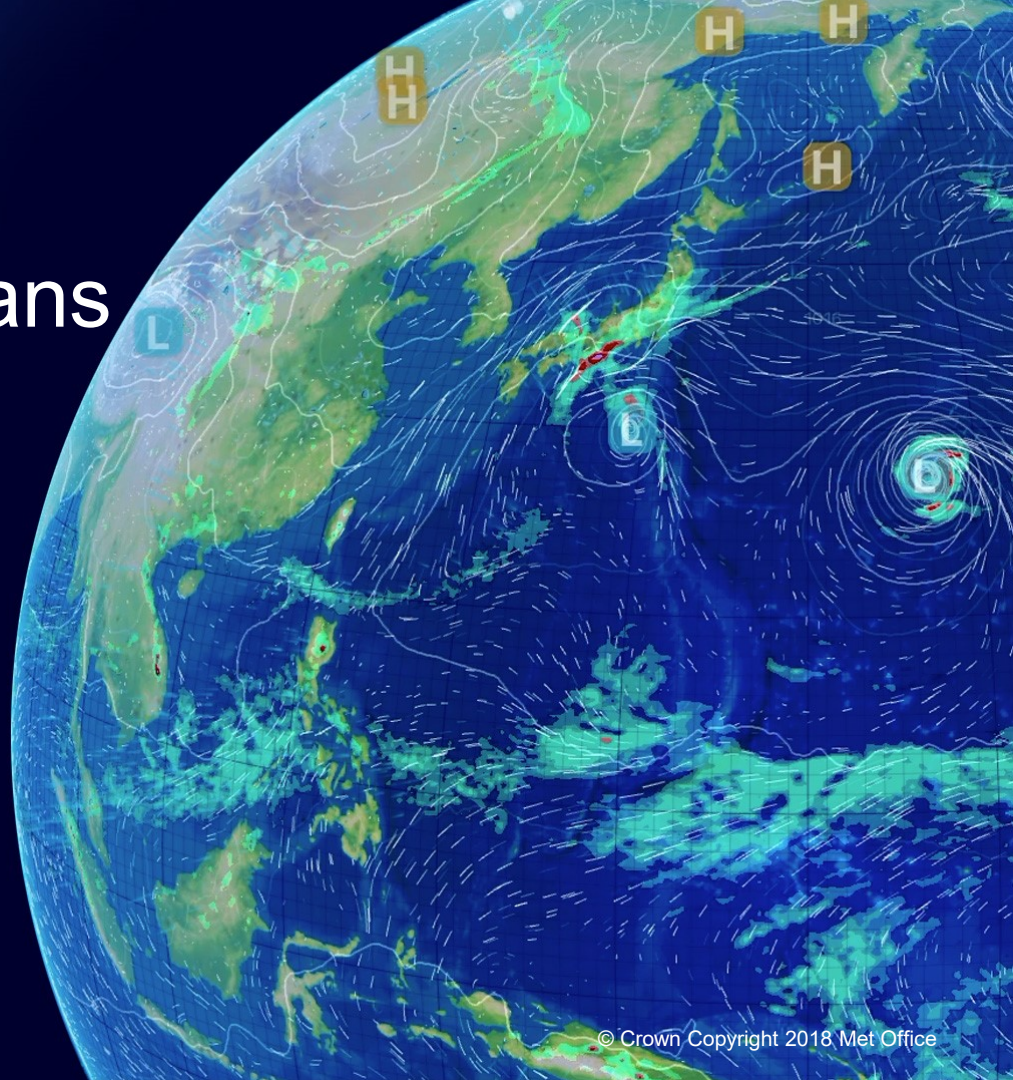
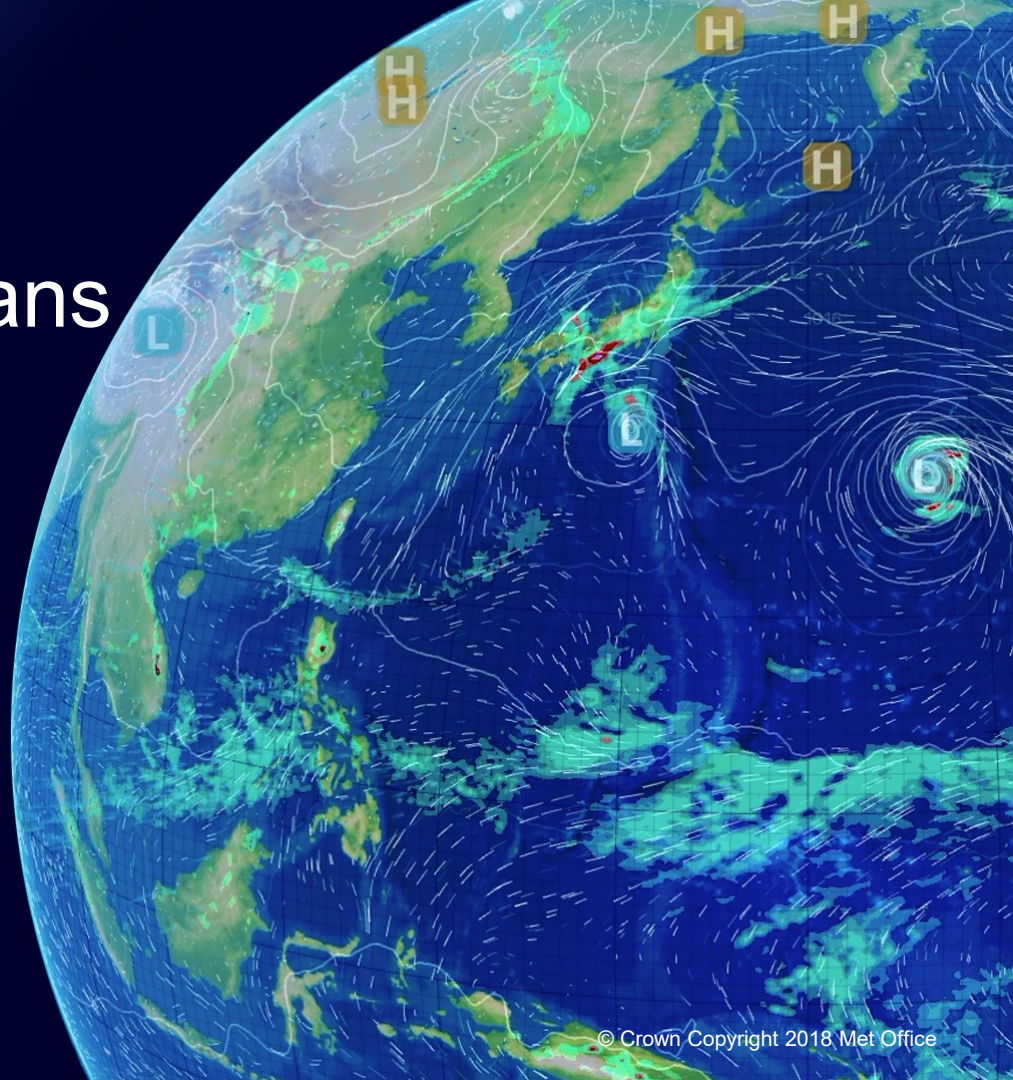


