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The applicability of single-point measurements for basin wide process studies

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Since 2002 permanent observations of different oceanographic and meteorological parameters are carried out in the Hoernum-Tief tidal basin (German Wadden Sea). To evaluate the driving forces behind the exchange processes between the inner bay and the open North Sea, the recording equipment is installed on a pole, which is positioned at the main tidal channel in the middle of the basin. In order to investigate to what degree single-point measurements are representatives for basin wide processes, correlation scales are determined for water temperature as a quasi conservative parameter and suspended particulate matter concentration (SPMC) as an example for a non-conservative parameter with high significance. The correlation between validation measurements and pole observations decays across the channel within shorter distances than along-channel. The anisotropy is quantified by means of climatological variogram.