

***Site Amplification map of Campi Flegrei
and Vesuvius estimated from the
combined analysis of Lithological and
Seismological information***

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INGV – Sezione di Napoli - Osservatorio Vesuviano

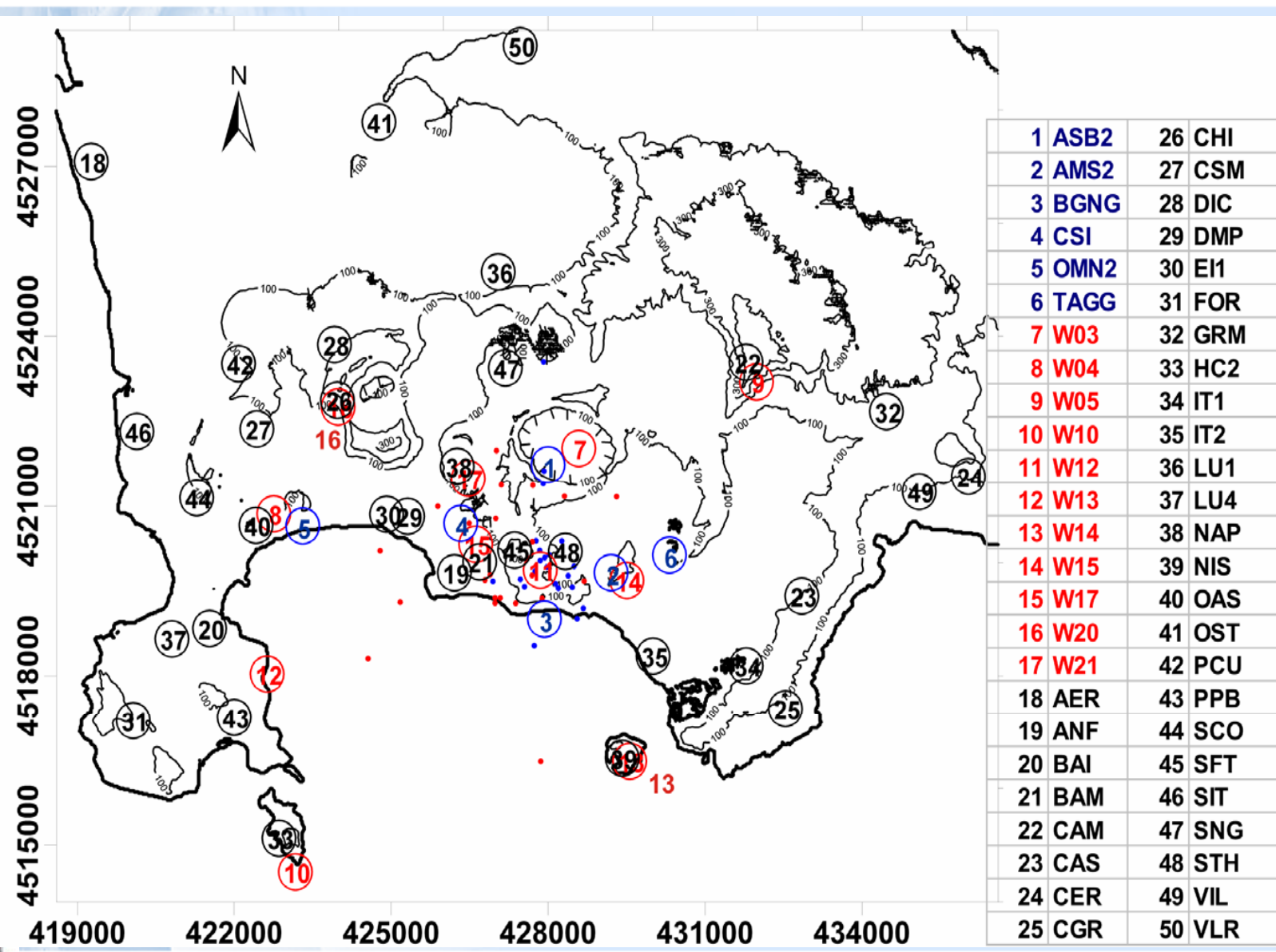


Summary

- **Seismic stations used for the site analysis.**
- **Site Transfer functions resulted from the two different techniques: Generalized Inversion Technique (GIT) and Horizontal to Vertical Spectral Method.**
- **Definition of homogeneous areas using the geological information.**
- **Site amplification maps obtained for different frequency bands.**

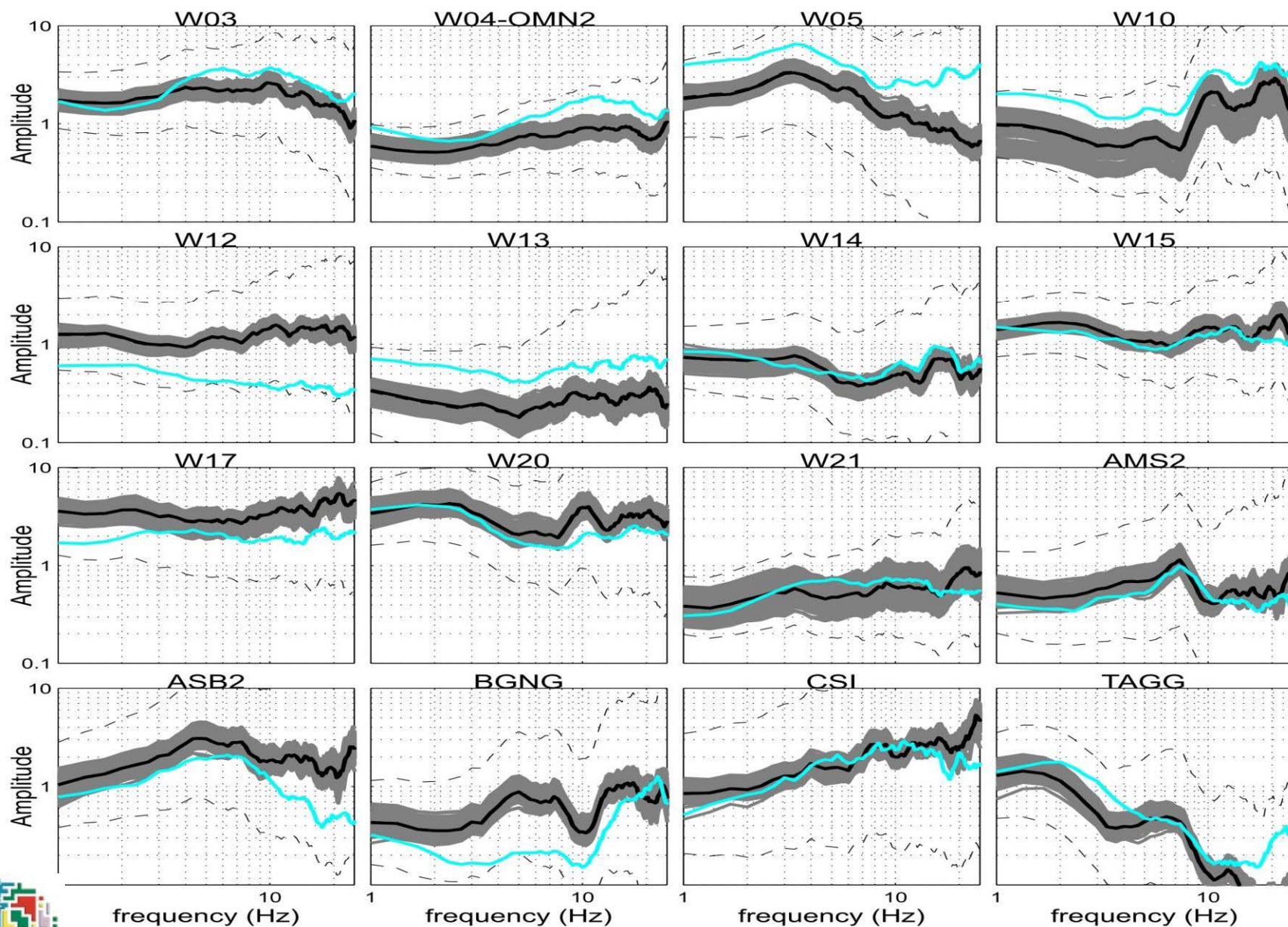
All these analysys are done both for Vesuvius and Campi Flegrei.





