



Teleseismic travel times residuals across the Dead Sea basin

Rami Hofstetter (1,2) and Catherine Dorbath (2,3)

(1) Geophysical Institute of Israel, Seismology, Lod, Israel (ramih@gii.co.il, 97289255211), (2) Ecole et Observatoire des Sciences de la Terre, University of Strasbourg, France, (3) IRD, UMR 154. Toulouse, France

New findings of the structure of the Dead Sea sedimentary basin and its eastern and western bordering regions were obtained by applying P and PKP wave relative travel time residuals of 644 teleseisms, as recorded by the DESIRE portable seismic network in the Dead Sea basin and its outskirts. The Lisan is characterized by relatively small teleseismic travel time residuals of about 0.14 sec, in the latitude range of 31.220-31.370 and longitude of 35.500, slowly degrading towards west. The largest teleseismic travel time residuals are in the southern Dead Sea basin, south of the Lisan in the latitude range of 31.050-31.150 and along longitude 35.450 and continuing southward towards Amatzياهو Fault, reaching values of 0.3 to 0.4 sec. We get small positive residual in the Amatzياهو Fault and small negative residual south of it marking probably the southern end of the Dead Sea basin. East and west of the Dead Sea basin the mean teleseismic travel time residuals are negative having an over whole average of -0.35 sec and -0.45 sec, respectively. Using the teleseismic residuals we estimate the horizontal dimensions of the Lisan salt diapir to be 20 km X 12 km at its widest place and a maximal thickness of about 7.2 km. The thickness of the Mt. Sodom salt diapir is estimated as 6.2 km.