



climate *prediction*.net

Environmental *Change* Institute



The feasibility of an inventory of impacts of anthropogenic climate change



Loss and damage?

“the actual and/or potential manifestation of impacts associated with climate change in developing countries that negatively affect human and natural systems”



USNAVY PHOTO / ALAMY



climateprediction.net

the world's largest climate forecasting experiment for the 21st century

Environmental Change Institute



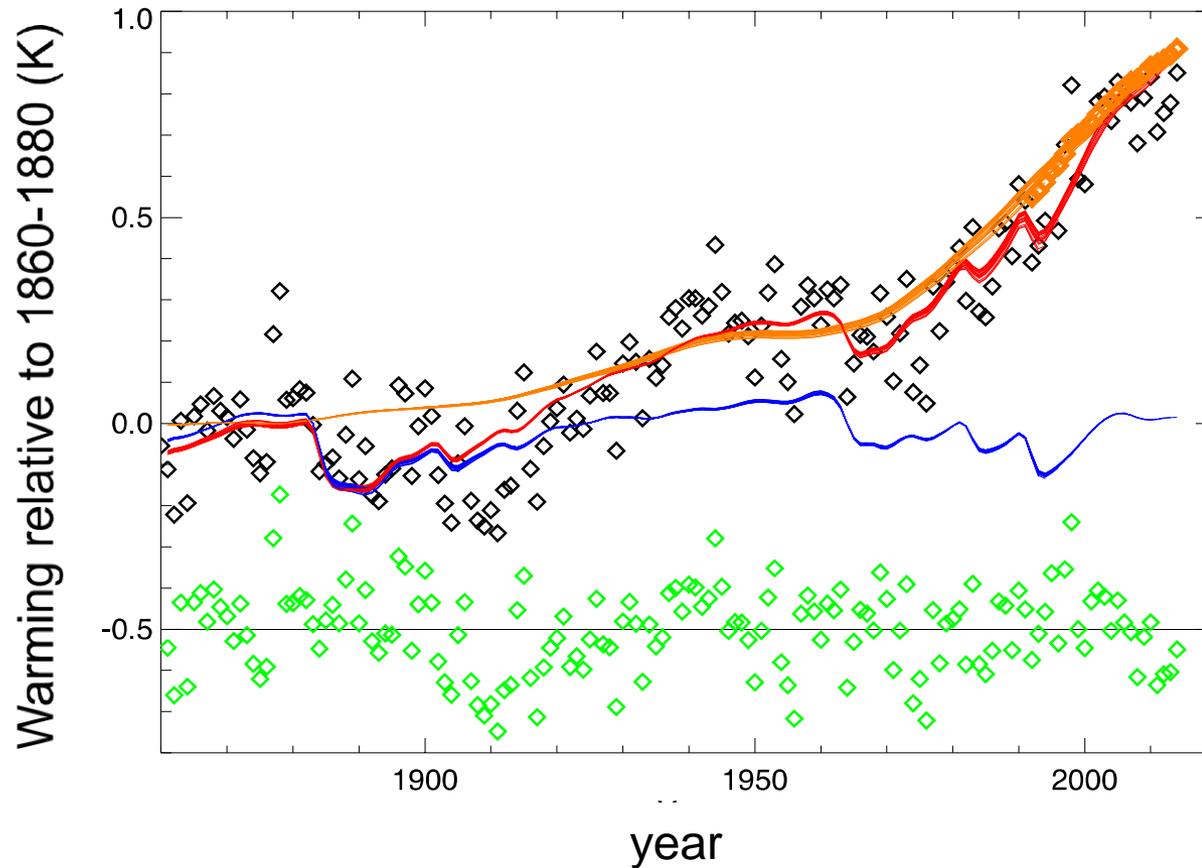
Impacts of *climate change*



Figure 18-3 IPCC AR5 WGII



Attribution of slow-onset phenomena is comparably straight forward



