

UK Climate Projections UKCP 2018

A summary and overview

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Source material - Met Office
(www.ukclimateprojections.metoffice.gov.uk)

What is UKCP18

- ▶ Current set of projections to provide the most up-to date assessment of how the climate of the UK may change over the 21st century.
- ▶ Provides new set of climate predictions & tools to access climate data
- ▶ Uses new observations of weather & climate, up to date climate models, & involved users to a greater degree.
- ▶ It builds upon UKCP09.

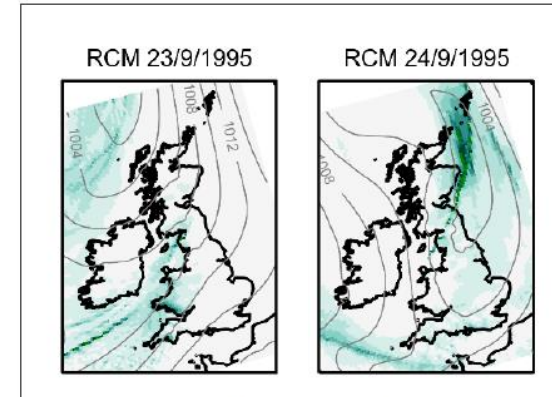
Philosophy UKCP18



The best new science



Developed with users



From climate trends
to future weather

SOURCE - Met Office UKCP18 National Climate Projections presentation Jan 19

UKCP18 Consists of

Probabilistic Projections

- ▶ Low to High emission scenarios
- ▶ Update to UKCP09

Global Climate model projections

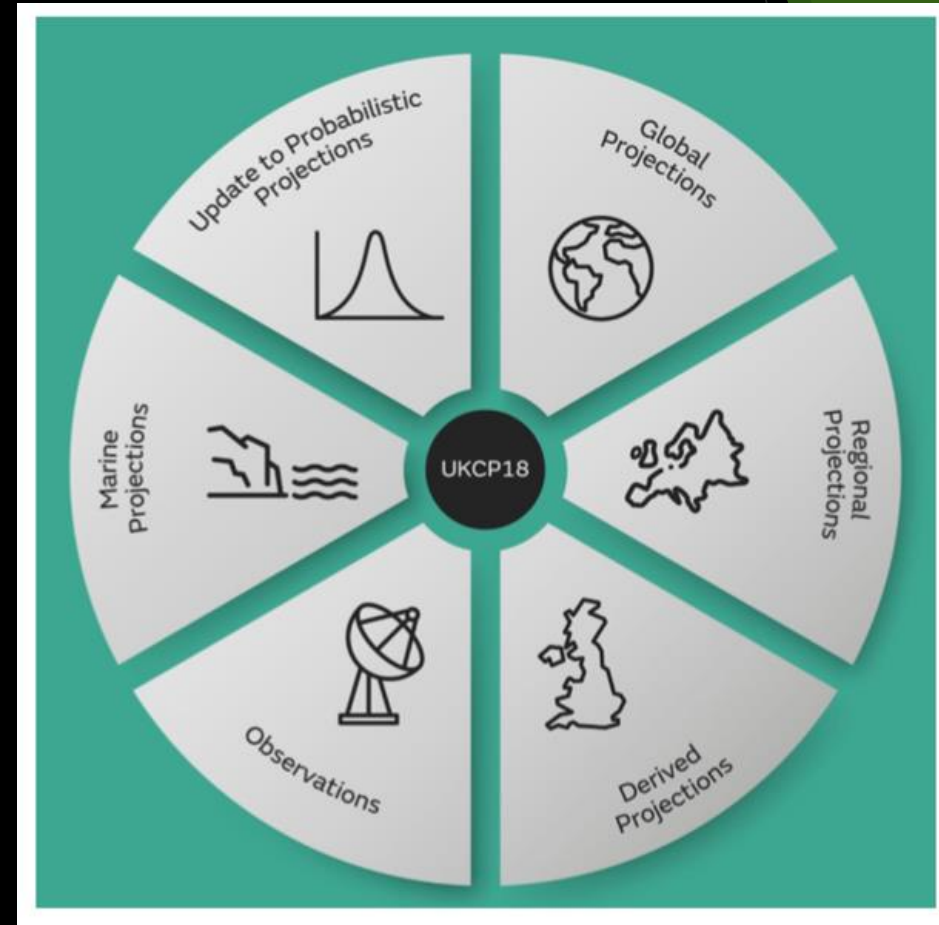
- ▶ Projections for High emissions scenario (3 time periods)
- ▶ Derived projections - Low emissions, 2°C / 4°C scenarios

