The CSIRO Mk3L climate system model

- Fast, portable version of CSIRO’s climate model
- Designed to enable study of climate variability and change on millennial timescales
- Coupled atmosphere-ocean general circulation model:
  - Atmosphere: R21 (5.6° × 3.2°), 18 vertical levels
  - Ocean: 2.8° × 1.6°, 21 vertical levels
  - Sea ice: Dynamic-thermodynamic
  - Land surface: Static vegetation
  - Can run without flux adjustments
  - An “AR 3.5” model/“EMIC on steroids”
- 1000 years in two months on the current NCI National Facility
Future plans

• Towards an *earth* system model:
  – CABLE land surface model
  – CASA-CNP terrestrial biogeochemical model
  – Matear marine biogeochemical model
  – LPJ dynamic vegetation model
  – Rotstayn aerosol model
  – ... ?

• Towards a *community* model:
  – Source code is freely available (subject to copyright restrictions)
  – Community maintains and develops the model itself
  – Infrastructure: subversion, wiki, email list, user workshops?
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ARCNESS palaeoclimate workshop, Sydney, Australia, 12-13 November 2008
Question

What are the mechanisms that drive changes in ENSO behaviour?