

# 3D-ambient noise Rayleigh wave tomography of Fogo volcano, Cape Verde

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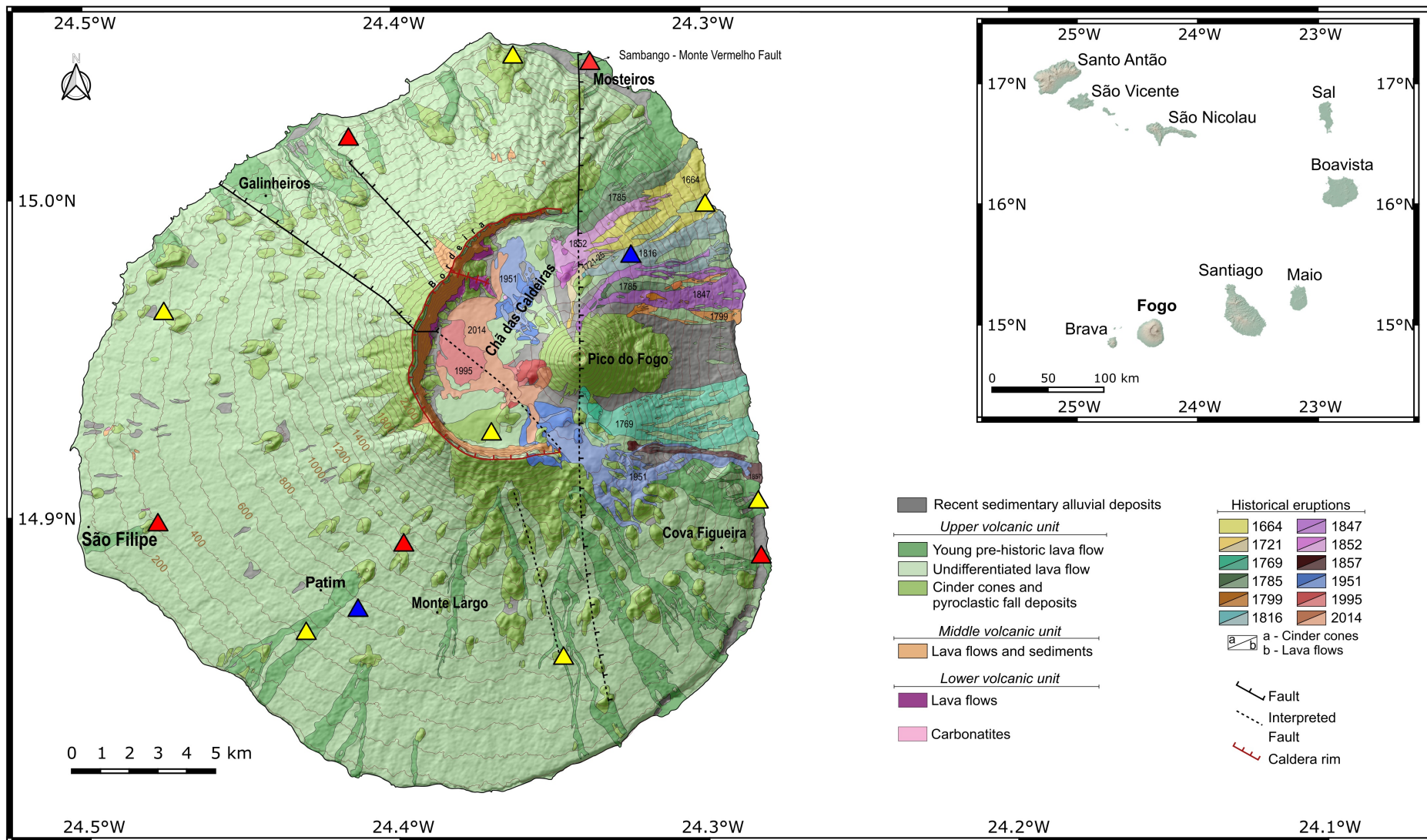
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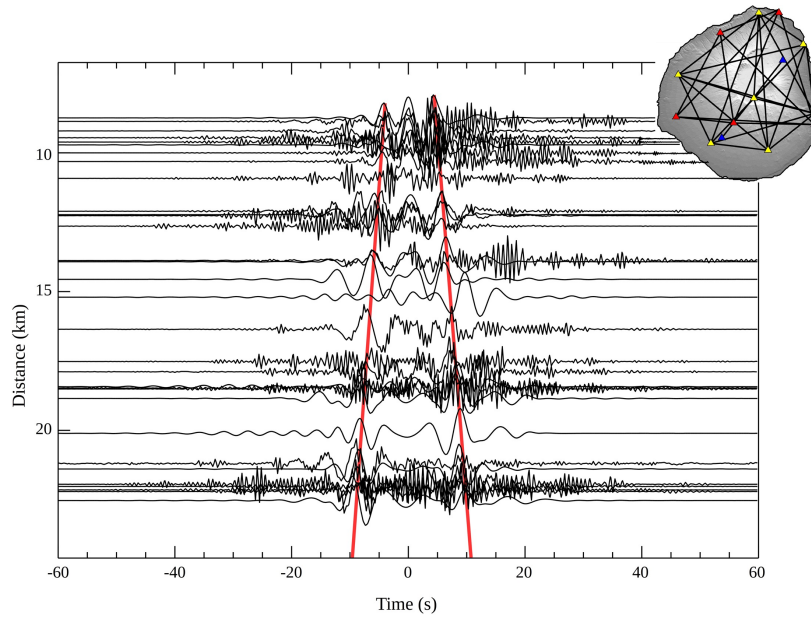
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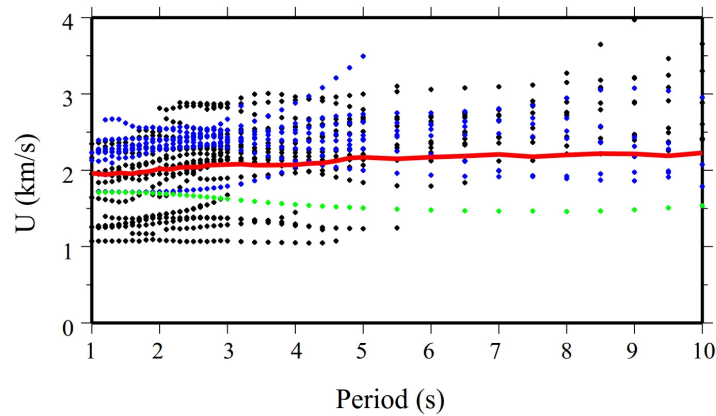


