

Preface to the special issue “Seismotectonics and Seismic hazards in North Africa”

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North Africa region from Egypt to Morocco experienced several damaging earthquakes in the past, and the largest recorded seismic event reached Mw 7.3 in 1980 at El Asnam (now Chlef) in the Tell Atlas of Algeria. This reality is linked with the regional situation along the Africa–Eurasia plate boundary, or in proximity of the Hellenic Arc plate boundary, or near the mid-Red Sea spreading floor.

This special issue in seismotectonics and relationships with the seismic hazards includes different contributions in seismotectonics, seismology, active faulting, and seismic hazard and risk assessment in North Africa. Specifically, nine articles address the earthquake activity and its effect at the crustal level, Earth surface, and building design. The issue begins with the article of

Bezzeghoud et al. that describe the earthquake distribution along the Africa–Eurasia plate boundary and gives the characteristics and seismic strain rate of the tectonically active regions from the Gloria transform fault to NW Africa. Using the tomographic investigations, Timoulali and coauthors explore the crustal structure of the Rif Mountains (Morocco), Alboran Sea, and surrounding areas. A fairly exhaustive account of the earthquake distribution and related active tectonic structures by Bahrouni and coauthors reveals the potential for large earthquakes in Tunisia. Badawy and coauthors describe the seismic activity of east North Africa using relocation procedure and source mechanisms of main continental earthquakes in Egypt.

The volume switches into the study of historical earthquakes in Algeria by Ferdi and Harbi using epigraphic documents. Benhamouche and coauthors investigate the surface effects and liquefaction features of past earthquakes in the coastal region of Jijel (east Algeria) that experienced the damaging 1856 earthquakes with tsunami (Io IX, EMS).

The evaluation of earthquake hazards and risks represents a natural continuation of previous studies on the seismotectonics of North Africa. The comprehensive analysis of the seismic hazards using an updated deterministic approach provides new results and emphasizes the need for the integration of geological and seismological data along the whole North Africa (Mourabit et al.). Gherboudj et al. present a probabilistic seismic hazard assessment as applied to the Algiers city. Finally, the vulnerability of building design to destructive seismic events is explored through conceptual frameworks and application in Algeria by Mebarki et al.

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scientific institutions and representatives from all North African countries attended the meeting and contributed with more than 30 scientific presentations.

¹ *North African Group for Earthquake and Tsunami studies*
(<http://naget.ictp.it/>)