CMIP6 Model Documentation

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Note: * indicates a required property

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6 7	6.1 Car 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9	Energy Balance	 				 											20 22 22 23 23 23 24 24 25 25 26
	6.1 Car 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9 7.10	Energy Balance	 				 											22 22 23 23 23 24 24 25 25
7	6.1 Car 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9 7.10	Energy Balance	 	 		 	 											222 222 233 233 244 244 255 262 27
	6.1 Car 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9 7.10	Energy Balance	 	 		 	 											222 222 233 233 244 244 255 262 27
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1 Key Properties

Land surface key properties

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1.1	K 037	Dno	nortion
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Land surface key properties

1.1.1 Name *

Name of land model code

Enter TEXT:

1.1.2 Keywords *

Keywords associated with land model code

Enter COMMA SEPERATED list:

1.1.3 Overview *

Overview of land model.

Enter TEXT:

1.1.4 Description *

 $General\ description\ of\ the\ processes\ modelled\ (e.g.\ dymanic\ vegation,\ prognostic\ albedo,\ etc.)$

Enter TEXT:

1.1.5 Land Atmosphere Flux Exchanges

 $Fluxes\ exchanged\ with\ the\ atmosphere.$

Select MULTIPLE	options:
-----------------	----------

Water
Energy
Carbon
Nitrogen
Phospherous
Other - please specify:

1.1.6 Atmospheric Coupling Treatment *

Describe the treatment of land surface coupling with the Atmosphere model component, which may be different for different quantities (e.g. dust: semi-implicit, water vapour: explicit)

Types of	land cover defined in the land surface model
Sele	et MULTIPLE options:
	Bare soil
	Urban
	Lake
	Land ice
	Lake ice
	Vegetated
	Other - please specify:
1.1.8	Land Cover Change
	how land cover change is managed (e.g. the use of net or gross transitions)
Ente	r TEXT:
1.1.9	Tiling *
	
	the general tiling procedure used in the land surface (if any). Include treatment of physiography, $(dynamic)$ vegetation coverage and orography/roughness
and/sea,	
and/sea,	(dynamic) vegetation coverage and orography/roughness
and/sea,	(dynamic) vegetation coverage and orography/roughness r TEXT:
Ente 1.2 TODO	(dynamic) vegetation coverage and orography/roughness r TEXT: Conservation Properties
Ente 1.2 (TODO 1.2.1	(dynamic) vegetation coverage and orography/roughness r TEXT: Conservation Properties Overview
Ente 1.2 (TODO) 1.2.1 Overvieu	(dynamic) vegetation coverage and orography/roughness r TEXT: Conservation Properties
Ente 1.2 (TODO) 1.2.1 Overvieu	(dynamic) vegetation coverage and orography/roughness TEXT: Conservation Properties Overview of todo in land model. TEXT:
Ente 1.2 (TODO 1.2.1 Overvieu Ente	(dynamic) vegetation coverage and orography/roughness r TEXT: Conservation Properties Overview of todo in land model.
Ente 1.2 (TODO 1.2.1 Evervieu Ente 1.2.2 Describe	(dynamic) vegetation coverage and orography/roughness r TEXT: Conservation Properties Overview of todo in land model. r TEXT: Energy
Ente 1.2 (TODO 1.2.1 Divervieu Ente 2.2.2 Describe	(dynamic) vegetation coverage and orography/roughness IT TEXT: Conservation Properties Overview of todo in land model. IT TEXT: Energy if/how energy is conserved globally and to what level (e.g. within X [units]/year)
Ente 1.2 (TODO 1.2.1 Overvieu Ente 1.2.2 Describe Ente 1.2.3	(dynamic) vegetation coverage and orography/roughness r TEXT: Conservation Properties Overview of todo in land model. r TEXT: Energy if/how energy is conserved globally and to what level (e.g. within X [units]/year) r TEXT:
Ente 1.2 (TODO 1.2.1 Divervieu Ente 1.2.2 Describe Ente 1.2.3 Describe	(dynamic) vegetation coverage and orography/roughness IT TEXT: Conservation Properties Overview of todo in land model. IT TEXT: Energy if/how energy is conserved globally and to what level (e.g. within X [units]/year) IT TEXT: Water
Ente 1.2 (TODO 1.2.1 Divervieu Ente 1.2.2 Describe Ente 1.2.3 Describe	(dynamic) vegetation coverage and orography/roughness IT TEXT: Conservation Properties Overview of todo in land model. IT TEXT: Energy if/how energy is conserved globally and to what level (e.g. within X [units]/year) IT TEXT: Water if/how water is conserved globally and to what level (e.g. within X [units]/year)
Ente 1.2.1 Coverview Ente 1.2.2 Coescribe Ente 1.2.3 Coescribe Ente 1.2.4	(dynamic) vegetation coverage and orography/roughness r TEXT: Conservation Properties Overview of todo in land model. r TEXT: Energy if/how energy is conserved globally and to what level (e.g. within X [units]/year) r TEXT: Water if/how water is conserved globally and to what level (e.g. within X [units]/year) r TEXT:

Timestepping Framework 1.3 TODO1.3.1 Overview Overview of todo in land model. Enter TEXT: 1.3.2 Timestep Dependent On Atmosphere * Is a time step dependent on the frequency of atmosphere coupling? Select either TRUE or FALSE: ☐ False True 1.3.3 Time Step * Overall timestep of land surface model (i.e. time between calls) Enter INTEGER value: Timestepping Method * General description of time stepping method and associated time step(s)Enter TEXT: **Software Properties** Software properties of land surface code 1.4.1 Overview Overview of software properties of land surface code in land model. Enter TEXT: 1.4.2 Repository Location of code for this component. Enter TEXT: 1.4.3 Code Version

 $Code\ version\ identifier.$

Enter TEXT:

1.4.4 Code Languages

 $Code\ language(s).$

Enter COMMA SEPERATED list:

2 Grid

Land surface grid

2.1 Grid

Land surface grid

2.1.1 Name

Name of grid in land model.

Enter TEXT:

2.1.2 Overview

Overview of grid in land model.

Enter TEXT:

2.2 Horizontal

The horizontal grid in the land surface

2.2.1 Overview

Overview of the horizontal grid in the land surface in land model.

Enter TEXT:

2.2.2 Description *

 $Describe\ the\ general\ structure\ of\ the\ horizontal\ grid\ (not\ including\ any\ tiling)$

Enter TEXT:

2.2.3 Matches Atmosphere Grid *

 $Does\ the\ horizontal\ grid\ match\ the\ atmosphere?$

Select either TRUE or FALSE:

______ True _____ False

2.3	Vertical

The vertical grid in the soil

2.3.1 Overview

 $Overview\ of\ the\ vertical\ grid\ in\ the\ soil\ in\ land\ model.$

2.3.2 Description *

Describe the general structure of the vertical grid in the soil (not including any tiling)

Enter TEXT:

2.3.3 Total Depth *

The total depth of the soil (in metres)

Enter INTEGER value:

3 Soil

Land surface soil

3.1 Soil

 $Land\ surface\ soil$

3.1.1 Name

Commonly used name for the soil in land model.

Enter TEXT:

3.1.2 Overview

Overview of land surface soil in land model.

Enter TEXT:

3.1.3 Heat Water Coupling *

Describe the coupling between heat and water in the soil

Enter TEXT:

3.1.4 Number Of Soil layers *

The number of soil layers

Enter INTEGER value:

3.1.5 Prognostic Variables *

List the prognostic variables of the soil scheme

Enter COMMA SEPERATED list:

3.2 Soil Map

Key properties of the land surface soil map

3.2.1 Overview

Overview of key properties of the land surface soil map in land model.

Enter TEXT:

3.2.2 Description *

 $General\ description\ of\ soil\ map$

3.2.3 Structure $Describe\ the\ soil\ structure\ map$ Enter TEXT: 3.2.4 Texture Describe the soil texture map Enter TEXT: 3.2.5 Organic Matter Describe the soil organic matter map Enter TEXT: 3.2.6 Albedo Describe the soil albedo map Enter TEXT: 3.2.7 Water Table Describe the soil water table map, if any Enter TEXT: 3.2.8 Continuously Varying Soil Depth * $Does\ the\ soil\ properties\ vary\ continuously\ with\ depth?$ Select either TRUE or FALSE: True ☐ False 3.2.9 Soil Depth Describe the soil depth map Enter TEXT: 3.3 Snow Free Albedo

3.3.1 Overview

TODO

Overview of todo in land model.

