PointSourceData.txt

This file contains points source concentrations and discharges. HYPE allows to separate three types of point sources, e.g. wastewater treatment plants, industries, and urban stormwater. Conceptually, all three are treated the same by HYPE (see description), but HYPE will separate them in the annual load result files if these are requested in output options of info.txt. Point source loads are added to main rivers as a constant flux.

Tracers (substance T1) can be added as point sources to the main river with the method above. An alternative use of point sources for tracers is possible though. Tracers can be added to the local river, internal lake, main river or outlet lake. These point sources are not separated into different types of point sources (they are signified by using type zero). These point sources can not be used together with info.txt output options `printload` or `printwaterbal`.

The point sources file can also be used for water abstraction sinks, if point source discharges volume are set to values < 0. Abstraction can be made from the main river or an outlet lake.

PointSourceData.txt is a tab-separated file located in the modeldir folder. Point sources are listed row-wise, multiple point sources for each sub-basin are allowed. The first row contains a column header with variable names. Variable names are not case-sensitive (max. 10 characters, no spaces). Columns with headings unknown to HYPE are skipped while reading the file, but are not allowed to be longer than ten characters. Columns containing character strings, e.g. descriptive meta-data, must not exceed a length of 100 characters. The columns may be in any order. A value must exist for every column and row, i.e. empty cells are not allowed.

The table below describes all *PointSourceData.txt* columns read by HYPE. The general unit (U) is used in tables of parameters and input data where the unit is not defined.

Variable ID	Unit	Description
`subid`	-	id number for subbasin in which point source is located, integer < 10^8
`ps_type`	-	**For point source**: integer signifying type of point source, between 1 and 3. Irrelevant if water abstraction. **For alternative tracer point source**: zero.
`ps_vol`	*m^3/d*	point source discharge or, if negative, abstracted water volume
`ps_tpconc`	*mg/l*	concentration of Tot-P in point source (irrelevant if water abstraction)
`ps_tnconc`	*mg/l*	concentration of Tot-N in point source (irrelevant if water abstraction)
`ps_spfrac`	-	fraction of Tot-P in point source that is in soluble form (irrelevant if water abstraction)
`ps_infrac`	-	fraction of Tot-N in point source that is in inorganic form (irrelevant if water abstraction)
`ps_t1`	*µU/L*	concentration of tracer T1 in point source (irrelevant if water abstraction)
`ps_t2`	*°C*	temperature of point source water (used for T2 simulation) (irrelevant if water abstraction)
`fromdate`	*date-time*	Gives the start date for the point source. Format: yyyy-mm-dd [HH:MM]. Set to 0 if the source is from before the simulation start. (optional, default is 0, i.e. constant source for the simulation period)
`todate`	*date-time*	Gives the end date for the point source. Format: yyyy-mm-dd [HH:MM]. Set to 0 if the source is continuing after the simulation end. (optional, default is 0, i.e. constant source for the simulation period)

Variable ID	Unit	Description
ps_source	-	**For abstraction**: integer code for location of abstraction; from main river volume (1), outlet lake volume (2) or main river volume and inflow (3), default is 1. **For alternative tracer point source**: integer code for location of source local river (1), local lake (2), main river (3) or outlet lake (4). For other point source: not used.

Examples of use of *PointSourceData.txt* and of the file structure:

First example: first row: a constant point source of type 1, e.g. waste water, with nutrients; second row: a larger constant point source of type 2, e.g. industrial effluents; third row: abstraction of water from outlet lake.

```
subid ps_type ps_vol ps_tpconc ps_tnconc ps_spfrac ps_infraq ps_source
456   1       10     0.5       40        0.3       0.9       0
765   2       2301   2         100       0.3       0.9       0
4050  3       -100   0         0         0         0         2
```

Second example: A constant point source of nitrogen and T2 increased 10-fold from March 21 2004.

```
subid ps_type ps_vol ps_tnconc ps_infraq ps_t2 fromdate   todate
456   1       10     40        0.7       4     1990-01-01 2004-03-20
456   1       100    40        0.7       4     2004-03-21 0
```

Third example: A general tracer point source to local lake at 1999-08-05.

```
subid ps_type ps_source ps_vol ps_t1 fromdate   todate
456   0       2         10     4     1999-08-05 1999-08-05
```