



Paleo-rifted margin and its neo-seismotectonic evolution: a case study for the Korean Peninsula

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The Korean Peninsula and its neighboring regions are intraplate regions that comprise the far-eastern Eurasia plate. These regions have experienced complex tectonic evolutions including continental collisions and a rifting. The ambient stress fields around the Korean Peninsula are induced from nearby plate boundaries against to the Pacific, Philippine Sea, and Indian plates. Historically dozens of devastating earthquakes with magnitudes greater than 6 occurred around the Korean Peninsula. Unusual major thrustal earthquakes occur off the east coast of the Korean Peninsula, a paleo-rifted margin. We investigate the neo-seismotectonics from geological features, seismicity, stress field, fault-plane solutions, heat flux and seismic tomography. High seismicity of reverse-faulting events in the paleo-rifting margin suggests that the passive continental margin is activated to move reversely by the ambient compressional stress field. We discuss the relationship between tectonic structures, heat flux, seismicity, and seismic velocities in the paleo-rifted margin.