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Criterion to select meteorological factors to evaluate uncertainties
in sound propagation

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Most of the environmental factors have some effect on sound propagation outdoors. Many of these factors can be properly implemented to a sound propagation model. However, it is not easy to handle sound scattering due to the turbulence, and at the same time, the turbulence is the most important source of uncertainties. Concurrently with the studies of turbulence models we have developed a concept to get an estimate of the excess attenuation using a state-of-the-art physical model and to evaluate the uncertainties using a statistical model. This statistical model is based on two years continuous measurements using extensive acoustical and meteorological measurement facilities and producing over 100 factors hourly. Many meteorological factors had a strong and significant correlation with the excess attenuation, but between each other too. To avoid instable model due to the collinearity many factors were abandoned. In this paper the criterion and methods to select best explaining factors and to form this statistical model are considered.