

# UW-BAT

## Bathymetry and Backscatter Post-Processing

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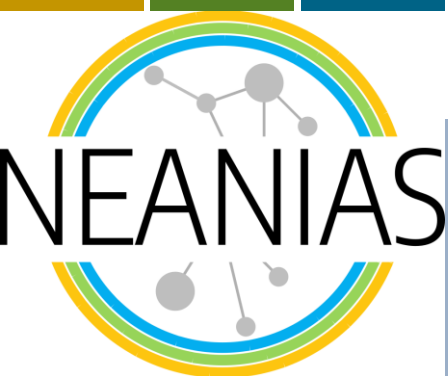
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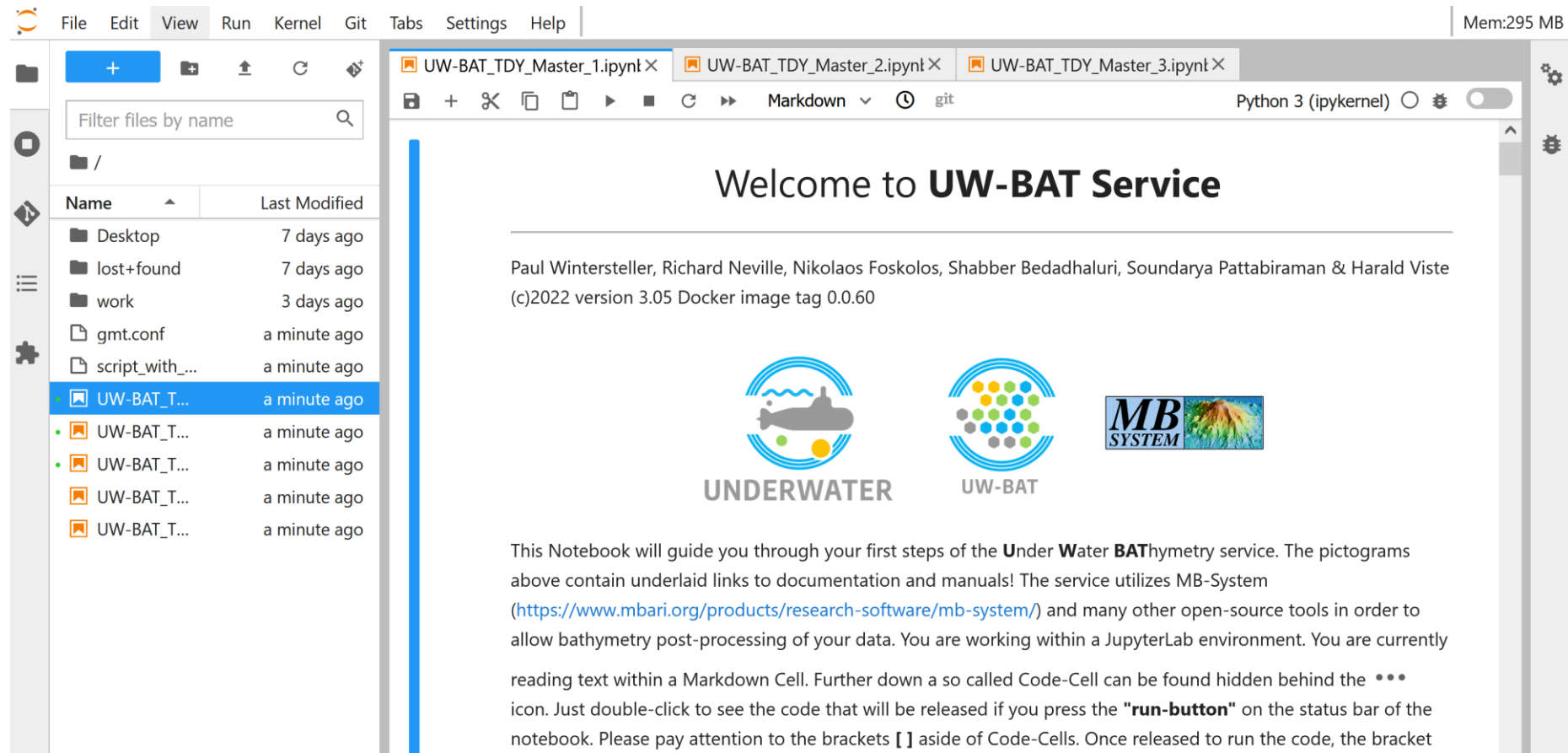