# An update on urban plans and making JULES friendly

Annual JULES meeting, 22<sup>nd</sup> July 2019  
Maggie Hendry




# An update on urban plans

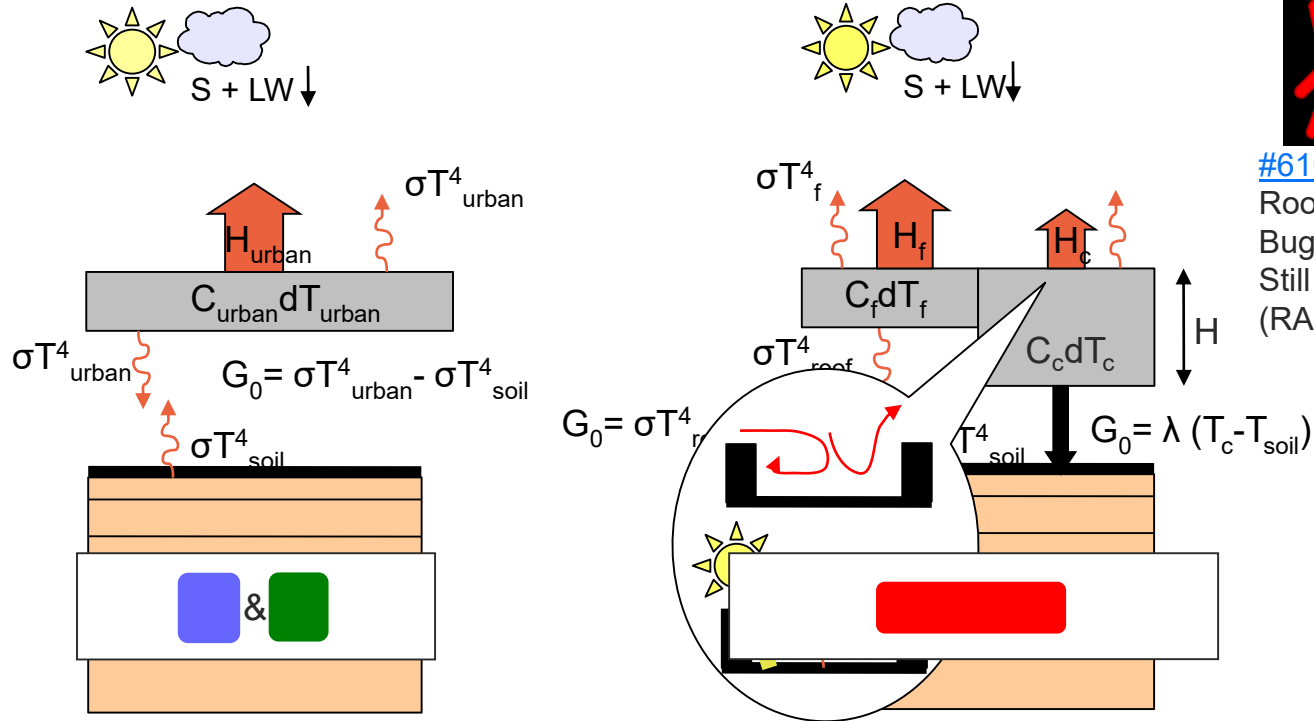


# Urban schemes

Complexity

- 
- [redacted]: URBAN tile = basic one-tile scheme
  - [green]: CANYON & ROOF tiles = basic two-tile; different parameters
    - Albedo
    - Heat capacity (roof lower)
    - Roughness length
    - NO EXTRA PHYSICS
  - [red]: CANYON & ROOF tiles
    - EXTRA PHYSICS
    - 4 physical processes parametrised

# Met Office Reading Urban Surface Exchange Scheme



#610 (fixed vn5.4)  
 Roof always uncoupled  
 Bug fix on switch  
 Still operational in UKV  
 (RA2/PS43)

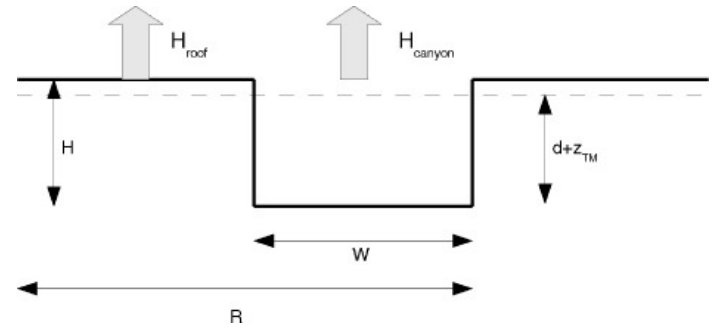
# MORUSES pros & cons

- Pros

- More physically based representation of the urban surface energy balance
  - Depends on urban morphology ( $H$ ,  $H/W$  &  $W/R$ )
- Spatially variable unlike the urban-1t and urban-2t schemes
- PILPS-urban analysis of results showed that MORUSES has smaller bias errors

- Cons

- MORUSES strength is also it's weakness...
- Requires ancillary data; at the very least morphology data ( $H$ ,  $H/W$  &  $W/R$ )
- Non trivial to add to an existing urban-1t configuration



# Non trivial: urban-1t ↔ MORUSES

Metadata helps with required parameters and surface types, but not with parameter values or where to put them i.e. `jules_nvgeparm` and `jules_surface_types`.

Main switch  
`jules_surface=l_urban2t` ↔

Other namelist changes:

