

Towards a better estimation of the temperature distribution beneath the Japanese Islands

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To improve our understanding of the thermal evolution and structure of the deep Earth, it is necessary to know the shallow part of them. Surface heat flow provides important constraint on it. However, the number of heat flow data is limited and spatially very inhomogeneous and even in regions with measurements the data quality varies. For this reason, we have been working on compiling a comprehensive database of heat flow, thermal conductivity, and geothermal gradient. In 2004, Geological Survey of Japan published a digital geoscience map entitled "Geothermal Gradient and Heat Flow Data in and around Japan", which contains heat flow data in the northwestern Pacific area (from 0 to 60°N and from 120 to 160°E) and geothermal gradient data in and around Japan. In 2019, we will be releasing database entitled "Thermal Data Collection in and around Japan", which contains continuously updated of geothermal gradient and heat flow data and adds thermal conductivity data in and around Japan. Thermal conductivity data were compiled from published data and site-specific reports, and measured using the archived cores. This database offers considerable improvements over the previous version released in 2004, and will be published and available at <https://www.gsj.jp/en/database/db-portal/index.html>. It presents an opportunity to revisit the thermal state of the lithosphere along with other geophysical/geochemical constraints on heat flow extrapolation.

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