



North Atlantic post-tropical cyclones in reanalysis datasets

Alexander Baker, Kevin Hodges, Reinhard Schiemann, and Pier Luigi Vidale

National Centre for Atmospheric Science, University of Reading, Reading, United Kingdom (alexander.baker@reading.ac.uk)

Mid-latitude cyclones of a tropical origin are an important natural hazard affecting Europe, associated with high-impact weather events, such as hurricane-force wind speeds and precipitation extremes. Their frequency is projected to increase with anthropogenic climate change because warming-induced poleward and eastward expansion of tropical cyclone genesis areas will allow more storms to propagate to the mid-latitude baroclinic region. A robust understanding of post-tropical cyclone variability is therefore required. Here, we use a feature-tracking algorithm to identify post-tropical cyclones in reanalysis datasets. We then construct present-day seasonal climatologies of cyclone density and associated precipitation over the North Atlantic basin, with a particular focus on those storms which impact Europe, and also quantify the contribution of post-tropical storm-associated precipitation to total precipitation. We hope to stimulate further discussion of these systems, not least their tracks, tropical-to-extratropical transition, and representation in global climate models.