1. `jules_urban2t_param`
2. `jules_urban_switches` all false by default so need switching on

```
urban-1t

[&namelist:items(4c515841)]
ancilfilename=$INPUT_DATA/SEUKV/ancil_PS27/qrpm.veg.frac'

[!&namelist:items(618a18fe)]

[&namelist:jules_elevate]
l_elev_absolute_height=*.false.
surf_hgt_io=9+0.00

[&namelist:jules_nvgeparm]
albmc_nvgeo=4.00000e-1,6.00000e-2,8.00000e-1,8.00000e-1
albnf_nvgeo=1.80000e-1,6.00000e-2,-1.00000,7.50000e-1
albnf_nvgl_io=0.16,0.06,0.03,0.75
albnf_nvga_io=0.20,0.15,0.80,0.75
catch_nvgeo=0.00000e-1,1.00000e+3,0.00000,0.00000
ch_nvgeo=2.80000e+4,1.80000e+6,0.00000,0.00000
emis_nvgeo=9.70000e-1,9.85000e-1,9.00000e-1,9.90000e-1
gs_nvgeo=0.00000,0.00000,1.00000e-2,1.00000e+6
infil_nvgeo=1.00000e-1,0.00000,5.00000e-1,0.00000
vf_nvgeo=1.00000,1.00000,0.00000,0.00000
z0_nvgeo=1.00000,1.00000e-4,1.00000e-3,5.00000e-4
z0hm_classic_nvgeo=1.00000e-7,2.50000e-1,2.00000e-2,2.00000e-1
z0hm_nvgeo=1.00000e-7,2.50000e-1,2.00000e-2,2.00000e-1

[&namelist:jules_surface]
l_urban2t=*.false.

[&namelist:jules_surface_types]
ice=0
lake=7
nnvg=4
soil=8
urban=6
!!urban_canyon=9
!!urban_roof=10

[!&namelist:jules_urban2t_param]
!!anthrop_heat_scale=1.00

[!&namelist:jules_urban_switches]
l_moruses_albedo=.false.
l_moruses_emiactivity=.false.
l_moruses_macdonald=.false.
l_moruses_rough=.false.
l_moruses_storage=.false.
!!l_moruses_storage_thin=.false.
```

```
MORUSES

[&namelist:items(4c515841)]
ancilfilename=$INPUT_DATA/SEUKV/qrpm.veg.frac'

[&namelist:items(618a18fe)]
ancilfilename=$INPUT_DATA/SEUKV/qrpm.urb.morph'
domain=1
!!interval=0
l_ignore_ancil_grid_check=.false.
!!metcdf_varname='unset','unset','unset'
!!period=1
source=2
stash_req=194,495,496
update_anc=.false.
!!user_prog_ancil_stash_req=0
!!user_prog_rconst=0

[&namelist:jules_elevate]
l_elev_absolute_height=10*.false.
surf_hgt_io=10+0.00

[&namelist:jules_nvgeparm]
albmc_nvgeo=6.00000e-2,8.00000e-1,8.00000e-1,4.00000e-1,4.00000e-1
albnf_nvgeo=6.00000e-2,-1.00000,7.50000e-1,1.80000e-1
albnf_nvgl_io=0.06,0.03,0.75,0.16,0.16
albnf_nvga_io=0.15,0.80,0.75,0.20,0.20
catch_nvgeo=1.00000e+3,0.00000,0.00000,5.00000e-1,5.00000e-1
ch_nvgeo=4.80000e+6,0.00000,0.00000,2.80000e+5,5.30000e+4
emis_nvgeo=9.85000e-1,9.00000e-1,9.90000e-1,9.70000e-1
gs_nvgeo=0.00000,1.00000e-2,1.00000e+6,0.00000
infil_nvgeo=0.00000,5.00000e-1,0.00000,1.00000e-1,1.00000e-1
vf_nvgeo=1.00000,0.00000,0.00000,0.00000,1.00000
z0_nvgeo=1.00000e-4,1.00000e-3,5.00000e-4,1.00000,1.00000
z0hm_classic_nvgeo=2.50000e-1,2.00000e-2,2.00000e-1,1.00000e-7,1.00000e-7
z0hm_nvgeo=2.50000e-1,2.00000e-2,2.00000e-1,1.00000e-7,1.00000e-7

[&namelist:jules_surface]
l_urban2t=.true.

[&namelist:jules_surface_types]
ice=6
lake=6
nnvg=5
soil=7
!!urban=0
urban_canyon=9
urban_roof=10

[&namelist:jules_urban2t_param]
anthrop_heat_scale=1.00

[&namelist:jules_urban_switches]
l_moruses_albedo=.true.
l_moruses_emiactivity=.true.
l_moruses_macdonald=.true.
l_moruses_rough=.true.
l_moruses_storage=.true.
l_moruses_storage_thin=.true.
```

Generate and add/change two ancillaries

1. Urban morphology
2. Consistent fraction of surface types

Change namelists to be consistent with `jules_surface_types`, currently:

1. `jules_elevate`
2. `jules_nvgeparm`

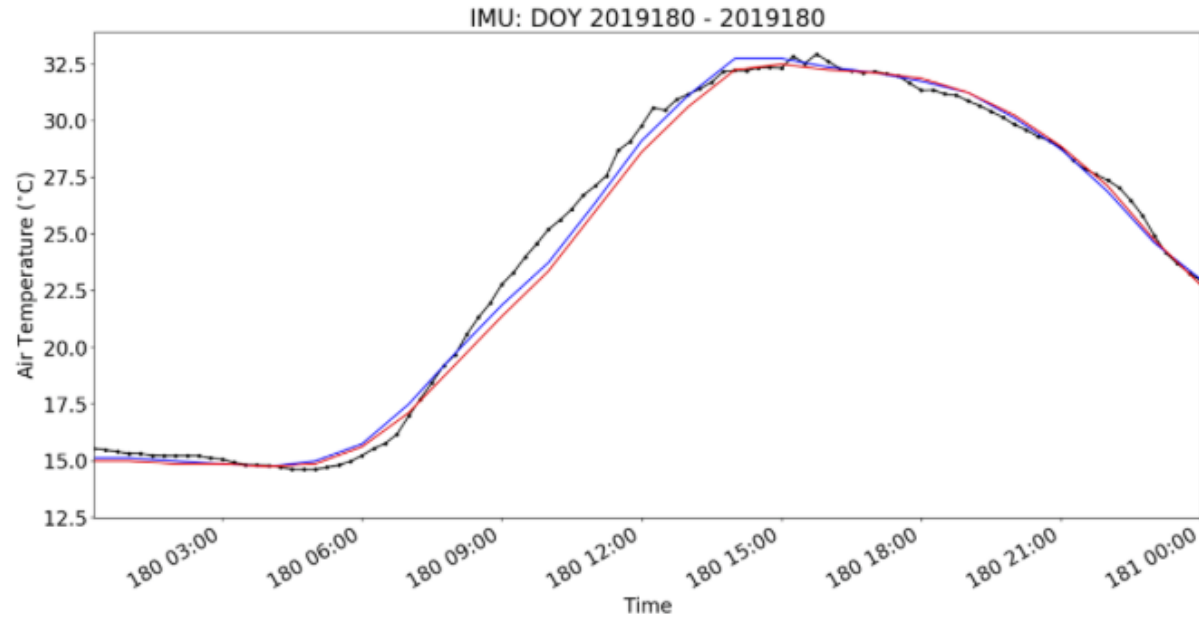
Change `jules_surface_types`:

1. `urban`
2. `urban_canyon, urban_roof`

# The Met Office configurations

- The only Met Office configuration to use MORUSES is UK Limited Area Models (LAMs).
  - Based on RAL (Regional Atmosphere-Land), which is thus RAL+MORUSES.
  - Operational since 15<sup>th</sup> March 2016 (OS37).
  - RAL needs to be globally applicable and therefore so does the means to produce global ancillary data.
- All other Met Office configurations use urban-1t, even though:
  - MORUSES is a better, more versatile model.
  - PILPS-urban and other work continually show two tiles are better than one.
- Interest from around the world to use MORUSES in regional configurations.

# UKV (1.5 km) & London Model (333m)



— Obs @ 91 m  
N = 192  
— ukv @ 74 m  
N = 52  
— lon @ 69 m  
N = 34



Islington  
Saturday 29<sup>th</sup> June  
Beth Saunders  
University of Reading  
[http://micromet.reading.ac.uk/modeval\\_tair/](http://micromet.reading.ac.uk/modeval_tair/)



So...

... we really need a globally applicable



MORUSES

# Baseline – Thoroughly evaluate what we have

- **Develop an automated verification system using OpenRoad data (UK)**
  - The standard verification system uses SYNOP sites and by definition these are rural.
  - Performance of the UK LAMs needs to be evaluated the over the whole urban spectrum.
  - OpenRoad data:
    - Is not good quality data, but is of high volume, in urban areas, has a long timeseries and is ongoing.
    - The data are also used in DA and an evaluation against OpenRoad would be useful to our road forecast capability.
    - This would create a more complete framework for testing future model developments, increasing our confidence in the model.
- **Evaluate MORUSES worldwide using urban flux sites**

