

An aerial photograph showing a wide, brown river curving through a lush green landscape. The river's path is clearly visible as a brown ribbon against the green grass. The surrounding land is a mix of green fields and some darker, more densely vegetated areas. In the far distance, a body of water is visible.

# Deltares

## iMOD-Suite Demo

*Delft Software Days*



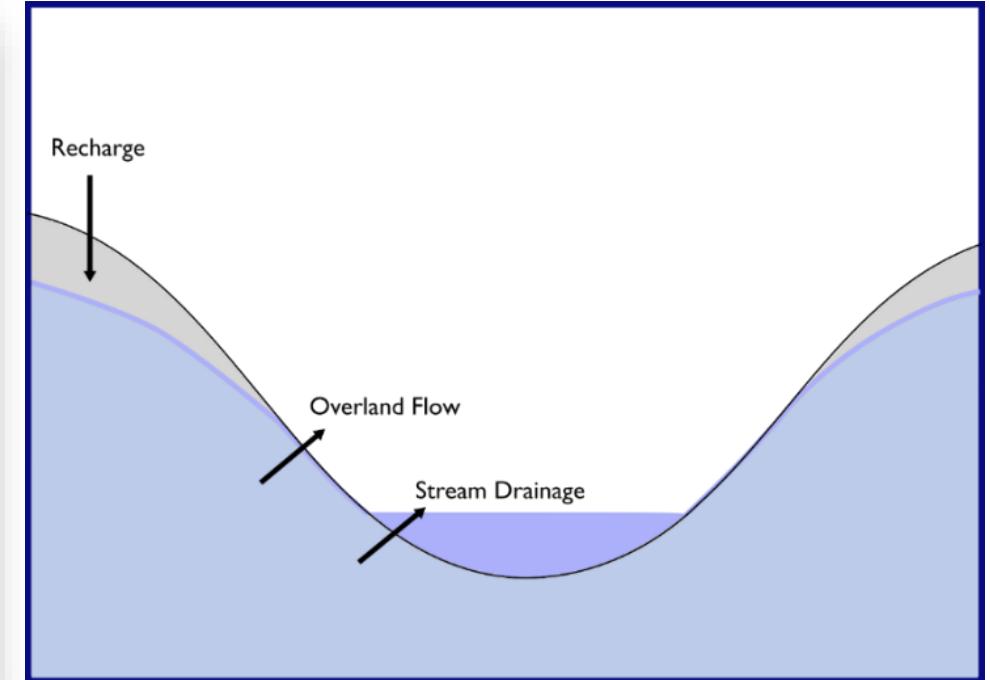
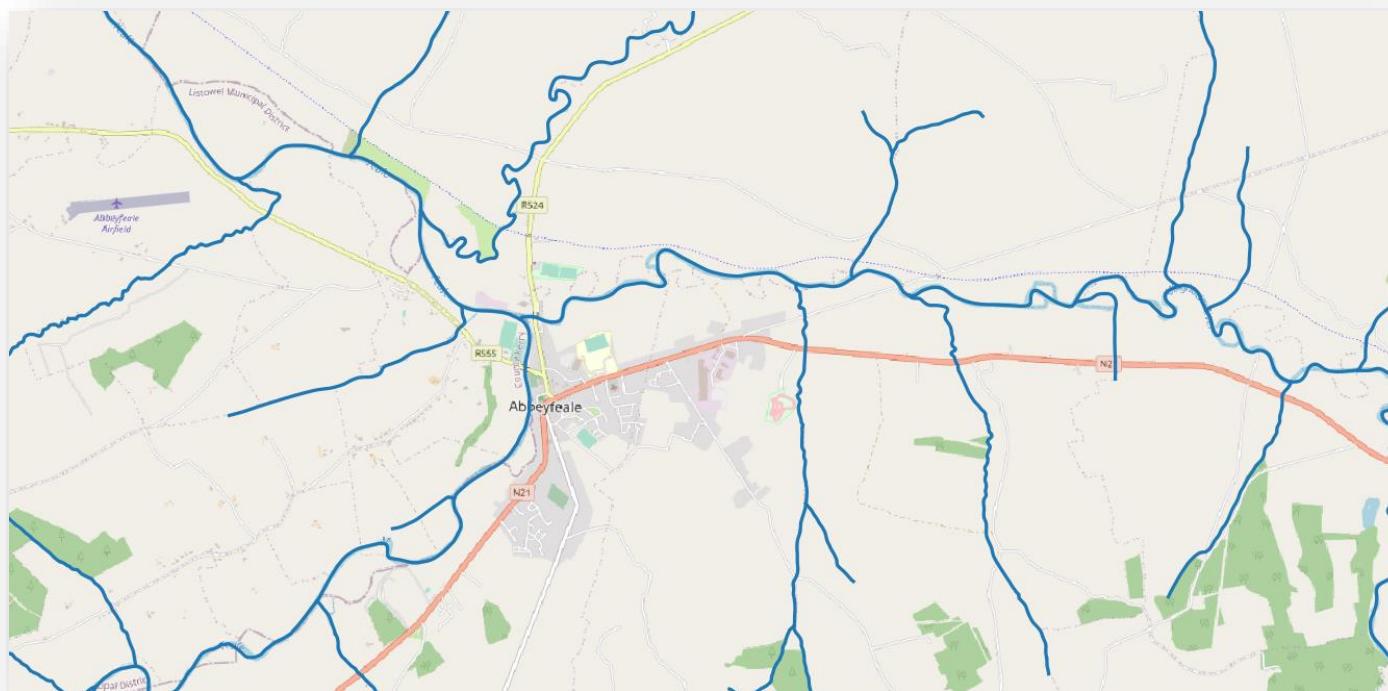
enabling delta life

