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HAZARDSCRC



Australian Government
Bureau of Meteorology

IMPROVED PREDICTIONS OF SEVERE WEATHER

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High Impact Weather Research
Bureau of Meteorology

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Australian Government
Department of Industry,
Innovation and Science

Business
Cooperative Research
Centres Programme



EAST COAST LOW

- 1) 20 – 23 April 2015
- 2) Intense low pressure systems that form close to NSW coast
- 3) Strong winds, heavy rain, major flooding, major waves and coastal erosion
- 4) 4 deaths
- 5) Dozens of roofs lost, trees down, > 200000 houses without power, 57 schools closed



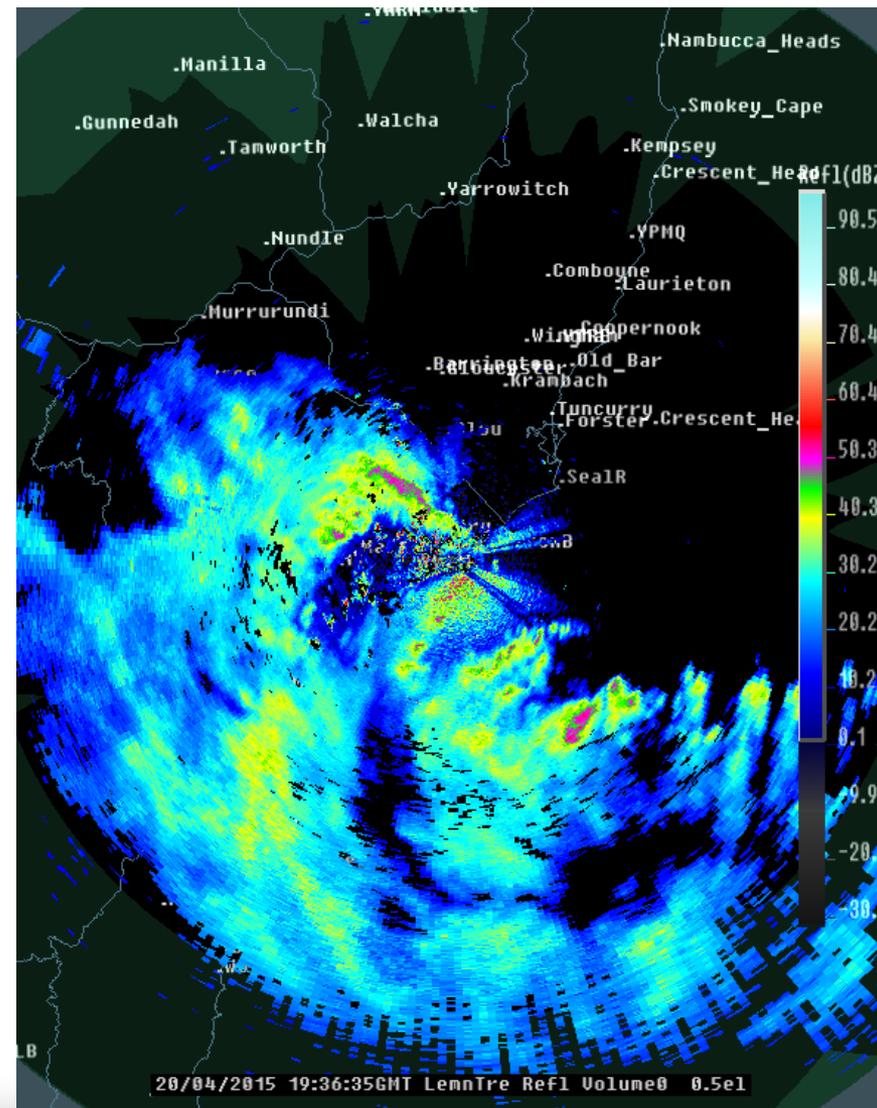
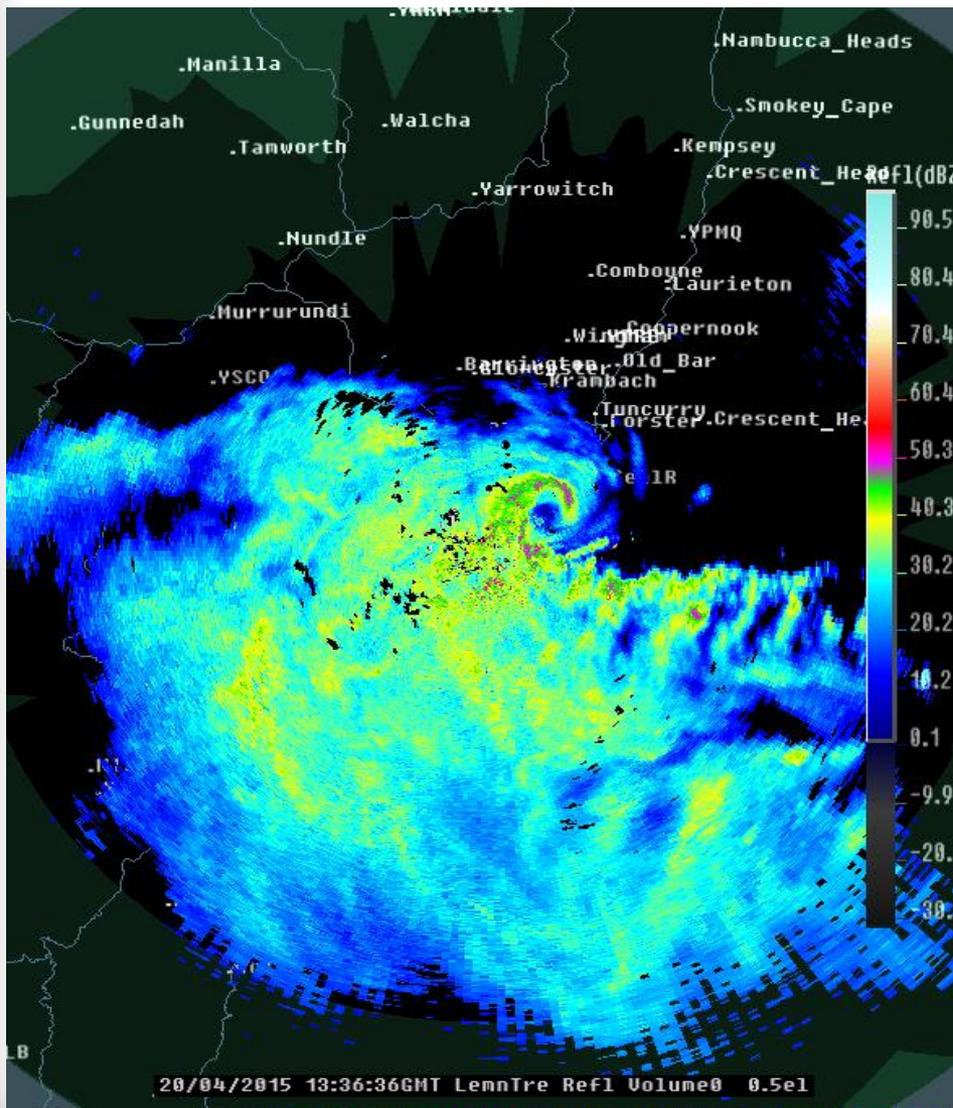
RADAR IMAGERY



