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UNIVERSITY OF GOTHENBURG

CSIC
Consejo Superior de Investigaciones Científicas

FORMAS

EGU22-7366 2022-05-27

THE WINDGUST PROJECT: RESULTS OF THE DIGITIZATION OF HISTORICAL WIND SPEED OBSERVATIONS IN SWEDEN

Contributors

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Funding

- FORMAS – A Swedish Research Council for Sustainable Development (ref. 2019-00509)

WINDGUST

- **WIN**d **D**ata rescue by **G**othenburg **U**niversity and **S**MHI to assess **T**rends
- The project “Assessing centennial wind speed variability from a historical weather data rescue project in Sweden”
- The project period is 2020-2022 with participants from SMHI, Spanish National Research Council (CSIC) and Gothenburg University.

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3 work packages

1. Wind speed data rescue, scanning and digitization.
   SMHI
2. Quality control and homogenisation.
   SMHI, CSIC and GU
3. Assessment and attribution of historical wind speed trends. Publication and communication of the results.
   GU, CSIC and SMHI

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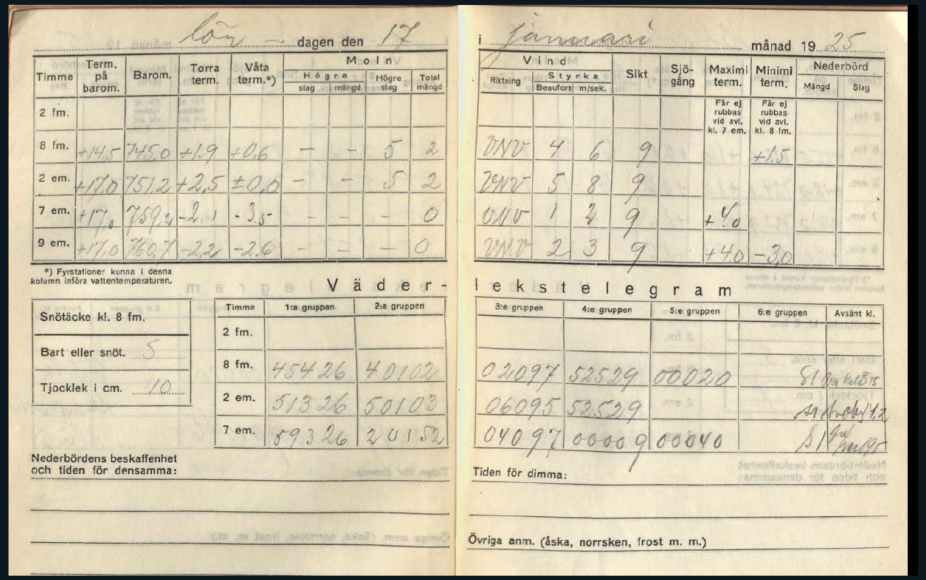
WP1 Work procedure

1. The journals were brought up from the weather archive and each page was scanned.
2. Each page corresponded to one day and each book covered 6 months of observations.
3. Then the data was typed into a online templet and stored in the SMHI observational data base.



dagen den 17

Timme	Term. på barom.	Barom.	Torra term.	Våta term.*)	Moln Högre slag	Moln Högre mängd	Moln Högre slag	Moln Total mängd
2 fm.								
8 fm.	+14.5	745.0	+1.9	+0.6	–	–	5	2
2 em.	+17.0	751.2	+2.5	±0.0	–	–	5	2
7 em.	+17.4	759.4	-2.1	-3.5	–	–	–	0
9 em.	+17.0	760.7	-2.2	-2.6	–	–	–	0

*) Fyrstationer kunna i denna kolumn införa vattentemperaturen.

