



## Physical and chemical analysis of Onyang hot spring in Korea

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Onyang hot spring has a long history back in the time of Baekje Kingdom. It has currently 38 wells active for hot spring. Geologically, it consists of Precambrian banded gneiss, Jurassic porphyritic granite, biotite granite etc., Cretaceous microgranite, dike. Fault zones exist in the ESE-WNW around Onyang hot spring. Locations of the wells indicates that the correlation between the fault zones and the hot spring distribution may exist, while geochemistry is determined by rocks. Geochemically, Onyang hot spring is primarily the type of Na-HCO<sub>3</sub>. Sometimes, with sufficient Ca it evolved to the types of Ca-HCO<sub>3</sub>, Na(Ca)-HCO<sub>3</sub>, and. Na-HCO<sub>3</sub>. Water temperature is measured in the range of 45.87 – 52.92. The highest temperature range of 48.2 - 60 was observed during the pumping test. Based on the data from 2007 to 2011, the average of water production rate is 2,600 m<sup>3</sup>/d with significant seasonal fluctuation. It seems it was a natural spring 100 years ago. Due to excess pumping, the water depth has dropped more than 100 meter. It shows clear correlation with water usage.

Key words: Onyang hot spring, Natural spring, Quantity, Water depth