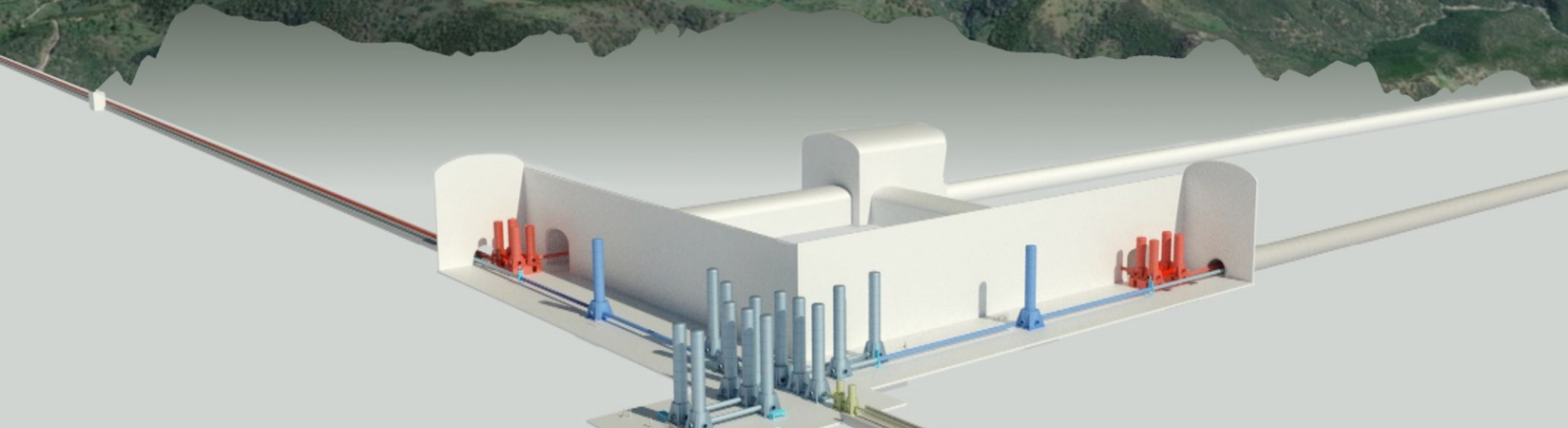


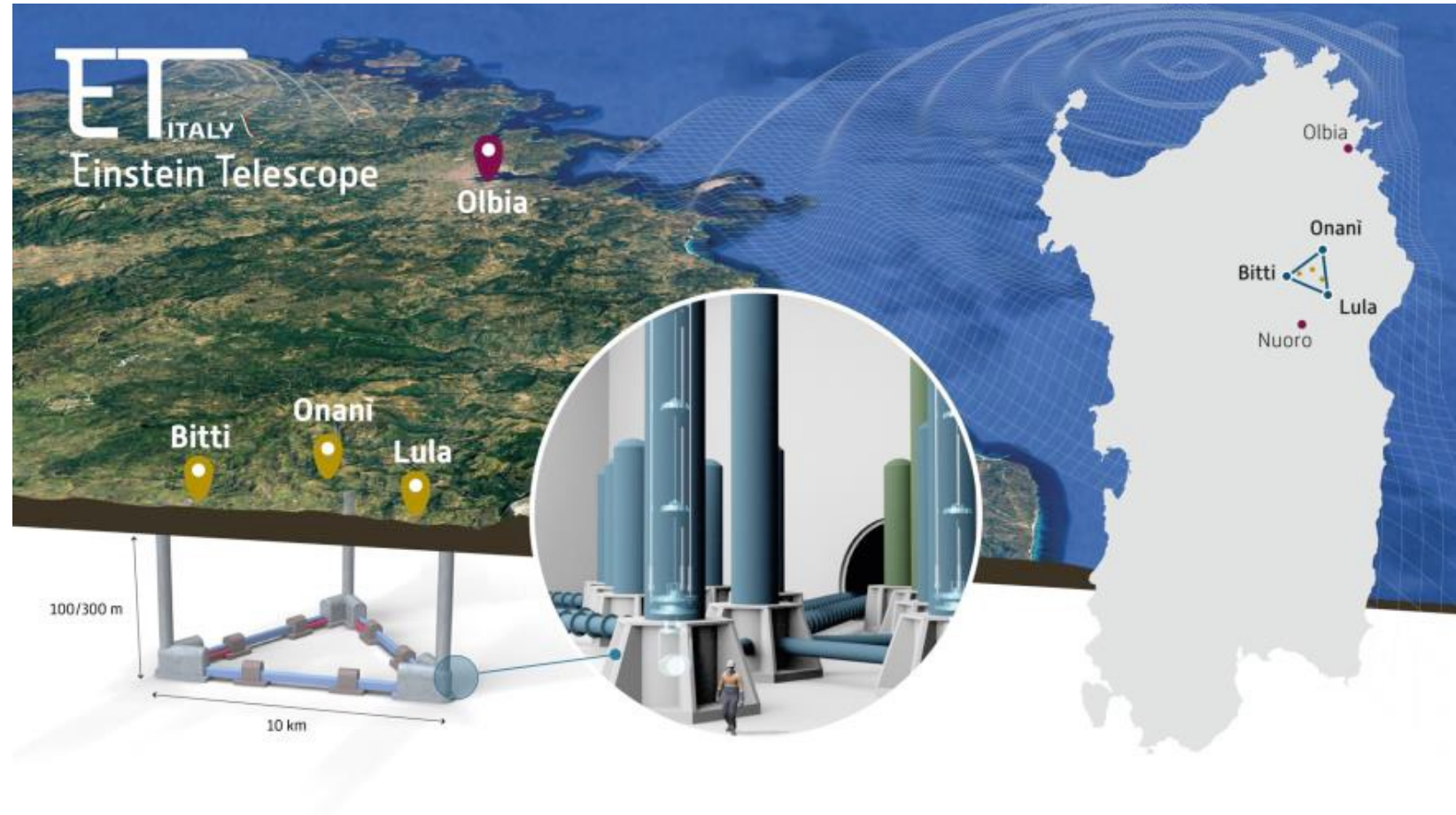
# Introduction to Sardinia activities





# The Italian Site – Sos Enattos area

- Sos Enattos: former mine with underground access guaranteed through tunnels and shaft
- In the area of the mine, the SARGRAV laboratory, a seed of ET, aims to host underground experiments, cryogenic payloads, low frequency and cryogenic sensor development that need low seismic and anthropogenic noise



# Action lines

- Site monitoring
  - ❑ identification and quantification of local source impact
  - ❑ implication for site preservation quality
- Geological studies
  - ❑ understanding and characterization of local geology
- Civil and environmental engineering
  - ❑ geotechnical investigation
  - ❑ optimal placement and environmental sustainability of the underground and surface infrastructures
- Socio-economic impact

# Talks about activity @ Sardinia



Monday 6h

- L. Cardello: New geochronologic and thermochronologic data from the Einstein Telescope candidate site of Sardinia
- G. Sappa: Civil and environmental engineering activities for the ET sustainable design in Sardinia
- D. Rozza: Status of measurements in Sardinia

Wednesday 8th

- L. Vargiu: Update on socio-economic studies
- T. Bulik: Analysis of acoustic noise at Sos Enattos
- G. Diaferia: Update on wind park measurements in Sardinia
- D. Rozza & M. Di Giovanni: Update on glitch studies
- D. D'Urso: Triangle and L localization in Sardinia



# PERMANENT ARRAY since 2019

Since 2019, in Sos Enattos there are:

4 permanent seismic stations for long term studies (Trillium 240, 360 and 120 Horizon, Guralp 360)

