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Occurrence and formation mechanism of Harazuru hot spring, Fukuoka, Japan

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Harazuru hot spring is located to the eastern part of Chikugo Plain in Fukuoka-ken, Kyushu, Japan, where is just beside of the Chikugo River, the longest river in Kyushu. There two types of hot springs, chemically; One is Na-HCO3 type, and the other Na-Cl/HCO3. The former is located in the central part of Harazuru extending to the NE-SW direction, and the latter distributing to the northwestern and southeastern part of the former type. The delta D of the Na-HCO3 and Na-Cl/HCO3 types are delta D =-49 to -51 per mill and -54 to-57 per mill, respectively. The delta D of the Chikugo River shows -50 per mill. Such chemical relations suggests Na-HCO3 type of water is formed by mixing of Na-Cl/HCO3 with meteoric water. However, the delta D is so small compared to that of Chikugo-gawa river nearby, the water is probably migrated through a big geological structures extending EW direction from the upper part of the Chikuko-gawa river.

Keywords: hot spring, chemistry, idotope, formation mechanism, Harazuru, Fukuoka