

Mega heat waves in Europe

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During the 2001–2010 decade, 500-year-long records of highest air temperature were likely broken over 65% of Europe, including Eastern Europe (2010), south-western central Europe (2003), the Balkans (2007), and Turkey (2001). The 2003 and 2010 summers were likely the warmest on record over 25% of Europe.

In summer 2010, many cities in Eastern Europe recorded extremely high temperatures. The 2010 heat wave exceeded the 2003 episode in terms of amplitude and spatial extent. The European mean 2010 summer was 0.2°C warmer than the previous warmest summer of 2003.

Model results indicate that the probability of a summer experiencing mega heat waves will increase by a factor of 5 to 10 within the next 40 years. Weekly heat spells of the magnitude of the second week of August 2003 will probably occur in 2020–2049 with a best-guess return period of 10 years in Eastern Europe and 15 years in Western Europe. However, a weekly 2010-like event remains very rare in the same period (best guess return periods >30-year over both regions). By the end of the 21st century, such extreme weekly heat spells are expected every 8 years in Eastern Europe and 4 years in Western Europe.

Source: Barriopedro et al., 2011. Science 332: 220-224.

Photo: Glen Bowman (www.flickr.com)