Novel EOSC Services for Emerging  
Atmosphere, Underwater & Space  
Challenges

NEANIAS receives funding from  
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› <https://bathyprocessing.neanias.eu/>




The screenshot shows a JupyterLab environment with a file browser on the left and a notebook in the center. The notebook content is as follows:

## Welcome to UW-BAT Service


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(c)2022 version 3.05 Docker image tag 0.0.60



UNDERWATER



UW-BAT



MB SYSTEM

This Notebook will guide you through your first steps of the **Under Water BATH**ymetry service. The pictograms above contain underlaid links to documentation and manuals! The service utilizes MB-System (<https://www.mbari.org/products/research-software/mb-system/>) and many other open-source tools in order to allow bathymetry post-processing of your data. You are working within a JupyterLab environment. You are currently reading text within a Markdown Cell. Further down a so called Code-Cell can be found hidden behind the `•••` icon. Just double-click to see the code that will be released if you press the "run-button" on the status bar of the notebook. Please pay attention to the brackets [ ] aside of Code-Cells. Once released to run the code, the bracket

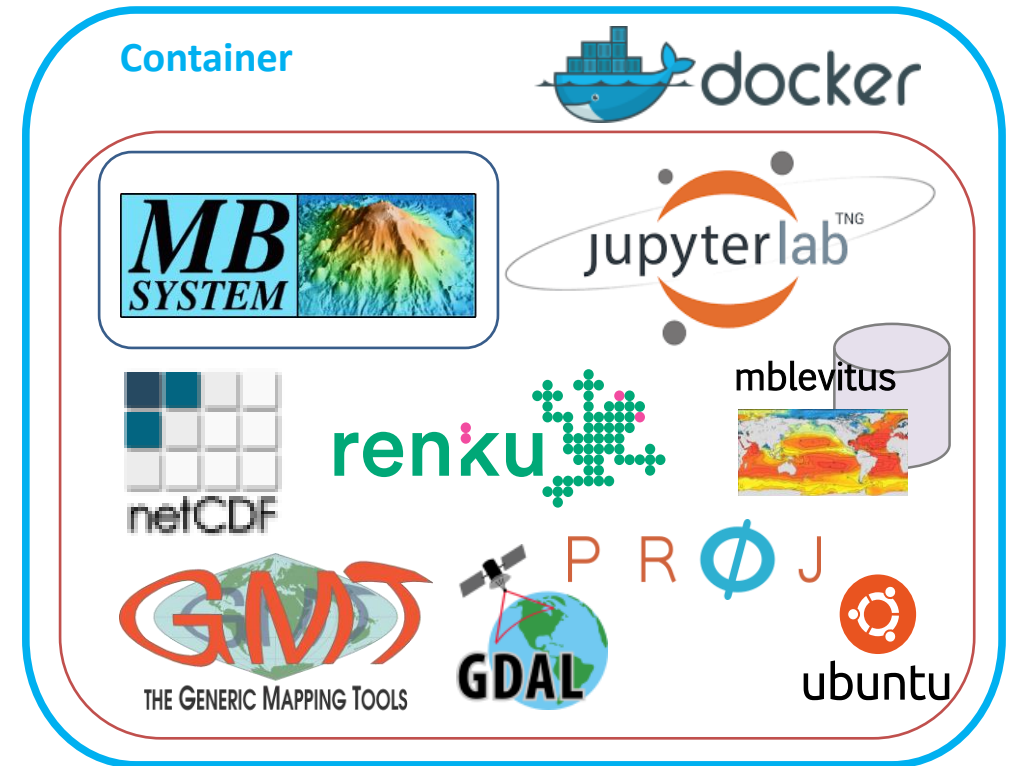
## › A Hydrographic Task

- Gridding and Displaying of Raw Vendor Bathymetry Data
- Applying Tide Corrections
- Sound Velocity Corrections / Raytracing
- Filtering and Manual Editing of Bathymetry Data
- Applying Offsets and Lever Arms
- Filtering and Angular Varying Gain Corrections of Backscatter Data
- Creating Grids (DTMs) and Maps of Processed Bathymetry
- Creating Backscatter Grids and Maps of Processed Data
- Providing Metadata of Raw and/or Processed Data

## > An Open-Source Cloud Service

Dockerized and Based on:

- MBSystem
- JupyterLab
- Renku Desktop
- Generic Mapping Tools (GMT)
- Proj
- GDAL
- netCDF
- Mblevitus Global Sound Velocity Profiles Database access
- OTPS Tide Database (Oregon State University) access
- Ubuntu OS based

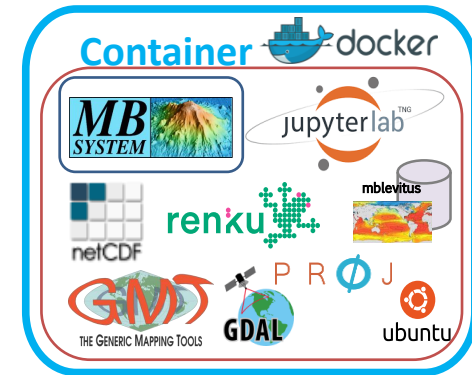


- › Open-Source Cloud Service

<https://bathyprocessing.neanias.eu>

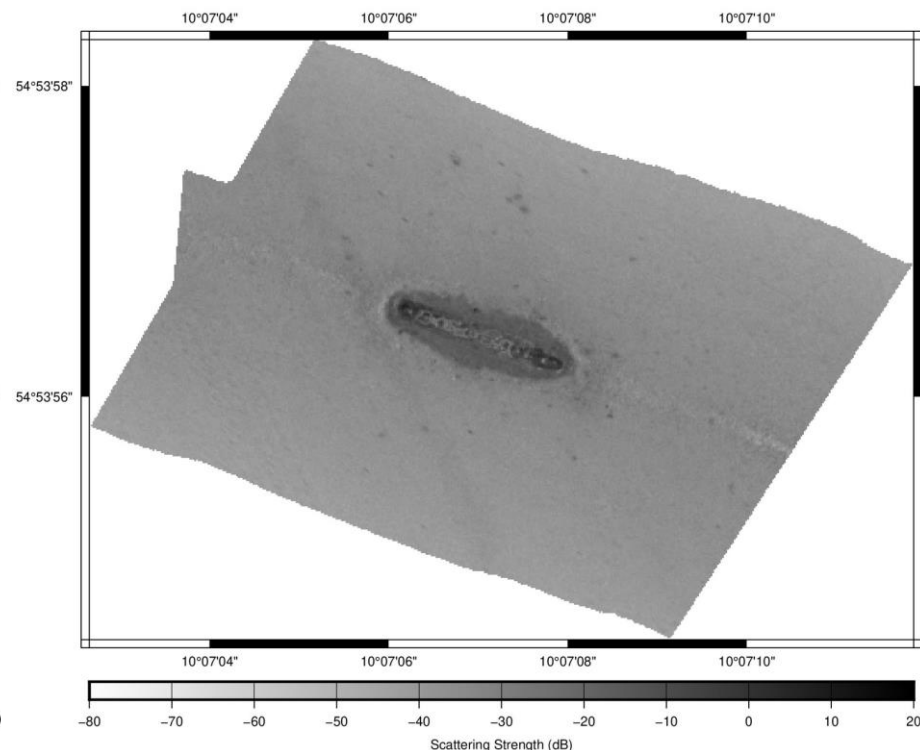
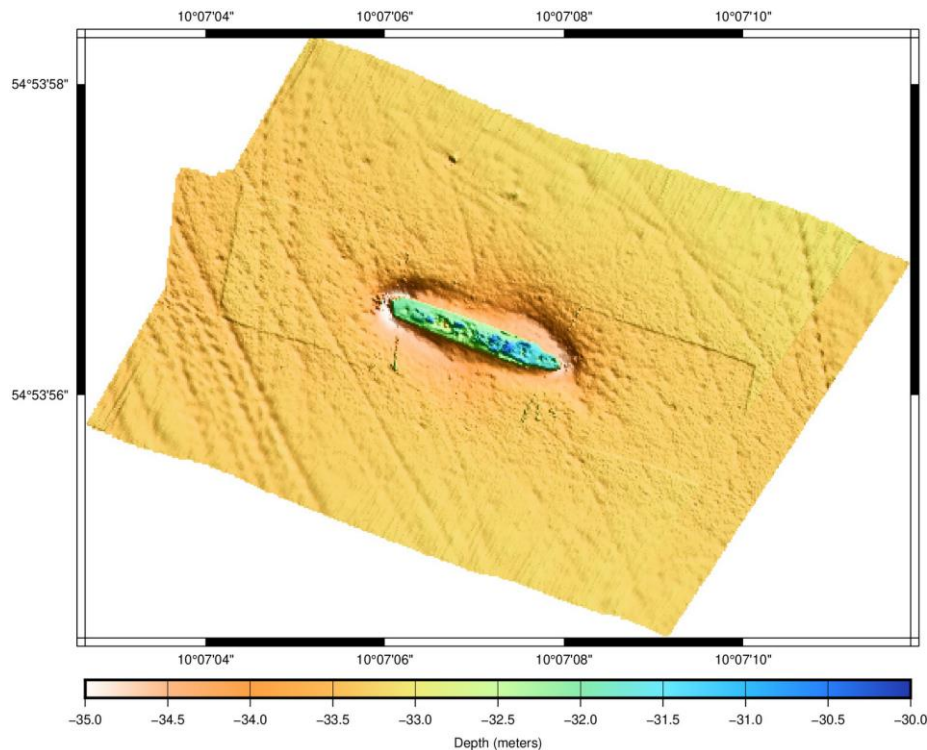
- › Documentation

