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Measuring water depth on an inclined road

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The National Research Council Canada (NRC) was contracted by Infrastructure Canada and the City of Toronto to improve the understanding of the performance of various catch basin covers under various conditions. A full scale model roadway was built 10.7 m long and 2.6 m wide in the NRC's Coastal Wave Basin and the water depth in front of the catch basin varied from 0.5 - 15 cm, the road grade was varied from 0.5 - 10.0% and the cross slope was varied from 2.0 - 4.0%. Early in the test protocol it was noted that the capacitance wire wave gauges used to measure the water depth on the roadway provided inconsistent results. In this work we will compare water depth measurements from a manual point gauge, an acoustic sensor and the capacitance wave probes. We will examine in which way each of the sensors is biased and examine the impact of those results.

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