Radar hydrology: new Z-R relationships over the Klang River Basin, Malaysia for monsoon season rainfall

SUZANA RAMLI & WARDAH TAHIR
Faculty of Civil Engineering, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia
suzana_ramli@yahoo.com

Abstract The use of Quantitative Precipitation Estimation (QPE) in radar–rainfall measurement for hydrological purposes is significantly important. For several decades radars have been deployed to monitor and estimate precipitation routinely in several countries. However, in Malaysia, radar application for QPE is still new and needs to be explored. This paper focuses on the Z-R derivation work of radar-rainfall estimation. The work develops new Z-R relationships for the Klang River in the Selangor area for the monsoon season; namely southwest monsoon rain, northeast monsoon rain and two inter-monsoon rains which distribute heavy rain (>30 mm/h). Looking at the high potential of Doppler radar for QPE, the newly formulated Z-R equations will be useful in improving the measurement of rainfall for any hydrological application, especially for flood forecasting.

Key words radar; Quantitative Precipitation Estimation; Z-R development; monsoon; flood forecasting