science summary

Environment Agency

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Local Flood Warning Dissemination Trials

Science Summary SC040034

The Environment Agency's flood warning system 'Floodline Warnings Direct' (FWD) is an integrated multi-channel warning system. It provides flood warnings using current (phone, mobile, fax, pager, SMS texting) technologies to deliver warning messages simultaneously. The system was developed to take advantage of different technologies in a bid to provide a robust service and more targeted warnings. There is the potential in the future for flood warnings to utilise new technologies not currently used by FWD. Research is required to evaluate the best usage of new technologies for warning local communities.

The local flood warning dissemination trials developed from two Department for Environment, Food and Rural Affairs (Defra) funded R&D projects; FD2202 and FD2209. Project FD2202 focused on three areas of research: technology comparison, requirements analysis and international perspective, with the intention of assessing the need for future technologies for flood warning dissemination. This project resulted in a recommendation for future piloting of Digital Radio technology (DAB), supported by a wireless network of devices. Project FD2209 involved the development and bench testing of a suitable instrument to use in the field, and recommended a device for field-testing.

The aim of the local flood warning dissemination trials was to produce and field-test prototype local warning devices in order to demonstrate the reliability, resilience and practicality of this method of warning dissemination. The specific objectives were:

- To manufacture a base station and three field outstations, based on the technology developed under FD2209.
- To select a suitable Environment Agency area and install the base station at the area office and field outstations at suitable flood-prone locations.
- To carry out a trial of the system .

The trial was originally planned to take place in Cumbria, but two main obstacles prevented the project from successfully completing its aims:

- The equipment was unable to send signals the required distance to all members of the community.
- The equipment and associated software was too complex for non-experts to use to its full potential.

Despite the fact that the technology was unsuccessful, the project concept was well received by the community who envisaged benefits from such a system. This confirms findings from previous research, which suggests that those who receive flood warnings benefit from validating the message (for example with a neighbour or flood warden). Community approval of the concept emphasises the need for further technological development in this area.

The equipment and the lessons learnt are to be used by the Horizon Scanning team, which will evaluate the future potential of the equipment and technology, and will consider appropriate ways forward. This will be undertaken as part of the Technology Tracking work carried out by the Horizon Scanning team and managed within the Incident Management and Community Engagement theme in Flood Risk Science.

This summary relates to information from Science Project SC040034, reported in detail in the following output(s):-

Defra Science Report: FD2202
Title: Improving dissemination of flood warnings

Defra Science Report: FD2209
Title: Flood Warning Dissemination Demonstration System (Phase 2)

Internal Status: Release to all regions
External Status: Publicly available

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