Australian Government
Bureau of Meteorology

1336 UTC 20 April 2015

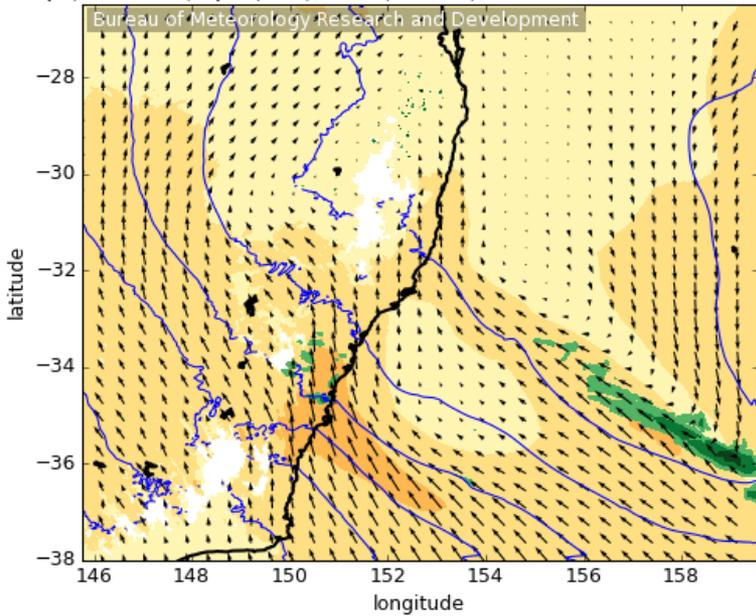
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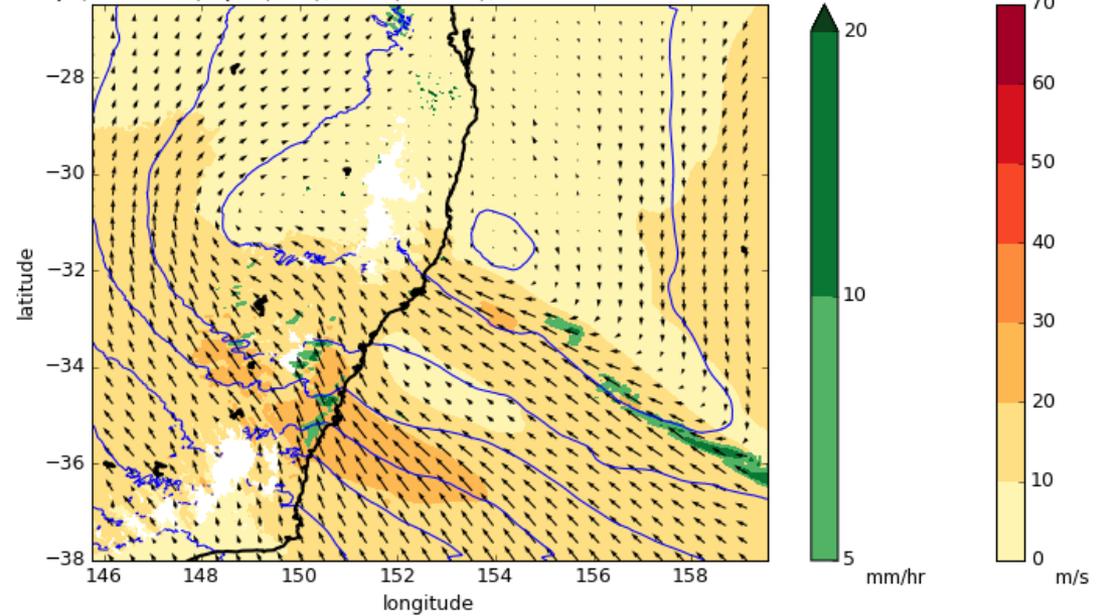


