Fuel consumption is one of the largest costs for owners of commercial vehicles and it varies between customers, where the road topography is a major contribution, especially for construction machines. In order to evaluate the fuel consumption for customers it is important to characterize topography and to understand its variation in different environments. The topography can be described using slopes which are conveniently modelled by means of time series. The models are then used in dedicated programs to simulate fuel consumption of vehicles.

Gaussian auto regressive models (AR) for topography have been evaluated for a large variety of customer measurements. These models have been generalized to have a gamma distributed variance, giving a generalized Laplace distribution for the topography. The models will be discussed and evaluated for on-board logging data from construction machines. The AR-parameters describing the topography can be used for characterization and classification of a measurement or a customer site. Further, the topography parameters can be used to generate a new artificial topography, with the same statistical properties as the measured one, in order to evaluate fuel consumption.