

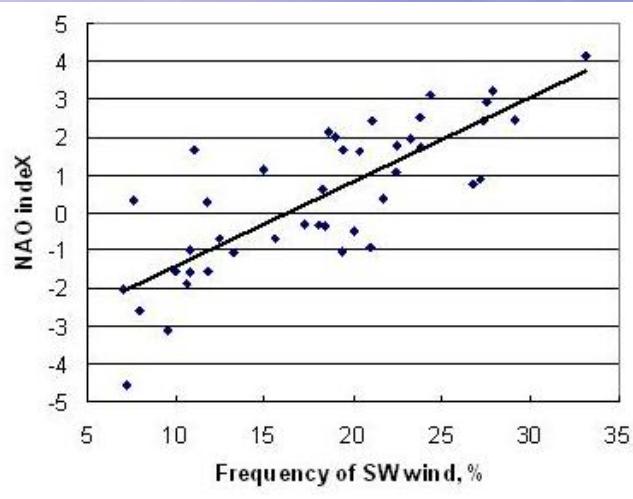
Project progress report

WP2

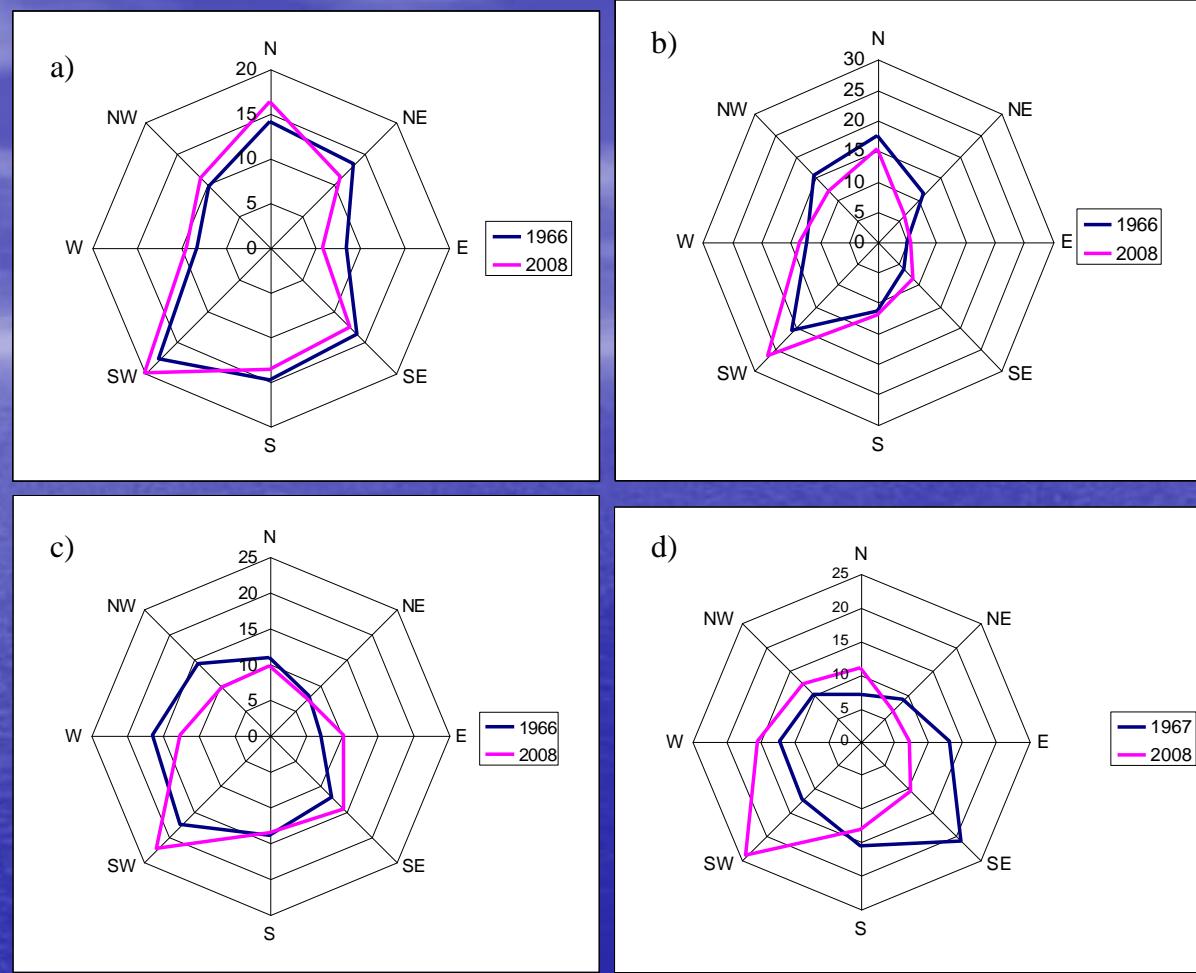
University of Tartu

- a) List of wind and wind energy parameters relevant for wind engineering compiled;**
- b) Estonian wind data statistically analysed (and model corrected at measurement site), scientific paper submitted;**
- c) Preparatory phase of wind modelling by WAsP in final stage for Estonia, to be done for Latvia (wind and map data input needed a.s.a.p.)**

