

沖縄本島南部地域の琉球石灰岩帯水層における地下水水質の変動特性とその要因 Characteristics and fluctuation factors of groundwater quality on Ryukyu limestone region in southern part of Okinawa

安元 純^{1*}, 中野 拓治¹, 中屋 眞司²

YASUMOTO, Jun^{1*}, NAKANO, Takuji¹, NAKAYA, Shinji²

¹ 琉球大学 農学部 地域農業工学科, ² 信州大学 工学部

¹University of the Ryukyus, Faculty of Agriculture, ²Shinshu University, Department of civil engineering

Characteristics and fluctuation factors of groundwater quality(the four major cations (Na⁺, K⁺, Mg²⁺, Ca²⁺) and four major anions (Cl⁻, HCO₃⁻, SO₄²⁻, NO₃⁻) is investigated using observed data on groundwater at springs and observation wells in the southern part of Okinawa Main Island, Japan, where Ryukyu limestone is extensively distributed. In this study, FS6 survey was conducted to examine the residence time of groundwater in limestone aquifer. The distribution of Ca²⁺ and HCO₃⁻ were similar trend because the CO₂ charged water first encounters a calcite layer below the groundwater table. It was found that the residence time obtained from FS6 were related with the concentrations of Ca²⁺ and HCO₃⁻. The composition of groundwater was dominated by Na⁺ and Cl⁻ reflecting salt water in coastal area. It was considered that NO₃⁻ and SO₄²⁻ concentrations were influenced by the rainfall, geological structure and agricultural land use.

キーワード: 地下水, 水質, 琉球石灰岩, 変動特性

Keywords: Groundwater, Water quality, Ryukyu limestone, Characteristics and fluctuation