

# Living With Environmental Change

## Citizens Advisory Forum

Welcome to Session 2!

# Aims for today

- To look at our second topic: **Adaptation**
- To think about where research into **Adaptation** is of most value

<b>11:00 – 11:15</b>	<b>Intro</b>
<b>11:15 – 11:55</b>	<b>Beginners guide to adaptation (OPM)</b>
<b>11:55 – 12:30</b>	<b>Introduction to adaptation research (UKCIP)</b>
<b>12:30 – 13:00</b>	<b>Lunch</b>
<b>13:00 – 14:20</b>	<b>Group discussions</b>
<b>14:20 – 15:00</b>	<b>Closing session</b>

## Warm up exercise....

***“What’s the most interesting thing you’ve done since the last forum meeting?”***

# Citizens' Advisory Forum.. Ways of working together

**Knowing  
there are  
no right or  
wrong  
answers**

**Not being  
afraid to  
ask  
questions**

**Trying not  
to talk over  
each other**

**Speaking up  
in group  
discussions**

**Sticking to  
agreed  
timings**

**??**

# What is adaptation to climate change all about?

- Adaptation is changing our behaviour and our ways of living in order to respond to both the current and future consequences of climate change

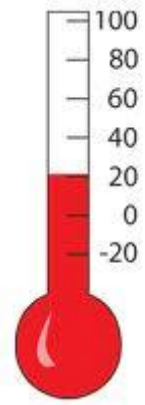


- Adaptation is not about trying to prevent climate change, but to understand how we can best live with the effects of climate change
- Adaptation is an important part of LWEC's work on climate change

# Why is adaptation so important....?

## ....Climate change in the UK

- Climate change is already occurring in the UK
- The average annual temperatures have risen by about 1°C in central England since the 1970s
- Sea levels around the UK have risen by 1mm per year since the start of the 20th century
- Our seasons now arrive, on average, 11 days earlier than they did in the 1970s
- And even if we were to release no more greenhouse gases, then we would continue to experience climate change for at least the next 30-40 years...



