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Radial anisotropy ambient noise tomography of volcanoes

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The use of ambient seismic noise allows us to perform surface-wave tomography of targets which could hardly be imaged by other means. The frequencies involved ($\sim$ 0.5 - 20 s), somewhere in between active seismic and regular teleseismic frequency band, make possible the high resolution imaging of intermediate-size targets like volcanic edifices. Moreover, the joint inversion of Rayleigh and Love waves dispersion curves extracted from noise correlations allows us to invert for crustal radial anisotropy. We present here the two first studies of radial anisotropy on volcanoes by showing results from Lake Toba Caldera, a super-volcano in Indonesia, and from Piton de la Fournaise volcano, a hot-spot effusive volcano on the Réunion Island (Indian Ocean). We will see how radial anisotropy can be used to infer the main fabric within a magmatic system and, consequently, its dominant type of intrusion.