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The penultimate deglaciation and the Last Interglacial as registered in speleothems

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Speleothems provide paleoenvironmental and paleoclimatic information based on precise chronologies relying on Uranium-series dating combined with high-resolution isotope measurements (δ^{13}C and δ^{18}O respectively) on the calcite.

In the frame of the Past4Future EU-FP7 project, a review of speleothem records from Europe, Asia and South America, covering the penultimate deglaciation and the Last Interglacial reveal similarities and regional differences in the growth-rate and the calcite δ^{18}O signal.

While δ^{18}O records show similar changes concentrated around 130 ka (TII) in Europe and in Asia, the growth-rate changes are much more important and more concentrated in a short time-range in European samples than in low latitude ones (Asia, South America). Growth-rate changes in European samples occur between $\sim$129.7 ka and $\sim$125.8 ka (with uncertainties around 0.2 ka), while they occur between 147.0 ka and 115.0 ka in Asian and South American samples. This suggests important G-IG climate contrasts differences between low and high latitudes.

For European samples, the growth-rate changes are synchronous to the δ^{18}O changes at about 130 ka. In the CC5 stalagmite, however, δ^{18}O changes synchronized to the marine record showed that the deglaciation could have started at about 141 ka suggesting a transition in different steps This observation relying on one sample must be confirmed and closer comparison with well-dated speleothems of different latitudes will allow a better insight in transition mechanisms and their causes.