

SIOS Marine Infrastructure Workshop

Wind wave and water level data in nearshore Hornsund since 2013

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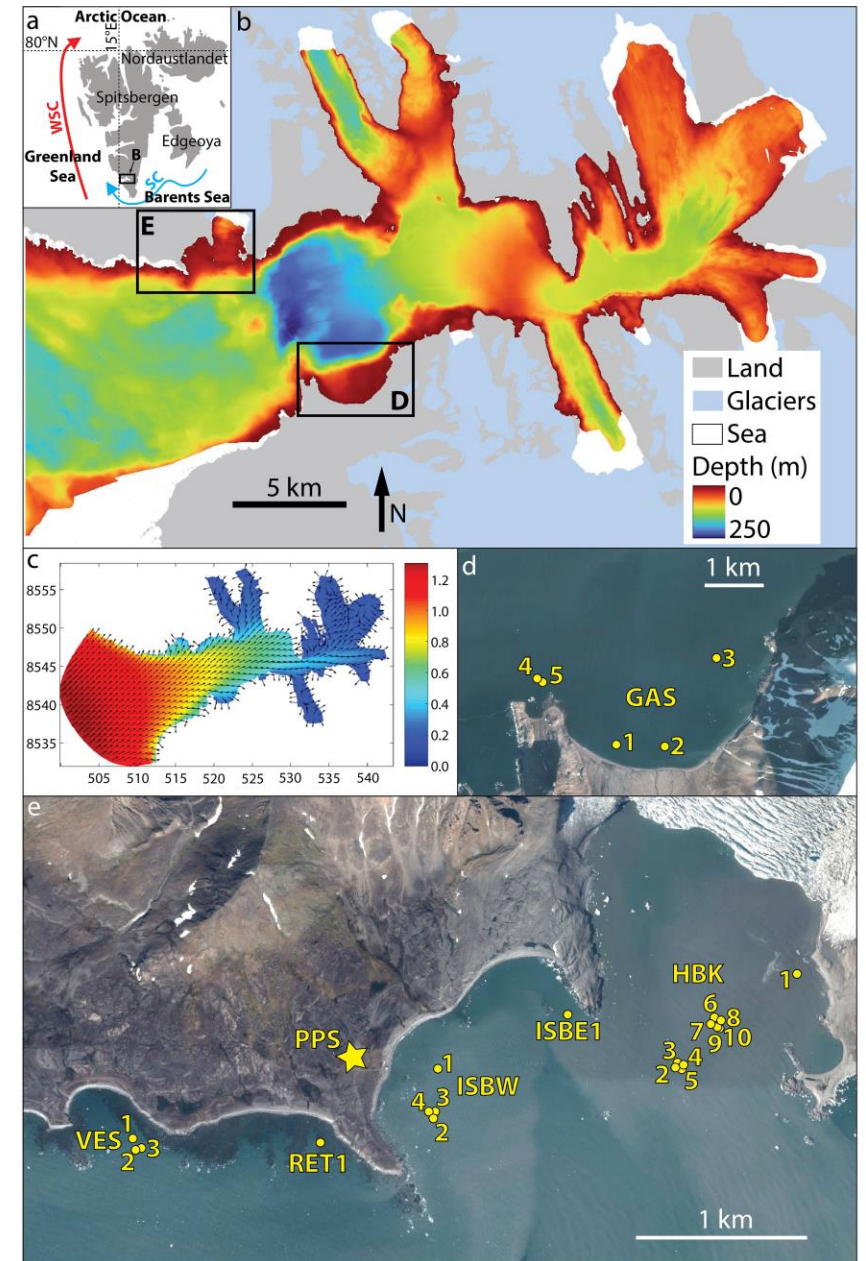
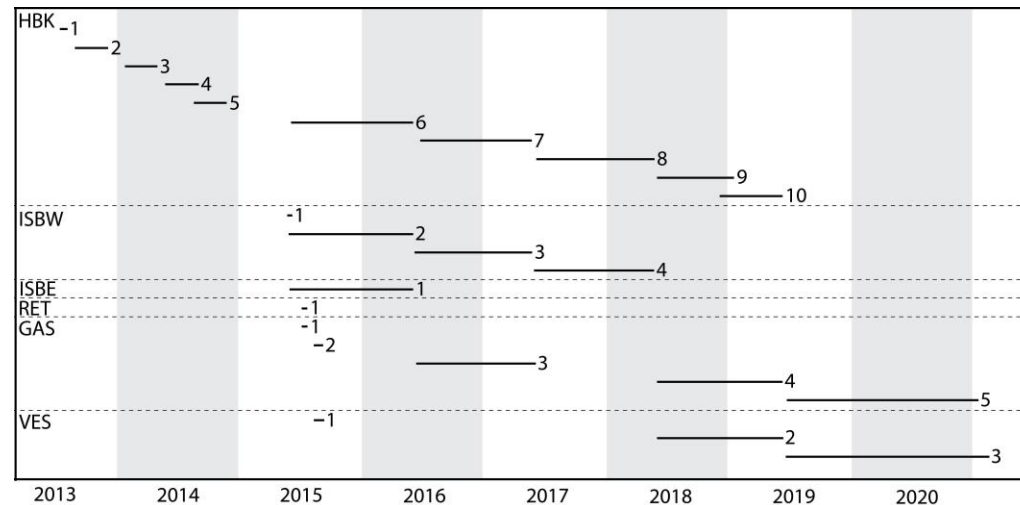


