

## Characteristics of water quality in groundwater near the coastal area at northern part of Fukushima Prefecture

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The coastal area at northern part of Fukushima Prefecture suffered big damage by a tsunami generated in 11 March, 2011. The groundwater around these areas was affected by the tsunami. These areas were greatly affected by the accident of the nuclear power plant, and the radioactive contamination of a plant, soil and farm products became serious problem. It is important to make clear the groundwater flow in these areas because of considering the solution to the serious problem. The objective in this study is to uncover the groundwater flow system and residence time of spring water and groundwater in the coastal area at northern part of Fukushima Prefecture.

As a result of field survey, EC values of spring water and groundwater were under 30 mS/m in most sites. Almost site shows lower than 7 of pH values, however, in several sites show higher than 7.5 of pH. The water temperature is from 13 to 18 degree Celsius in almost site, but some site shows the lower than 12 degree Celsius. So, it is considered that the groundwater and spring water which show lower than 12 degree Celsius were recharged in the relative high altitude area. Water quality of shallow groundwater is Ca-HCO<sub>3</sub> type, but that of spring water and deep groundwater is Na-HCO<sub>3</sub> type. Since the SiO<sub>2</sub> concentration of these spring water and deep groundwater is relatively high, it is expected that the residence time of these water are relatively long.

The  $\delta^{18}\text{O}$  values show from -10 to -6 ‰ and  $\delta\text{D}$  values show from -65 to -35 ‰. The altitude effect in this area is -0.16 ‰/100 m of  $\delta^{18}\text{O}$  and -0.6 ‰/100 m of  $\delta\text{D}$ .

In future, we will analyze the <sup>3</sup>H, CFCs and SF<sub>6</sub>, and will consider the residence time and groundwater flow system.

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