Adapted from Martinez-Moreno et al., 2018)

14 seismic stations: YW (blue: 2002 – 2004); 9A (red: 2007 – 2008) and C4G (yellow: 2014 - 2015)



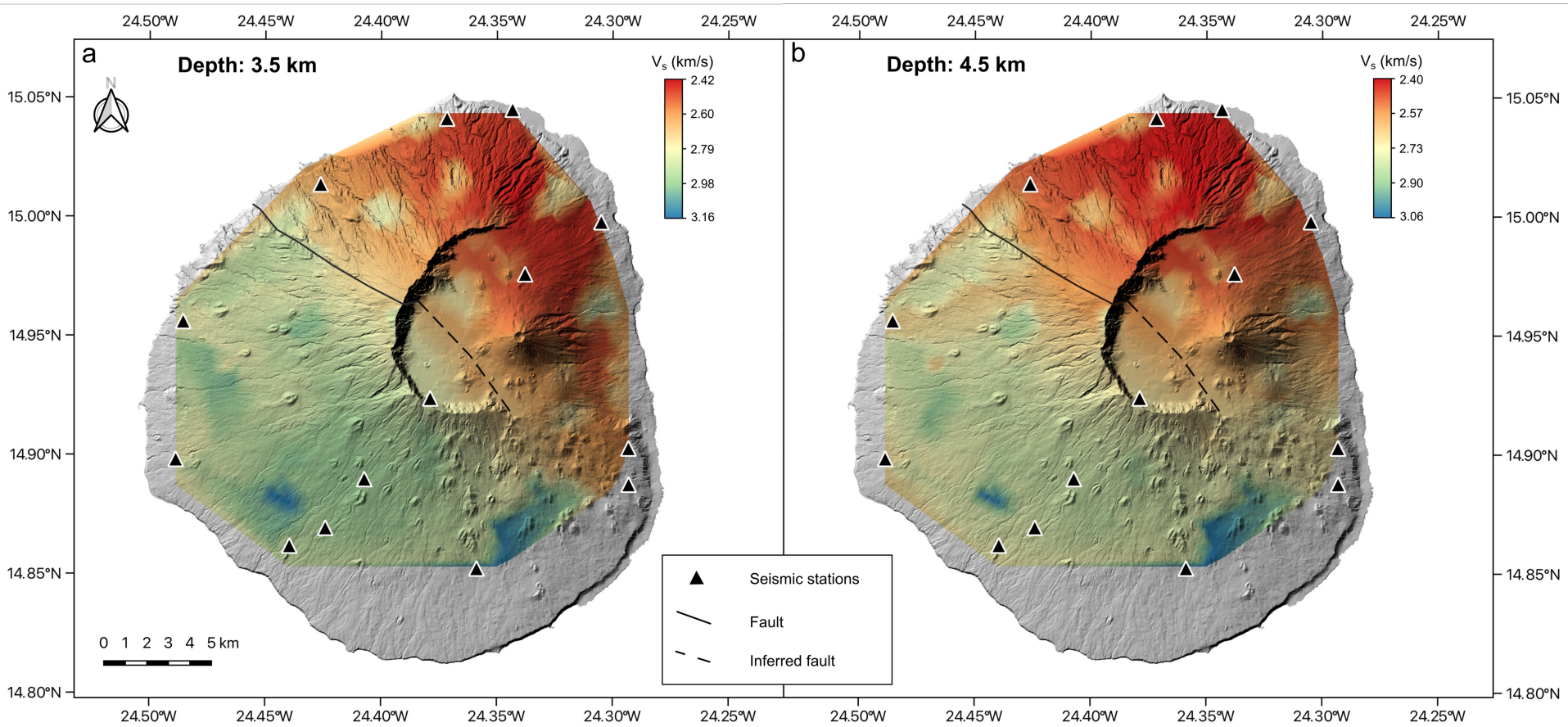
Cross-correlations of Z component – PCC  
Stacking – tf-pws



