



# Wave Climatology Data for the Baltic Sea

TalTech's repository for high-resolution wave climatology data for the Baltic Sea, maintained by the Laboratory of Wave Engineering at TalTech, Tallinn University of Technology.

Documentation

V1.3

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Thank you for your interest in the Wave Climatology Dataset for the Baltic Sea, produced and maintained by the Laboratory of Wave Engineering at TalTech, Tallinn University of Technology.

This document contains high-level information regarding the dataset and how to access and download the data.

Please report any mistakes or request for help to [andrea.giudici@taltech.ee](mailto:andrea.giudici@taltech.ee)

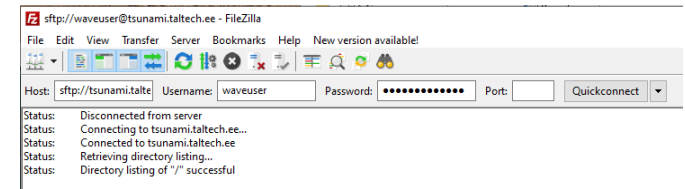
# Accessing and Downloading the data

1. Download an SFTP client software like [FileZilla](#) (for Windows, Linux and Mac) or [WinSCP](#) (for Windows)



2. Use the following settings to connect to **Tsunami**, the data repository server:

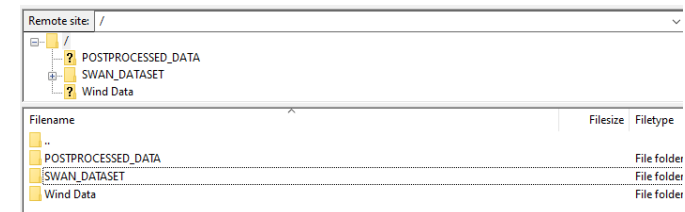
Host: sftp://tsunami.taltech.ee  
Username: waveuser  
Password: ReadOnly123!#



