

Glaciations in Aladağlar and Sandıras: New Paleoclimatic Clues in Turkey

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The study was conducted on two mountains of Turkey: Aladağlar (3756 m, the Central Taurus, 37°45'N, 35°15'E) and Sandıras (2295 m, the Western Taurus, 37°05'N, 28°51'E). Well preserved, extensive moraines of Hacer Valley (1091-2585 m) in Aladağlar show that glacial activity occurred during the Early Holocene; ranging from $9,950 \pm 150$ years (calendar years) for the lowest moraine in the valley, to $8,400 \pm 270$ years for the highest moraine in the plateau below the summit. The moraines of Sandıras are not as extensive as those in Aladağlar. The average age of 20.7 ± 2.1 kyr indicates that they originated during the Last Glacial Maximum (LGM). Today, there is no glacier activity on either mountain. Our results imply that Aladağlar and Sandıras had different glaciological and climatic history. While Sandıras had small and simple glaciers during LGM and no glaciers in the Holocene, Aladağlar had extensive glaciers during the Early Holocene. Glaciological and climatic factors can explain the different ice extents on these mountains. We hypothesize that glaciers in the Sandıras developed due to much lower temperatures during the LGM, whereas those in the Aladağlar grew because of increased precipitation at the beginning of the Holocene. In addition, Aladağlar has a more suitable accumulation area to produce extensive glaciers, whereas Sandıras has a less favorable topography for ice accumulation.

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