
INTRODUCTION

Studies, exploration and exploitation of geothermal deposits have been long conducted in all continents of world. In recent years the issue of extraction of thermal and electric energy from fractured rocks (“hot dry rocks”) has been dealt with in Europe, America, Australia, etc. In large, this trend of fundamental science and technology – the study and exploitation of geothermal deposits – has good social and economic prospects worldwide. Russian scientists gained a significant experience in study and exploitation of geothermal deposits: near-surface low temperature therms (heat supply, balneology, food industry) and vapor hydrotherms deposits (Pauzhetka and Verkhne-Mutnovskaya and Mutnovskaya geothermal plants) were located in Caucases, in Kamchatka, in the Kuril islands. Near-surface geothermal deposits are characterized by low P-T parameters and limited resources with a heat carrier having aggressive properties. These factors induce fundamental science and geothermal energy operations to study the deep levels of hydrothermal systems. There are such operations in Japan, in New Zealand, in Italy, in Iceland, in Russia. However, the researches are carried on is specialized, that does not give possibility to create complex model of evolution of long existing (from thousands – to million years) ore-forming hydrothermal system.

The development of conceptual models for formation conditions of epithermal ore and geothermal deposits, deep drilling of present-day hydrothermal systems and data on the composition of a restored endogenic fluid allowed to make the definition of volcanic-magmatic-hydrothermal systems over last years (Giggenbach et al., 1990). Based on a large joint team research work at volcanoes and hydrothermal systems of present-day and ancient island arcs we located long-existing ore-forming hydrothermal-magmatic convective systems at the ocean - continent transition zone (Rychagov et al., 1998-2005). Conditions existing in the bowels of hydrothermal-magmatic systems of insular arches result into generation of large geothermal deposits (≥ 100 MWt_e/100 of exploitation years) and formation of mineralization of auriferous-polymetallic and, probably, Au-Ag-Cu-Mo...-porphyric type.

The becoming of a new fundamental scientific direction (studing of evolution of long-living ore-forming hydrothermal-magmatic systems) was prepared by operations of the Soviet (Russian) and foreign scientists: A.N. Zavaritskii, S.S. Smirnov, V.I. Smirnov, Yu.A. Bilibin, D.S. Korzhinskii, G.M. Vlasov, M.M. Vasilevskii, B.I. Piip, V.V. Averiev,

E.A. Radkevich, V.I. Kotlayr, V. Eitel, A.J. Ellis, R.O. Fournier, R.W. Henley, L. Muffler, A.G. Reyes, R.H. Sillitoe, D.E. White and many others. The special role in research of modern hydrothermal mineral-ore formation processes belongs S.I. Naboko.

The International Kuril-Kamchatka Field Workshop “Geothermal and mineral resources of modern volcanism areas” (July 16 – August 6, 2005) is devoted to discussion of a new ideas and natural, laboratory and experimental materials, carrying out of collaborative complex researches in geothermie, geochemistry, mineralogy and petrology of volcanic insular arcs.

The main tasks of our workshop are:

1. Generalization and publication of results of the newest researches in geothermie, geochemistry, mineralogy and petrology of volcanic insular arcs.
2. Obtaining the new original materials in the given area of researches on Kuril-Kamchatka insular arc, the characteristic of datas obtained in other modern volcanism areas, combine researches.
3. Implicating in the scientific process of talented youth, fissile propagation of knowledge in the sciences about the Earth.
4. Creation of a fundamentals for carrying out on Kamchatka and Kuril Islands, and in further – in other regions of Russia and World, annual International Field Workshop and extension of researches on a theme: “Geothermal and mineral resources of modern volcanism areas”.

We suppose that the Field Workshop will allow to make particular step forwards to comprehension of a nature of all geothermal and hydrothermal mineral-ore forming processes.

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