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Sydney 2014 Forecast Demonstration Project – A Step from Research to Operations

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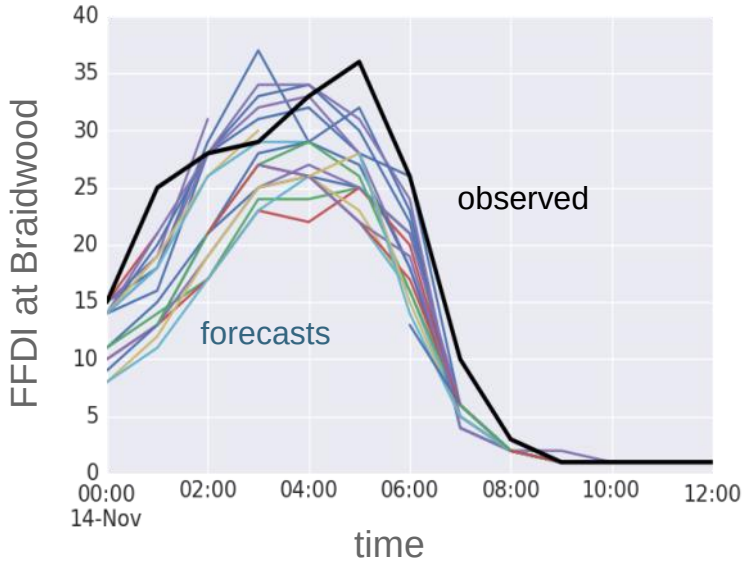
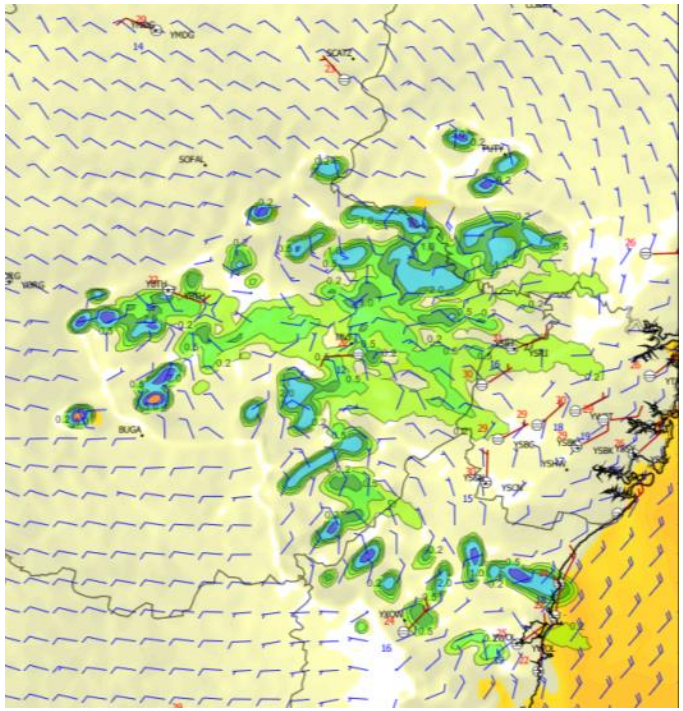


and
Jeff Kepert,
Deryn Griffiths,
James Sofra,
Simon Louis,
David Smith,
Alan Wain,
Beth Ebert,
Peter Steinle,
Aurora Bell,
Alan Seed



