



## **Analysis of an extreme rainfall case in Ireland using a HARMONIE-AROME physics ensemble**

Emily Gleeson, Alan Hally, Colm Clancy, Ronan Darcy, and Eoin Whelan  
Met Éireann, Glasnevin Hill, Dublin, D09 Y921, Ireland (emily.gleeson@met.ie)

During the last 20 years, ensemble prediction systems have become an indispensable tool for forecasting the probability of weather events and also as a means of representing the uncertainty related to the parametrisation of physically complex processes. One such process is radiation and radiative transfer. In this study, we use the HARMONIE-AROME configuration of the ALADIN-HIRLAM mesoscale numerical weather prediction system to construct a 6 member ensemble aimed at representing the radiation uncertainty for a convective event that affected the southwest of Ireland in October 2016.

Three radiation schemes are available in HARMONIE-AROME: the default IFS scheme, the ACRANE2 scheme from the ALARO-1 physical parametrisations and the HIRLAM scheme, HLRADIA. IFS is a complex multi-band scheme whereas ACRANE2 and HLRADIA are broadband and hence faster to run. In addition, two aerosol climatologies are available in the model: Tegen and CAMS. This ensemble is evaluated against the operational deterministic forecast at the time to demonstrate the advantages of using an ensemble approach for these types of events.