<https://docs.neanias.eu/projects/u1-bathyprocessing/en/latest/>



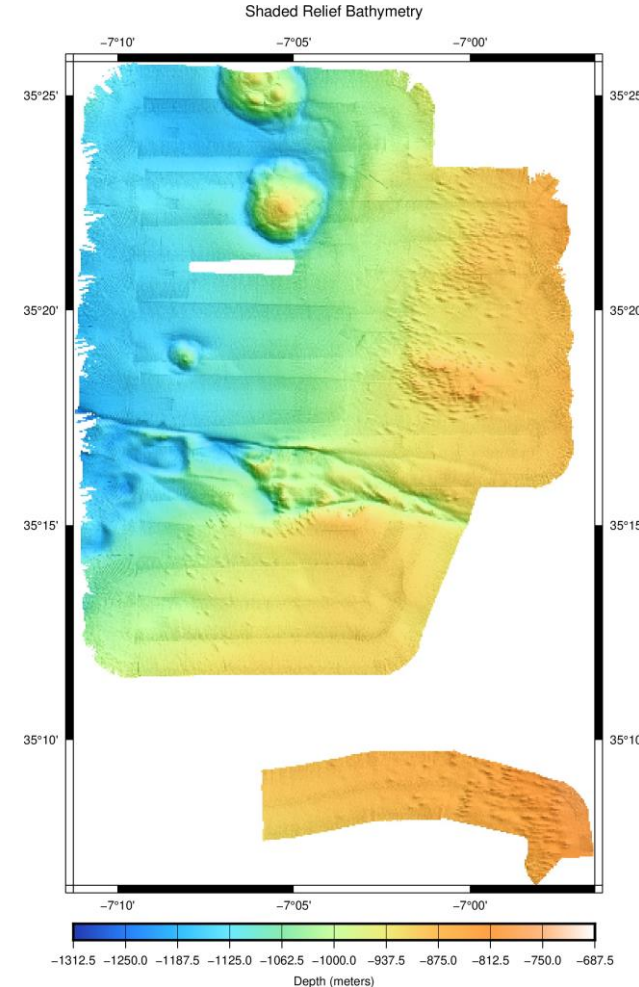
- › The Service is mainly based on command line tools
- › JupyterLab environment allows to simplify and explain how to use the commands and parameters based on examples

- › Service Notebook #1 based on sample data
  - The Notebooks explain much of the code used in Markdown cells

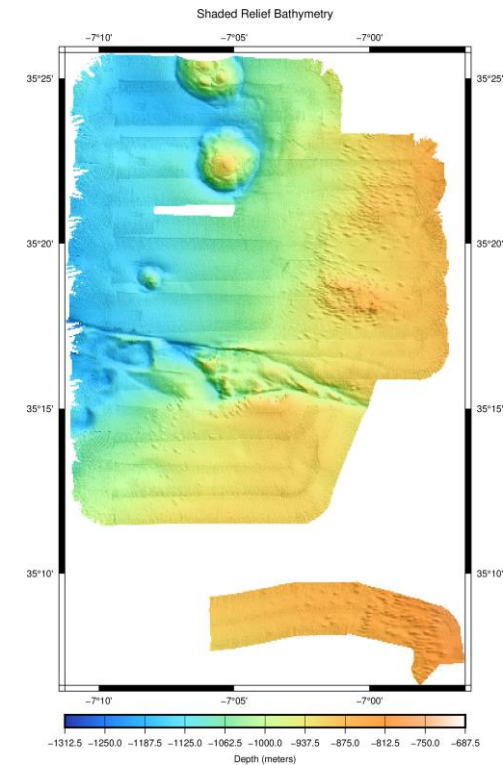


## > Notebook #2 Step by Step Processing of Own Data

- Process Own Data or Other Sample Data
- Release Cell by Cell and provide Input data
- Processing Parameters will be stored for follow up / return and extend processing



