Can We Perform Extreme Event Attribution with the Current Generation of Climate Models?

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KIT, June 21st 2016

There is considerable interest in being able to assess the extent to which recent extreme weather events can be linked to anthropogenic climate change. As a result, a number of groups around the world are producing near real-time attribution analyses. But are current generation climate models up to the job? I will argue that they are not - as manifest by the unreliability of monthly and seasonal forecasts. The importance of such reliability diagnostics has been misunderstood in the climate attribution community. I will try to show with an explicit but idealised example why information about monthly/seasonal forecast reliability must be considered central to the question of building climate models that can not only attribute real-time weather events, but can also provide society with reliable information to adapt to climate change. I will discuss some ideas on why current generation climate models are deficient and what we should do to improve them.