UK climate meeting calls for action

Researchers discuss ‘dangerous’ change as global-warming fears grow.

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"Major investment" is needed to help people mitigate and adapt to global warming. So say the 200 top climate scientists, and a handful of economists and politicians, assembled this week at Britain's Met Office.

It is clear that the risks of climate change are more serious than was thought a few years ago, the scientists say.

Avoiding Dangerous Climate Change, a meeting organized by the UK government and the Exeter-based Met Office, attempted to assess the current and future state of climate change, and how to avert it.

Many concluded that it is impossible to define "dangerous" climate change, as impacts vary wildly from place to place. Regardless, others hoped that one message would be clear.

"We don't really need more detail now," says Michael Mastrandrea from Stanford University, California. "We already have enough information to make an educated guess on how we need to reduce emissions."

Researchers agreed that the predictions about climate change made a decade ago are coming true. "Thermal expansion of the oceans, acidification of water, increased air temperature leading to more storms; there is evidence for all this now," says Larry Hughes, an environmental researcher from Dalhousie University in Halifax, Canada.

And it is apparent that things aren't getting better, says Robert Socolow, co-director of the Carbon Mitigation Initiative at Princeton University in New Jersey. "What we can tell politicians is that the list of worries is going to grow."

Southern discomfort

The Antarctic is one key area of concern, says Chris Rapley, director of the Cambridge-based British Antarctic Survey. Five years ago, he (and most scientists) were not concerned about Antarctica melting, he says. But recent evidence shows that the Pine Island Glacier is eroding, and might unleash a mass of ice from the western half of the continent.

If western Antarctica melts, it will raise sea levels by about 6 metres, Rapley says. "We don't know what will happen. But we know we should be studying it," he says.

Others presented worries that were more familiar, but just as real: Greenland may melt; Africa may experience more drought; acidic oceans will imperil coral reefs; and ocean
circulation in the Atlantic may shut down, freezing northern Europe.

“Science cannot come up with a single threshold. That's what politicians are for.”
Malte Meinshausen
Swiss Federal Institute of Technology, Zurich

Several noted that we have the technology to prevent serious temperature rises, at the relatively moderate expense of 4% or less of the world's GDP (gross domestic product). The options include better energy efficiency, or capturing carbon dioxide as it is produced from power plants and burying it underground.

David King, the UK government's chief scientist, said during the meeting that he had spoken to oil companies about the possibility of pumping carbon dioxide into old oil wells in the North Sea.

Making the cut

Socolow summarized what could be done. For carbon emissions to remain stable over the next 50 years, he said, we would need to reduce projected emissions in 2054 by 7 billion tonnes of carbon.

One billion tonnes of cuts could be achieved by doubling the fuel efficiency of 2 billion cars, or by building 2 million one-megawatt electric windmills, or even by doubling the electricity produced in nuclear power plants.

All of these numbers carry a large amount of error. And scientists said that it was hard to work out what the atmospheric concentration of carbon dioxide would have to be to lead to a 2 °C warming on pre-industrial times. This is the figure that the UK prime minister, Tony Blair, had asked them to provide.

"Science cannot come up with a single threshold. That's what politicians are for," says Malte Meinshausen of the Swiss Federal Institute of Technology in Zurich.

We could, for example, start reductions slowly now, or we could continue to increase emissions for a decade, starting cuts later; we could still end up at the same temperature in 50 years.

However, if one delays cuts for ten years, Meinshausen warns, we will need to double the rate at which we reduce emissions later, and that is a very expensive proposition.

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