# Why is adaptation so important....?

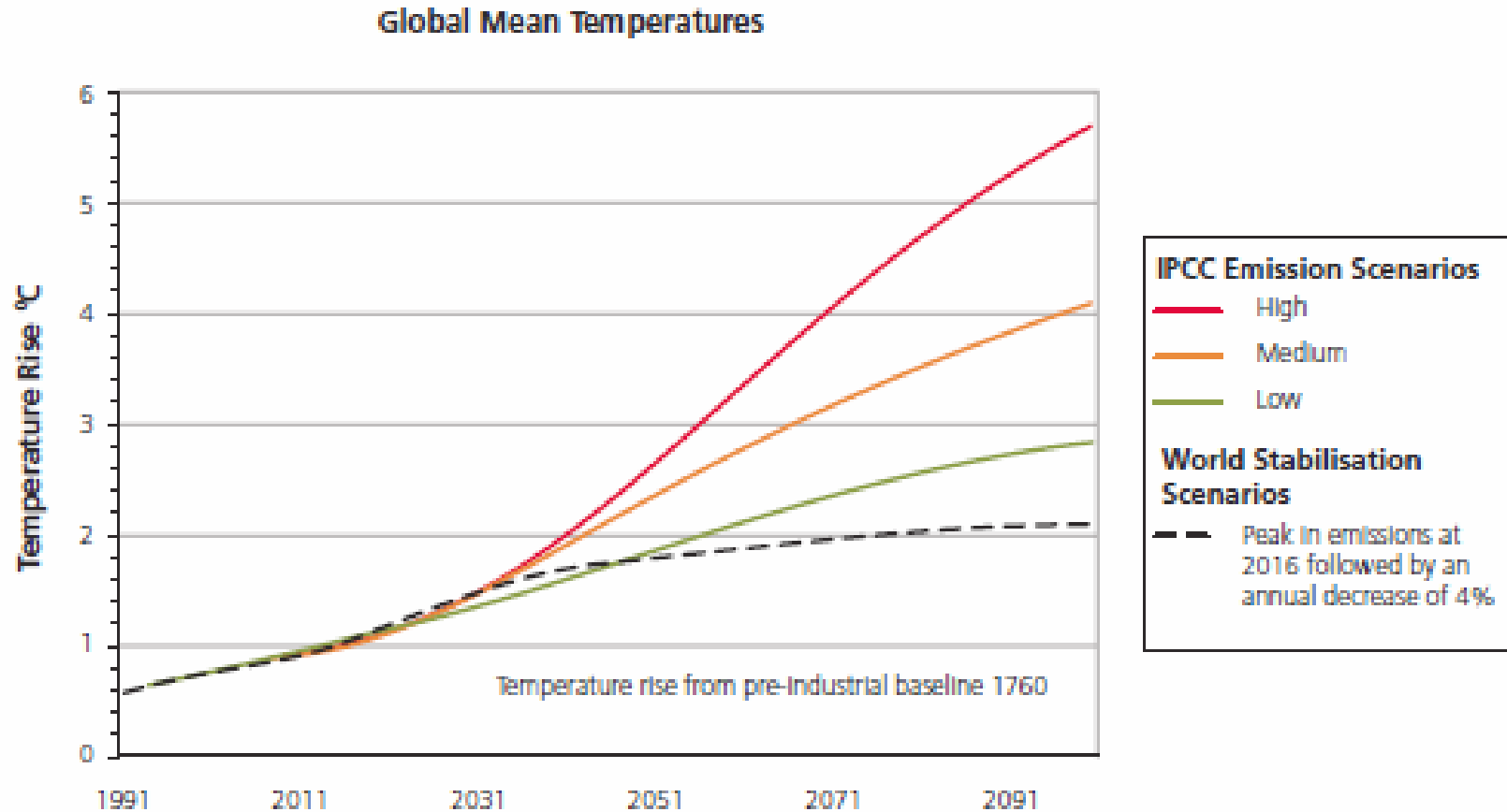
## ....Climate change in the UK

### Questions this raises

- Are we sufficiently well adapted to the current climate?
- Do we already have an “adaptation deficit”, or “time lag” in our response to climate change?

# How much will our climate change...?

## ...Lack of certainty over predictions



Better to plan for *many* scenarios, not just *one*




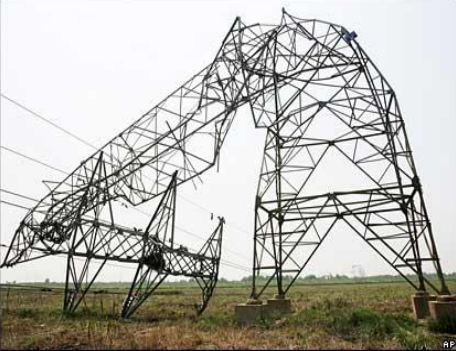

# How will our climate change in the UK....?

## .... Some key predictions

- **Temperature**
  - Mean temperature will rise (predictions vary between 2 - 6 )
  - Extreme temperatures will also rise, and more so than the mean – i.e. hottest days could be much hotter
- **Precipitation (i.e. rain, snow, sleet etc)**
  - More seasonal – we will have wetter winters, and drier summers
  - We will have more incidents of heavy rainfall
  - Less precipitation will fall as snow
- **Sea level**
  - Steady rise in sea level
  - Increase in frequency of storm surges
- **Wind and storm**
  - Very uncertain

# What will this mean? Impacts of climate change... (1)

## Areas of research into climate change....

	<b>Land Use</b>	<p>Opportunities to grow new crops? Or grow bigger harvests?</p> <p>Permanent evacuation of coastal areas due to higher sea levels?</p> <p>Opportunities for new markets and jobs – e.g. in tourism?</p>
	<b>Infrastructure</b>	<p>Infrastructure at risk of extreme weather events</p> <p>Eg: Water treatment and pumping stations?</p> <p>Damage to tarmac on roads and metal on railways from increased temperatures?</p> <p>Increased risk of storm water drains overflowing due to heavy bouts of rainfall</p>
	<b>Natural resources</b>	<p>More frequent water shortfalls and droughts in drier summers?</p> <p>Less water absorption when rainfall is heavy?</p> <p>Risk of losing certain plant and animal species?</p>

# What will this mean? Impacts of climate change.. (2)

## Areas of research into climate change....



### Buildings

Offices are more likely to overheat due to warmer summer temperatures?  
Less need for internal heating in the winter due to temperature increases?  
Buildings at higher risk of flooding due to higher winter rainfall?