TWO MEMBERS OF ENSEMBLE

p (int=2hPa) spd (m/s), rain (mm/hr), z=1.0km t=1.0hr ens=17



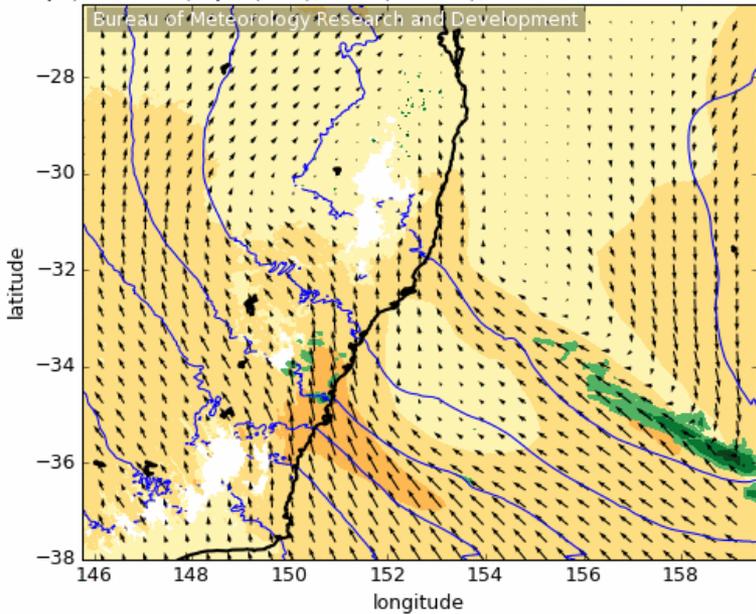
p (int=2hPa) spd (m/s), rain (mm/hr), z=1.0km t=1.0hr ens=22



