JULES releases

Overview of JULES developments since the last meeting

JULES Version 4.1 Release Notes

See https://jules.jchmr.org/software-and-documentation/jules-v4.1

- Irrigation demand
  - Adds soil moisture up to the critical point (currently unlimited)
  - Two methods for determining when to irrigate (climate and dvi)
- Carbon cycle developments
  - Height-based competition
  - Trait-based plant physiology
  - Land use change
- Output types for maximum and minimum over a period
- Changes to coupling routines
  - Simplify coupling to facilitate future developments
- Other small changes + bug fixes

JULES Version 4.2 Release Notes

See https://jules.jchmr.org/software-and-documentation/jules-v4.2

- TRIP and RFM river routing
- Fire risk indices
- New soil thermal conductivity model
  - More appropriate for organic soils
- Addition of “bedrock” column beneath the soil column
  - Represents thermal processes only
- New canopy radiation scheme
  - Like 5, but nitrogen follows exponential decay through the canopy
- Crop model made carbon conserving
- Additional changes to coupling code
- Other small changes + bug fixes

JULES Version 4.3 Release Notes

See https://jules.jchmr.org/software-and-documentation/jules-v4.3

- Enhancements to the snow scheme
- Update to wetland scheme
- Crop scheme generalised to work with trait-based physiology
- New JULES-C configuration (prototype configuration for UKESM1)
- Restructured compilation procedure
  - Primarily to facilitate porting to the new Met Office Cray supercomputer
- Ancillary data is now saved to, and can be read from the dump
  - With the exception of river routing, a dump file can now be used to initialise all the spatially varying data for a run
- Large increase in testing
  - JULES now routinely tested on 3 platforms – Intel and gfortran compilers on Linux and CCE on the Cray
- Other small changes + bug fixes

Met Office Shared Repository Service

- JULES development is now hosted on the Met Office Shared Repository Service
  - https://code.metoffice.gov.uk/trac/jules/wiki
- Shared SVN repository, accessed using FCM
- Shared Trac system for tickets
  - Every change to JULES is documented via a ticket
- Development wiki
  - Release schedule
  - Release milestones for tracking progress
- Working practices
  - Documented branching and testing procedure
  - Two stage review process, with scientific reviews coordinated by module leaders
  - Progress documented on ticket at all times
- How-Tos for developers
  - Testing changes
  - Building and editing the JULES User Guide
  - Guidance on adding new science routines

JULES Support

- New location for web documentation
  - **http://jules-lsm.github.io/**
- After (nearly) 7 years, I am leaving the Met Office
- Met Office UM systems team will be the new “guardians” of the official JULES trunk
  - Responsible for JULES code reviews
- New email address for JULES support
  - **jules-support@metoffice.gov.uk**
  - Read documentation first!!
- For developer access to JULES on the Met Office SRS, contact Martin Best
  - Must have an institution email address (i.e. no gmail, etc.)

Questions and answers