### Emergency planning

Emergency services under pressure to respond to increased number of extreme weather incidents (e.g. flooding, heat waves etc)?  
Are they set up to help the vulnerable eg elderly or ill in heat waves etc? And can they help people to prepare for extreme weather so emergency is minimised?  
Need to re-locate certain emergency services to areas at less risk from extreme weather event?

## Questions - group discussions

- Any questions?
- Did you learn anything new or surprising when you were going through the prep reading or through this presentation?
- Which part of the reading or the presentation did you find most interesting?

# Research into adaptation

Over to the experts...



## UK Climate Impacts Programme:

- **Mainly funded by Department for Environment, Food and Rural Affairs (DEFRA), one of the LWEC partners**
- **Tasked with understanding climate change impact and equipping government, business and public on adaptation to climate change**

# How big will the impact of climate change be?

1.



2.



3.



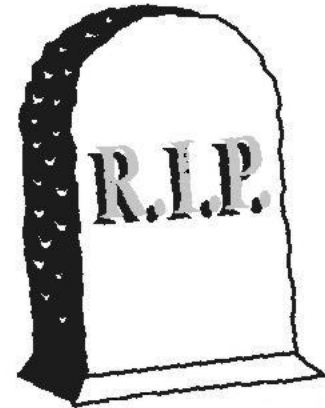
4.



5.



6.

