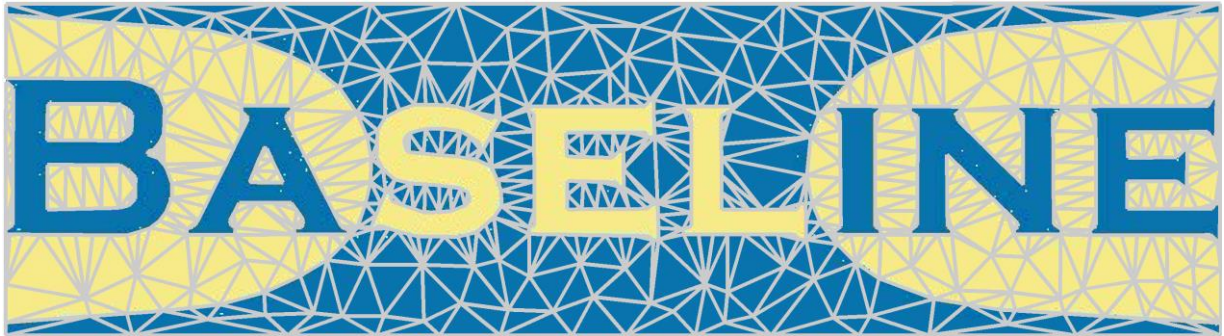




Rijkswaterstaat  
Ministry of Infrastructure  
and Water Management



## Installation Manual Baseline 6

Date	January 2023
Status	Final
Valid for	Baseline 6.3.2 or higher versions

Deltares maintains and supports Baseline according the de Service Level Agreements (SLA) with the Ministry of Infrastructure & Water Management (I&W).



## **Installation Manual Baseline 6**

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# 1 Introduction

Baseline 6 is an ArcGIS extension. Primarily, it is a database for geographical data of water systems like rivers, lakes and coastal areas. The application is meant for storage, inspecting and editing data. In addition, Baseline can be used to convert data to input(files) for D-HYDRO Suite, specifically D-Flow Flexible Mesh (D-Flow FM, simulation of hydrodynamics) and SWAN (simulation of short waves). Baseline is compatible with ArcGIS Desktop 10.5.1 or higher (hereafter ArcGIS) with an ArcGIS-Advanced license and 3D-analyst extension. For the conversion of a gridcell-averaged elevation to D-HYDRO / D-Flow FM and SWAN a Spatial Analyst extension is required.

Baseline and the related Baseline-model schematisations (databases) are developed on behalf of Rijkswaterstaat. However, Baseline can be used whenever a structured storage of data for a water system and/or a link of simulation models with a GIS environment is desired.

The purpose of this document is to guide the user in installing Baseline 6.

## 2 Installation of Baseline

### 2.1 Requirements

Baseline 6 is an extension of ArcGIS. Therefore ArcGIS needs to be installed first: ArcGIS 10.5.1 or higher. ArcGIS 10.6.1 is recommended.

In addition, remove all previous installations of Baseline. It is not possible to have multiple versions of Baseline installed on a computer at the same time.

### 2.2 Install Baseline

Mark, that there are installation programs (\*.msi) for ArcGIS 10.5.1, 10.6.1, 10.7.1 and 10.8.1.

**Step 1:** start the setup that suites the ArcGIS release, which has been installed on your system. Follow the instructions.  
After installation Baseline 6 is integrated in ArcMap.

For a correct functioning of Baseline 6 there should be a change in the registry settings. This must be done manually for each user.

**Step 2:**

- Go to the folder, where Baseline is installed, for example: C:\Program files\Deltares\Baseline
- Double click on the file \Template\no\_caching\_ArcGIS<version>.reg.

A confirmation will be presented.

If not, then the following message will appear when starting Baseline.

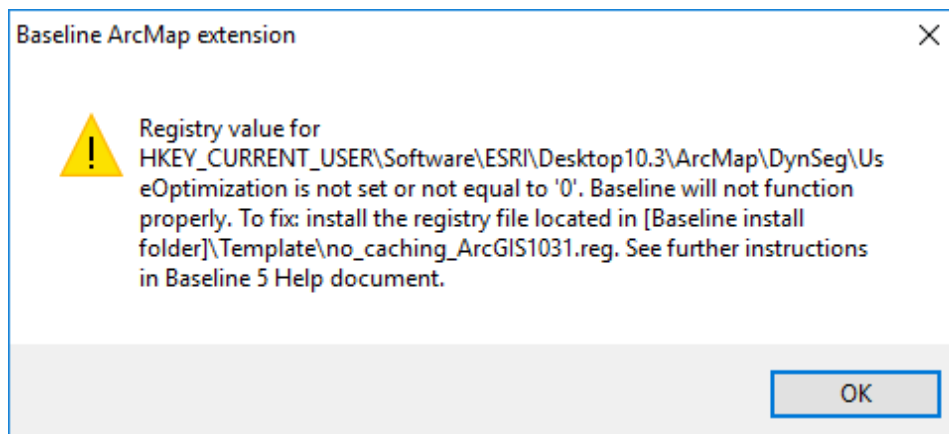


Figure 1: Error when no\_caching.reg is not run

### 2.3 First start-up

1. Start ArcMap;
2. Load the Baseline extension: *Customize > Extensions* (figure 2 and check "Baseline ArcMap extension" (figure 3);
3. Show the Baseline toolbar: *Customize > Toolbars* and select "Baseline" (figure 4).

After this the Baseline toolbar appears. This toolbar is showed every time ArcMap is started. When this is not the case repeat the previous steps.

