

IHFC REPORT - 2013

IHFC continued acquisition of experimental data on heat flow density within the Global Heat Flow Data Base (GHFDB). In 2012 the IHFC decided to migrate the complete GHFDB, created by the IHFC earlier, to a relational geoscientific data base which allows to search for heat flow values in conjunction with other geoscientific data. This will ensure data longevity and security independent of the person and institution of the custodian. To provide that the IHFC decided to migrate the data to the Pangaea data base (http://www.iaspei.org/downloads/IHFC_2011-0623_QuadrienniumReport.pdf). The Global Heat Flow Data Base (GHFDB) as available to date from website (<http://www.heatflow.und.edu>) will be incorporated into the data base Pangaea. The origin of the data will be visible as separate entry in the meta data. The special Agreement between IHFC and Pangaea was signed.

Renovation of the Global Database of Borehole Temperatures for the Study of Climate Change was performed. With the support from the international geothermal community, a global database of borehole temperatures was constructed for the specific purpose of climate change research and became an important data source in climate research.

Experimental geothermic investigations in scientific deep wells and industrial oil wells in India, Sweden, Italy, USA, Russia, Brazil, China, Germany, Czech Republic, and other countries were coordinated to provide a necessary support with preparation of comprehensive research programs and the new research methodology and technique accounting for previous experience of the members of the IHFC in this research and cardinal changes in the geothermic research methodology happened during last decades within scientific deep drilling programs. Such works were. Within this activity the IHFC participated in organization of the workshop “Scientific Drilling and Geothermal Studies” in Bohum (Germany), Sept 24-25, 2012. Jointly with International Society for Rock Mechanics the IHFC created the Working Group to develop a special standard “Suggested Methods of Rock Thermal Property Measurements”. The IHFC members revise thermal data from oil wells available. The revised heat-flow values are larger very often than reported in previous studies. This is due to better estimates of thermal conductivity, the use of more accurate techniques to infer the formation temperatures and, secondarily, to the radiogenic heat and the palaeoclimate, which were not taken into account in early studies sufficiently.

Integration of geothermics and climatology was continuing within many research projects led by the IHFC members. Geothermal Climate Change Observatory was set-up in India at the support by Dr.S.Roy. The Thermal Environmental Monitoring Observatory of the Xi'an Jiaotong University was established in China at the support by Dr.S.Huang.

The IHFC arranged the scientific support with description of new geothermic technique and evolution in geothermic research methodologies to help in the geothermal energy utilization problem solution. The support to GeoScience Australia, Australian Universities and companies dealing with geothermal energy projects was arranged. Prof. Y.Popov gave a key-note presentation for the Australian Geothermal Energy Conference – 2012 and provided consulting for Geoscience Australia, the University of Adelaide and South Australian Center for Geothermal Energy Research.

In 2012 IHFC supported fast implementation of applied geothermics in hydrocarbon industry. New methods for high precision continuous non-destructive thermal property measurements on cores at bench and formation conditions developed earlier to solve the fundamental geothermic problems were implemented in 2012 widely for enhancement of thermal methods of heavy oil recovery for several heavy oil fields in Russia and other countries. Significant problems with rock thermal property data bases for sedimentary rocks and integration of thermal property data in hydrodynamic simulators were established and explained to oil industry representatives during the IV World Heavy Oil Congress (Aberdeen, 2012). The information about necessary essential corrections in previous heat flow data, which were found to be necessary earlier by the IHFC members from the scientific deep drilling projects and which should be used within the petroleum system modeling and basin modeling, was delivered to the companies dealing with the problem solution to improve the modeling reliability.

Special courses “Geothermics” and “Applies Geothermics” are organized in universities and colleges in many countries. Geothermics was introduced in the course requirements for Ph.D. students in Geology and Geophysics.

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