



Met Office

Developing and Communicating Warnings

Graham Butler UK Met Office

Wednesday 21st November 2012



Scope

- Criteria for issuing a warning
- Essential elements of an effective warning



Criteria for issuing a warning

- Need to find out
 - what types of weather affects the general public and emergency/disaster responders
 - If it doesn't affect them, do you need a warning?
- Establish
 - which types of weather need a warning and why
 - how much rain has to fall or how strong does the wind need to be to warrant a warning?
 - if thresholds or potential impacts are the best measure for issuing a warning
 - Before deciding on thresholds or impacts all parties must be consulted e.g. Civil Protection, disaster management etc



Criteria for issuing a warning

Which is more important?

- **Thresholds**

- 20mmhr
- 30mmhr
- 40mmhr
- 10mm24hr
- 50mm24hr
- 50mph gusts
- 60 mph gusts
- 2m tidal surge

- **Impacts**

- Saturated ground/Large puddles
- Flooding of agricultural land from rainfall/ from river bursting banks/coastal
- Flooding of road networks from rainfall/ river bursting banks/coastal
- Flooding of towns/cities from rainfall/ river bursting banks/coastal
- Trees blown down/boats overturned/ power cables brought down



The Met Office method since March 2011



Alerts/Warnings

- We worked with partner agencies to develop a **risk matrix**
- The alert/warning will provide a combination of
 - The potential **impact** the weather will have
 - The **likelihood** of the weather happening



New Warnings - process

- We make an assessment of the **likelihood** of severe weather

Very Low	Low	Medium	High
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New Warnings - process

- We will forecast the weather
- We will make an assessment of the **potential impact** the severe weather will have (*taking into account geographical factors, frequency of 'severe' weather, antecedent conditions etc.*).

Very Low impact	Low impact	Medium impact	High impact
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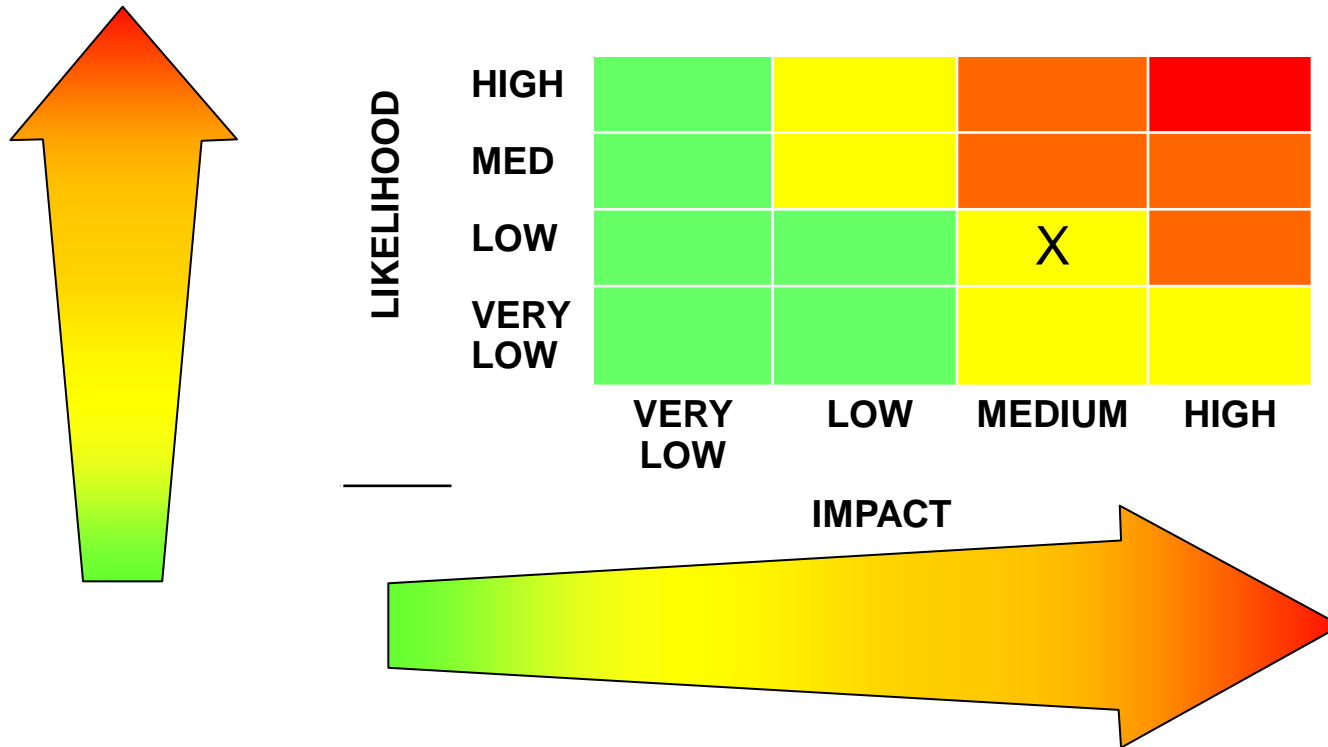


