

Characteristics of groundwater age tracers' concentration (CFCs, SF₆ and Tritium) in Kumamoto area

KAGABU, Makoto^{1*}, SHIMADA, Jun¹

¹Grad.Sch.of Sci.&Tech., Kumamoto Univ.

In Japan, groundwater residence time is relatively young (within 50 years) because of its steep gradient and high rainfall. So, young age tracers are useful to estimate residence time of groundwater in this country. However, each tracer has disadvantages when groundwater age dating due to anthropogenic sources, microbial degradation, sorption, terrigenous source, and so on. It is required to know the characteristics of each tracer's behavior during groundwater flow in the aquifer.

Groundwater samples were collected from various hydrological aquifers (pyroclastic flow deposit, volcanic rock, alluvium and marine deposit) in Kumamoto area. And samples were analyzed for young age tracers (CFCs, SF₆ and Tritium) to evaluate its characteristics of concentration in each aquifer.

Water samples were collected from Kumamoto area in April and October 2011. Almost all samples were analyzed for CFCs, SF₆, major dissolved components and stable isotopes (d18O-H₂O, dD-H₂O). Tritium results were quoted from previous studies.

On our presentation, "the characteristics of age tracer concentrations in each aquifer" and "factors for over- and/or under-estimation of groundwater age" will be presented.

Keywords: Young age tracers, Groundwater, CFCs, SF₆, Kumamoto area