Glacial terminations: Processes and feedbacks

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The PAGES-PMIP working group on Quaternary Inter glacials (QUIGS, pastglobalchanges.org/quigs) and INQUA PALCOM project (https://inqua.org/commissions/palcom) on Terminations Five to Zero (TV-T0) held a virtual meeting on “Glacial terminations: processes and feedbacks” on 10 and 12 November 2020 (pastglobalchanges.org/calendar/2020/127-pages/2054). The meeting focused on the latest data and modeling results on the largest global climate changes of the Quaternary: the glacial-interglacial transitions, also referred to as terminations (Fig. 1).

This first QUIGS-PALCOM virtual meeting, which featured 33 talks, was attended by 70 scientists during both three-hour sessions. The sessions were scheduled so that scientists from across the world could attend at least one session at a convenient time, and the full meeting was recorded. Early-career researchers presented 75\% of the talks, thus giving them a great opportunity to present their research to a large group of international experts.

Talks were mainly presented within breakout sessions focusing on (1) deglacial changes in the carbon cycle, (2) deglacial climate and ice-sheet dynamics, and (3) deglacial vegetation dynamics. Most presentations focused on TI (~18~10 thousand years before present; kyr BP) but some also presented results on TII (~140~129 kyr BP) and on older terminations: A few presentations took the broader background and forcing and could thus provide constraints on deglacial processes and feedbacks. TIII (~250 kyr BP) is a particularly interesting case, as changes during this interval are among the fastest over the past 800 kyr, and the millennial-scale dynamics appear to be different compared to other terminations (Cheng et al. 2016; Obrochta et al. 2014).

Robust chronologies for paleoclimatic records are essential in order to decipher the sequence of changes in climate, ice sheets, and the carbon cycle with respect to orbital forcing during glacial terminations. Although more challenging, this is especially true for TII-TV, where radiocarbon dating is not available. Such accurate chronologies are also crucial for robust model-data comparisons.

The joint in-person PAGES QUIGS-INQUA PALCOM TV-T0 workshop “Glacial terminations: processes and feedbacks” is currently scheduled for 21-23 September 2021 in Cassis, France (pastglobalchanges.org/calendar/2021/127-pages/1992). It will focus on understanding whether the deglacial sequence of events influences the following interglacial. The causes for the observed differences between TI and TII will also be discussed in detail.

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