24 November 2022

# Demo iMOD-Suite

Abbeyfeale, Ireland

- Simple geology (2 layers)
- DEM
- River
- Recharge

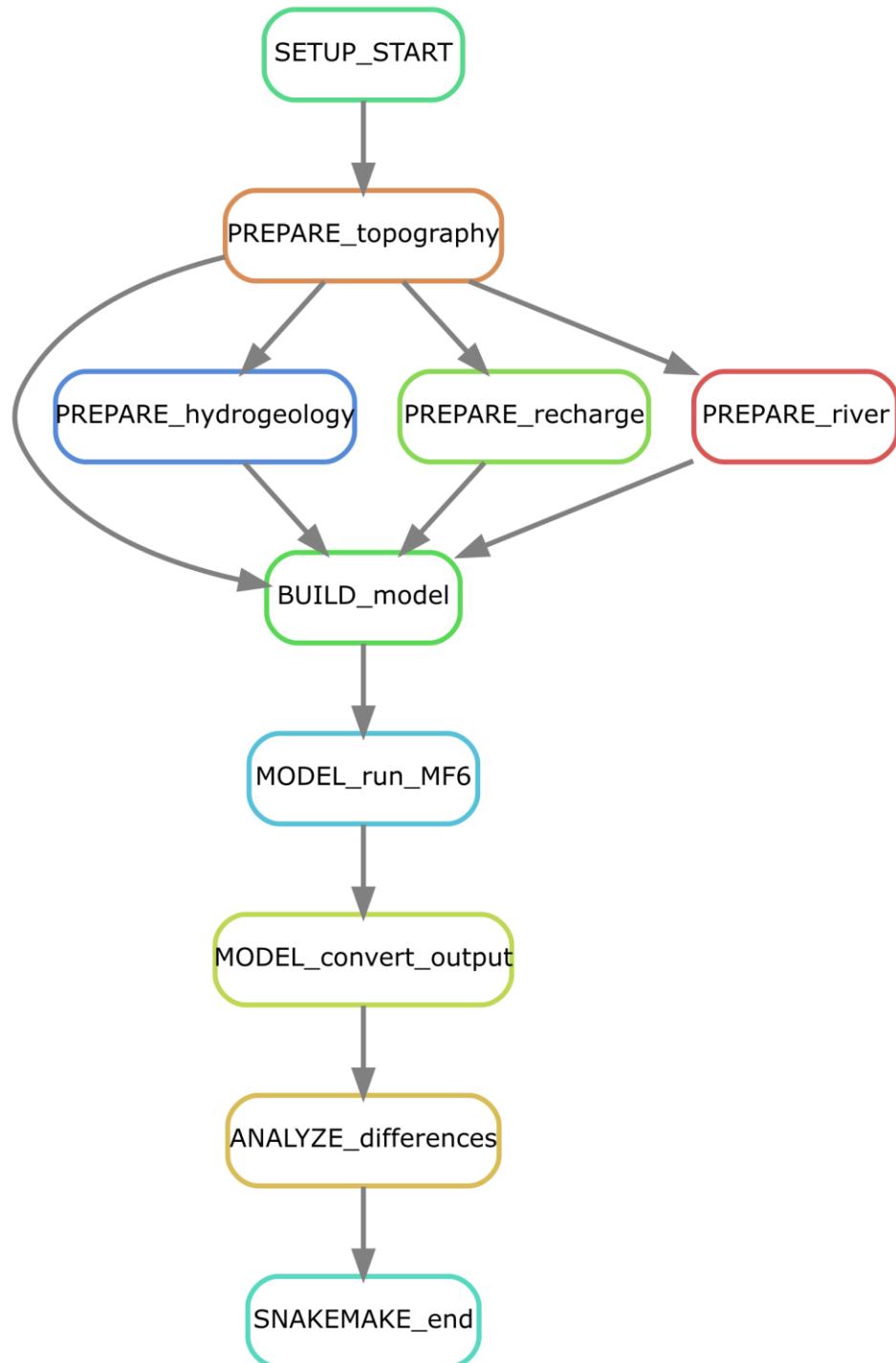


# Content

- How to user the iMOD-Suite components
  - iMOD Python
  - QGIS plugin
  - 3D Viewer
- Teaser Tutorial
- Objective