Wind analysis

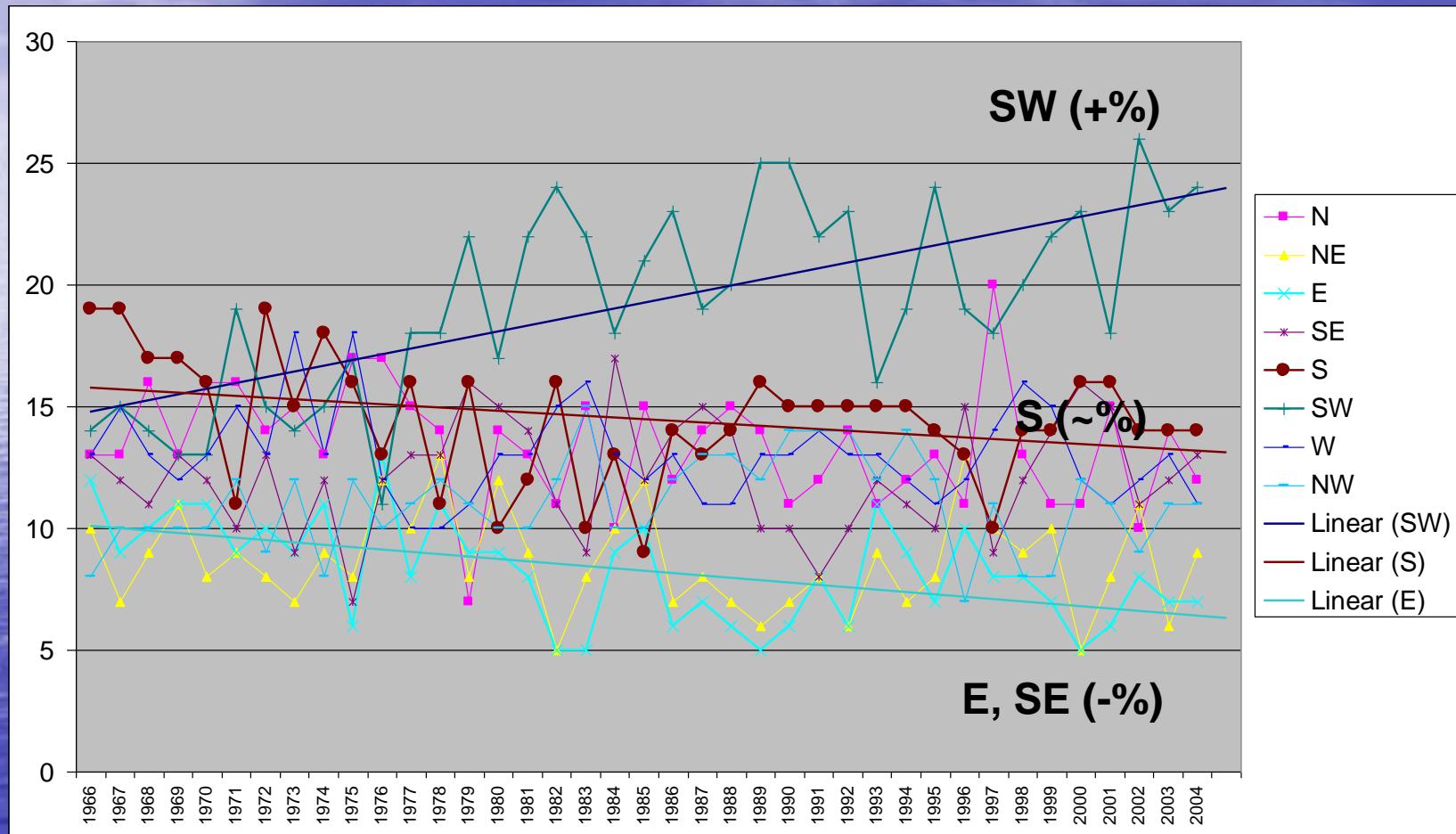


Frequency of SW winds in Vilsandi during winter and winter NAO index according to Li & Wang (2003)
($r = 0.80$)



Jaagus, J. and Kull, A. Changes in surface wind directions in Estonia during 1966-2008 and their relationships with large-scale atmospheric circulation.