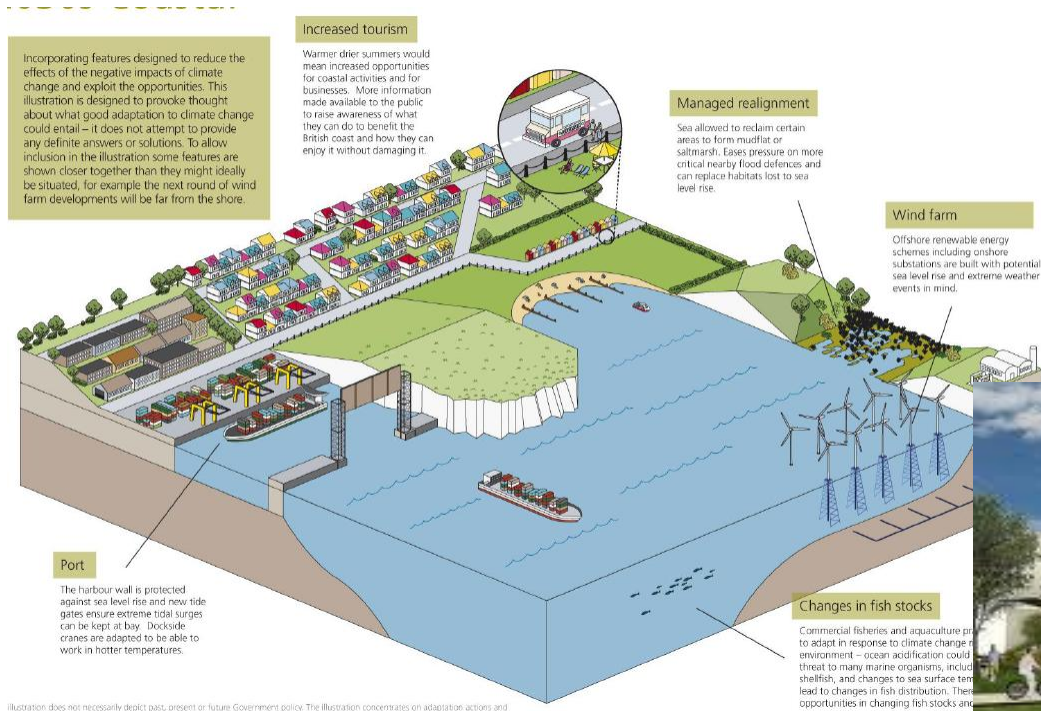


# Introduction to Research into Adaptation to Climate Change

- This is a new issue, and a relatively new field of research
- It builds on many other areas of work (e.g. disaster preparedness, risk management, business continuity planning etc.)
- In addition to research into specific areas of adaptation, we need to learn how the process of adaptation should operate in practice? We need to understand:
  - How best to raise public awareness on the issue of adaptation?
  - What are the barriers that stop people taking up adaptation measures? And how can they be overcome?
  - How can we use the law and regulation to enforce this?
  - How do we balance need for efficient use of resources with need to adapt to climate change?
  - How can we judge and measure adaptation?



