

## Geochemical Characterization of some Lake Malawi Tephra Layers in Sediment Cores

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Initial volcanic activity in the Rungwe Volcanic Province (RVP) in the East African Rift (EAR) began between 19 and 17 Ma with the main phase of volcanism occurring over the past 9 Ma. Lake Malawi is located at the southern end of the EAR and its northern tip is about 40 km to the southeast of the southernmost volcano of the RVP (Keijo Volcano). Lake Malawi is estimated to have formed more than 7 Ma and has recorded some of the regional volcanic activity through its many volcanic ash layers preserved in sediments, at least over the past ~100,000 years. In 2005 the Lake Malawi Drilling Project recovered sediment cores from two sites: one in the northern basin (site MAL05-2 at 9°58'56.60"S, 34°11'9.17"E) and one in the central basin (site MAL05-1 at 11°17'39.60"S, 34°26'9.00"E). Ten tephra layers from site MAL05-2A were analyzed using single grain glass analysis for the abundance of major and trace elements. In addition, more than three tephra layers from nearby site MAL05-2B and one tephra layer from site MAL05-1C (central basin) were analyzed and correlated with tephra layers found in site MAL05-2A. Samples were analyzed for chemical composition using both wavelength-dispersive spectrometry on an electron microprobe (WDS-EMP) and energy-dispersive spectrometry on a scanning electron microscope (EDS-SEM). The geochemical data are used to determine whether these individual layers can be distinguished based on chemical composition. Geochemical characteristics allow these layers to be correlated between cores creating isochronous stratigraphic markers, improving the age precision of Lake Malawi cores.