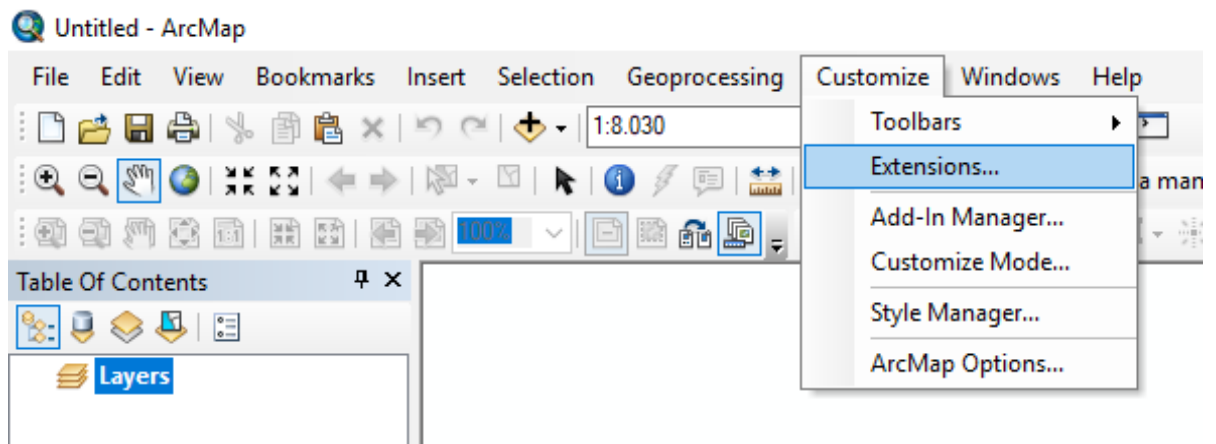


Figure 2: Select available extensions

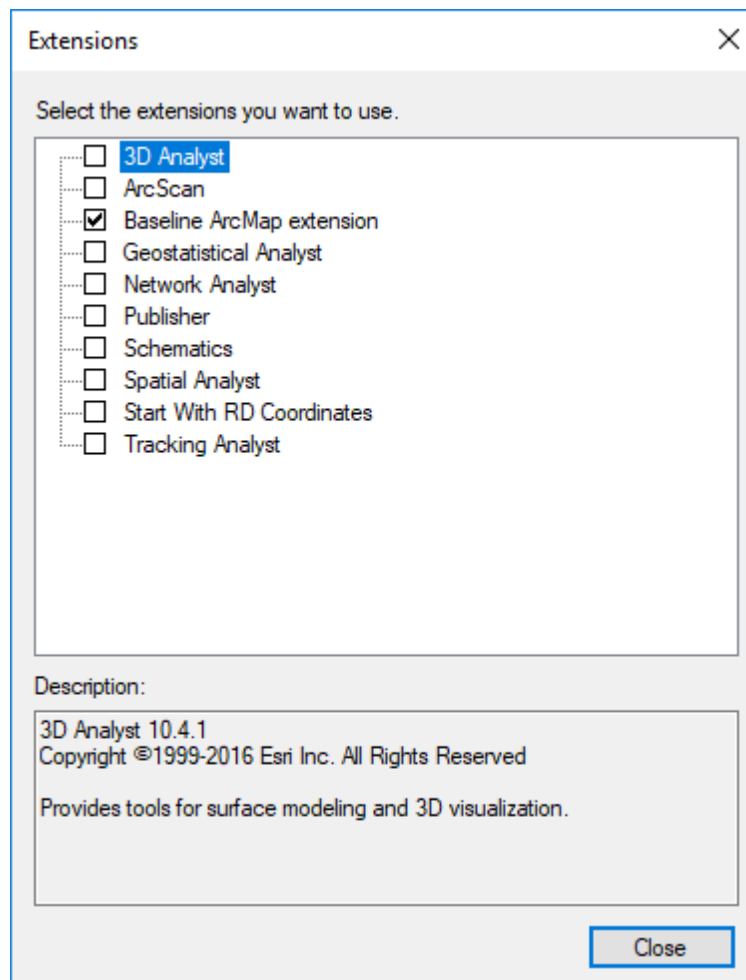


Figure 3: Activate Baseline extension

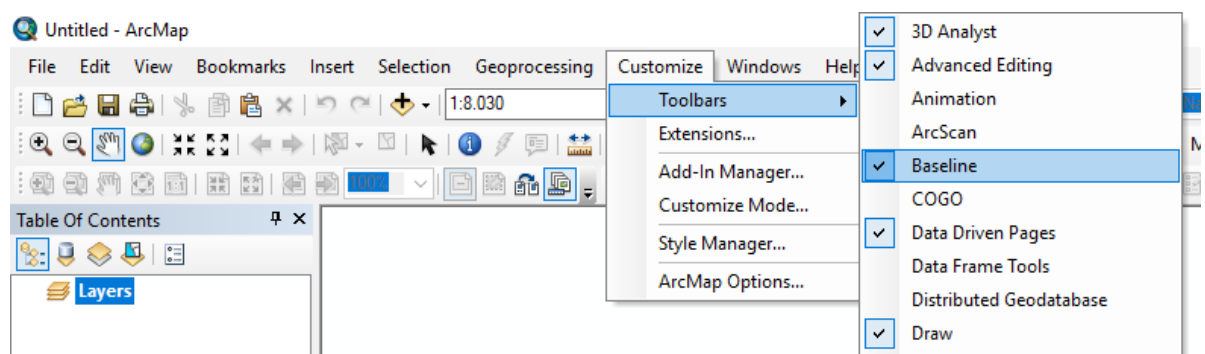


Figure 4: Activate Baseline toolbar



### 2.4 Upgrade of Python add-ons

ArcGIS uses a rather old Python version (2.7). Bas2FM requires higher versions for some add-ons – as is listed in paragraph 3.1. To complete the installation, some Python add-ons need to be upgraded.

The required upgrades for add-ons NetCDF and Shapely are already placed on your hard-drive during the installation of Baseline. You can find them for example here:

`C:\Program Files\Deltares\Baseline\scripts\Bas2FM\3rdparty_INSTALL_FIRST\`

We recommend to use PIP.

PIP is a useful tool to easily install published Python packages (like Numpy, NetCDF4, Shapely) on your machine. Python 2.7.9 and higher are shipped with PIP included in the python-directory. The default PIP version is not sufficient to install Shapely, so an update of PIP is recommended.

Follow the next steps:

- 1) Open command line and browse to the python-scripts directory – for example:  
`C:\Python27\ArcGIS10.6\` - type (omit the prefix):
  - a) `cd C:\Python27\ArcGIS10.6\`
- 2) Upgrade PIP - type (omit the prefix):
  - a) `python -m pip install --upgrade pip`
- 3) Install the Microsoft Visual C++ Compiler Package for Python 2.7:
  - a) Download from:  
<https://web.archive.org/web/20210106040224/https://download.microsoft.com/download/d/7/9/6/796EF2E4-801B-4FC4-AB28-B59FBF6D907B/VCForPython27.msi>
  - b) Run the installation (\*.msi)
- 4) Copy the necessary updates (NetCDF4 and Shapely) from the <BaselineInstallation> folder to an easily accessible place<sup>1</sup> on your hard-drive, for example: `C:\Users\<username>\`
- 5) Upgrade:
  - a) Return to the Command prompt and type (omit the prefix):
    - i) `python -m pip install cftime==1.5.1.1`
    - ii) `python -m pip install C:\Users\<username>\netCDF4-1.5.3-cp27-cp27m-win32.whl`
    - iii) `python -m pip install C:\Users\<username>\Shapely-1.5.17-cp27-cp27m-win32.whl`

Proceed with testing the installation, as described in chapter 4.