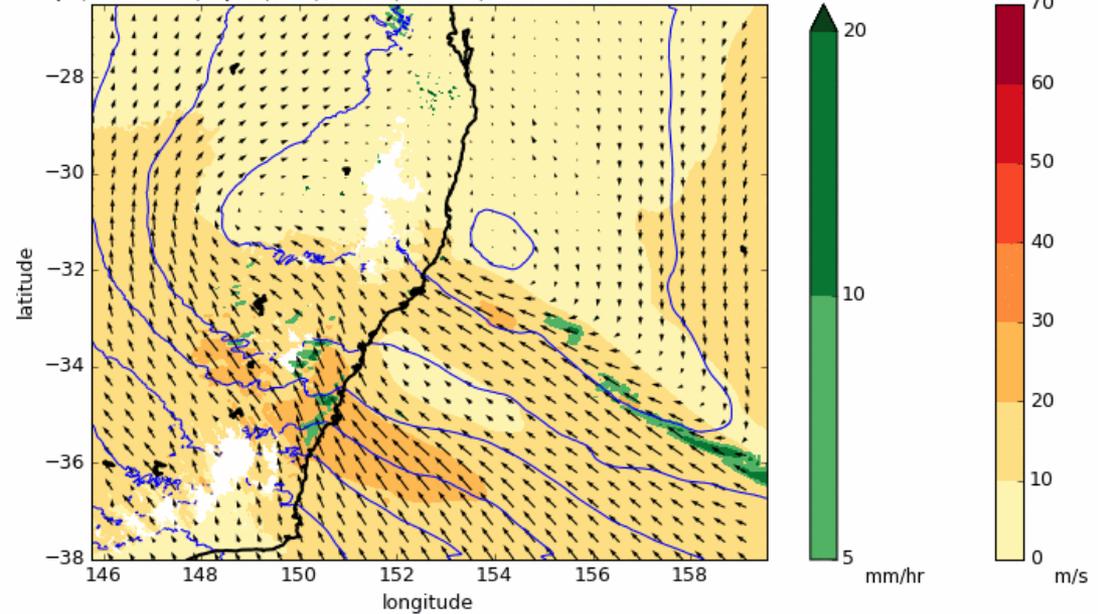


TWO MEMBERS OF ENSEMBLE

p (int=2hPa) spd (m/s), rain (mm/hr), z=1.0km t=1.0hr ens=17

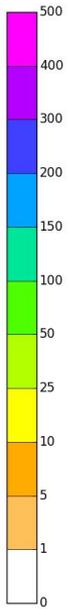
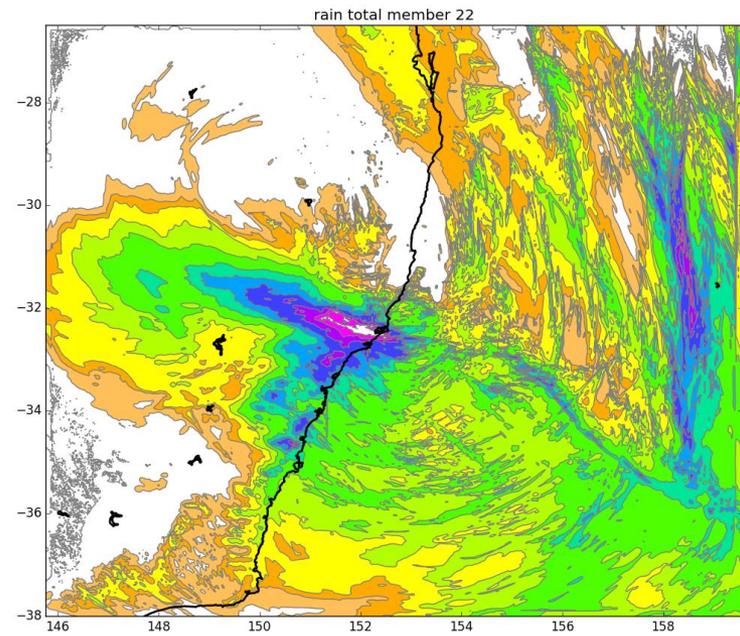
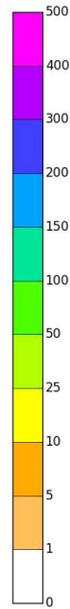
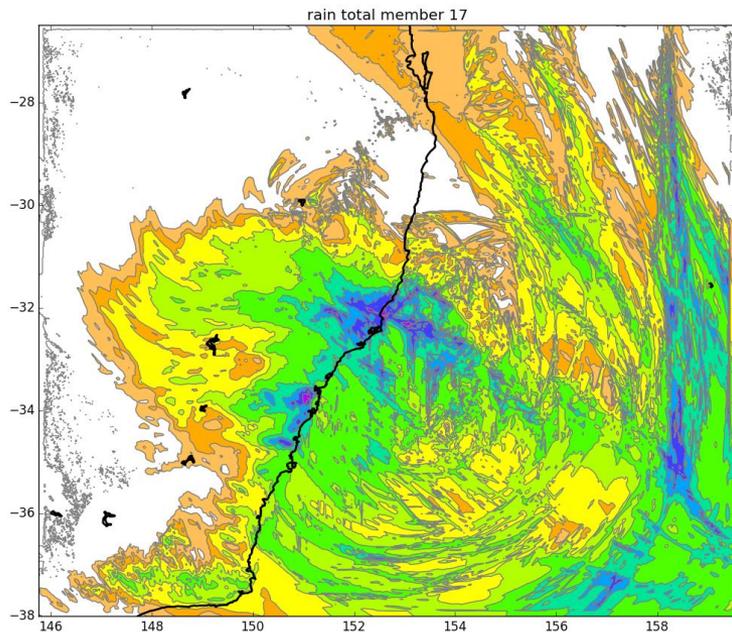


