

Evaluation of the geodynamic activity of the Dead Sea transform fault by radon gas concentrations

M. Al-Taj ☞ B. Al-Bataina ☞ M. Atallah

Abstract

Twelve radon lines of dosimeters(detectors) were placed across the Jordan Valley active fault, which is a segment of the active Dead Sea transform fault system. Each line of the dosimeters shows one or more peaks of radon anomaly concentrations. Some of these peaks prove the intersection of the fault trace with these lines in areas where the fault plane is inferred. In other lines, the peaks correspond to the arrangement of faults in areas of pull-apart basins (sag ponds) or pressure ridges, formed due to the left or right step of the fault. Sag ponds usually show low radon emanations, because they are the place for the accumulation of very fine sediments, which decreases their porosity and hence the upward migration of the radon gas. The northern part of the Jordan Valley relatively shows high radon emanation, which could be attributed to the presence of a seismic gap in the upper Jordan valley.

Keywords Transform fault ☞ Radon ☞ Jordan Valley