Impacts table for heavy rain

Impact Level	Very Low	Low	Medium	High
<p>Impact and advice associated with RAIN</p>	<p>Some flooding of low lying fields, recreational land and car parks but little or no disruption to travel.</p> <p>Wet road surfaces and possibility of ponding water leading to difficult driving conditions.</p> <p>Take extra care when driving in affected areas.</p>	<p>Localised flooding of low lying fields, recreational land and car parks.</p> <p>Flooding of a small number of homes and businesses.</p> <p>Wet road surfaces and possibility of ponding water, especially in known trouble spots.</p> <p>Local disruption to travel – longer journey times.</p> <p>Water on roads – drive according to the conditions encountered.</p>	<p>Some flooding of homes, businesses and transport links possible.</p> <p>Disruption to travel likely.</p> <p>Disruption to gas, electricity, water supplies and telecoms.</p> <p>Some evacuations may be required.</p> <p>Be prepared to protect yourself and your property.</p>	<p>Widespread flooding of property.</p> <p>Severe disruption to travel.</p> <p>Loss of gas, electricity, water supplies.</p> <p>Significant disruption to communities.</p> <p>Evacuation expected.</p> <p>Significant risk to life.</p> <p>Take action to protect yourself and follow the advice of the emergency services.</p>



Risk Matrix showing how likelihood and impact are combined for each event



Then assign a colour to the warning which is a combination of potential impact and likelihood



Severe Weather Warnings Colour Codes



NO SEVERE WEATHER EXPECTED

Keep up to date with latest forecast



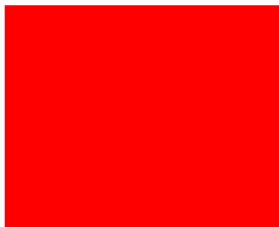
BE AWARE

Remain alert and keep up to date with latest forecast



BE PREPARED

Remain vigilant, keep up to date with latest forecast and take precautions where possible



TAKE ACTION

Remain extra vigilant, keep up to date with latest forecast. Follow orders and any advice given by authorities and be prepared for extraordinary measures



Essential elements of an effective warning

What services do the customers need?

- How do we find out what our customers need?
- Customers include the public, civil protection, disaster management, emergency managers/responders and the media





Customers



Get to know them

What does your company do?

What is your role within the company?

What issues does your company face?

What types of weather affect your job?

How does the weather affect your job?

How bad does the weather have to be to affect your job?



Customers



Get to know them



Involve them



In the beginning.....

Met Office PWS

- National Severe Weather Warning Service
- Public Weather Service Advisors
 - Used the Civil Contingency Act to help identify who the customers were
 - Advisors contacted emergency responders
 - Explained the services the Met Office could provide to emergency responders
 - Became point of contact between the customer and the Met Office
 - Build two-way relationship to allow delivery of services and provide valuable feedback



Warnings should be:

- Targeted
- To the point No waffle
- In non-technical language
- Timely
- Convey any uncertainties



Place names

- Use place names so people can identify if the warning is for their own location.
- Concentrate on places of major population or where maximum impacts will occur.
- Place names at the start to attract attention of the audience.

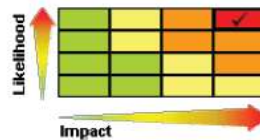


Quality

- Check before issue –spelling, grammar
- Read to a colleague/yourself – does it sound ok/flow?
- Make sure the information in the warning is based on the latest information and as accurate as it can be.
 - Is the warning based on the latest actual and forecast data?



National Severe Weather Warning Service



Chief Forecasters Assessment
 A rapidly deepening area of low pressure is moving towards Scotland during Thursday. Gusts of 60 to 70 mph likely to become quite widespread across northern and central Britain, but 70 to 80 mph within the Amber region. 90mph gusts are possible in exposed places, particularly central and southern Scotland (the red zone).

There are still some uncertainties in the exact location of the most damaging winds and the public should keep up to date with the latest forecasts.

The Met Office have issued a **Red Warning of Wind**

Valid from 10:00 on Thu, 08th Dec 2011 until 06:00 on Fri, 09th Dec 2011

Winds will increase during Thursday morning with severe gales developing across many northern and central parts of the UK, and some particularly damaging storm force winds likely to affect parts of the north, including some major population centres in Scotland.

The risk of disruption is considered highest across central and southern Scotland where the police are advising that conditions for travel will be extremely poor and that travellers are likely to experience significant delays.

Winds should tend to ease from the west on Thursday night with the severe gales becoming confined to NE Scotland by the early hours of Friday.

Heavy rain and hill snow are additional hazards that will accompany the gales (see our snow warnings for details).

For more details please go to:
http://www.metoffice.gov.uk/weather/uk/uk_forecast_warnings.html

Issued by the Met Office at 11:50 on Mon, 05th Dec 2011

Updated by the Met Office at 11:41 on Wed, 07th Dec 2011

For enquiries regarding this warning please contact the Met Office Weather Desk
 Phone: 0870 900 0100 Fax: 0870 900 5050 E-mail: enquiries@metoffice.gov.uk
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Graphic →

← Risk Matrix

← Uncertainty
 Extra info

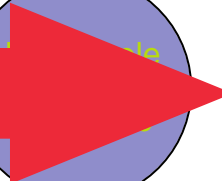
Validity →

Warning message →

Summary



Effective





Summary

Effective Warning

FEEDBACK

Feedback may not always be positive but
it is still, if not more, important

Feedback helps us to improve



Questions