Regional Climate models

- ▶ Projections at 12km scale for High scenario (subset global data)
- ▶ projections at 2.2km scale due later in 2019

Observations

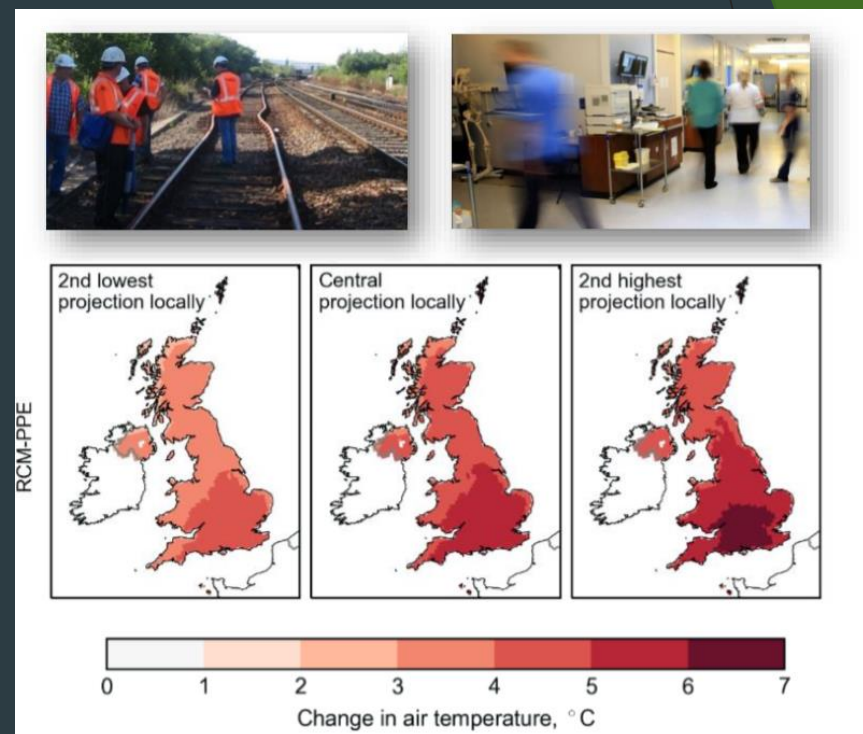
Marine Projections



Source - metoffice.gov.uk

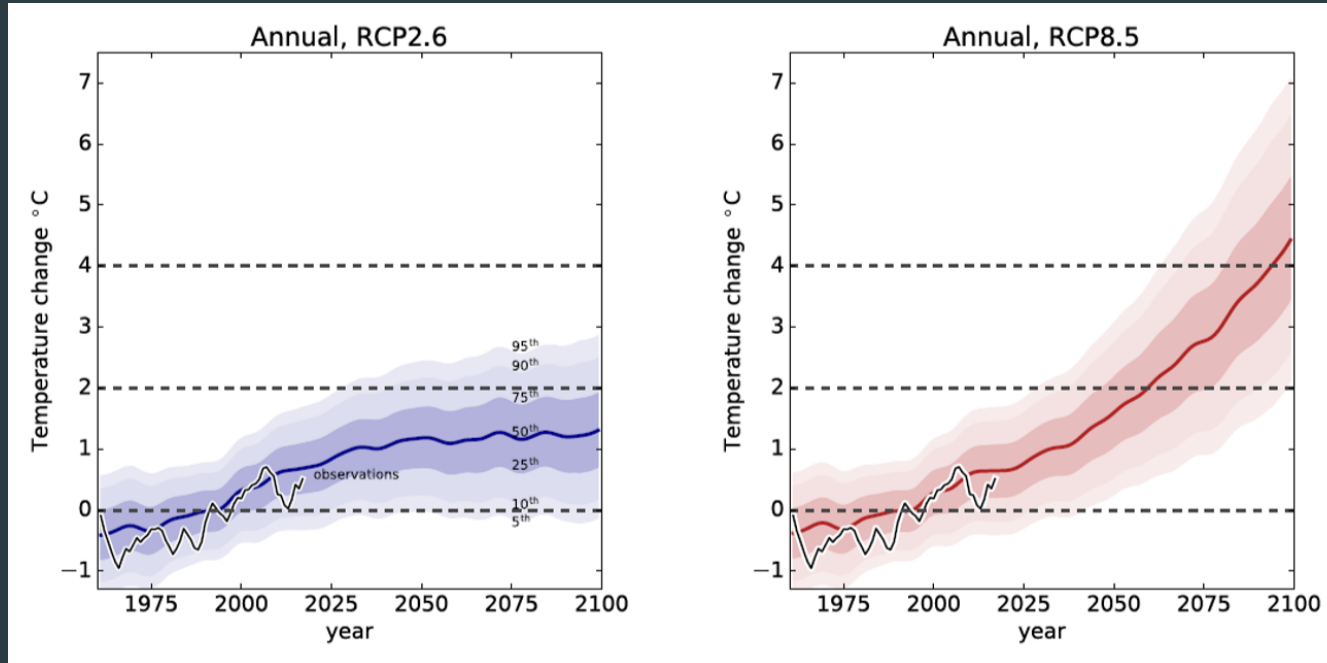
Future UK temperatures

- **All areas projected to experience warming**
- Increase in frequency and intensity of extremes
- Warming greater in summer than winter