<sup>1</sup> The main reason to do this to avoid spaces in the path, as in `C:\Program Files`. So, choose a pathname without spaces.

### 3 Upgrade of Bas2FM

This is not necessary while installing Baseline the first time, but only if an upgrade (patch) of Bas2FM needs to be installed.

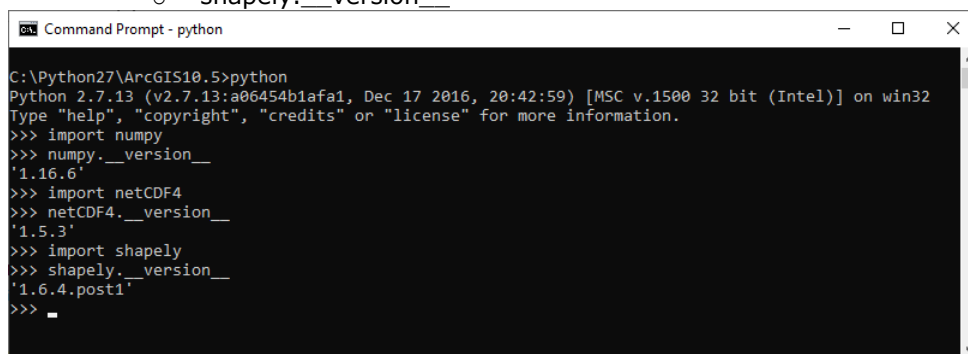
#### 3.1 Requirements

- ArcGIS 10.5.1 or higher.
- Python 2.7.8 or higher minor versions of Python 2.7.  
Mark that ArcGIS 10.5.1 installs Python 2.7.12; ArcGIS 10.8 installs 2.7.18.
- Numpy version 1.7 or higher.  
ArcGIS 10.6.1 automatically installs Numpy version 1.9.3.
- NetCDF4 version 1.1.0 or higher.  
ArcGIS 10.6.1 installs an older NetCDF4 version. So, after installing Baseline the first time an upgrade is necessary (see 2.4)
- Shapely version 1.5 or higher.  
ArcGIS 10.6.1 does not install Shapely. So, after installing Baseline the first time an update is necessary (see 2.4)

#### 3.2 How to check which versions of Numpy, NetCDF4 and Shapely are used

An easy way to check is by using the command window:

- Open command line and browse to the python-scripts directory – for example:  
C:\Python27\ArcGIS10.6\ - type (omit the prefix):
  - `cd C:\Python27\ArcGIS10.6\`
- Open python - type (omit the prefix):
  - `python`
- Enter the following lines (use exact casing as shown; `__version__` uses two underscores at both sides for *version*):
  - `import numpy`
  - `numpy.__version__`
  - `import netCDF4`
  - `netCDF4.__version__`
  - `import shapely`
  - `shapely.__version__`



```
Command Prompt - python
C:\Python27\ArcGIS10.5>python
Python 2.7.13 (v2.7.13:a06454b1afa1, Dec 17 2016, 20:42:59) [MSC v.1500 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import numpy
>>> numpy.__version__
'1.16.6'
>>> import netCDF4
>>> netCDF4.__version__
'1.5.3'
>>> import shapely
>>> shapely.__version__
'1.6.4.post1'
>>>
```

Figure 5. Check versions of Python and add-ons using command window.

### 3.3 Upgrade Bas2FM to newer version

- Close any running Arc-programs
- In the Bas2FM folder, delete all \*.pyc (compiled python) files.
- Update all other files (\*.py)

Open ArcCatalog/ArcMap. If the toolbox was already loaded in the ArcToolbox, Arc will automatically compile the latest Bas2FM version and you are ready to go.

### 3.4 Use of Bas2FM as stand-alone tool

Bas2FM is delivered with Baseline 6. After the installation of Baseline 6 the tool will be available from the Baseline 6 install folder: <BaselineInstallation>\Scripts\Bas2FM. The main function is also available in the Baseline 6 toolbar.

The tools can also be activated, as follows:

- Open ArcMap or ArcCatalog.  
The following procedure is similar for both programs:
- Open the ArcToolbox window.
- Rightmouse click on 'ArcToolbox'.
- Click 'Add Toolbox'
- Browse to <Baseline 6 install location>\scripts\.
- Select the toolbox BaselineTools.tbx
- To store these settings for later sessions: Rightmouse click on 'ArcToolbox'.
- 'Save settings' > 'To Default'

The other method is to use the BaselineTools.tbx toolbox, which resides under <<install\_dir>>\Scripts. This toolbox contains all Baseline tools that have been developed and may be of use throughout your workflow. You can follow the installation instructions above to install BaselineTools.tbx.

#### Note:

We have encountered a strange bug using NetCDF4 in tools executed from an ArcGIS.tbx-toolbox. During execution for the 2<sup>nd</sup> time during a ArcGIS session, sometimes an error is shown when reading data from the NetCDF file. ESRI has no solution for it (yet).

A workaround is to load the dummy toolbox accompanying Bas2FM and Baseline in the ArcToolbox. This somehow prevents the error to occur.

Another solution is to close ArcCatalog/ArcMap and re-open it.

