guided READING

CLIMATE CHANGE: SIBERIAN HEATWAVE 'CLEAR EVIDENCE' OF WARMING

BBC News Article by Justin Rowlatt 15 July 2020

A record-breaking heatwave in Siberia would have been almost impossible without human-caused climate change, a study has found.

The Russian region's temperatures were more than 5C above average between January and June of this year.

Temperatures exceeded 38C in the Russian town of Verkhoyansk on 20 June, the highest temperature ever recorded north of the Arctic circle.

The Arctic is believed to be warming twice as fast as the global average.

An international team of climate scientists found the record average temperatures were likely to happen less than once every 80,000 years without human-induced climate change.

That makes such an event "almost impossible" had the world not been warmed by greenhouse gas emissions, they conclude in the study.

What happens in the Arctic doesn't stay in the Arctic

The changing Arctic climate is of huge importance here in the UK.

Four of the six main systems that determine this country's weather are driven by conditions in the Arctic, said Dr Katharine Hendry of Bristol University.

The so-called "Beast from the East", in the winter of 2018, is one example of an extreme whether event linked to the changes in the Arctic.

It involved Arctic air blasting the country, driving temperatures below 0C for several days. Over half a metre of snow fell in some areas.

The storm is reckoned to have caused over £1bn of damage and claimed 10 lives.

"The link between the Arctic and UK weather is through the jet stream," said Prof Stott, referring to the ribbon of fast-moving air high up in the atmosphere.

The jet stream helps move weather systems around the globe.

But sometimes it creates "blocking" patterns that can cause weather systems to stall.

The unusually sunny spring experienced in the UK this year was caused by a blocking pattern that allowed high pressure systems to dominate the UK for months on end.

State of emergency

The heatwave in Siberia was caused by the same pattern but with even more dramatic results.

The extreme temperatures led to a cascade of natural and human disasters which prompted Russian President Vladimir Putin to declare a state of emergency in early June.

Arctic wildfires are estimated to have led to the release of 56 megatonnes of CO2 in June.

At the same time, there has been widespread melting of the permafrost and reports of unusually large swarms of Siberian silk moths that have damaged trees, making them more susceptible to fire.

Uncertain future

It is well-known that the Arctic is warming at twice the rate of the rest of the planet.

Arctic temperatures are estimated to have risen 2C since 1850 compared with 1C globally.

"Looking at the geological record, we don't think we've had CO2 levels as high for about five million years," said Dr Hendry. "So we really don't know what to expect into the future."

This year's Siberian heatwaves shows just how extreme conditions can become.

What worries many scientists is that this new climate era we are entering means many places now experience weather conditions beyond anything local ecosystems - or indeed human communities - have evolved to endure.

1 How has Siberia's temperature differed from the average for this time of year?

2 What is the highest temperature ever recorded north of the Artic circle?

3 Use your geography knowledge to give two examples of human causes of climate change.

4 Why is the climate of the Artic important to the UK?

5 Give two examples of extreme weather events in the UK caused by the climate of the Arctic.

6 What were the impacts of the "Beast from the East?

7 What is the jet stream?

8 Why might Artic wildfires contribute to climate change?

9 Melting permafrost has social, economic and environmental impacts. Can you think of one example of each type of impact?

10 What impacts might climate change have on local ecosystems? Why?