

A Hitchhikers Guide to the Black Arts of Earth system modelling (‘or why you should not want know what is in a sausage’) 15th + 16th April 2013; Exeter

Day 1 (Monday 15th April) – Earth system modelling for ‘newbies’*

START (09:10)

- **Presentation** – Brief introduction to Earth system modelling and the ‘cGENIE’ model
- **Session I+II (am) – Getting started & exploring the behaviour of the Earth system (Snowball Earth)**
Accessing the computing cluster; installing and compiling cGENIE; directory structure (‘where everything is’).
Model output; Panoply and MATLAB visualization.
Setting up experiments: configuration files and setting parameter values.
Concept of a ‘restart’; experiment started from ‘cold’ vs. from end of previous run.
Command-line operation; how to submit jobs to a cluster queue.
Exploring Earth system dynamics: ‘Snowball Earth’ and climate feedback.
- **Session III (pm) – ‘Poking the climate beast’**
Geochemical ‘forcings’ of cGENIE and tracing ocean circulation.
Exploring the stability of the Atlantic meridional overturning circulation (AMOC).

Day 2 (Tuesday 16th April) – Getting your hands dirty

START (09:10)

- **Session IV (am) – Poking the carbon cycle**
CO₂ emissions and quantifying future ocean acidification.
- **Session V (am/pm) – Engineering the carbon cycle**
Sensitivity of atmospheric $p\text{CO}_2$ and ocean acidification to changes in the ocean’s biological pump and ‘weathering’.
- **Session VI (pm) – Addressing the geological record**
Past climates and carbon cycling.

* [Google it]