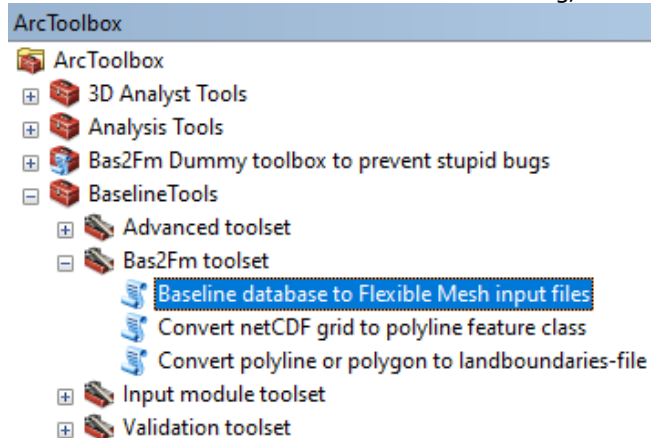


Figure 6: Bas2FM toolset as part of Baseline Tools.tbx in ArcToolbox

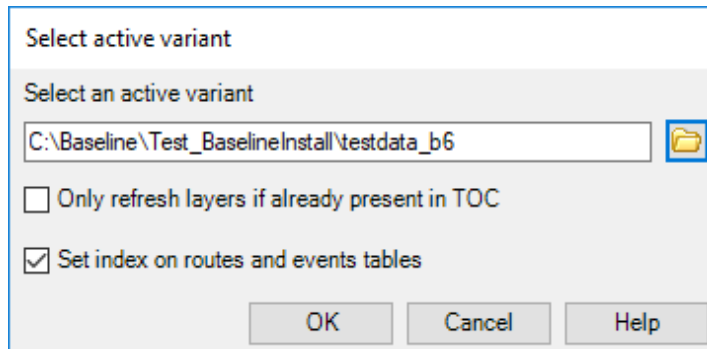
### 4 Testing the installation

In order to check if the installation is successful a testdataset is provided.

When this test is successfully all necessary components are installed and the Baseline functions perform adequately.

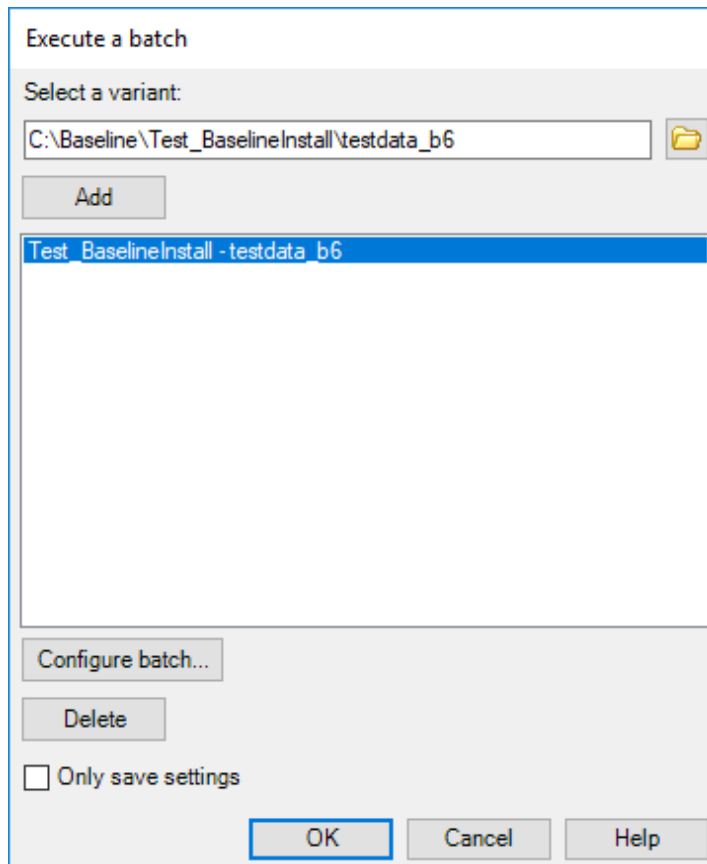
The following steps should be carried out:

- Create a folder – for example: *<Drive>\Baseline*
- Start ArcMap using an advanced license
- Activate the Baseline toolbar as mentioned in paragraph 2.3
- Click in Baseline toolbar on “Data Management” and click on “Set active variant”
- Browse to *<Drive>\Baseline\Test\_BaselineInstall\testdata\_b6*



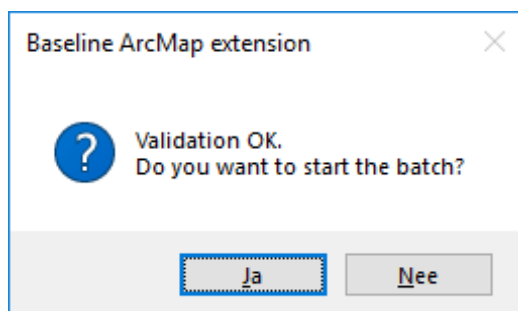
Now the Baseline database testdata\_b6 is added to the Table Of Contents (TOC)

1. If the Folder structure is not on drive C: two parameterfiles should be changed:
  - a. Open  
*<Drive>\Baseline\Test\_BaselineInstall\testdata\_b6\metainfo\lists\netcdf\_params.txt* and modify the drive letter in line 2, 4 and 6 and save the file
  - b. Open  
*<Drive>\Baseline\Test\_BaselineInstall\testdata\_b6\metainfo\lists\bas2fm\_parameters.txt* and modify the drive letter in line 4, 6 and 8 and save the file
2. Click in Baseline toolbar on “Tools” and click on “Batch”

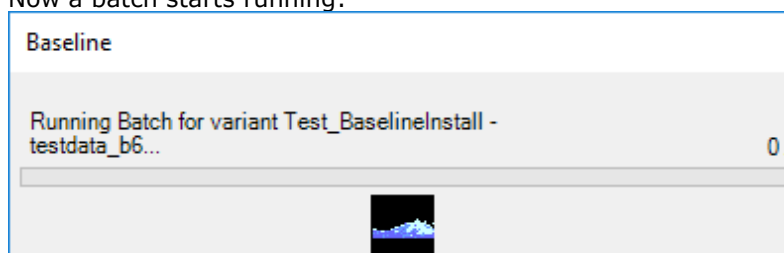


3. Click on *Test\_BaselineInstall\testdata\_b6* below the "Add" button, the line will turn blue
4. Click on "OK"

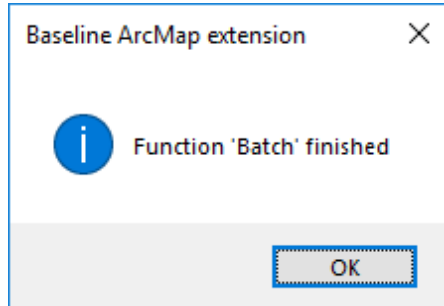
The following message appears, click on "Ja / Yes":



Now a batch starts running:



After a successful batch the following message appears:



5. In order to check the batch results go to  
`<Drive>\Baseline\Test_BaselineInstall\testdata_b6\metainfo\logs`
6. Open FunctionBatch.log in a texteditor, the result should be:

```
Start log for NLFH01411, Baseline version = 6.3.0.2541, ArcGIS version = 10.5.1.7333]
14:57:35 INFO - Function activated at 14-03-2022 14:57:35
14:57:35 INFO - Validation started
14:57:35 INFO - Validation started for Assimilate Measures
14:57:35 INFO - Validation OK
14:57:35 INFO - InitialWaterLevel in batch, the initialwaterlevel tool in BaselineTools.tbx will be
activated. Logging goes to ArcGIS's Geoprocessing
14:57:35 INFO - Validation started for InitialWaterLevel
14:57:35 INFO - Validation OK
14:57:35 INFO - Function InitialWaterLevel successfully finished at 14-03-2022 14:57:35
14:57:35 INFO - netCDF in batch, the bas2fm2 tool in BaselineTools.tbx will be activated (when
executing).
14:57:35 INFO - Validation started for netCDF
14:57:35 INFO - Validation OK
14:57:35 INFO - Function netCDF successfully finished at 14-03-2022 14:57:35
14:57:35 INFO - Bas2Fm in batch, the bas2fm tool in BaselineTools.tbx will be activated (when
executing). Logging goes to ArcGIS's Geoprocessing
14:57:35 INFO - Validation started for Bas2Fm
14:57:35 INFO - Validation OK
14:57:35 INFO - Function Bas2Fm successfully finished at 14-03-2022 14:57:35
14:57:35 INFO - Validation finished
[End log for NLFH01411]
[Start log for NLFH01411, Baseline version = 6.3.0.2541, ArcGIS version = 10.5.1.7333]
14:57:38 INFO - Executing function Assimilate Measures
14:59:59 INFO - Executing function InitialWaterLevel
15:00:36 INFO - Finished executing InitialWaterLevel for variant/measure
C:\Baseline\Test_BaselineInstall\testdata_b6
15:00:36 INFO - Executing function netCDF
15:04:32 INFO - Finished executing netCDF for variant/measure
C:\Baseline\Test_BaselineInstall\testdata_b6
15:04:32 INFO - Executing function Bas2Fm
15:22:52 INFO - Finished executing bas2fm for variant/measure
C:\Baseline\Test_BaselineInstall\testdata_b6
[End log for NLFH01411]
[Start log for NLFH01411, Baseline version = 6.3.0.2541, ArcGIS version = 10.5.1.7333]
```

15:36:34 INFO - **Function successfully finished** at 14-03-2022 15:36:34  
[End log for NLFH01411]

7. Open FunctionAssimilateMeasures.log in a texteditor, the result should be:

```
[Start log for NLFH01411, Baseline version = 6.3.0.2541, ArcGIS version = 10.5.1.7333]
14-03-2022 14:57:35 INFO - Function activated at 14-03-2022 14:57:35
14-03-2022 14:57:35 INFO - Validation of measure list started.
14-03-2022 14:57:35 INFO - Reading measure list
14-03-2022 14:57:35 INFO - Started validation of measure
C:\Baseline\Test_BaselineInstall\measures_baseline6\wa_dtlgroenl_a1
14-03-2022 14:57:35 WARN - measure_contour_polygons not found in append list.
14-03-2022 14:57:35 INFO - Validation of measure list finished. No errors found.
14-03-2022 14:57:35 INFO - Check if the previous Baseline protocol check for variant
C:\Baseline\Test_BaselineInstall\testdata_b6 was successful
14-03-2022 14:57:35 INFO - Previous Baseline protocol check for variant
C:\Baseline\Test_BaselineInstall\testdata_b6 was successful
14-03-2022 14:57:35 INFO - No new Baseline protocol check necessary
14-03-2022 14:57:35 INFO - Checking if the previous Baseline protocol check for measure
C:\Baseline\Test_BaselineInstall\measures_baseline6\wa_dtlgroenl_a1 was successful
14-03-2022 14:57:35 INFO - Previous Baseline protocol check for measure
C:\Baseline\Test_BaselineInstall\measures_baseline6\wa_dtlgroenl_a1 was successful
14-03-2022 14:57:35 INFO - No new Baseline protocol check necessary
14-03-2022 14:57:35 INFO - Function successfully finished at 14-03-2022 14:57:35
[End log for NLFH01411]
[Start log for NLFH01411, Baseline version = 6.3.0.2541, ArcGIS version = 10.5.1.7333]
14-03-2022 14:57:38 INFO - Execution of Assimilate Measures started.
14-03-2022 14:57:38 DEBUG - Begin memory: 685 MB
14-03-2022 14:57:38 INFO - +++++
14-03-2022 14:57:38 INFO - Started assimilation of measure
C:\Baseline\Test_BaselineInstall\measures_baseline6\wa_dtlgroenl_a1
14-03-2022 14:57:38 WARN - The variant is not within a data directory called 'baseline' OR a
measure was selected
14-03-2022 14:57:38 DEBUG -
C:\Baseline\Test_BaselineInstall\measures_baseline6\wa_dtlgroenl_a1 VariantDirState: Invalid
14-03-2022 14:57:38 INFO -
14-03-2022 14:57:38 INFO - +++++ ERASE: Now will process 1 FC's found in the EraseList
14-03-2022 14:57:38 INFO - ++++++++ Processing 1 of 1 in EraseList: erase_elevated_line
14-03-2022 14:57:38 INFO - Start erase procedure of <elevated_line_routes> from
[wa_dtlgroenl_a1] on testdata_b6
14-03-2022 14:57:38 DEBUG - Start of erase (with erase tool) on
C:\Baseline\Test_BaselineInstall\testdata_b6\baseline.gdb\elevation\elevated_line_routes. Output:
elevated_line_routes_erase
14-03-2022 14:57:47 DEBUG - End of erase (with erase tool). Elapsed: 0,2 min. DMem: 10 MB,
Mem: 695 MB
14-03-2022 14:57:47 DEBUG - Start of MultipartToSinglepart for FC elevated_line_routes. Output:
elevated_line_routes_single
14-03-2022 14:57:49 DEBUG - End of MultipartToSinglepart. Elapsed: 0 min. DMem: -1 MB, Mem:
694 MB
14-03-2022 14:57:49 DEBUG - Start deleting all rows from FC elevated_line_routes
```

14-03-2022 14:57:49 DEBUG - End of deleting rows 395. Elapsed: 0 min. DMem: 0 MB, Mem: 694 MB

