

Study of Radar Rainfall Estimation using Geographic Information Systems over Chiang Mai Province

Tuesday 22 May 2018 15:45 (15 minutes)

Weather Radio Detection and Ranging or Weather Radar is an equipment used for detecting the position and direction of atmospheric movement. Weather Radar was calculated the time travel of electromagnetic wave which sent and received to the objects. The radar reflectance could be estimated amount of water vapor in the cloud, but it was not exact value of surface rain water. Therefore, to examine the relationship and trend between rainfall from weather radar and surface rain gauge station, we use Z-R relationship equation to calculate rainfall from weather radar and compared with rain gauge station. The study area is Chiang Mai province and the chosen time period were as March 4th, June 10th and August 10th in year 2013. The data acquisition of rainfall values measured by surface rain gauge station from Northern Meteorological Center and the weather radar map from Lamphun radar station covered 6 upper-north provinces (83 rain gauge stations) which included of the weather radar map from Omkoi radar station covered 63 rain gauge station. The results shown that consistency coefficients of determination (R-Squared) of the rainfall between from rain gauge station and calculated from weather radar map. The interpolation and hot spot analysis were shown the similar relationship and trend of the rainfall from both places in term of spatial analysis. The rainfall values on March 4th was about 0-39 mm/day, 0-4 mm/day, and 0-21 mm/day from rain gauge station, Lamphun, and Omkoi radar station, respectively. And the rainfall values on the 10th of June was about 0-84 mm/day, 0-9.6 mm/day, and 0-4.2 mm/day from rain gauge station, Lamphun, and Omkoi radar station, respectively. Whereas the rainfall values on the 10th of August was about 0-107 mm/day, 0-10 mm/day, and 0-4.8 mm/day from rain gauge station, Lamphun, and Omkoi radar station, respectively.

Author: Ms INLAUNG, Kevalin

Co-author: Dr NAKAPAN, Supachai

Presenter: Ms INLAUNG, Kevalin

Session Classification: A014: Environment (Poster)

Track Classification: Environmental Physics, Atmospheric Physics, Geophysics and Renewable Energy