Väder-

	Timme	1:a gruppen	2:a gruppen
Snötäcke kl. 8 fm.	2 fm.		
Bart eller snöt. 5	8 fm.	45426	40102
Tjocklek i cm. 10	2 em.	51326	50103
	7 em.	89326	20152

Nederbördens beskaffenhet och tiden för densamma:

i Januari månad 19 25

Vind Riktning	Vind Styrka Beaufort	Vind Styrka m/sek.	Sikt	Sjögång	Maximi term. (Får ej rubbas vid avl. kl. 7 em.)	Minimi term. (Får ej rubbas vid avl. kl. 8 fm.)	Nederbörd Mängd	Nederbörd Slag
NNO	4	6	9			+1.5		
NNO	5	8	9					
ONO	1	2	9		+1.0			
NNO	2	3	9		+4.0	-3.0		

lekstelegram

3:e gruppen	4:e gruppen	5:e gruppen	6:e gruppen	Avsänt kl.
02097	52529	00020		5[illegible]
06095	52529			[illegible]
04097	00009	00040		8[illegible]

Tiden för dimma:

Övriga anm. (åska, norrsken, frost m. m.)

Wind observations from Haparanda 25th January 1925.

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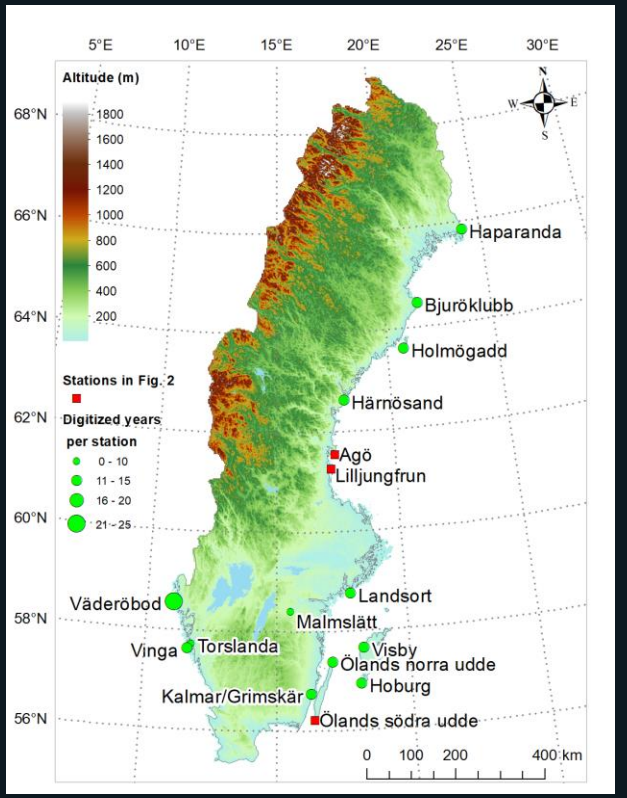
WP 1 Digitized stations

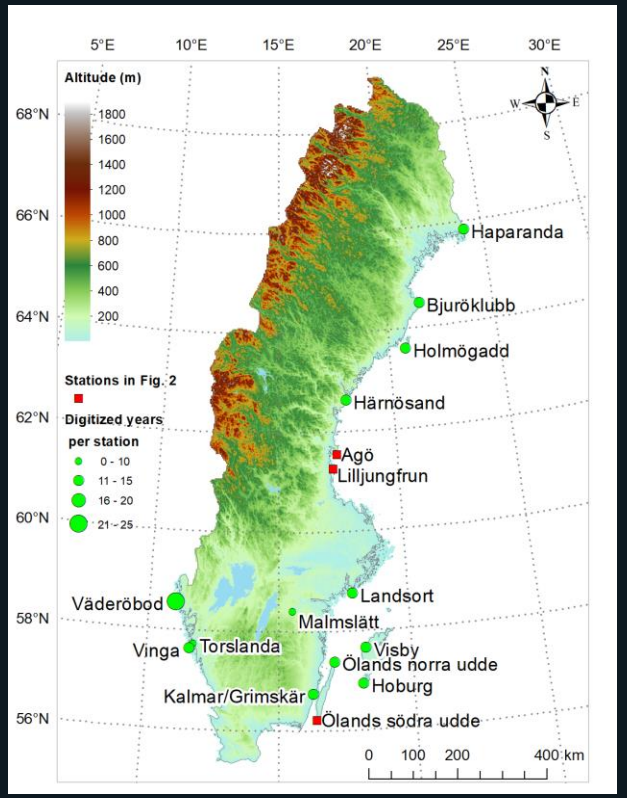
- The photo shows examples of mounting of anemometers at masts and light houses.
- The map shows the position of the digitized stations with green dots, and the stations in the photo with red squares.