- Rise depends on the global amount of greenhouse gases emitted
- Regional variance – South warming more than northern regions



Source - Met Office UKCP18 National Climate Projections presentation Jan 19

Future UK temperatures



Low Emissions scenario
0 to 3 degree rise

High Emissions scenario
2 to 7 degree rise

Probabilistic scenarios

In RCP2.6 fastest rate of change in near future

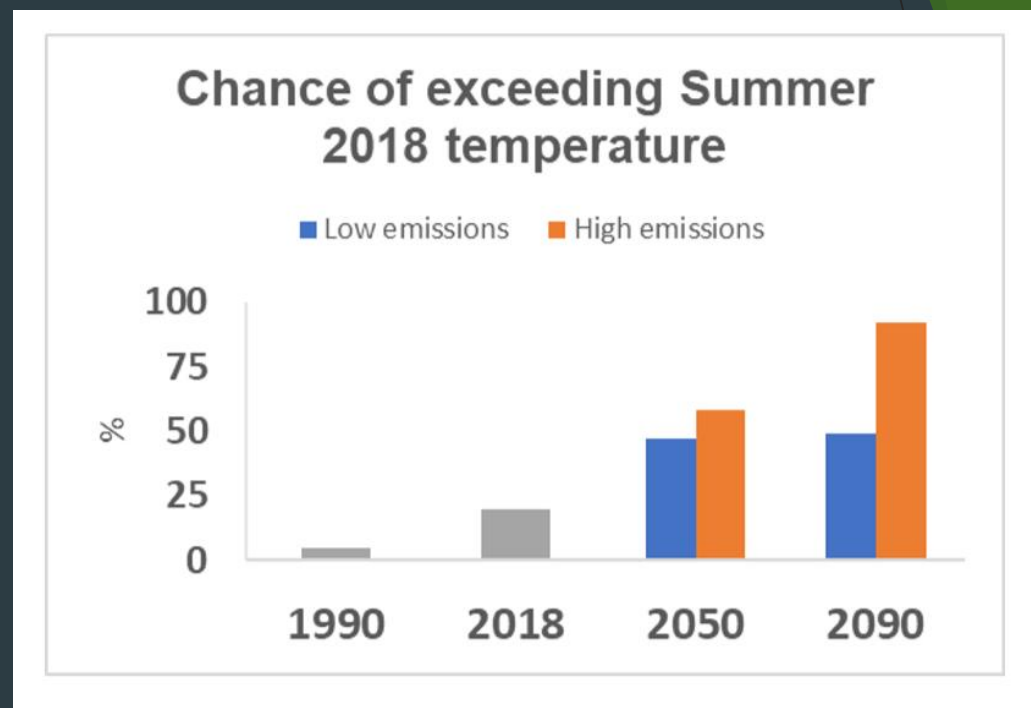
In RCP8.5 fastest rate of change at end of century