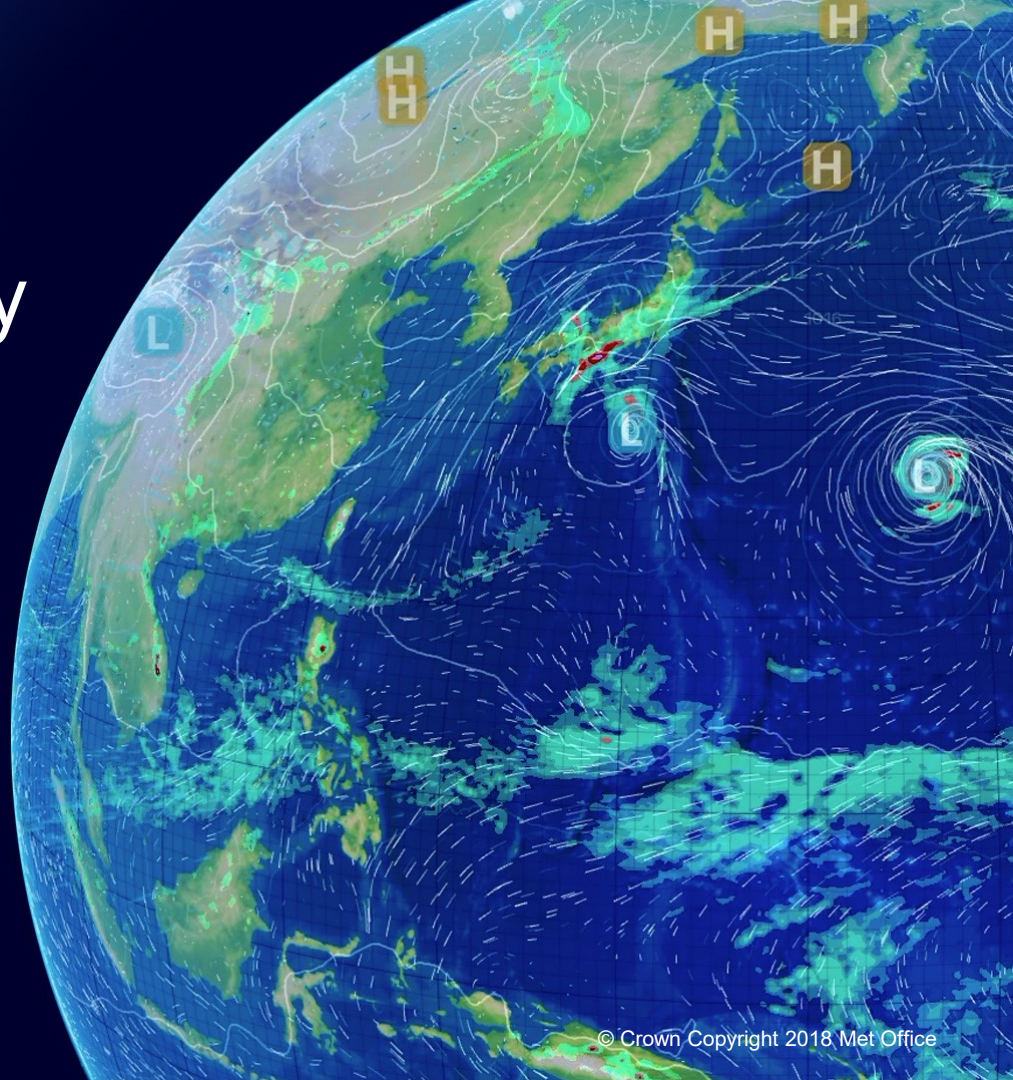
# Develop globally applicable MORUSES

- MORUSES essentially sits on top of urban-2t, providing parameter values.
  - Two main differences, MORUSES has:
    - Solar zenith angle dependence of albedo.
    - Coupling through road surface only.
- Therefore globally applicable may mean either:
  - MORUSES configuration with a default morphology, or:
  - A tweaked urban-2t configuration.
- Either would allow users to:
  - Take advantage of a better “out-of-the-drawer” urban configuration.
  - OR more easily tailor the scheme to their own requirements with the inclusion of morphology ancillaries and other data where it exists.

# Met Office urban resources

- [Report on implementation and evaluation of MORUSES in the UKV \(PS37\)](#)
- [UMDPC03 "Coupling the JULES Land Surface Model to the Unified Model"](#)
  - Section 6 "The two-tile urban schemes"
- That's the urban side of things... now for...

# Making JULES friendly

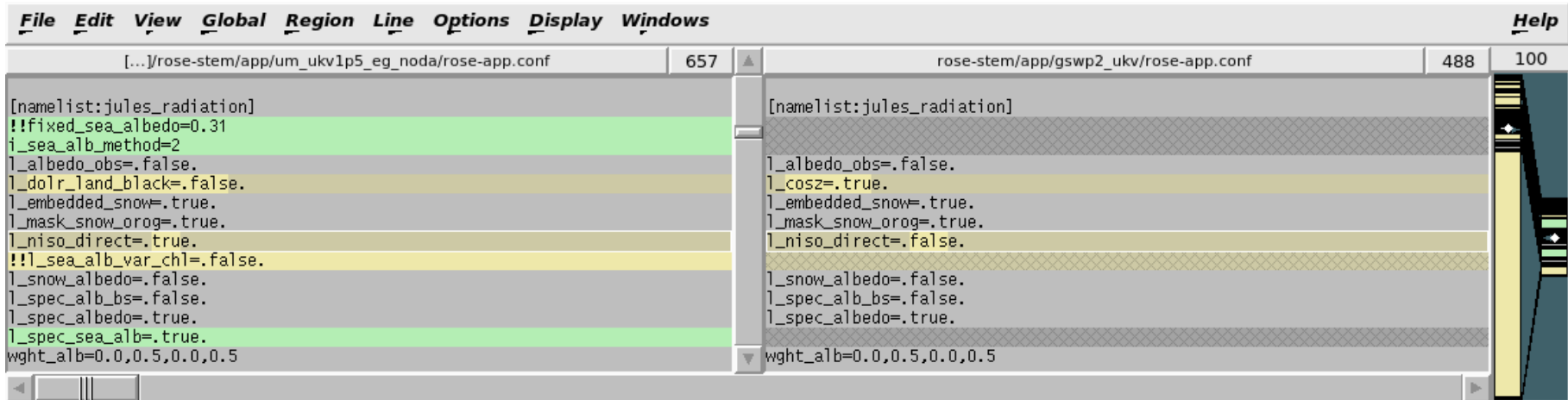


# UM-JULES metadata consolidation project

- Last year presented [“Meta data consolidation in rose suites for JULES”](#)
  - Creating a consistent set of UM-JULES metadata so we can move to a shared metadata
  - Reduce overheads in maintenance and stop divergence
  - Automated, fully traceable method to create UM configuration from JULES and vice versa
  - **Let the metadata do the work**
- Since the last meeting
  - [#633](#) on trunk
  - Introduced the framework to allow this to happen demonstrated with `jules_surface`
  - [https://jules-lsm.github.io/latest/namelists/model\\_environment.nml.html](https://jules-lsm.github.io/latest/namelists/model_environment.nml.html) (`!_jules_parent`)
  - [Working Practices for JULES development - Developing your change \(diff\)](#)
    - New section added [“Adding new science options”](#)

