User's guide

AGETWL

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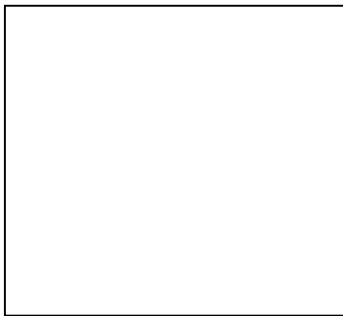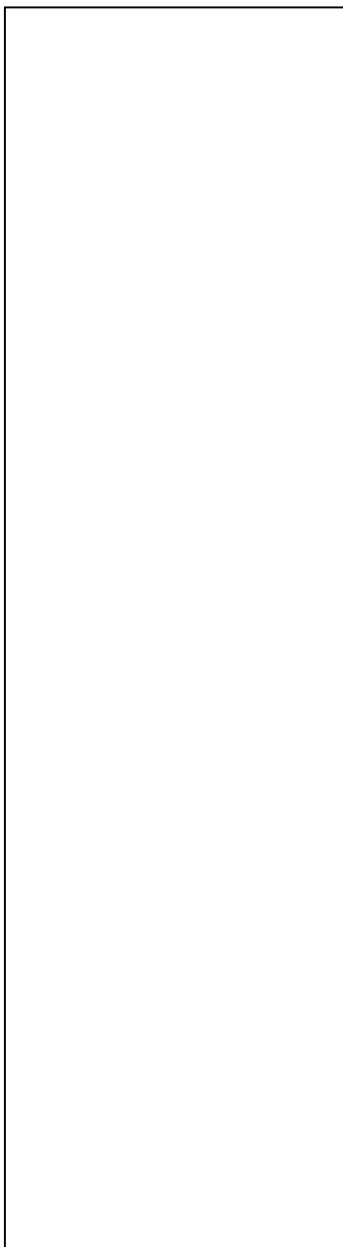
User's guide
AGETWL

This report describes the use of the software to read waterlevels along a specified trajectory

Preface

This report is a draft of the user's guide for the software that has been developed for reading waterlevels along a specified trajectory. The software consists of

- `clrsds`   a program to remove from an SDS-file all data that is not relevant for reading waterlevels
- `agetwl`   a program to read waterlevels along a specified trajectory
- `ado2md` a program to convert input files for `agetwl` from MD-format to ADOBS format and vice versa

This report describes the use of the perl scripts. It is meant primarily for end-users.

Contents

1   Introduction

In the future, the Hydro-Meteocentrum Rijnmond (HMR) will operationally compute waterlevels four times a day and store them in SDS-files. In order to reduce the size of these SDS-files, they have to be cleared from all irrelevant data. The program `clrsds` has been developed to do this.

For operational use of these data, it is necessary to determine the computed waterlevel at a number of specified points in space and time. The program `agetwl` has been developed to do this. Given a list of co-ordinates and time-instances, it searches all the SDS-files to which it has access and tries to determine the corresponding waterlevel. In most cases, `agetwl` will have to interpolate data to obtain the waterlevel at the specified place and time.

The file with co-ordinates and time-instances that is input for `agetwl` has a somewhat complex format. In order to facilitate the use of the program for other purposes, a second input file format has been defined which is much simpler. The program `ado2md` has been developed to convert between the two file formats. The program `agetwl` will only accept the more complex format, but this can be easily generated from the simpler format using `ado2md`.

2   Quick Reference

2.1   Using the script clrsds.pl

The script clrsds.pl is used to remove from an SDS-file all data that is not relevant for reading waterlevel data. In fact, it creates a new SDS-file with only the relevant data. The program copies the full contents of its `sds.doc` file from the source SDS-file to the target SDS-file. By editing the `sds.doc` file the user may modify the set of data that is copied. The script has the following options

**clrsds.pl   -runids [*runids*] -runidt [*runidt*]
                -systems [*sdsdocfile*] -back [*backgrnd*]**

runids	run identification of the source SDS-file
runidt	run identification of the target SDS-file
sdsdocfile	the name of the sds.doc file that is to be used. The default is usually allright.
backgrnd	Specifies whether the run must be performed in the background (currently applies to the processing stage of sequential runs only). Possible values are **y(es)** and **n(o).**

2.2   Using the script agetwl.pl

The script agetwl.pl is used to read waterlevels along a specified trajectory from a set of SDS-files. The script has the following options

agetwl.pl   -input [*inputfile*] -output[*outputfile*]
                 -bufsize [*bufsize*] -back [*backgrnd*]

Inputfile	name of the file with location and times for which waterlevel data must be read. This should be a file in the MD-format (see below)
Timzone	Timezone of the times that are specified in the inputfile. Supported timezones are MET GMT and UNKNOWN. When UNKNOWN is specified, the timezone of the SDS-file is used.
outputfile	name of the file into which the waterlevels are written
Bufsize	Amount of memory in Mega words, used by agetwl.
Backgrnd	Specifies whether the run must be performed in the background (currently applies to the processing stage of sequential runs only). Possible values are **y(es)** and **n(o).**

The program agetwl will search all the SDS-files in the working directory in alphabetical order. If there is more than a single experiment on a file, then each of the experiments will be searched in turn. If the requested waterlevel is found in more than one SDS-file, only the first value that is found will be written to the output file

2.2.1   Restrictions

In is assumed that the mesh in each of the experiments in each SDS-file is curvilinear and that co-ordinates are given in the RD co-ordinate system. The software should also work for rectilinear or spherical grids, but this has not been tested.

