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15. Supplementary Notes (Funding programs, titles of related publications, etc.) <p>Several research reports for testing of de/anti-icing technologies were produced for previous winters on behalf of Transport Canada. These are available from the Transportation Development Centre (TDC). Nine reports (including this one) were produced as part of this winter's research program. Their subject matter is outlined in the preface.</p>					
16. Abstract <p>The objective of this study was to ascertain the validity and measuring accuracy of a real-time hot plate snow precipitation gauge developed by the National Center for Atmospheric Research. Previous testing of the hot plate snow gauge was conducted during the winter of 2002-03. Deficiencies in the 2002-03 design of the hot plate snow gauge were assessed and rectified; numerous modifications were made to the system. During the winter of 2003-04, testing was conducted using the modified snow gauge system.</p> <p>To satisfy the objective, the precipitation rates produced by the hot plate snow gauge were compared to the precipitation rates collected manually using the same type of pans employed for endurance time tests. A total of 321 tests were conducted during 10 snow events. The differences in the data collected were analyzed.</p> <p>Results showed that high wind conditions significantly reduced the accuracy of the hot plate snow gauge; the accuracy decreased as the wind speeds increased. The hot plate did not record any precipitation below the rate of 3 g/dm<sup>2</sup>/h, consequently reducing the accuracy of the device in light and very light snow conditions. The readings from the hot plate snow gauge were comparable to the baseline manual precipitation collection method during conditions with low winds and moderate to high precipitation.</p> <p>To determine the validity of the hot plate snow gauge, the accuracy of the device was compared to the current method used by pilots for determining snowfall intensity. The current method for predicting snowfall intensity uses visibility measurements in conjunction with a visibility versus snowfall intensity table. In comparison to the visibility data collected, the hot plate snow gauge produced a greater number of accurate observations, but produced a significant number of underestimated observations which would give rise to aircraft safety concerns. However, by applying a compensation factor to the complete data set, the modified hot plate data would have produced suitable results for measuring snowfall intensity.</p> <p>The 2003-04 version of the hot plate snow gauge demonstrated significant improvement in comparison to the system tested the previous winter. If funding is available, testing should continue in the upcoming year to add to the limited data set that was collected during the winter of 2003-04. Furthermore, an operational evaluation should be performed to formulate an effective method for utilizing the information generated from the hot plate snow gauge during aircraft and airport operations.</p>					
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