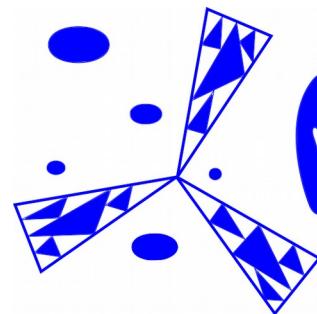


École des Ponts

ParisTech



RW-Turb



Rainfall Wind Turbine or
Turbulence

Kick off meeting

31/3/2021

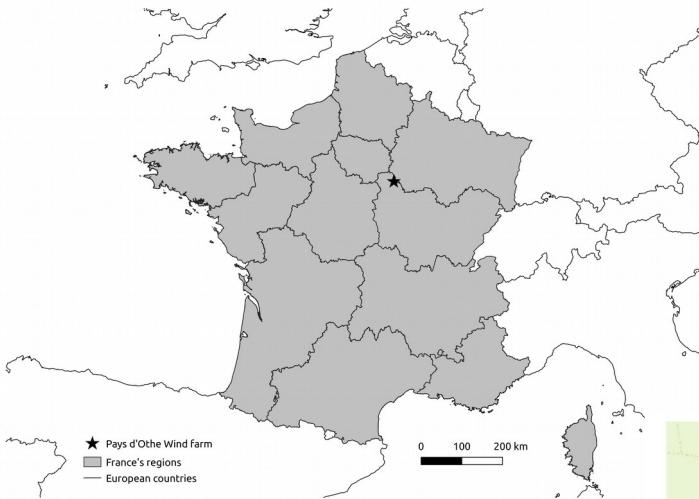
Auguste Gires
auguste.gires@enpc.fr



<https://hmco.enpc.fr/portfolio-archive/rw-turb/>

Kick off schedule

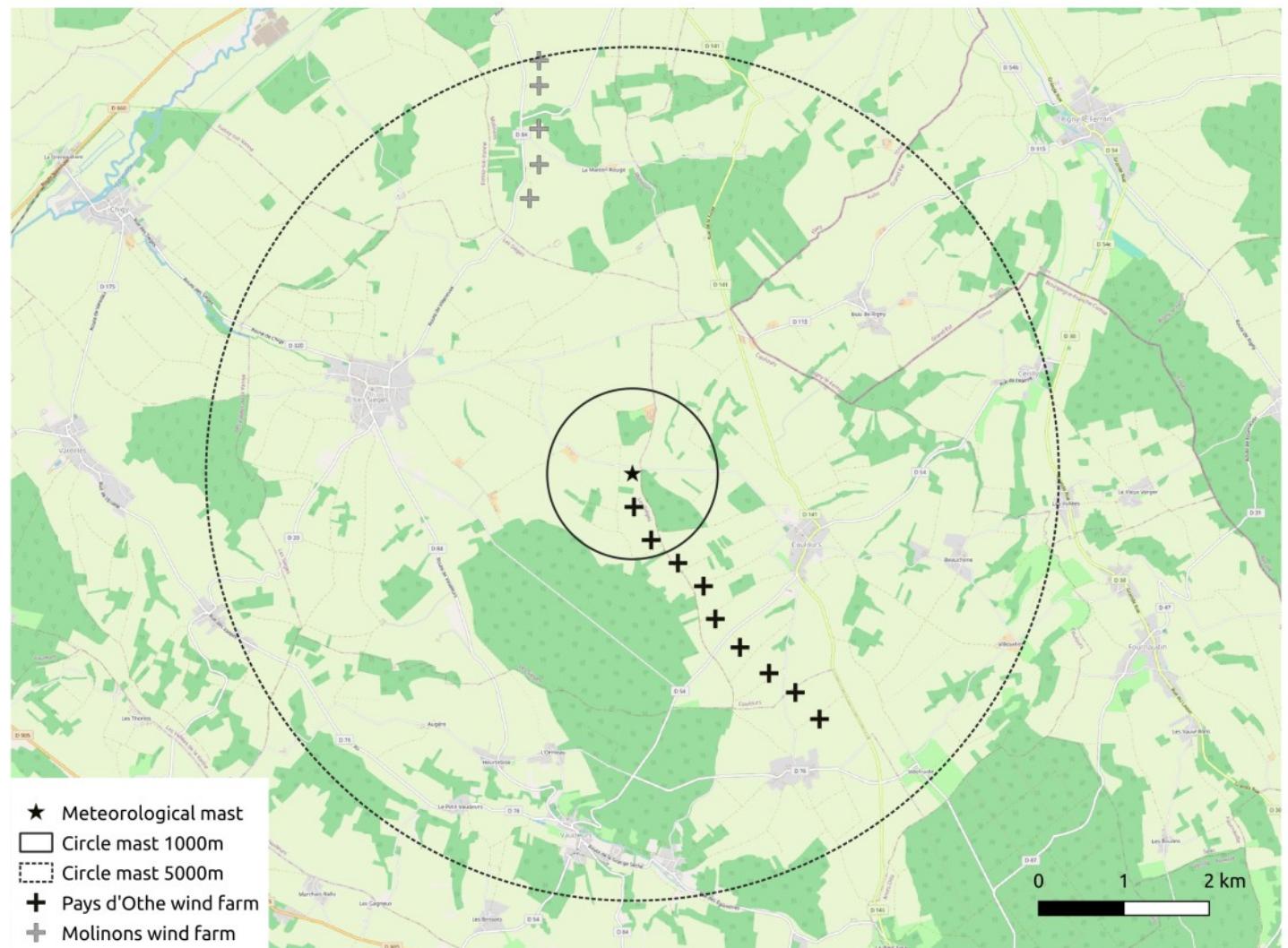
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A 86 m high meteorological mast on a wind farm operated by **BORALEX**

