



**ADAPTING
THE LEVELS**

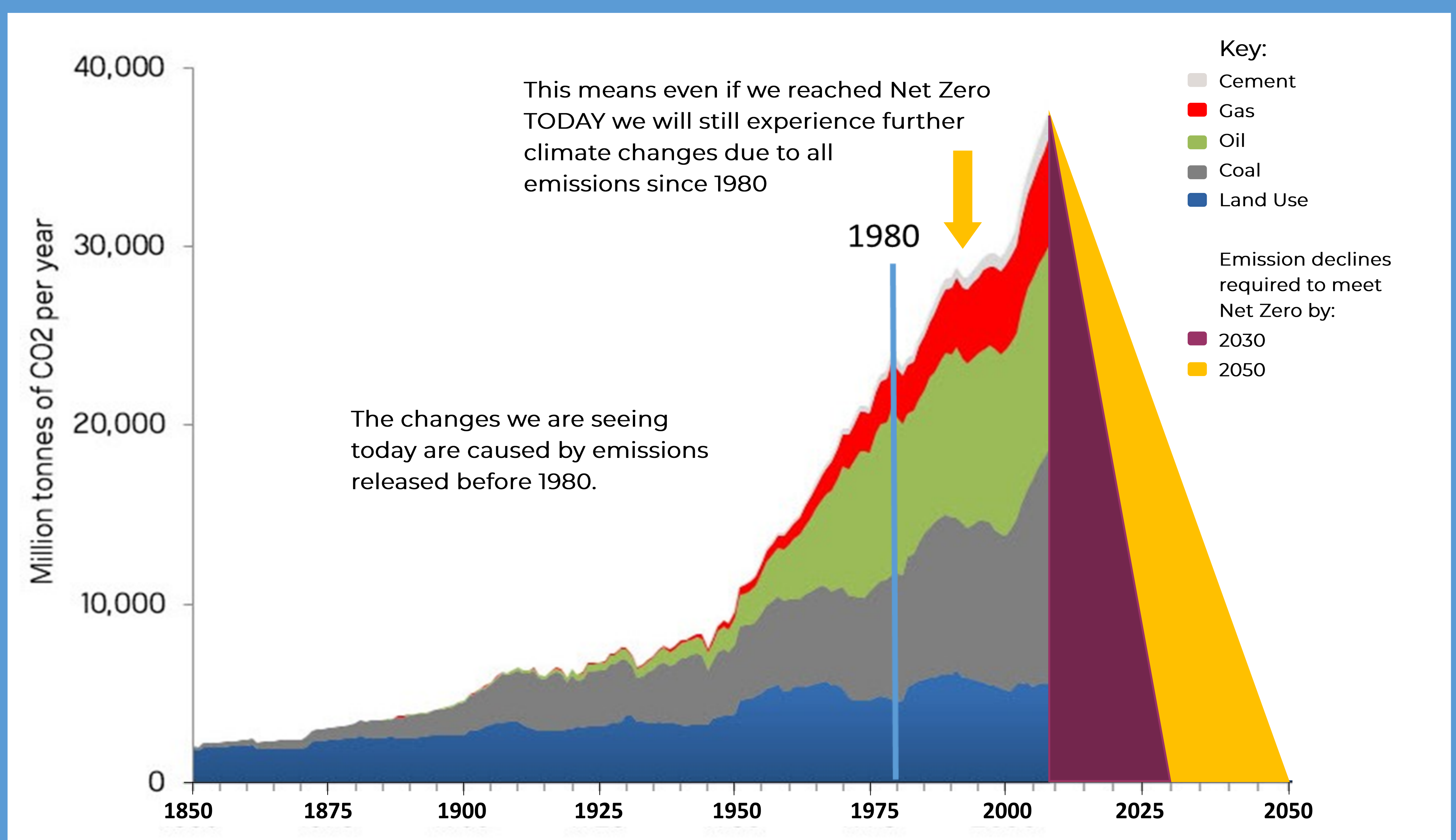
Climate Change in Somerset

Somerset: The UK's Frontline for Climate Change

Climate Change is now being felt around the world, with events such as the Australian fires and Indonesian floods. Under the UK Government's projections, climate change also poses significant threats to Somerset. The county's long coast and large areas of low-lying land make it one of the UK's most climate-vulnerable areas, facing increased risks from sea level rise, river flooding and drought.