Wind direction changes in Vilsandi



- Clear trends in wind direction

Wind modelling by WASP

- Current status

- Mapping obstacles

- All required input maps for obstacles ready (EST, LAT)

- Orography

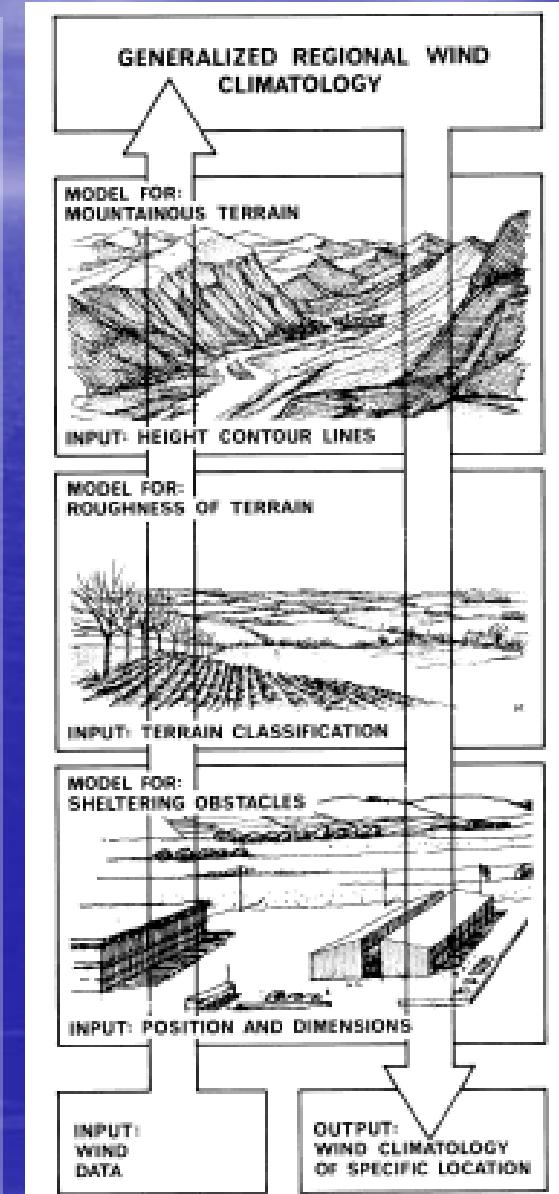
- Almost finished in EST, do be started in Latvia

- Roughness

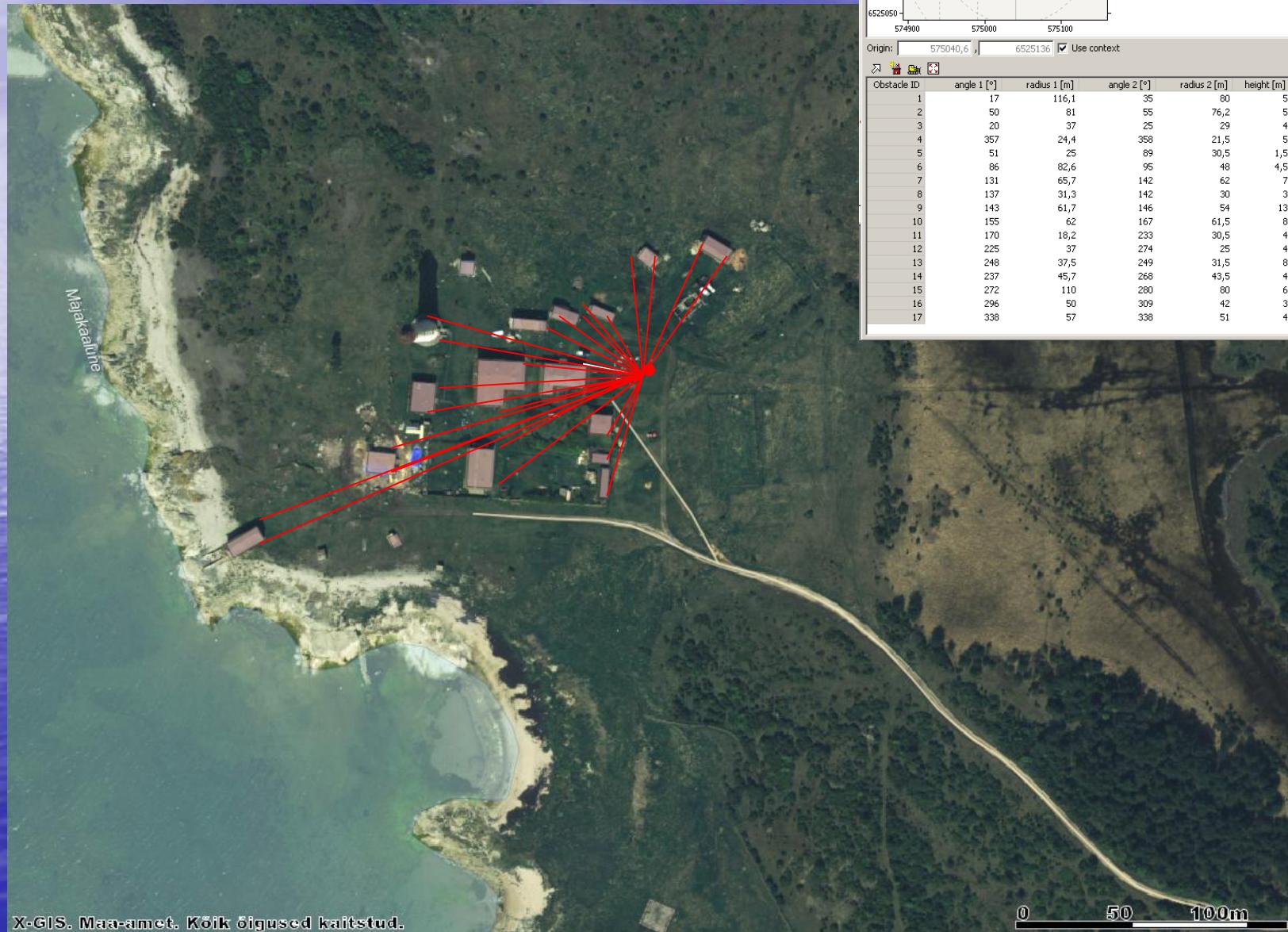
- Partly done for Estonia, do be started in Latvia

