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Road noise : characterization and estimation of uncertainty due to meteorological effects

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Meteorological effects can lead to important temporal fluctuations of the sound level in outdoor sound propagation. These fluctuations lead to sound level uncertainties that are rarely estimated. A method based on the coupling of a model of sound propagation and a temporal micrometeorological model is used to quantify sound level fluctuations only due to meteorological fluctuations, over a very long period (typ. 10-30 years). Some statistical analysis are presented : diary or seasonal fluctuations, influence of the duration of observation on the accuracy of the estimation of a LAeq. A semi-analytical method is also proposed for characterizing the uncertainty of the sound level of a distribution of punctual sources. An application to a road noise source is presented.