# iMOD - Python

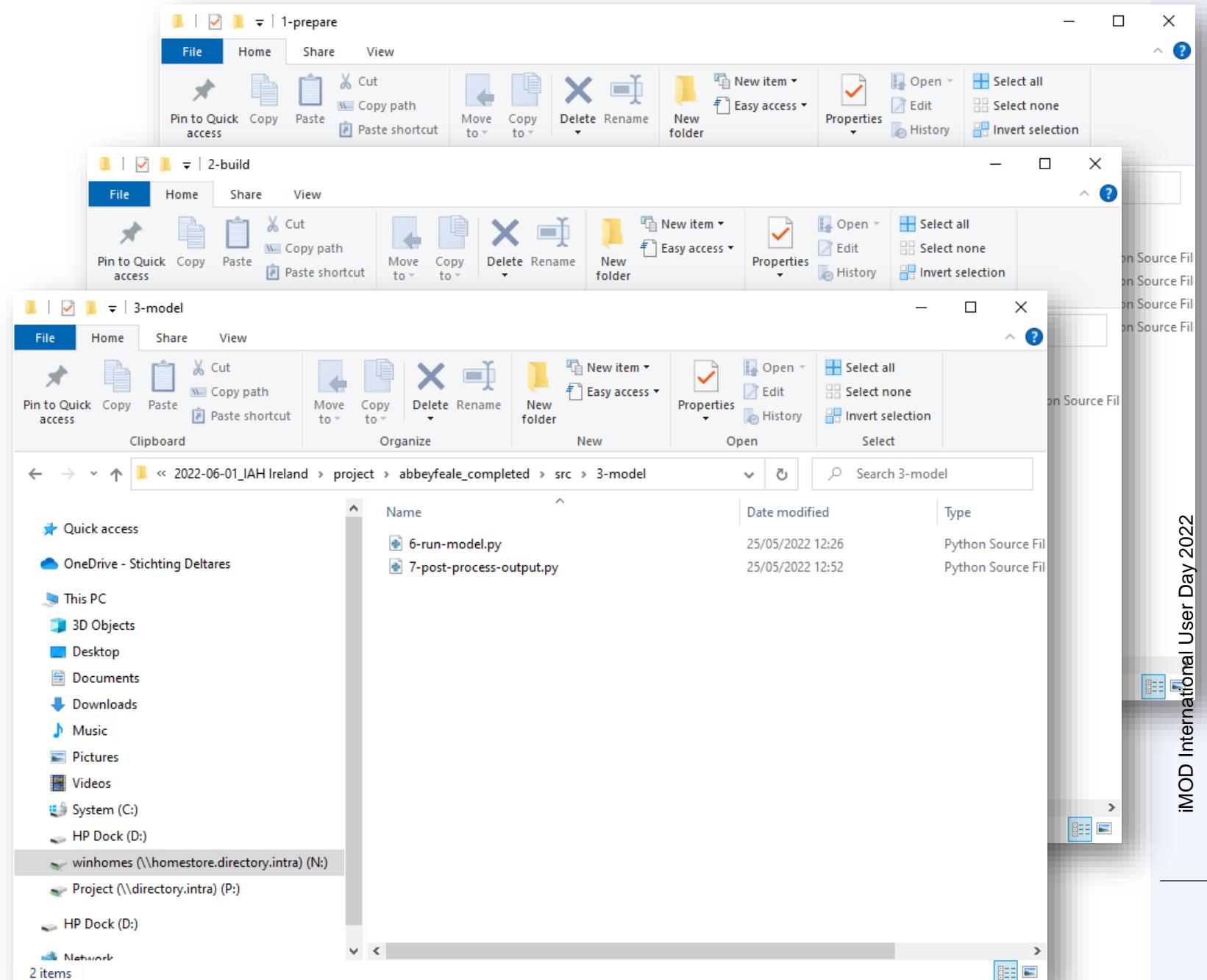
Tutorial work flow



# iMOD - Python

## Scripts for

- Preprocessing
- MF6 calculation
- Postprocessing



# File types used in project

- GeoTIF (.tif)
  - > Common raster file format (y, x)
- ESRI shapefile (.shp)
  - > Common vector file format, for points, lines, and polygons
- NetCDF (.nc)
  - > Common file format for regular grids (time, layer, y, x)
  - > UGRID version can store unstructured grids (named \*\_mesh.nc in this project)
- IPF (.ipf)
  - > Deltares file format for points with associated data (timeseries, or borelogs)

iMOD-pythons support processing iMOD5 file formats

- Rasters (\*.IDF), Lines (\*.GEN) and Points (\*.IPF)

**Deltares**

# iMOD – Python – *live demo*

Example: convert IDF file to NC file, display in QGIS

The screenshot shows a code editor window with a dark theme. The title bar says '1-create-template-grid.py\*'. The code in the editor is:

```
1 import imod
2 from pathlib import Path
3 import numpy as np
4
```

The screenshot shows a web browser window with a dark blue header. The title bar says 'imod.idf.save — iMOD Python 0.1 x'. The address bar shows 'deltares.gitlab.io/imod/imod-python/api/generated/io/imod.idf.save.html'. The page content is the API documentation for 'imod.idf.save'.

**iMOD Python**  Installing User Guide Examples API Reference FAQ More ▾ 🔍 ⚙️ Deltares

**Section Navigation**

- Input/output
  - imod.idf.open
  - imod.idf.open\_dataset
  - imod.idf.open\_subdomains
- imod.idf.save
- imod.ipf.read
- imod.ipf.read\_associated

## imod.idf.save

```
imod.idf.save(path, a, nodata=1e+20, pattern=None, dtype=<class 'numpy.float32'>)
```

[\[source\]](#)

Write a xarray.DataArray to one or more IDF files

If the DataArray only has `y` and `x` dimensions, a single IDF file is written, like the `imod.idf.write` function. This function is more general and also supports `time` and `layer` dimensions. It will split these up, give them their own filename according to the conventions in `imod.util.compose`, and write them each.

# QGIS-plugin

- Display rasters, shapes and borelogs
- Cross sections
- Timeseries

# 3D Viewer

- Unstructured grids
- 3D