

Subfossil yew (*Taxus baccata*) wood from eastern England reveals mid-Holocene climate and environmental changes:

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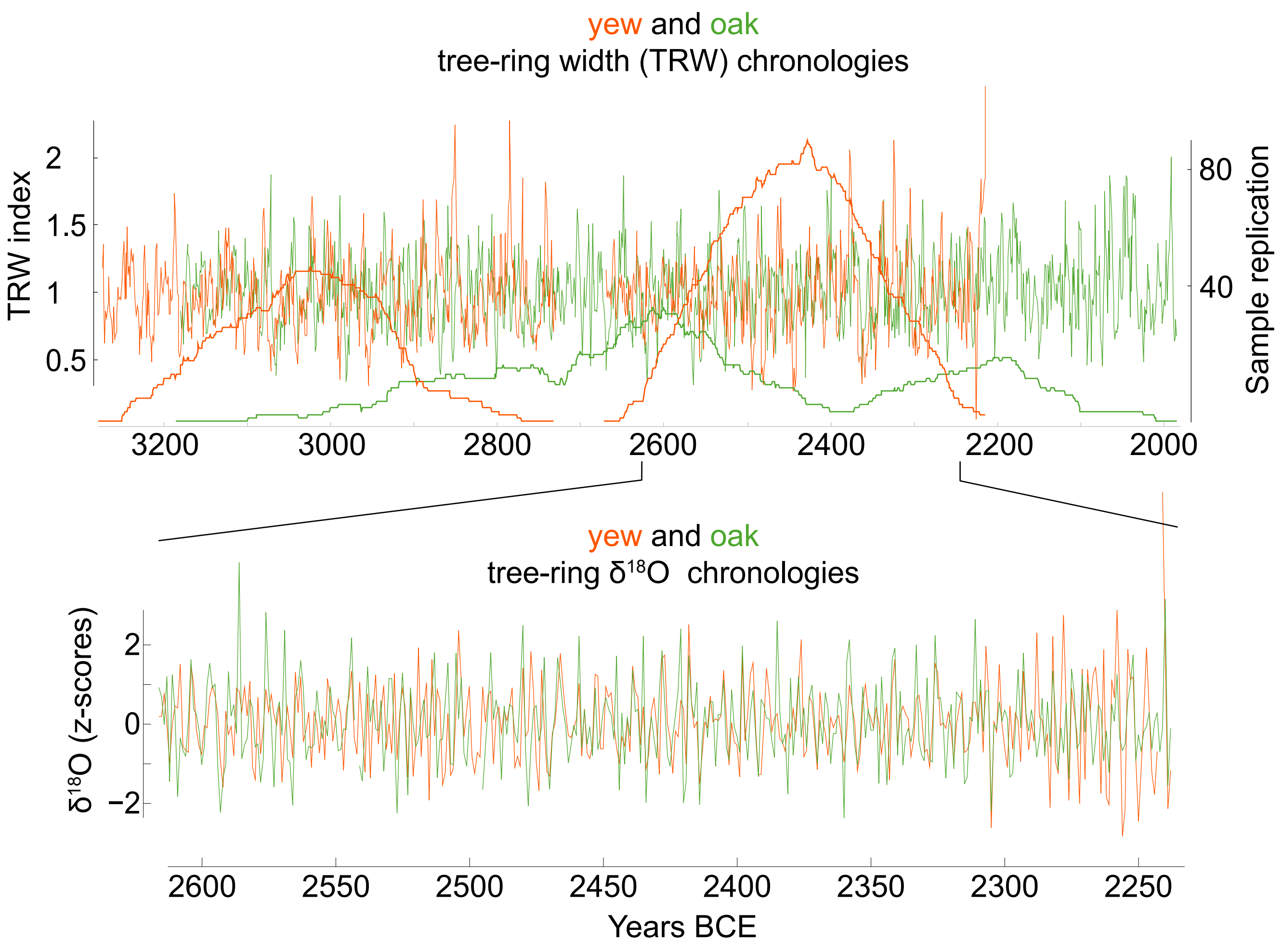
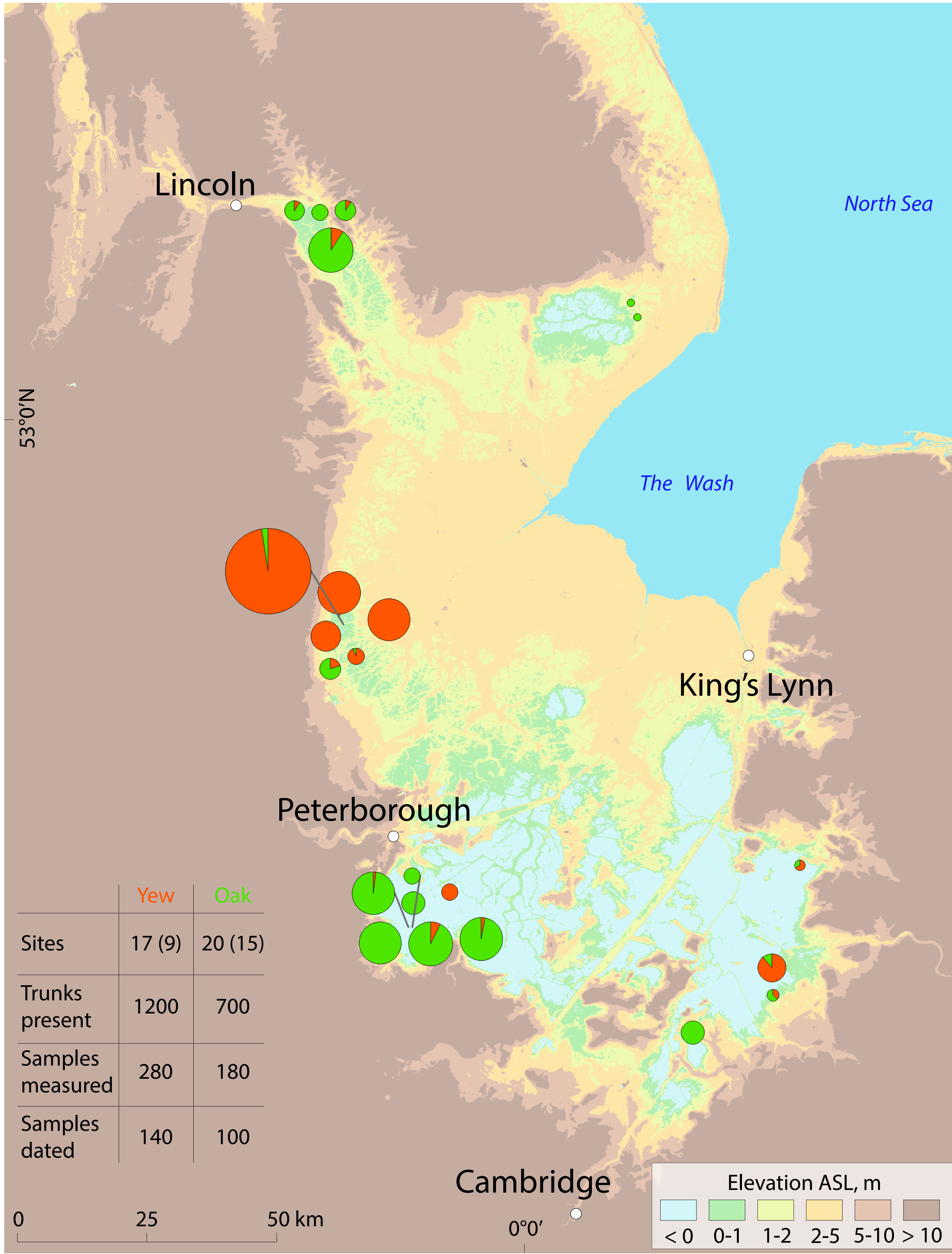
Bebchuk et al. 2024, QSR



