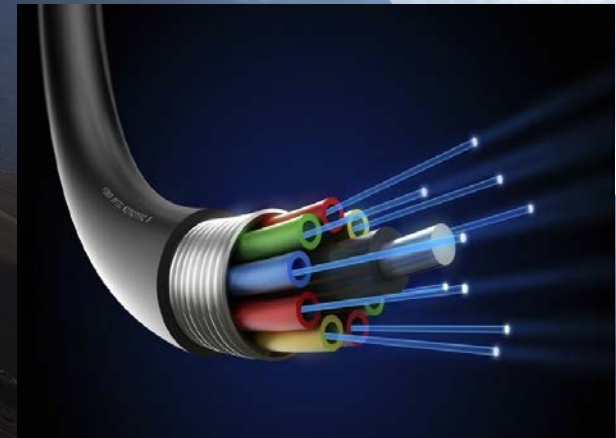


Eurovolc's FAME project : **Fibre optical cable: an Alternative tool for Monitoring volcanic Events**

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Thomas Reinsch, Charlotte Krawczyk,
Gilda Currenti, Rosalba Napoli, Luciano Zuccarello
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Objectives

Fibre Optic technology can monitor volcanic activity

- Test for the first time Distributed Acoustic Sensing in a volcanic environment: case of Etna volcano within TNA of Eurovolc project
- Compare DAS records with several conventional sensors, such as broadband seismometers and infrasound sensors.
- Explore Etna volcano structural features (fault zones) and estimate dynamic response of the ground.



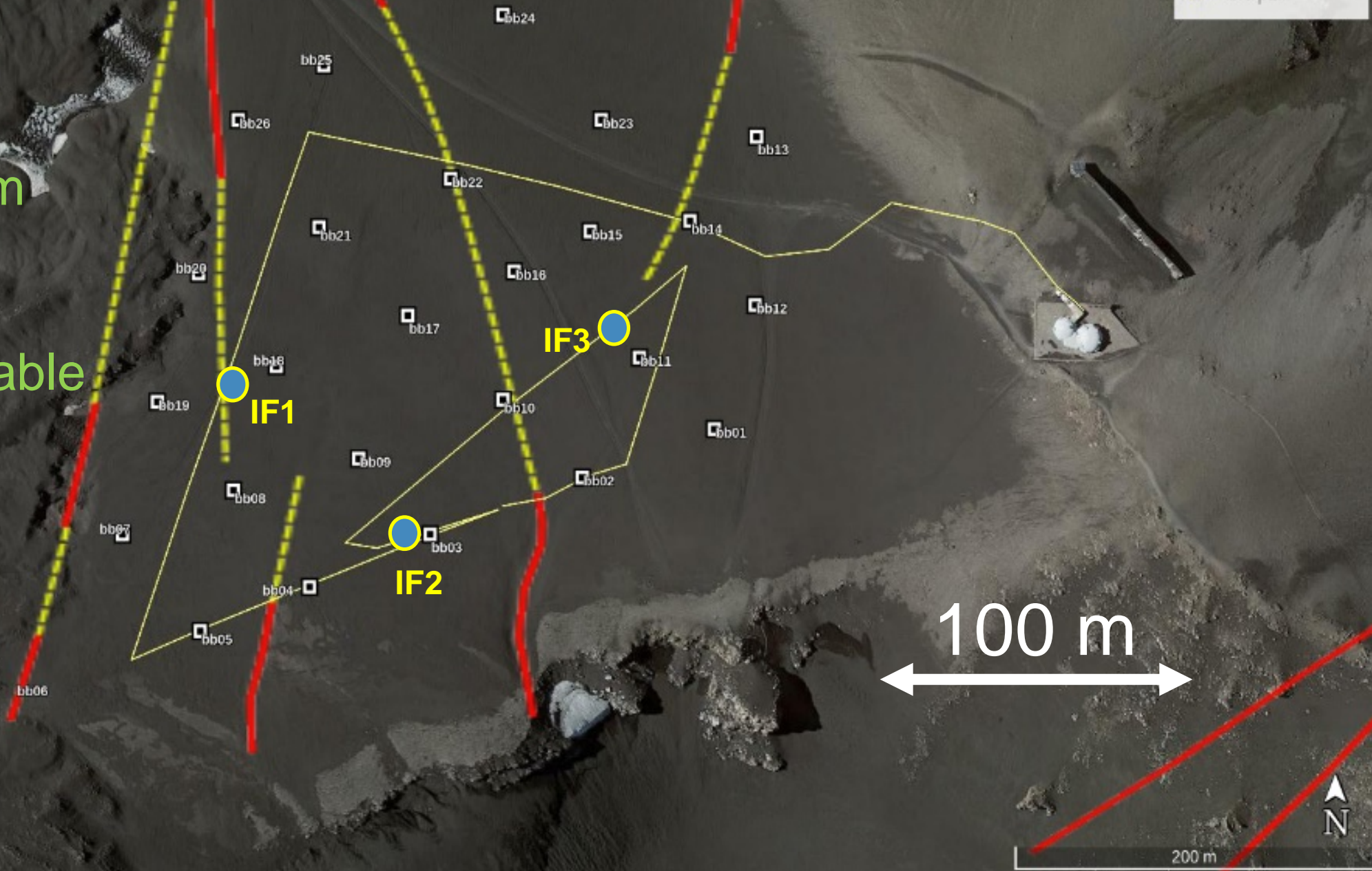
Installation configuration

Write a description for your map.