SIOS

SVALBARD INTEGRATED ARCTIC
EARTH OBSERVING SYSTEM

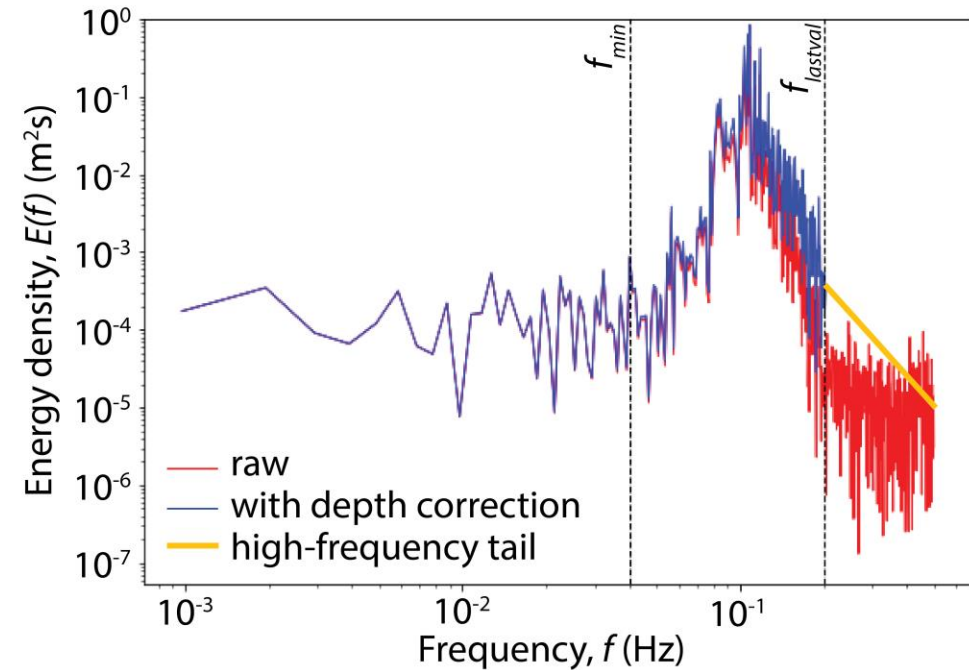
Dataset overview

- Nearshore (8-23 m) wind wave and water level data
- Bays of northern and southern Hornsund
- On-going from Jul-2013
- Instruments
 - RBR virtuoso P (2013-2015) continuous at 4 or 6 Hz
 - RBR duo TD (2018-2019) continuous at 1 Hz
 - RBR virtuoso wave (2015-present) bursts 30/60' at 1-2Hz



