OPTICALLY STIMULATED LUMINESCENCE RESPONSE OF MODERN FLASH-FLOOD DEPOSITS IN SMALL MOUNTAIN CATCHMENTS.
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Introduction: OSL is increasingly being used as an accurate tool in dating recent flood deposits for improved flood hazards assessment. This work presents a study on the OSL response of sediments from recent (last 200 years) flash-flood deposits in the Guadalentín River (SE Spain). Two problems can be anticipated in the luminescence response for dating such recent deposits. Firslty, poor bleaching due to short duration of flood-flash flows and limited transport distance at the catchement headwater. Secondly, geological setting dominated by carbonate bedrock [1]. This study aims to provide preliminary diagnostic analysis with those parameters which might show an irregular OSL behaviour on these young samples [2]. The samples showed a positive behaviour despite their young age, namely a high signal-to-noise ratio making possible to measure the response at low doses, and lack of thermal transfer after preheating treatment. Furthermore, tests on the recuperation and recycling ratio were carried out showing a reproducible response. Possible feldspard contamination was checked by using IRSL. Equivalent Dose (D_e) values were determined for 24 aliquots. The results show a high scatter which could be caused by a insufficient bleaching prior to deposition. This effect typically results in an overstimation of the age.

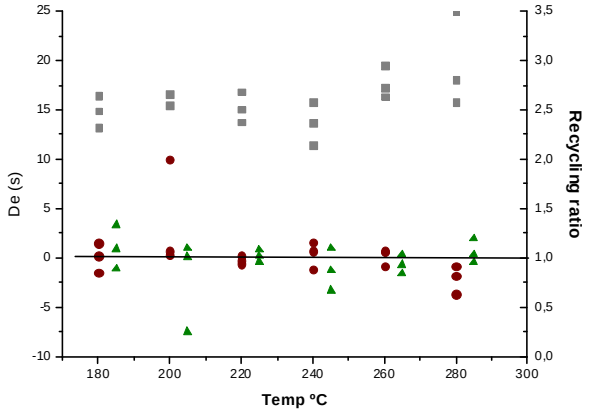

Figure 1- Measuring cycle effect on the recycling ratio (circles); IR stimulation effect on recycling ratio (triangle); D_e values (squares).

These preliminary OSL tests point out that single grain analysis may provide more accurate D_e values thus being the appropiated procedure for dating these flash flood deposits.

References:

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[2] Madsen, A.T., Murray, A.S. (2009) Optically stimulated luminescence dating of young sediments: A review. *Geomorphology*, 109, 3-16.