

## Formation and the feature of Flow-path fractures in a sedimentary rock - A Case study at Horonobe URL -

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In the view point of safety assessing the geological disposal system for high-level radioactive waste, it is essential to understand mass transportation in a hostrock. Therefore characteristics of mass-transport structures such as flow-path fractures must be understand. In this study, we report formation and the feature of flow-path fractures based on geological observation and fracture mapping in a sedimentary rock at the Horonobe Underground Research Laboratory (URL). The flow-path fractures occupy 22.4% of total fractures at the depth from GL-250.5m to GL-350.5m of the Ventilation shaft of the Horonobe URL. In addition, results of thin section observation, element mapping, and isotope analysis of carbonate fillings are shown. These results suggest that the formation process of flow-path fractures includes at least 2 stages; the E-W strike fracture forming stage caused by subsidence and East-West compressive stress and the tension fracture forming stage caused by fracture removal beneath regional uplifting and distressing.

This study presents the formation process of flow-path fractures as mass-transport structures in a sedimentary rock. In the future study, we will evaluate changes of flow-path structures from the view point of geological long-term stability.

Keywords: Flow-path, fracture, sedimentary rock, Horonobe