

Seamless forecasting of extreme events on a global scale

FLORIAN PAPPENBERGER¹, FREDRIK WETTERHALL¹, EMANUEL DUTRA¹,
FRANCESCA DI GIUSEPPE¹, KONRAD BOGNER¹, LORENZO ALFIERI¹ & HANNAH
L. CLOKE^{2,3}

1 European Centre for Medium-Range Weather Forecasts, Reading, UK
florian.pappenberger@ecmwf.int

2 Department of Geography and Environmental Science, University of Reading, Reading, UK

3 Department of Meteorology, University of Reading, Reading, UK

Abstract Early warning systems of extreme events, such as floods, droughts, strong winds and wild fires as well as vector-borne diseases, at the global scale, are essential due to the combined threat of increased population settlement in vulnerable areas and potential increase in the intensity of extreme weather due to climate change. The European Centre for Medium-Range Weather Forecasts (ECMWF) has in the last year developed prototype early warning systems for floods, droughts, extreme winds, wild forest fires and malaria transmission. This paper assesses the performance of these systems. By providing a comprehensive skill assessment both on a global level and in selected regions, we aim to assess their suitability for eventual integration into decision-support frameworks.

Key words floods; droughts; fire; malaria; forecasting; ensemble; ECMWF