14-03-2022 14:57:49 DEBUG - Start of NEW Copy singleparts to elevated\_line\_routes, origin: elevated\_line\_routes\_single

14-03-2022 14:57:49 DEBUG - CopyRecordsWithEditSessions from: C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\elevation\elevated\_line\_routes\_single to C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\elevation\elevated\_line\_routes

14-03-2022 14:57:50 DEBUG - End of NEW Copy singleparts, 394 rows copied to variant. Elapsed: 0 min. DMem: 0 MB, Mem: 694 MB

14-03-2022 14:57:50 DEBUG - Start of delete temporary FCs

14-03-2022 14:57:50 DEBUG - End of delete FCs

14-03-2022 14:57:50 DEBUG - Start of DeleteNonMatchingEventRecords for FC C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\elevated\_line\_events

14-03-2022 14:57:51 DEBUG - End of DeleteNonMatchingEventRecords, 71 not matching events deleted

14-03-2022 14:57:51 INFO - Finished erase procedure of <elevated\_line\_routes>. Elapsed: 0,2 min. Mem: 697 MB

14-03-2022 14:57:51 INFO -

14-03-2022 14:57:51 INFO - ++++ APPEND: Now will process 8 FC's found in the AppendList

14-03-2022 14:57:51 INFO - ++++++++ Processing 1 of 8 in AppendList: surfacelevel\_points

14-03-2022 14:57:51 INFO - Start append procedure of <surfacelevel\_points> from [wa\_dtlgroenl\_a1] on testdata\_b6

14-03-2022 14:57:51 DEBUG - Start of append (for lines and points)

14-03-2022 14:57:51 DEBUG - Start of AppendTerrainPoints for FC elevation/surfacelevel\_points

14-03-2022 14:58:04 DEBUG - End of Append\_management for FC elevation/surfacelevel\_points, 0 rows copied to variant. Elapsed: 0,2 min. DMem: 8 MB, Mem: 705 MB

14-03-2022 14:58:04 DEBUG - End of append (for lines and points)

14-03-2022 14:58:04 INFO - Finished append procedure of <surfacelevel\_points>. Elapsed: 0,2 min. Mem: 705 MB

14-03-2022 14:58:04 INFO - ++++++++ Processing 2 of 8 in AppendList: terrain\_edge\_3d\_lines

14-03-2022 14:58:04 INFO - Start append procedure of <terrain\_edge\_3d\_lines> from [wa\_dtlgroenl\_a1] on testdata\_b6

14-03-2022 14:58:04 DEBUG - Start of append (for lines and points)

14-03-2022 14:58:04 DEBUG - Start of Append\_NEW for FC elevation/terrain\_edge\_3d\_lines, within edit session

14-03-2022 14:58:04 DEBUG - CopyRecordsWithEditSessions from: C:\Baseline\Test\_BaselineInstall\measures\_baseline6\wa\_dtlgroenl\_a1\baseline.gdb\elevation\terrain\_edge\_3d\_lines to C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\elevation\terrain\_edge\_3d\_lines

14-03-2022 14:58:05 DEBUG - End of Append\_management for FC elevation/terrain\_edge\_3d\_lines, 2 rows copied to variant. Elapsed: 0 min. DMem: 1 MB, Mem: 706 MB

14-03-2022 14:58:05 DEBUG - End of append (for lines and points)

14-03-2022 14:58:05 INFO - Finished append procedure of <terrain\_edge\_3d\_lines>. Elapsed: 0 min. Mem: 706 MB

14-03-2022 14:58:05 INFO - ++++++++ Processing 3 of 8 in AppendList: elevated\_line\_routes

14-03-2022 14:58:05 INFO - Start append procedure of <elevated\_line\_routes> from [wa\_dtlgroenl\_a1] on testdata\_b6

14-03-2022 14:58:05 DEBUG - Start of append (for lines and points)

14-03-2022 14:58:05 DEBUG - Start of CalcStatistics. Calculate max(NUMBER) in variant route

14-03-2022 14:58:05 DEBUG - End of CalcStatistics. Elapsed: 0 min. DMem: 1 MB, Mem: 707 MB



14-03-2022 14:58:08 DEBUG - Start of CalculateField for FC  
C:\Baseline\Test\_BaselineInstall\measures\_baseline6\wa\_dtlgroenl\_a1\baseline.gdb\elevation/elevated\_line\_routes\_copy. Increasing values of NUMBER on measure route

14-03-2022 14:58:08 DEBUG - End of CalculateField for FC. Elapsed: 0 min. DMem: 1 MB, Mem: 708 MB

14-03-2022 14:58:10 DEBUG - Start of CalculateField for table  
C:\Baseline\Test\_BaselineInstall\measures\_baseline6\wa\_dtlgroenl\_a1\baseline.gdb\elevated\_line\_events\_copy. Increasing values of NUMBER on measure events

14-03-2022 14:58:11 DEBUG - End of CalculateField for table. Elapsed: 0 min. DMem: 0 MB, Mem: 708 MB

14-03-2022 14:58:11 DEBUG - Start of Append\_NEW for EVENTS TABLE  
C:\Baseline\Test\_BaselineInstall\measures\_baseline6\wa\_dtlgroenl\_a1\baseline.gdb\elevated\_line\_events

14-03-2022 14:58:11 DEBUG - End of Append\_NEW for EVENTS TABLE, 85 rows copied to variant. Elapsed: 0 min. DMem: 0 MB, Mem: 708 MB

14-03-2022 14:58:11 DEBUG - Start of Append\_NEW for Routes FC elevation/elevated\_line\_routes, within edit session

14-03-2022 14:58:11 DEBUG - CopyRecordsWithEditSessions from:  
C:\Baseline\Test\_BaselineInstall\measures\_baseline6\wa\_dtlgroenl\_a1\baseline.gdb\elevation/elevated\_line\_routes\_copy to  
C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\elevation/elevated\_line\_routes

14-03-2022 14:58:11 DEBUG - End of Append\_NEW for Routes FC elevation/elevated\_line\_routes, 1 rows copied to variant. Elapsed: 0 min. DMem: 0 MB, Mem: 708 MB

14-03-2022 14:58:12 DEBUG - Start of DeleteNonMatchingEventRecords for FC  
C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\elevated\_line\_events

14-03-2022 14:58:12 DEBUG - End of DeleteNonMatchingEventRecords, 0 not matching events deleted

14-03-2022 14:58:12 DEBUG - End of append (for lines and points)