Bebchuk et al., 2025, ClimDyn



Bebchuk et al., 2025, GRL



Over 1,000 subfossil **yew** and **oak** trunks were excavated from peat-rich soils of eastern England.

We developed mid-Holocene **yew** and **oak** TRW chronologies.

We used tree-ring stable $\delta^{18}\text{O}$ isotopes to precisely date the **yew** record against the **oak** $\delta^{18}\text{O}$ chronology.

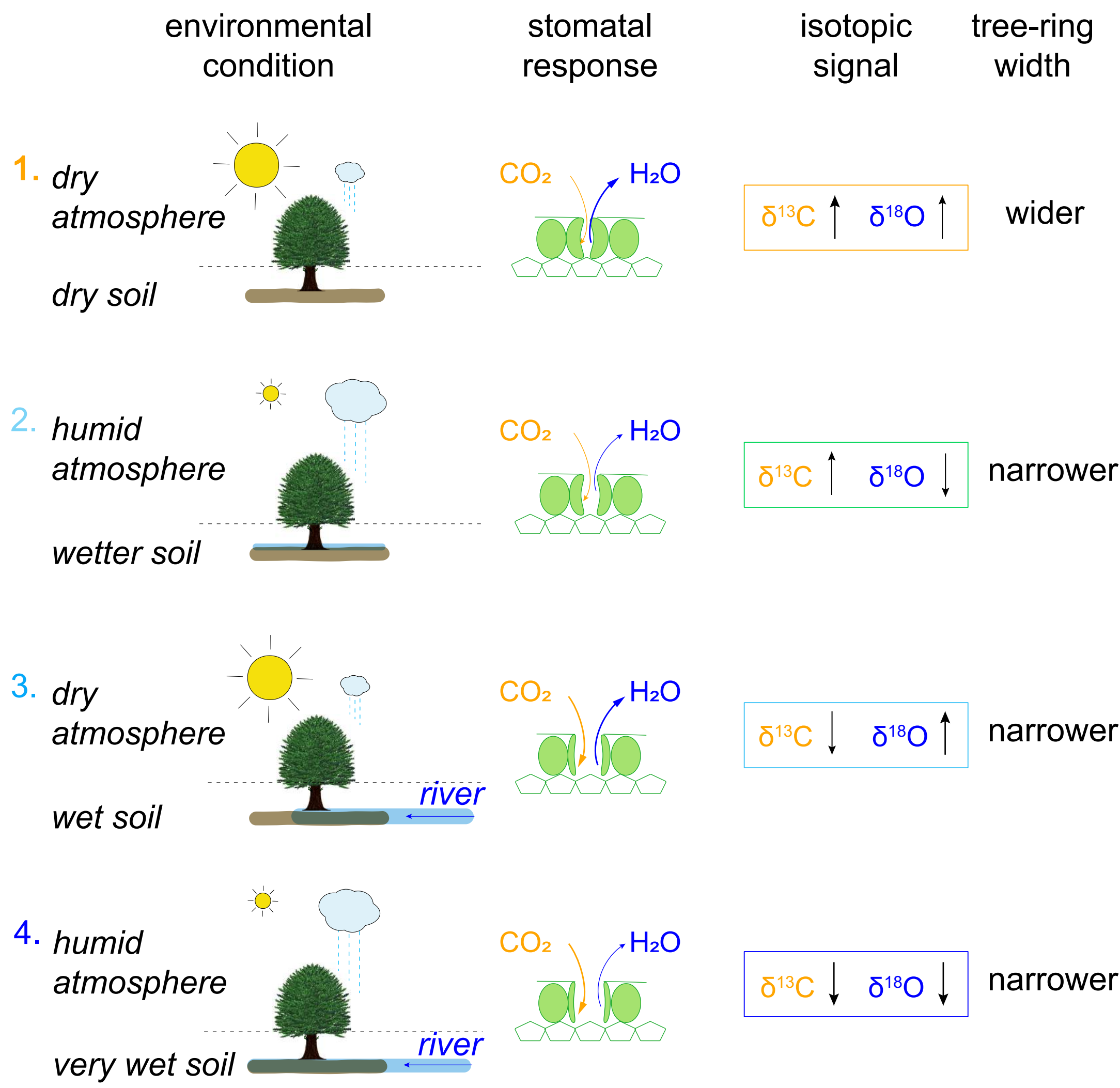
Our yew record spans from 3260–2200 BCE and **oak** record spans from 3180–1980 BCE.

We measured tree-ring stable $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ isotopes for a subset of **yew** samples.