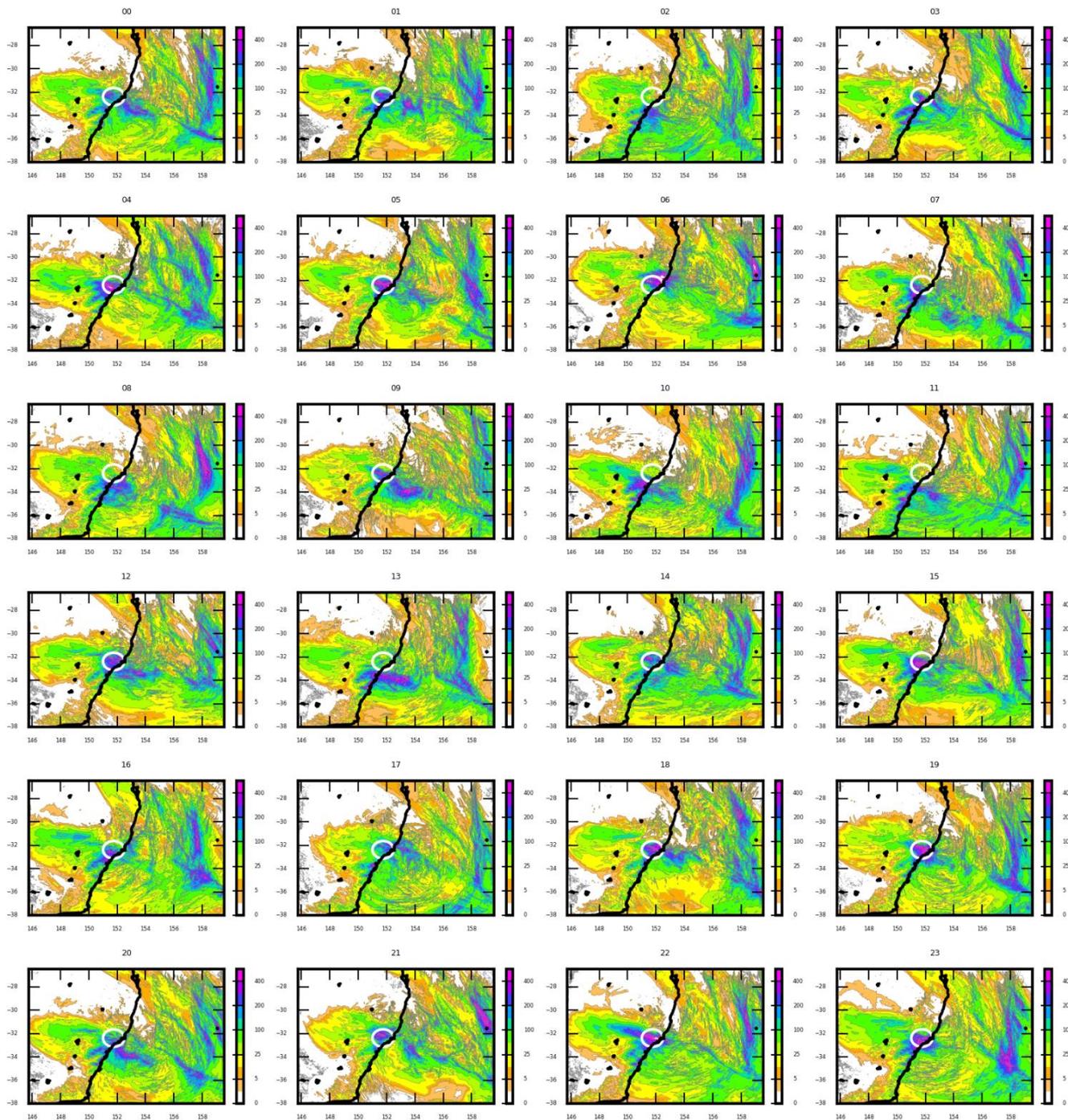
p (int=2hPa) spd (m/s), rain (mm/hr), z=1.0km t=1.0hr ens=22





