

## Characteristics of impurities in an ice core drilled on the Urumqi No.1 Glacier in Tianshan Mts., China

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Ice cores drilled in polar regions and high mountains contain various information of past climate and environment. Insoluble particles in an ice core are commonly analyzed as a proxy of variation in mineral dusts in the atmosphere. However, recent studies have revealed that insoluble particles on glacial surface are derived not only from windblown mineral dust, but also from pollens of vegetation surrounding the glacier and microorganisms grew on the glacial surface. We microscopically analyzed insoluble particles in a shallow ice core drilled on a mountain glacier, the Urumqi No.1 Glacier, eastern Tianshan, China. We distinguished different morphological particles in the ice core and quantified them separately. Results showed that the insoluble particles in this ice core consisted mainly of mineral particles, amorphous organic particles, pollen, and microorganisms. Mineral particles were the most dominant: approximately 60 percent of total particles, and amorphous organic particles were the second dominant: approximately 40 percent of the total. The annual variation in the particles for last 11 years differed between mineral and amorphous organic particles. The mineral particles are likely to be derived from deserts and moraines surrounding the glacier, while the amorphous organic particles may be derived from microorganisms grew on the glacial surface.