



Changes in Weather in Future Decades

Alan Gadian (1), Ralph Burton (1), James Groves (1), Alan Blyth (1), James Warner (1), Greg Holland (2), Cindy Bruyere (2), James Done (2), and Jutta Thielen (3)

(1) University of Leeds, Earth and Environment, National Centre for Atmospheric Sciences, Leeds, United Kingdom (alan@env.leeds.ac.uk), (2) NESL, NCAR, Foothills Lab, NCAR, CO. USA, (3) Climate Risk Mqngement Unit, JRC, Ispra Italy

WISER (Weather Climate Change Impact Study at Extreme Resolution) is a project designed to analyse changes in extreme weather events in a future climate, using a weather model (WRF) which is able to resolve small scale processes. Use of a weather model is specifically designed to look at wind and "weather" at a scale which cannot be resolved by climate models. The regional meso-scale precipitation and extreme events, changes in wind patterns are important for understanding climate change impacts. This presentation will discuss changes in these variable in coming decades.

A channel domain outer model, with a resolution of ~ 20 km in the outer domain drives an inner domain of ~ 3 km resolution. Results from 1989-1995 and 2020-2025 and 2030-2035 will be presented to show the changes over Western Europe.

This presentation will provide details of the project. It will present data from the 1989-1995 ERA-interim and CCSM driven simulations, with analysis of the future years as defined above. The representation of pdfs of precipitation and wind speeds, with preliminary comparison with observations (for 1989-1995) will be discussed.

It is also planned to use the output to drive the EFAS (European Flood model) to examine the predicted changes in quantity and frequency of severe and hazardous convective rainfall events and leading to the frequency of flash flooding due to heavy convective precipitation.

The changes in wind and precipitation patterns will have impact on usage for power generation and this will be discussed in the presentation.