

Research outline of Examination about the effects of heat and hydrothermal water on surroundings by geological repository

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1. Research purpose

For sites selection of geological repository of nuclear waste, the places where the influence of the heat and hydrothermal water by magma is predicted, should be excluded from the candidates. The places where the effects are not clearly identified by references survey, the judgments are carried out after the subsurface survey including boring survey.

In order to grasp the future extent and characteristics of the influence, it is necessary to establish the methods for appropriate surveys and assessments on presently effects to surroundings by heat and hydrothermal activities. And also, the high-temperature anomalous areas not related to Quaternary volcanism should be extracted, and the techniques for these site survey, data analysis and evaluation must be prepared.

Therefore, we started to examine the effects of heat and hydrothermal water on surroundings by geological repository.

2. Research outline

1) Examine of high-temperature anomalous areas in terms of earth scientific properties

Subsurface geological structure, thermal features (including heat sources) and hydrothermal convection are examined by data acquisition of geology, alteration and fluids chemistry of the regional areas.

2) Examine of genetic origin for high-temperature anomalous areas

Fluids migration is reconstructed in wide range by the simulation. The simulators are revised to be applicable for less temperature condition from high-temperature geothermal reservoir simulator. Deep thermal structures are also investigated by integration of various geological and geophysical data

3) Examine of methods for survey, data-analysis and evaluation

Subsurface temperature model is investigated based on geophysical and other surveyed data. Subsurface permeability model and fluid flow simulations investigate the environmental change of temperature anomalous areas.