# #822 tackling jules\_radiation... possibly others

Run rose app-upgrade



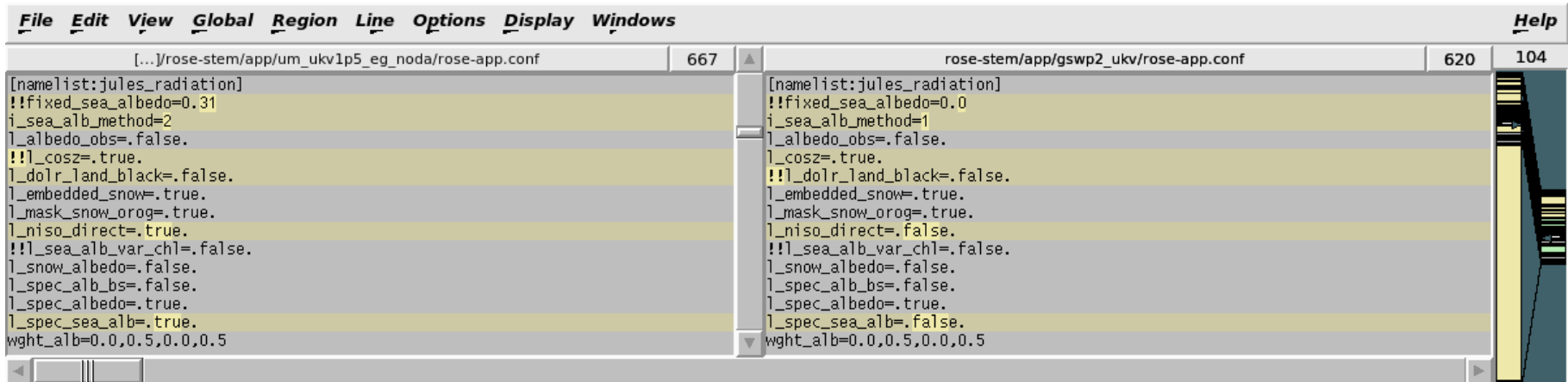
The screenshot shows a code editor with two panes. The left pane shows the configuration for 'um\_ukv1p5\_eg\_noda/rose-app.conf' (line 657), and the right pane shows the configuration for 'gswp2\_ukv/rose-app.conf' (line 488). Both panes show the '[namelist:jules\_radiation]' section. The left pane has several lines highlighted in green, indicating differences or specific settings. The right pane has a greyed-out background, suggesting it is the current active file.

```
File Edit View Global Region Line Options Display Windows Help
[...]/rose-stem/app/um_ukv1p5_eg_noda/rose-app.conf 657
[namelist:jules_radiation]
!!fixed_sea_albedo=0.31
i_sea_alb_method=2
l_albedo_obs=.false.
l_dolr_land_black=.false.
l_embedded_snow=.true.
l_mask_snow_orog=.true.
l_niso_direct=.true.
!!l_sea_alb_var_ch1=.false.
l_snow_albedo=.false.
l_spec_alb_bs=.false.
l_spec_albedo=.true.
l_spec_sea_alb=.true.
wght_alb=0.0,0.5,0.0,0.5

rose-stem/app/gswp2_ukv/rose-app.conf 488 100
[namelist:jules_radiation]
l_albedo_obs=.false.
l_cosz=.true.
l_embedded_snow=.true.
l_mask_snow_orog=.true.
l_niso_direct=.false.
l_snow_albedo=.false.
l_spec_alb_bs=.false.
l_spec_albedo=.true.
wght_alb=0.0,0.5,0.0,0.5
```

# Create JULES suite from UM – jules\_radiation

- Copy UM namelist to JULES then run “rose macro --fix”



```
File Edit View Global Region Line Options Display Windows Help
[...]/rose-stem/app/um_ukv1p5_eg_noda/rose-app.conf 667
[rose-stem/app/gswp2_ukv/rose-app.conf 620 104

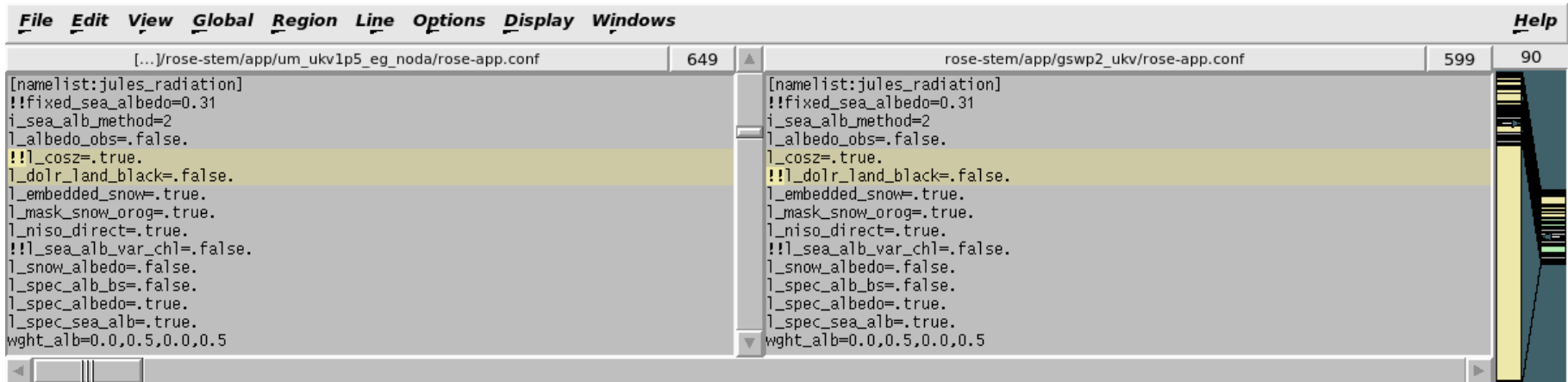
[namelist:jules_radiation]
!!fixed_sea_albedo=0.31
i_sea_alb_method=2
l_albedo_obs=.false.
!!l_cosz=.true.
l_dolr_land_black=.false.
l_embedded_snow=.true.
l_mask_snow_orog=.true.
l_niso_direct=.true.
!!l_sea_alb_var_ch1=.false.
l_snow_albedo=.false.
l_spec_alb_bs=.false.
l_spec_albedo=.true.
l_spec_sea_alb=.true.
wght_alb=0.0,0.5,0.0,0.5

[namelist:jules_radiation]
!!fixed_sea_albedo=0.0
i_sea_alb_method=1
l_albedo_obs=.false.
l_cosz=.true.
!!l_dolr_land_black=.false.
l_embedded_snow=.true.
l_mask_snow_orog=.true.
l_niso_direct=.false.
!!l_sea_alb_var_ch1=.false.
l_snow_albedo=.false.
l_spec_alb_bs=.false.
l_spec_albedo=.true.
l_spec_sea_alb=.false.
wght_alb=0.0,0.5,0.0,0.5
```



# Create JULES suite from UM – jules\_radiation

- Much of jules\_pftparm also affected by jules\_radiation options



```
[...]rose-stem/app/um_ukv1p5_eg_noda/rose-app.conf 649
[!]_cosz=.true.
l_dolr_land_black=.false.
l_embedded_snow=.true.
l_mask_snow_orog=.true.
l_niso_direct=.true.
!!_sea_alb_var_ch1=.false.
l_snow_albedo=.false.
l_spec_alb_bs=.false.
l_spec_albedo=.true.
l_spec_sea_alb=.true.
wght_alb=0.0,0.5,0.0,0.5

rose-stem/app/gswp2_ukv/rose-app.conf 599 90
[!]_cosz=.true.
!!_dolr_land_black=.false.
l_embedded_snow=.true.
l_mask_snow_orog=.true.
l_niso_direct=.true.
!!_sea_alb_var_ch1=.false.
l_snow_albedo=.false.
l_spec_alb_bs=.false.
l_spec_albedo=.true.
l_spec_sea_alb=.true.
wght_alb=0.0,0.5,0.0,0.5
```

