

The earthquake sedimentary record in the the Sea of Marmara, Turkey

Hubert-Ferrari, A. (1), Drab, L. (2), Schmidt, S. (3), Carlut, J. (4), El Ouhabi, M. (1), P. Martinez (3)

(1) University of Liege, Sart Tilman, B- 4000 Liège. Belgium;

(2) Ecole Normale Supérieure de Paris, 24 rue Lhomond, 75231 Paris Cedex 5, France;

(3) EPOC, Université Bordeaux, 1 Avenue des Facultés, 33405 Talence, France ;

(4) Institut de Physique du Globe de Paris, 1, rue Jussieu, 75238 Paris Cedex 05, France

Corresponding Author: Hubert-Ferrari, A., (aurelia.ferrari@ulg.ac.be)

The submarine part of the North Anatolian Fault (NAF) is a very significant hazard for the 12 million people living in Istanbul (Turkey). An accurate seismic risk assessment necessitates paleoseismological data, which can be retrieved in the Marmara Sea by using sedimentary cores. We present here a record of turbidites obtained in cores spanning the Tekirdag Basin, the Western High, the Central Basin, and the Cinarcik Basin. In the Tekirdag and Western High the turbidites are synchronous pointing to shaking by earthquakes as a triggering mechanism. Generally seismoturbidites in the Marmara Sea are distinguished from other turbidites based in their large extension, their particular granulometric and their particular geochemical characteristics. The ^{210}Pb and ^{137}Cs radionuclides measurements have also shown that the $M=7.4$ 1912 Mürefte earthquake and the $M=7.3$ 1894 Prince's Island earthquake have left a distinctive sedimentary imprint at the top of the studied cores. The chronology of other seismoturbidites is built combining radiocarbon dating and secular variation patterns of paleo-declination and paleo-inclination. Finally the obtained record is compared to the historical seismicity record.