Similarity between scenarios over next couple of decades

Source - Met Office UKCP18 National Climate Projections presentation Jan 19

Summer 2018 heatwave

- **Hot summers more common**
- Chance of such hot summers low in the baseline period (<10%)
- By mid-century the chance of hot summers will be of the order of 50 %
- Beyond 2050 the chance of a warmer summer more strongly depends on emission scenario



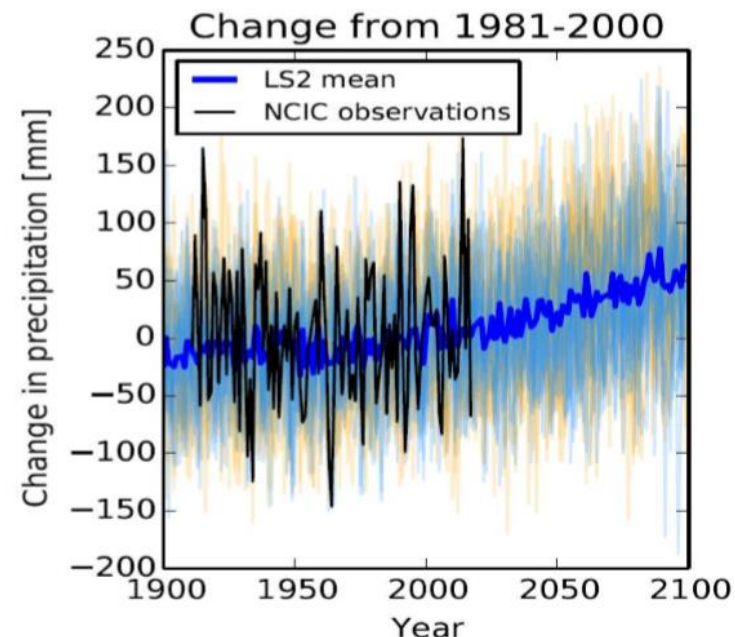
Source - Met Office UKCP18 National Climate Projections presentation Jan 19

Future UK precipitation

- **Increasing chance of Warmer wetter winters, hotter drier summers**
- Winter precipitation is expected to increase significantly
- Summer rainfall is expected to decrease significantly
 - *But when it rains in summer there may be more intense storms*
- As for temperature the amount of change depends on future greenhouse gas emissions

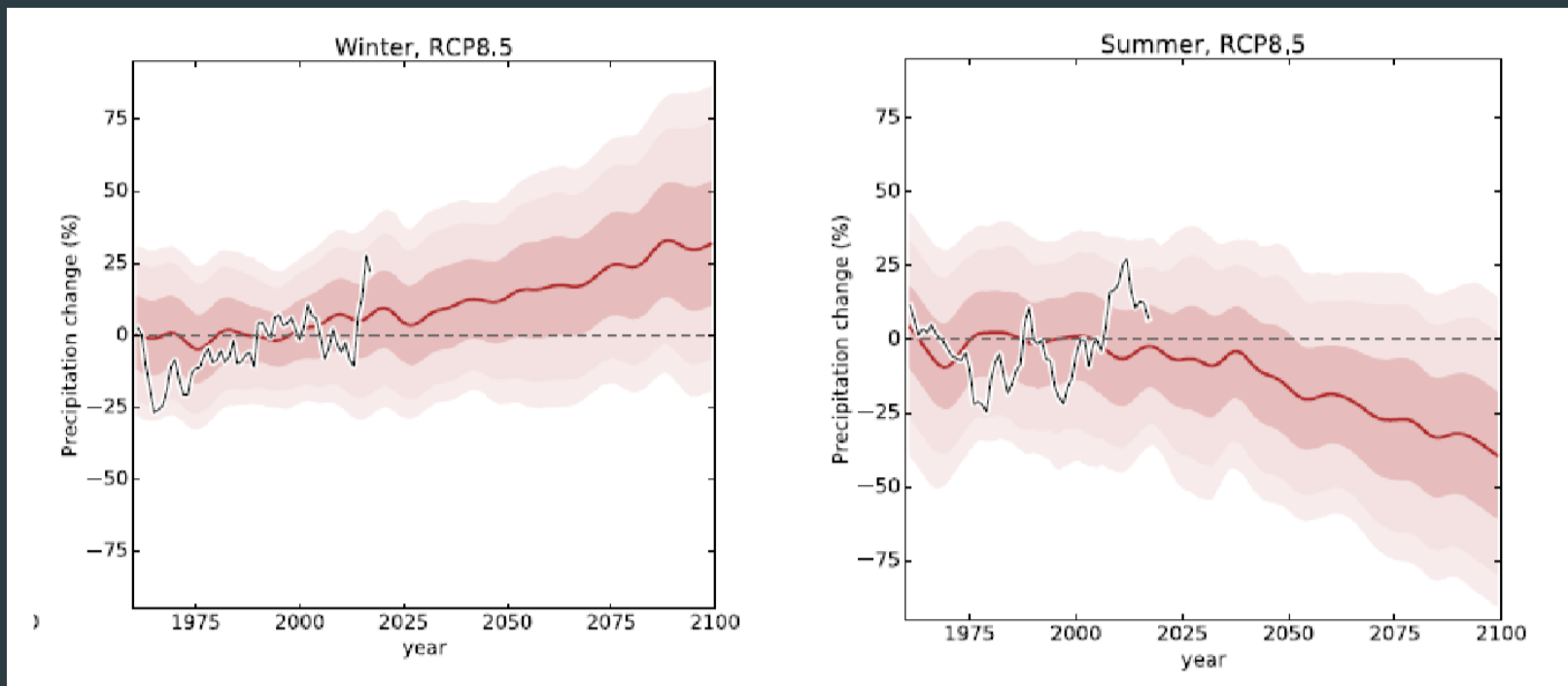
Source - Met Office UKCP18 National Climate Projections presentation Jan 19