We developed an eco-physiological model to reconstruct climate and environmental changes.

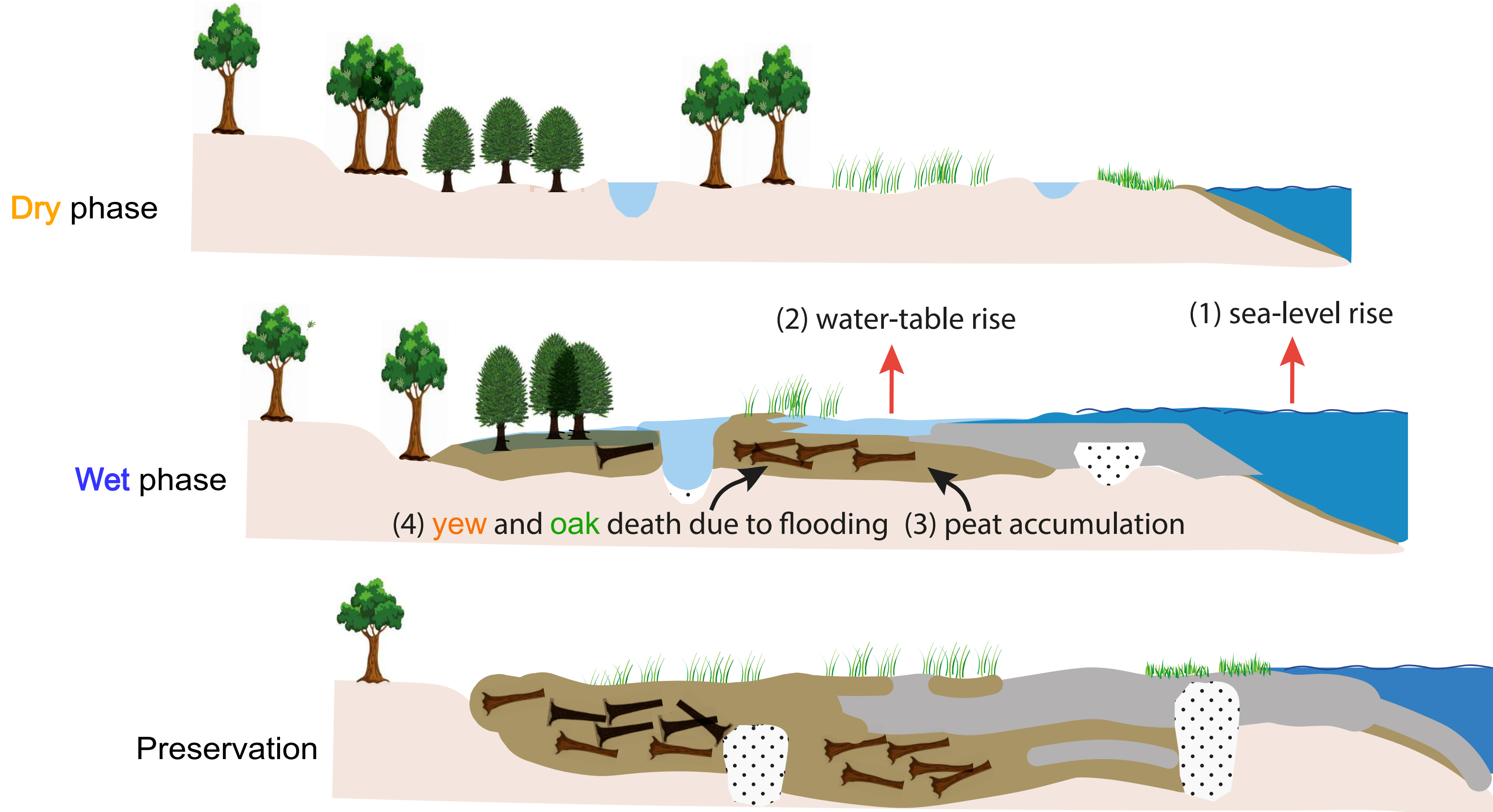
Decreasing $\delta^{13}\text{C}$ reflects a groundwater influx, and decreasing $\delta^{18}\text{O}$ reflects a humid atmosphere.

