



Earthquake deformations at the ancient sites of Aqaba and Petra, south Jordan

E. Al-Tarazi, A. Korjenkov

Dep. of Earth & Environmental Sciences, Hashemite University (ealtarazi@yahoo.com, Fax: +962-5-3826823)

Many tens of severe earthquake damage patterns were revealed at the complex of Rashidun-Fatimid buildings at the ancient city of Ayla. The seismic deformation patterns are of various types, including systematic tilting of walls; systematic shifting and rotation of wall fragments and individual stones; arch deformations; and joints crossing two or more stones. Features of later repair, supporting walls and secondary use of building stones testify to two historical devastating earthquakes: (I) revealed in the constructions, built during the late Rashidun period (644-656 A.D.); (II) revealed in the structures restored and built during the Fatimid period (1050-1116 A.D.). The intensity of both earthquakes was not less than I-IX EMS-98 scale. The source of the seismic events was probably the reactivated Dead Sea Transform and Wadi Araba Faults that cross the site obliquely. The last 1995 Nuweiba earthquake with maximum observed intensity VIII has also left its clear traces in excavated ancient Ayla buildings. At Petra many earthquake destructions phenomena were observed at Qasr El-Bint, the Wing Lions- and the Great Temples with intensity more than VIII.