

9.7 FROM QUALITATIVE TO QUANTITATIVE HAIL NOWCASTING

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The current state of the art in hail nowcasting is based on semi-quantitative products because the science is not yet ready to deliver the quantitative products that the customers need. The Bureau has developed Rainfields3 to perform radar data quality control and rainfall estimation, which will be used to deliver semi-quantitative hail products. The solution was to use proven algorithms immediately, and work with the end-users so they can make optimum use of these products.

The paper will present the Bureau's road map for enhancing hail nowcasting through the use of dual-pol S-Band radars. Major mile-stones are:

- Upgrade of the 4 S-Band radars that serve the major Australian cities to dual-polarimetry.
- Improve the single-pol hail service. The Bureau developed gridded products of probability of hail of specific size based on reflectivity (single-pol) and integrated them in Rainfields3
- Adopt the NCAR Particle ID algorithm for Dual-Pol data and integrate it in Rainfields3
- Tune the two types of algorithms (dual-pol and single-pol) for consistency using case-studies and workshops with end-users
- Develop training and evaluate the changes.

The “6th element” is to motivate the science community to improve the current state of the art.
