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U-Pb-Dating applied to Quaternary cover beds: regional differences in the southwestern USA

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We examine the usability of U-Pb dating of detrital zircons on eolian components of cover beds. This is a well-established method in Geology for provenance studies. First, we try to distinguish several layers within a particular profile. Second, we sampled several profiles within the Great Basin (GB) and Colorado Plateau (CP) area. By U-Pb dating of DZ in the samples, we found that the age variation of the GB zircons differs remarkably from the CP zircons. The GB signals are all dominated by the signal from huge volcanic eruptions ($\sim$ 30 Myr) from nearby volcanic fields. In the CP samples, we can show, that the profiles, which we already have finished, are remarkably similar to each other. They are at about 100 km away from one another, with e.g. the 1300 m high Abajo Mountains between two of them. Furthermore, the profiles are located on different bedrock. The 30 Myr age has only minor importance in the oldest cover beds of the CP and is absent from the younger ones. We need much more data from the GB to double check the remaining signals to find out differences between the profiles and similarities to possible sources. Current discussions about the necessary amount of zircons in sediments prompted us to focus on the statistical reliability of large sample sizes compared to the sample sizes commonly used in geology.