48-HOUR RAINFALL TOTALS

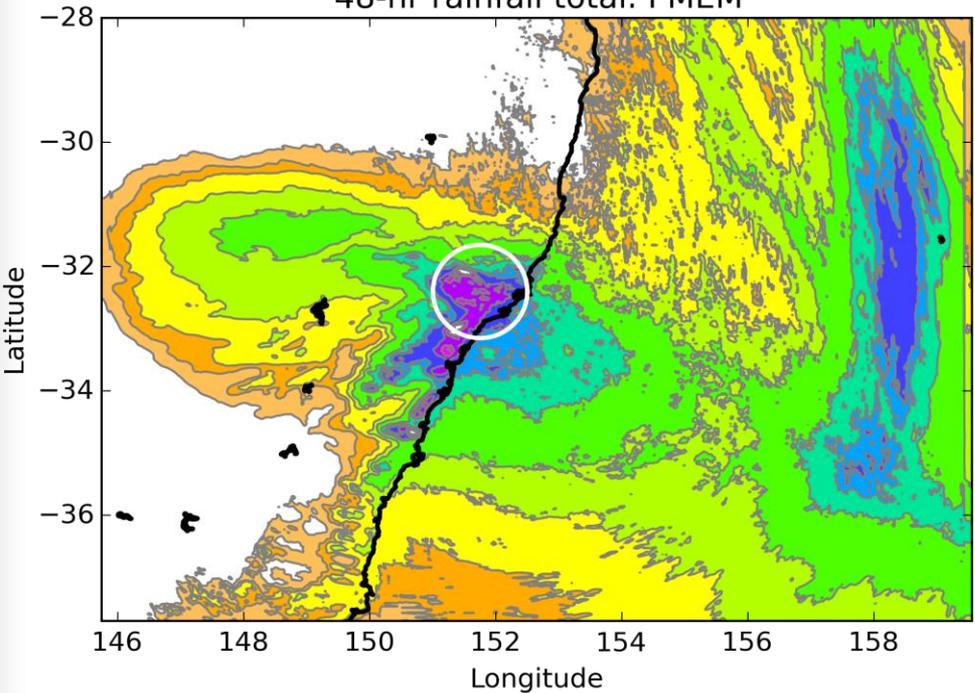




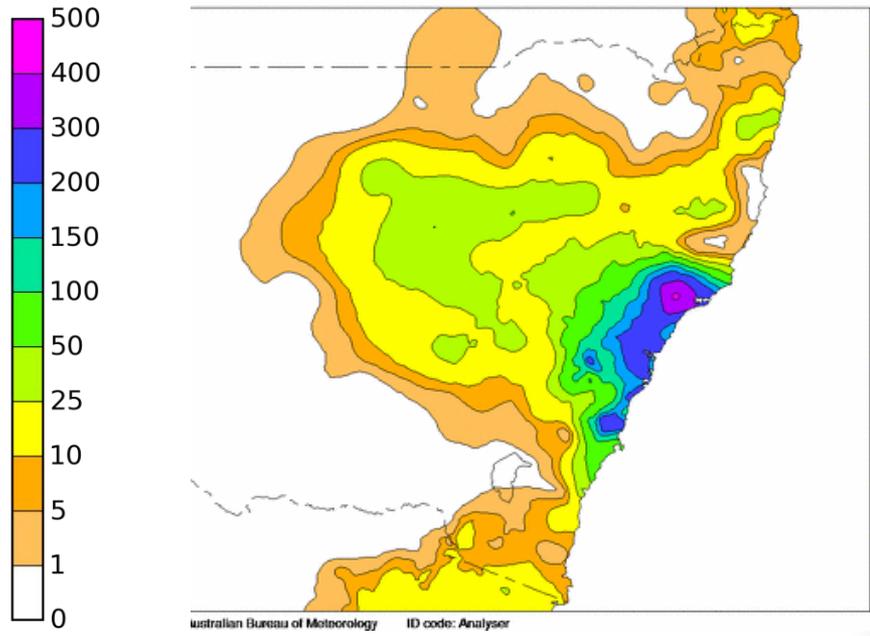


PROBABILITY-MATCHED ENSEMBLE MEAN

48-hr rainfall total. PMEM

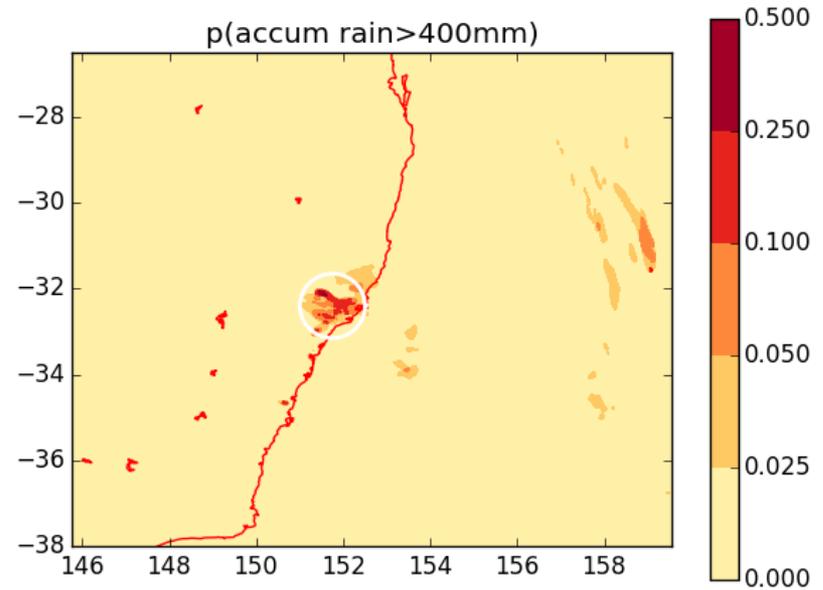
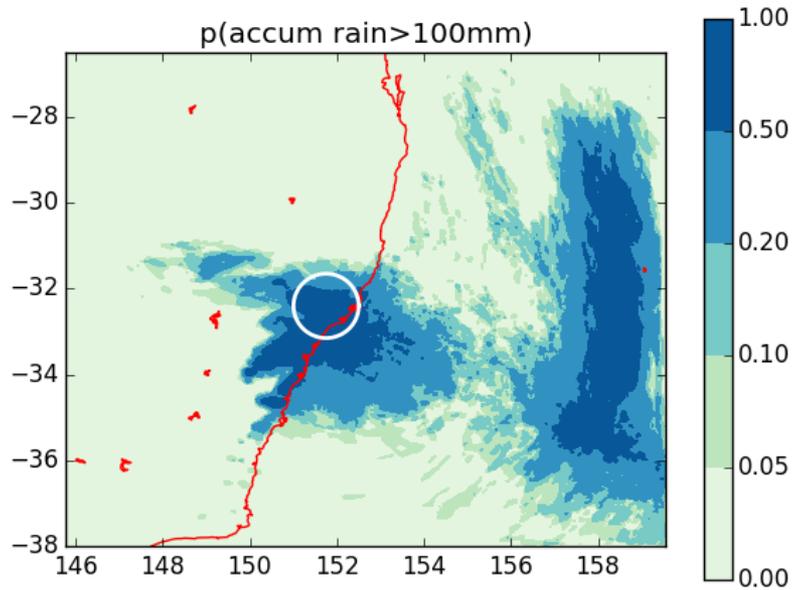