Otto et al., 2015



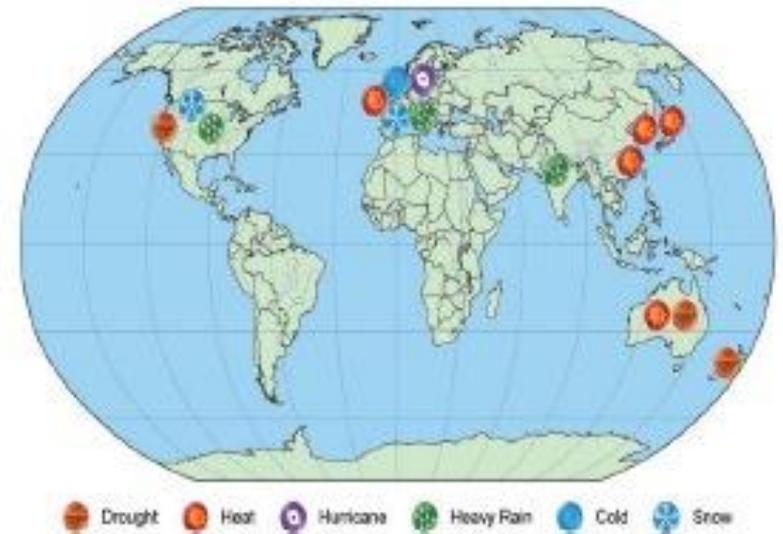
climateprediction.net

the world's largest climate forecasting experiment for the 21st century

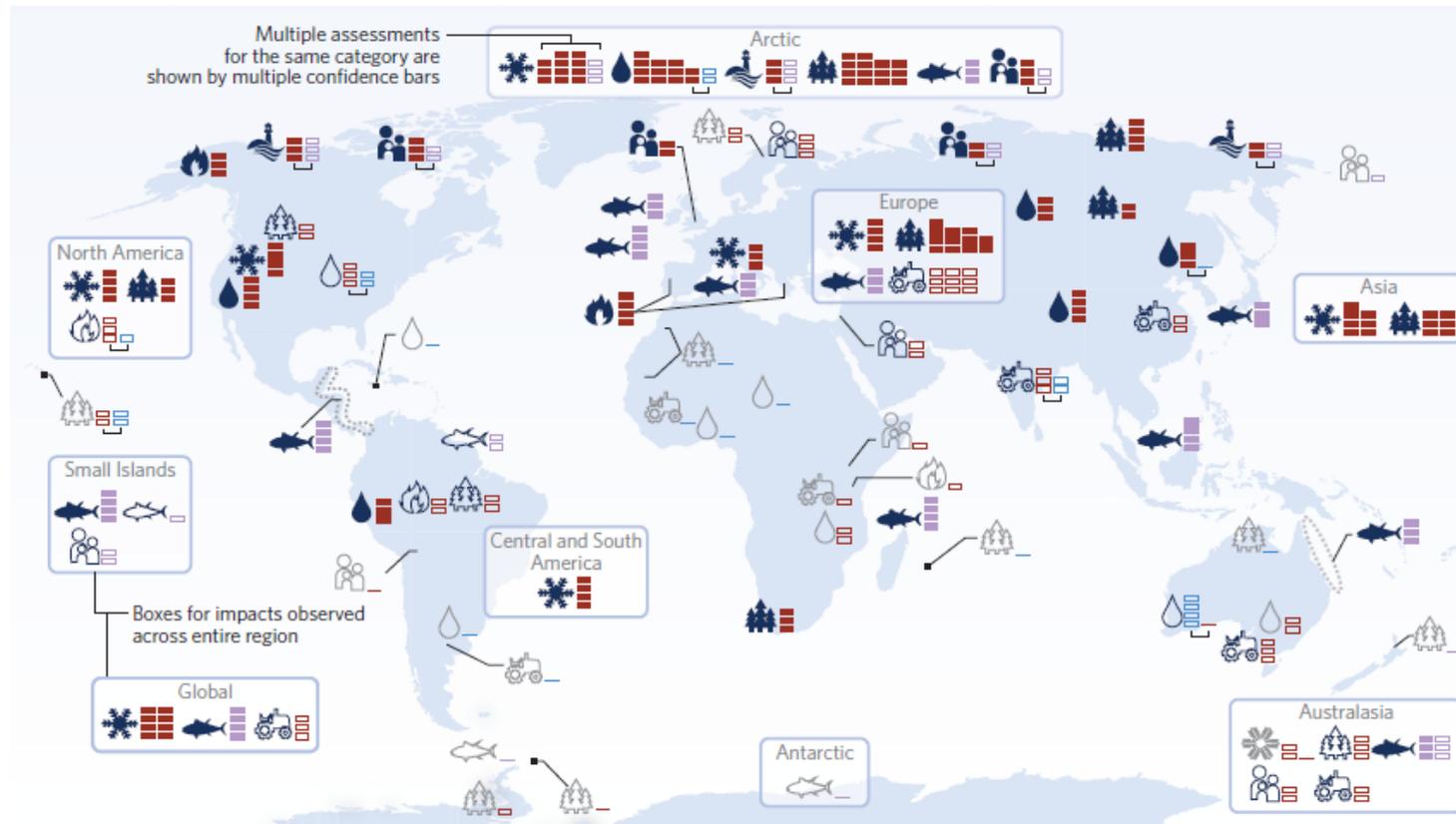
Environmental Change Institute



Inventory of impacts of *anthropogenic* climate change



Inventory of impacts of *anthropogenic* climate change



But, what about extreme events?



climateprediction.net

the world's largest climate forecasting experiment for the 21st century

Hansen & Stone 2015

Environmental Change Institute



High-impact, extreme weather events are more likely to cause loss and damage, at least in the short term.



