

Climate Science - Top Lines and Key Facts

Top Lines

- The scientific evidence for recent global warming is robust and continues to strengthen.
- It is very likely that this is largely a result of greenhouse gas emissions due to human activity.
- A consistent human fingerprint is seen in observations of recent climate and environmental change.
- Without urgent action, there is a high risk of global warming well beyond a 2°C increase over pre-industrial times, with significant adverse impacts on the natural world and human society.
- Whilst uncertainties remain in our understanding of how the Earth's climate system works, the case for action is compelling.
- New, ground breaking research just published this week, shows a dramatic increase in the risks of some recent extreme weather and climate events around the world occurring because of recent climate change.

Key Facts

- Average global surface temperature has risen by around 0.8°C since about 1900 and the ten-year period 2001 to 2010 was the warmest in the instrumental record (since 1850) - the warmest years in the record were 1998, 2005 and 2010.
- CO₂ levels in the atmosphere have increased by about 40% since the beginning of the industrial revolution, from around 280 to over 390 parts per million (ppm) – their highest level in the last 800,000 years at least.
- Global average sea level has risen by about 50 mm between 1993 and 2008 and is now rising at about 3 mm/year on average.
- Summer Arctic sea ice extent is rapidly declining and has decreased by about 40% since 1980 and, where estimated, winter ice thickness has halved since then.
- New attribution science shows that the risk of the 2011 Texas heatwave has increased by 20 fold in only 50 years and that the risk of the exceptionally warm November in the UK in 2011 has increased 60 fold in the last 50 years.
- Average global temperatures may rise (relative to 1990-99 temperatures) by between 1.1 and 6.4°C by the end of this century, if greenhouse gas emissions

continue unabated with further increases *likely* in the frequency and severity of extreme weather events.