S and Coda waves spectral inversion (Tramelli et al., 2009, GJI, accepted)

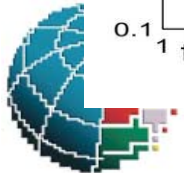
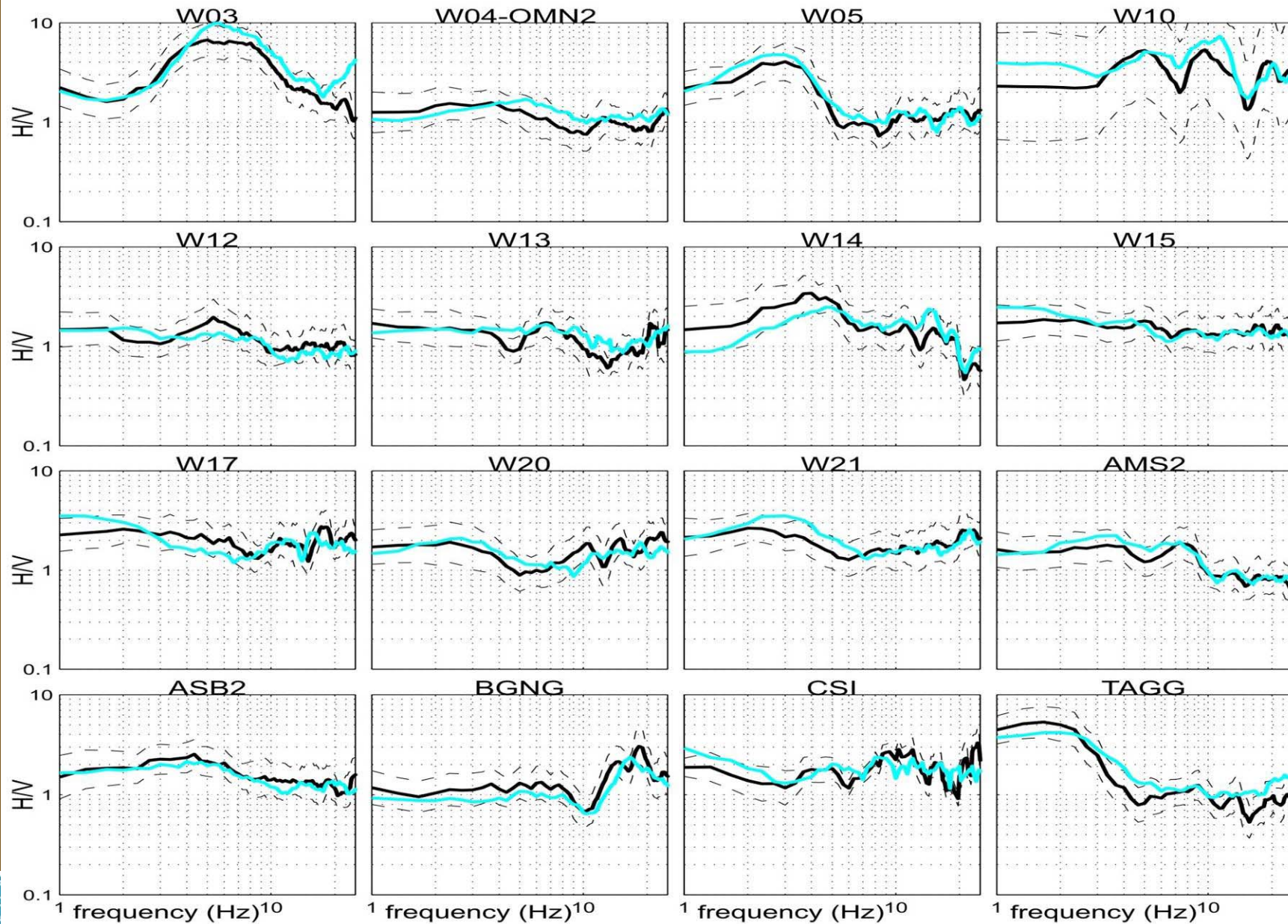
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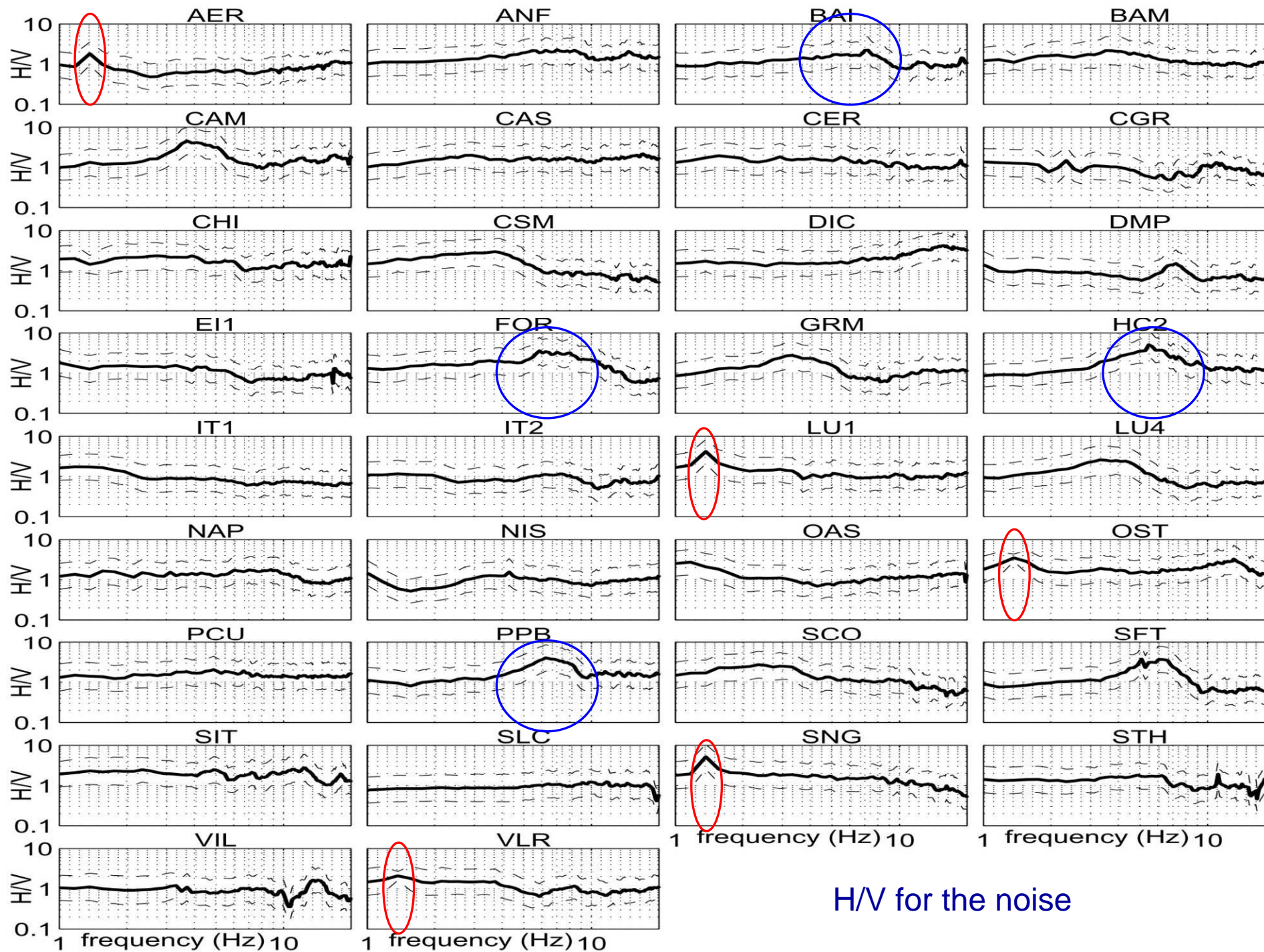


Convegno GNGTS 2010, Prato, 26 - 29 ottobre

H/V of the S and Coda waves (Tramelli et al., 2009, GJI)

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**Stratigraphical
and Lithological
characteristics**

