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Comparison ALOS PALSAR and AVNIR-2 Data for Feature Analysis of Groundwater Discharge Points in Coastal Regions around Mt. Chokaisan, Japan

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The flow of fresh water into the sea, known as submarine groundwater discharge, is one of key factors for understanding the hydrological cycle in sea and land regions. The numerous positions from which fresh water gushes and the amount impedes the understanding of its properties. In our previous study, we detected groundwater discharge points based on the difference between freshwater and seawater by using the Advanced Land Observing Satellite (ALOS) Advanced Visible and Near Infrared Radiometer type 2 (AVNIR-2) outputs with 10 m spatial resolution. Data available for analysis is limited because the AVNIR-2 sensor is a passive sensor that is affected by clouds. In the present study, we analyze the features of water properties around the groundwater discharge points by using ALOS Phased Array type L-band Synthetic Aperture Radar (PALSAR) with 10 m spatial resolution. The results obtained by the proposed method are compared with the results of ground survey and geological and classified maps obtained by AVNIR-2 outputs. The comparison results suggest that the proposed method is effective to analyze features of groundwater discharge points in coastal regions around Mt. Chokaisan.

Keywords : Remote sensing, PALSAR, AVNIR-2, Submarine groundwater discharge, Texture