- Data

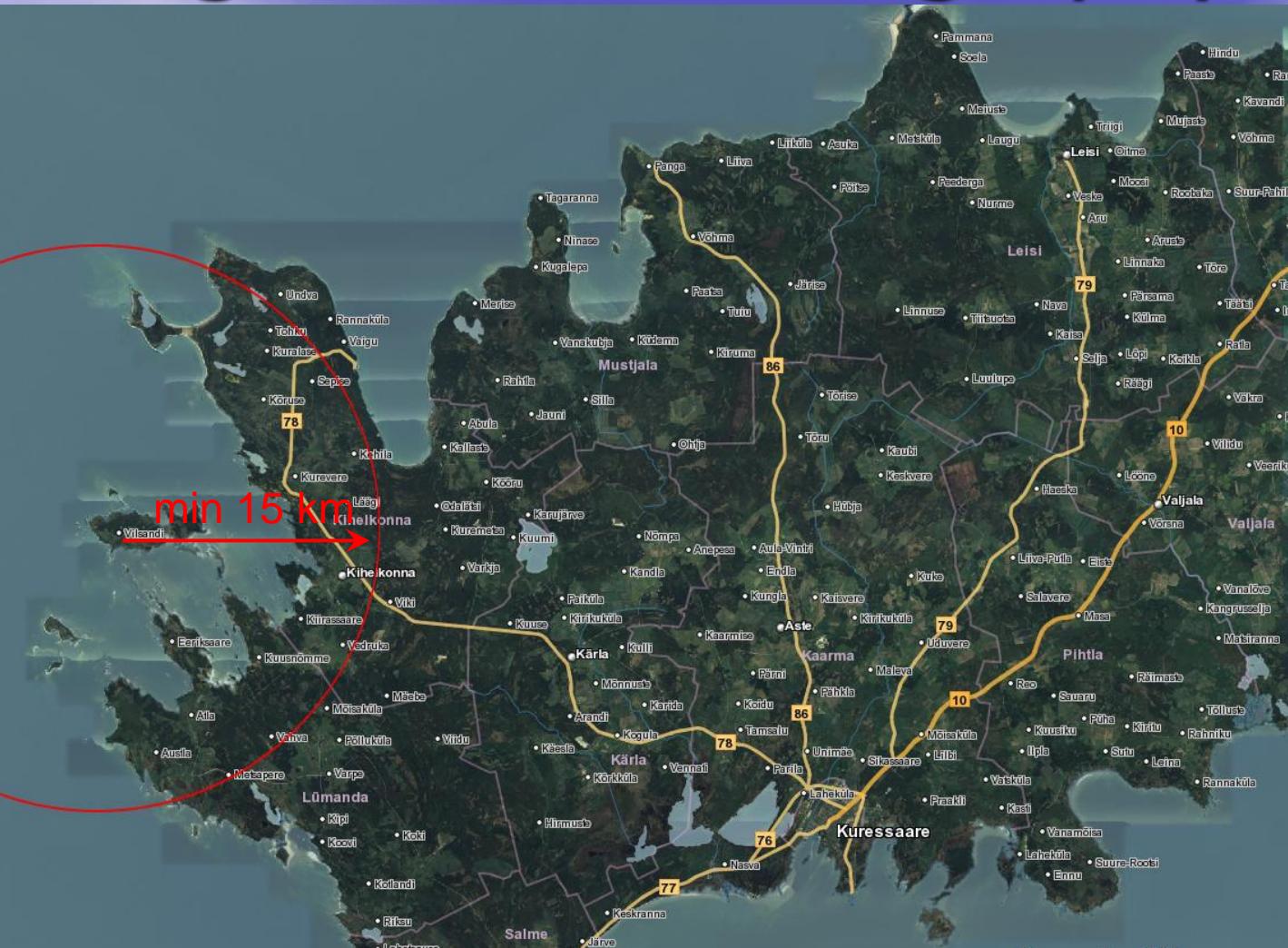
- Ready for processing in EST
 - Needed for Latvian part



