



Glacio-Karstic and chronological evolution of the Akdağ rockslide (SW Turkey)

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Landslides triggered by bedrock failures are one of the main geohazards in the high mountain areas. They constitute some of the largest landslide deposits on the Earth. This study focuses on the geomorphological evolution of the Akdag rockslide which is located on the southern slope of the Mount Akdag, SW Turkey. The Akdag Massif is characterized by autochthonous carbonates and shales overridden by allochthonous Jurassic-Cretaceous carbonates. Akdag was glaciated at least three times during the Late Pleistocene. There are large karstic depressions developed in these glaciated areas. These karstic depressions are underlain by impermeable flysch deposits. Karstic springs are located along the contact between the flysch and overlying carbonates. This contact seems to be the major failure plane of most mass movements in the massive. Our field mapping shows that the Akdag rockslide is a very large and active slope failure developed between the carbonates and the flysch. Its deposit covers an area of 15 km² and have a volume of about 7 km³. It is one of the largest (>106 m³) landslides in Turkey. Settlements and their infrastructure have been severely damaged due to this activity. In this study, we employed detailed mapping in the field, spatial and morphometric analysis using GIS and remote sensing technologies, and surface exposure dating with cosmogenic ³⁶Cl in order to reconstruct the chronology of the landslide. For the analysis of cosmogenic ³⁶Cl, we collected 18 samples from calcareous boulders within the landslide deposit. Cosmogenic ³⁶Cl exposure ages indicate that the collapse occurred at around 9 ka. Based on the field evidence, we anticipate that the increased water discharge in the springs along the carbonate-flysch contact could played a key role in the failure in the Early Holocene.