

## Study on groundwater flow system at Oshino Village in Yamanashi Prefecture –Report 5. Estimation of the residence time in spring water and groundwater at Oshino Village.

\*Shiho Yabusaki<sup>1</sup>, Makoto Taniguchi<sup>1</sup>, Ichiro Tayasu<sup>1</sup>, Tomoya Akimichi<sup>1</sup>, Noboru Ohomori<sup>2</sup>, Ken Gotou<sup>2</sup>, Souichirou Watanabe<sup>2</sup>, Hitoshi Watanabe<sup>2</sup>

1. Research Institute for Humanity and Nature, 2. Oshino Village

Oshino Village is located in southern part of Yamanashi Prefecture, Japan. The elevation is 936 m a.s.l. and the area of village is about 8 km from east to west and about 4 km from north to south. The Oshino Hakkai springs that is registered as World Cultural Heritage Site are located in Oshino Village. It is suggested that the Oshino Hakkai springs are recharged at Mt. Fuji as a result of field observation. The objective in this study to clarify the detailed groundwater flow and residence time of spring water and groundwater in Oshino Village. In this presentation, the authors will report about average residence time of groundwater and spring water.

The water samples for estimating the residence time by using the CFCs and SF<sub>6</sub> have been collected at 2 spring water sites, 1 shallow groundwater site and 11 deep groundwater sites. For <sup>3</sup>H analysis, water samples have been collected at 4 spring water sites and 4 deep groundwater sites. In this study, “shallow groundwater” is defined as several meters to some dozen meters depth, and “deep groundwater” is defined as about 100 m to 400 m depth.

As a result of analysis, the average residence time of spring water is about 10 to 26 years, shallow groundwater is about 30 to 40 years and deep groundwater is about 40 to 60 years. In addition, it is estimated that the average residence time of spring water which show the specific water quality (Na-SO<sub>4</sub> type,  $\delta^{18}\text{O}$  and  $\delta\text{D}$  is relatively low) is more than 70 years. We will consider the relation between average residence time and water quality/ stable isotopes in future.

The continuous observation of water temperature and EC at 2 sites of Oshino Hakkai has been implemented since August, 2018. We will continue the field observation of Oshino village at 2019, and estimate the groundwater flow system and residence time more clearly.

Keywords: Oshino Village, groundwater, water quality, stable isotopes, groundwater flow, residence time