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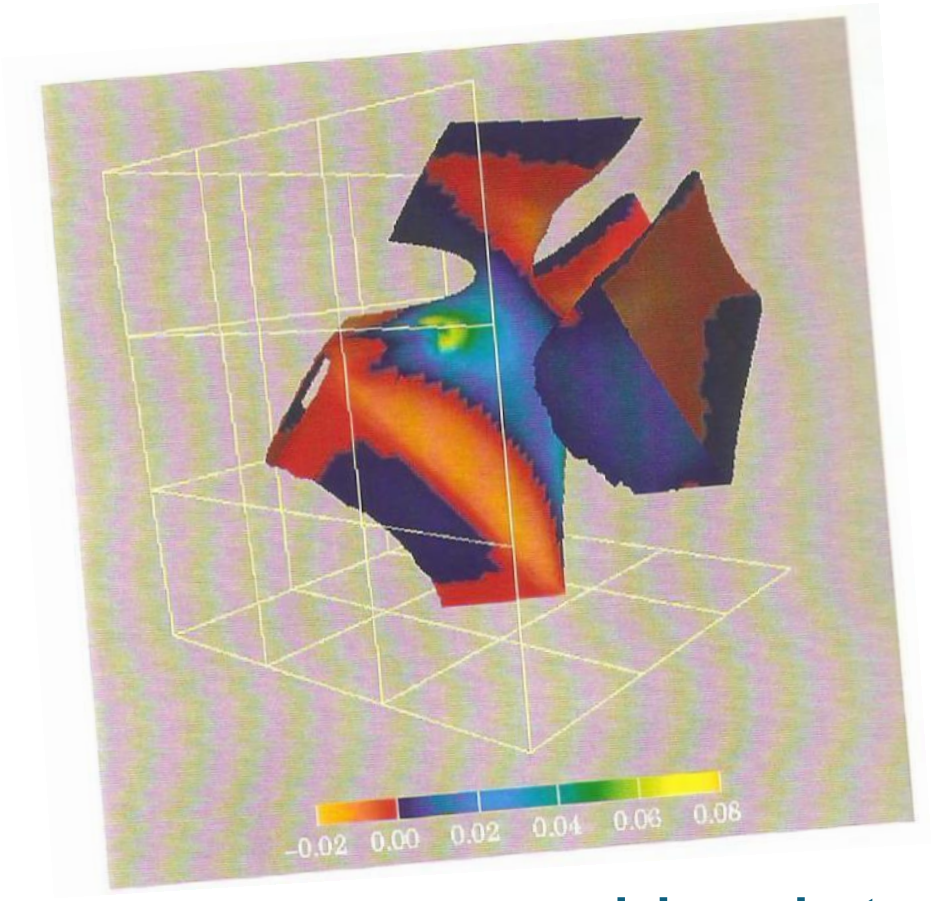
Research to Operations…



…and back to Research

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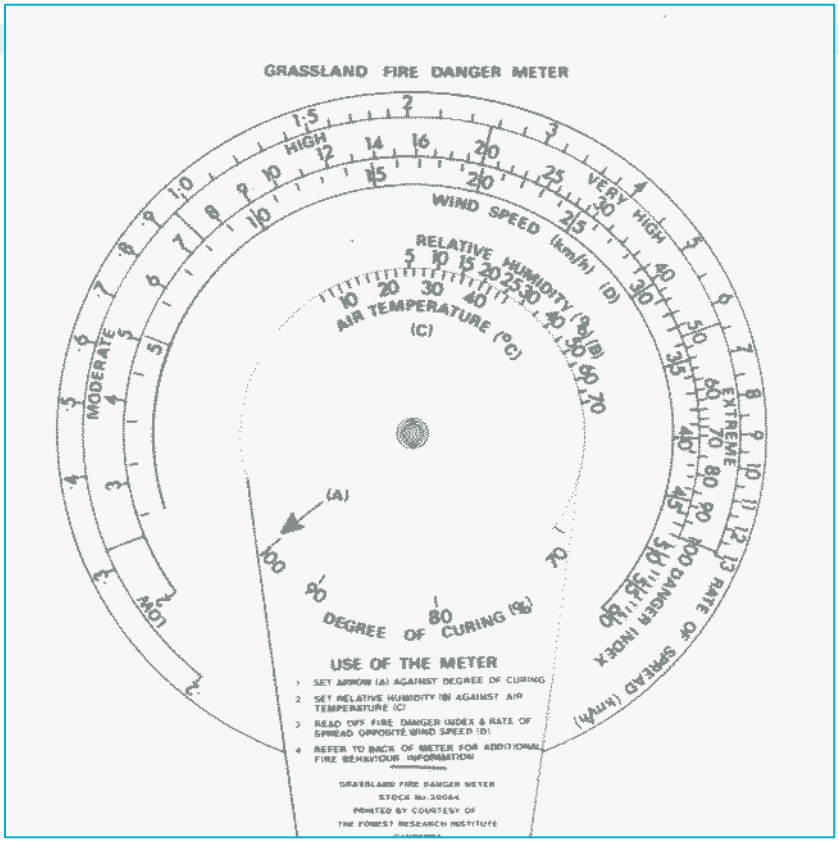
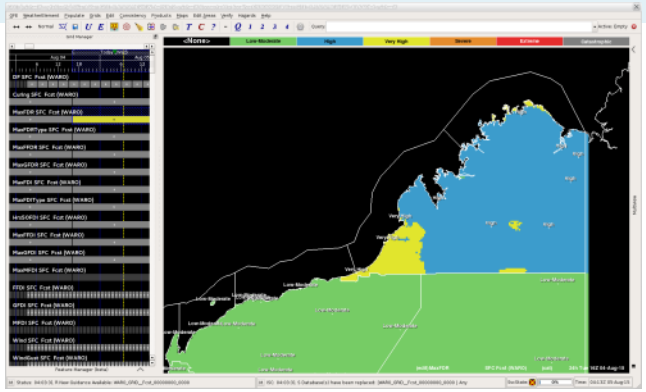
Current Operations Built On 1960s Research



McArthur 1960s



IDW13050

Issued at 4:10 pm WST on Tuesday 4 August 2015.

