JULES - list of outputs

A. A list of output variables that have a single value at each gridpoint.

Name	Description
conRain	Gridbox convective rainfall (kg m^{-2} s^{-1})
conSnow	Gridbox convective snowfall(kg m^{-2} s^{-1})
cosz	Cosine of the zenith angle (-)
diffFrac	Gridbox fraction of radiation that is diffuse (-)
ecan	Gridbox mean evaporation from canopy/surface store (kg m^{-2} s^{-1})
ei	Gridbox sublimation from lying snow or sea-ice (kg m^{-2} s^{-1})
esoil	Gridbox surface evapotranspiration from soil moisture store (kg m^{-2} s^{-1})
fqw	Gridbox moisture flux from surface (kg m^{-2} s^{-1})
ftl	Gridbox surface sensible heat flux (W m^{-2})
landAlbedo1	Gridbox albedo for waveband 1 (direct beam visible)
landAlbedo2	Gridbox albedo for waveband 2 (diffuse visible)
landAlbedo3	Gridbox albedo for waveband 3 (direct beam NIR)
landAlbedo4	Gridbox albedo for waveband 4 (diffuse NIR)
latentHeat	Gridbox surface latent heat flux (W m^{-2})
latitude	Gridbox latitude (º)
longitude	Gridbox longitude (º)
lsRain	Gridbox large-scale rainfall (kg m^{-2} s^{-1})
lsSnow	Gridbox large-scale snowfall (kg m^{-2} s^{-1})
LWdown	Gridbox surface downward LW radiation (W m^{-2})
precip	Gridbox precipitation rate (kg m^{-2} s^{-1})
pstar	Gridbox surface pressure (Pa)
q1p5m	Gridbox specific humidity at 1.5m height (kg kg^{-1})
qw1	Gridbox specific humidity (total water content) (kg kg^{-1})
rainfall	Gridbox rainfall rate (kg m^{-2} s^{-1})
snomltSurfHtf	Gridbox heat flux used for surface melting of snow (W m^{-2})
snowfall	Gridbox snowfall rate (kg m^{-2} s^{-1})
snowMass	Gridbox snowmass (kg m^{-2})
surfHtFlux	Gridbox net downward heat flux at surface over land and sea-ice fraction of gridbox (W m^{-2})
SWdown	Gridbox surface downward SW radiation (W m^{-2})
t1p5m	Gridbox temperature at 1.5m height (K)
taux1	Gridbox westerly component of surface wind stress (N m^{-2})
tauy1	Gridbox southerly component of surface wind stress (N m^{-2})
tl1	Gridbox ice/liquid water temperature (K)
tstar	Gridbox surface temperature (K)
u1	Gridbox westerly wind component (m s^{-1})
u10m	Gridbox westerly wind component at 10 m height (m s^{-1})
v1	Gridbox southerly wind component (m $s^{-1)}$
v10m	Gridbox southerly wind component at 10m height (m s^{-1})
wind	Gridbox wind speed (m s^{-1})

B. A list of output variables that have a single value at each land gridpoint.

Name	Description
albedoLand	Gridbox albedo (as used to calculate net shortwave radiation) (-)