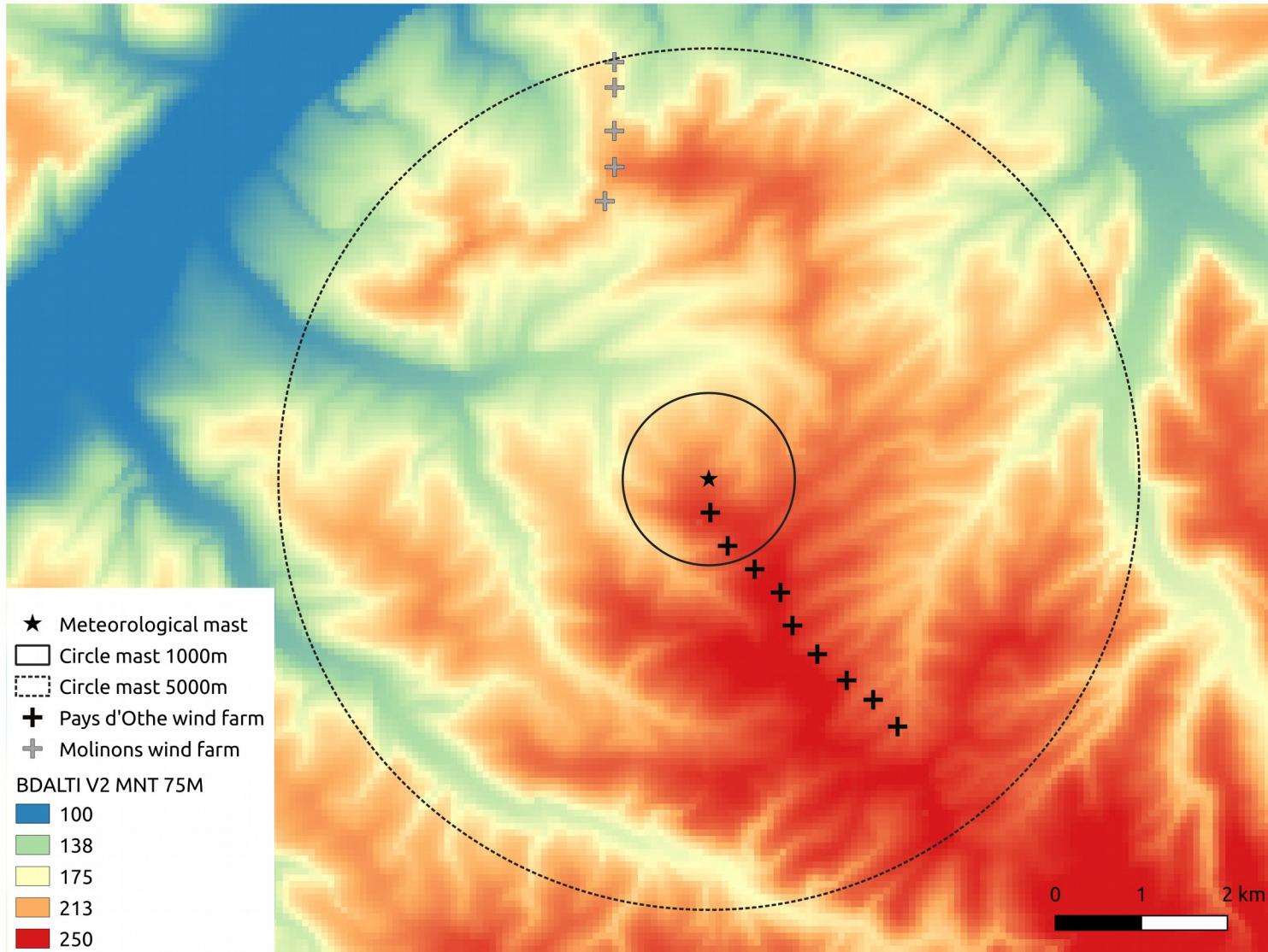
WP1 : a high resolution measurement campaign

