

Relationship between chemical composition of hot springs and geological structure at Kyushu, Japan

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Hot springs are composed of hot water from underground, water vapor and other gases, and defined as those its temperature at the gushing point is above 25 degrees centigrade or containing more than specified amount of components. And chemical composition of hot springs reflects the geology (Maki 1994).

Because of much seismic activity and volcanic activity in Japan, there are approximately 30000 hot springs in Japan, various kinds of studies of hot spring have been performed, but most of these studies had performed in narrow region with smaller number of samples.

However, in comparative studies about the relationship between topography and geological structure and chemical composition of hot springs studies, many chemical composition data in broad region is required.

In Japan, it is obligated to analyze hot springs chemically and create official sheets of chemical analysis by law. Oguma(2009) obtained 715 data of hot springs in Kanto-Koshinetsu area using this sheet, showed the relevance of the chemical composition of hot springs and plate subduction. And Otsu(2010) obtained 1026 data of hot springs in Tohoku area, showed the relevance of chemical composition and active fault. These studies were performed using temperature, pH and amount of chemical components data recorded in official sheets of chemical analysis.

The target of this presentation is Kyushu area. There are many volcano and active faults in Kyushu, so many hot springs exist. 1963 data of chemical composition hot springs are collected from whole Kyushu area, Japan, and chemical trend corresponding to the various geological setting are spatial analyzed on GIS. In this presentation, we report new insights about the relevance of several active faults and chemical composition of hot springs.

Keywords: hot springs, Kyushu, active fault