Seasonal impact-based mapping of compound hazards

John K. Hillier¹ and Richard S. Dixon²

¹Geography and Environment, Loughborough University, Loughborough, LE11 3TU, UK (j.hillier@lboro.ac.uk)
²Dept. of Meteorology, University of Reading, RG6 6BG, UK

Impact-based, seasonal mapping of compound hazards is proposed. It is pragmatic, identifies phenomena to drive the research agenda, produces outputs relevant to stakeholders, and could be applied to many hazards globally. Illustratively, flooding and wind damage can co-occur, worsening their joint impact, yet where wet and windy seasons combine has not yet been systematically mapped. Here, seasonal impact-based proxies for wintertime flooding and extreme wind are used to map, at 1° × 1° resolution, the association between these hazards across Europe within 600 years as realized in seasonal hindcast data. Paired areas of enhanced-suppressed correlation are identified (Scotland, Norway), and are shown to be created by orographically-enhanced rainfall (or shelter) from prevailing westerly storms. As the hazard metrics used are calibrated to losses, the maps are indicative of the potential for damage.