# Research into adaptation of land use

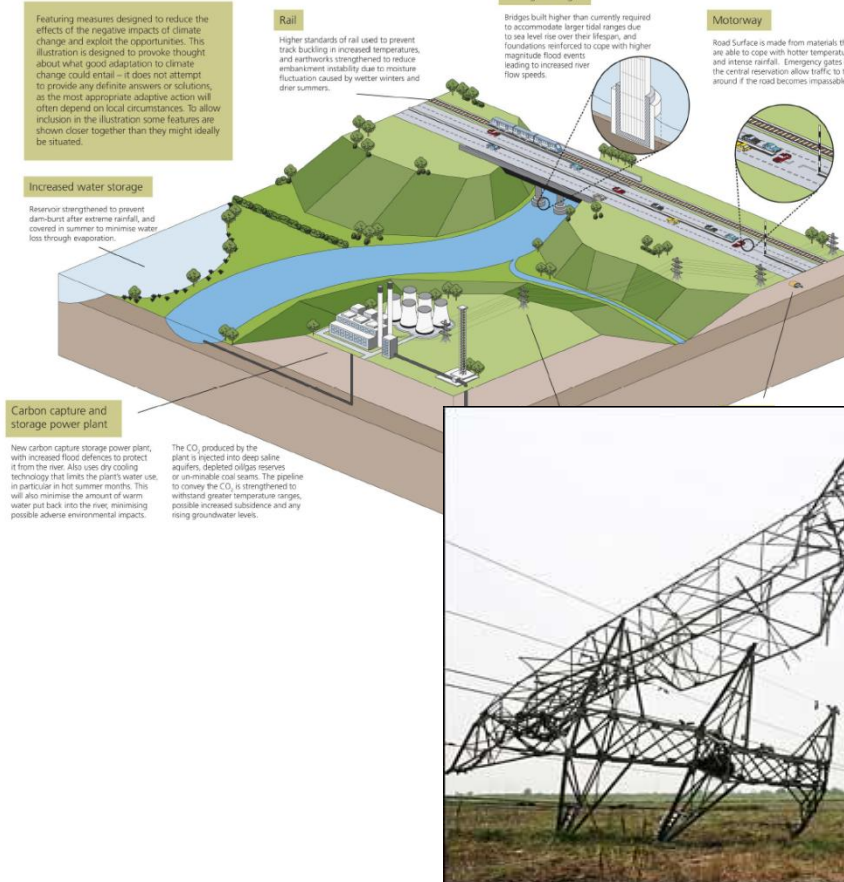


Roger Street, Technical  
Director, UKCIP



# Research into adaptation of infrastructure

## 2030s Major Infrastructure



Chris West, Director, UKCIP

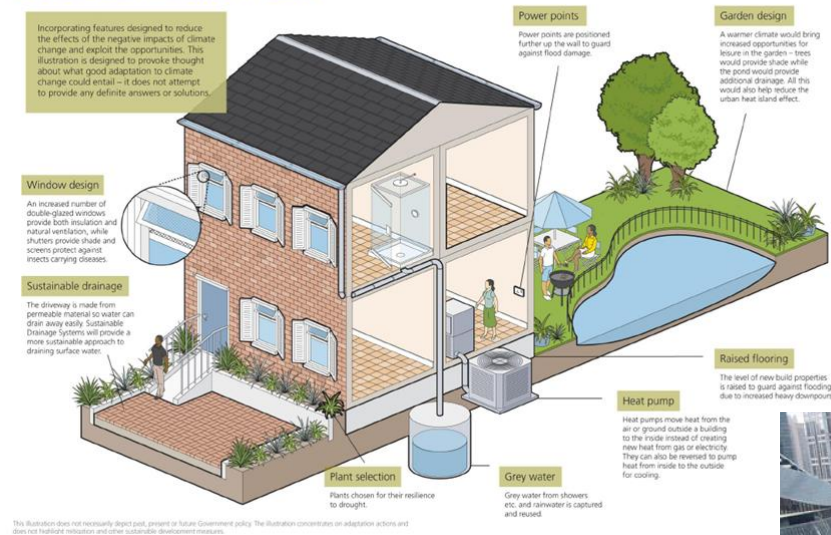
# Research into adaptation of natural resources



Chris West, Director, UKCIP

# Research into adaptation of buildings

## 2030s Domestic House



Gerry Metcalf, Knowledge  
Transfer Manager, UKCIP



# Research into adaptation of emergency planning



Gerry Metcalf, Knowledge  
Transfer Manager, UKCIP

## Initial questions /reflections...

- **Any questions? Anything you want to clarify at this stage?**
- **Any areas of research that you think are important that we have not yet mentioned?**

## Group discussions with experts

Q & A opportunity, for you to discuss these areas of research in more depth....



- **Red** dot - Front room (Rachel)
- **Yellow** dot – Lounge area (Sarah)
- **Black** dot – Main room (Kate)

# Group exercise – priority setting

- What areas of research do you think are the most important and why?
- What areas of research do you think are least important and why?
- Can you rank each of the areas of research in order, from least to most important?
- What is the reasoning behind your choices?
- Would you have liked access to any more information to support this decision making process? What type of information?
- What (if anything) have you heard this morning that has influenced your opinion? Why? In what way?
- What key areas of research do you think are important that have not been mentioned today?

## Plenary session

- **What order did you rank the areas of research in? Why?**
- **Which other areas of research into adaptation do you think are important?**
- **How easy was it to arrive at this rank order?**
- **Where did you find it difficult to prioritise? Why?**
- **What further information (if any) would you have needed to help you?**



# Closing exercise: How big will the impact of climate change be?

1.



2.



3.



4.



5.



6.