3.3.2	Prognostic *
Is snow	free albedo prognostic?
Sele	ct either TRUE or FALSE:
	True
3.3.3	Functions
If progno	estic, describe the dependancies on snow free albedo calculations
Sele	ct MULTIPLE options:
	Vegetation type
	Soil humidity
	Vegetation state
	Other - please specify:
3.3.4	Direct Diffuse
If progno	estic, describe the distinction between direct and diffuse albedo
Sele	ct SINGLE option:
	Distinction between direct and diffuse albedo
	No distinction between direct and diffuse albedo
	Other - please specify:
3.3.5	Number Of Wavelength Bands
If progno	estic, enter the number of wavelength bands used
Ente	er INTEGER value:
	Hydrology operties of the land surface soil hydrology
3.4.1	Overview
Overvieu	of key properties of the land surface soil hydrology in land model.
Ente	er TEXT:
3.4.2	Description *
General	description of the soil hydrological model

Enter	INTEGER value:
3.4.4	Filing
Describe th	he soil hydrology tiling, if any.
Enter	TEXT:
3.4.5 V	Vertical Discretisation $*$
Describe th	he typical vertical discretisation
Enter	TEXT:
3.4.6 N	Number Of Ground Water Layers *
The number	er of soil layers that may contain water
Enter	INTEGER value:
3.4.7 I	ateral Connectivity *
Describe th	he lateral connectivity between tiles
Select	MULTIPLE options:
	Perfect connectivity - Common soil for multiple tiles
	Darcian flow - Darcian flow among hillslope tiles
	Other - please specify:
3.4.8 N	Method *
The hydrol	logical dynamics scheme in the land surface model
Select	SINGLE option:
	Bucket
	Force-restore
	Choisnel
	Explicit diffusion
	Other - please specify:
3.5 F	reezing
TODO	iccznig

3.4.3 Time Step *

 $Time\ step\ of\ river\ soil\ hydrology\ in\ seconds$

3.5.1 Number Of Ground Ice Layers *

 $How\ many\ soil\ layers\ may\ contain\ ground\ ice$

Enter INTEGER value:

3.5.2 Ice Storage Method *

 $Describe\ the\ method\ of\ ice\ storage$

Enter TEXT:

3.5.3 Permafrost *

 $Describe\ the\ treatment\ of\ permafrost,\ if\ any,\ within\ the\ land\ surface\ scheme$

Enter TEXT:

3.6 Drainage

TODO

3.6.1 Description *

General describe how drainage is included in the land surface scheme

Enter TEXT:

3.6.2 Types

 ${\it Different\ types\ of\ runoff\ represented\ by\ the\ land\ surface\ model}$

Select MULTIPLE options:

Gravity drainage
Horton mechanism
Topmodel-based
Dunne mechanism
Lateral subsurface flow
Baseflow from groundwate

Other - please specify:

3.7 Heat Treatment

TODO

3.7.1 Overview

Overview of todo in land model.

3.7.2	Description *
General	description of how heat treatment properties are defined
Ente	er TEXT:
3.7.3	Time Step *
Time ste	p of soil heat scheme in seconds
Ente	er INTEGER value:
3.7.4	Tiling
Describe	the soil heat treatment tiling, if any.
Ente	er TEXT:
3.7.5	Vertical Discretisation *
	the typical vertical discretisation
Ente	er TEXT:
0.7.0	TI . G. *
3.7.6	Heat Storage *
Specify t	he method of heat storage
Specify t	_
Specify t	he method of heat storage
Specify t	he method of heat storage ct SINGLE option:
Specify t	he method of heat storage ct SINGLE option: Force-restore
Specify t	he method of heat storage ct SINGLE option: Force-restore Explicit diffusion
Specify t	he method of heat storage ct SINGLE option: Force-restore Explicit diffusion
Specify t Sele	he method of heat storage ct SINGLE option: Force-restore Explicit diffusion Other - please specify:
Specify t Sele 3.7.7 Describe	tet SINGLE option: Force-restore Explicit diffusion Other - please specify: Processes *
Specify t Sele 3.7.7 Describe	tet SINGLE option: Force-restore Explicit diffusion Other - please specify: Processes * processes included in the treatment of soil heat
Specify t Sele 3.7.7 Describe	tet SINGLE option: Force-restore Explicit diffusion Other - please specify: Processes * processes included in the treatment of soil heat et MULTIPLE options:

4 Snow
Land surface snow
4.1 Snow
Land surface snow
4.1.1 Name
Commonly used name for the snow in land model.
Enter TEXT:
4.1.2 Overview
Overview of land surface snow in land model.
Enter TEXT:
4.1.3 Tiling
Describe the snow tiling, if any.
Enter TEXT:
4.1.4 Number Of Snow Layers *
The number of snow levels used in the land surface scheme/mode
Enter INTEGER value:
4.1.5 Density *
Description of the treatment of snow density
Select SINGLE option:
Prognostic
Constant
Other - please specify:
4.1.6 Water Equivalent *
Description of the treatment of the snow water equivalent
Select SINGLE option:
Prognostic
Diagnostic
Other - please specify:

4.1.7	Heat Content *
Descript	$ion\ of\ the\ treatment\ of\ the\ heat\ content\ of\ snow$
Sele	ct SINGLE option:
	Prognostic
	Diagnostic
	Other - please specify:
4.1.8	Temperature *
Descript	ion of the treatment of snow temperature
Sele	ct SINGLE option:
	Prognostic
	Diagnostic
	Other - please specify:
$m{4.1.9}$	Liquid Water Content * ion of the treatment of snow liquid water
Sele	ct SINGLE option:
	Prognostic
	Diagnostic
	Other - please specify:
4.1.10	Snow Cover Fractions *
Specify of	cover fractions used in the surface snow scheme
Sele	ct MULTIPLE options:
	Ground snow fraction
	Vegetation snow fraction
	Other - please specify:
4.1.11	Processes *
Snow rel	lated processes in the land surface scheme
Sele	ct MULTIPLE options:
	Snow interception
	Snow melting

	Snow freezing
	Blowing snow
	Other - please specify:
	Prognostic Variables *
	prognostic variables of the snow scheme
Ente	r COMMA SEPERATED list:
4.2	Snow Albedo
TODO	
191	Overview
	of todo in land model.
	r TEXT:
4.2.2	Type † the treatment of snow-covered land albedo
Selec	et SINGLE option:
	Prognostic
	Prescribed
	Constant
	Other - please specify:
	Functions
If progno	stic,
Selec	t MULTIPLE options:
	Vegetation type
	Snow age
	Snow density
	Snow grain type
	Aerosol deposition
	Other - please specify:

5 Vegetation

T 1	ľ	, , ,
Land	countaco	modetation
IJGUUU	Surruce	vegetation
	J	

5.1 Vegetat	ion
-------------	-----

 $Land\ surface\ vegetation$

5.1.1 Name

 $Commonly\ used\ name\ for\ the\ vegetation\ in\ land\ model.$

Enter TEXT:

5.1.2 Overview

Overview of land surface vegetation in land model.

Enter TEXT:

5.1.3 Time Step *

Time step of vegetation scheme in seconds

Enter INTEGER value:

5.1.4 Dynamic Vegetation *

 $Is \ there \ dynamic \ evolution \ of \ vegetation?$

Select either TRUE or FALSE: $\begin{tabular}{lll} \hline & True & \begin{tabular}{lll} \hline & False \\ \hline \end{tabular}$

5.1.5 Tiling

 $Describe\ the\ vegetation\ tiling,\ if\ any.$

Enter TEXT:

5.1.6 Vegetation Representation *

 $Vegetation\ classification\ used$

Select SINGLE option:

Vegetation types

Biome types

Other - please specify:

5.1.7 Vegetation Types List of vegetation types in the classification, if any Select MULTIPLE options: Broadleaf tree Needleleaf tree C3 grass C4 grassVegetated Other - please specify: 5.1.8 Biome Types List of biome types in the classification, if any Select MULTIPLE options: Evergreen needleleaf forest Evergreen broadleaf forest Deciduous needleleaf forest Deciduous broadleaf forest Mixed forest Woodland Wooded grassland Closed shrubland Opne shrubland Grassland Cropland Wetlands Other - please specify: Vegetation Time Variation * 5.1.9How the vegetation fractions in each tile are varying with time Select SINGLE option: Fixed (not varying)