canopy	Gridbox canopy water content (kg m^{-2})
cs	Gridbox total soil carbon (kg C m^{-2})
cv	Gridbox mean vegetation carbon (kg C m^{-2})
depthFrozen	Gridbox depth of frozen ground at surface (m)
depthUnfrozen	Gridbox depth of unfrozen ground at surface (m)
drain	Gridbox drainage at bottom of soil column (kg m^{-2} s^{-1})
elake	Gridbox mean evaporation from lakes (kg m^{-2} s^{-1})
emis	Gridbox emissivity
fch4_wetl	Gridbox scaled methane flux from wetland fraction (10^{-9} kg C m^{-2} s^{-1})
fsat	Gridbox surface saturated fraction (-)
fsmc	Gridbox soil moisture availability factor (beta) (-)
fwetl	Gridbox wetland fraction (-)
gpp	Gridbox gross primary productivity (kg C m^{-2} s^{-1})
gs	Gridbox surface conductance to evaporation (m s^{-1})
hfSnowMelt	Gridbox snowmelt heat flux (W m^{-2})
landIndex	Index (gridbox number) of land points
liceIndex	Index (gridbox number) of land ice points
litCMn	Gridbox mean carbon litter (kg C m^{-2} $(360days)^{-1}$)
LWnet	Gridbox surface net LW radiation (W m^{-2})
LWup	Gridbox surface upward LW radiation (W m^{-2})
npp	Gridbox net primary productivity (kg C m^{-2} s^{-1})
qbase	Gridbox baseflow (lateral subsurface runoff) (kg m^{-2} s^{-1})
qbase_zw	Gridbox baseflow (lateral subsurface runoff) from deep layer (kg m^{-2} s^{-1})
radnet	Surface net radiation (W m^{-2})
respP	Gridbox plant respiration (kg C m^{-2} s^{-1})
respS	Gridbox total soil respiration (kg C m^{-2} s^{-1})
respSDrOut	Gridbox mean soil respiration for driving TRIFFID (kg C m^{-2} $(360days)^{-1}$)
runoff	Gridbox runoff rate (kg m^{-2} s^{-1})
sat_excess_roff	Gridbox saturation excess runoff rate (kg m^{-2} s^{-1})
smcAvailTop	Gridbox available moisture in surface layer of depth given by zsmc (kg m^{-2})
smcAvailTot	Gridbox available moisture in soil column (kg m^{-2})
smcTot	Gridbox total soil moisture in column (kg m^{-2})
snomltSubHtf	Gridbox sub-canopy snowmelt heat flux (W m^{-2})
snowCan	Gridbox snow on canopy (kg m^{-2})
snowDepth	Gridbox depth of snow (m)
snowFrac	Gridbox snow-covered fraction of land points (-)
snowFracAlb	Gridbox average weight given to snow for albedo (-)
snowGrCan	Gridbox average snow beneath canopy (snow_grnd) (kg m^{-2})
snowIceTot	Gridbox frozen water in snowpack (kg m^{-2}) Only available if nsmax>0.
snowLiqTot	Gridbox liquid water in snowpack (kg m^{-2}) Only available if nsmax>0.
snowmelt	Gridbox rate of snowmelt (kg m^{-2} s^{-1})
soilIndex	Index (gridbox number) of soil points
sthZw	Sol wetness in the deep (water table) layer (-)
subSurfRoff	Gridbox sub-surface runoff (kg m^{-2} s^{-1})
surfRoff	Gridbox surface runoff (kg m^{-2} s^{-1})
surfRoffInf	Gridbox infiltration excess surface runoff (kg m^{-2} s^{-1})
swetLiqTot	Gridbox unfrozen soil moisture as fraction of saturation (-)
swetTot	Gridbox soil moisture as fraction of saturation (-)
SWnet	Gribox net shortwave radiation at the surface (W m^{-2})
tfall	Gridbox throughfall (kg m^{-2} s^{-1})

trad	Gridbox effective radiative temperature (K)
wFluxSfc	Gridbox downwards moisture flux at soil surface (kg m^{-2} s^{-1})
zw	Gridbox depth to water table (m)

C. A list of output variables that have a single value for each PFT at each land gridpoint.

Name	Description
cVegP	PFT total carbon content of the vegetation (kg C m^{-2})
canhtP	PFT canopy height (m)
ciP	PFT internal CO2 pressure (Pa)
fluxO3Stom	PFT flux of O3 to stomata (mol m^{-2} s^{-1})
fsmcP	PFT soil moisture availability factor (-)
gLeafP	PFT leaf turnover rate ($[360days]^{-1}$)
gLeafDayP	PFT mean leaf turnover rate for input to PHENOL ($[360days]^{-1}$)
gLeafDrOutP	PFT mean leaf turnover rate for driving TRIFFID ($[360days]^{-1}$)
gLeafPhenP	PFT mean leaf turnover rate over phenology period($[360days]^{-1}$)
gstomP	PFT bulk (canopy) stomatal conductance for water vapour (m s^{-1})
gppP	PFT gross primary productivity (kg C m^{-2} s^{-1})
laiP	PFT leaf area index (-)
laiPhenP	PFT leaf area index after phenology (-)
litCP	PFT carbon litter (kg C m^{-2} $(360days)^{-1}$)
nppDrOutP	PFT mean NPP for driving TRIFFID (kg C m^{-2} $(360days)^{-1}$)
nppP	PFT net primary productivity (kg C m^{-2} s^{-1})
o3ExpFac	PFT ozone exposure factor
rdcP	Canopy dark respiration, without soil water dependence (mol CO2 m^{2} s^{-1})
respPP	PFT plant respiration (kg C m^{-2} s^{-1})
respWDrOutP	PFT mean wood respiration for driving TRIFFID (kg C m^{-2} $(360days)^{-1}$)
respWP	PFT wood respiration (kg C m^{-2} s^{-1})