Mapping obstacles

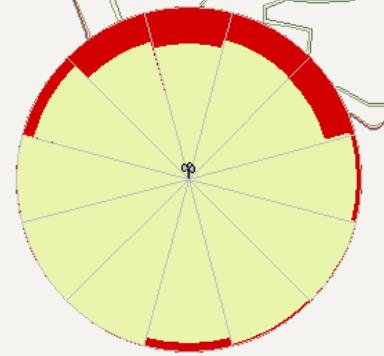


Roughness and orography

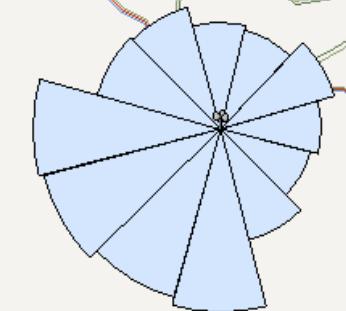


Very detailed 15 km around measurement site
(1:10000, 1: 25000), more general in distant areas
(1:50000)

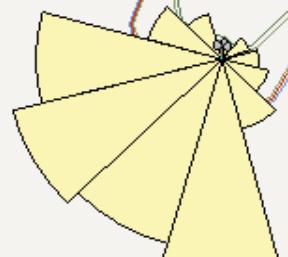
Rou effect



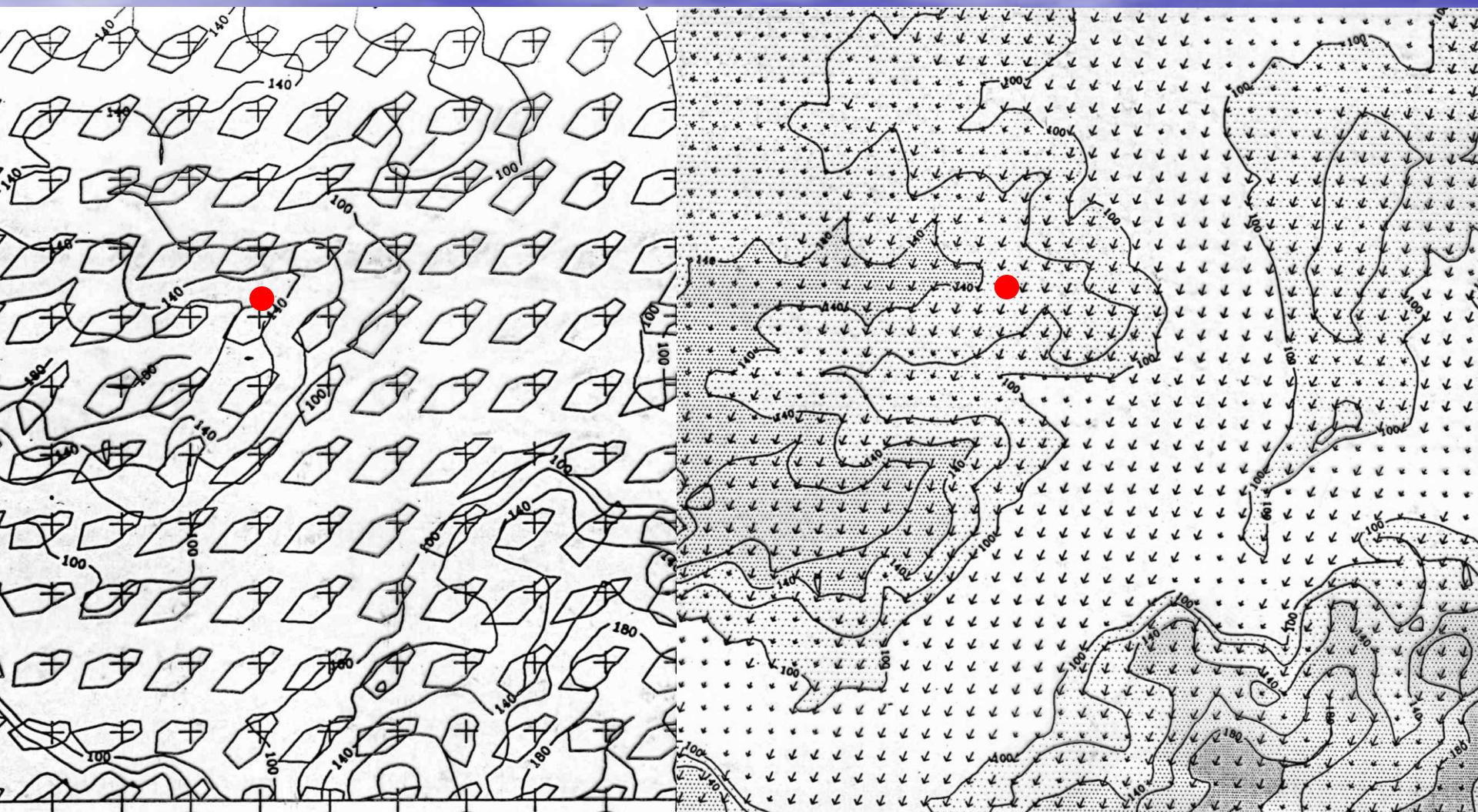
Wind distribution



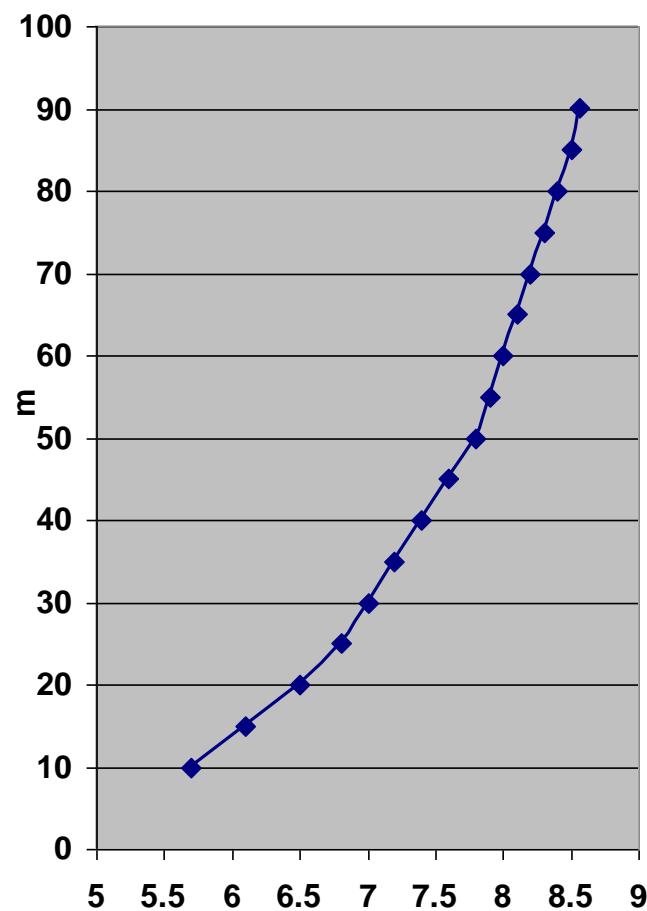
Energy distribution



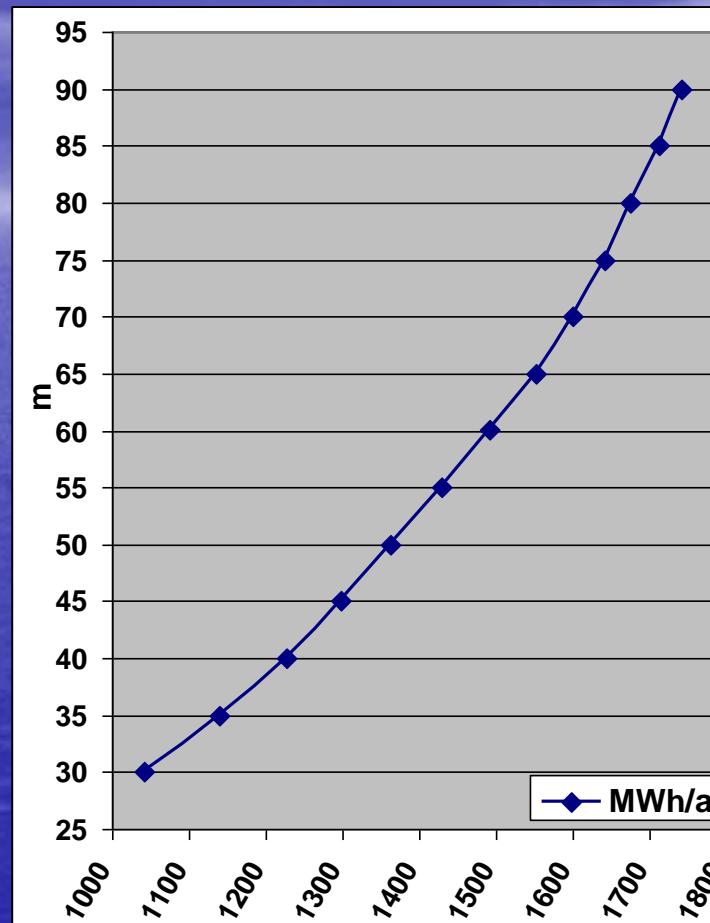
Wind field modelling by WAsP



