

## **6.19 DIRECT COMPARISONS OF POLARIMETRIC C-BAND AND S-BAND MOMENTS IN SNOW**

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The Canadian Weather Radar Network is currently undergoing an upgrade to polarimetric, S-Band radar systems. Forecasting experiences in Canada with the legacy C-Band radars lends to the idea that the narrow beamwidth of C-Band systems is preferential for nowcasting the typical shallow lake-effect snow event. This idea is tested by comparing moments from King City radar, just north of Toronto, to the neighboring Buffalo, NY WSR-88D. By transforming the radar data from spherical coordinates to the Cartesian coordinate system, the two radars can be compared directly. Objective analysis indicates that the spatial patterns of reflectivity are very similar, with King maintaining the obvious advantage in resolving fine scale features of lake-effect snow bands through a narrow physical beamwidth. Also, it is shown that comparatively, the reflectivity values obtained through this method are within 1 dB. In regards to differential reflectivity, a case by case comparison is performed to determine any event biases from the King City radar. This is achieved by subtracting out the bias of KBUF; this value comes from estimates made using the NEXRAD external target bias estimation techniques. It is shown that differential reflectivities at King City can become positively biased with snow on the radome in synoptic snowfalls, with an average value near +0.25 dB. Without snow on the radome, the differential reflectivity bias as measured in comparison with KBUF remains within  $\pm 0.0625$  dB.