Drier conditions favoured **yew** growth, while wetter conditions resulted in reduced TRWs.



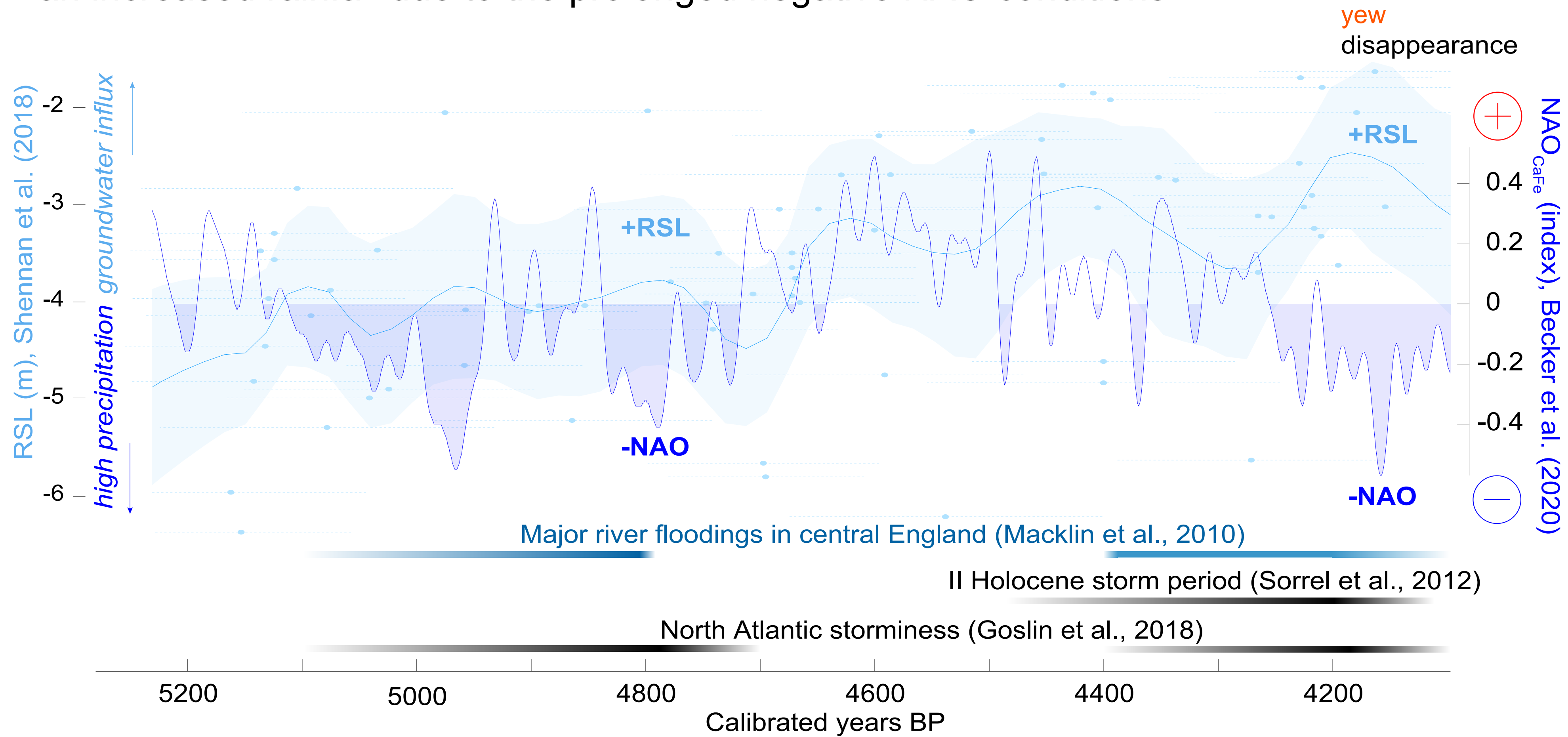
woodlands disappearance

Yew woodlands disappeared from eastern England in the mid-Holocene.