Prescribed (varying from files)

	Dynamical (varying from simulation)
	Other - please specify:
5.1.10	Vegetation Map
If vegetati erence, if	on fractions are not dynamically updated , describe the vegetation map used (common name and ref- possible)
Enter	TEXT:
5.1.11	Interception *
Is vegetate	ion interception of rainwater represented?
Selec	t either TRUE or FALSE:
	True
5.1.12	Phenology *
Treatment	t of vegetation phenology
Selec	t SINGLE option:
	Prognostic
	Diagnostic (vegetation map)
	Other - please specify:
5.1.13	Phenology Description
$General\ d$	escription of the treatment of vegetation phenology
Enter	TEXT:
5.1.14	Leaf Area Index *
Treatment	t of vegetation leaf area index
Selec	t SINGLE option:
	Prescribed
	Prognostic
	Diagnostic
	Other - please specify:
5.1.15	Leaf Area Index Description
General d	escription of the treatment of leaf area index
Enter	TEXT:

5.1.16	Biomass *
Treatment	of vegetation biomass
Select	t SINGLE option:
	Prognostic
	Diagnostic
	Other - please specify:
5.1.17	Biomass Description
General d	escription of the treatment of vegetation biomass
Enter	TEXT:
5.1.18	Biogeography *
Treatment	of vegetation biogeography
Select	t SINGLE option:
	Prognostic
	Diagnostic
	Other - please specify:
5.1.19	Biogeography Description
General d	escription of the treatment of vegetation biogeography
Enter	TEXT:
5.1.20	Stomatal Resistance *
Specify wh	at the vegetation stomatal resistance depends on
Select	t MULTIPLE options:
	Light
	Temperature
	Water availability
	CO2
	O3
	Other - please specify:
5.1.21	Stomatal Resistance Description
General d	escription of the treatment of vegetation stomatal resistance
Enter	TEXT:

5.1.22 Prognostic Variables *

 $List\ the\ prognostic\ variables\ of\ the\ vegetation\ scheme$

Enter COMMA SEPERATED list:

6 Energy Balance

Land surface energy balance

6.1 Energy Balance

Land surface energy balance

6.1.1 Name

 $Commonly\ used\ name\ for\ the\ energy\ balance\ in\ land\ model.$

Enter TEXT:

6.1.2 Overview

Overview of land surface energy balance in land model.

Enter TEXT:

6.1.3 Tiling

Describe the energy balance tiling, if any.

Enter TEXT:

6.1.4 Number Of Surface Temperatures *

The maximum number of distinct surface temperatures in a grid cell (for example, each subgrid tile may have its own temperature)

Enter INTEGER value:

6.1.5 Evaporation *

Specify the formulation method for land surface evaporation, from soil and vegetation

Selec	et MULTIPLE options:
	Alpha
	Beta
	Combined
	Monteith potential evaporation
	Other - please specify:
	Processes * which processes are included in the energy balance scheme
Selec	et MULTIPLE options:
	Transpiration

Other - please specify:

7 Carbon Cycle

Land surface carbon cycle

7.1 Carbon Cycle

Land surface carbon cycle

7.1.1 Name

Commonly used name for the carbon cycle in land model.

Enter TEXT:

7.1.2 Overview

Overview of land surface carbon cycle in land model.

Enter TEXT:

7.1.3 Tiling

Describe the carbon cycle tiling, if any.

Enter TEXT:

7.1.4 Time Step *

Time step of carbon cycle in seconds

Enter INTEGER value:

7.1.5 Anthropogenic Carbon

Describe the treament of the anthropogenic carbon pool

Select MULTIPLE options: Grand slam protocol

Residence time

Decay time

Other - please specify:

7.1.6 Prognostic Variables *

 $List\ the\ prognostic\ variables\ of\ the\ carbon\ scheme$

Enter COMMA SEPERATED list:

7.2 Vegetation

TODO

7.2.1 Overview

Overview of todo in land model.