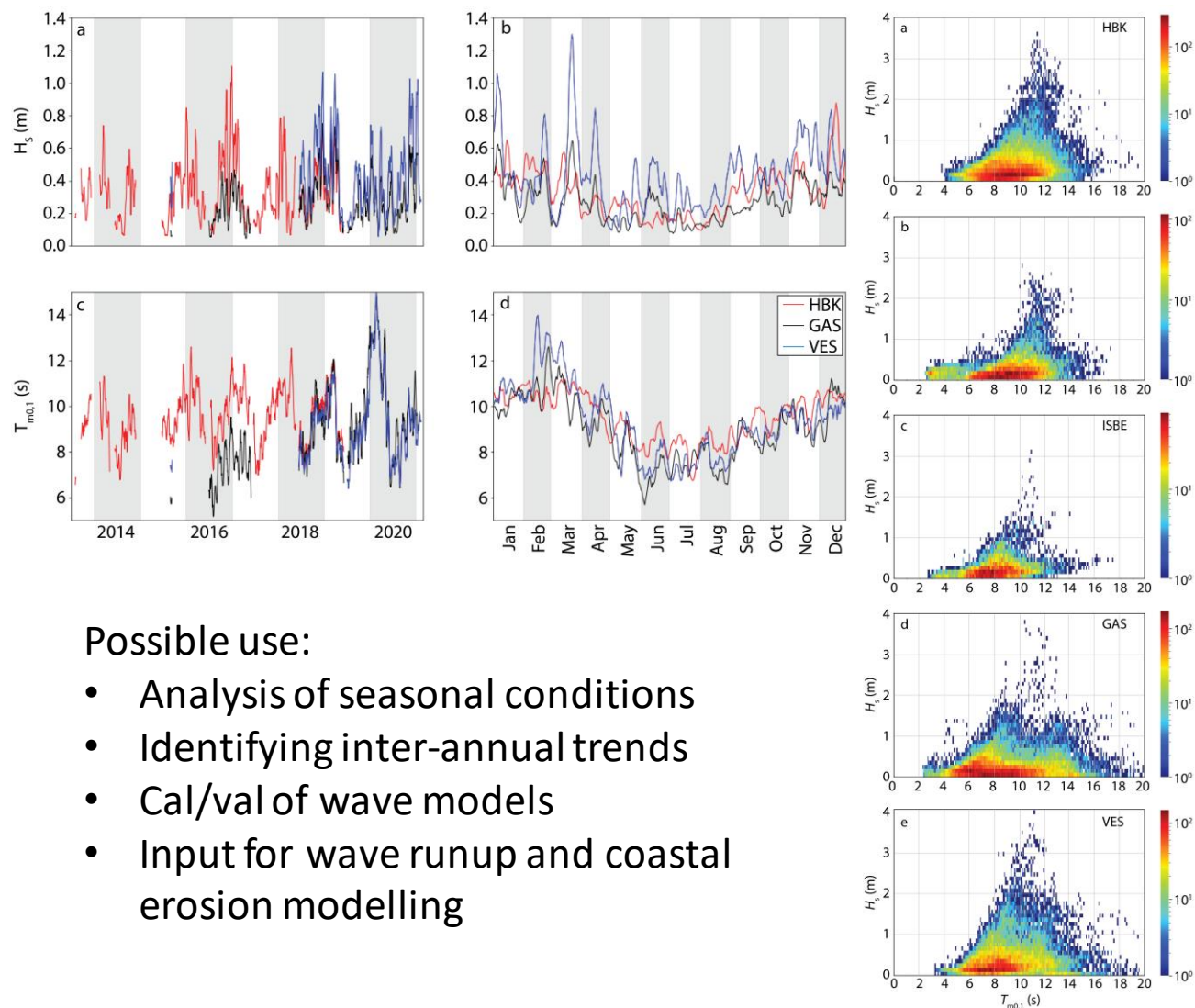
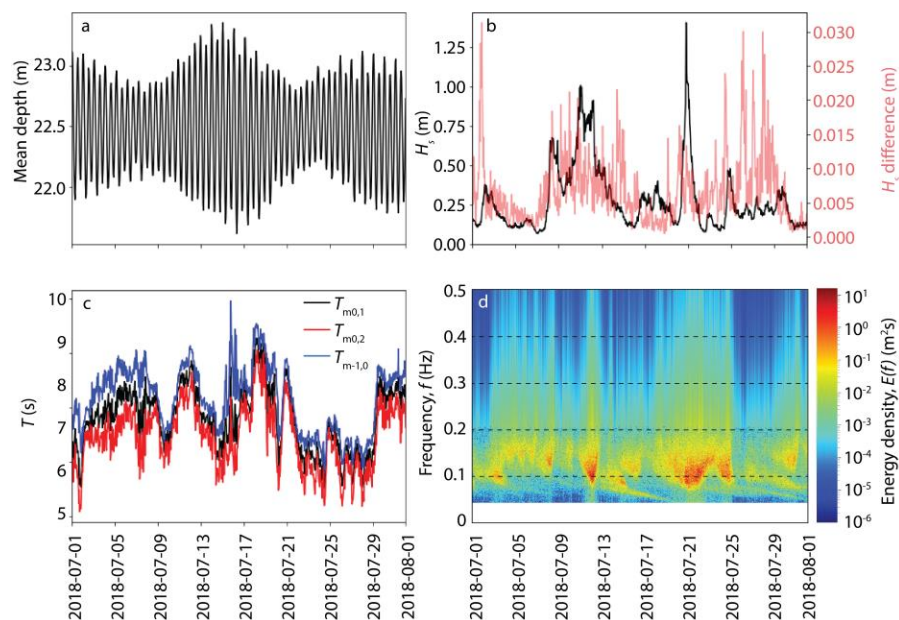
Data processing

