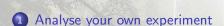
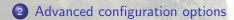
Overview

# Using the CSIRO Mk3L climate system model Part 4: Consolidation and next steps

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Next steps

Overview

# 1. Analyse your own experiment

### Analyse your own experiment

- Last week, you created your own experiment
- Did it work? If not, why not?
- Use Ferret to analyse and plot the data
- Generate some GIF images and copy the files back to your local machine
- If it worked, maybe you could run additional experiments?
- If it didn't work, fix it and try again

# 2. Advanced configuration options

# Summary: Basic configuration options

- What we've covered so far:
  - How to configure the model via the control file
  - How to change the atmospheric CO<sub>2</sub> concentration by generating a new auxiliary file
  - How to apply freshwater hosing
- This enables you to vary:
  - the epoch
  - the solar constant
  - the atmospheric CO<sub>2</sub> concentration
  - the freshwater flux into the ocean
  - which model statistics are saved

## Advanced configuration options

- There are three other ways of configuring aspects of the model:
  - Modify the other auxiliary files
  - Modify the restart file(s)
  - Modify the source code

### Auxiliary files: atmosphere model

- Bottom boundary conditions:
  - Sea surface temperatures (ssta.nc)
  - Ocean currents (ocuv.nc)
  - Topography (psrk.nc)
  - Albedo (albedo.nc)
  - Vegetation and soil types (sib\*.nc)
- Radiative boundary conditions:
  - CO<sub>2</sub> transmission coefficients (co2\_datafile)
  - Ozone mixing ratios (amip2o3.dat)

### Auxiliary files: ocean model

- Upper boundary conditions:
  - Sea surface temperatures (sst.nc)
  - Sea surface salinities (sss.nc)
  - Surface wind stresses (stress.nc)
- Bottom boundary conditions:
  - Bathymetry (orest.nc restart file)

# Auxiliary files: coupled model

- Bottom boundary conditions:
  - Topography (psrk.nc, landrun21)
  - Bathymetry (orest.nc)
  - Albedo (albedo.nc)
  - Vegetation and soil types (sib\*.nc)
- Radiative boundary conditions:
  - CO<sub>2</sub> transmission coefficients (co2\_datafile)
  - Ozone mixing ratios (amip2o3.dat)
- Freshwater hosing (hosemask)
- Flux adjustments (dtm.nc, \*cor.nc)

# Auxiliary files: coupled model

- Bottom boundary conditions:
  - Topography (psrk.nc, landrun21)
  - Bathymetry (orest.nc)
  - Albedo (albedo.nc)
  - Vegetation and soil types (sib\*.nc)
- Radiative boundary conditions:
  - CO<sub>2</sub> transmission coefficients (co2\_datafile)
  - Ozone mixing ratios (amip2o3.dat)
- Freshwater hosing (hosemask)
- Flux adjustments (dtm.nc, \*cor.nc)

### Examples of advanced configuration

- Applying anomalies within the atmosphere and ocean models:
  - modify the SSTs, SSSs, currents, wind stresses
- Applying anomalies within the coupled model:
  - · modify the flux adjustments
- Configuring the model for a different era:
  - modify the topography and bathymetry
  - modify the albedo, and the vegetation and soil types
  - modify the epoch, solar constant, CO<sub>2</sub> transmission coefficients, ozone mixing ratios
  - issues with restart files, spin-up procedures and flux adjustments

# 3. Next steps

#### Next steps

• Get a copy of Mk3L. Apply for an account on the subversion server:

http://www.tpac.org.au/resources/csiro-mk3l-source-code/

- Run Mk3L on katana, on your PC, on your laptop...
- Experiment with the model and get to know it
- Subscribe to the mailing list:

https://www.lists.unsw.edu.au/mailman/listinfo/mk3l-users

#### Next steps

Ask questions:

Mk3L users mailing list mk3l-users@lists.unsw.edu.au
Me s.phipps@unsw.edu.au

- Share your experiences with other users
- Share your enhancements to the model
- Remember what a privilege it is to be a climate system modeller
- Have fun!

### With great power, comes great responsibility

