

# THE FACTS

1. Climate scientists say it is increasingly certain that 2014 will go down as Europe's warmest year on record based on observations through November.
2. Nineteen European countries are very likely to see their hottest year on record: Austria, Belgium, Croatia, Czech Republic, Denmark, France, Germany, Hungary, Iceland, Italy, Luxembourg, The Netherlands, Norway, Poland, Serbia, Slovakia, Slovenia, Sweden (equal to 1953) and the United Kingdom.
3. What role did global warming play? A significant one, according to new research conducted by three independent climate science teams from the UK, the Netherlands and Australia.
4. A team of climate scientists from the Royal Netherlands Meteorological Institute (KNMI), the University of Oxford, the University of Melbourne and the Australian National University looked at the likely influence of global warming.
5. The KNMI and Melbourne teams found that the odds of average temperatures across Europe (30-75N, 25W-45E) reaching this year's record-setting levels over January-November were increased by at least 35 to 80 times due to human influence on the climate. The team at the University of Oxford found that, even on a more local scale where variability is often greater, global warming had increased the odds of a year as hot as the one just experienced in most of continental Europe by at least a factor of 10.
6. In Europe, nine of the 10 hottest years ever recorded have all occurred since 2000. There hasn't been an annual cold record across Europe since 1956.
7. KNMI looked at the early 1900s, before global warming played a significant role in our climate, and found that the chances of getting a year as warm as 2014 were less than 1-in-10,000. The KNMI analysis concluded that global warming has made a temperature anomaly like the one observed in 2014 in Europe at least 80 times more likely. Regionally, the chances of a temperature like the observed one in the UK has increased by at least a factor 30; in a large region of Central Europe it is at least a factor 50.
8. Based on initial estimates, KNMI found that the January-December annual mean temperature for Europe is forecast to be 10.5°C. That is 0.3°C above the previous record of 2007.
9. Using early instrumental records, documentary evidence of the weather, and proxies like tree rings to extend the observational temperature record for Europe back to 1500, climate scientists found that the average January-through-December temperature in Europe during 2014 will very likely be warmer than any time during the past 500 years.

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- 10.** The scientific methodology used by the team in Oxford is designed to provide robust results for small-scale events. On the individual country level, e.g. for Germany, what was a 1 in 80-year event has now become a 1 in 7-year event, with an associated change in risk that made this event 10 times more likely to happen (FAR=0.91). In the UK, what was a 1 in 80-year event is now a 1 in 5-year event, increasing the odds for the observed record temperatures to occur 14-fold due to climate change (FAR=0.93).
- 11.** With each passing year, atmospheric pollution from the burning of fossil fuels and other human activities increases the chances of seeing a record warm year. Scientists at the University of Melbourne in Australia calculated that the risk a record hot year like 2014 was made at least 35 times more likely due to human-caused climate change.
- 12.** Globally, climate scientists say it's extremely likely that 2014 will go down as the world's warmest year on record.
- 13.** If 2014 breaks the record for the globe's warmest year, it will join a string of previous years (1995, 1997, 1998, 2010) that set heat records since record-keeping began in 1880.
- 14.** Globally, nine of the 10 hottest years ever recorded have all occurred since 2000. There hasn't been an annual cold record set since 1911.

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