

NEW COMPILATION OF HEAT FLOW MAP IN THE CONTINENTAL AREA OF CHINA

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A new compilation of heat flow data in continental China has been attempted using published data as of 1999, as well as unpublished data. The data set comprises 854 observations at different sites. On a $1^{\circ} \times 1^{\circ}$ grid, the observations cover 60% of the surface of the continental area. Empirical estimator, based on the relationship between age of the last tectonothermal events and heat flow, enables heat flow to be estimated in areas without measurements. Heat flow contour map of continental China incorporated with heat flow measurements in the adjacent countries are presented. The measured heat flow ranges from 23.4 to 319 mW/m² with a mean of 62.6 ± 24.3 mW/m² in continental China. Heat flow values higher than 140 mW/m² generally located in hydrothermal regions with a scale of ~ 10 km², which are obviously related to hydrothermal circulation in the shallow depth of the crust. If these values are excluded, the representative average heat flow will be 65 mW/m² with a range of 35-96 mW/m². The heat flow pattern in the continental China is significantly controlled by the tectonic framework, especially the Mesozoic-Cenozoic evolution including the Cenozoic collision between India and Euro-Asia Plates and the consequential thickening of lithosphere in the western China, and the large scale of Later Mesozoic volcano-magmatic activities and thinning of lithosphere in the East China accompanying with the subduction of paleo-Pacific Plate.