

Transfer multi-basin lakes to HYPE version 5.11.0

In HYPE version 5.11.0 the function of multi-basin lakes has been changed. HYPE will strive to have a equal water level in all lakebasins belonging to the same lake. This means that although the upstream-downstream connection between lakebasins should be the main direction of flow sometimes the flow between lakebasins may go in the other direction and the output variable `cout` will then be negative.

There are two main differences between the old and new lakebasins in [LakeData.txt](#).

1. The `ldtype` is changed to 7 for the new lakebasins
2. The outflow information (reference water level, rating curve and regulation parameters) are given on the lakebasin 's row that have the outlet.

The main outflow information was earlier given on a separate row for the multi-basin lake. The separate row should no longer be used (`ldtype` 2). It held information on the main outflow of the lake and left the lake through the last lakebasin (earlier `ldtype` 4). Data in columns `w0ref`, `rate`, `exp`, `deltaw0`, `qprod1`, `qprod2`, `datum1`, `datum2`, `qamp`, `qpha`, `regvol`, `wamp`, `limqprod` is moved from the multi-basin lake row to the row of the last lakebasin. The area of the multi-basin lake is no longer an input, but calculated from the sum of lakebasin areas.

All lakebasins will have the same `ldtype` (7). The last lakebasin (GeoData order) will be identified by HYPE. All lakebasins of a multi-basin lake need to be connected by `maindown`. No subbasins without lakebasin or with a lake belonging to other lake/multi-basin lake are allowed in between the subbasins of lakebasins.

If there are branches from other lakebasins than the last one that leave the multi-basin lake, they now need to have specified outflow information. Earlier they were calculated as a fraction of the flow leaving the lakebasin (`(1-mainpart)`) in [BranchData.txt](#). That is not possible anymore, additional outlet of a lakebasin lake now need to be specified in [LakeData.txt](#).

Figure 1 below gives an example of a multi-basin lake with three lake basin. The lake has two outlets, the main one from subbasin 3, which is the last lakebasin, and an additional one as a branch from lakebasin 2. Each lake basin has inflow from land or upstream subbasins (green). The flow within the lake is denoted with black arrows, while outflow from the lake is in blue.

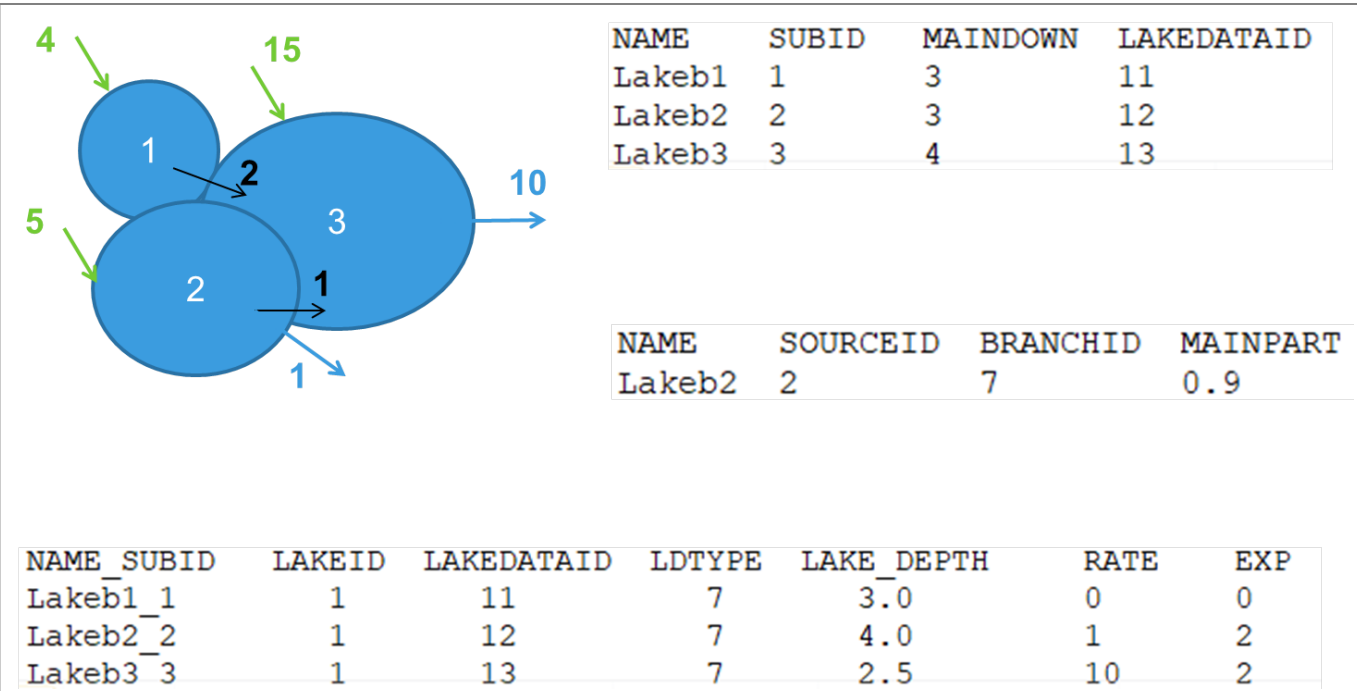


Figure 1: Schematic representation of a multi-basin lake with three lakebasins, and the flow between them. Extractions of the corresponding files; GeoData.txt, BranchData.txt and LakeData.txt.