

can scientists attribute the impacts of climate change to particular emitters?

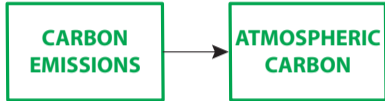
can scientists attribute the impacts of  
climate change to particular emitters?

yes, we now can.

requires a chain of evidence that links specific carbon emissions  
to specific harms

# A CAUSAL CHAIN FROM EMITTER TO IMPACT

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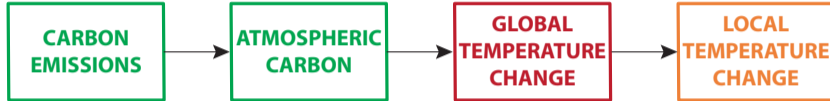
# A CAUSAL CHAIN FROM EMITTER TO IMPACT

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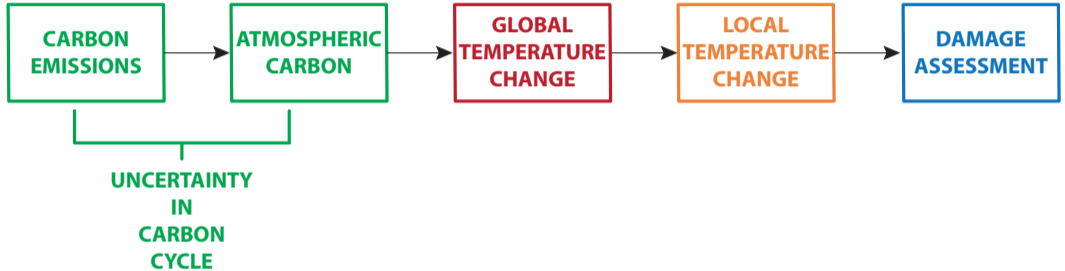
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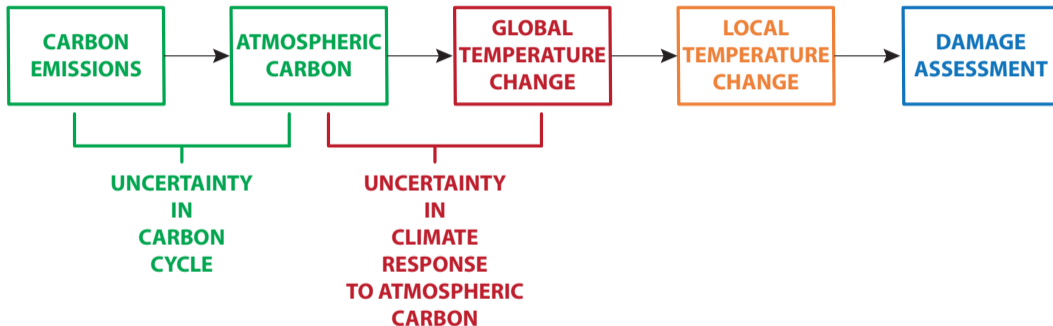
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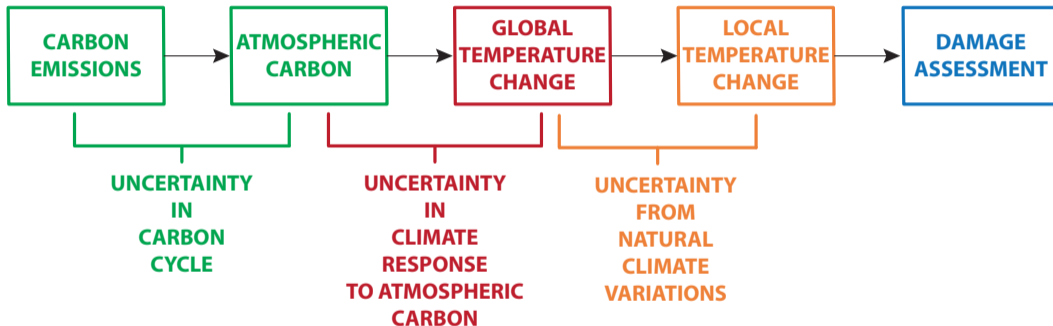
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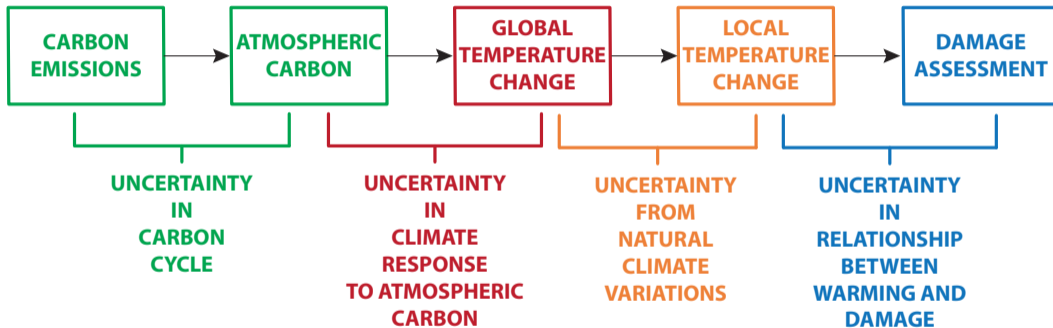
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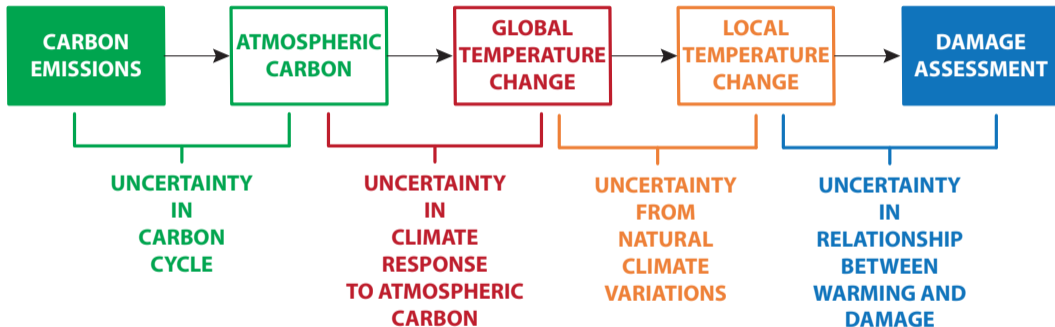
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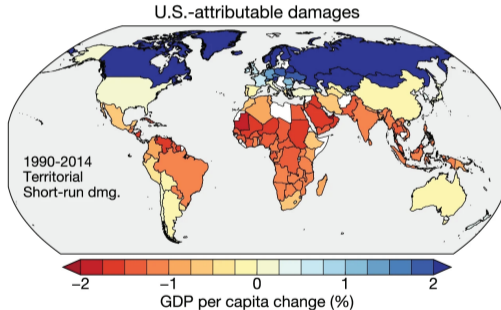


