

Space-time series and their covariance function are very important in areas such as meteorology, hydrology and evolutionary biology. This diploma thesis concentrates on space-time covariance functions and on the way how these covariance functions describe space-time interaction. It focuses mainly on stationary nonseparable covariance functions but also on separable ones. The aim is to introduce main methods of creating covariance functions. In practice the estimating of covariance function is different, therefore there are, at the conclusion, examples of solutions and their comparison.