JULES versions

Overview of JULES versions since the last meeting
• Changes to semantics of output
  • Changed from capture points to all variables captured at end of timestep
  • Timestamps in files are consistent with this approach
• Improved I/O of variables with multiple ‘levels’ dimensions
  • Previously, variables were restricted to one ‘levels’ dimension - it is now possible to input and output variables with multiple ‘levels’ dimensions
• Streamlined process for adding new variables for I/O
• Other small changes + bug fixes
JULES Version 4.0

Release Notes

See https://jules.jchmr.org/software-and-documentation/jules-v4.0

- JULES-Crop crop model
  - JULES-Crop crop model from University of Reading now in JULES
- Daily disaggregator for forcing data
  - Drive JULES with daily forcing data
  - Disaggregator will disaggregate the daily forcing down onto the model timestep
- Major namelist changes
  - No more monolithic JULES_SWITCHES namelist – replaced with science section namelists
  - Enables GUI for editing the JULES namelists using Rose
  - Namelists consistent between UM and JULES runs
- Other small changes + bug fixes
About Rose

• Developed by the Met Office to replace the UMUI
  • Open source - https://github.com/metomi/rose/
• GUI for configuration of JULES (rose edit)
  • Doesn’t try to obscure namelist structure (hence the need for a namelist revamp), but eliminates some common mistakes
• Optional runtime engine
  • Uses an engine called Cylc to execute a dependency graph of jobs
  • Using this allows you to configure everything from building to running through a GUI
  • However, it is not 100% trivial to set up
  • Possible to generate namelists from GUI and run as normal
• Automated regression testing suite (rose stem)
  • Makes the running of a suite of test jobs with bit-comparison tests incredibly easy
  • Such a suite is now distributed with JULES, and should be fairly easy to configure for sites other than the Met Office once Rose is up and running (online tutorials to follow)
Rose Stem example screenshot
Rose Config Edit example
Science configuration
### Soil properties

Configuration of spatially varying soil properties

- **Use constant-profile soil properties**: false
- **File**

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<th>const_val</th>
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On the horizon

- Integration of JULES and CABLE (Australian LSM) into a combined framework
  - Both offline and online
  - Includes some effort towards modularising both code
- JULES to get its own dump file when running online
  - Combined with the work done on the namelists, this should make replicating online runs offline much easier
- River routing (officially…!)
  - As part of the Hydrological Framework, JULES will support RFM and TRIP officially in the near future
- More community science developments!
Questions and answers