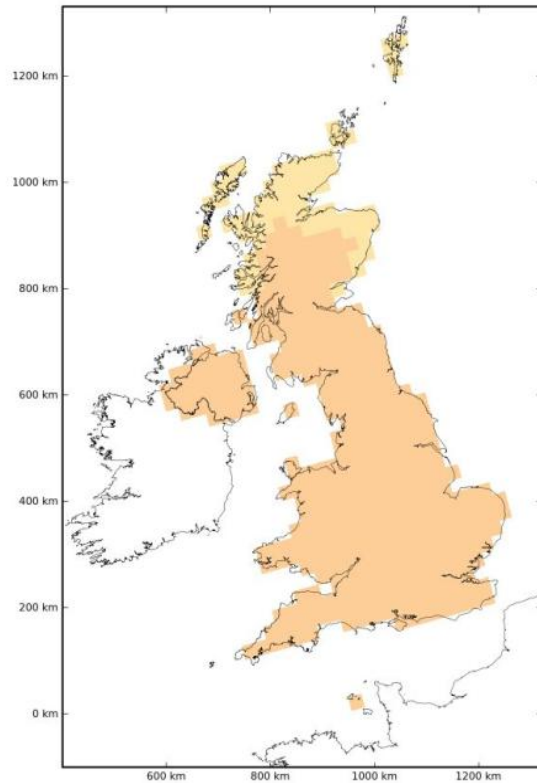


**Thank – you for coming!**

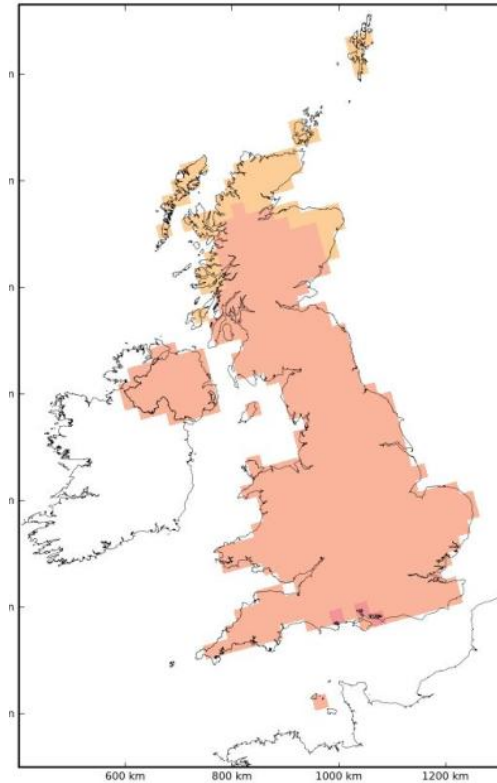
# Additional slides

# How much will our UK climate change..?

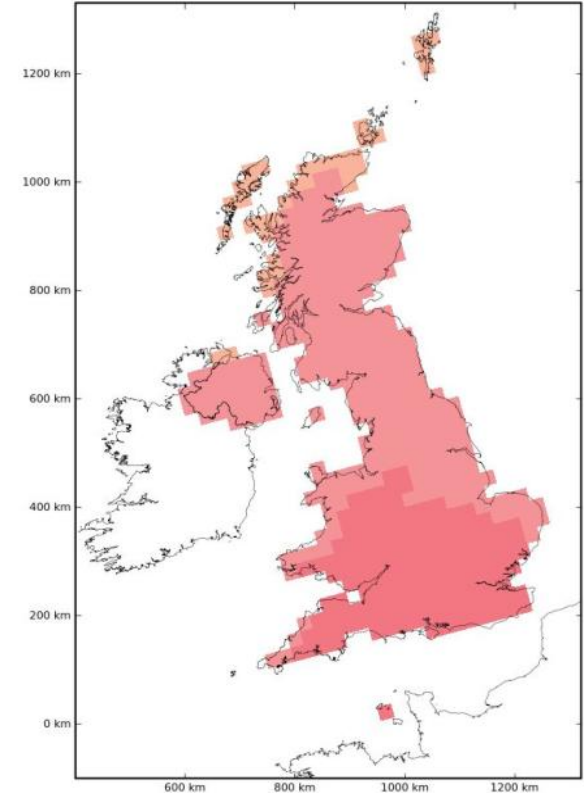
## ... Temperature rise



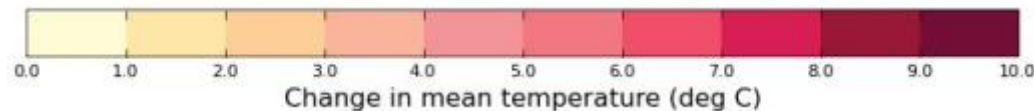
**90% chance of “at least”  
this much change**