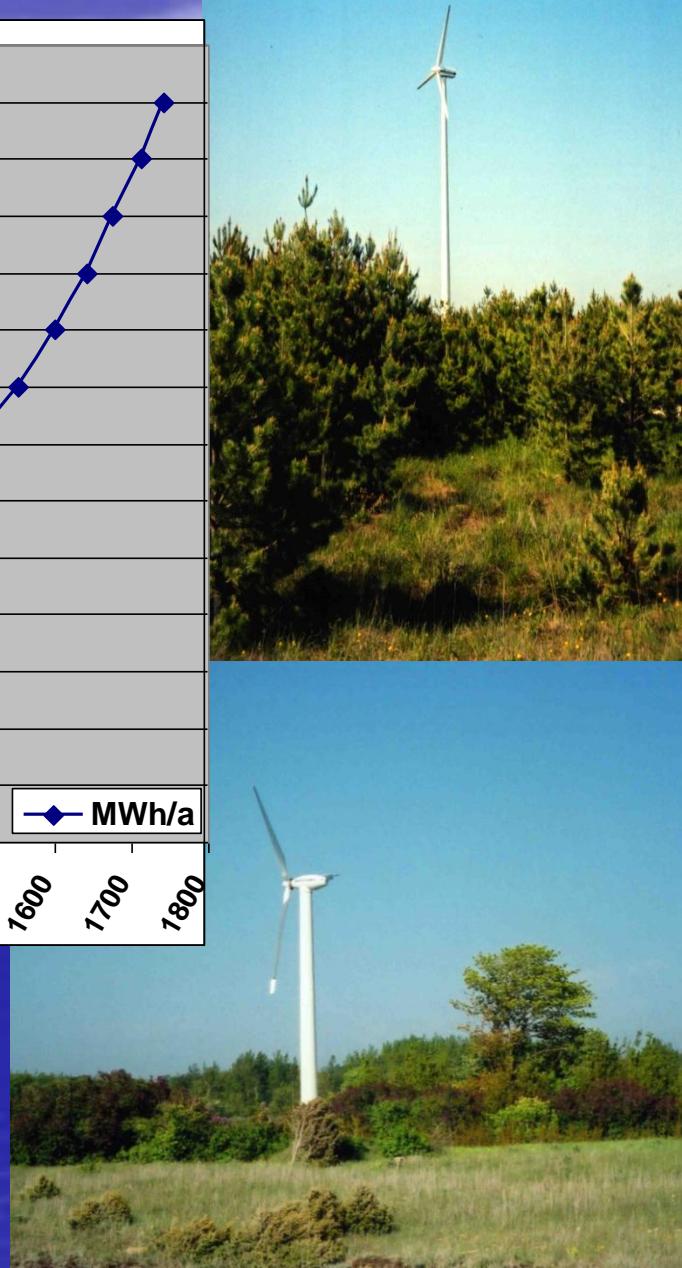
Vertical wind profile



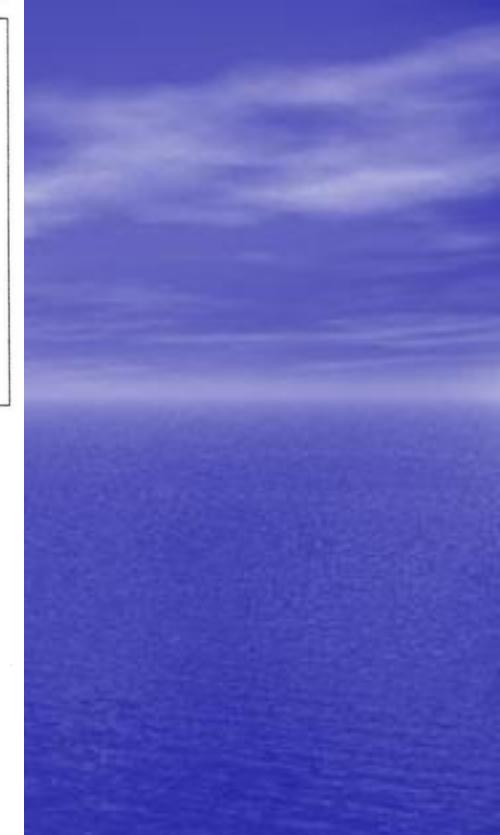
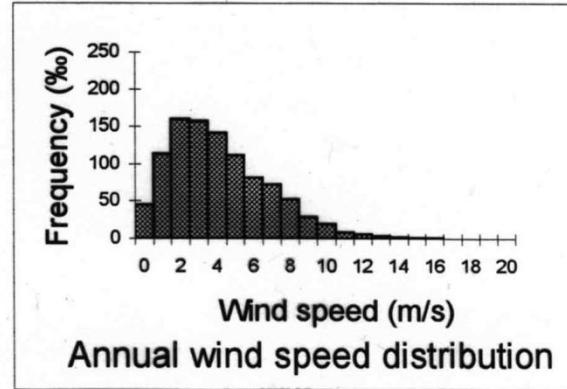
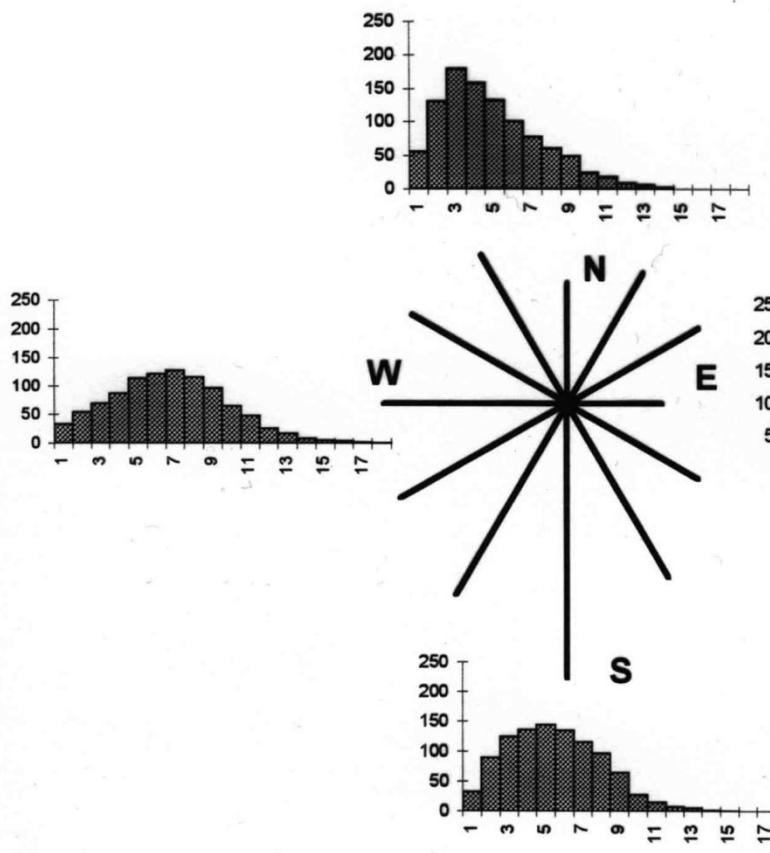
Vertical wind profile
10-90 m a.g.l.



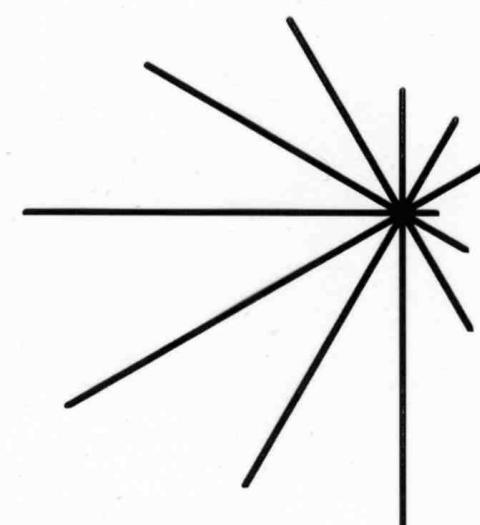
Vertical wind energy
profile 30-90 m a.g.l.



Wind rose and speed distribution



Energy rose
Energy density
(W/m^2)



0 5 15 %

Production forecast

- Kihnu is ready for test runs:
 - Long-term values
 - testing HIRLAM period