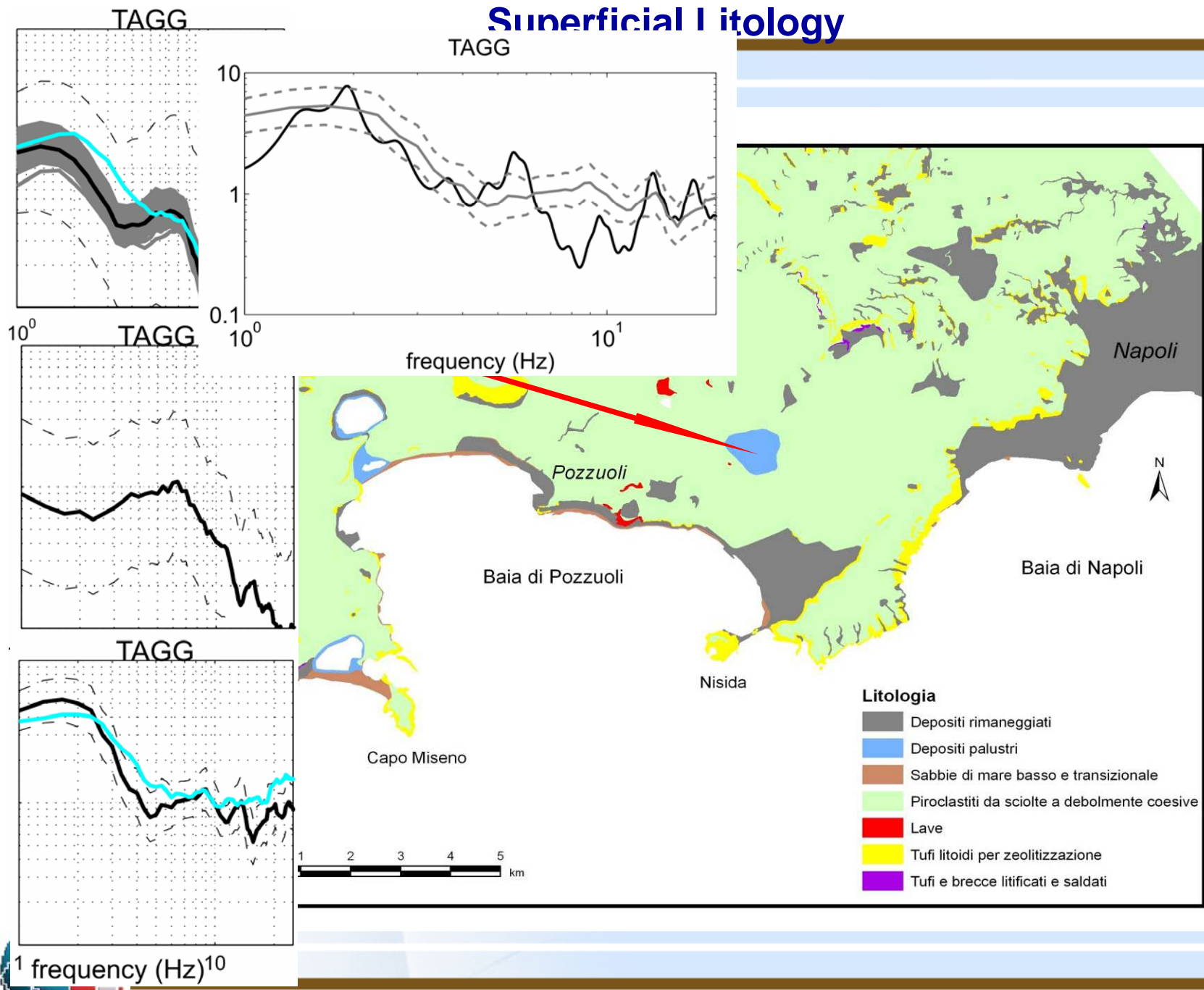
**Morphological
properties**

**Structural
features**

**Site Amplification
Functions**

Definition of
homogeneous areas

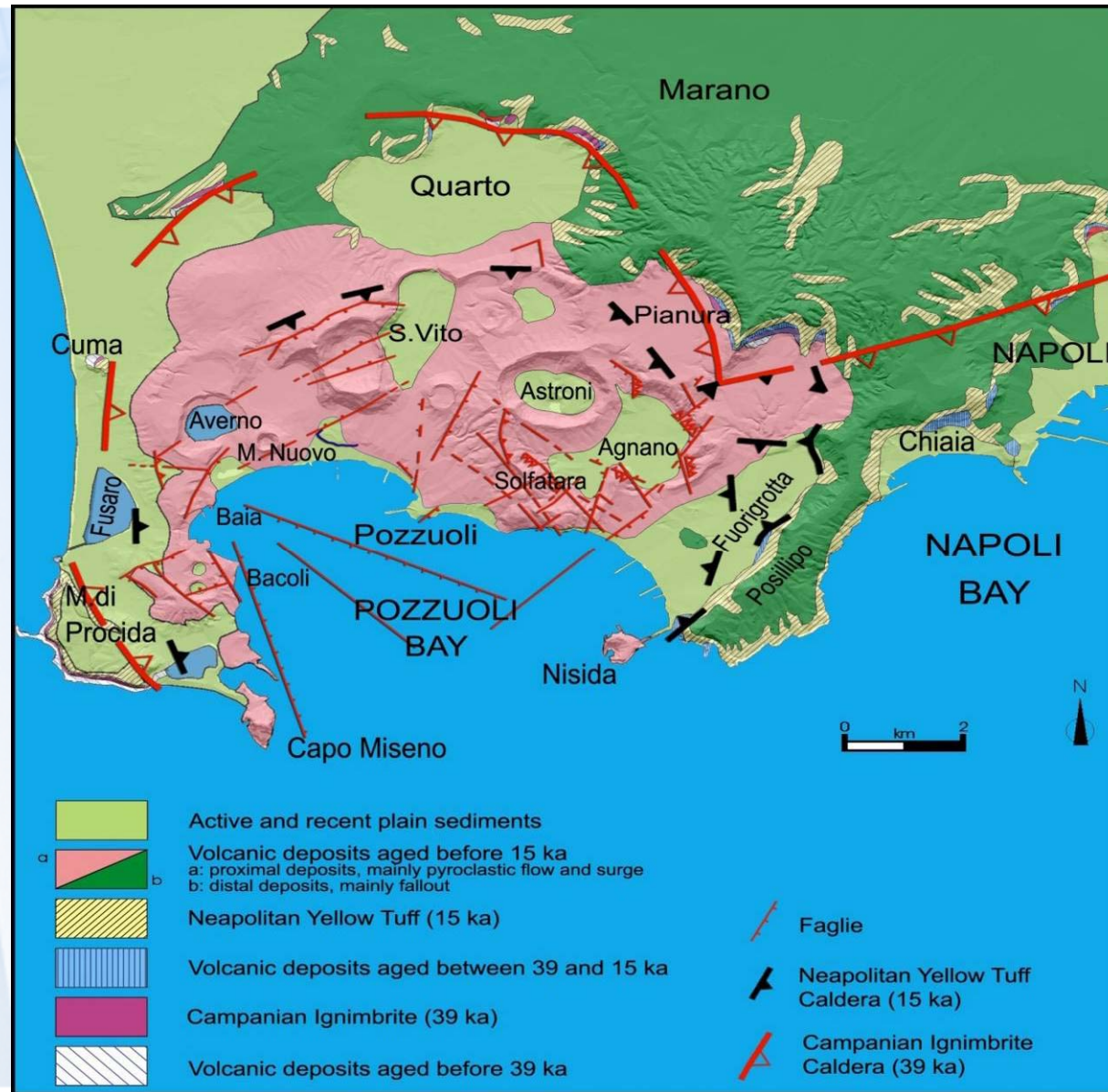
Superficial Geology



1 frequency (Hz)¹⁰

Structural Map

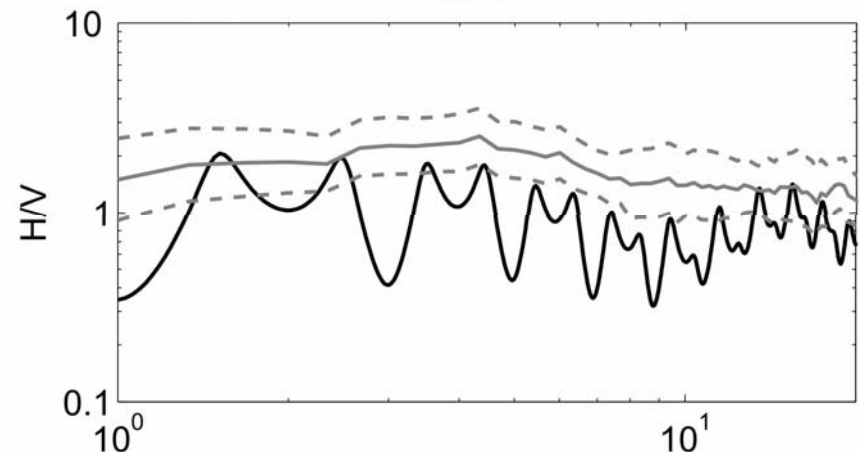
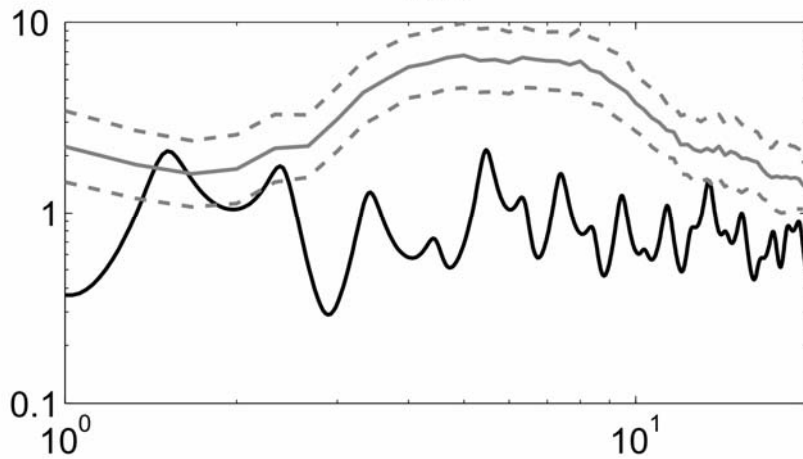
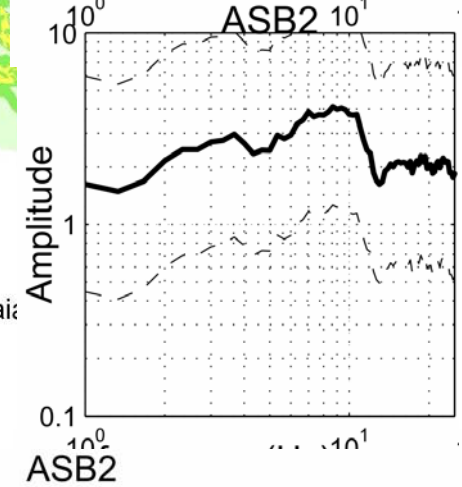
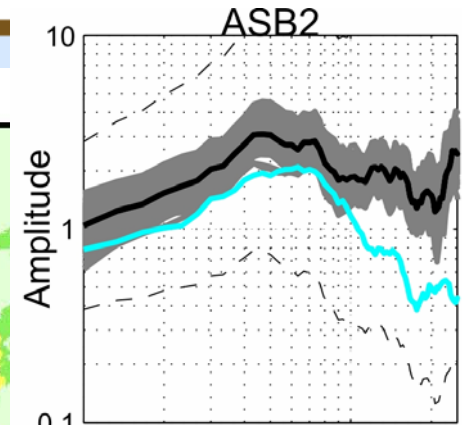
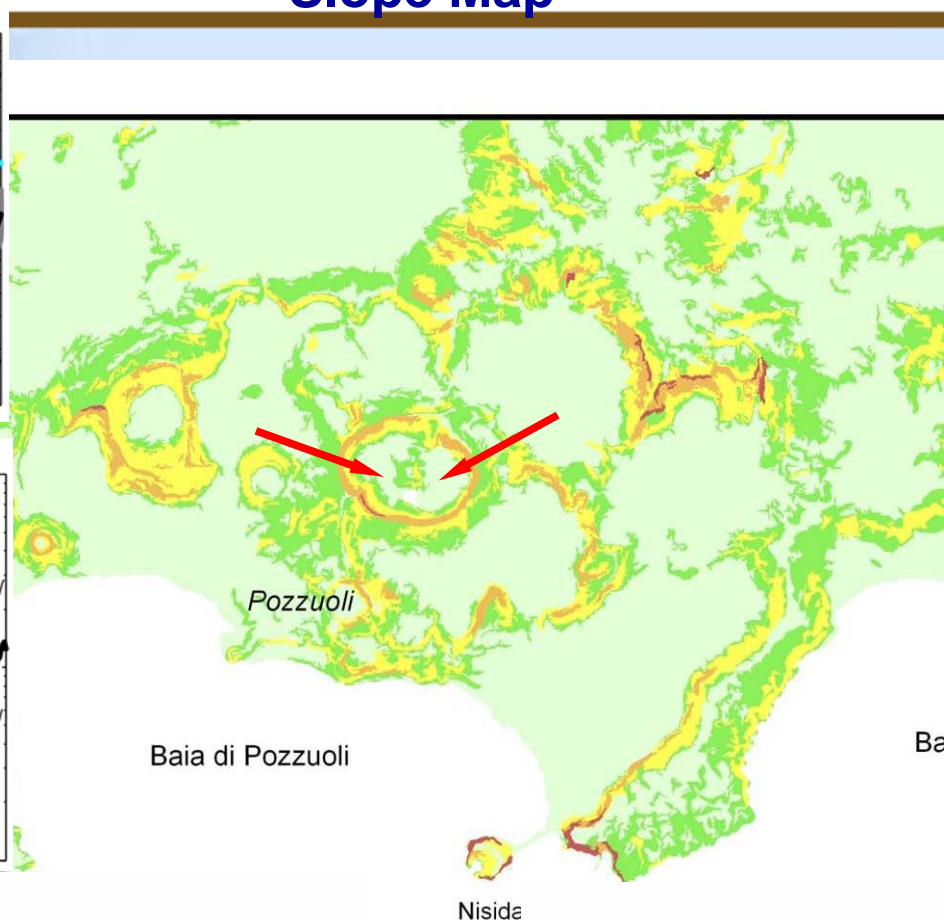
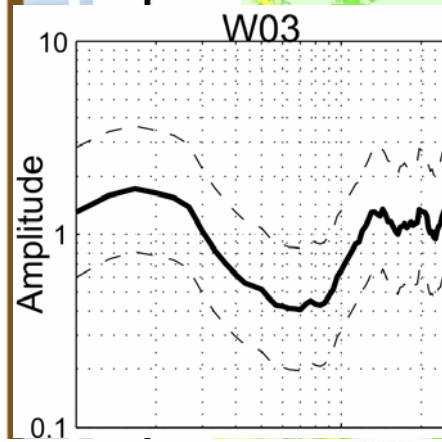