Australian rainfall analysis (mm) 21st to 22nd April 2015
Australian Bureau of Meteorology





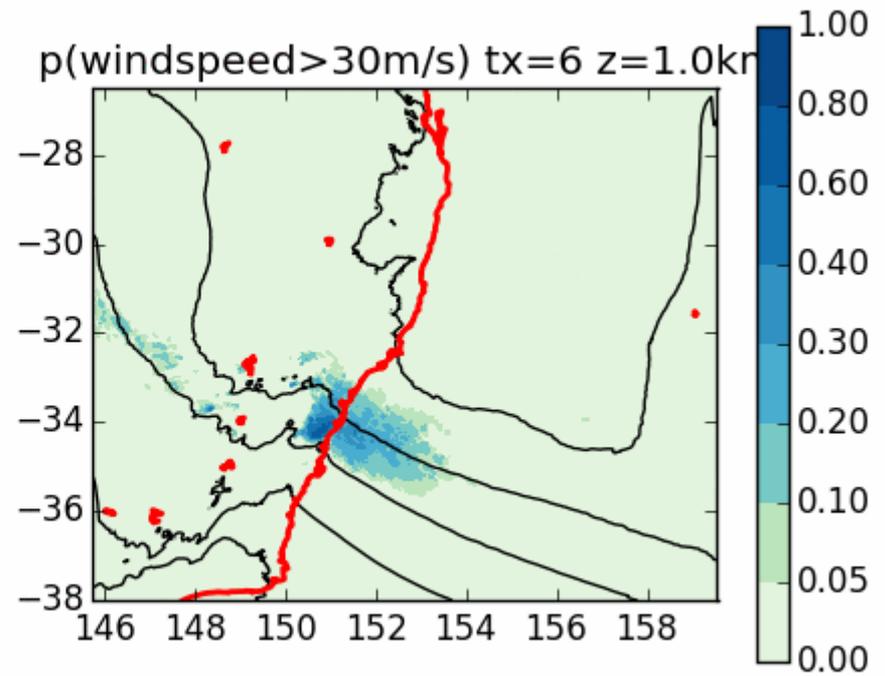
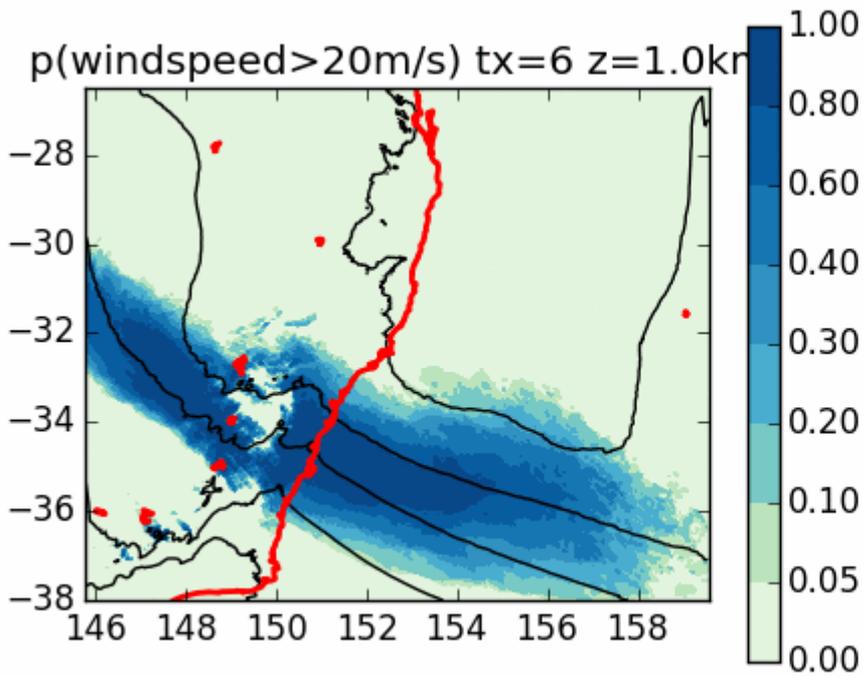
RAINFALL PROBABILITIES