2.2.2   The format of the MD input file

The input file has the following format. All data on the first line is skipped. The remaining lines must all have 80 positions with

pos 1	don't care
pos 2-5	four digit year number of start of trajectory
pos 6-7	two digit month number of start of trajectory
pos 8-9	two digit day number of start of trajectory
pos 10	don't care
pos 11-12	two-digit hour of start of trajectory (in 0..23)
pos 13-14	two digit minute of start of trajectory (in 0..59)
pos 15-16	two digit second of start of trajectory (in 0..59)
pos 17-25	nine-digit sequence number of location within trajectory

pos 26-35   northing co-ordinate in UTM-31 with format F10.2
pos 36   don't care
pos 37-46   easting co-ordinate in UTM-31 with format F10.2
pos 47-71   don't care
pos 72-74   Julian day number of location w.r.t. the start of the
            year
pos 75-76   two digit hour of location (in -0..23)
pos 77-78   two digit minute of location (in 0..59)
pos 79-80   two digit second of location (in 0..59)

For an example, see Chapter 3.

2.2.3   The format of the output file

The output file starts with:

VALUES
            DUMMY = <val>
DATA =

which is followed by a number of lines, one for each location/time
pair. Each line has the following form:

pos 1-10   x-coordinate in the UTM frame with format F10.2
pos 12-21   y-coordinate in the UTM frame with format F10.2
pos 23-32   date in the form YYYY/MM/DD
pos 34-41   time in the form HH:MM,SS
pos 42-53   waterlevel with format F10.5

For an example, see Chapter 3.

2.3   **Using the script ado2md.pl**

The script ado2md.pl is used to convert inputfiles for `agetwl.pl` from MD format (see Section 2.2.2) to the ADOBS format and vice versa. The script has the following options

ado2md.pl   **-input** [*inputfile*] **-output**[*outputfile*]
                  -forw [*direction*]

Inputfile   name of the file with location and times for which waterlevel data must be read. This should be a file in the MD-format (see below)

Outputfile   name of the file into which the waterlevels are written

direction   Specifies whether the conversion is from ADOBS format to MD format or vice versa. Possible values are **y(es)** (ADOBS to MD) and **n(o)** (MD to ADOBS)**.**

The format of the ADOBS input file

An ADOBS input file has the following format. Each line has the following form

```
XXXXXXX.XX YYYYYYY.YY JJJJ/MM/DD HH:II,SS
```

where

X   x-co-ordinate in the RD co-ordinate system (format F10.2)
Y   y-co-ordinate in the RD co-ordinate system (format F10.2)
J   four digit year number
M   two digit month number
D   two digit day number
H   two digit hour number
I   two digit minute number
S   two digit second number

For an example, see Chapter 3.

3   Examples

```
H                                                                    HED_50
S19990519_140021      15766704.09N 568609.03E    0.0    0.0  0.0139140018
S19990519_140021      25766707.09N 568611.16E    0.0    0.0  0.0139140019
S19990519_140021      35766710.27N 568613.17E    0.0    0.0  0.0139140020
S19990519_140021      45766713.83N 568615.75E    0.0    0.0  0.0139140021
```

Example: input file for agetwl *(MD format)*

```
VALUES
 DUMMY =   9999.99
 DATA =
 568609.03 5766704.09  1999/05/19 14:00,21  -0.20628
 568611.16 5766707.09  1999/05/19 14:00,21  -0.20628
 568613.17 5766710.27  1999/05/19 14:00,21  -0.20627
 568615.75 5766713.83  1999/05/19 14:00,21  -0.20626
 568618.22 5766717.20  1999/05/19 14:00,21  -0.20626
 568620.69 5766720.20  1999/05/19 14:00,21  -0.20625
```

Example: output file from agetwl

```
 59773.94  451632.60 1999/05/19 14:00,18
 59776.16  451635.53 1999/05/19 14:00,19
 59778.28  451638.64 1999/05/19 14:00,20
 59780.97  451642.12 1999/05/19 14:00,21
 59783.55  451645.40 1999/05/19 14:00,22
 59786.12  451648.32 1999/05/19 14:00,23
 59788.58  451650.87 1999/05/19 14:00,24
```

Example: input file for ado2md *(ADOBS format)*

4   Appendices

4.1   Log-sheet

document version	date	program version	Changes with respect to the previous version
0.1	15/08/99	1.0	
0.2	11/09/00	1.0	line with format of the ADOBS input file corrected (see Section 2.3)
0.3	20/03/06	1.0	Support for timezones (VORtech)
0.4	21/11/07	?	Elimintate usage of sdsexp (VORtech)