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Lithospheric structure of Sri Lanka: First large-scale study revealing seismic structure beneath the island – ambient noise Rayleigh wave tomography

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Little is known about the seismic structure of Sri Lanka. Until mid 2016, only three permanent stations were operating on the island. The Geological Survey and Mines Bureau of Sri Lanka and the German Research Centre for Geosciences installed and maintained the first temporary broadband seismic network on the island, consisting of 30 stations running for a period of 13 months in 2016-2017. Fourteen stations form a linear profile perpendicular to the strike of the geological units, the remaining 16 stations are distributed across the island. This deployment layout is optimized for analysis of seismic properties of the crust and mantle lithosphere of Sri Lanka.

The aim of this study is to shed light on the crustal and upper mantle structure beneath Sri Lanka in the context of Gondwanaland's assembly and break-up. We will present the results of Rayleigh surface wave dispersion tomography from ambient noise correlation. These will be supplemented by receiver functions and will be jointly inverted using a Bayesian approach.