File Edit View Global Region Line Options Display Windows		Help	
[...]rose-stem/app/um_ukv1p5_eg_noda/rose-app.conf	659	rose-stem/app/gswp2_ukv/rose-app.conf	591 99
[name]list:jules_pftparm		[name]list:jules_pftparm	
a_wl_io=0.65,0.65,0.65,0.005,0.005,0.10		a_wl_io=0.65,0.65,0.65,0.005,0.005,0.10	
a_ws_io=10.00,10.00,1.00,1.00,1.00,10.00		a_ws_io=10.00,10.00,1.00,1.00,1.00,10.00	
!!aef_io=0.43,0.87,0.29,0.43,0.20		!!aef_io=0.43,0.87,0.29,0.43,0.20	
albsnc_max_io=1.50000e-1,1.50000e-1,6.00000e-1,6.00000e-1,4.00000e-1		albsnc_max_io=1.50000e-1,1.50000e-1,6.00000e-1,6.00000e-1,4.00000e-1	
albsnc_min_io=3.00000e-1,3.00000e-1,8.00000e-1,8.00000e-1,8.00000e-1		albsnc_min_io=3.00000e-1,3.00000e-1,8.00000e-1,8.00000e-1,8.00000e-1	
!!albsnf_max_io=1.00000e-1,1.00000e-1,2.00000e-1,2.00000e-1,2.00000e-1		!!albsnf_max_io=1.00000e-1,1.00000e-1,2.00000e-1,2.00000e-1,2.00000e-1	
albsnf_max1_io=0.095,0.059,0.128,0.106,0.077		!!albsnf_max1_io=0.095,0.059,0.128,0.106,0.077	
albsnf_maxu_io=0.215,0.132,0.288,0.239,0.173		!!albsnf_maxu_io=0.215,0.132,0.288,0.239,0.173	
alnir_io=0.335,0.272,0.365,0.337,0.395		alnir_io=0.335,0.272,0.365,0.337,0.395	
alnir1_io=0.30,0.23,0.30,0.30,0.30		!!alnir1_io=0.30,0.23,0.30,0.30,0.30	
alniru_io=0.75,0.65,0.95,0.95,0.87		!!alniru_io=0.75,0.65,0.95,0.95,0.87	
alpar_io=0.073,0.041,0.090,0.106,0.074		alpar_io=0.073,0.041,0.090,0.106,0.074	
!!alpar1_io=0.06,0.04,0.06,0.06,0.06		!!alpar1_io=0.06,0.04,0.06,0.06,0.06	
alparu_io=0.15,0.11,0.25,0.25,0.25		!!alparu_io=0.15,0.11,0.25,0.25,0.25	
alpha_io=0.08,0.08,0.08,0.040,0.08		alpha_io=0.08,0.08,0.08,0.040,0.08	
!!avg_ba_io=0.6E6 0.6E6 1.4E6 1.4E6 1.2E6		!!avg_ba_io=0.6E6 0.6E6 1.4E6 1.4E6 1.2E6	
b_wl_io=5*1.667		b_wl_io=5*1.667	
c3_io=1,1,1,0,1		c3_io=1,1,1,0,1	
can_struct_a_io=5*1.0		can_struct_a_io=5*1.0	
catch0_io=5*5.00000e-1		catch0_io=5*5.00000e-1	
!!ccleaf_max_io=1.0 1.0 1.0 1.0 1.0		!!ccleaf_max_io=1.0 1.0 1.0 1.0 1.0	
!!ccleaf_min_io=0.8 0.8 0.8 0.8 0.8		!!ccleaf_min_io=0.8 0.8 0.8 0.8 0.8	
!!ccwood_max_io=0.4 0.4 0.4 0.4 0.4		!!ccwood_max_io=0.4 0.4 0.4 0.4 0.4	
!!ccwood_min_io=0.0 0.0 0.0 0.0 0.0		!!ccwood_min_io=0.0 0.0 0.0 0.0 0.0	
!!ci_st_io=33.46 33.46 34.26 29.98 34.26		!!ci_st_io=33.46 33.46 34.26 29.98 34.26	
dcatch_dlai_io=5*5.00000e-2		dcatch_dlai_io=5*5.00000e-2	
dgl_dm_io=5*0.0		!!dfp_dcuo_io=0	
dgl_dt_io=9.0,9.0,0.0,0.0,0.9,0		dgl_dm_io=5*0.0	
dqcrit_io=0.090,0.060,0.100,0.075,0.100		dgl_dt_io=9.0,9.0,0.0,0.0,0.9,0	
dz0v_dh_io=5.00000e-2,5.00000e-2,1.00000e-1,1.00000e-1,1.00000e-1		dqcrit_io=0.090,0.060,0.100,0.075,0.100	
emis_pft_io=0.9800,0.9900,0.9800,0.9800,0.9800		dz0v_dh_io=5.00000e-2,5.00000e-2,1.00000e-1,1.00000e-1,1.00000e-1	
eta_sl_io=5*0.01		emis_pft_io=0.9800,0.9900,0.9800,0.9800,0.9800	
f0_io=0.875,0.875,0.900,0.800,0.900		eta_sl_io=5*0.01	
fd_io=0.015,0.015,0.015,0.025,0.015		f0_io=0.875,0.875,0.900,0.800,0.900	
!!FeF_bc_io=0.56 0.56 0.56 0.56 0.47 0.56		fd_io=0.015,0.015,0.015,0.025,0.015	
!!FeF_ch4_io=6.8 4.8 4.8 2.4 4.8		!!FeF_bc_io=0.56 0.56 0.56 0.56 0.47 0.56	
!!FeF_co2_io=1631 1576 1576 1654 1576		!!FeF_ch4_io=6.8 4.8 4.8 2.4 4.8	
!!FeF_co_io=100 106 106 64 106		!!FeF_co2_io=1631 1576 1576 1654 1576	
!!FeF_nox_io=2.55 3.24 3.24 2.49 3.24		!!FeF_co_io=100 106 106 64 106	
!!FeF_oc_io=4.3 9.1 9.1 3.2 9.1		!!FeF_nox_io=2.55 3.24 3.24 2.49 3.24	
!!FeF_so2_io=0.40 0.40 0.40 0.48 0.40		!!FeF_oc_io=4.3 9.1 9.1 3.2 9.1	
		!!FeF_so2_io=0.40 0.40 0.40 0.48 0.40	
fsmc_of_io=5*0.00		!!fire_mort_io=0	
fsmc_p0_io=5*0.0		!!fl_o3_ct_io=0	
		fsmc_m01_io=0	
		fsmc_of_io=5*0.00	
		fsmc_p0_io=5*0.0	

