HEAT SOURCE AND FLUID MIGRATION CONCEPTS AT THE UENOTAI GEOTHERMAL FIELD, AKITA PREFECTURE, JAPAN

Robertson-Tait, A.[1], Klein, C.W.[1], McNitt, J.R.[1], Naka, T.[2], Takeuchi, R.[2], Iwata, S.[3]
Saeki, Y.[4], and Inoue, T.[4]
[1]GeothermEx, Inc., 5221 Central Avenue, Suite 201, Richmond, CA 94804 USA
[2]Akita Geothermal Energy Company, Tokyo, Japan
[3]Akita Geothermal Energy Company, Oyasu, Japan
[4]Dowa Mining Company, Tokyo, Japan

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ABSTRACT
Ten to 15 km W of the axis of young volcanoes in northern Honshu, an extensive geothermal system occupies a major structural uplift. On the northern flank of the uplift, in the Uenotai project area, commercial quantities of geothermal fluid are produced primarily from fractured pre-Tertiary basement rock. Exploration data present conflicting evidence regarding the heat source and flow paths of geothermal fluid within this very large system, which contains at least seven water types identified by major element chemistry.
The chemical data suggest that the system is driven by a small magmatic body beneath the uplift, but there is no geologic or morphologic evidence for magmatic intrusion. Therefore, it is possible that the fluid is heated deep beneath the young volcanic arc, flows toward the NW and rises into the structural high. Deep drilling and fluid sampling from a well on the structural high S or SE of the Uenotai project area may resolve these conflicting conceptual models.

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