14-03-2022 14:58:12 INFO - Finished append procedure of <elevated\_line\_routes>. Elapsed: 0,1 min. Mem: 710 MB

14-03-2022 14:58:12 INFO - ++++++++ Processing 4 of 8 in AppendList: section\_polygons

14-03-2022 14:58:12 INFO - Start append procedure of <section\_polygons> from [wa\_dtlgroenl\_a1] on testdata\_b6

14-03-2022 14:58:12 DEBUG - Start of append (with update tool, Advanced License). Target: C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\models\section\_polygons\_append

14-03-2022 14:58:13 DEBUG - End of append (with update tool, Advanced License)

14-03-2022 14:58:14 DEBUG - Start of MultipartToSinglepart for FC  
C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\models\section\_polygons

14-03-2022 14:58:15 DEBUG - End of MultipartToSinglepart. Elapsed: 0 min. DMem: 0 MB, Mem: 711 MB

14-03-2022 14:58:16 INFO - Finished append procedure of <section\_polygons>. Elapsed: 0,1 min. Mem: 711 MB

14-03-2022 14:58:16 INFO - ++++++++ Processing 5 of 8 in AppendList: flow\_blocking\_polygons

14-03-2022 14:58:16 INFO - Start append procedure of <flow\_blocking\_polygons> from [wa\_dtlgroenl\_a1] on testdata\_b6

14-03-2022 14:58:16 DEBUG - Start of append (with update tool, Advanced License). Target: C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\models\flow\_blocking\_polygons\_append

14-03-2022 14:58:17 DEBUG - End of append (with update tool, Advanced License)

14-03-2022 14:58:17 DEBUG - Start of MultipartToSinglepart for FC  
C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\models\flow\_blocking\_polygons

14-03-2022 14:58:19 DEBUG - End of MultipartToSinglepart. Elapsed: 0 min. DMem: 0 MB, Mem: 711 MB  
14-03-2022 14:58:19 INFO - Finished append procedure of <flow\_blocking\_polygons>. Elapsed: 0,1 min. Mem: 711 MB  
14-03-2022 14:58:19 INFO - ++++++++ Processing 6 of 8 in AppendList: land\_use\_polygons  
14-03-2022 14:58:19 INFO - Start append procedure of <land\_use\_polygons> from [wa\_dtlgroenl\_a1] on testdata\_b6  
14-03-2022 14:58:19 DEBUG - Start of append (with update tool, Advanced License). Target: C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\roughness\land\_use\_polygons\_append  
14-03-2022 14:58:23 DEBUG - End of append (with update tool, Advanced License)  
14-03-2022 14:58:24 DEBUG - Start of MultipartToSinglepart for FC  
C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\roughness\land\_use\_polygons  
14-03-2022 14:58:29 DEBUG - End of MultipartToSinglepart. Elapsed: 0,1 min. DMem: 3 MB, Mem: 714 MB  
14-03-2022 14:58:29 INFO - Finished append procedure of <land\_use\_polygons>. Elapsed: 0,2 min. Mem: 714 MB  
14-03-2022 14:58:29 INFO - ++++++++ Processing 7 of 8 in AppendList: land\_use\_points  
14-03-2022 14:58:29 INFO - Start append procedure of <land\_use\_points> from [wa\_dtlgroenl\_a1] on testdata\_b6  
14-03-2022 14:58:29 DEBUG - Start of append (for lines and points)  
14-03-2022 14:58:29 DEBUG - Start of Append\_NEW for FC roughness\land\_use\_points  
14-03-2022 14:58:29 DEBUG - CopyRecords from:  
C:\Baseline\Test\_BaselineInstall\measures\_baseline6\wa\_dtlgroenl\_a1\baseline.gdb\roughness\land\_use\_points to  
C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\roughness\land\_use\_points  
14-03-2022 14:58:29 DEBUG - End of Append\_management for FC roughness\land\_use\_points, 11 rows copied to variant. Elapsed: 0 min. DMem: 0 MB, Mem: 714 MB  
14-03-2022 14:58:29 DEBUG - End of append (for lines and points)  
14-03-2022 14:58:29 INFO - Finished append procedure of <land\_use\_points>. Elapsed: 0 min. Mem: 714 MB  
14-03-2022 14:58:29 INFO - ++++++++ Processing 8 of 8 in AppendList: land\_use\_lines  
14-03-2022 14:58:29 INFO - Start append procedure of <land\_use\_lines> from [wa\_dtlgroenl\_a1] on testdata\_b6  
14-03-2022 14:58:29 DEBUG - Start of append (for lines and points)  
14-03-2022 14:58:29 DEBUG - Start of Append\_NEW for FC roughness\land\_use\_lines  
14-03-2022 14:58:29 DEBUG - CopyRecords from:  
C:\Baseline\Test\_BaselineInstall\measures\_baseline6\wa\_dtlgroenl\_a1\baseline.gdb\roughness\land\_use\_lines to C:\Baseline\Test\_BaselineInstall\testdata\_b6\baseline.gdb\roughness\land\_use\_lines  
14-03-2022 14:58:29 DEBUG - End of Append\_management for FC roughness\land\_use\_lines, 1 rows copied to variant. Elapsed: 0 min. DMem: 0 MB, Mem: 714 MB  
14-03-2022 14:58:29 DEBUG - End of append (for lines and points)  
14-03-2022 14:58:29 INFO - Finished append procedure of <land\_use\_lines>. Elapsed: 0 min. Mem: 714 MB  
14-03-2022 14:58:29 INFO - Finished assimilation of measure  
C:\Baseline\Test\_BaselineInstall\measures\_baseline6\wa\_dtlgroenl\_a1  
14-03-2022 14:58:29 INFO -  
14-03-2022 14:58:29 INFO - FINAL STEPS....  
14-03-2022 14:58:29 INFO - Start of Dissolve section\_polygons  
14-03-2022 14:58:31 DEBUG - Start of Append to model\_area\_polygon  
14-03-2022 14:58:32 DEBUG - End of Append  
14-03-2022 14:58:32 INFO -

```
14-03-2022 14:58:32 INFO - Build terrain...
14-03-2022 14:58:40 INFO - End of Build terrain
14-03-2022 14:58:40 INFO -
14-03-2022 14:58:40 INFO - Compacting FGDB variant...
14-03-2022 14:59:58 DEBUG - Result compact: True
14-03-2022 14:59:58 INFO - End of Compacting FGDB variant
14-03-2022 14:59:58 INFO - Execution of Assimilate Measures finished. Elapsed: 2,3 min.
DMem: 27 MB, Mem: 711,828125 MB
[End log for NLFH01411]
```

