Holocene and upper Pleistocene $^{40}Ar/^{39}Ar$ ages from Nemrut volcano

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Nemrut is a historically active Pleistocene-Holocene stratovolcano located in eastern Turkey, adjacent to western shore of Lake Van and forms part of a chain that includes Mts. Süphan, Arrarat and Tendurek. Many of the volcanic rock units around Nemrut have not yet been dated, and most have only K/Ar dates. With the growing interest in and importance of the continental paleoclimate archives derived from Lake Van cores, efforts to better characterise Nemrut and understand it's regional impact are underway. We have measured ten samples using the $^{40}Ar/^{39}Ar$, single-crystal technique on sanidines liberated from 6 pumices, either falls or flows, 3 ignimbrites and one trachytic lava flow. Ages range from 5.3±1.8 ka to 171.4±3.2 ka (2σ). The age data are comparable to modern $^{40}Ar/^{39}Ar$ data derived from the literature but extend to younger ages and are generally 2-3 times more precise; improved precision is due to the greater number of individual crystals analysed, typically 20 or more. The youngest age was obtained from pumice within pyroclastic flow deposits on the caldera rim and yielded an age of 5.3±1.8 ka (2σ, MSWD=0.98, p=0.52, n=63). This unit is potentially age correlative with ash layers recognized in Lake Van and varve counted to 6005, 6888 and 7192 years BP (tephras C, D & E, [1]), a correlation supported by trace element geochemistry of pumice [2]. The welded Bitlis ignimbrite, sampled in the town of Bitlis some 25 km distant from Nemrut, yielded an age of 26.8±4.2 ka (2σ, MSWD=0.68, p=0.89, n=27)

[1] Landmann et al. 1996 [2] Landmann et al. 2011