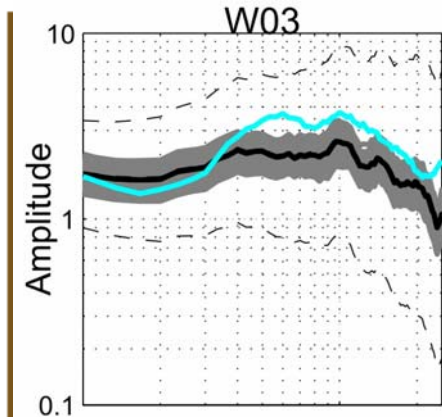
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Convegno GNGTS 2010, Prato, 26 - 29 ottobre

Slope Map

one di Napoli Osservatorio Vesuviano



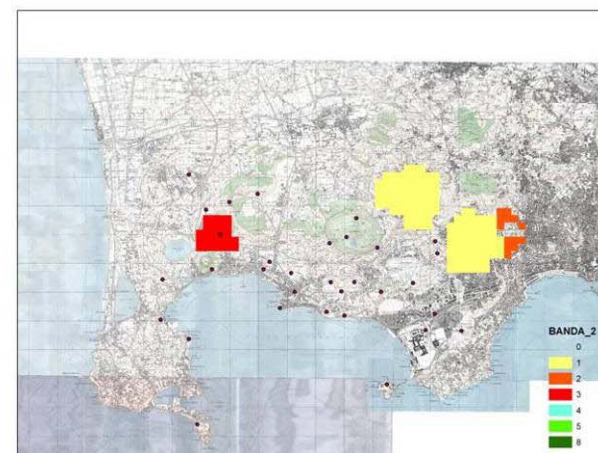
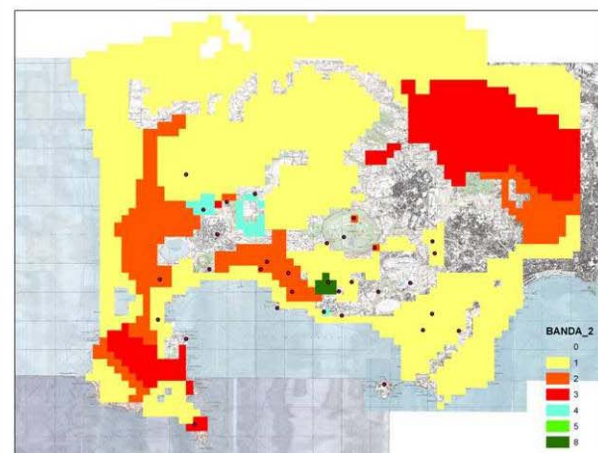
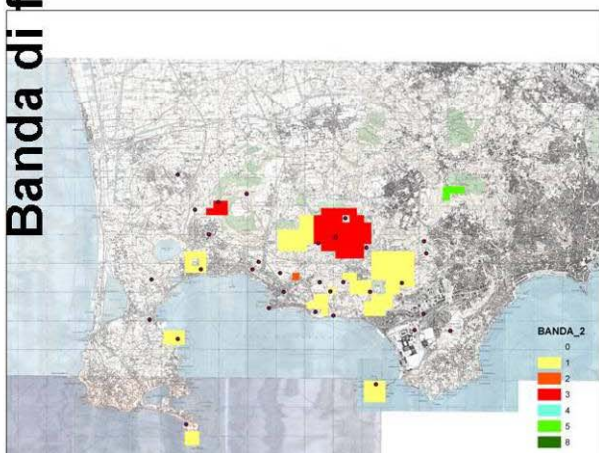
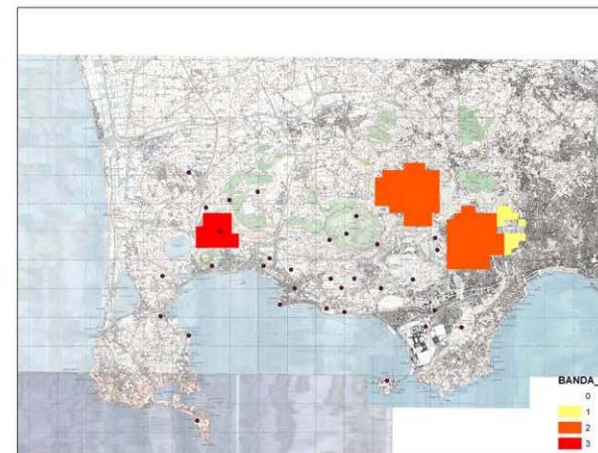
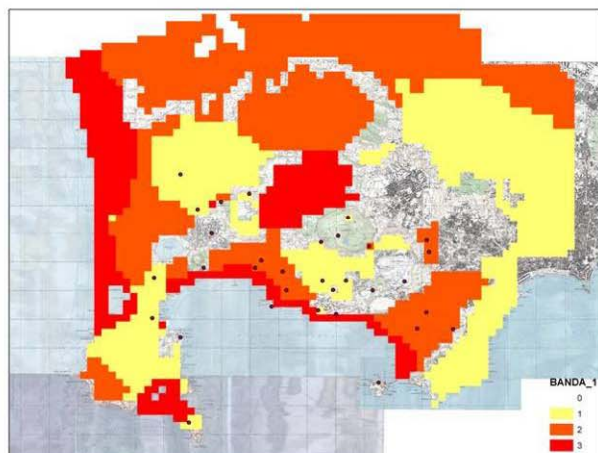
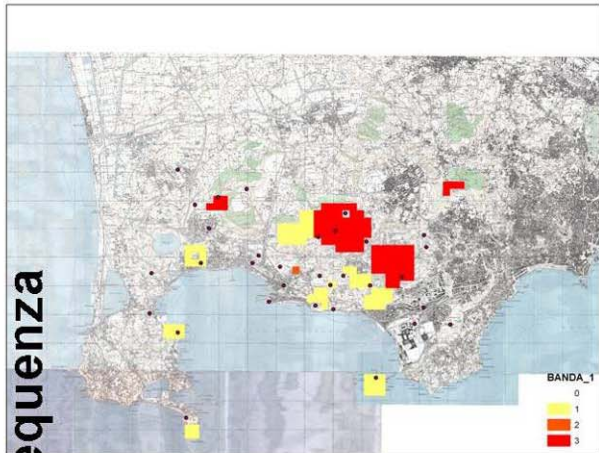
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Affidabilità 1 e 3