Pays d'Othe wind farm



WP1 : a high resolution measurement campaign

Pays d'Othe wind farm



- Elevation of the pixel of the mast is 230 m.

- Nearby the mast (~ 1 km), there is a small slope in the North-South direction.

WP1 : a high resolution measurement campaign

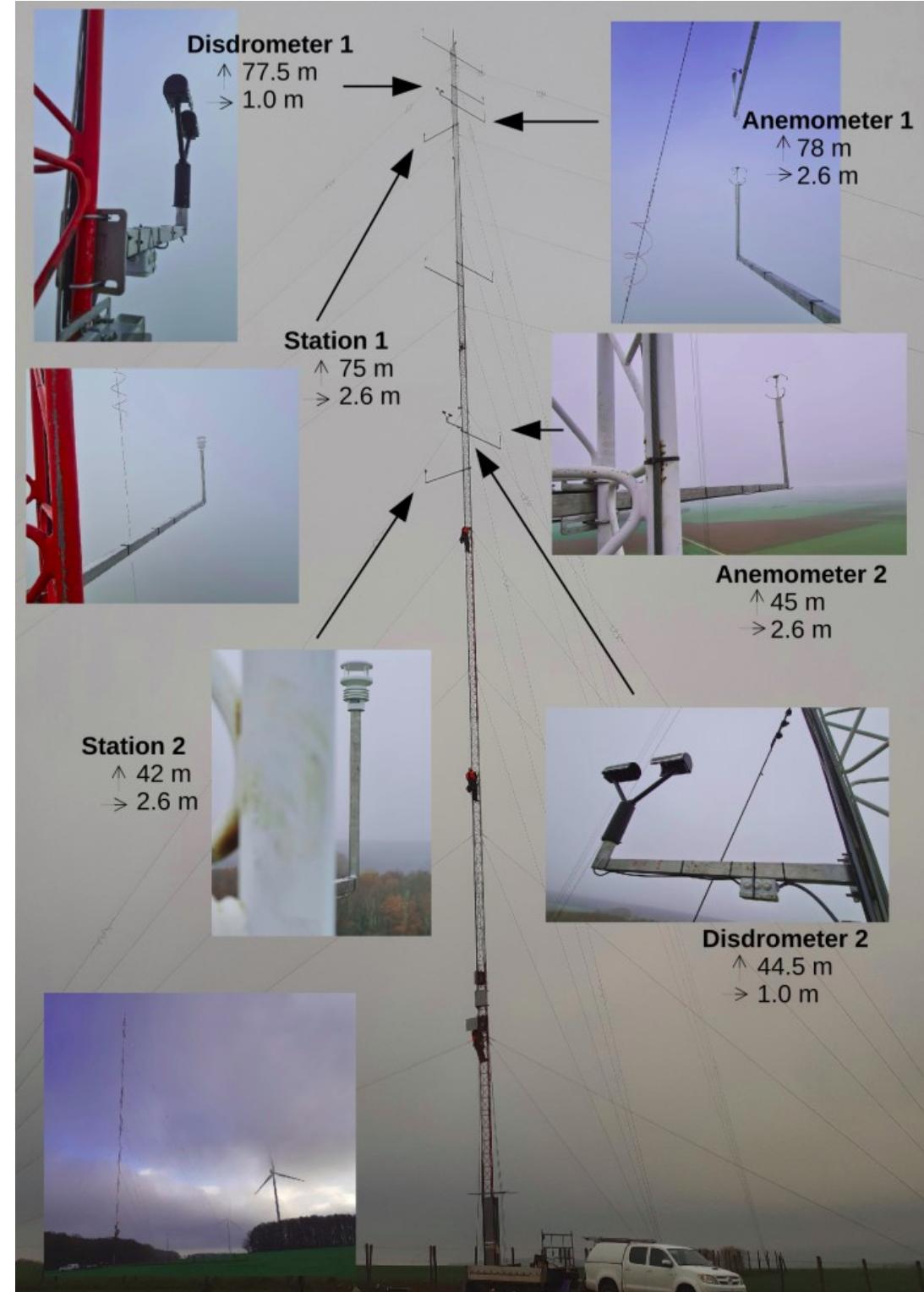
Installation of the devices 09/12/2020



WP1 : a high resolution measurement campaign

Instruments

- **3D sonic anemometers** (Thies CLIMA): collection of wind data at 100 Hz
