A new method for clutter detection and removal

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Clutter in radar images remains a considerable problem in operational products. Modern dual-pol radars give more possibilities in detecting and removing these artifacts, but these data are not widely available in practice. In commercially available radar images there are therefor often clutter areas present. This study offers a way of additional clutter detection and removal from CAPPI images. This is achieved through a combination of methods:

1) satellite cloud mask

2) object shape identification

3) spike removal

4) use of expected radar movement vectors

5) model temperature and wind data

6) history of past clutter

These 6 methods are given weights and if a combined weight is exceeded a pixel is marked as clutter. The results are very promising and show greatly reduced clutter persistence in images, making additional bias correction easier and more accurate. Future challenges remain in reducing the effects of clutter within precipitation fields.