Affidabilità 2, 4 e 6

Affidabilità 7

Banda di frequenza

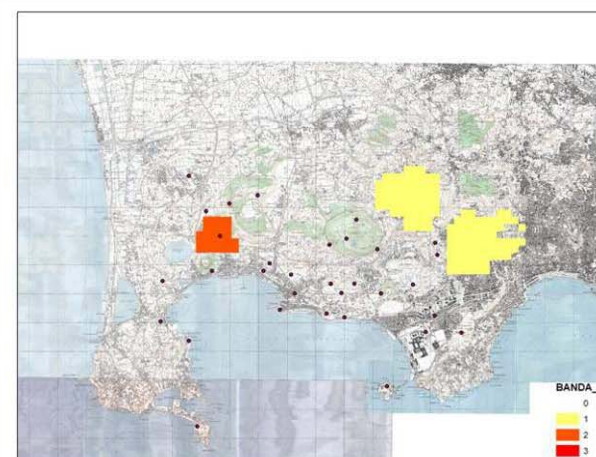
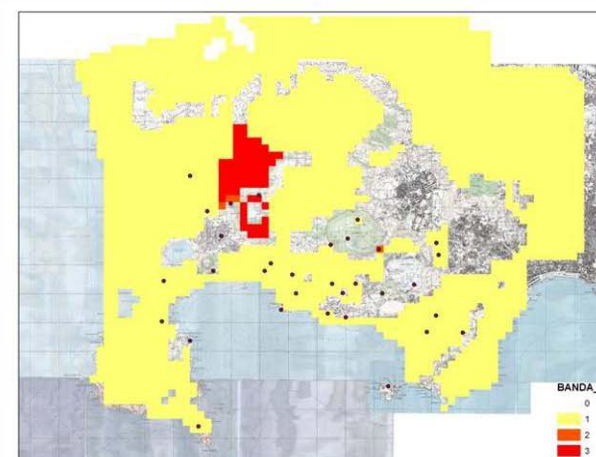
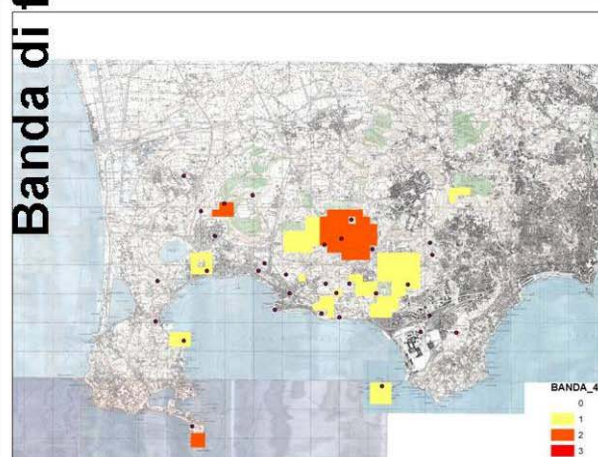
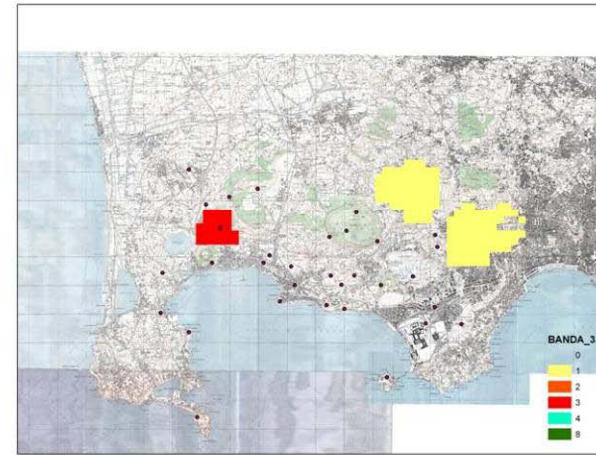
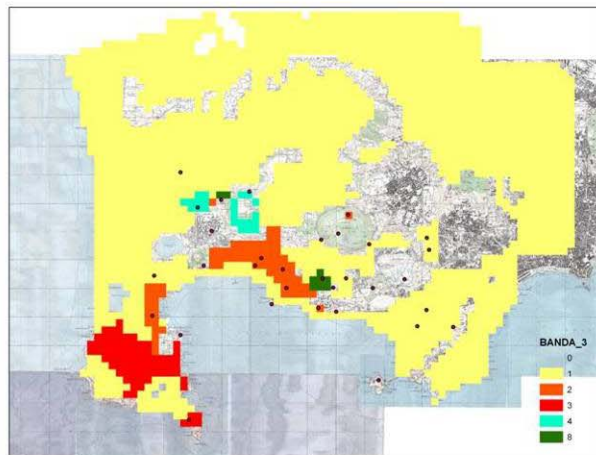
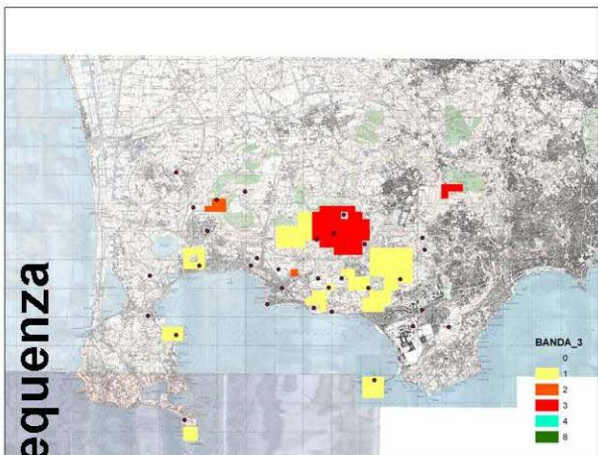