D. A list of output variables that have a single value for each tile at each land gridpoint.

Name	Desciption
alb1T	Tile land albedo, waveband 1 (direct beam visible)
alb2T	Tile land albedo, waveband 2 (diffuse visible)
alb3T	Tile land albedo, waveband 3 (direct beam NIR)
alb4T	Tile land albedo, waveband 4 (diffuse NIR)
anthropHtFluxT	Anthropogenic heat flux for each tile (W m^{-2})
canopyT	Tile surface/canopy water for snow-free land tiles (kg m^{-2})
catchT	Tile surface/canopy water capacity of snow-free land tiles (kg m^{-2})
ecanT	Tile evaporation from canopy/surface store for snow-free land tiles (kg m^{-2} s^{-1})
eiT	Tile sublimation from lying snow for land tiles (kg m^{-2} s^{-1})
emisT	Tile emissivity
esoilT	Tile surface evapotranspiration from soil moisture store for snow-free land tile (kg m^{-2} s^{-1})
fqwT	Tile surface moisture flux for land tiles (kg m^{-2} s^{-1})
ftlT	Tile surface sensible heat flux for land tiles (W m^{-2})
gcT	Tile surface conductance to evaporation for land tiles(m s^{-1})
leT	Tile surface latent heat flux for land tiles (W m^{-2})
nsnow	Tile number of snow layers (-)
q1p5mT	Tile specific humidity at 1.5m over land tiles (kg kg^{-1})

radnetT	Tile surface net radiation (W m^{-2})
rgrainT	Tile snow surface grain size (µm)
snowCanMeltT	Tile melt of snow on canopy (kg m^{-2} s^{-1})
snowCanT	Tile snow on canopy (kg m^{-2})
snowDepthT	Tile snow depth (m)
snowGrCanMeltT	Tile melt of snow under canopy (kg m^{-2} s^{-1})
snowGroundRhoT	Tile bulk density of snow on ground (kg m^{-3})
snowGrCanT	Tile snow on ground below canopy (kg m^{-2})
snowGroundT	Tile snow on ground (snow_tile or snow_grnd) (kg m^{-2})
snowIceT	Tile total frozen mass in snow on ground (kg m^{-2}). Only available if nsmax>0.
snowLiqT	Tile total liquid mass in snow on ground (kg m^{-2}). Only available if nsmax>0.
snowMassT	Tile lying snow (total) (kg m^{-2})
snowmelt	Tile snow melt rate (melt_tile) (kg m^{-2} s^{-1})
surfHtFluxT	Downward heat flux for each tile (W m^{-2})
surfHtStoreT	C*(dT/dt) for each tile (W m^{-2})
t1p5mT	Tile temperature at 1.5m over land tiles (K)
tstarT	Tile surface temperature (K)
z0T	Tile surface roughness (m)

E. A list of output variables that have a single value for each tile type at each land gridpoint.

Name	Description
Frac	Fractional cover of each surface type.
tileIndex	Index (gridbox number) of land points with each surface type

F. A list of output variables that have a single value for each soil level at each land gridpoint.

Name	Description
bSoil	Brooks-Corey exponent for each soil layer (-)
ext	Extraction of water from each soil layer (kg m^{-2} s^{-1})
hCapSoil	Soil heat capacity (J K^{-1} m^{-3}) for each soil layer
hConSoil	Soil thermal conductivity (W m^{-1} K^{-1}) for each soil layer
satCon	Saturated hydraulic conductivity (kg m^{-2} s^{-1}) for each soil layer
sathh	Saturated soil water pressure (m) for each soil layer
smcl	Moisture content of each soil layer (kg m^{-2})
soilWet	Total moisture content of each soil layer, as fraction of saturation (-)
sthf	Frozen moisture content of each soil layer as a fraction of saturation (-)
sthu	Unfrozen moisture content of each soil layer as a fraction of saturation (-)
tSoil	Sub-surface temperature of each layer (K)
vsmcCrit	Volumetric moisture content at critical point for each soil layer (-)
vsmcSat	Volumetric moisture content at saturation for each soil layer (-)
vsmcWilt	Volumetric moisture content at wilting point for each soil layer (-)
wFlux	Downwards moisture flux at bottom of each soil layer (kg m^{-2} s^{-1})

G. A list of output variables that have a single value for each snow layer at tile each land gridpoint.

Name	Description
rGrainL	Grain size in snow layers for each tile (µm)
snowDs	Depth of each snow layer for each tile (m)
snowIce	Mass of ice in each snow layer for each tile (kg m^{-2})

snowLiq	Mass of liquid water in each snow layer for each tile (kg m^{-2})
tsnow	Temperature of each snow layer (K)

H. A list of output variables that have a single value for each soil carbon pool at each land gridpoint.

Name	**Description**
csPool	Carbon in each soil pool (kgC m^{-2})
respSPool	Respiration rate from each soil carbon pool (kgC m^{-2} s^{-1})