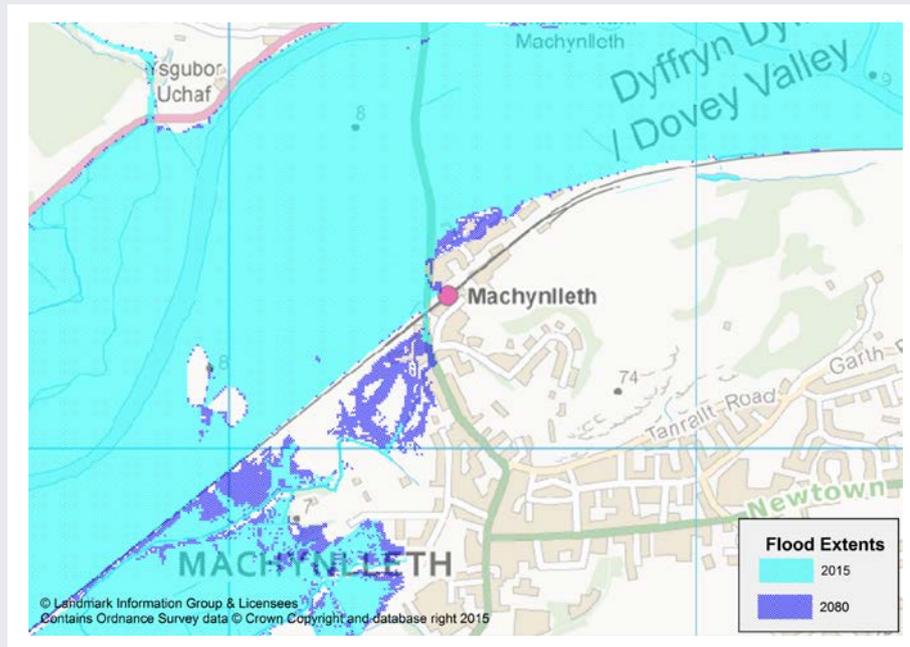


**CLIMATE CHANGE** PILOT

# Current & future flood scenarios

This suite of flooding themes provides clear and accurate flood risk information for Great Britain both now and in the future.



**What's included**

- Fluvial flooding
- Pluvial flooding
- Tidal flooding
- Sea level rise
- Sea level rise inundation areas
- River bed and bank erosion potential
- Impact on transport infrastructure
- Bridge flooding heights

**Use this data to understand:**

The impacts of undefended flood events, and their effects on property, assets, transport networks, new developments and natural habitats for the following scenarios;

Scenario	Year	Percentile*
Baseline	2017	Baseline
Low Emissions	2020	Best Case (e.g. 10%ile)
	2050	
	2080	
Medium Emissions	2020	Central Case (e.g. 50%ile)
	2050	
	2080	
High Emissions	2020	Worst Case (e.g. 90%ile)
	2050	
	2080	

\* UKCP09 presents climate projections using Cumulative Distribution Functions (CDF), showing probability levels for a range of possible outcomes. These probabilities are expressed in percentiles e.g. 10th %ile, 50th %ile, and 90th %ile. The 50th %ile value is the median or 'central' estimate of change. Climate change below the 10%ile probability level is very unlikely, as is climate change above the 90%ile probability level. Through providing lower, central and upper estimates for the three emissions scenarios (Low, Medium and High), a range of possible outcomes can be evaluated at each time epoch (2020, 2050 and 2080). In addition to UKCP09, the following research guidance has been consulted to establish the appropriate percentiles to define each scenario (for each flood source). EA and NRW 2016 Climate Change Guidance, SEPA 2011 Climate Change Guidance, and UKWIR Guidance.

**Designed for:**

Asset managers, infrastructure owners, land owners, their advisors and reporting organisations under the Climate Change Act 2008.

**Product features:**

Uses best-practice modelling methodologies and provides the most detailed flood risk mapping available for Great Britain.

The product presents undefended flood extent and depth information down to the level of individual buildings or assets.

Ten flood scenarios are presented, allowing a quick assessment of risk in relation to physical assets and customers. Information is provided for the present day and three different climate scenarios in future years, based on UKCP09 climate predictions.

Incorporating the latest river flow, rainfall and climate change predictions available, this tool addresses all major sources of flooding – including rivers, coastal, and surface water. This approach allows the creation of unique, innovative new layers, providing insight into flood hazards and the resulting impacts on river banks, transport networks and bridges.

Extent and depth is modelled for a 1:100 undefended flooding event.

**Why you need it:**

Protect your physical assets and customers by planning for the future

Expertise in flood modelling provided by **Ambiental**.



## Data includes:

Theme name	Description
Fluvial flooding	Provided as 10 discrete layers, showing the extent and depth information at a 5m cell resolution.
Pluvial flooding	Provided as 10 discrete layers, showing the extent and depth information at a 5m cell resolution.
Tidal flooding	Provided as 10 discrete layers, showing the extent and depth information at a 5m cell resolution. This also encompasses the effects of sea level change.
Sea level rise	Provided as 10 discrete layers showing low and high tidelines.
Sea level rise inundation areas	Provided as 10 discrete layers showing the extent and depth information at 5m resolution of zones that are subject to inundation due to sea level rise rather than as a result of a specific flood event.
River bed and bank erosion potential	Provided as a single layer with an erosion potential rating for each 100m river segment for all modelled fluvial scenarios. (Beta version).
Impact on transport infrastructure	Provided as two layers containing flood depth and erosion potential ratings from nearby watercourses for all modelled scenarios for each 100m stretch of the road and rail network.
Bridge flooding heights	Provided as a single layer containing flooding height information for fluvial and coastal modelled scenarios immediately upstream and downstream of bridges.

## Key features:

Hydrology	Latest hydrological information on rivers and rainfall data from the Centre of Ecology and Hydrology.
Topography	High precision topographic data derived from the environment agencies' extensive LiDAR coverage, supplemented by NEXTMap IFSAR data.
Geology	Superficial geology data sourced from the British Geological Survey.
Land use	Detailed land use and buildings data sourced from Ordnance Survey used for roughness and infiltration parameterisation.
Climate predictions	Using the latest available UK climate projections UKCP09, for selected epochs and scenarios, extreme rainfall events are integrated into hydrological and hydraulic modelling process.
2D shallow water modelling	Fully modelled in 2-D with Flowroute-i™ allowing complex floodplain flow dynamics.
Coverage	100% coverage of Great Britain.
Supported	Full support during licence period by some of the UK's leading flood modelling experts.

## Flexible Delivery and Integration

The data themes are supplied as a complete package and are available for a specific area of interest defined by the customer. The themes will be available as data layers in a variety of formats to allow easy integration with existing Geographical Information Systems.

## Climate Adaptation

These data themes have been developed in collaboration with Wales & West Utilities to support UK climate change adaptation risk assessment, reporting and investment.

## Maintenance and Validation

The data themes are regularly validated and calibrated against actual flooding events which have occurred in Great Britain. During the licensed period, customers will receive annual updates of all flooding themes covering their area of interest.

Each year, all themes will be reviewed and where there are improvements in the topographic data, changes in flow data or results from calibration against actual flood events available, updates will be made to the national map. In addition, a full refresh of data will be provided as and when the UKCP18 climate projections are published.

If you require any assistance please contact our customer services team on **0844 844 9966** or by email at **customerservice@envirocheck.co.uk**

