

EGU24-21871, updated on 20 May 2024
<https://doi.org/10.5194/egusphere-egu24-21871>
EGU General Assembly 2024
© Author(s) 2024. This work is distributed under
the Creative Commons Attribution 4.0 License.



Scale and Causal inference: from philosophical concepts to empirical verification in relationship between climate change and social responses.

David D. Zhang

Guangzhou University, Guangzhou, China (dzhang@gzhu.edu.cn)

Issues related to whether climate change have caused great calamities in human society are of fundamental importance to current climate change research. The causes and ecological consequences of climate change can, of course, be measured at different levels according to different scales because the natural sciences have long understood the verification of causality and importance of scale. Research regarding human responses to climate change in the humanities and social sciences has been less explicit, less precise, and more variable. The growing need for interdisciplinary work in the issues across the natural/social science boundary (gap), however, demands some common understandings about the causality and scaling issues on climate impact. We seek to facilitate the dialogue between natural and social scientists by reviewing some of the fundamental aspects of the philosophical concepts of causality and scale that can be employed in the climate change/human response study, especially as they relate to large scales of the human responses to ever-changing global climate in history. Here we present the common philosophical concepts of causality and scale in natural sciences and social sciences, examine how researchers in the field employ the philosophical concepts to verify the relationship between human societies and climate change using various samples with multiple scales and explore how to connect and break the links between climate change, human calamities and resilience at different levels of hierarchies.