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Luminescence dating of fluvioeolian-paleosol sequences at Lanzarote (Canary Islands).

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At Lanzarote (Canary Islands) lava flow dammed valleys (Vegas) represent sediment traps, filled with autochthonous volcanic ashes and a considerable amount of allochthonous Saharan dust. These sediments and its intercalated paleosoils document past environmental change of the last Glacial - Intergalcial cycle, both at Lanzarote and in NW Africa. To use these sediment archives for paleoclimate reconstruction, a reliable chronology must be established. Due to the lack of organic material and the limiting time range of 14C-dating, luminescence dating is the most promising method for dating these sediments. However, the fluvioeolian character of these sediments is a major problem for luminescence dating, because these sediments are prone to insufficient bleaching. To check for the best age estimates, we compare in this study the bleaching behaviour of coarse versus fine grain quartz OSL and feldspar versus quartz fine grain IRSL/OSL. Results show that quartz is the preferable mineral and based on the fine and coarse grain quartz OSL age estimates, a chronostratigraphy up to 100 ka could be established.