Enter TEXT:

7.2.2 Number Of Carbon Pools *

Enter the number of carbon pools used

Enter INTEGER value:

7.2.3 Carbon Pools

List the carbon pools used

Enter COMMA SEPERATED list:

7.2.4 Forest Stand Dynamics

Describe the treatment of forest stand dyanmics

Enter TEXT:

7.3 Photosynthesis

TODO

7.3.1 Method

Describe the general method used for photosynthesis (e.g. type of photosynthesis, distinction between C3 and C4 grasses, Nitrogen dependence, etc.)

Enter TEXT:

7.4 Autotrophic Respiration

TODO

7.4.1 Maintainance Respiration

 $Describe\ the\ general\ method\ used\ for\ maintainence\ respiration$

Enter TEXT:

7.4.2 Growth Respiration

Describe the general method used for growth respiration

Enter TEXT:

7.5 Allocation

TODO

7.5.1 Method *
Describe the general principle behind the allocation scheme
Enter TEXT:
7.5.2 Allocation Bins *
Specify distinct carbon bins used in allocation
Select SINGLE option:
\Box Leaves + stems + roots
\Box Leaves + fine roots + coarse roots + stems
☐ Whole plant (no distinction)
Other - please specify:
7.5.3 Allocation Fractions * Describe how the fractions of allocation are calculated Select SINGLE option: Fixed Function of vegetation type Function of plant allometry Explicitly calculated Other - please specify:
7.6 Phenology TODO
7.6.1 Method *
$Describe\ the\ general\ principle\ behind\ the\ phenology\ scheme$
Enter TEXT:
7.7 Mortality TODO

7.7.1 Method *

 $Describe\ the\ general\ principle\ behind\ the\ mortality\ scheme$

7.8 Litter

TODO

7.8.1 Overview

Overview of todo in land model.

Enter TEXT:

7.8.2 Number Of Carbon Pools *

 $Enter\ the\ number\ of\ carbon\ pools\ used$

Enter INTEGER value:

7.8.3 Carbon Pools

List the carbon pools used

Enter COMMA SEPERATED list:

7.8.4 Decomposition

 $List\ the\ decomposition\ methods\ used$

Enter COMMA SEPERATED list:

7.8.5 Method

Describe the general method used

Enter TEXT:

7.9 Soil

TODO

7.9.1 Overview

 $Overview\ of\ todo\ in\ land\ model.$

Enter TEXT:

7.9.2 Number Of Carbon Pools *

Enter the number of carbon pools used

Enter INTEGER value:

7.9.3 Carbon Pools

 $List\ the\ carbon\ pools\ used$

Enter COMMA SEPERATED list:

7.9.4 Decomposition

 $List\ the\ decomposition\ methods\ used$

Enter COMMA SEPERATED list:

7.9.5 Method

 $Describe\ the\ general\ method\ used$

Enter TEXT:

7.10 Permafrost Carbon

TODO

7.10.1 Overview

Overview of todo in land model.

Enter TEXT:

7.10.2 Is Permafrost Included *

Is permafrost included?

Select either TRUE or FALSE:

☐ True ☐ False

7.10.3 Emitted Greenhouse Gases

 $List\ the\ GHGs\ emitted$

Enter COMMA SEPERATED list:

7.10.4 Decomposition

List the decomposition methods used

Enter COMMA SEPERATED list:

7.10.5 Impact On Soil Properties

 $Describe\ the\ impact\ of\ permafrost\ on\ soil\ properties$

8 Nitrogen Cycle

Land surface nitrogen cycle

8.1 Nitrogen Cycle

Land surface nitrogen cycle

8.1.1 Name

Commonly used name for the nitrogen cycle in land model.

Enter TEXT:

8.1.2 Overview

Overview of land surface nitrogen cycle in land model.

Enter TEXT:

8.1.3 Tiling

Describe the notrogen cycle tiling, if any.

Enter TEXT:

8.1.4 Time Step *

Time step of nitrogen cycle in seconds

Enter INTEGER value:

8.1.5 Prognostic Variables *

List the prognostic variables of the nitrogen scheme

Enter COMMA SEPERATED list:

9 River Routing

Land surface river routing

9.1 River Routing

Land surface river routing

9.1.1 Name

Commonly used name for the river routing in land model.