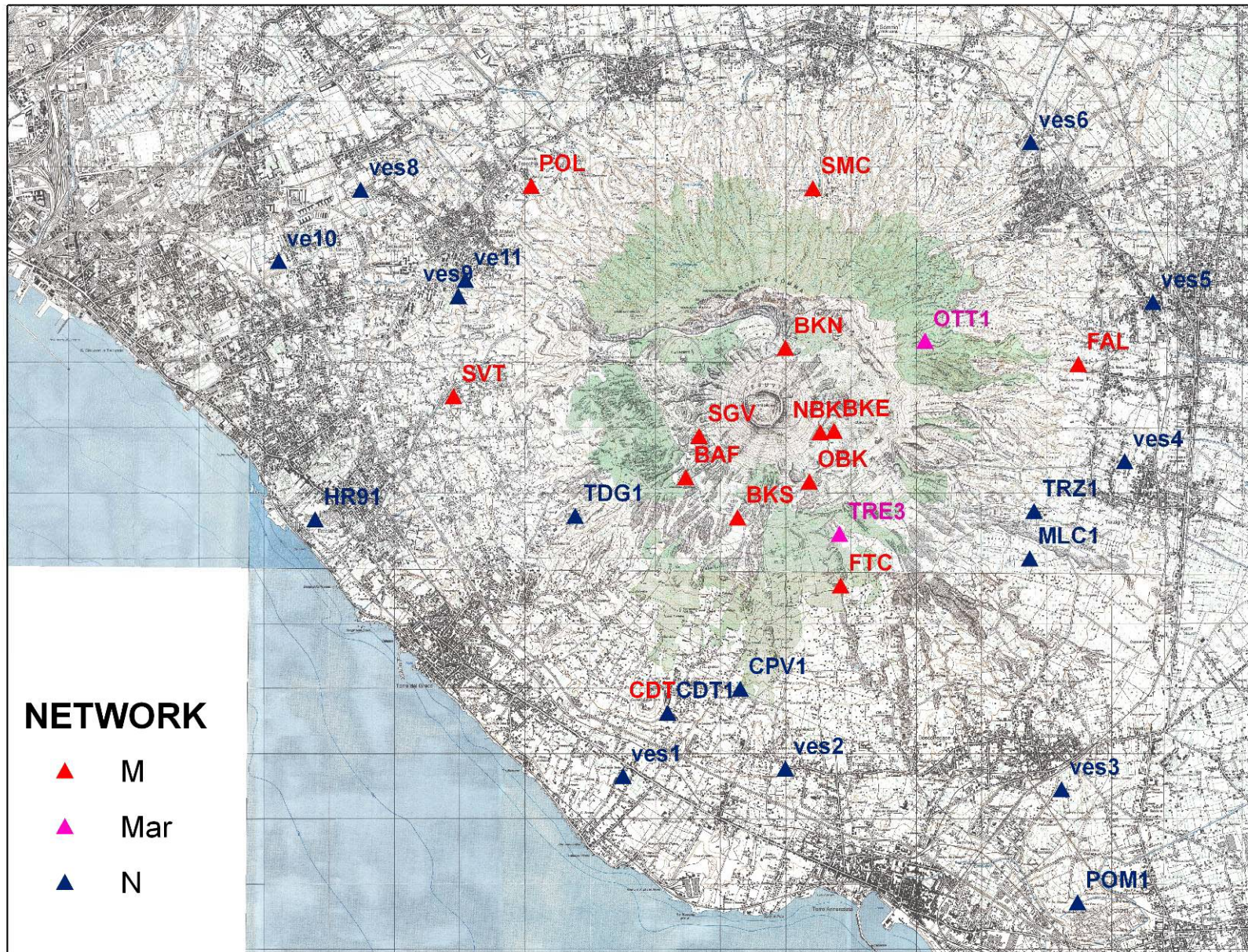
Affidabilità 1 e 3

Affidabilità 2, 4 e 6

Affidabilità 7

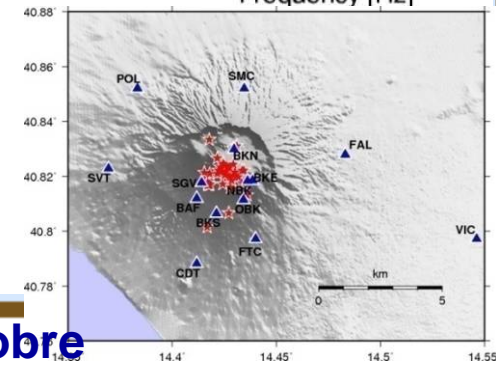
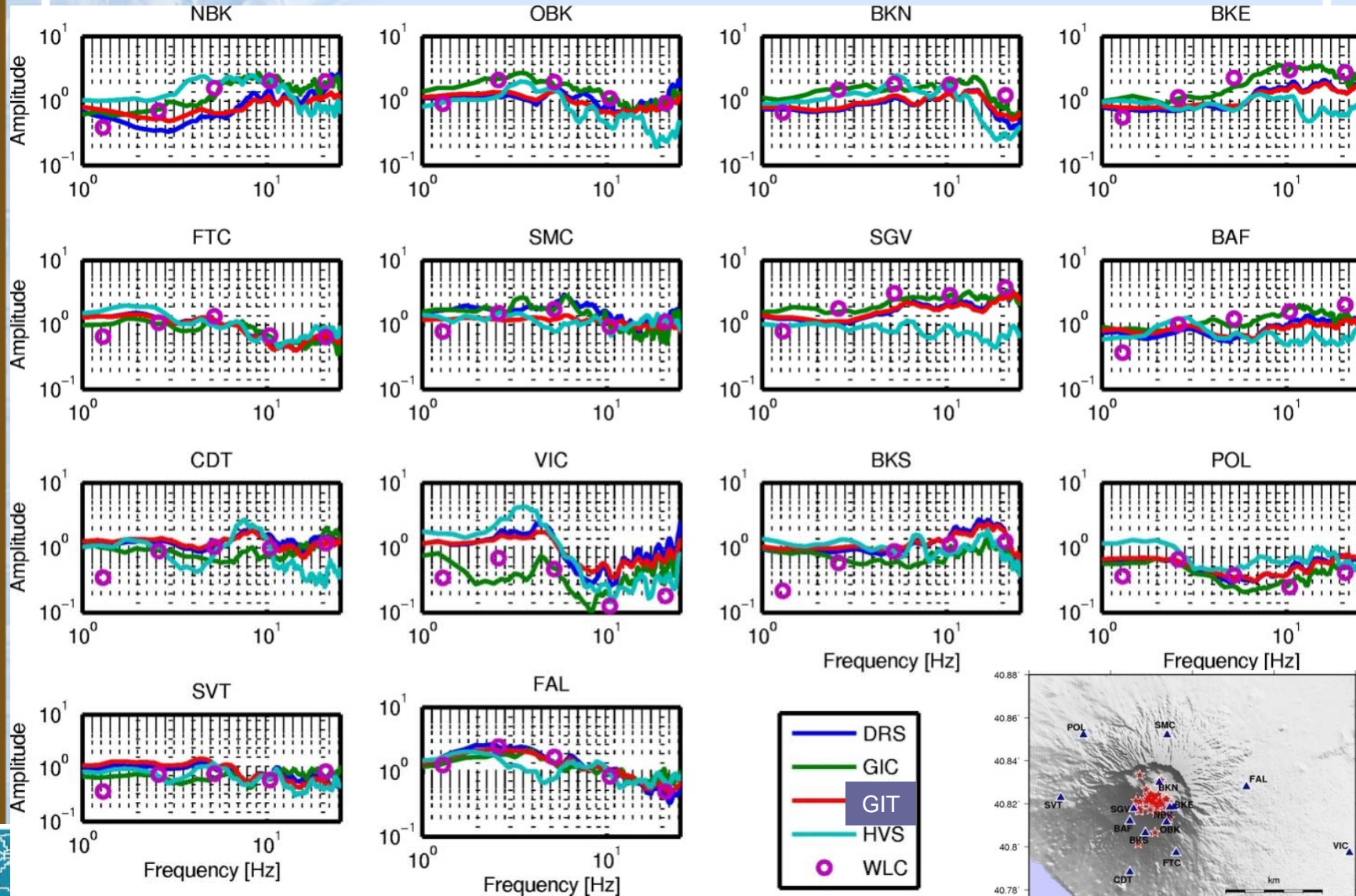
Banda di frequenza



