

**Do we really know when water profiles are produced in xenoliths?
Example of xenoliths from Tianchang volcano (East China)**

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Water content in olivine and pyroxenes are frequently used to deduce the water content of the lithospheric continental mantle. In some cases, water diffusion profiles are observed in olivine xenocrysts. These profiles have been frequently used to infer the rates of magma ascent. Here, we report the first observation of water profiles in orthopyroxenes (opx) grains in peridotite xenoliths: Olivines are nearly “dry”, opx have diffusion profiles, while cpx have not been affected by the event (Tian et al. 2017). The observations made on these xenoliths indicate that the profiles were acquired in the late stage of the transport process, probably during the eruption of post eruption. These findings reopen questions regarding previous interpretations of olivine profiles in worldwide xenoliths. It also underlines that systematic check for possible reaction of xenoliths with the host magma must be performed to ensure that the xenoliths are representative of the state of the lithospheric mantle.

Tian Z.Z., J. Liu, Q. K. Xia, J. Ingrin, Y. T. Hao, C. Depecker, *Geology* **45** 87-90 (2017)