England mean winter precipitation



We will still get some dry winters, but wet winters will become wetter

Future UK precipitation



Still expect some dry winters and wet summers but,
wider variability will require resilience to wide range of conditions

Source - Met Office UKCP18 National Climate Projections presentation Jan 19

UKCP18: Sea-level rise



- **UK coastal flood risk expected to increase over 21st century and beyond in all scenarios**
- **Changes in extreme water levels are mostly driven by changes in mean sea level**
 - Best estimate is that surge component won't change, but can't rule out changes
- Sea level will continue to rise beyond year 2100. But the amount is very uncertain
future loss of Antarctic sheet ice major uncertainty
- There may be changes in tidal characteristics and waves

Source - Met Office UKCP18 National Climate Projections presentation Jan 19

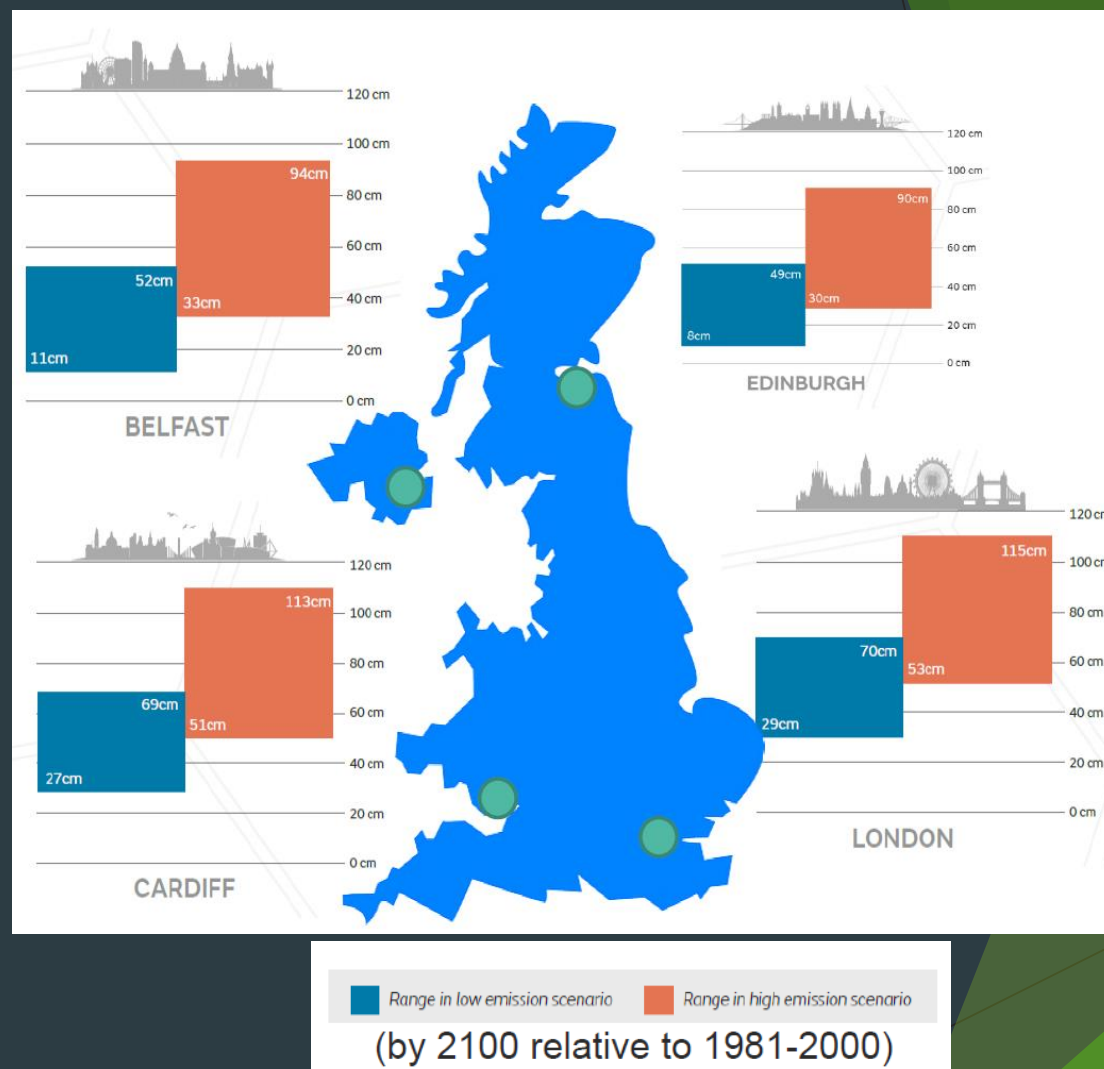
Sea-level rise

Increase will generally be greater in the south than in the north