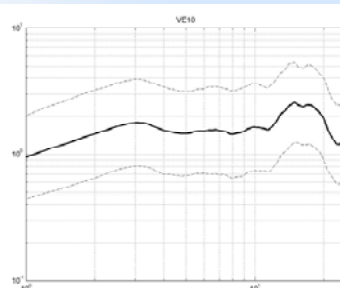
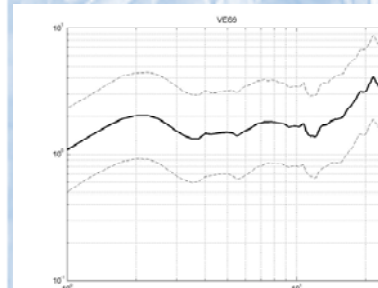
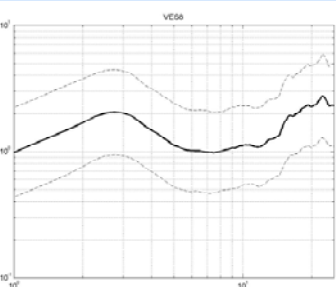
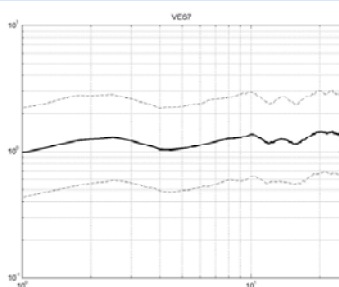
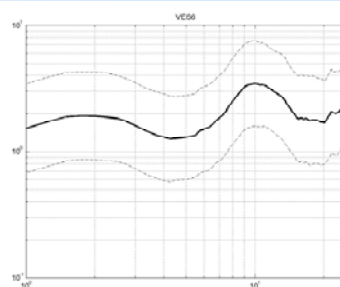
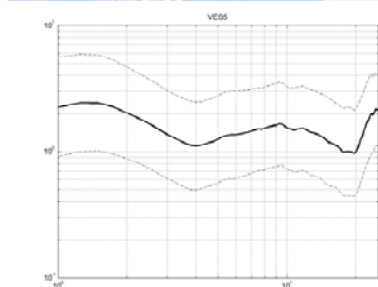
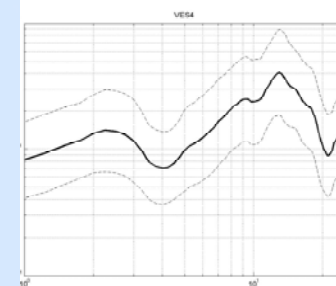
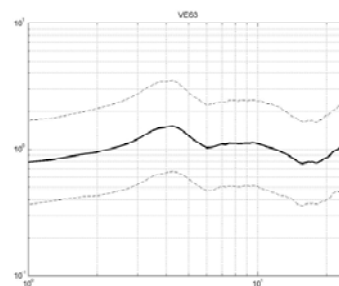
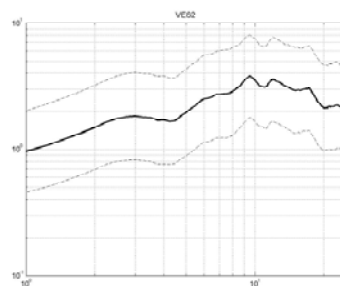
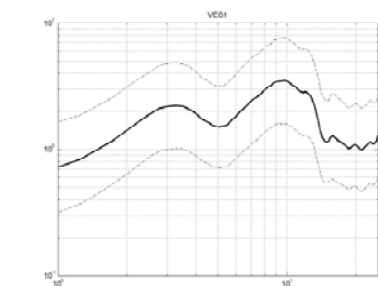


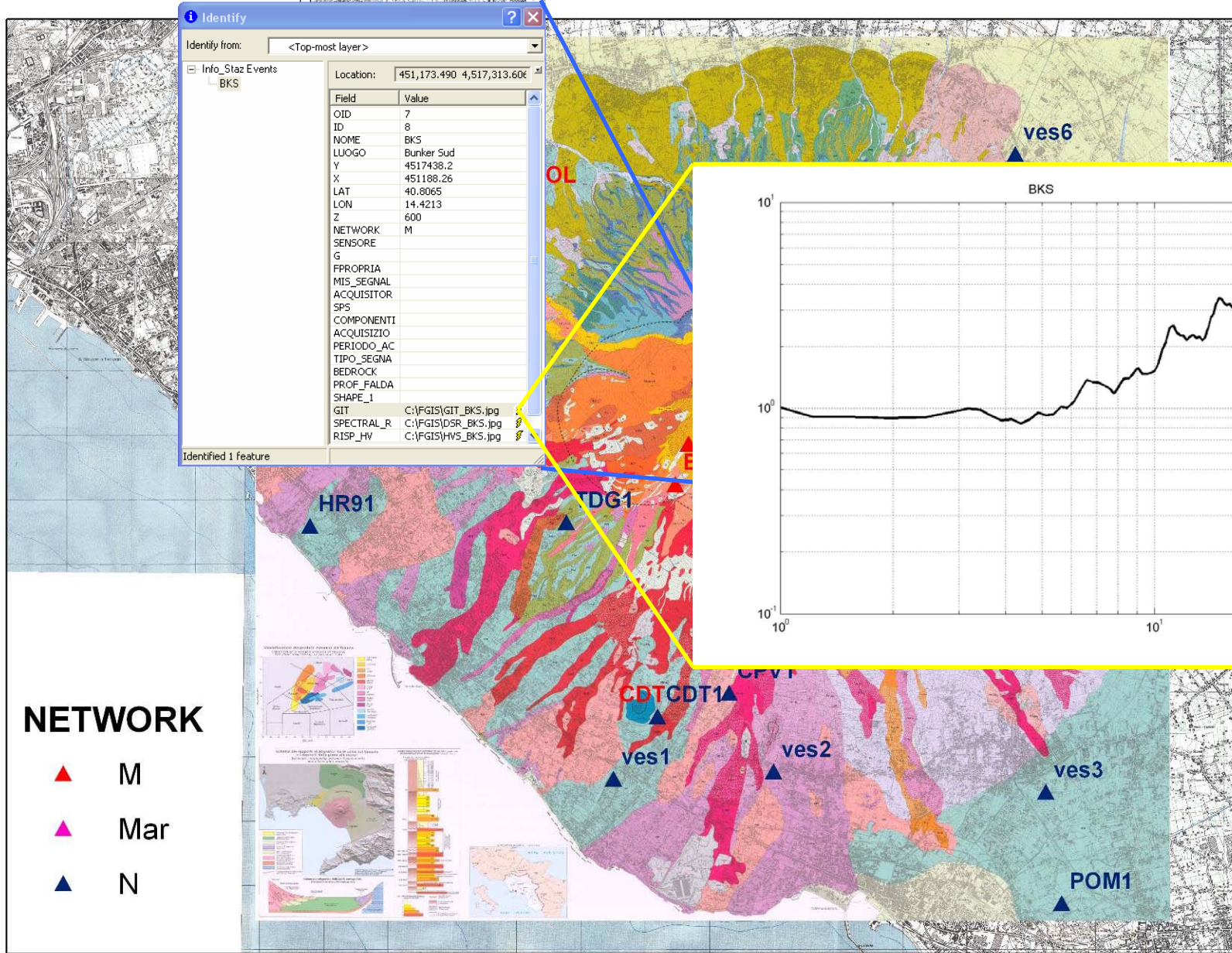
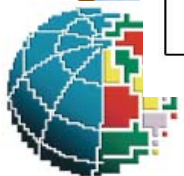
Site Effect Transfer functions results: Mt. Vesuvius

(Galluzzo et al., 2009, Bulletin of Seismological Society of America)



H/V Noise – Vesuvio

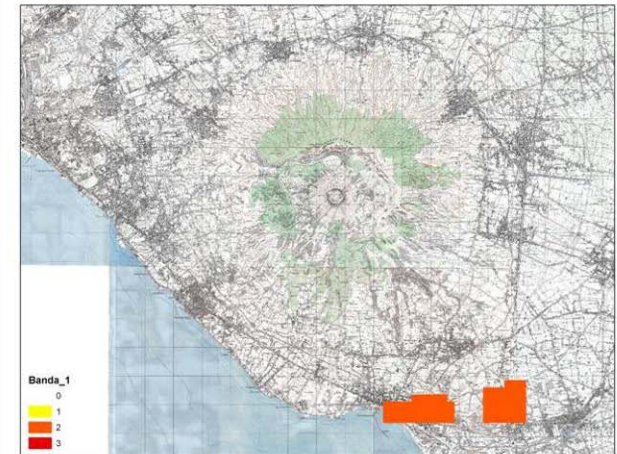
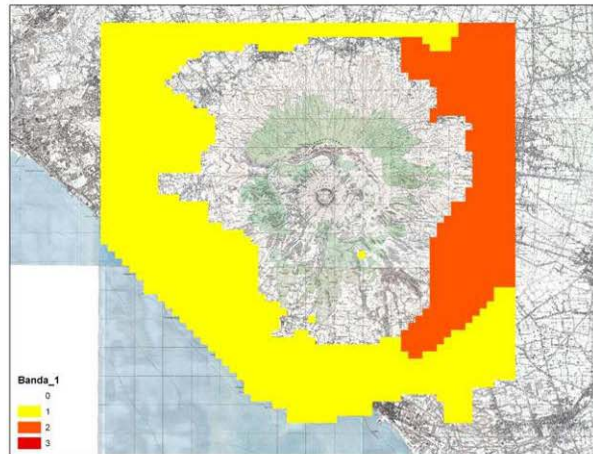
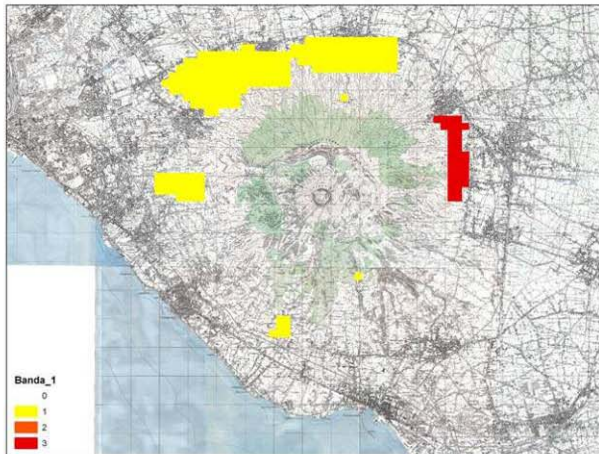