USNAVY PHOTO / ALAMY



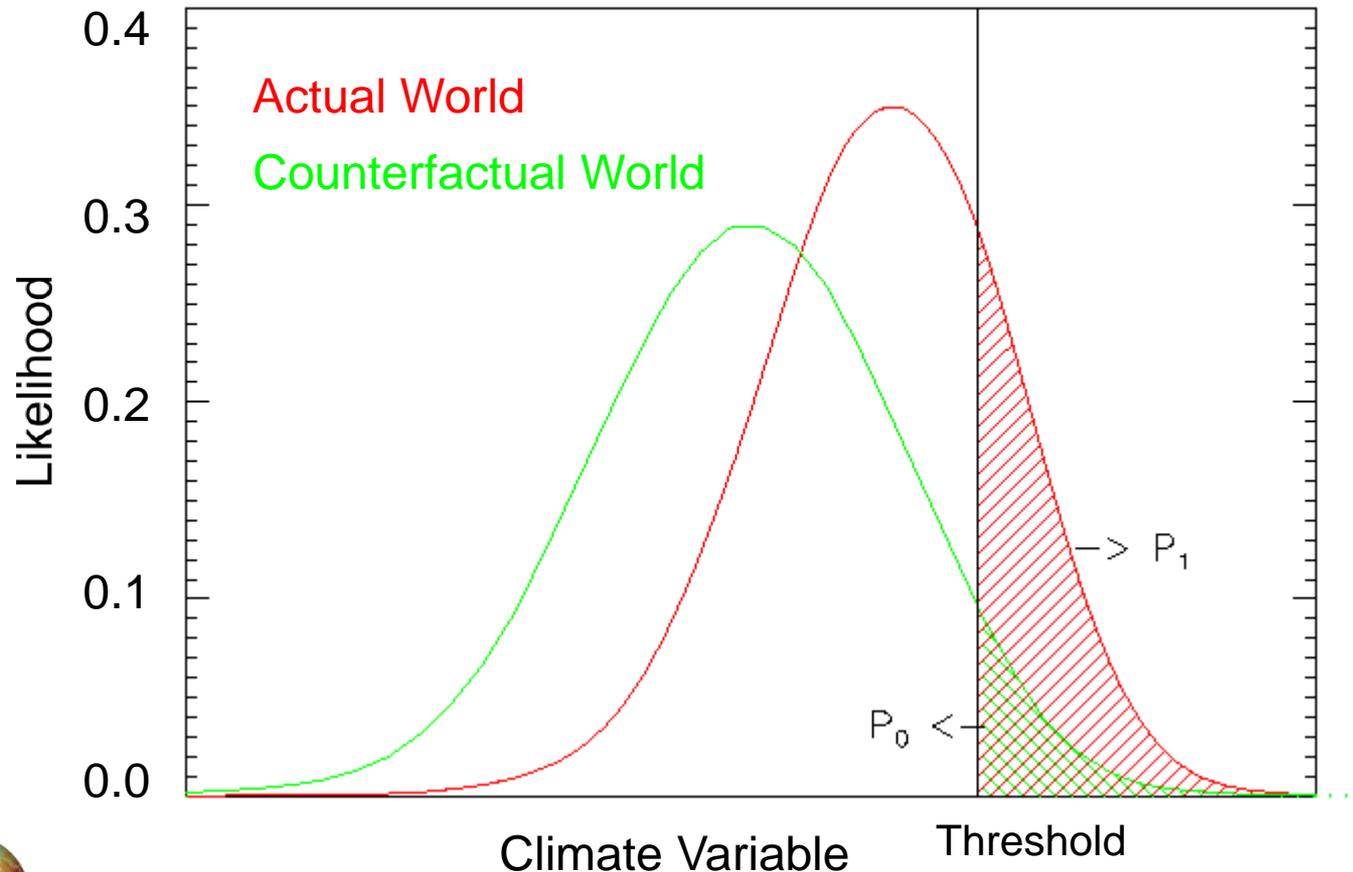
climateprediction.net

the world's largest climate forecasting experiment for the 21st century

Environmental Change Institute



Generally impossible to say “this event would not have occurred without human influence”, ...



