

# Images of the Climate: A Typology of Climate Visualization and its Changes since 1800

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The issue of climate change is regarded by many as having a serious problem in terms of its visualization and perception. The primary reason for this has to do with the scientific definition of climate. People experience weather events on a daily basis, but not the climate, the modern definition of which is an abstract, statistically created, long-term research object. Because of this, the threat to large parts of the earth's population posed by changes connected with climate change goes largely unnoticed at an indirect, day-to-day level. That is why images play such a key role in communicating climate change. It is claimed that using pictures which are as effective as possible helps to get across to the recipients in a concrete way that which they are unable to visualize and be conscious of by means of text alone. Distant, melting polar caps, the future a hundred years from now, or the abstract idea of a global rise in temperature, for example, can be graphically presented in this way and, in a best case, influence changes in behavior and at decision-making levels. However, climate science is facing considerable pressure from different expectations: when expert graphics produced by climatologists started to gain currency in the field of policy (as climate change became a key issue within risk society) they encountered different values and expectations.

My research project focuses on the history of analytical graphics illustrating climate and climate change, their epistemic status, and their popularizations. Besides the importance of the history of science and technology studies, it methodologically takes an approach in visual studies (*Bildwissenschaften*) and media theory. By closely looking at visualizations of climate, I am developing a history and theory of scientific diagrammatics and expert graphics since 1800. Visualizations have played a significant role in climatology ever since; indeed it is data visualization which stands at the very beginning of climate sciences. It began with a first chart generated by Alexander von Humboldt which was based on the transferal of increasing amounts of weather data collected in tables into graphs and maps in the year 1817. The status of climate visualizations is particularly crucial, as they make entities visible which would not become apparent were they to remain statistical items. This applies to images which visualize climate zones, temperatures, CO<sub>2</sub> concentrations, and also to climate history or future scenarios derived from climate models. Climate as an epistemic object is not something that is simply given: it has to be constructed and mediated. Hence pictur(e)ing climate and climate change has been a fundamental step in knowledge production, and an extraordinary cultural achievement. To the present day, the connection between analytical graphics has not only persisted, it has actually intensified. The method of visualization functions as an epistemic and heuristic instrument of knowledge production.

The following questions are at the heart of my research:

- How did methods of analytical graphics shape and transform knowledge, thinking, and research about the climate since 1800?
- How did expert graphics coin the imagination of climate and climate change?
- What role do analytical graphics play in the field today?
- What continuities and what discontinuities can be recognized?