Probabilities of 48-hour total rainfall exceeding 100 mm and 400 mm



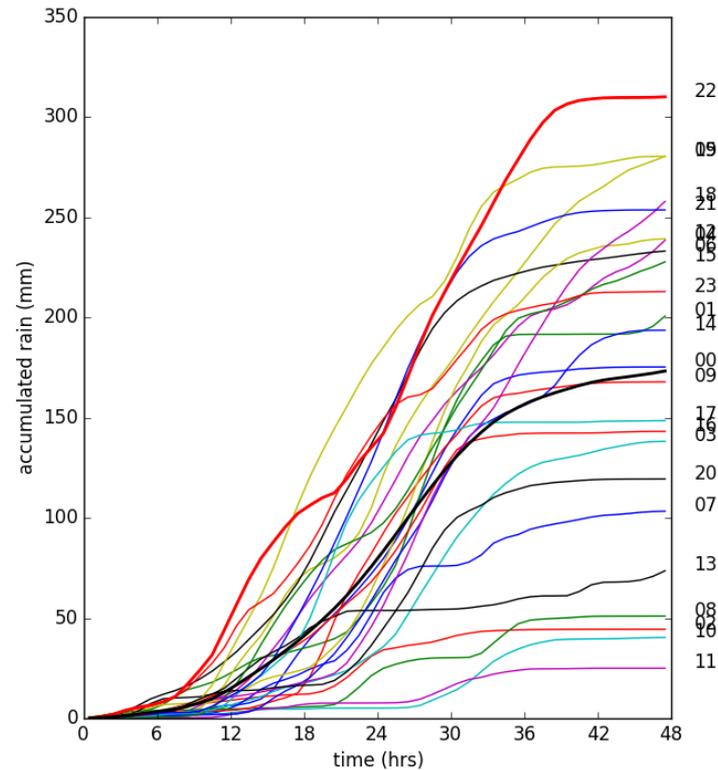
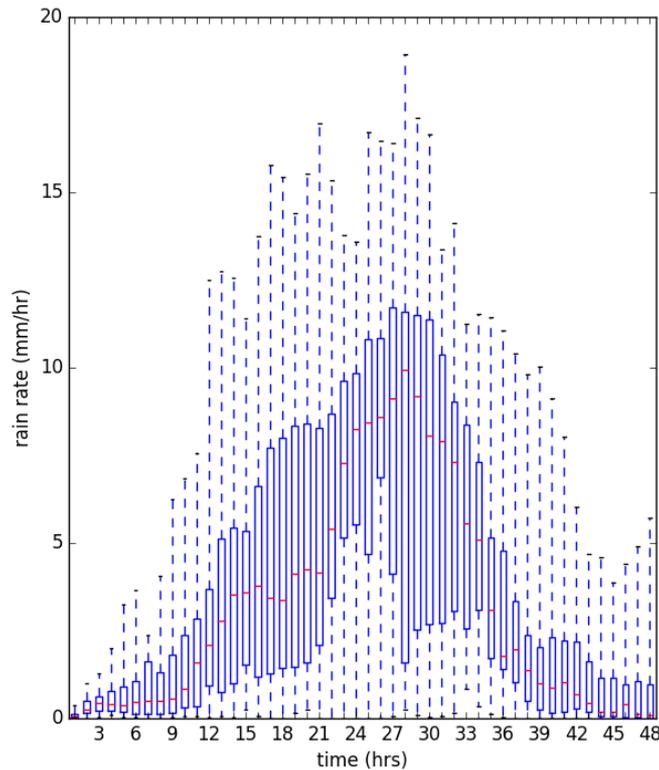
WIND PROBABILITIES





RAINFALL DISTRIBUTION DUNGOG

Ensemble rain in Dungog catchment



- 1) Left: hourly rainfall distribution
- 2) Right: rainfall accumulation by ensemble member
- 3) Averaged over 50-km circle centred on Dungog catchment



ENSEMBLE PREDICTION OF SEVERE WEATHER

Ensemble prediction

- Is more accurate
- Supports objective probabilistic prediction
- Enables better risk management

- Is coming soon to a weather office near you