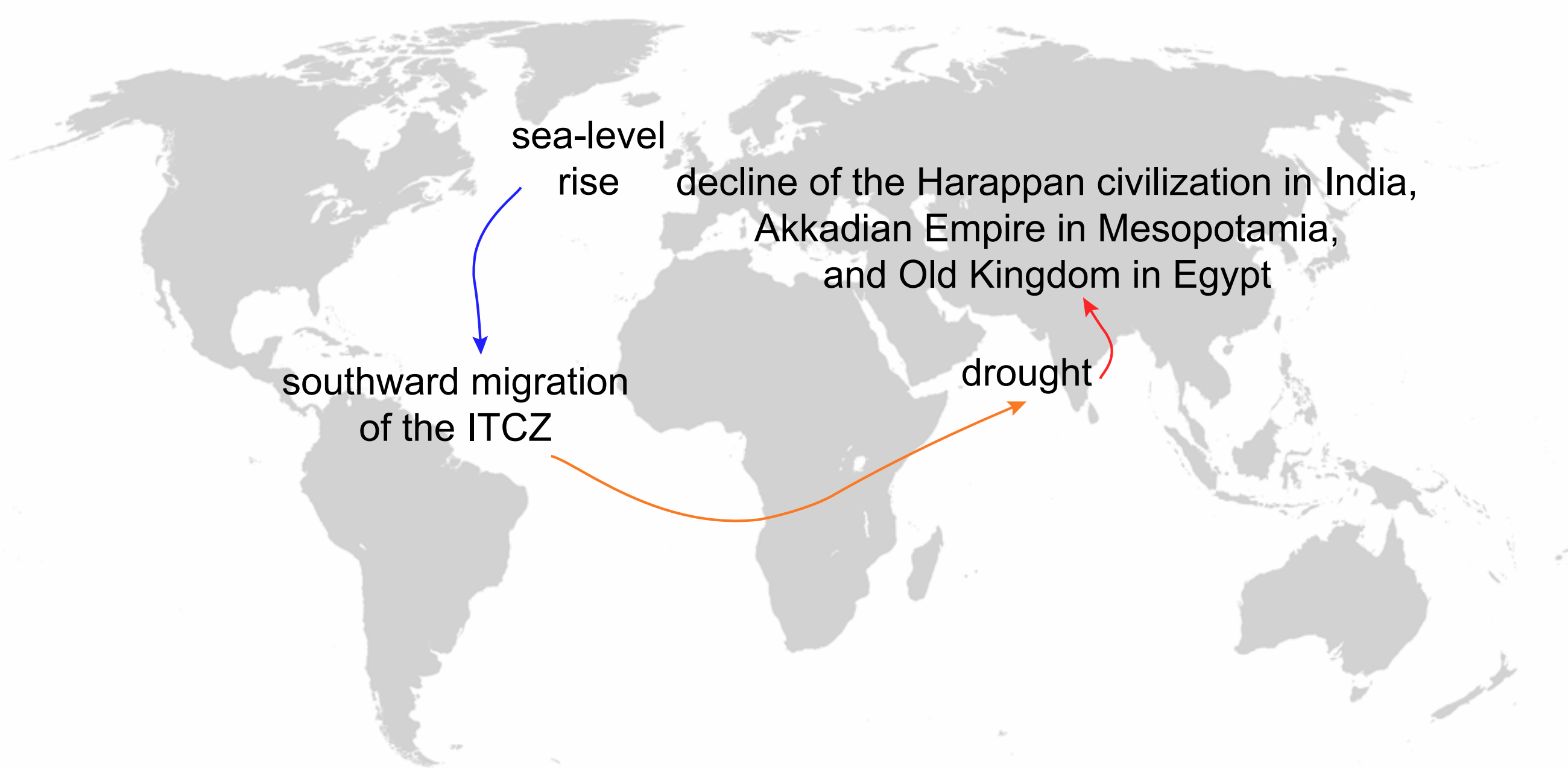
sea-level rise and increased rainfall

Yew decline was likely driven by the combination of a sea-level rise in the North Sea and an increased rainfall due to the prolonged negative NAO conditions.



4.2 ka climate anomaly

The climatic and environmental shift in England coincided with the "4.2ka event", associated with a drought in Central Asia and decline of several ancient civilizations.



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