WP 1 Digitized stations

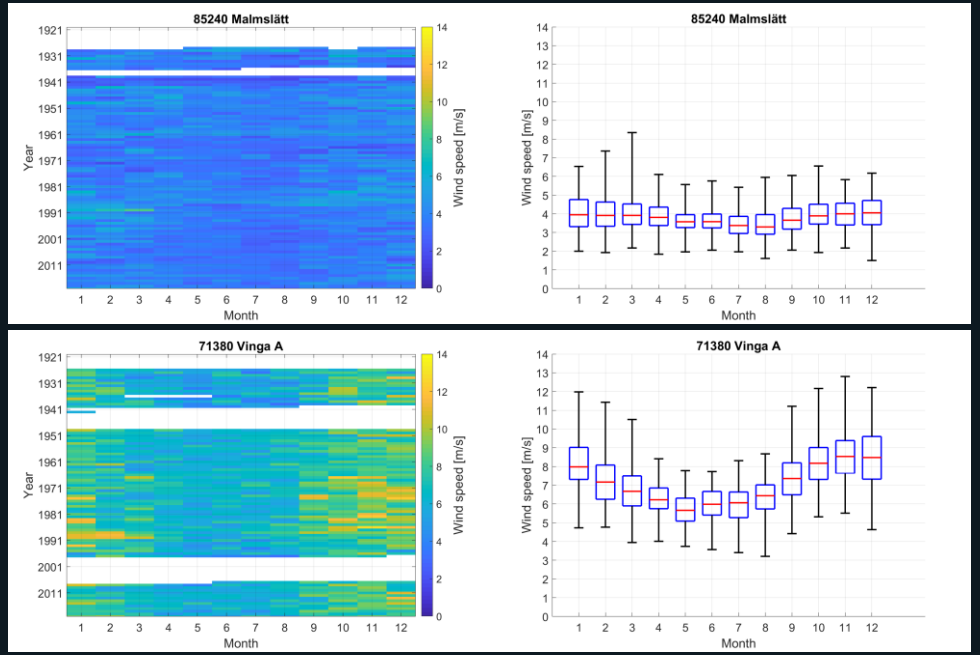
- The table lists the digitized stations.
- The map shows the position of the digitized stations with green dots, and the stations in the photo with red squares.

Station	Start	Stop	Years	Latitude	Longitude	Altitude (m a.s.l.)
Bjuröklubb	1926	1938	12	64.48	21.58	36
Haparanda	1925	1938	13	65.83	24.14	9
Hoburg	1926	1938	13	56.92	18.15	39
Holmögadd	1926	1938	12	63-59	20.76	6
Härnösand	1925	1938	13	62.63	17.95	9
Kalmar/Grimskär	1927	1942	15	56.73	16.29	7
Landsort	1926	1938	12	58.74	17.87	13
Malmslätt	1928	1936	8	58.40	15.53	94
Torslanda	1932	1938	6	57.72	11.78	3
Vinga	1926	1938	12	57.63	11.61	19
Visby	1925	1938	13	57.64	18.29	11
Väderöbod	1926	1948	22	58.55	11.03	7
Ölands norra udde	1926	1938	12	57.37	17.10	5



WP1 Data screening

- A data screening was performed to visualize the data coverage, monthly variability, and wind speed range. The stations were classified into two groups: coastal and inland stations.
- Malmslätt was classified as a inland station and Vinga as a coastal station.



In the figures, the left panel shows the data coverage and the monthly mean wind value according to the color bar, while the right panel shows the monthly wind speed, where the red line is the monthly mean wind speed, the upper and lower limits of the box 75- and 25-percentil and the end-bars represents the maximum and minimum monthly mean wind speed.

WP2 Quality control and homogenization

- During 2021 quality control and homogenization were done in the project.
- Learn more about that in the next presentation 14:02–14:09 EGU22-7828 A century-long homogenized dataset of near-surface wind speed observations since 1925 rescued in Sweden, HomogWS-se by Chunlüe Zhou.
- The data is available at Zenodo repository at http://doi.org/10.5281/zenodo.5850264

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WP3 Assessment and attribution of historical wind speed trends

- During 2022 trends and variability in the Swedish wind climate will be analysed. Trends will be evaluated at monthly, seasonal and annual time-scales.

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Thank you for your interest! Questions?

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