

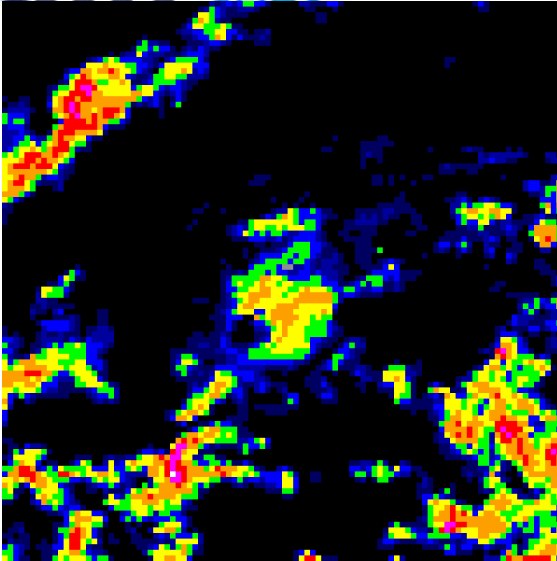


RAINGAIN PROJECT MEETING UKMO

Paris, 15th April 2013



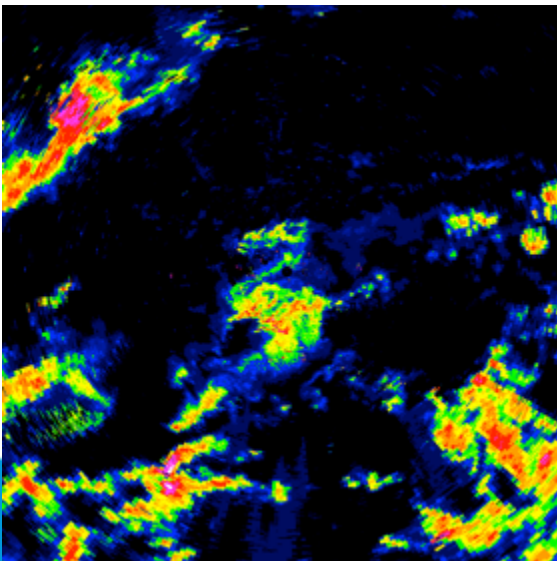
High-resolution Data



1km data
conventional data

From Wardon Hill

• Can we refine resolution of the rainfall estimates for urban catchments? (While maintaining / improving quality)