- › Notebook #3 allows to return to a previously started project
  - Extend Process Own Data or Other Sample Data
  - Release Cell by Cell and provide Input data
  - Processing Parameters will be stored for follow up / return and extend processing





- › The Notebook allows to publish data
  - It either links to the German Pangea database which allows to submit data to be published
  - Publish data directly with the help of this Notebook to Zenodo



› Why this Service; Why MB in the Cloud?

**Service is up and running in less than 1 min.**

- \* No longsome installations required on a UNIX/Linux OS based desktop

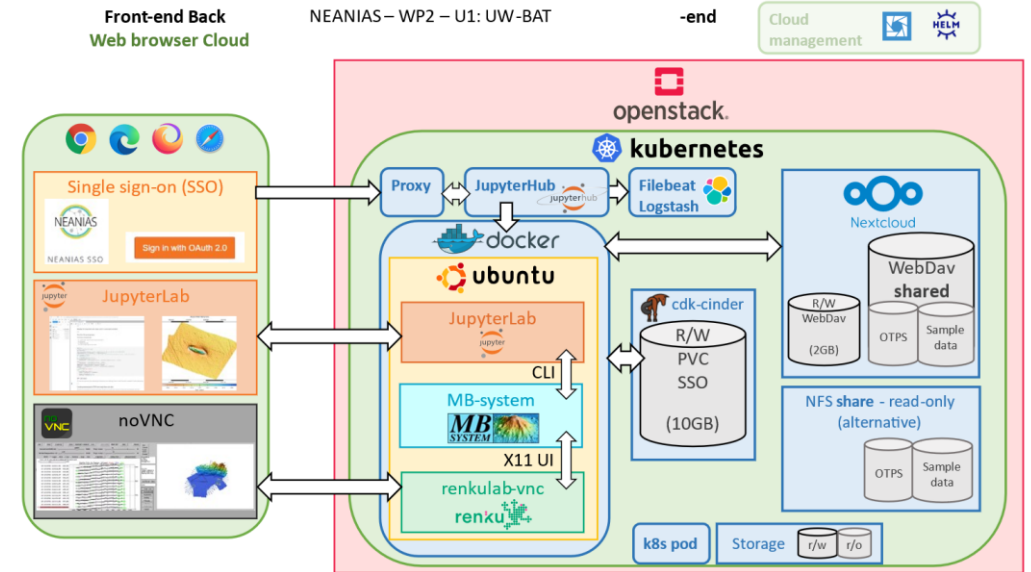
**Contains all the shown packages with full access on:**

- \* Jupyter environment
- \* & Terminal

**Provides access to MB-GUI based tools on top within the renku desktop**

**Save Time & Local IT Recourses**

Bathymetry tasks are very time-consuming computational & I/O (read & write) tasks. Let the service work in the cloud, observe progress on it's webpage and use your laptop for other purposes meanwhile (and we are sometimes talking about >hours).



## › Take home message

- Fulfills a complete hydroacoustic post-processing with more than 50 commands/tools of MBSsystem
- Field Services: The service is offline available to support sea-going workspaces with no or limited internet connection
- **Allows to learn and teach** the command line-based tools in a much easier way due to the Jupyter environment

# UW-BAT

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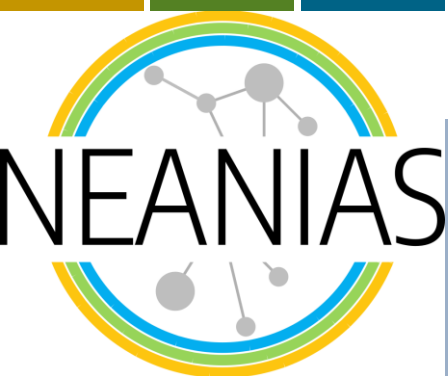
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Novel EO/SC Services for Emerging  
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Challenges

NEANIAS receives funding from  
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