



Earth in crisis: environmental policy in an international context

Rising Sea Levels

Commentary

In recent years the UK has experienced severe flooding around rivers, estuaries and along its coastlines. The impact on both people and livelihoods has been substantial. Flooding is not a new phenomena in the UK, but its now becoming apparent that the increasingly frequent torrential downpours and storm conditions which are causing the floods are due in part to climate change.

Tim O’Riordan

When you look at the climate models, there’s a likelihood of a greater and more intense storms. This is certainly the case when you get warm sea, and we do know that both the North Sea and the Atlantic in our part of the world, they’re relatively speaking warming, but you can get very intense rain attached to these prolonged periods of warming of these seas. So, frankly, storms and very intense rain will be much more likely as climate change kicks in.

Commentary

Some parts of the UK are more affected by these extreme weather patterns than others. The low-lying Thames estuary region is particularly vulnerable.

Rachael Hill

We have been working with the Met Office and Proudman Oceanographic to bring a little bit more certainty to what climate change is likely to bring to the Thames. That was a two-year piece of work, where they looked at 17 global atmosphere models, ran them through a whole 100-year time-sequence and that information then was looked at in terms of what it meant for the East Coast of England and most importantly for the Thames. Climate change models, such as this, help us get a very good understanding of how the increased magnitude; the increased height in storm surges, as well as frequency is likely to change through this century.

Commentary

A storm surge is caused by high winds pushing on the ocean's surface. The wind causes the water to pile up higher than the normal sea level. Storm surges are likely to become more severe with climate change induced sea level rise.

Andrew Pearce

The guidance that we use for factoring in sea level rise comes from the Department of Environment, Food and Rural Affairs or DEFRA. Now we understand climate change isn’t going to be a linear relationship and in fact sea level rise is about 4mm per year in the early years moving up to about 15mm per year towards the end of the century and we’re now taking that into account and in total the increase is about a metre over that time. In the South East we have the additional factor of the land levels dropping as a result of rebound from the last ice age; that adds about another millimetre per year.

Commentary

During the last ice age northern parts of the UK were covered in ice. Ever since then these parts of the UK have been slowly rising in response to the loss of the weight of the ice – scientists call this post-glacial rebound. This is causing a corresponding downward movement of landmass in the south increasing the impact of sea level rise in these areas.

Rachael Hill

To help us to develop an adaptable plan, we needed to devise a range of scenarios because of the uncertainty that climate change presented. So we have our most optimistic scenario, the one that the government is telling us is the likelihood by 2100 about a metre, going then on through to the worst case scenario and we think the worst that climate change can throw at the Thames is an increase of maximum water levels of 4.2 metres, taking account of thermal expansion of the ocean, sea level rise, increasing fluvial flows and, unfortunately, the big uncertainty of ice melt.