100m data

From 75m polar data

From Wardon Hill



Progress

Oversampled Processing

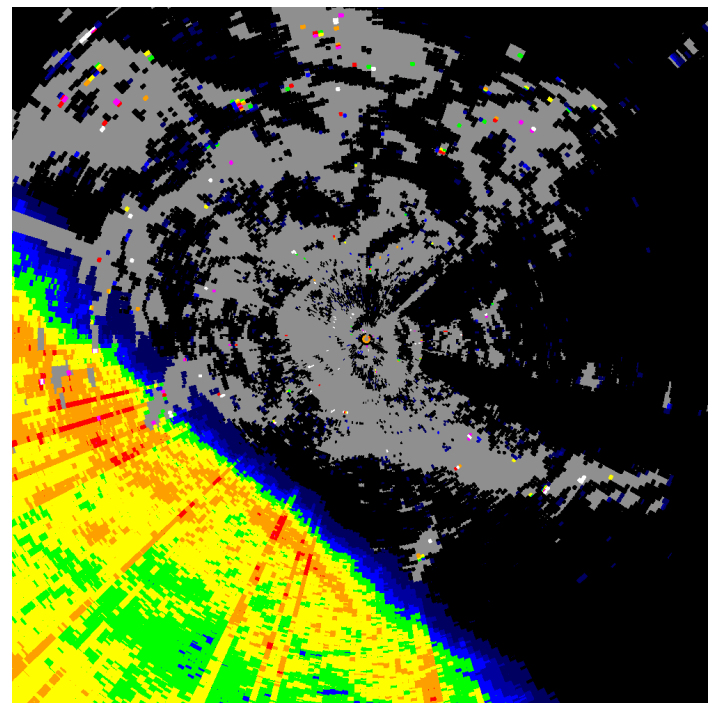
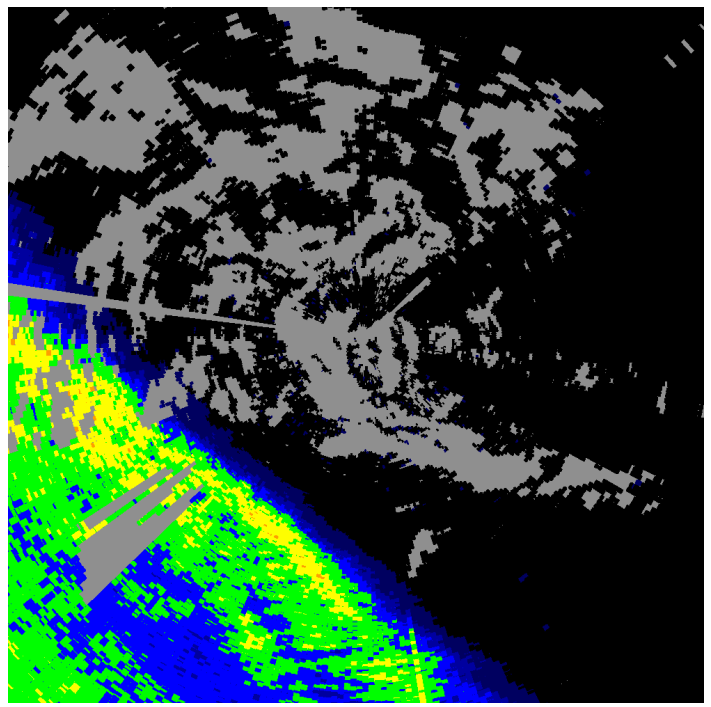


- Processing Development within Cyclops by Li-Pen complete
 - Oversampling implemented
 - RETRO algorithm running on GPU processor
 - Whitening algorithms implemented
 - Initial testing showed stability issues – now resolved

- Radarnet Processing
 - Processing for high resolution data trials
 - Initial trials running
 - Very preliminary results



