

A Hitchhikers Guide to the Black Arts of Earth system modelling (‘or why you should not want to know what is in a sausage’) AWI 2013

This 2-day introductory course provides an introduction to and practical hands-on learning in Earth system modelling. It will provide a chance to explore the dynamics of the Earth’s climate system as well as of global carbon and biogeochemical cycles. The course will foster a critical appreciation of the nature and limitations of climate and Earth system models in trying to understand and predicting global change. But you will also see how numerical models can be utilized to address scientific questions, test hypotheses, and quantify the past and future relationship between global carbon cycling and climate and associated feedbacks. In particular, you will experiment with and explore: climate ice-albedo feedbacks and ‘tipping points’, ocean circulation and heat transport, fossil fuel CO₂ emissions and ocean acidification, and controls on ocean carbon cycling and hence atmospheric pCO₂. You will also learn new computer skills and gain experience with data analysis and visualization software and techniques. The cumulating objectives of the course are to develop a deeper understanding of the role and nature of feedbacks in the Earth system and provide context to the impacts of current human activities and also and importantly, foster a critical appreciation of the nature and limitations of climate and Earth system modelling in understanding and predicting global change.