8. Open waterleveltool.log in a texteditor, the result should be:

```
=====
=====
Waterleveltool
Start: 2022-03-14 14:59:59.946000
Version: 0.1.6
-----
Delete any existing waterlevel datasets.
Dissolve SECTION to single-part continuous features
Take 10cm of bounds to ensure near-complete (minus 10cm) data collection
Start defining bank elevation of SECTION 1 and 2
Dissolve SECTION12 to single-part continuous features
Convert SECTION12 to 3D-polylines
Select section12/model boundary from lines
Select section12/3 boundary from lines
Define elevation on SECTION12/3 boundary vertices
Erase open-water-bodies within SECTION12
Define elevation of open-water-bodies boundaries
Define elevation of open-water-bodies connected to SECTION12. Use maximum Z value
of SECTION12 at connection
Define elevation of disconnected PLASSEN
Take median elevation of open-water-bodies boundaries
Create water level boundaries based on SECTION12 + open-water-bodies
Create bankfull waterlevel model...
Cleaning intermediate data...
Waterleveltool succeeded: 2022-03-14 15:00:35.815000
=====
=====
```

9. Open bas2fm.log in a texteditor, the result should be:

```
15:04:34 - INFO:
=====
=====
15:04:34 - INFO: Bas2Fm for Baseline 6 conversion
15:04:34 - INFO: Start: 14-03-2022 15:04:34
15:04:34 - INFO: Baseline Version: 6.3.0.2541
15:04:34 - INFO: Bas2FM Version: 1.0.23
15:04:34 - INFO: ArcGIS Version: 10.5.1
15:04:34 - INFO: -----
15:04:34 - INFO: The following parameters are used for this conversion.
```

15:04:34 - INFO: Baseline directory: C:\Baseline\Test\_BaselineInstall\testdata\_b6  
15:04:34 - INFO: Model name: test\_install  
15:04:34 - INFO: NetCDF GDB: C:\Baseline\Test\_BaselineInstall\netgeom145\w15\_net.gdb  
15:04:34 - INFO: Netcdf: C:\Baseline\Test\_BaselineInstall\netgeom145\w15\_net.nc  
15:04:34 - INFO: Netgeom: C:\Baseline\Test\_BaselineInstall\netgeom145\w15\_netgeom.nc  
15:04:34 - INFO: Model boundary: None  
15:04:34 - INFO: CDF enclosure: False  
15:04:34 - INFO: Convert sections: True  
15:04:34 - INFO: Update elevation:True nodes Interpolated:False  
15:04:34 - INFO: Convert fixed weirs: True  
15:04:34 - INFO: Convert flow blocking polygons: True  
15:04:34 - INFO: Convert flow blocking lines: True  
15:04:34 - INFO: Convert land use polygons/lines/points: True True True  
15:04:34 - INFO: Convert calibration section polygons: True  
15:04:34 - INFO: Convert bed characteristics: True  
15:04:34 - INFO: Convert bridges: True  
15:04:34 - INFO: Convert sources/sinks: True  
15:04:34 - INFO: Convert structures: True  
15:04:34 - INFO: Convert output locations: True  
15:04:34 - INFO: Convert cross sections: True  
15:04:34 - INFO: Convert initial water level: True  
15:04:34 - INFO: Create model folder structure in C:\Baseline\Test\_BaselineInstall\testdata\_b6  
15:04:35 - INFO: Copy grid to output directory  
15:04:36 - INFO: Write elevation data to cell nodes  
15:06:26 - INFO: Update Z-values in test\_install\_net.nc  
15:06:44 - INFO: Write test\_install\_enc.pol file  
15:06:47 - INFO: Write test\_install\_dry.pol file  
15:06:47 - INFO: Convert weirs from terrain\_jump\_3d\_routes to pli-file  
15:06:53 - INFO: Convert weirs from elevated\_line\_routes to pli-file  
15:06:55 - INFO: Writing fixed weir pli-file  
15:06:57 - INFO: Convert bridges from bridge\_routes to pli-file  
15:06:57 - INFO: Writing bridge pli-file  
15:07:04 - INFO: Convert flow\_blocking\_polygons to in\_memory dictionary  
15:07:06 - INFO: Convert thin\_dam\_selection to in\_memory dictionary  
15:07:06 - INFO: Convert flow\_blocking\_lines to in\_memory dictionary  
15:07:06 - INFO: Write test\_install\_thd.pli file  
15:07:20 - INFO: Intersect faces with roughness polygons  
15:17:29 - INFO: Define total face area  
15:17:42 - INFO: Define dictionary with distinct trachytopes per face  
15:18:27 - INFO: Start extracting roughness lines  
15:18:27 - INFO: Intersect lines with faces  
15:18:35 - INFO: Start extracting roughness points  
15:18:35 - INFO: Intersect points with faces  
15:18:45 - INFO: Write dictionary to trachytopes file  
15:19:02 - INFO: Intersect faces with calibration section polygons  
15:20:58 - INFO: Define total face area  
15:21:00 - INFO: Define dictionary with calibration sections per face  
15:21:03 - INFO: Write dictionary to calibration\_sections\_input file  
15:21:05 - INFO: Convert laterals to pli-file  
15:21:05 - INFO: Write test\_install\_structures.pli file  
15:21:05 - INFO: Convert observation points to pli-files

```
15:21:15 - INFO: Convert cross_section_lines to in_memory dictionary
15:21:15 - INFO: Convert cross_section_lines to in_memory dictionary
15:21:16 - INFO: Write test_install_0_all_crs.pli file
15:21:16 - INFO: Write test_install_1_kilometer_crs.pli file
15:21:17 - INFO: Write test_install_2_output_crs.pli file
15:21:17 - INFO: Write test_install_4_calibration_crs.pli file
15:21:18 - INFO: Write test_install_5_crs.pli file
15:22:50 - INFO: Write initial waterlevel XYZ file
15:22:52 - INFO: Elapsed time: 0.0 hours, 18.0 minutes, 17.33 seconds
15:22:52 - INFO: Bas2Fm for Baseline 6 finished
15:22:52 - INFO:
```

```
=====
=====
```

### Conclusions:

If the result of step 12 is not successful something went wrong in ArcGis. See chapter 2.

If the result of step 14 is not successful something went wrong in Bas2FM, see chapter 3.