Modeling of three-dimensional Tianshui basin by multi-means in Gansu Province

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Tianshui basin have occurred obvious abnormal intensity during 1920 Haiyuan Earthquake, how to model Tianshui basin reasonably, which is very important to mitigate disaster. Using the results of seismic reflection surveys, microtremor explorations and borehole loggings, the velocity structure and the geological structure, such as interface and density, are determined from various exploration data and geological information. The shape of the upper plane of the engineering bedrock is obtained by interpolating micromotion exploration and boring information. The interface shape of each velocity layer is adjusted/corrected or determined by applying spectrum ratio analysis, numerical simulation and inversion etc. Strong ground motions of 1920 Hanyuan scenario earthquake by tianshui basin model are simulated and checked by the known historical isoseismal map for reexamination the Tianshui model. At last, we found that stratigraphic interface of Tianshui Basin within the range of the 100m depth are downs and soothing, little change in the depth. But, the interface pattern of deeper than 100m show West shallow and East depth, which is consistent with the tectonic setting of this area.