

XBeach basic course

november, 2022
Delft, The Netherlands



1 Requirements

To run the Jupyter notebook the Anaconda distribution with Python 3 (or higher) needs to be installed. The anaconda distribution can be downloaded from:

<https://www.anaconda.com/>

In addition, we need the following Python packages:

- Numpy
- Datetime
- Matplotlib
- Shapely
- Scipy

To install a package, run the following command in the terminal (an example is shown for Numpy):

```
Conda install numpy
```

2 How to use the Python Notebook

To open the notebook:

1. Start the Anaconda terminal.



2. Go to the folder with the note book (cd path).

```
Cd d:\cursus\xbeach
```


3. Start the notebook with the following command:

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Jupyter notebook

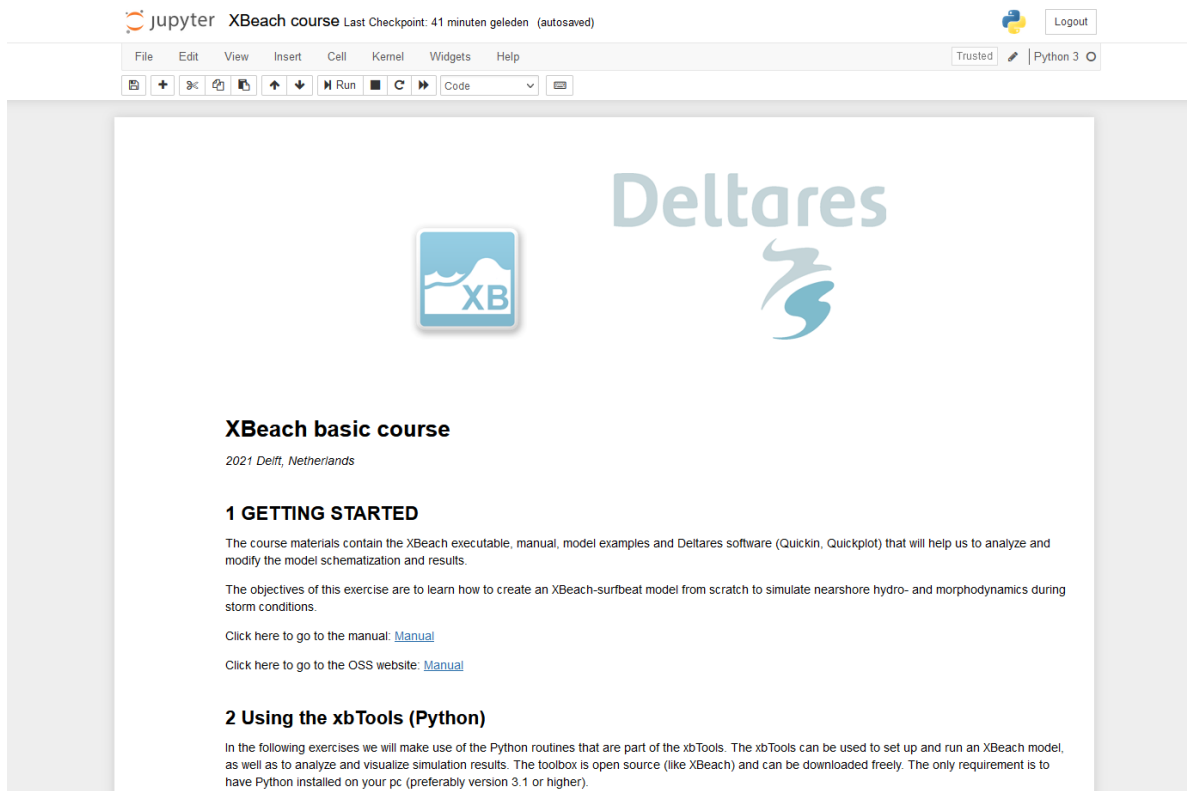
4. Click on the *XBeach course.ipynb* file.



The screenshot shows the JupyterLab file browser interface. At the top, there are tabs for 'Files', 'Running', and 'Clusters'. Below the tabs, there is a section titled 'Select items to perform actions on them.' with buttons for 'Upload', 'New', and a refresh icon. A table lists the files in the current directory:

Name	Last Modified	File size
models	13 minuten geleden	
pyTools	2 uur geleden	
scripts	30 minuten geleden	
XBeach course.ipynb	Running 11 minuten geleden	334 kB
ExerciseXBeach_BoscombeBeach_new.doc	één jaar geleden	163 kB
logo.PNG	2 uur geleden	20.5 kB

5. Start with the course.



The screenshot shows the JupyterLab interface with the 'XBeach course' notebook open. The notebook has a menu bar (File, Edit, View, Insert, Cell, Kernel, Widgets, Help) and a toolbar with icons for file operations, running, and code execution. The notebook content includes the Deltares logo and the XBeach logo. The title is 'XBeach basic course' with a subtitle '2021 Delft, Netherlands'.

1 GETTING STARTED

The course materials contain the XBeach executable, manual, model examples and Deltares software (Quickin, Quickplot) that will help us to analyze and modify the model schematization and results.

The objectives of this exercise are to learn how to create an XBeach-surfbeat model from scratch to simulate nearshore hydro- and morphodynamics during storm conditions.

Click here to go to the manual: [Manual](#)

Click here to go to the OSS website: [Manual](#)

2 Using the xbTools (Python)

In the following exercises we will make use of the Python routines that are part of the xbTools. The xbTools can be used to set up and run an XBeach model, as well as to analyze and visualize simulation results. The toolbox is open source (like XBeach) and can be downloaded freely. The only requirement is to have Python installed on your pc (preferably version 3.1 or higher).