

“Climate Modelling”

Climate models are an indispensable tool for modern climate research; based on detailed descriptions of all first order climate processes, these models simulate climate variables in a quasi-realistic manner on time scales of a few hours to centuries of years and spatial scales of a few hundred kilometres. These models generate a virtual reality or laboratory which allow the reconstructing of past (historic paleoclimatic) states and of plausible scenarios of future changes.

In this talk, the art of quasi realistic climate modelling is reviewed. Its limitation – such as the failure to immediately constitute knowledge (insight into climate dynamics) or to provide regional detail, impossibility for positive verification – is discussed. The different modes of applications are sketched: simulation runs in the paradigm of initial/boundary value problems, and data analysis in the spirit of a state space formulation.

The talk is concluded with a short discourse about the contemporary public role of climate models.

based on:

von Storch, H., S. Güss und M. Heimann, 1999: Das Klimasystem und seine Modellierung. Eine Einführung. Springer Verlag ISBN 3-540-65830-0, 255 pp

von Storch, H., and G. Flöser (Eds.), 2001 Models in Environmental Research. Proceedings of the Second GKSS School on Environmental Research, Springer Verlag ISBN 3-540-67862