JULES Hydrology module update

Sonja Folwell (UKCEH), Nic Gedney (Met Office)
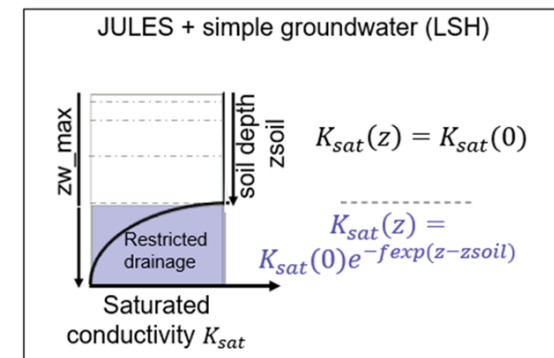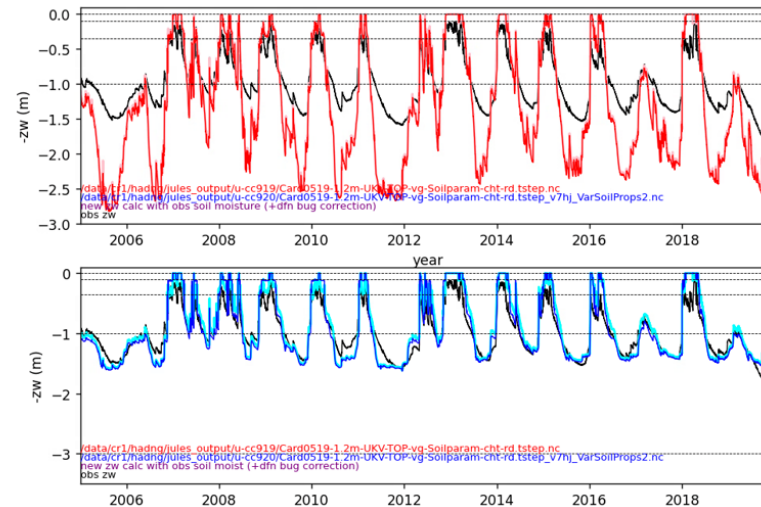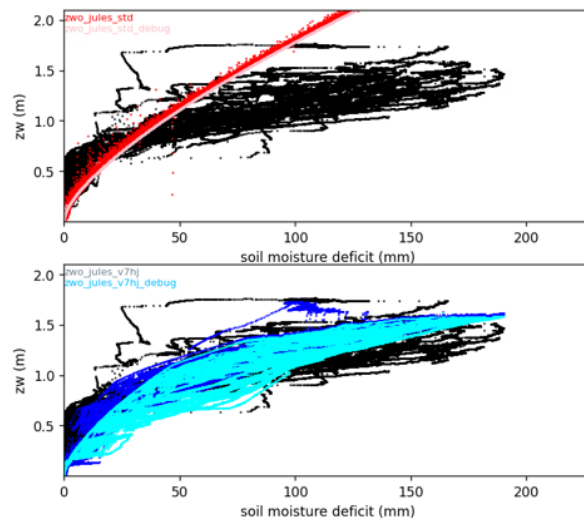
Groundwater components

Dynamic Groundwater (DGW) Model (Sarah Collins*, Alberto Martinez-de la Torre, Doug Clark, Andy Hughes*, Sonja Folwell) *BGS

- Africa parameterisation (Sarah, Sonja)

- UK 1km Chess (Liz Cooper)

Moving from version 5.2 to 7.x? (Doug)

Water table depth calculation (Nic Gedney, Carolina Duran Rojas)

Cardington Site run

JULES Hydrology module update

River routing and inundation

- Linking JULES – Cama-Flood to the ocean models (CHAMFER Toby Marthews, Doug Clark)

- JULES Cama-Flood code making its way into the trunk…

- Initialisation and I/O https://code.metoffice.gov.uk/trac/jules/ticket/1000#

- Main CaMa-Flood science code to be added soon

- RFM river routing in JULES 7.0 branch coupled to UM13.0 in a re-run of UKCP-local timeslices (Segolene Berthou)

River flow in the near future: a global perspective in the context of a high-emission climate change scenario (2024)
Omar V. Müller, Patrick C. McGuire, Pier Luigi Vidale, and Ed Hawkins

- HADGEM-GC31 and uses TRIPpy
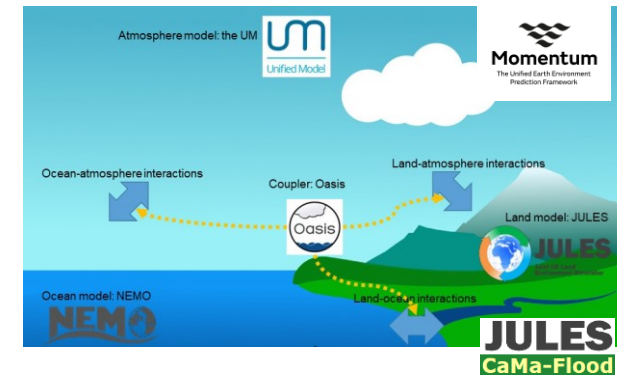
River flow in the near future: a global perspective in the context of a high-emission climate change scenario

Omar V. Müller[1,2], Patrick C. McGuire[3], Pier Luigi Vidale[3], and Ed Hawkins[3]

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[2]Centro de Estudios de Variabilidad y Cambio Climático (CEVARCAM), Facultad de Ingeniería y Ciencias Hídricas (FICH), Universidad Nacional del Litoral (UNL), Santa Fe, Argentina
[3]Department of Meteorology, National Centre for Atmospheric Science, University of Reading, Reading, United Kingdom

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Abstract. There is high confidence that global warming intensifies all components of the global water cycle. This work investigates the possible effects of global warming on

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Irrigation added flexibility to take account of irrigated and non-irrigated crops (Heather Rumbold, Nic Gedney)

- assume irrigated pfts are unstressed

- allow for separate bare soil evaporation and resistance terms - more physically realistic than the standard model

Vegetation mediated CH4 (Nic Gedney, Carolina Duran Rojas)

- Taking account of the interaction of water table variability with root depth density

Thanks!

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