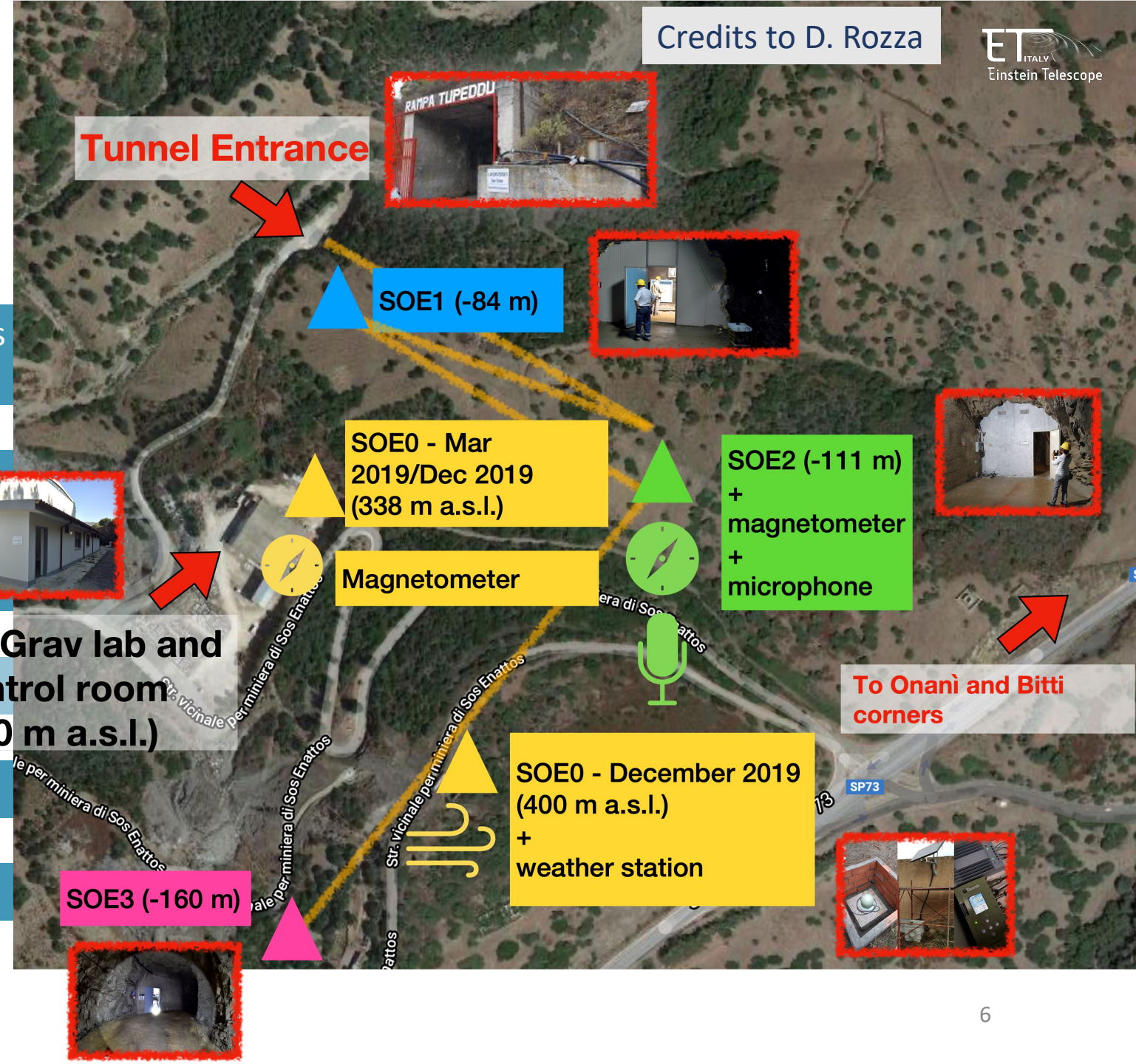
1 weather station

1 microbarometer

3 magnetometers (MF6-06)

2 microphones

1 high precision tiltmeter (Archimedes prototype)





## PERMANENT ARRAY since 2021

Since 2021, more permanent sensors have been installed at 2 of the proposed vertices (P2, P3)

2 broadband seismometers on surface

2 broadband seismometers in borehole

2 magnetometers at P2

Collaboration with  
Germain group (KIT)



Sos Enattos



# News and updates

- Preliminary feasibility study for ET in Sardinia on going
- Assumptions: ET located in the area of Sos Enattos (NU, Italy), considering both triangular (six interferometers inserted in a system of tunnels and caverns with an equilateral triangle layout on a side about 11 km) and L shape (two interferometers inserted in a system of tunnels and caverns with an 'L' layout on a side about 16 km) configurations.
- Modeling and Layouts
- Preliminary cost estimate (excavation)
- Evaluation of TBM configuration and tunnel monitoring
- Preliminary indications on the management of excavated lands and rocks
- Preliminary strategy on the management of excavated soil and rock