Preliminary oversampled data results



300m conventional

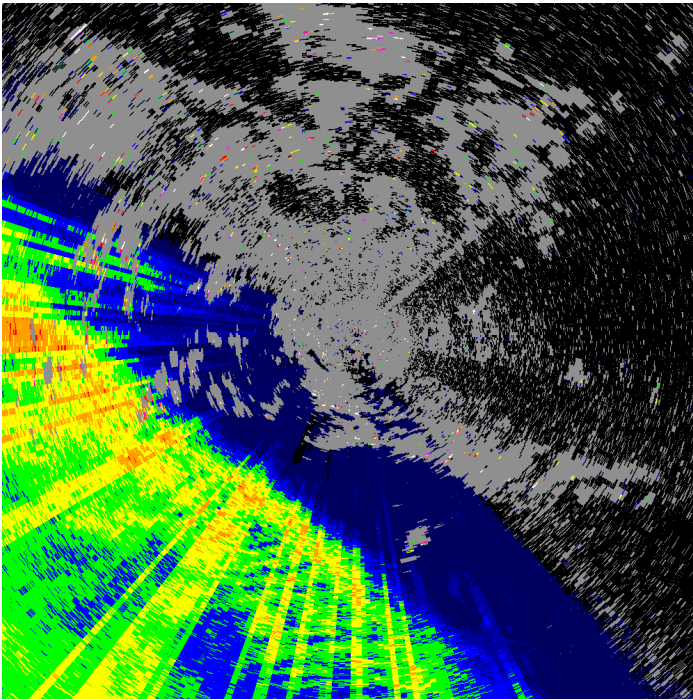
300m Oversampled & Whitened



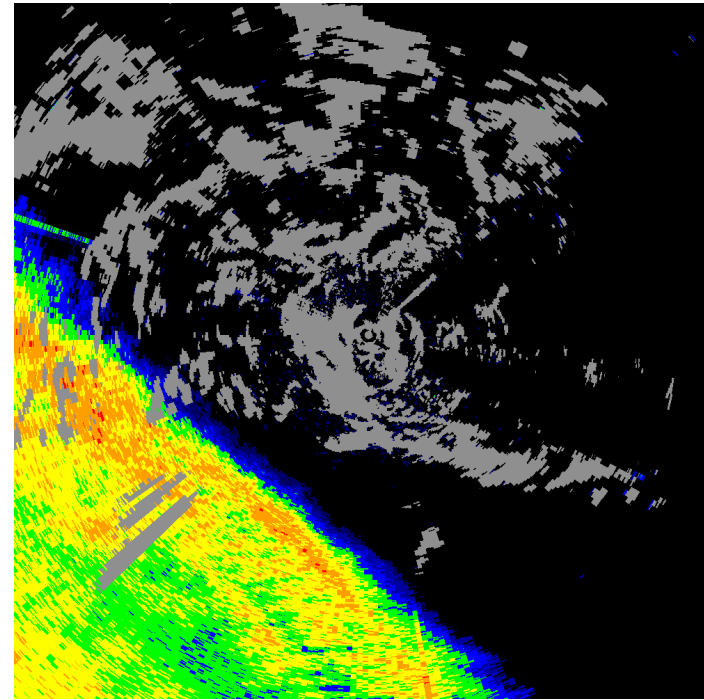


This project has received European Regional Development Funding through INTERREG IV B.

INTERREG IV B



75m conventional data



300m data RETRO processed to 75m



Wind drift correction



Progress to date:

- Correction coded at 1km resolution using extension of Mittermaier et al. 2004 algorithm [1]
- Demonstrably improved alignment of vertical reflectivity profiles (limited case studies), implying improvement in surface rainfall positioning

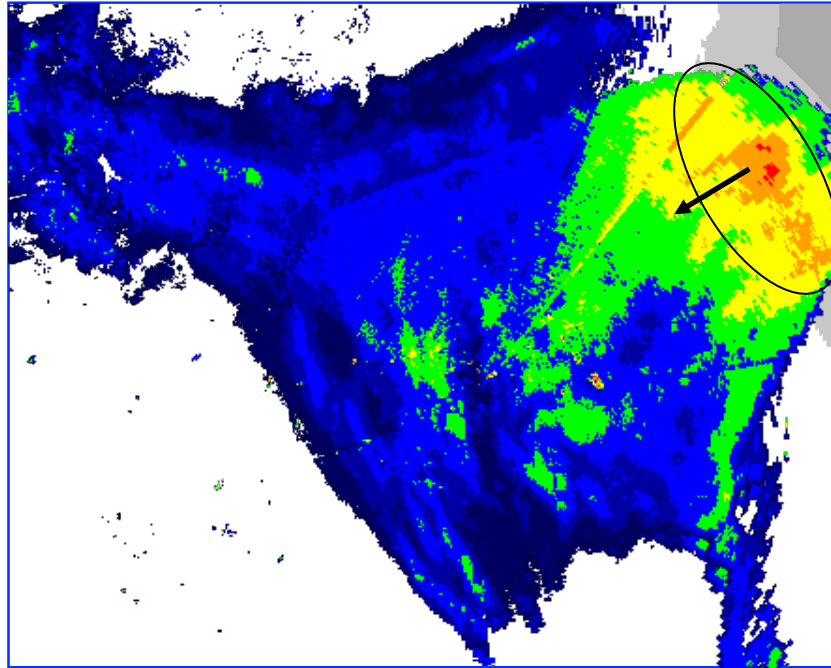
Current work/next steps:

- Live rain-gauge comparison trial on UK composite (1/2/5 km resolution)
- Flexible regridding scheme for 75m (high resolution) polar data

[1] Mittermaier, M. P., R. J. Hogan and A. J. Illingworth, 2004: Using mesoscale model winds for correcting wind-drift errors in radar estimates of surface rainfall. *QJRMS*, **130**, 2105-2123.



Wind drift correction



Example: 20 Jan 2013, 16:30UTC. Rain rate cutouts at 1km resolution over London & SE (NATS domain). Arrow illustrates movement of the most intense region of precipitation (~16mm/hr).

1st: uncorrected; 2nd: corrected.