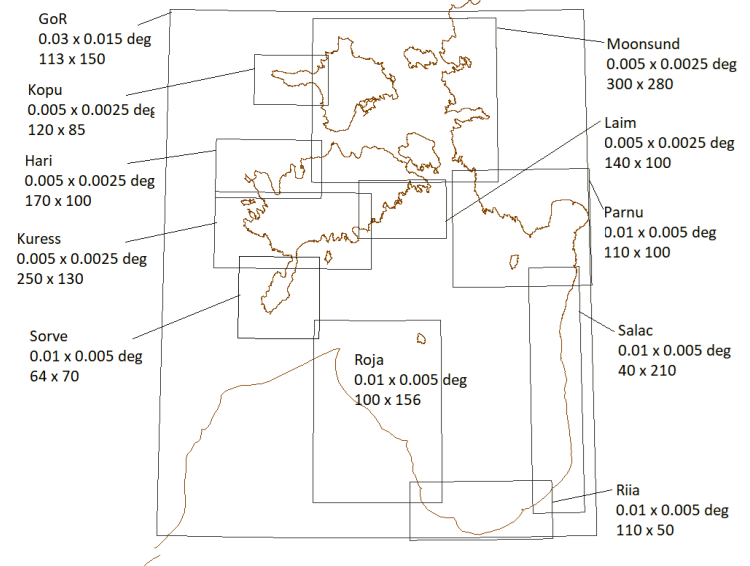
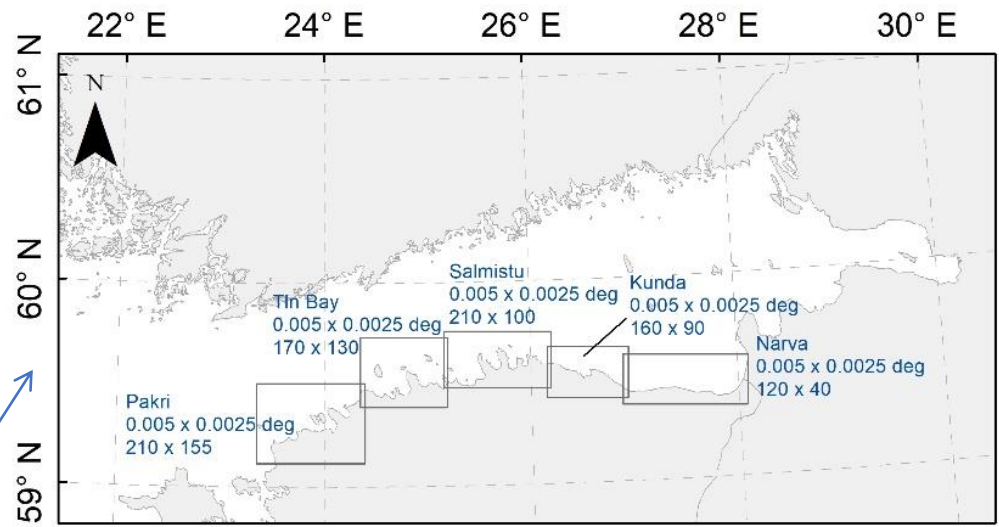
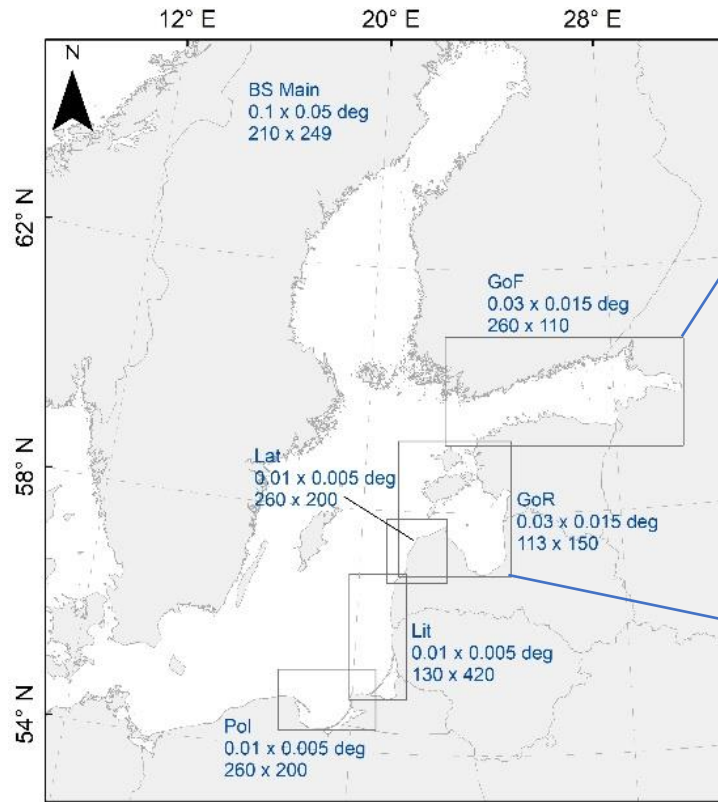
3. You can now browse, and download the data.

The data is organised as follows:

- POSTPROCESSED\_DATA**: contains long timelines of wave parameters
- SWAN\_DATASET**: contains the wave climatology dataset raw data, as described in the following pages
- WIND DATA**: contains the input wind datasets.