District	Wednesday
North Kimberley Coast	Very High
West Kimberley Coast	Very High
Kimberley Inland	High
East Pilbara Coast	Low-Moderate
West Pilbara Coast	Low-Moderate
East Pilbara Inland	Low-Moderate

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How Does More Recent Research Get to Operations?

IDN30100
Australian Government Bureau of Meteorology
New South Wales

Spot Fire Weather Forecast for

Issued at 4:14 pm EDT on Sunday 16 Novemb

3D Complexity e.g. Coonabarabran Fire

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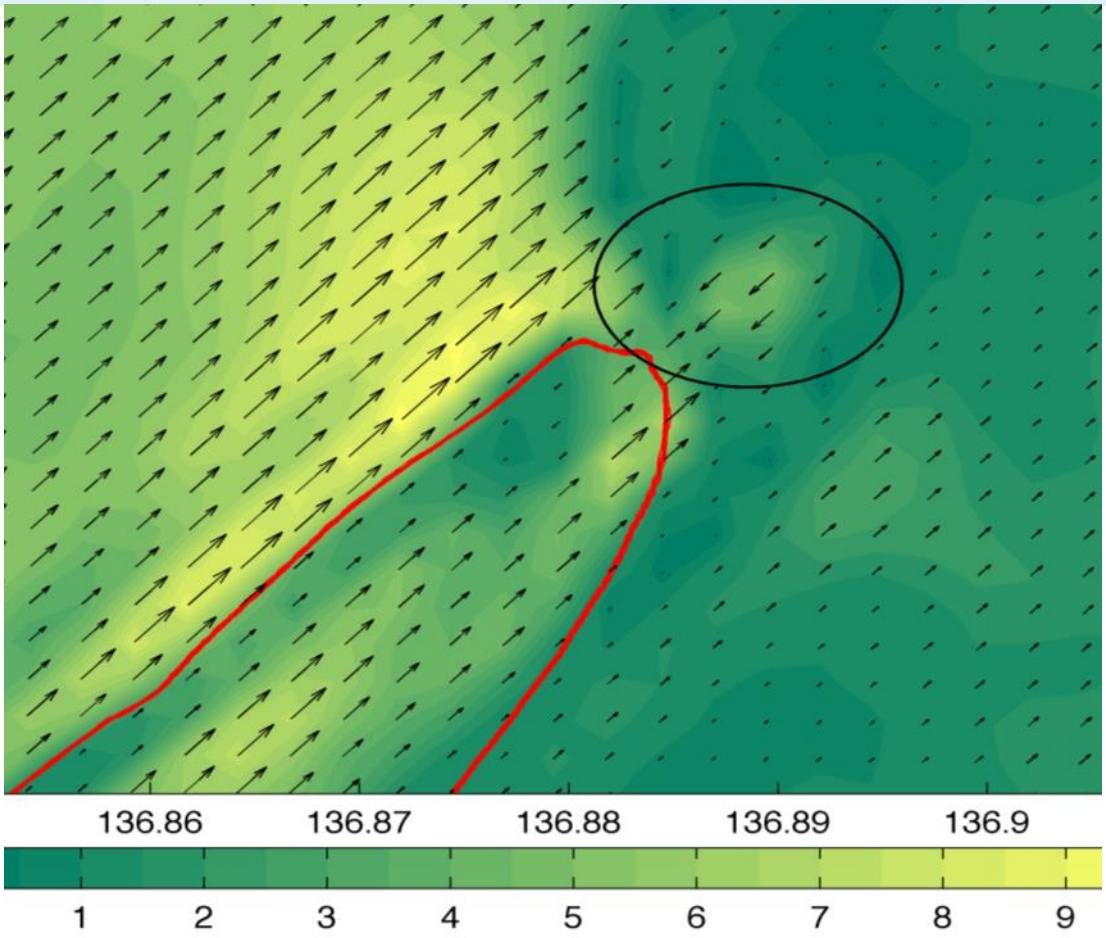
How Does More Recent Research Get to Operations?



