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## A Study on the Key Factors of Snowfall structure in mid-eastern region of the Korean Peninsula by Using idealized numerical Experiment

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In the winter season of the Gangwon region, where is located in the mid-eastern part of the Korean Peninsula, easterly wind that is induced by Siberian-high frequently causes heavy snowfall. When dry and cold air mass from continent is advected over the East sea of Korea that is relatively warmer than the continental air mass, thermal instability in the lower troposphere increases, which can induce convective cloud rolls. The clouds accompanied by the snowfall are penetrated to inland by the prevailing easterly wind. The Korean Peninsula has the geographical characteristics that mountain ranges exist along the eastern coastline, that can block easterly wind and induce upward motion over the upstream region. Previous studies presented key factors which can affect the snowfall in Gangwon region are air-sea temperature difference, wind turning layer, Froud number (FN), and the horizontal temperature contrast between land and sea. In this study, the idealized experiment is conducted by utilizing the Weather Research and Forecasting (WRF) model to examine effects of each key factor on the snowfall structure. The individual impact of each key factor is investigated by changing the variables while other factors were controlled. When the height of the wind turning layer is higher than the mountain, the maximum snowfall is located over the mountain ridge in the large FN, whereas the snowfall is limited to the windward area in the small FN. On the other hand, when the wind turning layer is lower than the mountain, it shows that the snowfall cannot cross the mountain regardless of the FN. When the horizontal temperature contrast between the land and the sea is large enough, the snowfall is limited to the seaward area off the coastal line.