- Subsampling to hourly bursts of 1024 s at 1 Hz
- Subtraction of atmospheric pressure
- Depth calculation
- Fast Fourier transform
- Correction for wave orbital motion decrease with depth
- Adding high-frequency tail
- Quality control



Output data

- Mean water level
- Wave spectra
- Bulk wave parameters H_s , $T_{m0,1}$, $T_{m0,2}$, $T_{m-1,0}$



Possible use:

- Analysis of seasonal conditions
- Identifying inter-annual trends
- Cal/val of wave models
- Input for wave runup and coastal erosion modelling

Data access

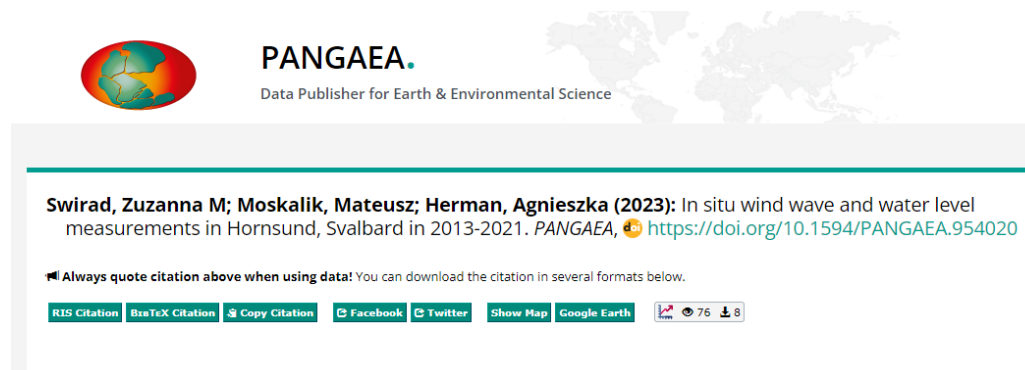
- Raw data: IG PAS Data Portal:

https://doi.org/10.25171/InstGeoph_PAS_IGData_NBP_2022_005



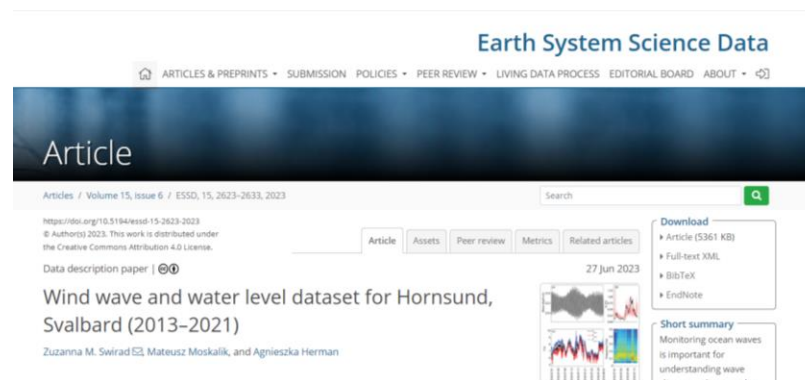
- Processed data: PANGAEA:

<https://doi.org/10.1594/PANGAEA.954020>



- Data description: ESSD:

<https://doi.org/10.5194/essd-15-2623-2023>



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