Climate Lag:

Even if we stopped emitting all greenhouse gasses today, it would still not be the end of the story for climate change, with some impacts being unavoidable. This is because there is a 40-year delay between the release of emissions and the resulting increase in global temperatures. This is known as 'climate lag'.



Once we stop emitting all greenhouse gasses it will take around 40 years for the climate to stabilise, but this will be at a new, higher global temperature.

Local Climate Projections: Sea Level Rise

UKCP18- this is the UK's own climate projection tool, created by the Met Office. The information it provides is designed to help decision-makers assess their climate risks and prepare for the future.



The UKCP18 projections show Somerset is facing a probable sea level rise of 0.27m - 1.13m by 2100.

A rise of up to 2.0m is also considered possible by the same date, which is known as the High++ scenario.



Sea Defences & Planning:

Somerset's sea defences are designed to withstand 1m of sea level rise, which means the county is protected for some time yet. However, plans need to be developed to meet the projected increases; the High++ projections of 2m sea level rise are plausible enough that the UK Government considers it best practice to plan for them, even if these plans are never implemented.

Somerset Storm Surges:



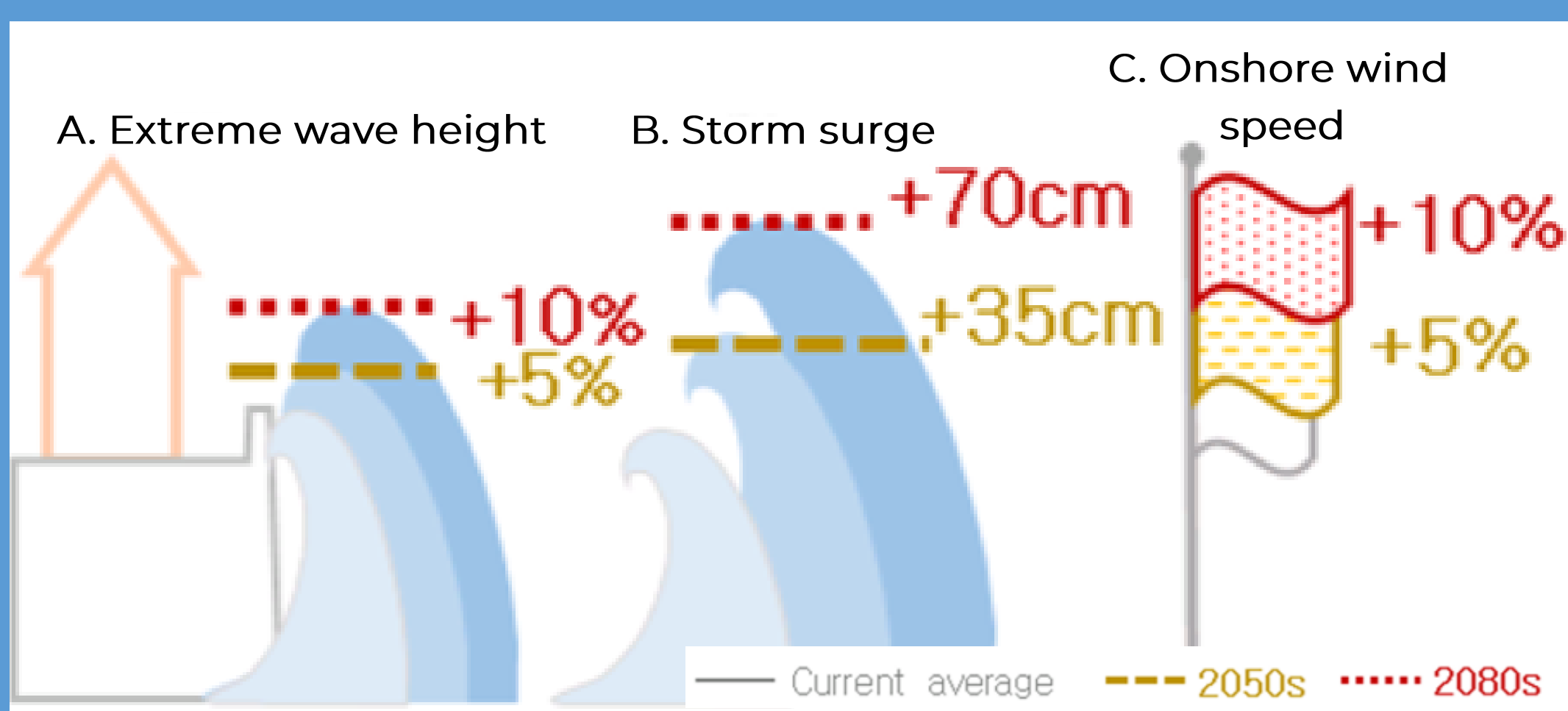
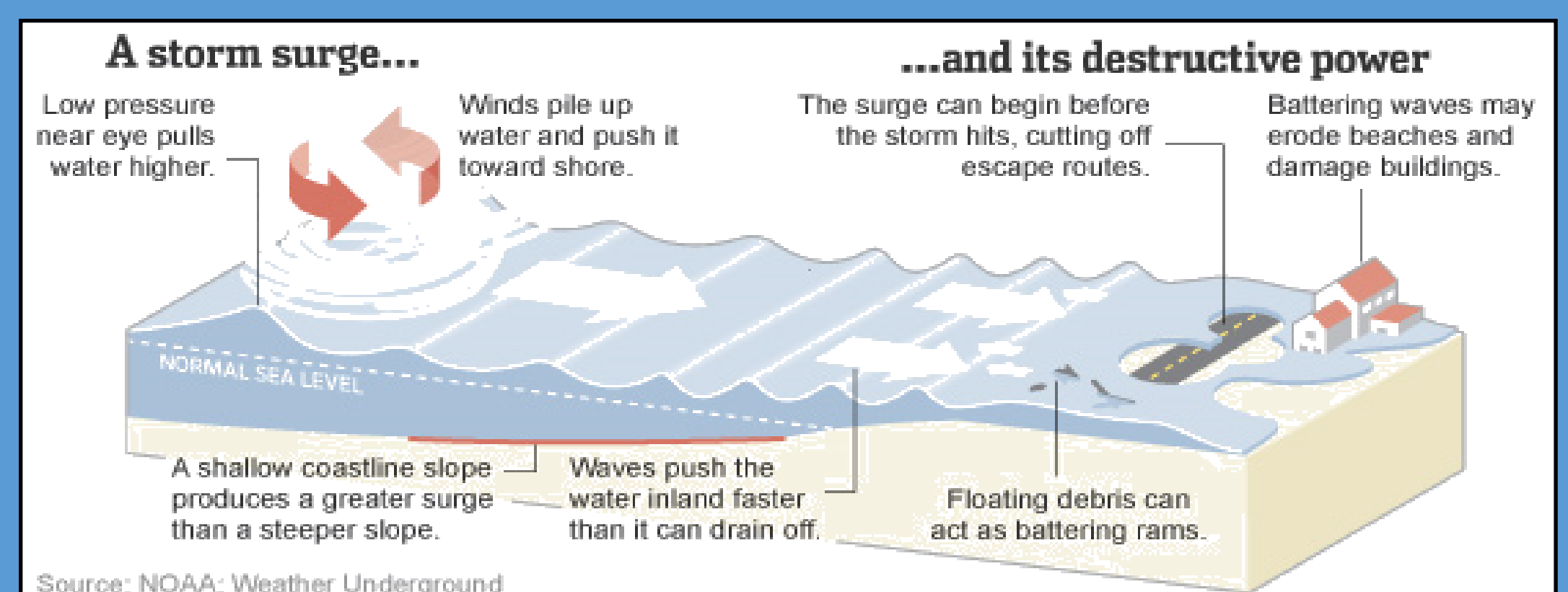
Somerset Storm Surge:

When a storm surge hit the Somerset coastline in 1981 it caused over £6 million of damage, flooded homes and destroyed seafront roads.

Image: Clevedon 1981

A storm surge is created when a low pressure storm system draws up the sea below it, raising the sea level. High winds then push the seawater towards the coast, causing it to pile up.

When this coincides with a high tide, sea defences can be badly damaged or even overwhelmed causing extensive flooding.



As the world warms, weather patterns are changing and Somerset is already experiencing larger and more frequent storms. This trend is set to continue with the Environment Agency's more severe projections (High++) showing significant increases in extreme wave height, storm surges and offshore winds, shown in the diagram to the left.

Local Climate Projections: Peak River Flows

The Environment Agency develops climate projections tailored to each area of the country, including changes in river flow rates. Below are the projections for the South West. The information is designed to help assess climate risks and prepare for the future.



The Environment Agency projections show Somerset is facing probable increases in peak river flows of 35% – 85% by 2080 (1961-1990 baseline).

Increases of up to 105% are considered possible by the same date, which is known as the High++ scenario.



Rainfall Patterns:

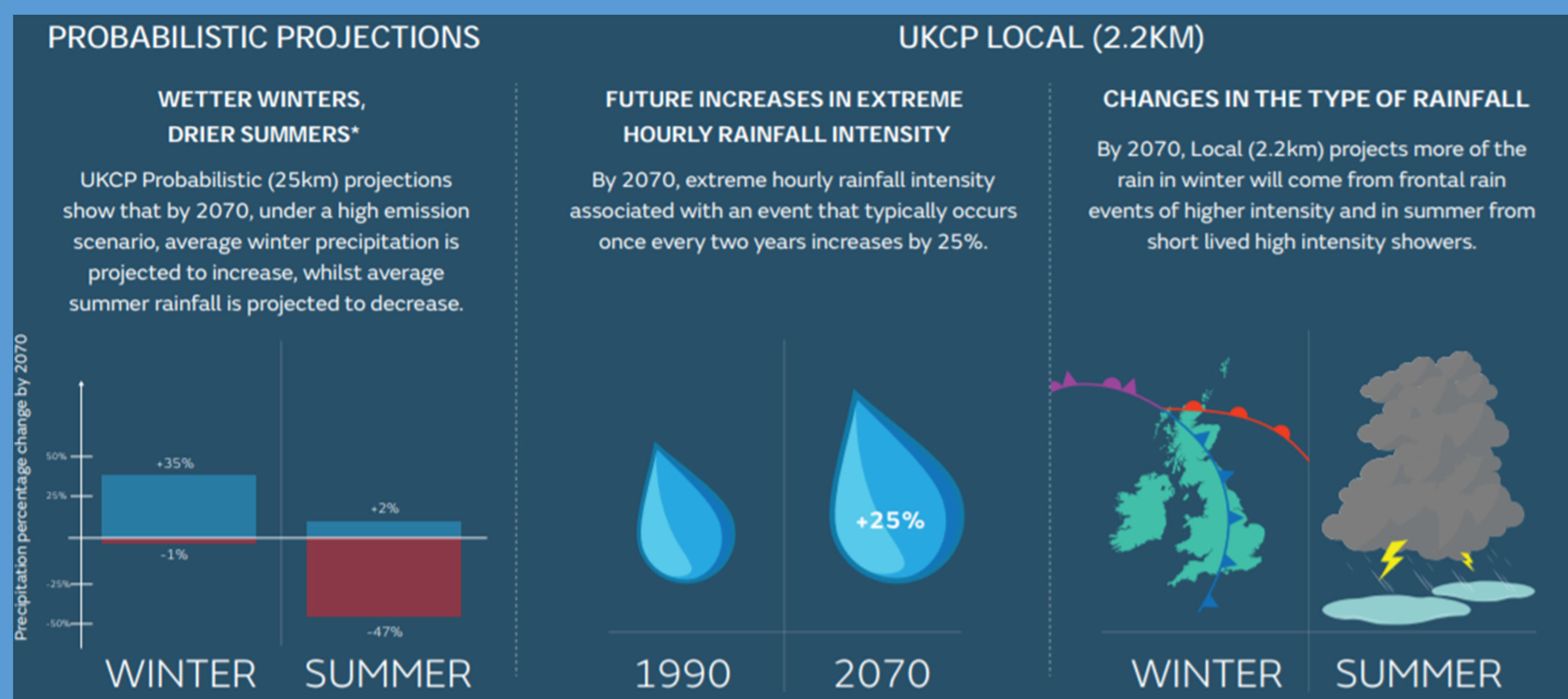
The warming of our world is changing our weather, with larger and more frequent storms altering rainfall patterns. Overall, the amount of rain we receive isn't expected to significantly change, but the timing of it is, with wetter winters and dryer summers and more of our rain arriving through storms. This means:

Winters:

Are becoming wetter and more stormy, with up to 35% more rain by 2070. There is higher rainfall during winter months and larger, more frequent storms, bringing heavy downpours that lead to higher peak flows in the rivers and increased winter flood risks.

Summers:

Are becoming hotter and dryer, with periods of drought. Summer rainfall could fall by 47% by 2070. There are summer storms with heavier downpours, with rain falling on dry ground. These conditions increase runoff and the risk of summer flooding.



Being aware of these impacts, Somerset County Council, Somerset Wildlife Trust and FWAG SouthWest created the Adapting The Levels Project. The project is leading in climate adaptation, and is designed to help the county develop effective long-term plans and implement climate-friendly, nature-based solutions to climate adaptation.