 - testing/validating SAR derived wind
 - When: day after tomorrow ☺
- All Estonian stations:
 - ready for August, mass calculation will start
- All Latvian stations
 - Data analysis to be started a.s.a.p. time series available
 - Mapping obstacles, oro and roughness since July (Latvian maps 1:10 000/1:25 000 and 1:50 000 needed a.s.a.p)

Output maps for WP4

Mean monthly wind speed

- January 10m a.g.l.; 100m a.g.l
- February 10m a.g.l.; 100m a.g.l
- March 10m a.g.l.; 100m a.g.l
- April 10m a.g.l.; 100m a.g.l
- May 10m a.g.l.; 100m a.g.l
- June 10m a.g.l.; 100m a.g.l
- July 10m a.g.l.; 100m a.g.l
- August 10m a.g.l.; 100m a.g.l
- September 10m a.g.l.; 100m a.g.l
- October 10m a.g.l.; 100m a.g.l
- November 10m a.g.l.; 100m a.g.l
- December 10m a.g.l.; 100m a.g.l

- Mean annual wind speed 10m a.g.l.; 100m a.g.l
- Mean annual energy density 10m a.g.l.; 100m a.g.l

Conclusions

- UT is just in line regarding WP schedule

**We are always in time
or a bit ahead (if not late yet)**

