

Crimea: morphostructural zoning and seismogenic nodes

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In general, the Crimea region is characterized by low - to moderate seismicity; the largest magnitude 6.8 was recorded during the 1928 Yalta earthquake. In this work, we study the mountain part of the Crimean Peninsula and the adjacent part of the Black Sea shelf with a goal to identify the morphostructural nodes capable of generating earthquake M5+. We use the methodology for identifying earthquake prone areas that is based on the pattern recognition approach applied to morphostructural data. The nodes, forming around the intersections of the morphostructural lineaments, are viewed as most likely locations of moderate and strong earthquakes. The loci of the nodes have been mapped with the morphostructural zoning method aimed delineating the hierarchical system of blocks bounded by morphostructural lineaments. The events M5+ reported by the earthquake catalogs correlate with the delineated intersections of the lineaments. Since in the Crimea the number of nodes experienced M5+ is insufficient for the reliable learning stage of the pattern recognition, capable nodes have been defined using criteria of seismicity derived from other regions, specifically from the Great Caucasus and Iberia, where the criteria of seismogenic nodes prone to M5+ have been defined by the pattern recognition technique.

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