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Paleo-hydrological history impermeability sedimentary rock of coastal area in the Horonobe area of Hokkaido

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Over the past decade, new utilization methods of underground space development such as geological disposal of high level radioactive waste, HLW and CO₂ sequestration or carbon capture and storage, CCS have been important issues under discussion in Japan. Coastal areas are suitable candidate sites when planning for such projects. It is necessary to understand seawater/freshwater interaction as a result of regional groundwater flow system and global scale sea level change. There is, however, little available information worldwide on deep groundwater studies in coastal areas. There is also virtually no study has been conducted on the behavior of groundwater and pore water in coastal impermeable sedimentary rock. In this study, large scale core drilling has been carried out in coastal area at Hamasato in the Horonobe area of Hokkaido, Japan in order to investigate the deep groundwater flow system as well as the residence time. Pore water with various adsorptivity is gradually collected from drilling core samples by centrifugation and squeezing methods. Paleo-hydrological history of the coastal environment has also been estimated by geochemical information from the pore water.

We expect to report the results of geochemical analysis in pore water with consideration on the characteristics of hydrological environment and deep groundwater flow system, and then suggest the expansivity of this study.

Keywords: Coastal area, Deep groundwater, Pore water, Groundwater flow system, Geochemical information