Enter TEXT:

9.1.2 Overview

Overview of land surface river routing in land model.

Enter TEXT:

9.1.3 Tiling

Describe the river routing, if any.

Enter TEXT:

9.1.4 Time Step *

Time step of river routing scheme in seconds

Enter INTEGER value:

9.1.5 Grid Inherited From Land Surface *

Is the grid inherited from land surface?

Select either TRUE or FALSE:

______ True ______ False

9.1.6 Grid Description

General description of grid, if not inherited from land surface

Enter TEXT:

9.1.7 Number Of Reservoirs *

 $Enter\ the\ number\ of\ reservoirs$

Enter INTEGER value:

9.1.8 TODO	Water Re Evaporation *
	ct MULTIPLE options:
	Flood plains
	Irrigation
	Other - please specify:
9.1.9	Coupled To Atmosphere
Is river	routing coupled to the atmosphere model component?
Sele	ct either TRUE or FALSE:
	True
9.1.10	Coupled To Land
	the coupling between land and rivers
Ente	er TEXT:
9.1.11	Quantities Exchanged With Atmosphere
If couple nents?	to atmosphere, which quantities are exchanged between river routing and the atmosphere model compo-
Sele	ct MULTIPLE options:
	Heat
	Water
	Tracers
	Other - please specify:
9.1.12	Basin Flow Direction Map *
What typ	ne of basin flow direction map is being used?
Sele	ct SINGLE option:
	Present day
	Adapted for other periods
	Other - please specify:
9.1.13	Flooding
	the representation of flooding, if any

9.1.14 H	Prognostic Variables *
List the prog	gnostic variables of the river routing
Enter (COMMA SEPERATED list:
9.2 Oc	ceanic Discharge
TODO	
9.2.1 O	verview
Overview of	todo in land model.
Enter 7	TEXT:
9.2.2 D	ischarge Type *
Specify how	rivers are discharged to the ocean
Select	SINGLE option:
	Direct (large rivers)
	Diffuse
	Other - please specify:
9.2.3 Q	uantities Transported *
Quantities t	hat are exchanged from river-routing to the ocean model component
Select	MULTIPLE options:
I	Heat
	Vater
П П	Tracers
	Other - please specify:

Land surface lakes
10.1 Lakes
Land surface lakes
10.1.1 Name
Commonly used name for the lakes in land model.
Enter TEXT:
10.1.2 Overview
Overview of land surface lakes in land model.
Enter TEXT:
10.1.3 Coupling With Rivers *
Are lakes coupled to the river routing model component?
Select either TRUE or FALSE:
☐ True ☐ False
10.1.4 Time Step *
Time step of lake scheme in seconds
Enter INTEGER value:
10.1.5 Quantities Exchanged With Rivers If coupling with rivers, which quantities are exchanged between the lakes and rivers
Select MULTIPLE options:
Heat
Water
☐ Tracers
Other - please specify:
10.1.6 Vertical Grid
Describe the vertical grid of lakes
Enter TEXT:

Lakes

10.1.7 Prognostic Variables *
List the prognostic variables of the lake scheme
Enter COMMA SEPERATED list:
10.2 Method
TODO
10.2.1 Overview
Overview of todo in land model.
Enter TEXT:
10.2.2 Ice Treatment * Is lake ice included?
Select either TRUE or FALSE:
☐ True ☐ False
10.2.3 Albedo *
Describe the treatment of lake albedo
Select SINGLE option:
Prognostic
Diagnostic
Other - please specify:
10.2.4 Dynamics *
Which dynamics of lakes are treated? horizontal, vertical, etc
Select MULTIPLE options:
No lake dynamics
Vertical
Horizontal
Other - please specify:
10.2.5 Dynamic Lake Extent *
Is a dynamic lake extent scheme included?
Select either TRUE or FALSE:
☐ True ☐ False

10.2.6	Endorhei	c Ba	sins *	k
Basins not flowing to ocean included?				
Select either TRUE or FALSE:				
	True		False	
10.3	Wetland	\mathbf{s}		
TODO				
10.0.1				
10.3.1	Overview	•		
Overview of todo in land model.				
Enter TEXT:				
10.3.2	Descripti	on		
Describe the treatment of wetlands, if any				