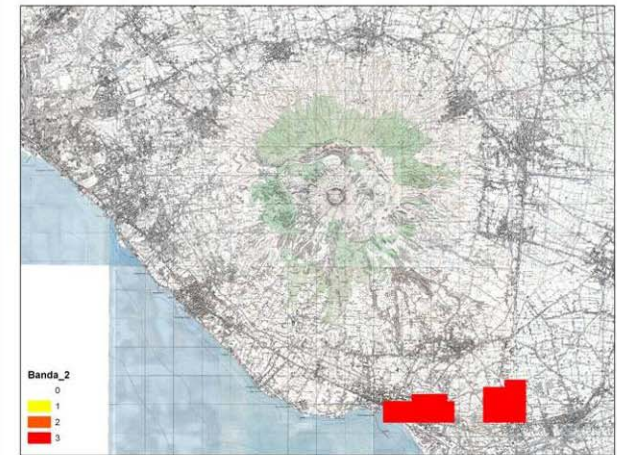
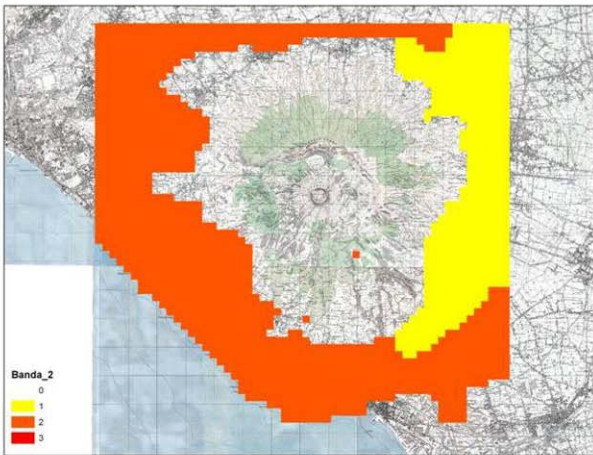
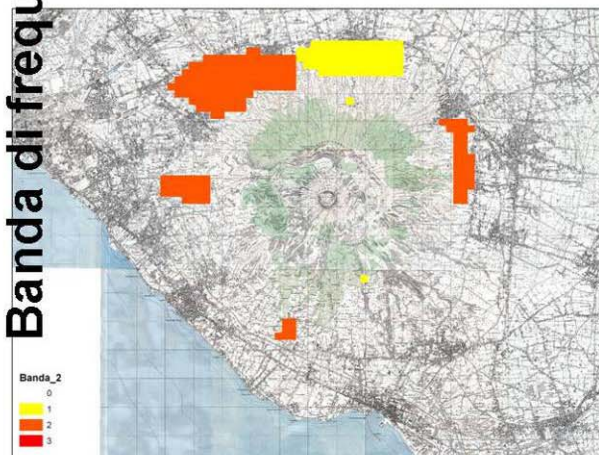
Affidabilità 1 e 3

Affidabilità 2, 4 e 6

Affidabilità 7



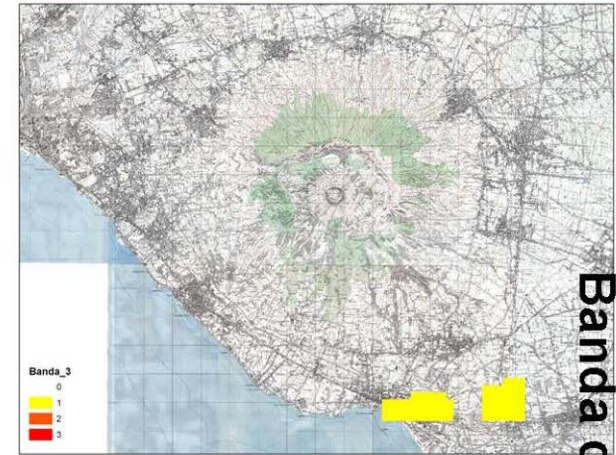
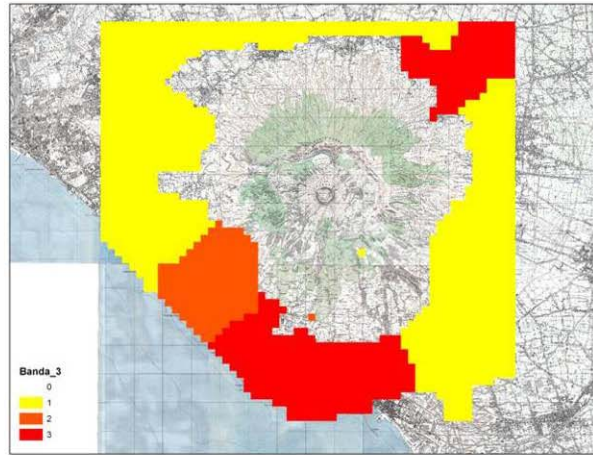
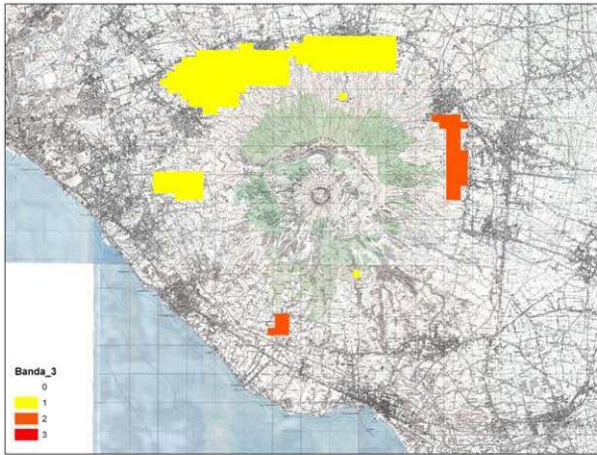
Banda di frequ



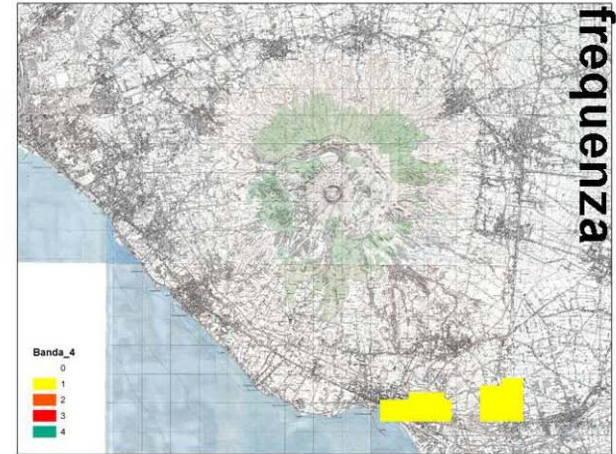
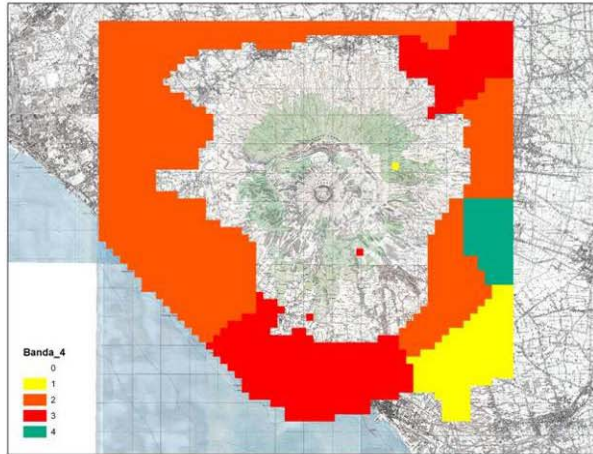
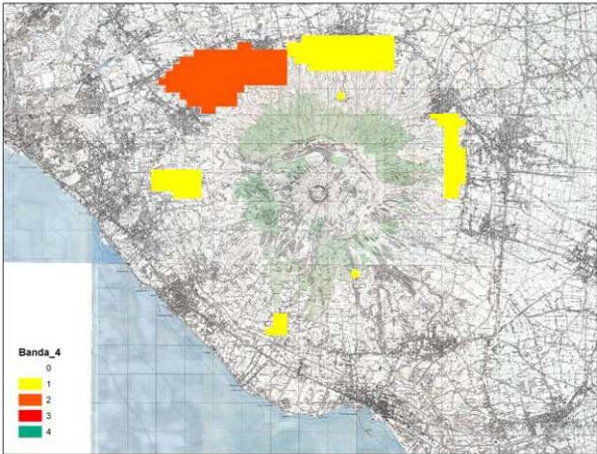
Affidabilità 1 e 3

Affidabilità 2, 4 e 6

Affidabilità 7



Banda di frequenza



Conclusions

Site amplification maps in volcanic areas are complex as their structure is usually geologically and morphologically complex.

The information that has to be taken into account are:

- morphology (basins, mountains),
- underground complexity (lithological variations),
- faults,
- groundwater level,
- stratigraphy.