**EACH LINK HAS CONSENSUS METHODS**

# AN ATTRIBUTION FRAMEWORK

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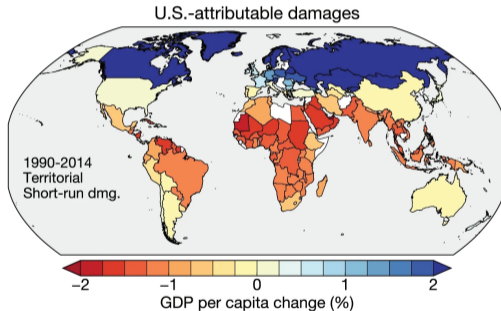
## AN EXAMPLE: ECONOMIC DAMAGES ATTRIBUTABLE TO WARMING FROM U.S. EMISSIONS



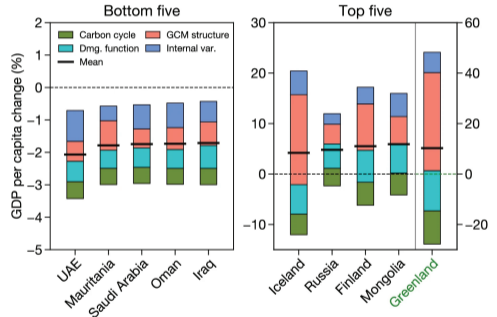
**AVERAGE WARMING  
FROM U.S. TERRITORIAL EMISSIONS  
HAS LIKELY CAUSED ~\$2 TRILLION  
IN ECONOMIC LOSSES GLOBALLY**

# AN ATTRIBUTION FRAMEWORK

## AN EXAMPLE: ECONOMIC DAMAGES ATTRIBUTABLE TO WARMING FROM U.S. EMISSIONS



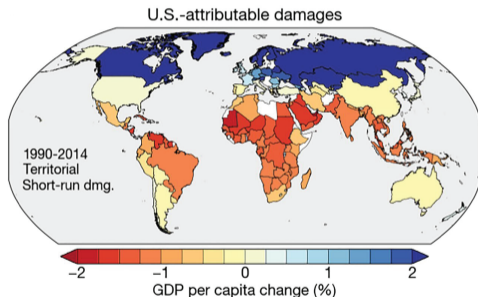
**AVERAGE WARMING  
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**WE CAN QUANTIFY THE  
UNCERTAINTY ATTRIBUTABLE TO EACH  
SOURCE IN THE CAUSAL CHAIN**