**End of activity: June 2025**





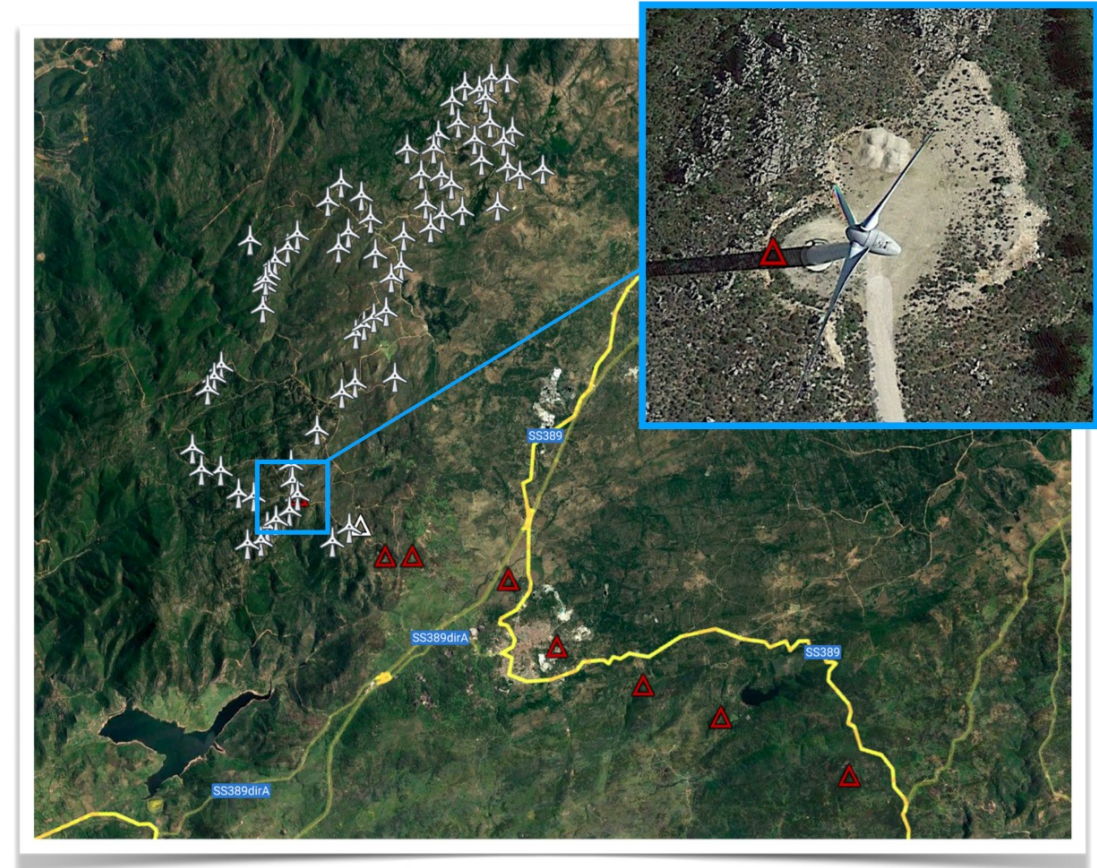
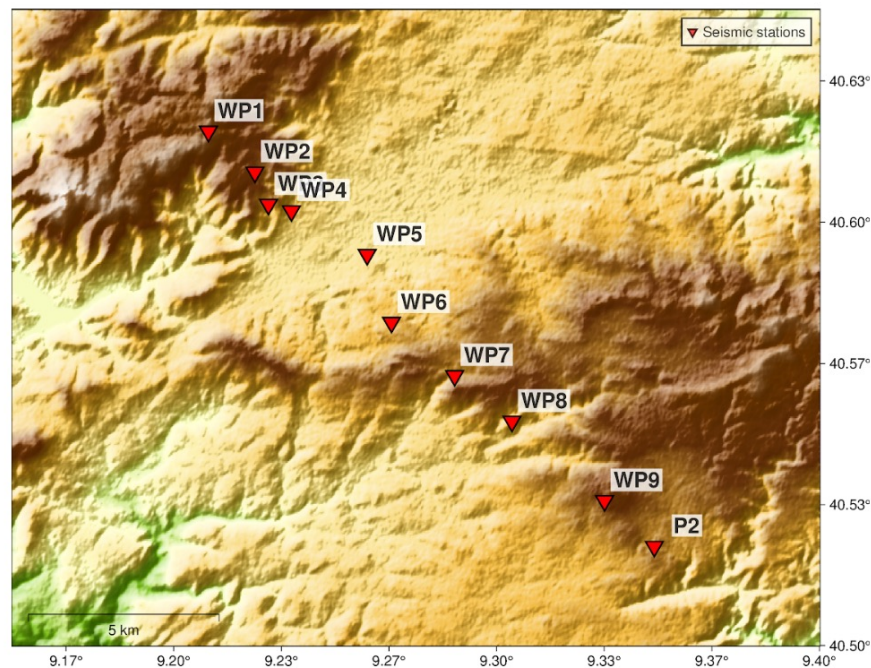


# Wind Turbine noise assessment

Credits to G. Diaferia

## The WINES experiment

- 9 broad-band seismic stations
- ~13 km linear array
- ~2 months of recording (8/04-30/05/2023)
- wind-speed data from a nearby meteorological station



NB: in our analysis we also include the permanent stations P2, P3, located on the two closest vertices of the ET candidate site



# Wind Turbine noise assessment

- Measurement campaign of noise produced by new generation wind turbines already in operation in Sicily