# Grids



# Raw Data Format

Folder Structure on the data repository:

▼ Tsunami	
▶ POSTPROCESSED_DATA	
▼ SWAN_DATASET	
▼ RAW_DATA	Wave Climatology Data
▶ BALTAN-GOF	Gulf of Finland, BaltAn65+
▶ BALTAN-GOR	Gulf of Riga, BaltAn65+
▶ ERA5-GOF	Gulf of Finland, ERA5
▶ ERA5-GOR	Gulf of Riga, ERA5
▶ ERA5-LITLAT	Lithuania and Latvia, ERA5
▼ ZIPPED_DATA	Same, but zipped
▶ BALTAN-GOF_ZIP	Gulf of Finland, BaltAn65+
▶ BALTAN-GOR_ZIP	Gulf of Riga, BaltAn65+
▶ ERA5-GOF_ZIP	Gulf of Finland, ERA5
▶ ERA5-GOR_ZIP	Gulf of Riga, ERA5
▶ ERA5-LITLAT_ZIP	Lithuania and Latvia, ERA5

BaltAn65+ model runs are divided into 2 segments per year (A, B), while ERA5 have four (A-D), which correspond with three calendar months each. Example:  
 BALTAN-GOF-A = 1am o'clock at start of 1<sup>st</sup> of January until midnight at end of 30<sup>th</sup> June.  
 ERA5-GOF-A = 1am o'clock of 1<sup>st</sup> of January – midnight of 31<sup>st</sup> of March. ERA5(B) – from 1<sup>st</sup> April end of June

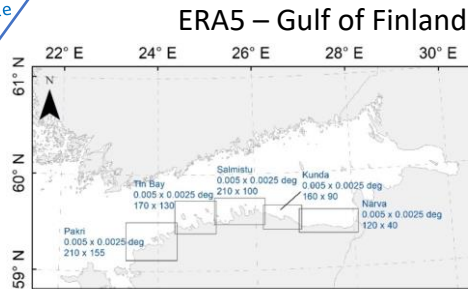
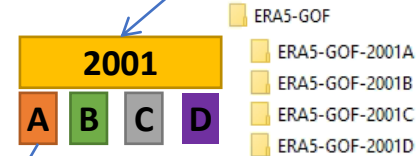
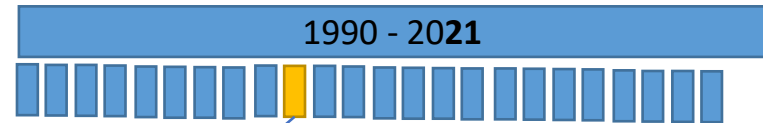


Fig. 1. The grids corresponding to ERA5-GOF



Each Year is divided into 2- or 4- segments, denoted by a trailing capital letter.

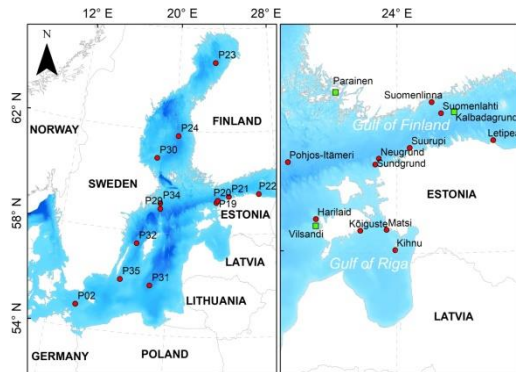


Fig. 2. Location of Output points in TXT format

## ERA5-GOF 2001-A

- Model output log
- Output in Matlab format (all variables)
- Output in NC format (all variables)
- Selected Points in .txt format (Hsig,Tm01,Tm02 Tm\_10,Rtpeak,Dir,Dspr,X-Windv,Y-Windv)

- ERA5-GOF-2001A
- OUTPUT-MAT
- OUTPUT-NC
- OUTPUT-POINTS

Each segment contains the wave climatology data in different formats.

```
% Run: Table:P02 SWAN version:41.31AB
% %
% Time Hsig Tm01 Tm02 Tm_10 Rtpeak Dir
% [ ] [m] [sec] [sec] [sec] [sec] [degr]
% %
20001231.120000 0.57195 2.2269 1.9902 2.4432 2.6284 324.409
20001231.130000 0.87609 2.6428 2.3422 2.9341 3.5123 318.394
20001231.140000 1.15739 3.1265 2.8041 3.4455 3.8687 314.883
20001231.150000 1.43688 3.6524 3.3249 4.0007 4.6935 313.216
20001231.160000 1.63197 4.0598 3.7353 4.4305 5.1697 311.774
```