File	Edit	View	Global	Region	Line	Options	Display	Windows	Help
[...]rose-stem/app/um_ukv1p5_eg_noda/rose-app.conf					667			rose-stem/app/gswp2_ukv/rose-app.conf	617 93
<pre> [<u>name</u>list:jules_pftparm] a_wl_io=0.65,0.65,0.65,0.005,0.10 a_ws_io=10.00,10.00,1.00,1.00,10.00 !!aef_io=0.43,0.87,0.29,0.43,0.20 albsnc_max_io=1.50000e-1,1.50000e-1,6.00000e-1,6.00000e-1,4.00000e-1 albsnc_min_io=3.00000e-1,3.00000e-1,8.00000e-1,8.00000e-1,8.00000e-1 !!albsnf_max_io=1.00000e-1,1.00000e-1,2.00000e-1,2.00000e-1,2.00000e-1 !!albsnf_max1_io=0.095,0.059,0.128,0.106,0.077 !!albsnf_maxu_io=0.215,0.132,0.288,0.239,0.173 alnr_io=0.335,0.272,0.365,0.337,0.395 !!alnr1_io=0.30,0.23,0.30,0.30,0.30 !!alnr_u_io=0.75,0.65,0.95,0.95,0.87 alpar_io=0.073,0.041,0.090,0.106,0.074 !!alpar_l_io=0.06,0.04,0.06,0.06,0.06 !!alpar_u_io=0.15,0.11,0.25,0.25,0.25 alpha_io=0.08,0.08,0.08,0.040,0.08 !!avg_ba_io=0.6E6 0.6E6 1.4E6 1.4E6 1.2E6 b_wl_io=5*1.667 c3_io=1,1,1,0,1 can_struct_a_io=5*1.0 catch0_io=5*5.00000e-1 !!cclleaf_max_io=1.0 1.0 1.0 1.0 1.0 !!cclleaf_min_io=0.8 0.8 0.8 0.8 0.8 !!ccwood_max_io=0.4 0.4 0.4 0.4 0.4 !!ccwood_min_io=0.0 0.0 0.0 0.0 0.0 !!ci_st_io=33.46 33.46 34.26 29.98 34.26 dcatch_dlai_io=5*5.00000e-2  dgl_dm_io=5*0.0 dgl_dt_io=9.0,9.0,0.0,0.0,9.0 dqcrit_io=0.090,0.060,0.100,0.075,0.100 dz0v_dh_io=5.00000e-2,5.00000e-2,1.00000e-1,1.00000e-1,1.00000e-1 emis_pft_io=0.9800,0.9900,0.9800,0.9800,0.9800 eta_sl_io=5*0.01 f0_io=0.875,0.875,0.900,0.800,0.900 fd_io=0.015,0.015,0.015,0.025,0.015 !!fefe_bc_io=0.56 0.56 0.56 0.56 0.47 0.56 !!fefe_ch4_io=6.8 4.8 4.8 2.4 4.8 !!fefe_co2_io=1631 1576 1576 1654 1576 !!fefe_co_io=100 106 106 64 106 !!fefe_nox_io=2.55 3.24 3.24 2.49 3.24 !!fefe_oc_io=4.3 9.1 9.1 3.2 9.1 !!fefe_so2_io=0.40 0.40 0.40 0.40 0.48 0.40  fsmc_of_io=5*0.00 fsmc_p0_io=5*0.0           </pre>									

File Edit View Global Region Line Options Display Windows		Help	
[...]/rose-stem/app/um_ukv1p5_eg_noda/rose-app.conf	659	rose-stem/app/gswp2_ukv/rose-app.conf	591 99
<pre>fsmc_of_io=5*0.00 fsmc_po_io=5*0.0 !!gl_stomata_io=5*2.0 g_leaf_io=5*0.25 glimn_io=5*1.0e6 !!app_st_io=1.29E-07 2.58E-08 2.07E-07 3.42E-07 1.68E-007 hw_sw_io=5*0.5 !!tief_io=25,0.8,00,16.00,24.00,20.00 infil_f_io=4.00000,4.00000,2.00000,2.00000,2.00000 kext_io=0.5,0.5,1.0,1.0,0.5 kn_io=5*0.78 knl_io=5*0.20 kpar_io=5*0.50 lai_alb_lim_io=5*0.005 lma_io=0.0824,0.2263,0.0498,0.1370,0.0695 !!tief_io=0.9,1.8,0.6,0.9,0.57 neff_io=0.8e-3,0.8e-3,0.8e-3,0.8e-3,0.4e-3,0.8e-3 nld_io=0.040,0.030,0.060,0.030,0.030 nmass_io=0.0210,0.0115,0.0219,0.0131,0.0219 nr_io=0.01726,0.00784,0.0162,0.0084,0.01726 nr_nl_io=5*1.00 ns_nl_io=0.10,0.10,1.00,1.00,0.10 nsw_io=0.0072,0.0083,0.01604,0.0202,0.0072 omega_io=0.116,0.083,0.133,0.152,0.115 omega_io=0.10,0.05,0.10,0.12,0.10 omegau_io=0.23,0.23,0.35,0.35,0.35 omnir_io=0.818,0.544,0.738,0.683,0.785 omnir_io=0.50,0.30,0.53,0.53,0.53 omniru_io=0.90,0.65,0.98,0.98,0.98 orient_io=5*0  q10_leaf_io=5*2.00 r_grow_io=5*0.25 rootd_ft_io=3.00000,1.00000,5.00000e-1,5.00000e-1,5.00000e-1 sigl_io=0.0375,0.1000,0.0250,0.0500,0.0500 !!tief_io=1.2,2.4,0.8,1.2,0.8 tleaf_of_io=273.15,243.15,258.15,258.15,243.15 tlow_io=0.0,-5.0,0.0,13.0,0.0 tupp_io=36.0,31.0,36.0,45.0,36.0 vint_io=59.73,6.32,6.42,0.00,14.71 vs1_io=29.81,18.15,40.96,10.24,23.15 zohm_classic_pft_io=1.65000,1.65000,1.00000e-2,1.00000e-2,1.00000e-1 zohm_pft_io=1.65000,1.65000,1.00000e-2,1.00000e-2,1.00000e-1 !!zdv_io=1.1,1.1,0.22,0.22,1.0</pre>		<pre>!!f)_o3_ct_io=0 fsmc_mod_io=0 fsmc_of_io=5*0.00 fsmc_po_io=5*0.0 !!gl_stomata_io=5*2.0 g_leaf_io=5*0.25 glimn_io=5*1.0e6 !!app_st_io=1.29E-07 2.58E-08 2.07E-07 3.42E-07 1.68E-007 hw_sw_io=5*0.5 !!tief_io=25,0.8,00,16.00,24.00,20.00 infil_f_io=4.00000,4.00000,2.00000,2.00000,2.00000 kext_io=0.5,0.5,1.0,1.0,0.5 kn_io=5*0.78 knl_io=5*0.20 kpar_io=5*0.50 lai_alb_lim_io=5*0.005 lma_io=0.0824,0.2263,0.0498,0.1370,0.0695 !!tief_io=0.9,1.8,0.6,0.9,0.57 neff_io=0.8e-3,0.8e-3,0.8e-3,0.8e-3,0.4e-3,0.8e-3 nld_io=0.040,0.030,0.060,0.030,0.030 nmass_io=0.0210,0.0115,0.0219,0.0131,0.0219 nr_io=0.01726,0.00784,0.0162,0.0084,0.01726 nr_nl_io=5*1.00 ns_nl_io=0.10,0.10,1.00,1.00,0.10 nsw_io=0.0072,0.0083,0.01604,0.0202,0.0072 omega_io=0.116,0.083,0.133,0.152,0.115 !!omega_io=0.10,0.05,0.10,0.12,0.10 !!omegau_io=0.23,0.23,0.35,0.35,0.35 omnir_io=0.818,0.544,0.738,0.683,0.785 !!omnir_io=0.50,0.30,0.53,0.53,0.53 !!omniru_io=0.90,0.65,0.98,0.98,0.98 orient_io=5*0 !!psi_close_io=0 !!psi_open_io=0 q10_leaf_io=5*2.00 r_grow_io=5*0.25 rootd_ft_io=3.00000,1.00000,5.00000e-1,5.00000e-1,5.00000e-1 sigl_io=0.0375,0.1000,0.0250,0.0500,0.0500 !!tief_io=1.2,2.4,0.8,1.2,0.8 tleaf_of_io=273.15,243.15,258.15,258.15,243.15 tlow_io=0.0,-5.0,0.0,13.0,0.0 tupp_io=36.0,31.0,36.0,45.0,36.0 vint_io=59.73,6.32,6.42,0.00,14.71 vs1_io=29.81,18.15,40.96,10.24,23.15 zohm_classic_pft_io=1.65000,1.65000,1.00000e-2,1.00000e-2,1.00000e-1 zohm_pft_io=1.65000,1.65000,1.00000e-2,1.00000e-2,1.00000e-1 !!zdv_io=1.1,1.1,0.22,0.22,1.0</pre>	

