

Provision of flood warning information - Observations and Recommendations April 2008

Science Summary SC50027

The technology tracking project gives an understanding of the current and potential future technologies that can be used to disseminate flood warning information. The research looked at the technologies used to issue current flood warnings, identify benefits and weaknesses of these methods and present an overview of future technologies that may be considered.

Flood forecasting and warning systems operated by the Environment Agency generally started life in the days of the Regional Water Authorities. Dissemination systems and methods were developed to meet local needs and budgets, a process which has to some extent continued despite the national focus given by the formation of the National Rivers Authority in 1989 and the Environment Agency in 1996.

The Environment Agency took the lead role in the dissemination of flood warnings from September 1996. This resulted in the commissioning of an Automatic Voice Messaging system to issue warnings using fax, voice and/or pager messages. This system has now been superseded by a new Floodline Warnings Direct service with the functionality to disseminate warnings and information using a mixture of channel technologies.

The research explores alternative methods for dissemination of flood warnings to provide resilience in the service. In particular, to determine the opportunities that recent technological advances could provide to give earlier, more targeted warnings and to ensure the maximum receipt of warnings and reduced operation costs.

The main objectives of this project were to:

- Provide a brief appraisal of the current solutions in use.
- Identify potential technologies of value in flood warnings, identifying benefits and weaknesses where possible.
- Present an overview of technologies on the horizon that merit future consideration.

- Identify an appropriate solution for immediate consideration.

What are the essential findings of the project?

A number of technologies exist that may have a significant role to play in flood warning dissemination for members of the public in different environments and different situations. Each of these has its strengths and could be viable in different environments. The research suggested that it would be unrealistic to capture all technologies in a generic solution and that a combination of a few technologies could be used to deliver an efficient and cost effective solution. A combination of technologies could address the following:

- Response to flood events – **incidents**
- Dissemination of flood warnings – **information**

The following recommendations highlight the proposed technologies that can be used for flood warning dissemination:

Incidents – Mobile internet (WAP), inbound voice interactive voice response (IVR) using text to speech and speech recognition, and location based services (LBS).

Information – Mobile internet (WAP).

How could these technologies be utilised?

Mobile Internet wireless application protocol (WAP)
WAP provides the same Internet service as a computer-based web browser but is simplified to be used on a mobile phone. The mobile Internet portal would allow for incident reporting using full media-rich service in almost any location.

Interactive voice response (IVR)

IVR is a technology that allows a computer to detect voice and keypad inputs. This system responds with pre-recorded audio to direct callers on how to proceed. IVR copes well with high call volumes. Inbound telephony IVR would allow for reporting and recording of incidents.

Location Based Services (LBS)

LBS is an information service that is available on mobile phones through the mobile network. It uses the geographical position of the mobile device so would work well for local, real time flood information.

The report will be of interest to those who work with flood warning dissemination and need to appreciate what technologies are available to assist in the improvement of the service. The findings will allow the Environment Agency to meet targets for improved receipt of flood warnings by the public and appropriate action in response to a flood warning.

This summary relates to information from Science Project [SC050027], reported in detail in the following output(s):-

Science Report: SC050027

Title: Provision of flood warning information - Observations and Recommendations April 2008

ISBN: 978-1-84432-979-3

Report Product Code: SCHO0209BPHJ-E-E

Internal Status: All regions

External Status: Publicly available

Project manager: Malcolm Gorton, Science Department, Horizon Scanning, Technology and Information Analysis

Research Contractor: 2ergo Limited

This project was funded by the Environment Agency's Science Department, which provides scientific knowledge, tools and techniques to enable us to protect and manage the environment as effectively as possible.

Further copies of this summary and related report(s) are available from our publications catalogue or our National Customer Contact Centre T: 08708 506506 or E: enquiries@environment-agency.gov.uk

© Environment Agency

February 2009

Summary Product Code: SCHO0209BPHK-E-E