Analysing the challenges to emergency services response in extreme weather: an exploratory pilot study

Project examining training and preparation, equipment function and PPE function in extreme weather conditions using multiple data streams.

Key details

Lead institution	Liverpool John Moores University
Principal researcher(s)	Dr Amanda L. Farrell and Steve Jones A.L.Farrell@ljmu.ac.uk
Police region	North West
Collaboration and partnership	Cheshire Constabulary
Level of research	Professional/work based
Project start date	June 2024
Date due for completion	January 2026

Research context

Climate change has led to colder winters and increases in extreme weather. Exercise Winter Storm is one of the first steps in examining the impacts of various types of extreme weather on UK responders, to include flooding and extreme heat as future discussed trainings.

There is limited literature (and much is tangential) on these topics, with most advice currently coming from trade publications and industry blogs, many of which are tied to vendors. There is no literature on these issues specific to the UK. Yet, we know that the UK does experience extreme

weather conditions, which commonly include snow, flooding, heatwaves and wildfires.

Furthermore, extreme weather leads to cascading impacts on health and service provision, with property and structural damage that impair response efforts, in addition to disruption of service deployments.

As a result, planning and preparation – to include training – for extreme weather events is essential to reduce the impacts on emergency service provision during times of disruption and high demand while also safeguarding the workforce and incorporating resilience.

Research methodology

In the northwest region of the UK, these efforts have been led by Sergeant Rob Simpson of Cheshire Constabulary, and this research was invited. Sgt Simpson has been a vital collaborator and contributor to the research team. We have already conducted pre- and post-exercise data collection related to Exercise Winter Storm 2024.

This is the first stage in a larger project, aimed at collecting a baseline of the Blue Light services and tertiary support services with regards to personal protective equipment, job-related equipment, training and experience, ability to provide service and needs with relative to cold weather environments (CWE, 0°c or below). Further projects will involve focus groups, additional multi-agency high-fidelity simulation scenarios and controlled PPE and equipment studies.

Interim reports or publications

Farrell AL, Jones S, and McCarthy B. 2024. 'Understanding the effect of extreme weather on our emergency services: An exploratory study. Report of preliminary findings from the pre- and post-exercise mixed methods data collection'. Report presented at the operational debrief for Exercise Winter Storm 2024 held by Cheshire Constabulary.

References

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Clark DG and others. 2016. 'The role of environmental factors in search and rescue incidents in Nunavut, Canada'. Public Health, 137, pp 44–49.

Curtis S and others. 2017. 'Impact of extreme weather events and climate change for health and social care systems'. Environmental Health, 16, pp 23–32.

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Percival S, and Teeuw R. 2019. 'A methodology for urban micro-scale coastal flood vulnerability and risk assessment and mapping'. Natural Hazards, 97(1), pp 355–377.

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