Potential of radar data for flood forecasting and warning in lowland catchments in Ireland

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Abstract This paper describes the development of a radar rainfall forecasting method and its use for flood forecasting using a data stream from Met Éireann’s radar at Dublin Airport. It is applied to four relatively flat catchments of different sizes on the eastern side of Ireland. The first objective was to determine the value of the radar precipitation information for hydrological applications in general, and the second was to assess if there is added value in applying Quantitative Precipitation Forecasting (QPF). A TREC-type procedure was used to generate QPF. The precipitation estimates are compared to contemporaneous raingauge measurements and the discharge estimates are compared to measured river flows. Preliminary results suggest that, with a 15-min radar cycle, this extends the acceptable performance by only an additional 1 h of lead time. While this is significant for the smaller catchments, it is less so for catchments with longer lag times.

Key words radar; rainfall; flood forecasting; rainfall forecasting; QPF