- BSMain.mat
- BSMain-depth.mat
- GoF.mat
- GoF-depth.mat
- Kunda.mat
- Kunda-depth.mat
- Narva.mat
- Narva-depth.mat
- Pakri.mat
- Pakri-depth.mat
- Salm.mat
- Salm-depth.mat
- TinBay.mat
- TinBay-depth.mat
- BSMAIN\_P01\_FINO2.tab
- BSMAIN\_P02\_Arkona\_WR.tab
- BSMAIN\_P03\_Darsser\_Schwel
- BSMAIN\_P04\_Lighthouse\_Kie
- BSMAIN\_P05\_Karlsghagen.tab
- BSMAIN\_P06\_Luebecker-Buc
- BSMAIN\_P07\_Luebecker-Buc
- BSMAIN\_P08\_Schoenberg-1.1
- BSMAIN\_P09\_Schoenberg-2.1
- BSMAIN\_P10\_Warnemuende
- BSMAIN\_P11\_Warnemuende

## Raw Data Coverage

BALTAN – Gulf of Riga	1985 - 2005
BALTAN – Gulf of Finland	1985 - 2005
BALTAN – Lithuania	1985 - 2005
BALTAN – Poland	1985 - 2005
ERA5 – Gulf of Finland	1990 - 2022
ERA5 – Gulf of Riga	1990 - 2022
ERA5 – Lithuania	1990 - 2022
ERA5 – Latvia	1990 - 2022

Note: Extension for ERA5 Datasets to include 1980-1990 is planned for Q3 2023.

# Post-processed Data

The postprocessed datasets have been created by loading the original data and creating .mat files for specific parameters, which cover much longer timelines than each individual segment of raw data. The naming convention of the post-processed files is:

‘GRIDNAME\_parameter.mat’ – for example ‘GoR1nm\_Hsig.mat’, or ‘Roja\_Dir.mat’.

The following post-processed time series are available:

## BaltAn65+ model runs:

### BALTAN-GOR

(include subgrids *BSgor, GoR1nm, Hari, Kopu, Kuress, Laim, Moonsund, Parnu, Riia, Roja, Salac and Sorve*)

Postprocessed parameters for all subgrids: Hsig, Dir, RTpeak

### BALTAN-MAIN

(include grids *BSMain, GoF, Kunda, Narva, Pakri, Pol, Salm, TlnBay*)

Postprocessed parameters for all subgrids: Hsig, RTpeak, Windv\_x, Windv\_y

## ERA5 model runs:

### ERA-GOR

(include grids *BSgor, GoR1nm, Hari, Kopu, Kuress, Laim, Moonsund, Parnu, Riia, Roja, Salac, Sorve*)

Postprocessed parameters for all: Dir, Hsig, RTpeak

Additional postprocessed parameters for GoR1nm, Laim, Parnu, Salac – Tm\_10, Tm01, Tm02, Windv\_x, Windv\_y

### ERA-GOF

(includes grids *BSMain, GoF, Kunda, Narva, Pakri, Salm, TlnBay* (no Pol))

Postprocessed parameters for all: Dir, Hsig, RTpeak, Tm\_10, Tm01, Tm02, Windv\_x, Windv\_y

- ▼ **Tsunami**
  - ▼ POSTPROCESSED\_DATA
    - ▼ Just\_postprocessed\_data
      - ▼ BALTAN
        - ▶ BALTAN-GORGRIDS
        - ▶ BALTAN-mainGRIDS
      - ▼ ERA5
        - ▶ ERA-5-GORGRIDS
        - ▶ ERA-FINEGRID-GOF-REDUX