased during this event.
- The transition to grassland during the Interstadial was not associated with decreasing summer temperatures.
- Younger Dryas July temperatures decreased to ~7.5 °C, carbonate precipitation stopped and grassland was replaced by shrub-tundra.

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