Stott et al. 2015



climateprediction.net

the world's largest climate forecasting experiment for the 21st century

Environmental Change Institute



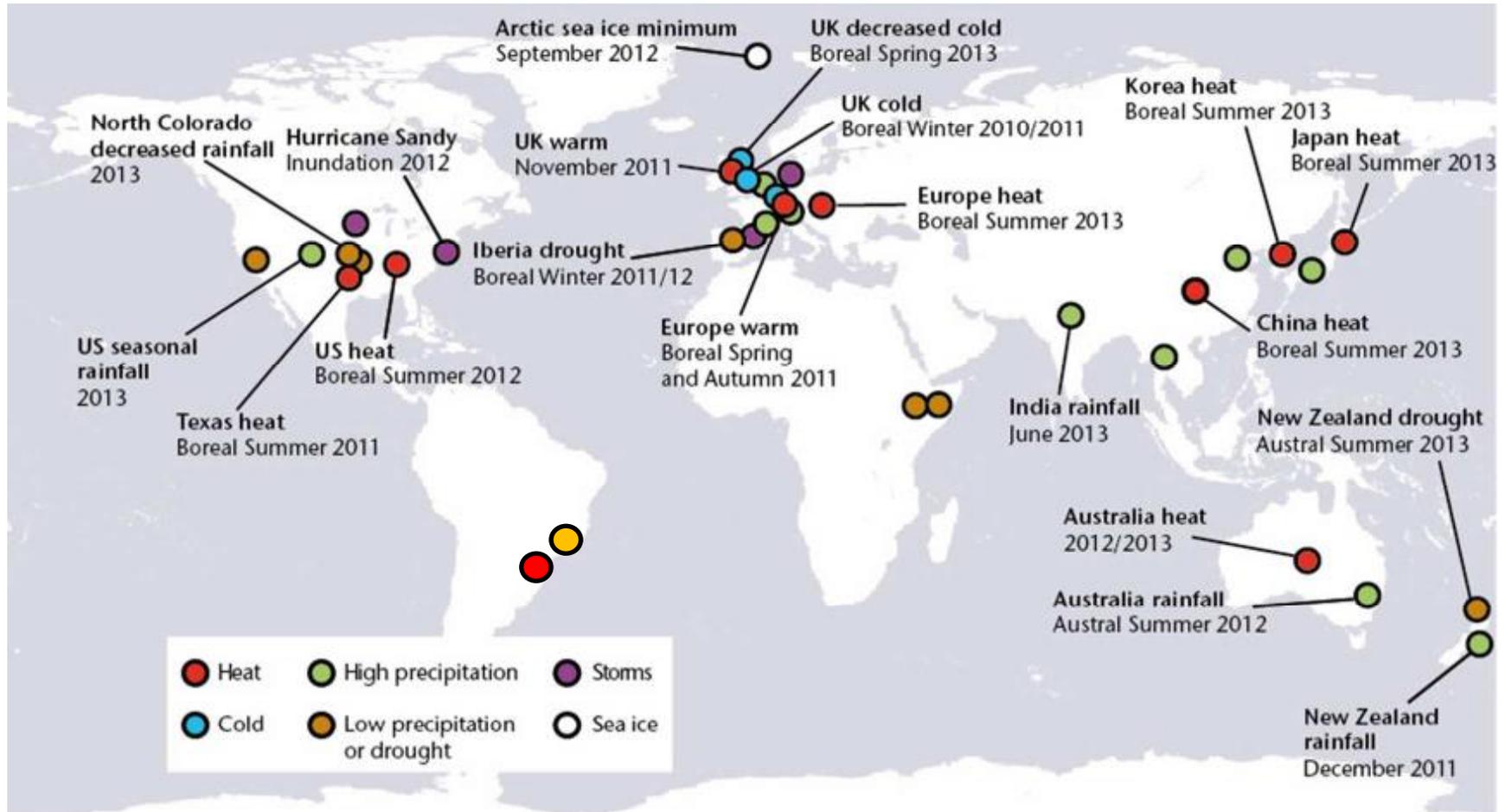
... but we can ask how the risk of *this type of* extreme event occurring has changed due to external factors

