



GCSE Case Study: Storm Babet

Fill in the blanks:

Storm Babet, an Extratropical Cyclone, hit the UK on 18th October 2023. It was one of the most severe storms in recent years, causing widespread Flooding and damage. The storm claimed the lives of seven people and was the second Met Office named storm of the 2023-24 season.

Highest Rainfall: 150-200 mm.

Highest gusts of wind: 121 MPH

Causes:

Match the cause to the description

Strong Jet Stream	A significant low-pressure system over the UK helped draw the storm in.
Warm Sea Surface Temperature	A high-pressure area over Scandinavia prevented the storm from moving eastwards, prolonging its impact over the UK.
Low Pressure Area	A powerful jet stream steered the storm towards the UK.
Blocking High Pressure	Elevated temperatures in the North Atlantic provided additional energy to the storm.

Locations affected:

Using an atlas, match the names of the locations most severely affected by the storm with their corresponding locations on this map:

Derry
Brechin, Angus
Aberdeen
Leeds
Derby
Nottingham
Retford
Sheffield
York





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Cut out the impacts of Storm Babet and categorise them by sticking them under the headings Social, Economic and Environmental impacts.

Social Impacts	Economic Impacts	Environmental impacts
Fatalities and Injuries: 7 people died across the UK due to flooding and wind-related incidents.	Infrastructure Damage: Infrastructure Damage: Significant damage to roads, bridges, railways, and airports, leading to transportation disruptions. Leeds Bradford Airport was closed on 20th October after a large plane skidded off the runway whilst landing.	Landslides: Heavy rains from Storm Babet triggered landslides, causing damage to forests and natural habitats. For example, a slope near houses at the base of Chilwell Quarry collapsed due to the intense rainfall in October.
Displacement: Hundreds of people were rendered homeless due to flooding and property damage. 1,250 properties in England were flooded.	Business Losses: Many businesses suffered due to flooding and power outages, resulting in job losses and economic downturns.	Soil Erosion: Soil Erosion: Intense rainfall increased soil erosion and disrupted local habitats, affecting wildlife and potentially reducing biodiversity.
School Closures: Numerous schools across Cheshire, Norfolk, Suffolk, Yorkshire, Scotland and North Wales, were closed due to a "danger to life".	Cost of Damages: Estimates calculate the costs of damage due to Storm Babet to be between £450m - £650m.	Debris and Waste: The storm caused extensive damage and debris, including hazardous materials. Over 750 tonnes of debris were removed from Sunderland's promenades and beaches after recent storms including Storm Babet.
Evacuations: Over 10,000 people were evacuated from their homes and forced to stay in temporary accommodation. Disrupting their daily life.	Agricultural Damage: Flooding damaged crops and farmland, killed livestock, and resulted in significant financial losses for farmers, leading to disruptions in food supplies.	Pollution: Flooding spread pollutants from roads, industrial sites, and farms into rivers, contaminating water sources with harmful chemicals and affecting aquatic life.
	Power Outages: Around 100,000 customers initially lost power, affecting homes and businesses.	Flooding: Widespread flooding damaged rivers, lakes, and wetlands, displacing wildlife.



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Reducing the Risk:

Describe what early warnings are and why they are important during a storm like Storm Babet.

The Met Office provides weather forecasts and warnings to alert the public about severe weather events like storms, helping people prepare in advance. The Environment Agency's Flood Warning Service specifically issues flood alerts, warnings, and information to help communities prepare for and respond to potential flooding.

What impact do you think the Met Office's red and amber warnings had on public safety?

How might people's actions have changed in response to these warnings?

The Met Office's red and amber warnings likely improved public safety by alerting people to severe weather, allowing them to take necessary precautions. In response, people might have altered their plans, stayed indoors, avoided travel, and prepared their homes to protect themselves from potential damage.

List the flood protection strategies implemented during Storm Babet (e.g., flood alerts, sandbags, pumps).

During Storm Babet, the Environment Agency issued flood alerts, deployed sandbags, and sent over 300,000 warnings. These efforts helped protect 96,000 properties and involved deploying 25 pumps to manage and remove excess water.

Describe the roles played by local authorities and emergency services during the storm.

During Storm Babet, local authorities and emergency services played crucial roles by implementing response plans to manage the storm's impact. They facilitated evacuations and rescue operations, including airlifting workers from a North Sea drilling platform to ensure safety and minimise risk.

Is the weather in the UK becoming more extreme?

Using evidence from the case study, explain the social and economic impacts of Storm Babet and what they show about extreme weather in the UK

Storm Babet caused a range of social and economic impacts that show how extreme weather in the UK is becoming more common and more damaging. Socially, many communities were disrupted when severe flooding forced people to evacuate their homes, especially in parts of Scotland, Yorkshire, and the Midlands. Several people sadly lost their lives, showing how dangerous extreme rainfall and flooding can be. Roads and rail services were also closed, which made it difficult for people to travel, get to work, or access emergency services.

Economically, Storm Babet caused millions of pounds' worth of damage. Hundreds of homes and businesses were flooded, meaning people had to pay for repairs or wait for insurance claims to be processed. Farmland was also underwater, destroying crops and affecting farmers' income. Transport disruption increased costs for businesses, while councils had to spend more money on clean-up and recovery.

These impacts suggest that the UK's weather is becoming more extreme because the storm brought unusually heavy and prolonged rainfall for the time of year. The widespread flooding and high level of damage are similar to other recent events, such as Storm Ciara and Storm Dennis, meaning Storm Babet fits into a pattern of more frequent and intense storms. This shows that the UK is facing increasing risks from extreme weather linked to climate change.