

# Add bathymetry data and crop grid

To add the bathymetry, we will employ the Gebco data set, as used in Delft dashboard. The following code retrieves the bathymetry data from the Gebco data set using the extent of our grid. The coordinate system EPSG code is required because the data set uses a specific (different) coordinate system.

## Get bathymetry data

```
bathymetryData = GetGebcoBathymetryData(xOffset, yOffset, xOffset +
gridWidth, yOffset + gridHeight, EPSGCode)
```

Next, the cells that are located on land will be removed. This can be determined from the bathymetry data. The `CleanupLandCells` method removes all land cells that have a z coordinate larger than a certain value. In our case, above sea level, so  $z > 0$ .

## Remove land cells

```
CleanupLandCells(fmModel, bathymetryData, 0)
```

The grid should now be trimmed along the coastline.



Then, the bathymetry (defined as elevation, z coordinate, at the vertex) will be added to the model. This is done by first declaring a variable *values* as a list. Then, we loop through the vertices of the grid, calling

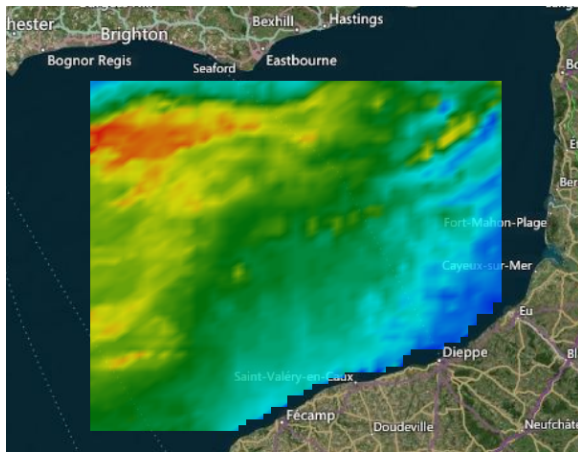
the function `GetGebcoBathymetryValueFor` (with a cursor icon) to obtain the elevation at each vertex, which we then add to the list *values*, previously declared. Finally, we assign the bathymetry values to the model by using the `SetValues` method of the *Bathymetry* property of the model.


## Add bathymetry to model

```
values = []
for vertex in fmModel.Grid.Vertices :
    values.append(GetGebcoBathymetryValueFor(vertex.CoordinateValue, 3857,
bathymetryData))

fmModel.Bathymetry.SetValues(values)
```

The bathymetry just defined can be seen by double clicking on the corresponding item of the project explorer panel.



**Note:** The icon  indicates functions that you might find interesting to see how they have been built. You can do this by opening the corresponding library (another normal script python file on its own) in the toolbox and checking the code which defines the function or method you are interested in.