

THE EXTENT OF PLEISTOCENE ICE CAP, GLACIAL DEPOSITS AND GLACIOKARST IN THE ALADAGLAR MASSIF: CENTRAL TAURIDS RANGE, SOUTHERN TURKEY

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Recent work in the Aladaglar Massif (37°45' N, 35°15' E) in the Central Taurids Range, resulted in new observations on the extent of the Pleistocene glaciation in this area. The massif, comprising mainly of carbonate rocks of Mesozoic age, covers an area of 800 km² between 1100 m and 3756 m of altitudes. Many of the glacial landforms, such as moraines and ice-dammed lake deposits, are well preserved because the fluvial system is poorly developed on the highly permeable karstic bedrock. The ice cap once located in Yedigöller high plateau (3200 m) covered 40 km². Ice flowed into the valleys to the northeast, west and east. Based on the smoothed bedrock surfaces, the peak elevation of the ice cap during its maximum extent is estimated to be around ca. 3600-4000 m. Glacial landforms suggest the existence of 7 episodes of glacial advances and retreats. Young, fresh looking deposits are above 1800 m; older moraines extend further down to 1400 m. The Hacer valley has the largest number of moraines. Outwash deposits at the mouth of this valley extend down to 1200 m. Apart from the lateral and terminal moraines, dekameter-sized erratics are observed on top of the glacially sculpted bedrock. Today, a small glacier remnant, measuring ca. 1 km², exists in the southwestern part of the Yedigöller plateau; it is in the form of dead ice buried under rock debris. Numerous freshly formed kettle holes, ice caves, glacial melt-water streams, stone circles and girlands represent glacial and periglacial processes. On the eastern flank of the Yedigöller plateau, at around 1800 m, moraines overly the doline fields of typical tropical karst (cockpit type). At higher elevations, all pre-glacial karstic landforms have been destroyed and many of the sinkhole type caves are blocked by till. However, the accesible caves in the form of vertical shafts usually terminate at till. Many of the open shafts above 2200 m contain snow, firn and ice that contains gas inclusions and layers of till. A thickest (up to 120 m) record of snow, firn and ice was discovered in a vertical karstic shaft located at ca. 3400 m. Preliminary results from our two years of field work in the Aladaglar show that the Pleistocene glaciation was much more widespread than previously thought. Future work will include cosmogenic ³⁶Cl dating of morainic boulders, ¹⁴C dating of glacio-lacustrine material and U/Th dating of speleothems found within ice in the karstic caves.

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