World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:14, No:06, 2020

Analysis of Weather Radar Data for the Cloud Seeding in Korea, 2018

Authors : Yonghun Ro, Joo-Wan Cha, Sanghee Chae, Areum Ko, Woonseon Jung, Jong-Chul Ha

Abstract : National Institute of Meteorological Science (NIMS) in South Korea has performed the cloud seeding to support the field of cloud physics. This is to determine the precipitation occurrence analyzing the changes in the microphysical schemes of clouds. NIMS conducted 12 times of cloud seeding in the lower height of the troposphere at Kangwon and Kyunggi provinces throughout 2018. The change in the reflectivity of the weather radar was analyzed to verify the enhancement of precipitation according to the cloud seeding in this study. First, the natural system in the near of the target area was separated to clear the seeding effect. The radar reflectivity in the point of ground gauge station was extracted in every 10 minutes and the increased values during the reaction time of cloud particles and seeding materials were estimated as a seeding effect considering the cloud temperature, wind speed and direction, and seeding line that the aircraft had passed by. The radar reflectivity affected by seeding materials was showed an increment of 5 to 10 dBZ, and enhanced precipitation cloud was also detected in the 11 cases of cloud seeding experiments.

Keywords : cloud seeding, reflectivity, weather radar, seeding effect
Conference Title : ICCP 2020 : International Conference on Clouds and Precipitation
Conference Location : San Francisco, United States
Conference Dates : June 05-06, 2020