Rayleigh wave group velocity dispersion  
curves measured in the period band of 1- 10 s

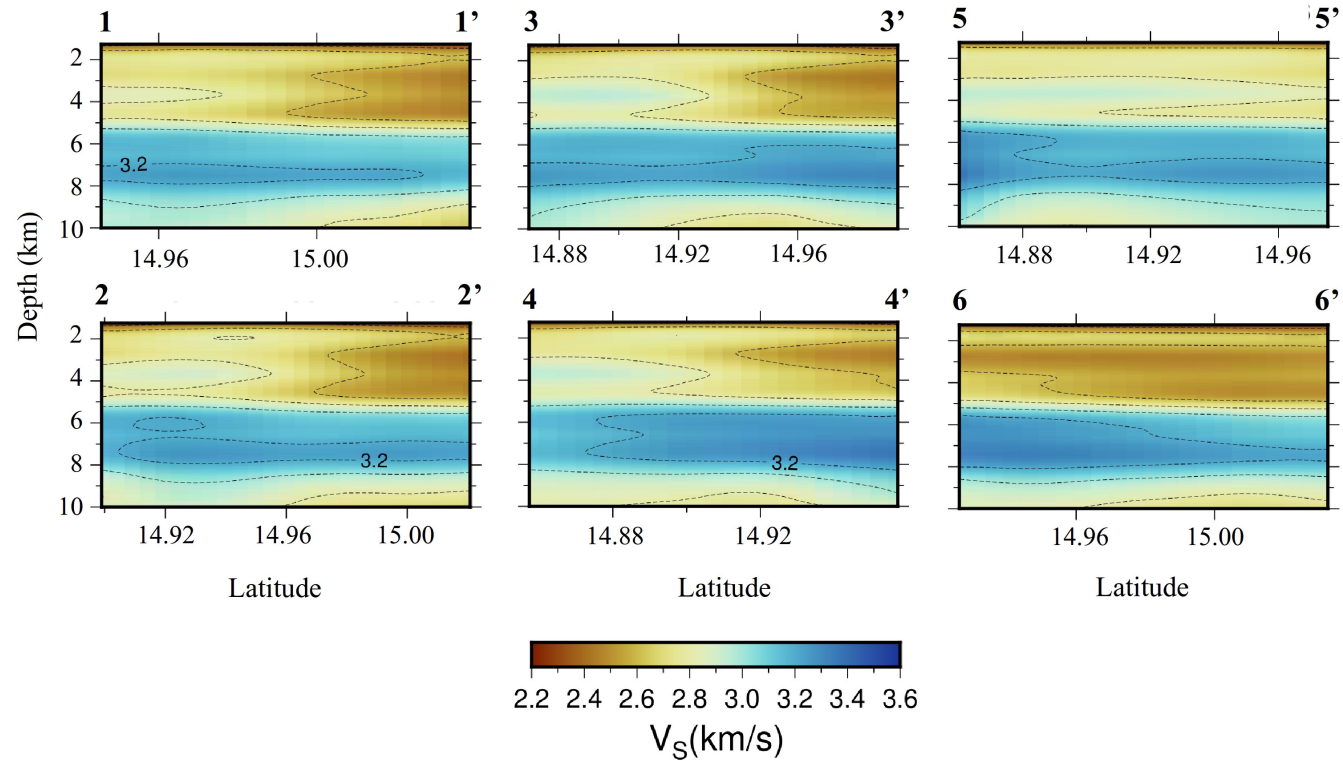
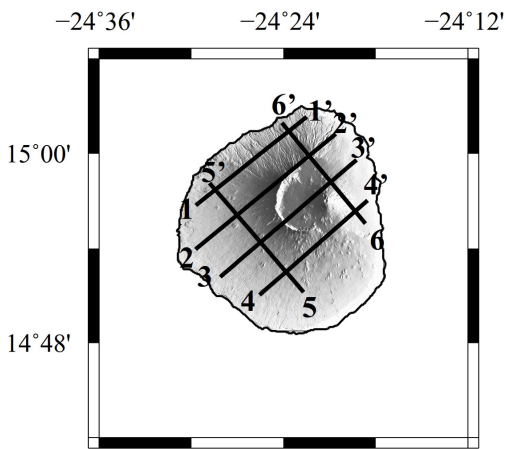
## 2D + 1D inversions

