Geophysical Research Abstracts
Vol. 17, EGU2015-4676, 2015
EGU General Assembly 2015

New sea-level data of the MIS 5e interglacial of Mallorca Island, Spain

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The island of Mallorca (Balearic Islands, Spain) is one of the key locations in the Western Mediterranean for the study of Last Interglacial sea levels. Although MIS 5e deposits and landforms have been investigated by several authors since Cuerda (1979), most former studies concentrate on few outcrops. Although description of fossils, facies and age attribution for these outcrops are known in detail, these sites have never been the object of differential GPS measurements and glacial isostatic adjustment effects have never been taken into consideration. In this study, we present the results of fieldwork at several outcrops around the Island of Mallorca. We measured the elevation of deposits and landforms associated with the Last Interglacial with a high-precision GPS-system, and we calculated for each the reference water level and indicative range using modern analogs along the same shorelines. Moreover, we took samples of some outcrops for radiometric dating. The outcrops consist mainly of beach deposits at 1-3 m apsl and one elevated deposit in the Southeast of the island at 8 m apsl. We use an earth-ice coupled GIA-model for the Mediterranean to compare the elevation of our deposits to expected GIA signal in this region and discuss our results in terms of tectonics and eustasy.