Tags/SA_MESH/SA_MESH_1.4.1064

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Program and Source

This version is succeeded by a more recent version of MESH.

Known Issues

The new inline routing option (RTE) does not initialize channel storage using the first record of measured streamflow, like the existing inline routing option (WF_ROUTE). All channels are initialized with zero storage.

Line truncation in RTE results in a coefficient of 0.66 being used in flow calculations, instead of 0.667 as intended.

General Updates

MESH 1.4.1064 adds a new experimental inline option for channel routing (RTE). The option uses the same physics as in standalone WATROUTE (RPN_watroute), but is not completely implemented and does not include reservoir routing, streamflow insertion, resume functionality, temporally-driven parameterization, or diversions.

Parameterization of RTE requires river class based parameterization using version 2.0 of MESH_parameters_hydrology.ini or with fully-distributed fields using MESH_parameters.r2c. RTE requires new parameters. The `WF_R2`, `WF_A1`, `WF_A2`, `WF_A3`, and `WF_A4` parameters for WF_ROUTE do not transfer.

Migrating to MESH 1.4

See the migration notes for the MESH 1.4.1022. All the same formatting changes are required for this version.

Revision History

May 1, 2017

General Updates

- Removed the requirement to provide values for the `FRZC` parameter if the FROZENSOILINFILFLAG control flag is not enabled
- Added inline checks for valid values `SLOPE_CHNL`, `CHNL_LEN`, `AREA`, and `DA`, as read from the drainage database
- Added the INPUTPARAMSFORMFLAG control flag to specify the format of the parameter input files
- Added support for the r2c text format parameter file, supporting the `R1N`, `R2N`, `MNDR`, `WIDEP`, `FLZ`, `PWR`, AA2, AA3, and AA4 fields
- Added support for the `R1N`, `R2N`, `MNDR`, `WIDEP`, `FLZ`, `PWR`, AA2, AA3, and AA4 fields to version 2.0 of MESH_parameters_hydrology.ini
- Added support for leading line comments (either '!' or '#') within the list of control flags in MESH_input_run_options.ini (the number of control flags must still be updated to reflect the number of active control flags in the section)
- Added the "nolss" and "noroute" options to the RUNMODE control flag to disable the land surface and routing schemes
- Added the "runrte" option for the RUNMODE control flag to enable RTE
- Updated the version to "1064"

CLASS

- Fixed how organic soil properties are assigned from `ORGM` (as 1, 2, or 3) to behave as described in the CLASS manual (previously, values were always assigned from row 3 in the lookup table)
- Changed the calculation of `FSSTAR` to consider both the `FSVH` and `FSIH` components for CLASS point outputs

- Changed the accumulation of daily output in the CLASSOF1, CLASSOF2, and CLASSOF3 CLASS point output files to print the tile (i.e., GRU) values, so the accumulation corresponds to manual calculations with values from the sub-daily files (a grid average value was printed previously)
- Changed how TSNO and TCAN are averaged so the outputs correspond to manual calculations using values from the sub-daily output files
- Changed the units of ROF in the CLASSOF4 CLASS point output file from mm s**-1 to mm to match the field in the CLASSOF1 output file (prior to r1059, this field was in units of mm s**-1 in CLASSOF4 and units of mm in CLASSOF1); ROF remains in units of mm s**-1 as a diagnostic output in the CLASSOF7 output file

RTE

- Updated the RPN_watroute (RTE) code
- Added standalone WATROUTE (RPN_watroute) as an inline option (RTE) without reservoir routing (streamflow routing only); activated with the "runrte" option on RUNMODE

Standalone WATROUTE (RPN_watroute)

- Updated the RPN_watroute code
- Removed aerial-averaging from the runoff and recharge outputs created for standalone WATROUTE (WATROUTE itself applies this averaging when reading from the files)