**50% chance of “at least”  
this much change**

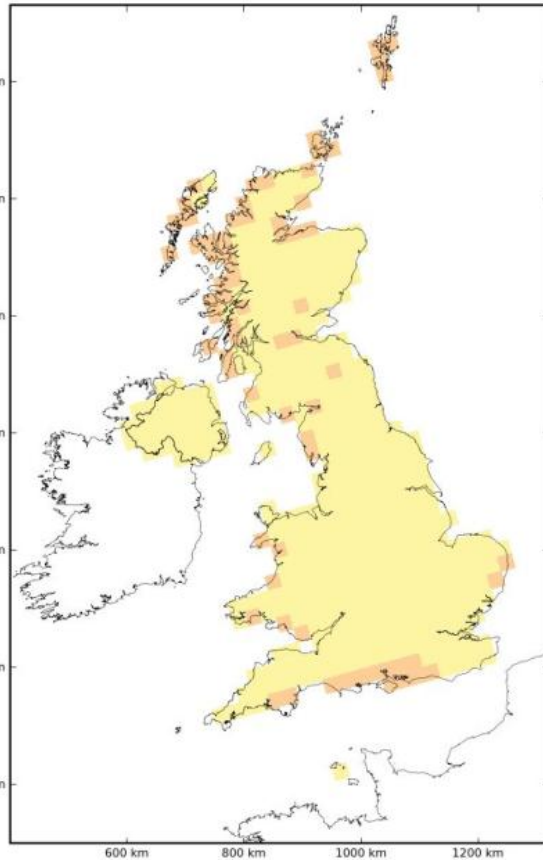


**10% chance of “at least”  
this much change**

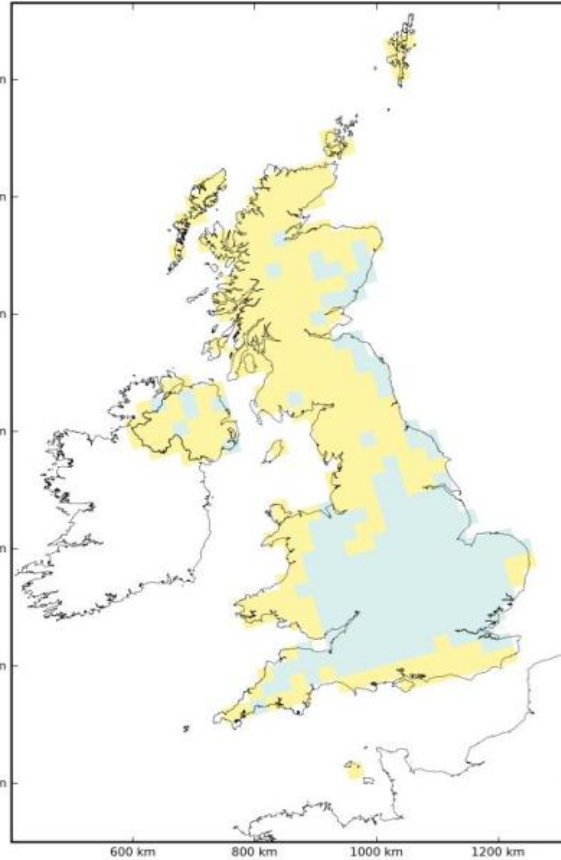


# How much will our UK climate change..?

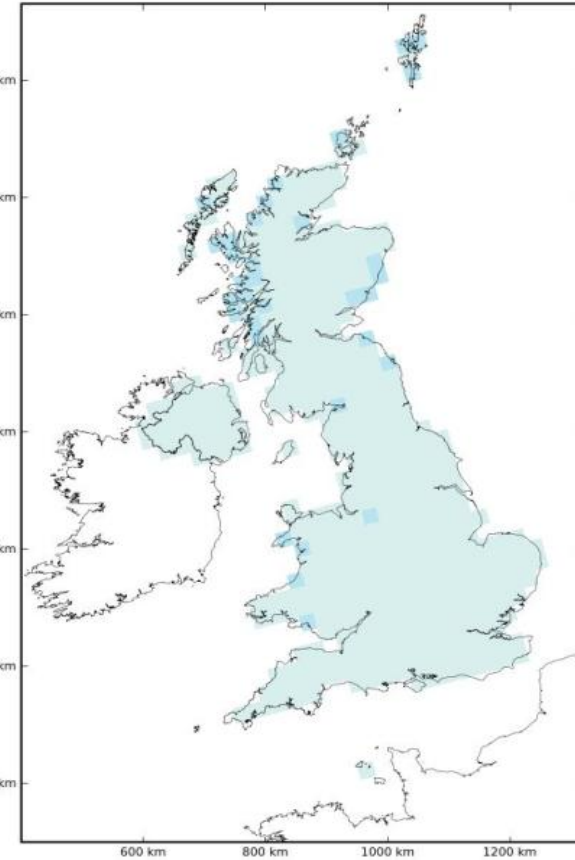
## ... Precipitation increase



90% chance of “at least”  
this much change



50% chance of “at least”  
this much change



10% chance of “at least”  
this much change

