

4.153 Analysis of Artificial Seeding Effects on Snow Using Snowflake Camera In the Mountainous Region of Korea.

Early Career Scientist

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Abstract:

Snowflake is a basic element of snowfall phenomenon in terms of various cloud physical processes such as density, fallspeed, scattering and absorption characteristics, etc. In spite of its importance, snowflake studies in Korea are still insufficient. Here morphological classification and quantitative analysis of snowflake of using multi-angle snowflake camera (MASC) in the Yeongdong region were investigated. Further some results of artificial seeding on snowflake in the mountainous site (Daegwallyeong) belonging to Yeongdong, where 2018 winter Olympic was held. In addition, qualitative analysis of snowflake had been done since 2014 using a smart phone with a magnifying lens, which will be also introduced here.

We had several snowfall episodes with MASC; a couple of typical ones are from Gangneung (coastal site) which will be compared to Daegwallyeong experiment. In general, the Yeongdong region tends to have sea-effect snowfall quite similar to lake-effect snowfall, which consists of largely dendrite aggregate and frequently riming

particles. The recent study claimed that snow crystal in this region heavily depends upon 850 hPa temperature, an usual height of cloud layer. Based on one (March 14 2017) of the experimental events, the snowflake modification by artificial seeding at Daegwallyeong shows the change of snow crystal habits from dendrite to riming particles. Interestingly the particle size distributions of riming-dominant crystals after the seeding become narrower with its size decreasing in comparison to dendrite-dominant crystals with larger particles before the seeding. This habit change by an additional supply of AgI is very consistent with the previous experiments at Daegwallyeong. More quantitative comparisons of seeding effect will be presented.