Legend

- Broadband station
- Fibre path

- 26 BB Trillium
- 3 IF arrays
- 1 Tiltmeter
- Fibre optic cable



Set-up

1.6 km long
40 cm depth
Standard Telecom Cable



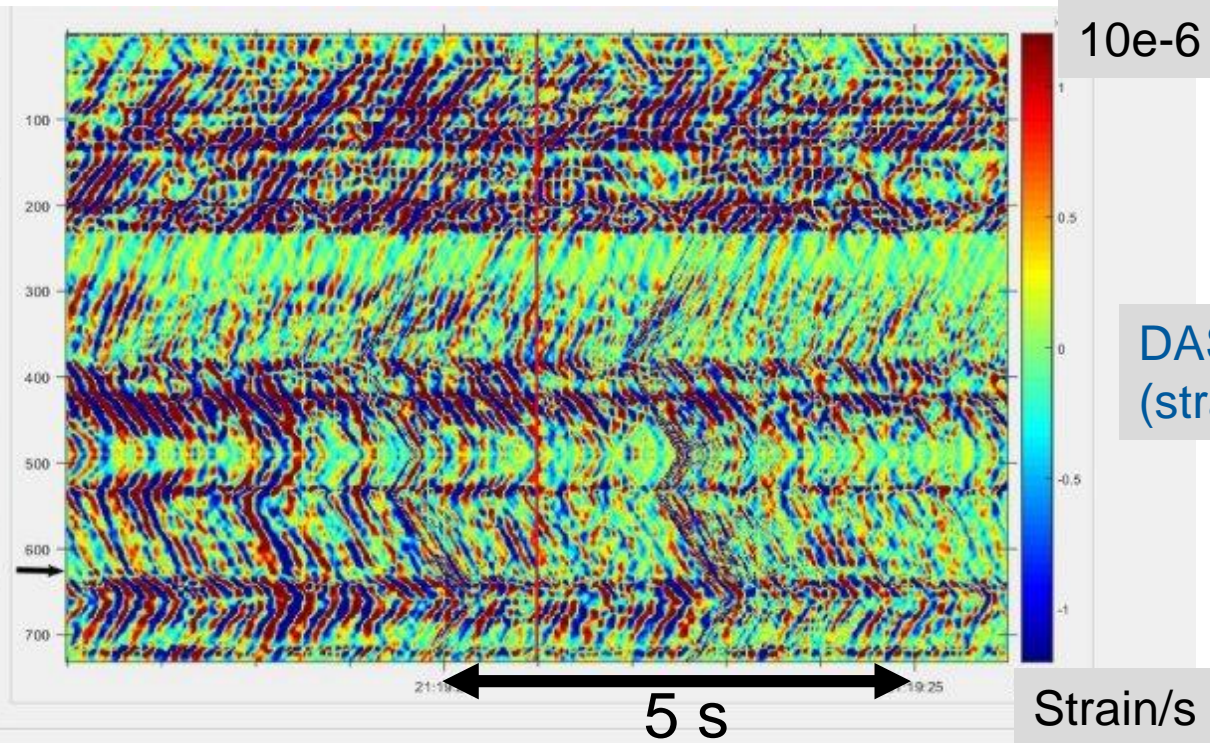
1000 Hz
1 Tb/week
10 Tb in total

1500 W solar panel
15 batteries – 100 Ah
1 inverter
4 regulators



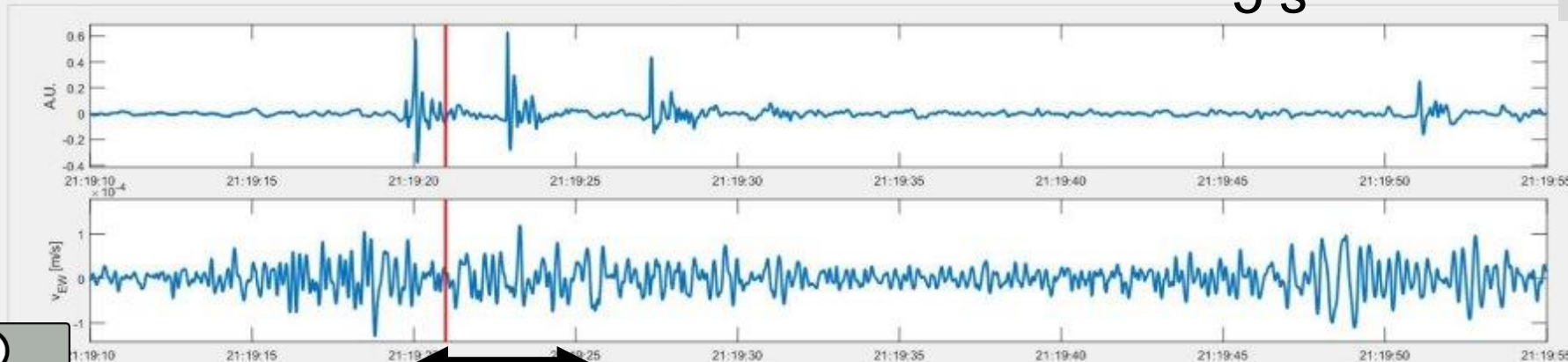
Strombolian volcanic activity in Voragine crater (Septembre 2019)

Dario La Scavo Photographer



DAS record
(strain rate)

Strain/s



Infrasound sensor

BB seismometer

Conclusions and *perspectives*

Fibre Optic technology can monitor volcanic activity

- We demonstrated the capability of DAS to record properly strain associated with volcanic events
- We validated those records with several conventional sensors
- *Interpret strain both terms of structural features (fault zones) and dynamic response of the ground.*
- *Constrain those response with the source of volcanic events as inferred with data from summit stations (VOSSIA project)*

Grazie mille!

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