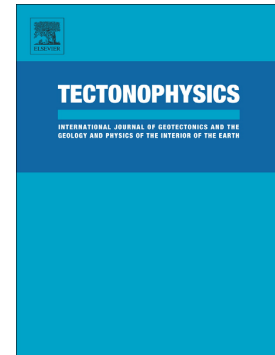


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**Lower Crustal Seismic Activity in the Adana Basin (Eastern Mediterranean): Possible
Connection to Gravitational Flexure**

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ABSTRACT

High quality broadband data, together with the application of the double difference relocation technique, has been used to study the characteristics of the lower crustal seismicity in the Adana Basin, in southwestern Turkey. Deep events are clearly seen to be restricted only to the Adana Basin and never extend outside its boundaries. Furthermore, the seismogenic zone is observed to align roughly with the main axis of the basin and plunges steadily in the SSW-direction, following the basement trend of the Adana Basin. Similarities between geometries of the basin evolution and the deep seismic production suggest that both processes are closely related. A flexure process is proposed related to the subsidence of the Adana Basin. The seismogenic zone, originally at a shallow depth, is assumed to have been displaced vertically into the lower crust, by flexure. The temperature evolution of the crust during the flexure has been studied in detail using finite difference modeling, with amplitude and duration parameters taken from earlier studies. It has been concluded that the physical conditions for brittle fracturing remained unchanged for an extended period of time after the flexure. The brittle layers originally at shallow depths, preserved their original thermal properties after the subsidence and will continue to produce earthquakes at considerable

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