



## **Mapping and optically stimulated luminescence dating of the Western Makran marine terraces (Iran)**

Raphaël Normand (1), Simpson Guy (1), Haque Biswas Rabiul (2), Herman Frédéric (2), and Bahroudi Abbas (3)  
(1) Department of Earth Sciences, University of Geneva, Rue des Maraichers 13, CH-1205 Genève (raphael.normand@unige.ch), (2) Institute of Earth Surface Dynamics, Faculty of Geosciences and Environment, University of Lausanne, CH-1012 Lausanne, (3) Exploration department, School of Mining Engineering, University of Tehran, Northern Kargar avn, P.O. Box 11365-4563, Tehran.

The western part of the Makran subduction zone (Iran) has not experienced a great megathrust earthquake in recent human history. Yet, the presence of uplifted marine terraces along the coast indicates that the margin is still tectonically active during at least the Quaternary.

To better assess the seismic hazard of the region, we have studied, mapped and dated the marine terraces along the Iranian coast in order to understand lateral uplift variations. Systematic stratigraphic logging of the terrace deposits revealed that the sequence is characteristic of a prograding beach overlying an erosive wave-ravinement surface.

The paleobeach deposits, which are good analogues of paleo zero altitude, were dated using optically stimulated luminescence dating (OSL). It was then possible to correlate the different terrace levels of the Makran to the latest sea-level highstands of the Quaternary. Our results exhibit east-west variations in surface uplift rates, also illustrated by lateral tilting of the terraces. Moreover, we detected a region of anomalously high uplift rate, where two MIS 3 terraces are emerged. In other subduction zones, high long-term uplift regions have been noted to coincide with boundaries of historic earthquake ruptures. This could bring some insight on the segmentation of the poorly known Makran subduction interface.