



QUATERNARY DEFLATION IN THE WESTERN PANNONIAN BASIN, HUNGARY – LANDFORMS DATED USING IN SITU PRODUCED COSMOGENIC ^{10}Be

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Wind activity in the western Pannonian Basin is evident from numerous macro- and meso-scale landforms of deflation and the presence of eolian sediments. Pliocene arid periods and Pleistocene glaciations – when cold and dry periglacial conditions prevailed – are supposed to be the most important periods of wind activity. Previous dating of loess and wind-blown sand, demonstrated several phases of deflation during the late-Pleistocene. Nevertheless, there is no information about older periods of deflation because age-limitations of previously available dating methods. The age of the wind-polished surfaces has remained unknown so far, although they can provide time constraints for deflation periods.

In the Transdanubian Range a multitude of occurrences of wind-polished rock surfaces and ventifacts indicate long-lasting exposure and strong wind activity. We used terrestrial in situ produced cosmogenic ^{10}Be to determine the exposure age of wind-polished rock surfaces; i.e. the time elapsed since the last major deflation event in the region. Our sample sites were quartzites, quartz conglomerates and quartz veins. TCN exposure ages of 10 samples have been obtained so far. Our results indicate a phase of strong deflation at the end of the late-Pleistocene (23, 33 and 15 ka). A group of data

scatter around the period of intense climate changes related to the last interglacial (90, 120 and 134 ka) and other age data show the cold periods of OIS 10 (363 and 364 ka) and OIS12 (430 ka). The oldest, early Pleistocene ^{10}Be exposure age of our research area was 1247 ka, measured at the most elevated site (410 m asl). There is a positive correlation between the elevation of the sample sites and their exposure ages, i.e. the samples originated from lower topography are generally younger.

It is probable that the measured ages are “mixed ages”, and record a complex exposure history of several eolian denudation events possibly interrupted with periods of negligible deflation or minor sediment accumulation. Despite these ambiguities, exposure ages obtained so far suggest that several 100 ka – up to 1.2 Ma – old geomorphic surfaces exist in the Pannonian Basin and wind-erosion had a considerable role in landscape denudation, with several phases of deflation during Pleistocene times.

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