- **Meteorological stations** (Thies CLIMA): collection of temperature, pressure, humidity, wind, precipitation at 1 Hz
- **Disdrometers** (OTT Parsivel2): collection of precipitation (size and velocity of hydrometeors) at a resolution of 30s.

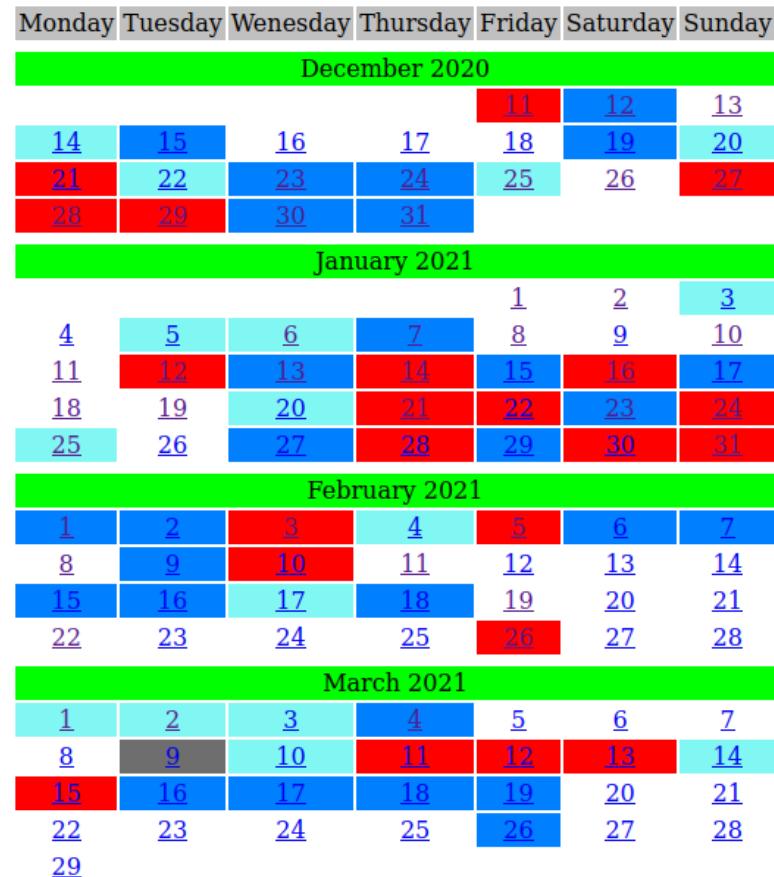


WP1 : a high resolution measurement campaign

Meteorological data

- Storage on ENPC servers
- Data base with user friendly tools in Python to extract relevant data
- Quicklooks available on the project's webpage

