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Study on characteristics of NO₃-N concentrations in groundwater of Ryukyu limestone region in southern part of Okinawa

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The study area is located in the southern part of Okinawa Main Island, Japan, where Ryukyu limestone is extensively distributed. We studied the behaviour and characteristics of NO₃-N in groundwater in this region by using observation data at 13 springs through long term monitoring

It was found that the NO₃-N concentrations at in springs ranged from 6.2 mg/L to 16.6mg/L during 17years in this area. The No₃-N concentrations had decreased from the mid-1990s to early 2000s.And The No₃-N concentrations not have been decreased or increased since early 2000s. Distribution of NO₃-N concentrations show various form according to location and differences of various form are approximately classified into two types (stable type and unstable type). It was considered that NO₃-N concentrations were influenced by the rainfall, geological structure and land use of upland fields. The equation between T-N concentrations and NO₃-N concentrations could be obtained from observed data. The predicted values of NO₃-N concentrations were approximately in agreement with the observed values.

Keywords: NO₃-N, groundwater, spring water, Ryukyu limestone