Geophysical Research Abstracts
Vol. 15, EGU2013-11862, 2013
EGU General Assembly 2013

Fine crustal structure and seismogenic tectonic system of Tanlu fault zone midpiece area in China

Jingfa Zhang (1), Hualin Wang (2), Wenliang Jiang (1), Xin Wang (1), and Tian Tian (1)

(1) Institute of crustal and dynamics, China earthquake Administration, Beijing 100085,China (zhangjingfa@hotmail.com), (2) Shandong Earthquake Administration, Jinan , 250014 , China

In this paper, based on the studying related data involved in tectonic geology, earthquake geology, gravity and magnetism of Tanlu fault zone midpiece area of China, multi-scale wavelet method is used to separate gravity and magnetism field in different deeps, and crustal density and magnetic structure feature are understood. Moho topography of this area is inversed using 3D Parker density interface inversion method and variable density model, constrained by deep seismic data and others. And at last, three typical gravity profiles are modeled. Results indicate that rebuilt by multi-tectonic movement crustal structure of this area is very complicated, the faults appear in profiles, ones of which control hollow structure and another ones break lower crust, only Tanlu fault zone cut off earthcrust and upper mantle, and there is upwelling material had high density from upper mantle and asthenosphere along fault zone, which show a dense gravity stair zone in the Bouguer anomaly approximate image. Besides, relocation data of earthquakes in this area are used and 3D fine structure pattern near seismic resource area is rebuilt and 2 clear dominant earthquakes distributions are found in 10km and 16km deeps. The relationship between the tectonics and strong earthquake is studied and symbol and feature of strong earthquake in this area is found. Research conclude that the cause of 1668 Tancheng Ms8.5 earthquake is probably related to especialy fault morphology and upwelling material had high density from asthenosphere.