RW-Turb campaign on Pays d'Othe wind farm Quicklooks



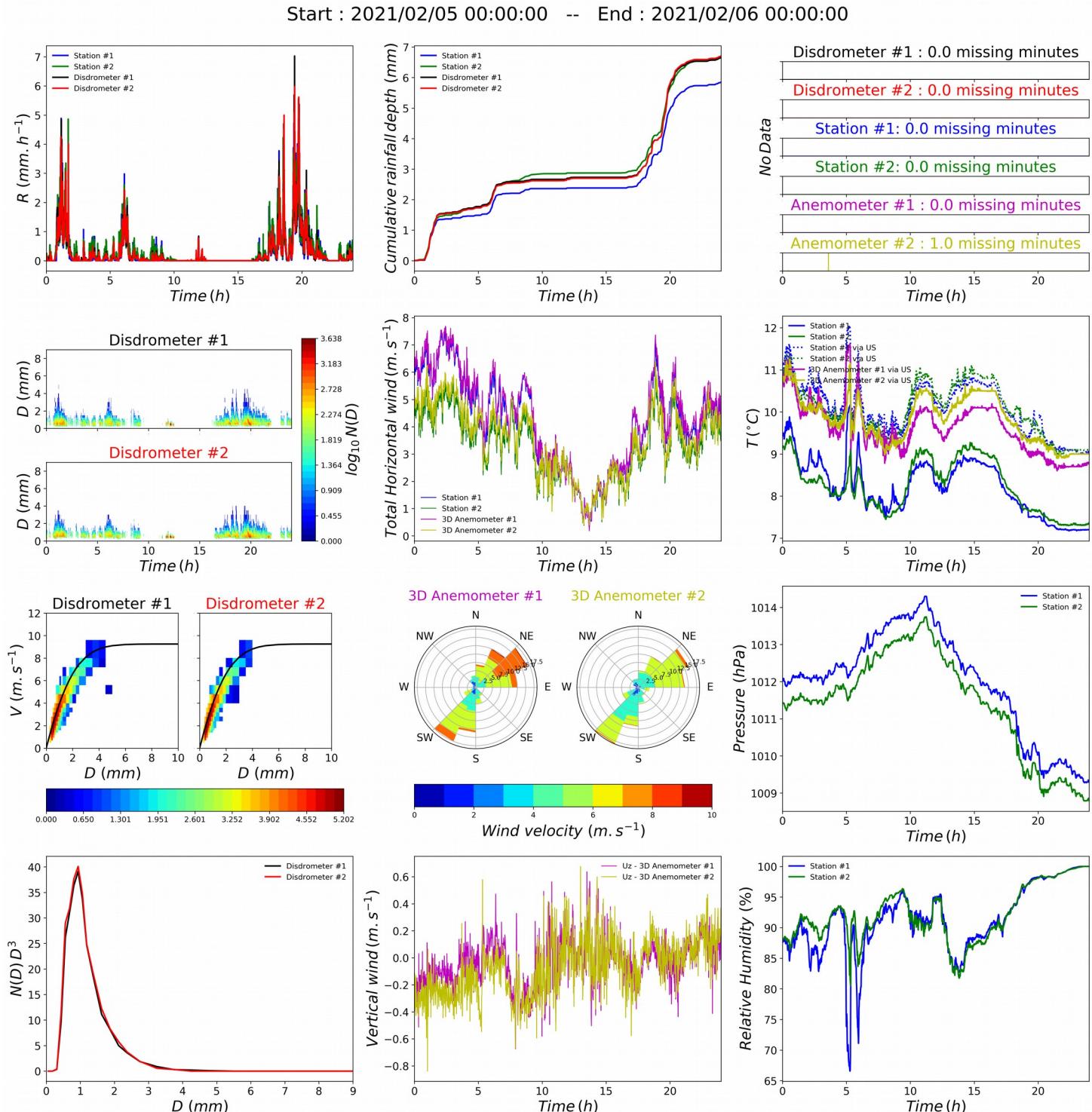
Color code

No rain
<1 mm
<5 mm
>5 mm
No data

WP1 : a high resolution measurement campaign

Meteorological data