### 3D shear-wave velocity model



Shear-wave velocity maps for 3.5 and 4.5 km depth over hillshade topography of Fogo Island





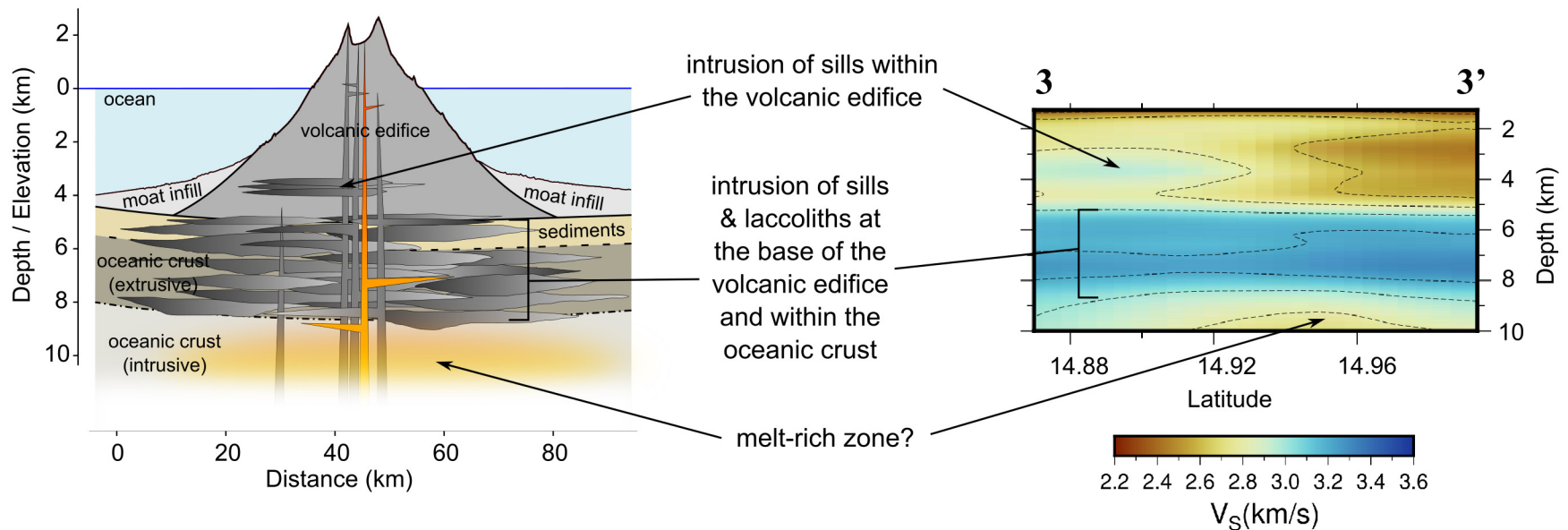
- Topmost layer exhibiting **low velocities** (2.2 – 2.8 km/s)
- Sharp **increase in the velocities** at 5 – 6 km depth (3.2 – 3.6 km/s)
- **Decrease** to velocities within 2.6 – 2.9 km/s at 8 - 9 km depth.

**Higher velocities** - pervasive sill and laccolith intrusions, now cooled, beneath the volcanic edifice and within the underlying oceanic crust.

**Lower velocities (top layer)** - presence of a largely unintruded, altered, and fluid-saturated volcanic sequence.

**Galinheiros fault** could represent the **surface expression of intrusive activity within the volcanic edifice** (with uplift of the southwestern block relatively to the northeastern one).

**Absence of shallow** magma chambers at Fogo, either ancient or recent.



# Thank you for your attention



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