



A Holocene cryptotephra record of Central Kenyan Rift volcanism from Lake Victoria sediments

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As the largest lake by area in the East African Rift, Lake Victoria's sediments provide an important archive of regional environmental and climatic conditions during the late Pleistocene and Holocene. Sediments cores also contain a record of explosive volcanism from volcanoes of the Central Kenyan Rift, in the form of fine-grained volcanic ash (tephra) layers. We have investigated core V95_1P, collected from the central northern basin of the lake, and found discrete tephra layers that vary in concentration from 10's to 10's of 1000's of glass shards per gram of sediment. Using glass-shard major and minor element compositional datasets, we have correlated the tephra layers to previously unrecognised Holocene eruptions of Eburru and Late Pleistocene eruptions of Olkaria, volcanoes lying ~300 km east of the core site. None of the tephra layers are visible to the naked eye, having only been revealed through careful laboratory processing – highlighting the unrecognised potential to develop cryptotephra analysis as a key tool in East African palaeolimnological research. Further lake sediment tephra research in East Africa will offer opportunities for precise correlation of lacustrine palaeoenvironmental sequences, as well as windows into local volcanic eruption frequencies and the ecological impacts of volcanism.