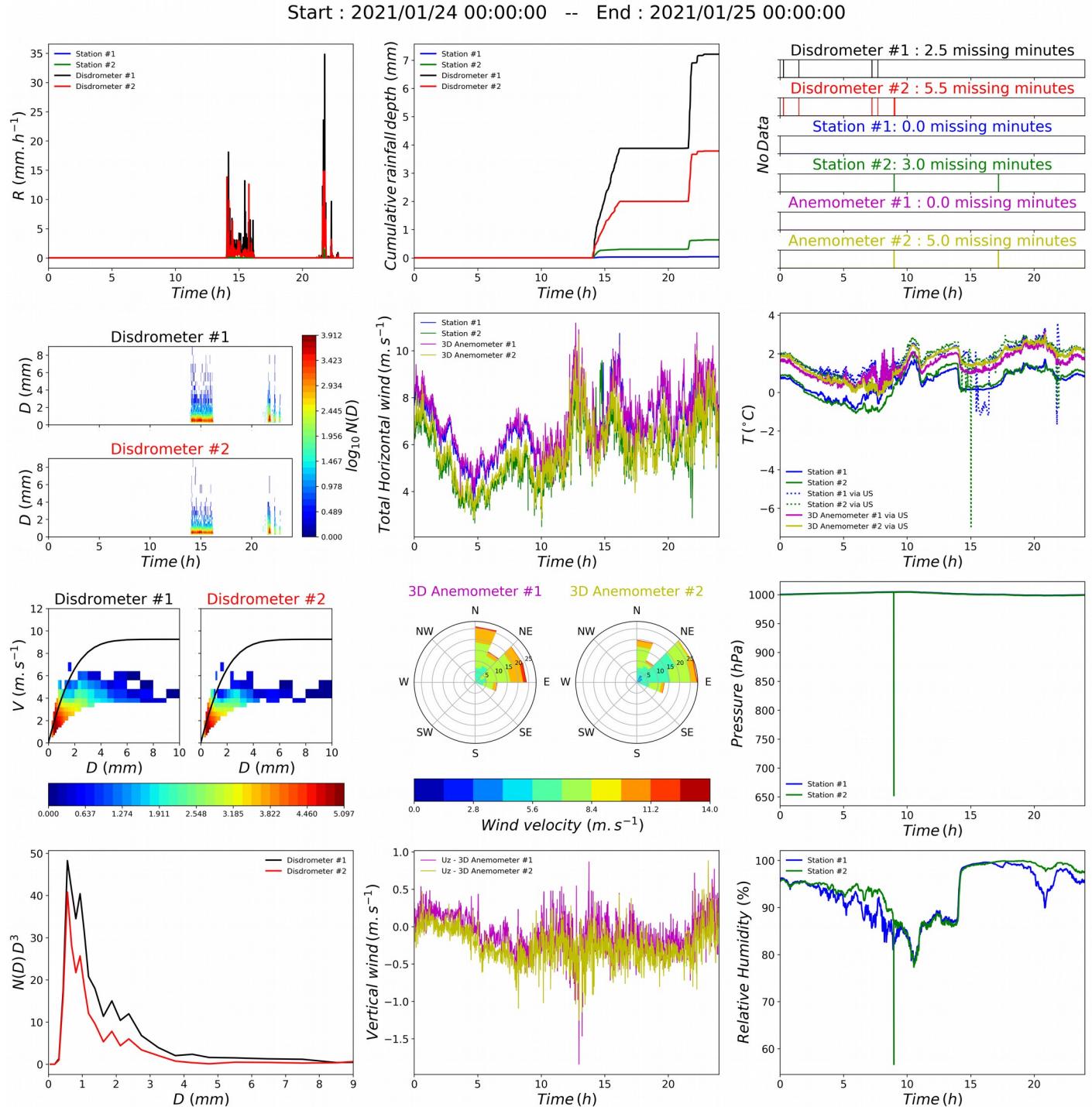
Illustration of the collected data with a quicklook :



WP1 : a high resolution measurement campaign

Meteorological data

Illustration for a day with snow :