Possible outcomes of an attribution study:

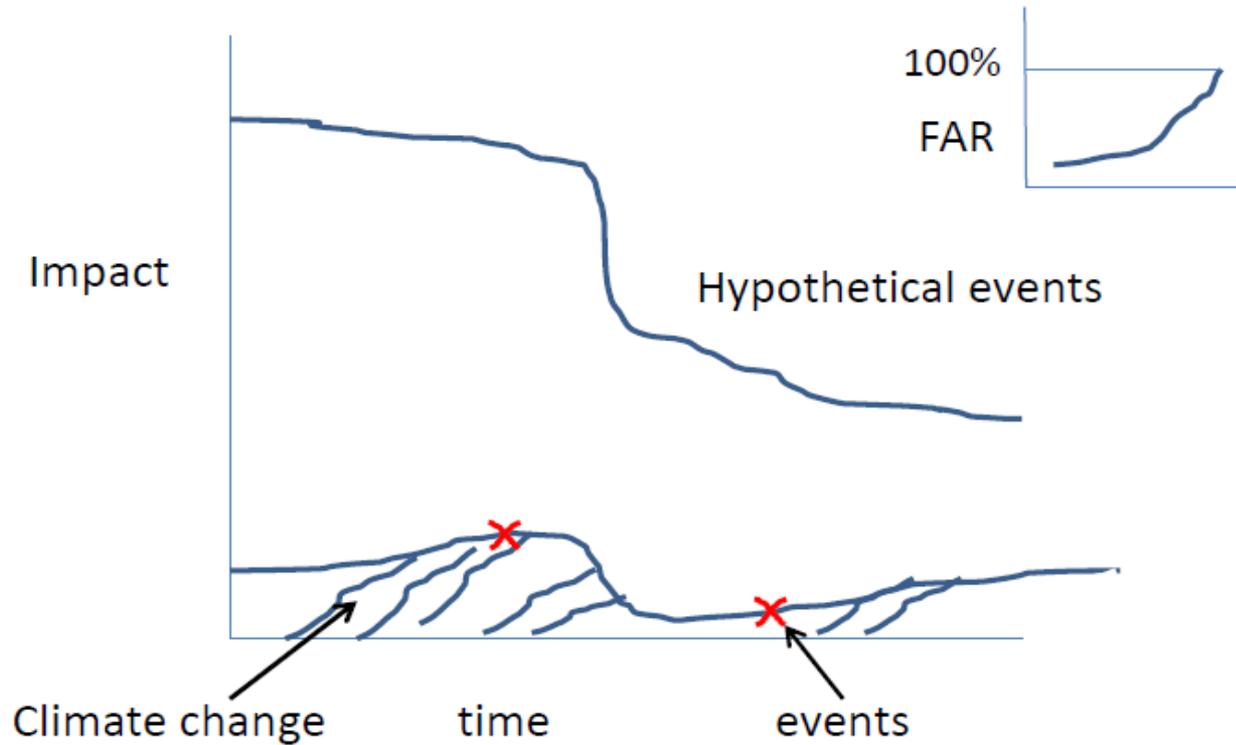
1. The event was made more likely due to anthropogenic climate change
2. The event was made less likely due to anthropogenic climate change
3. Anthropogenic climate change did not alter the frequency of occurrence of the event
4. With our current understanding and tools we cannot assess whether and how the event was influenced by anthropogenic climate change



Extreme events analysed wrt attribution to *anthropogenic* climate change



Damages and impacts



Paris agreement article 50:

..... to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change; ...

..



#everydayclimatechange+

?



climateprediction.net

the world's largest climate forecasting experiment for the 21st century

Environmental Change Institute



An invitation we can't reject!

21. *Invites* the Intergovernmental Panel on Climate Change to provide a special report in 2018 on the impacts of global warming of 1.5 ° C above preindustrial levels and related global greenhouse gas emission pathways;



climateprediction.net

the world's largest climate forecasting experiment for the 21st century

Environmental Change Institute

