

## Age of Lake Nyos maar, Cameroon

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The northern end of Lake Nyos (Cameroon) is confined by a natural dam that consists of unconsolidated pyroclastic sediments. It is ca. 40 m high.

Based on the  $^{14}\text{C}$  dating of a wooden piece collected from the base of the dam, Lockwood et al. (1988) reported 400 years BP as the formation age of the Nyos maar. Since the original width of the pyroclastic sediments is estimated to be several hundred meters wide, the erosion rate may be as high as 1.5 m/y considering the present width of the dam that is 45 m. If the dam fails, flooding would follow and devastate the downstream reaching Nigeria.

Whole rock K-Ar dates for the rocks collected from the dam range from 350 to 450 Ka, much older than the above  $^{14}\text{C}$  age.

To solve the inconsistency in the estimate of the dam ages, we applied the U-Th-Ra disequilibrium technique to samples of basaltic lava blocks from the dam and the surroundings. We found a significant ( $^{230}\text{Th}/^{232}\text{Th}$ ) radioactive disequilibrium and a small ( $^{226}\text{Ra}/^{230}\text{Th}$ ) radioactive disequilibrium. This indicates that the rocks are definitely younger than 350 Ka which limits the U-Th disequilibrium technique, and probably even younger than 8 Ka, the limit of the Th-Ra disequilibrium method. If we assume that an initial ( $^{226}\text{Ra}/^{230}\text{Th}$ ) activity ratio for the Nyos rocks is approximated by the ratio measured for lava flows from Mt. Cameroon that is currently active, the Th-Ra disequilibrium corresponds to 3-5 Ka as the age of eruption. This type of geochemical study can give some constraints for mitigation of volcano-related disasters.