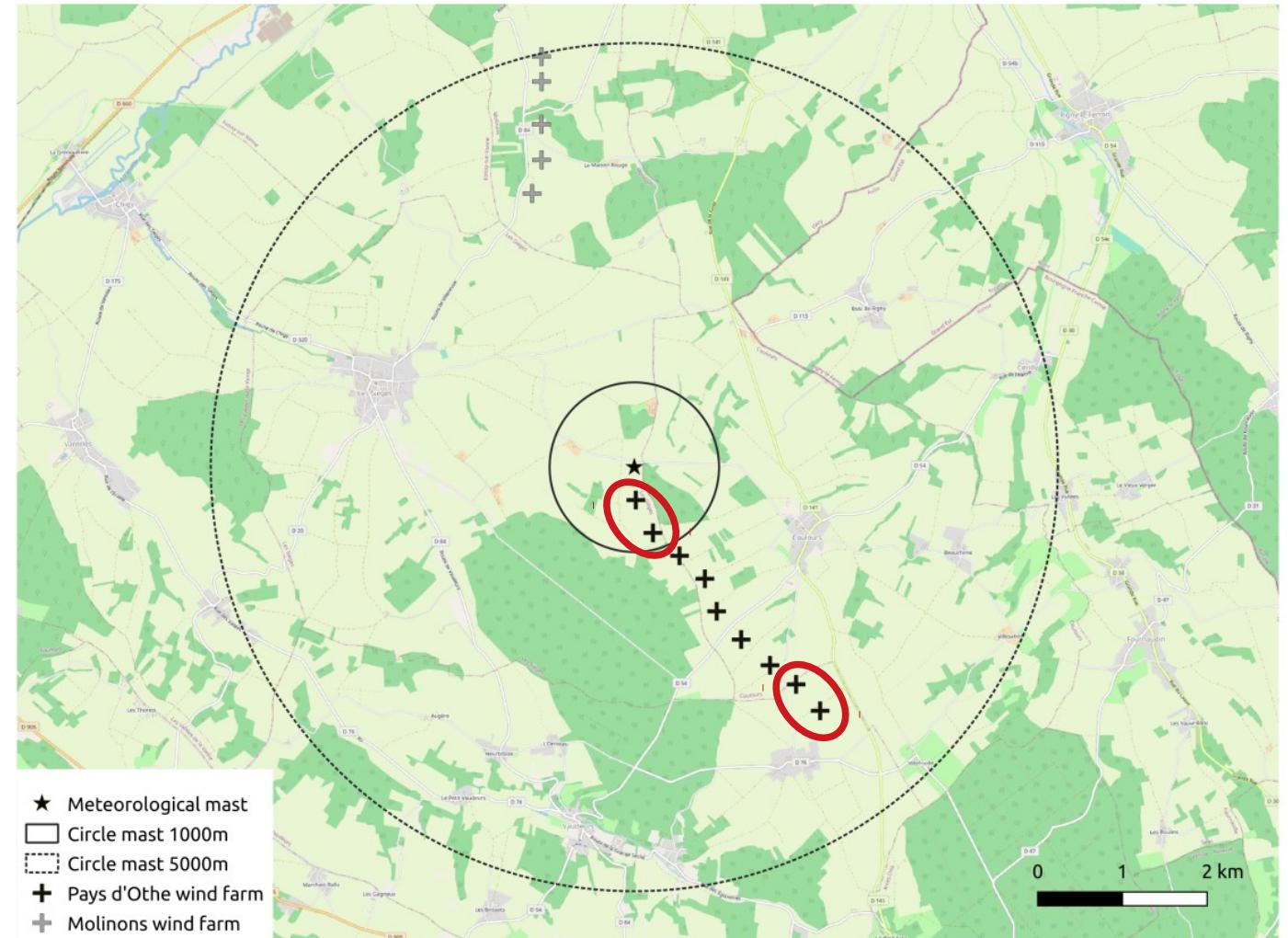


WP1 : a high resolution measurement campaign

Power production

Main data :

