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## A theoretical review of the air-ground coupling of 1D elastic media

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The air-ground coupling is the conversion of the atmospheric pressure perturbation to the ground motion. This coupling includes the pressure static loading and the acoustic-to-seismic conversion. Studying this coupling can aid investigating the shallow subsurface using the pressure drops and monitoring explosive sources in the atmosphere (like meteorites). However, the theory link of the possible coupling scenarios is missing for 1D elastic media. We demonstrate that by utilizing the compliance, the ratio between the ground motion and the atmospheric pressure perturbation on the ground surface, we can analytically model the coupling scenarios: the static loading, the air-coupled Rayleigh wave, leaky mode, and the acoustic-to-body-wave conversion.