In SW could range between 27 – 115cm by 2100

Dependent on emissions scenario

Sea level rise even if zero emissions now



Source - Met Office UKCP18 National Climate Projections presentation Jan 19

Where do I find the information?

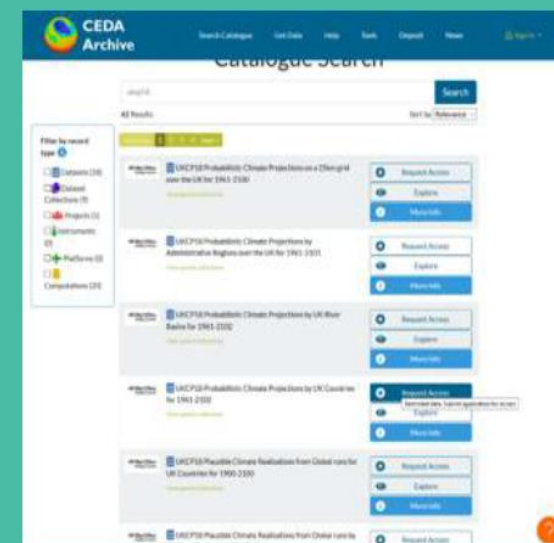
Access the knowledge and data from UKCP18 via 3 main entry points:



Website



User Interface



CEDA Data catalogue

Source - from Met Office UKCP18 National Climate Projections presentation Jan 19

Information uses

Part of evidence to support range wide range of activities / project to include -

- ▶ Support climate emergency !
- ▶ Public health - health well being
- ▶ Flood management / vulnerability
- ▶ Community / business resilience
- ▶ Water resource management
- ▶ Transportation
- ▶ Agriculture
- ▶ Buildings design, adaptation
- ▶ Coastal management,
- ▶ Coastal communities,
- ▶ Coastal infrastructure,
- ▶ Ports, harbours
- ▶ Planning / local plan,
- ▶ Ecology
- ▶ Planning / Local plan