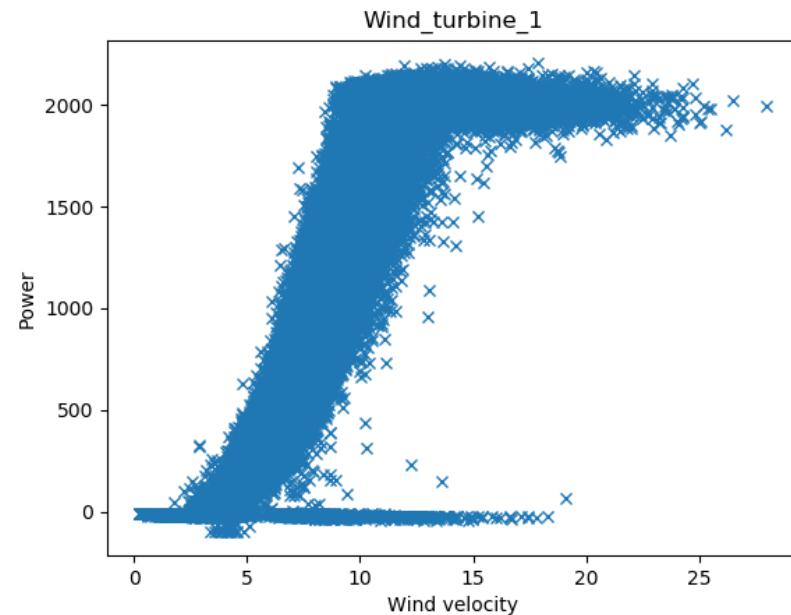
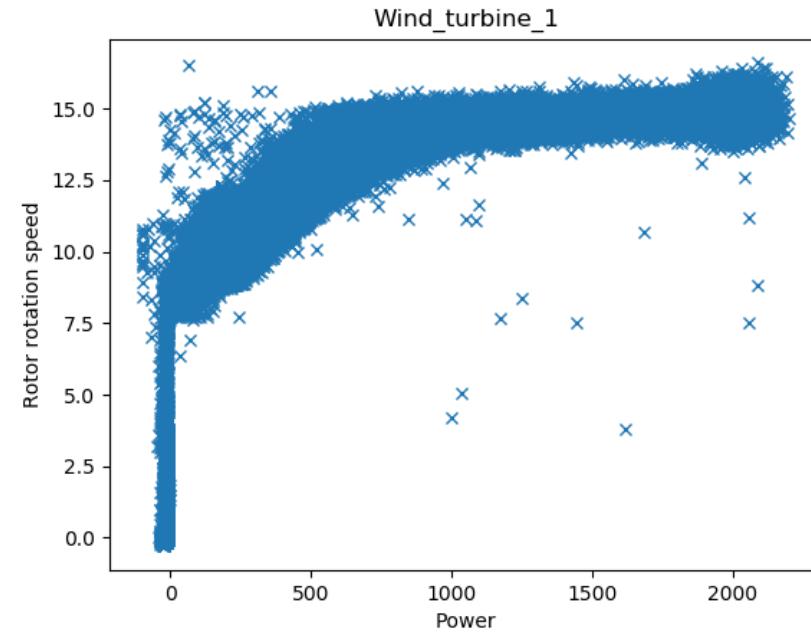
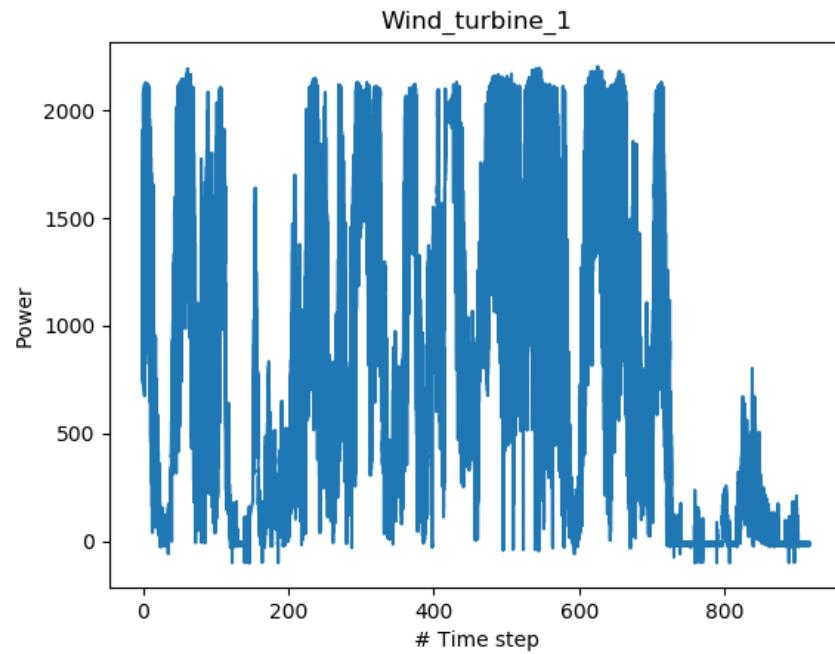
- Active power [kW]
- Pitch angle of the blades [°]
- Rotor rotation speed [rpm]
- Direction of nacelle [°]
- Meteorological information collected on the nacelle



Provided by **BORALEX**, with a 15s resolution.

WP1 : a high resolution measurement campaign

Power production



It corresponds to the
data for Wind Turbine #1
between 1/12/2020 and
8/1/2020.

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