# AN ATTRIBUTION FRAMEWORK

## AN EXAMPLE: ECONOMIC DAMAGES ATTRIBUTABLE TO WARMING FROM U.S. EMISSIONS



**AVERAGE WARMING  
FROM U.S. TERRITORIAL EMISSIONS  
HAS LIKELY CAUSED ~\$2 TRILLION  
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## WE SERVE ALL THE ATTRIBUTION DATA ON CLIMATE DAMAGES (AND UNCERTAINTY) TO PUBLIC



National attribution of historical climate damages

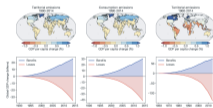
Use of the data from this website is open to the research public. Please consider crediting Callahan and Mankin, *Climatic Change*, 2022 (<https://doi.org/10.1007/s10584-022-63387-1>) when using data from this website.

Country selected is: United Kingdom

Type: emitter

Selection Results:

Map file(s) found - click map image for full resolution and download:



If you selected "emitter country": The maps in the first row show the cumulative effect of the warming from the chosen country's emissions on every other country, in units of percent change in GDP per capita. Missing data in these maps corresponds to countries for which continuous GDP data are not available. The time series plots in the second row show the total global benefits and losses caused by the chosen country's emissions for each year, in units of billions of dollars, referenced to 2010 inflation-adjusted U.S. dollar values (based on World Bank accounting). For the time series plots, cumulative values are the areas under (or above) the curves.

If you selected "claimant country": The maps in the first row show the cumulative effect of the warming from every other country's emissions on the chosen country, in units of dollars referenced to 2010 inflation-adjusted U.S. dollar values (based on World Bank accounting). Missing data in these maps corresponds to countries for which emissions data are not available. The time series plots in the second row show the yearly effect of the emissions from the USA, China, Russia, and the rest of the world on the chosen country over time, in units of percent change in GDP per capita. For the time series plots, cumulative values are the areas under (or above) the curves.

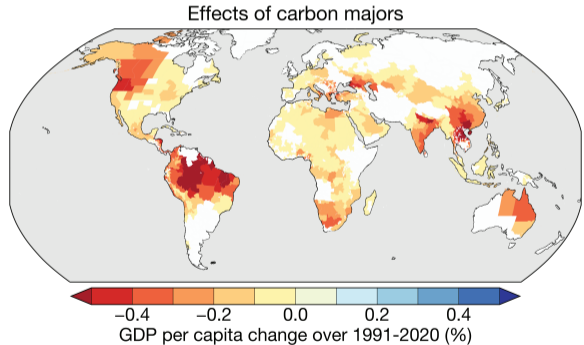
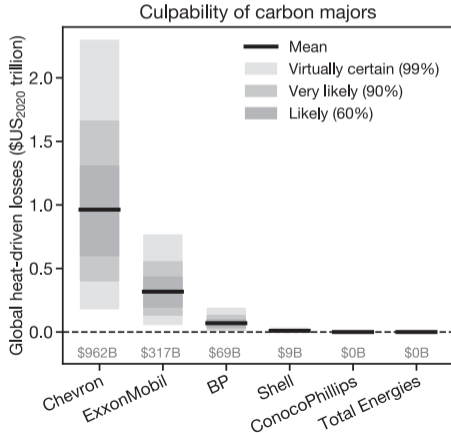
Click to download data table (csv file):

[CMIG/national\\_attribution\\_2022/prod/tables/emitters/United\\_Kingdom\\_damage\\_caused\\_attribution.csv](https://rcweb.dartmouth.edu/CMIG/national_attribution_2022/prod/tables/emitters/United_Kingdom_damage_caused_attribution.csv)

[https://rcweb.dartmouth.edu/CMIG/national\\_attribution\\_2022/prod/](https://rcweb.dartmouth.edu/CMIG/national_attribution_2022/prod/)

# AN ATTRIBUTION FRAMEWORK

THIS FRAMEWORK ALLOWS US TO  
QUANTIFY CLIMATE DAMAGES ATTRIBUTABLE TO CORPORATE ACTORS



can scientists attribute the impacts of  
climate change to particular emitters?

yes, we now can.

this transparent and extendable framework can be applied to  
many settings, different emitters, different impacts