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Climatic implications of the dust measurements from a horizontal ice core sequence in ablation area of Taylor glacier (Antarctica)

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We present a new dust record from a horizontal ice core taken in the ablation zone of Taylor Glacier. The glacier is fed by ice deposited on the northern slope of Taylor Dome and flows in a dry valley region (Antarctica) where the ice surface mostly disappears by sublimation.
A series of ice samples have been collected from 202 shallow cores performed every 30cm along an 80m long transect outside from an apparent ice folding. The 7 cm long section was analyzed for the dust size and concentration by using a Coulter counter multisizer IIe, after decontamination of the outer part of the ice by the washing method.
The size distribution of the dust samples displays a systematic a mode around 2 microns and the absence of particle larger than 5-7 microns, a property which is similar to dust records from inland sites. This indicates the dust has a long distance transport origin excluding the surrounding dry valleys and denuded mountains area as potential sources.
As an implication, we use the dust data to tie our record to the EPICA Dome C timescale. The series in undisturbed (no folding) and encompasses the full deglaciation from $\sim$38 ka to $\sim$15 ka. Comparison with other climate proxies (stable isotope, chemistry, gases ...) shows that the Taylor Dome region went through a similar deglacial climatic transition as the rest of Antarctica.