# 6.27 OPERATIVE CORRECTION OF DUAL-PRF VELOCITY OUTLIERS

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Weather radar velocity images obtained using the dual-PRF technique present characteristic unfolding errors. These errors result from the violation of the assumptions involved in the procedure and appear as remarkable outliers in the velocity field. This phenomenon is frequently observed in the imagery of the weather radar network of the Meteorological Service of Catalonia, the XRAD, especially in cases of strong winds (either linear or tornadic).

Recently, a new methodology to correct these characteristic outliers has been developed and validated (Altube et al., 2017). The technique is particularly robust in the correction of clustered outliers and can be applied when extended aliasing is present.

The correction methodology has been operatively implemented for the XRAD since the beginning of 2018. The operative module outputs files that contain the corrected velocity volume data in IRIS RAW format (VAISALA). This module has been developed using the Python ARM Radar Toolkit (Py-ART) as base. The corrected files are re-ingested, in real-time, back to the processing chain of the IRIS software for visualization and generation of downstream products.

The present work collects examples of outlier correction for a series of real-case severe weather events that have taken place in Catalonia during the last 4 years. These include tornadoes, downbursts, gust fronts and a waterspout. Some of these cases took place recently, on the 7th of January 2018, with the operative correction of the dual-PRF velocity already running. This allowed the detection of the path of two tornadoes and a downburst that affected the region. For the rest of the cases, the methodology has been retroactively applied.

The examples presented show how the corrected velocity fields display a remarkably higher quality. These are, in contrast with the primary fields, well-suited for their use in automated severe weather detection algorithms and for assimilation in nowcasting systems and models.