Geophysical Research Abstracts
Vol. 21, EGU2019-6865, 2019
EGU General Assembly 2019

A Study on the Establishment of Impact Forecasting Foundation in Jeju Island : The Evaluation of pilot-service for road-control Possibility by heavy snow, and determining of the Threshold by rainfall

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Jeju Island has heavy snow due mainly to convective clouds formed by difference between air-sea temperature. Especially, with the 1950m-high Mt. Halla located in the center of Jeju Island, snow cover increases as the altitude increases due to the topographic effects. In the preceding study, we calculated the meteorological factor threshold for determining the control possibility of Jeju Island's main roads due to snow accumulation, and provided a pilot service for 28 sections of Jeju Island's eight main roads. In this study, we validated and evaluated pilot service in 2017. Verification showed the accuracy of POD 0.69, ACC 0.79, FAR 0.54, and CSI 0.4. A comparative analysis of the 0°C distribution line and the road-control altitude also showed that on most roads, control has been made at temperature altitudes below 0°C, which meet the road control altitude conditions in the previous study.
Meanwhile, we suggested that the method of determining the threshold for heavy rains which disasters begin to occur. By considering the different precipitation patterns in each region, We used Tiessen's polygon network and maximum probable precipitation using Automatic weather system(AWS) points on Jeju Island which have more than 10 years data. Thresholds differentiated by regions of the South, North, East and West Jeju were calculated and verified based on observations data and past disasters.