



1 User Guide

1.1 Geological database utility

The geological database utility is an alternative option to assign hydraulic parameters to the saturated zone component. The basic idea of this approach is that a specific soil type is assigned to a certain area in the model. Each soil type represents a set of hydraulic parameters. The soil type is assigned to the geological layers as grid code maps. Each grid code links to a set of hydraulic parameters.

The utility is an extern pre-processor to the set-up program of MIKE SHE version 5.3. In MIKE SHE version 5.4 the utility is an integrated part of the set-up program.

1.1.1 Geological database approach in MIKE SHE 5.3

In MIKE SHE version 5.3 an extern utility program pre-process the geological database input to a number of files containing horizontal conductivity, vertical conductivity, confined and unconfined storage coefficients for each geological layer. These files are added to the MIKE SHE set-up in menu F.1.2.b. The utility program is a console application to be executed from a dos-shell in your working directory. When executing the program "GeoDBase.exe" you will be prompted for the name of the input file. An example of the input file is shown in *Figure 1*.

```
Catchment grid file: maps\islandcat.T2
=====
No geo. layer      : 2
=====
Soil code map 1   : maps\lay1.T2
Soil code map 2   : maps\lay2.T2
=====
No soiltypes      : 2
=====
soil code         : 12
soil name         : sand
con H             : 1e-3
con v             : 1e-4
Sfree            : 0.25
Sart              : 0.001
=====
soil code         : 3
soil name         : clay
con H             : 4e-6
con v             : 1e-6
Sfree            : 0.15
Sart              : 0.001
=====
```

Figure 1 - Input file to GeoDBase.exe

The first line in the input file contains the name for the catchment grid file used in the set-up. Third line is the number of geological layers in the set-up. Next a number of T2 files containing soil codes is specified. The last part of the input file contains the data base parameters starting with the number of different soil types and a set of hydraulic



parameters for each soil type. The soil code is the link to the grid codes given in the T2 files.

GeoDBase.exe generates four T2 files for each geological layer. The files are named:

<name of soil code map>ConH.T2

<name of soil code map>ConV.T2

<name of soil code map>Sfree.T2

<name of soil code map>Sart.T2

These file names are inserted in menu F.1.2.b

1.1.2 Geological database approach in MIKE SHE 5.4

In MIKE SHE version 5.4 the data base option is an integrated part of the set-up program. Geological data base data are given in the bottom of the fsf-file as an external option. See *Figure 2*. Remember that you have to specify an extra soil code map corresponding to the hydraulic conditions below the bottom geological layer. If the set-up consist of 3 geological layers you most specify 4 soil code maps.

```
.
.
===== E N D   O F   F I L E =====
=====
GEOLOGICAL DATABASE: T
Soil code map 1      : maps\lay1.T2
Soil code map 2      : maps\lay2.T2
=====
No soiltypes         : 2
=====
soil code            : 12
soil name            : sand
con H                 : 1e-3
con v                 : 1e-4
Sfree                 : 0.25
Sart                  : 0.001
=====
soil code            : 3
soil name            : clay
con H                 : 4e-6
con v                 : 1e-6
Sfree                 : 0.15
Sart                  : 0.001
=====
```

Figure 2 - Specification of Geological data base data

At the present stage the option is not included in the graphical user interface. The user will still have to enter hydrogeological parameters in menu F.1.2.b – but all entered data will be overruled by the geological data base data.