



Environmental response to volcanic events based on annually laminated sediments from Lake Van, Turkey

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High resolution palynology of lake sediments provides not only a tool to detect short-term climate fluctuations or anthropogenic impacts, but also to study rapid environmental change through catastrophic events. Numerous studies have dealt with vegetation disturbance from recent volcanic events; however, only few prehistoric volcanic events and their impact on the surrounding vegetation have been the focus of palynological investigations. Here we present new results of high resolution pollen studies from Lake Van, one of the largest alkaline lakes in the world. The lake is situated on the plateau of Eastern Anatolia (Turkey), an area of high tectonic activity. Lake Van itself is surrounded by at least three volcanic centres that have been active until the 19th century. Eastern Anatolia has a semiarid continental climate and a vegetation dominated by oak-steppe forest. Cores taken during a research campaign in 2004 consist of annually laminated sediments covering the Holocene and Weichselian Late Glacial. The cores contain 16 tephra layers that document the volcanic history of the area. High resolution (< 5 years/sample) palynological investigations indicate large-scale vegetation disturbances caused by a Late Holocene volcanic eruption and also illustrate the process of recovery of the forest steppe vegetation. Statistical analysis of the pollen data show clear correlations between tephra thickness, tephra provenance, and vegetation disturbance. Although the Lake Van basin has a long history of human inhabitation, particularly in the Middle Iron Age when it was centre of the Urartian Kingdom, in view of our preliminary results, a volcanic impact on human activities in the Lake Van area has not been detected.