File Edit View Global Region Line Options Display Windows		Help	
[...]/rose-stem/app/um_ukv1p5_eg_noda/rose-app.conf	667	rose-stem/app/gswp2_ukv/rose-app.conf	617 93
<pre>fsmc_of_io=5*0.00 fsmc_po_io=5*0.0 !!gl_stomata_io=5*2.0 g_leaf_io=5*0.25 glimn_io=5*1.0e-6 !!app_st_io=1.29E-07 2.58E-08 2.07E-07 3.42E-07 1.68E-007 hw_sw_io=5*0.5 !!tief_io=25,0,8.00,16.00,24.00,20.00 infil_f_io=4.00000,4.00000,2.00000,2.00000,2.00000 kext_io=0.5,0.5,1.0,1.0,0.5 kn_io=5*0.78 knl_io=5*0.20 kpar_io=5*0.50 lai_alb_lim_io=5*0.005 lma_io=0.0824,0.2263,0.0498,0.1370,0.0695 !!tief_io=0.9,1.8,0.6,0.9,0.57 neff_io=0.8e-3,0.8e-3,0.8e-3,0.8e-3,0.4e-3,0.8e-3 nld_io=0.040,0.030,0.060,0.030,0.030 nmass_io=0.0210,0.0115,0.0219,0.0131,0.0219 nr_io=0.01726,0.00784,0.0162,0.0084,0.01726 nr_nl_io=5*1.00 ns_nl_io=0.10,0.10,1.00,1.00,0.10 nsw_io=0.0072,0.0083,0.01604,0.0202,0.0072 omega_io=0.116,0.083,0.133,0.152,0.115 !!tomegal_io=0.10,0.05,0.10,0.12,0.10 !!tomegau_io=0.23,0.23,0.35,0.35,0.35 omni_r_io=0.818,0.544,0.738,0.683,0.785 !!tomnir_io=0.50,0.30,0.53,0.53,0.53 !!tomniru_io=0.90,0.65,0.98,0.98,0.98 orient_io=5*0  q10_leaf_io=5*2.00 r_grow_io=5*0.25 rootd_ft_io=3.00000,1.00000,5.00000e-1,5.00000e-1,5.00000e-1 sigl_io=0.0375,0.1000,0.0250,0.0500,0.0500 !!tief_io=1.2,2.4,0.8,1.2,0.8 tleaf_of_io=273.15,243.15,258.15,258.15,243.15 tlow_io=0,-5,0,0,13,0,0 tupp_io=36,0,31,0,36,0,45,0,36,0 vint_io=5.73,6.32,6.42,0.00,14.71 vs1_io=29.81,18.15,40.96,10.24,23.15 zohm_classic_pft_io=1.65000,1.65000,1.00000e-2,1.00000e-2,1.00000e-1 zohm_pft_io=1.65000,1.65000,1.00000e-2,1.00000e-2,1.00000e-1 !!zdv_io=1.1,1.1,0.22,0.22,1.0</pre>	<pre>!!f)_o3_ct_io=0 fsmc_mod_io=0 fsmc_of_io=5*0.00 fsmc_po_io=5*0.0 !!gl_stomata_io=5*2.0 g_leaf_io=5*0.25 glimn_io=5*1.0e-6 !!app_st_io=1.29E-07 2.58E-08 2.07E-07 3.42E-07 1.68E-007 hw_sw_io=5*0.5 !!tief_io=25,0,8.00,16.00,24.00,20.00 infil_f_io=4.00000,4.00000,2.00000,2.00000,2.00000 kext_io=0.5,0.5,1.0,1.0,0.5 kn_io=5*0.78 knl_io=5*0.20 kpar_io=5*0.50 lai_alb_lim_io=5*0.005 lma_io=0.0824,0.2263,0.0498,0.1370,0.0695 !!tief_io=0.9,1.8,0.6,0.9,0.57 neff_io=0.8e-3,0.8e-3,0.8e-3,0.8e-3,0.4e-3,0.8e-3 nld_io=0.040,0.030,0.060,0.030,0.030 nmass_io=0.0210,0.0115,0.0219,0.0131,0.0219 nr_io=0.01726,0.00784,0.0162,0.0084,0.01726 nr_nl_io=5*1.00 ns_nl_io=0.10,0.10,1.00,1.00,0.10 nsw_io=0.0072,0.0083,0.01604,0.0202,0.0072 omega_io=0.116,0.083,0.133,0.152,0.115 !!tomegal_io=0.10,0.05,0.10,0.12,0.10 !!tomegau_io=0.23,0.23,0.35,0.35,0.35 omni_r_io=0.818,0.544,0.738,0.683,0.785 !!tomnir_io=0.50,0.30,0.53,0.53,0.53 !!tomniru_io=0.90,0.65,0.98,0.98,0.98 orient_io=5*0 !!psi_close_io=0 !!psi_open_io=0 q10_leaf_io=5*2.00 r_grow_io=5*0.25 rootd_ft_io=3.00000,1.00000,5.00000e-1,5.00000e-1,5.00000e-1 sigl_io=0.0375,0.1000,0.0250,0.0500,0.0500 !!tief_io=1.2,2.4,0.8,1.2,0.8 tleaf_of_io=273.15,243.15,258.15,258.15,243.15 tlow_io=0,-5,0,0,13,0,0 tupp_io=36,0,31,0,36,0,45,0,36,0 vint_io=5.73,6.32,6.42,0.00,14.71 vs1_io=29.81,18.15,40.96,10.24,23.15 zohm_classic_pft_io=1.65000,1.65000,1.00000e-2,1.00000e-2,1.00000e-1 zohm_pft_io=1.65000,1.65000,1.00000e-2,1.00000e-2,1.00000e-1 !!zdv_io=1.1,1.1,0.22,0.22,1.0</pre>		

# rose macro -V

- [V] rose.macros.DefaultValidators: issues: 3 Metadata instruction not added yet  
namelist:jules\_pftp parm=fsmc\_mod\_io=0  
failed because: len(this) != namelist:jules\_surface\_types=npft
- namelist:jules\_surface=iscrntdiag=2  
(The preferred option in standalone is 0. The decoupled option specified is not recommended until driving JULES with a decoupled variable is fully tested.) failed because: (this == 2 or this == 3) and  
namelist:jules\_model\_environment=l\_jules\_parent == 0
- namelist:jules\_surface=iscrntdiag=2 Manual changes required to jules\_surface namelist  
Value 2 not in allowed values ['0', '1']

# What you can do to help

- If you notice something not right in the metadata (if you've not got a suitable ticket open to fix it under)
  - Search for a ticket already open for that namelist (*metadata consolidation* in the keywords).
  - If there is one open please add it to the TicketDetails.
  - If not, please either:
    - Open a ticket, add a TicketDetails and describe the issue there.
    - OR, send me an email and I'll open one with the information.
- If you fancy helping me sort out a namelist that'd be brilliant!



Thanks for  
listening