Fire Modified Winds e.g. Rocky River Fire

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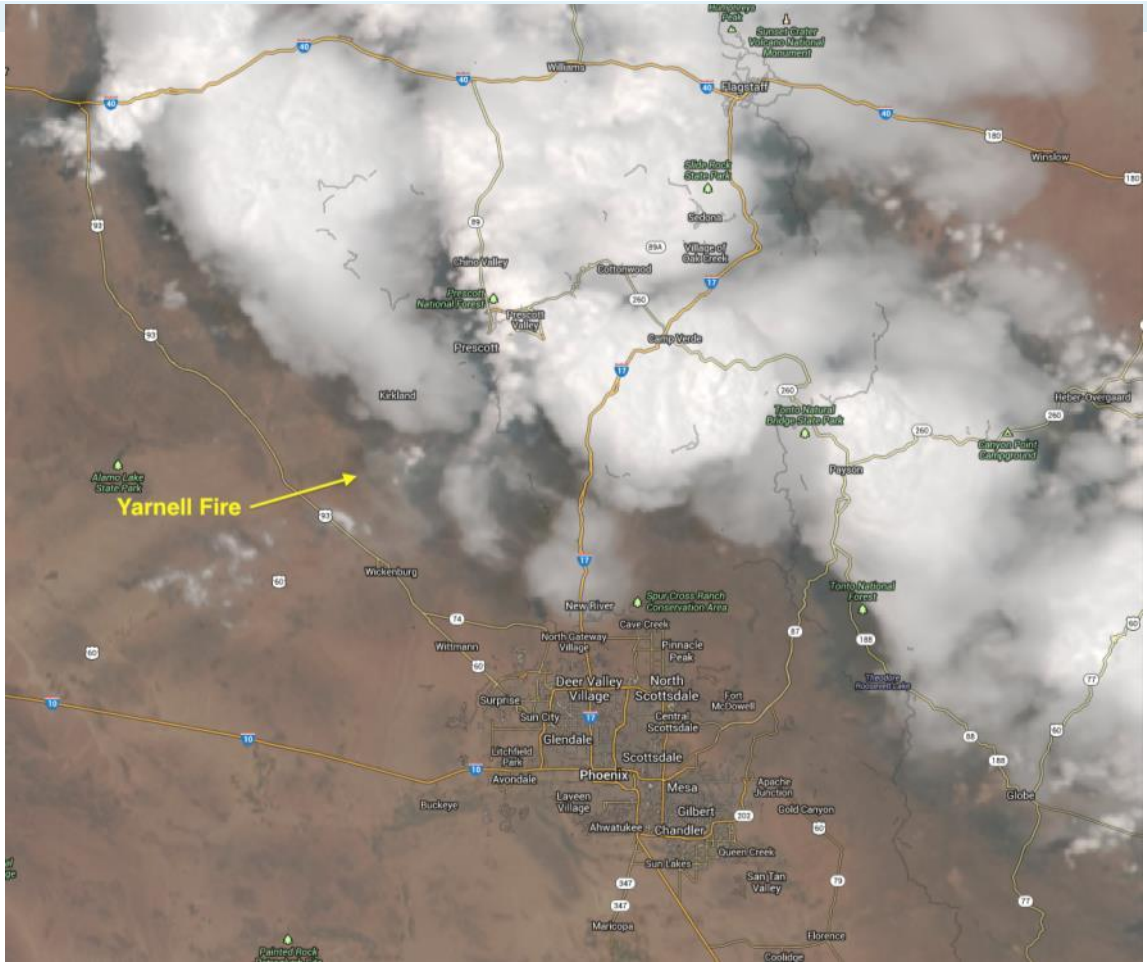
19 Fire Fighters Died



Thunderstorm Outflows e.g. Yarnell, Arizona

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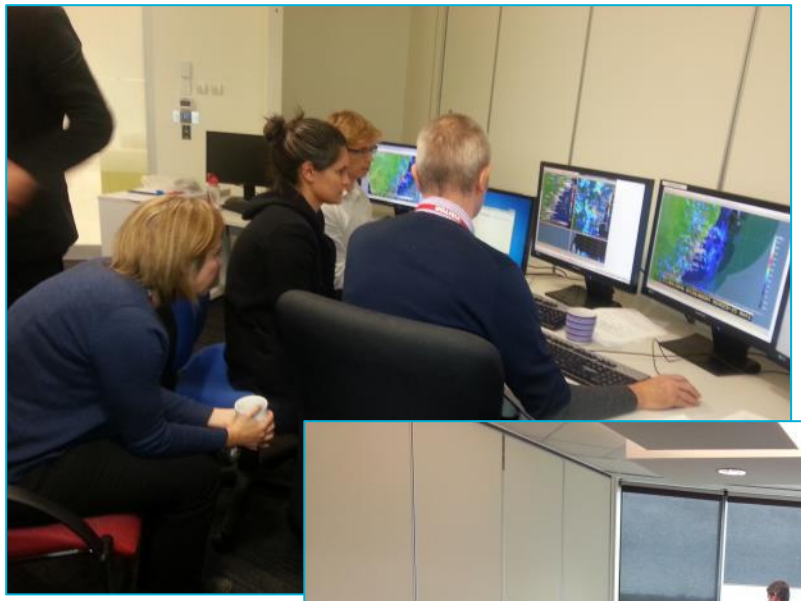
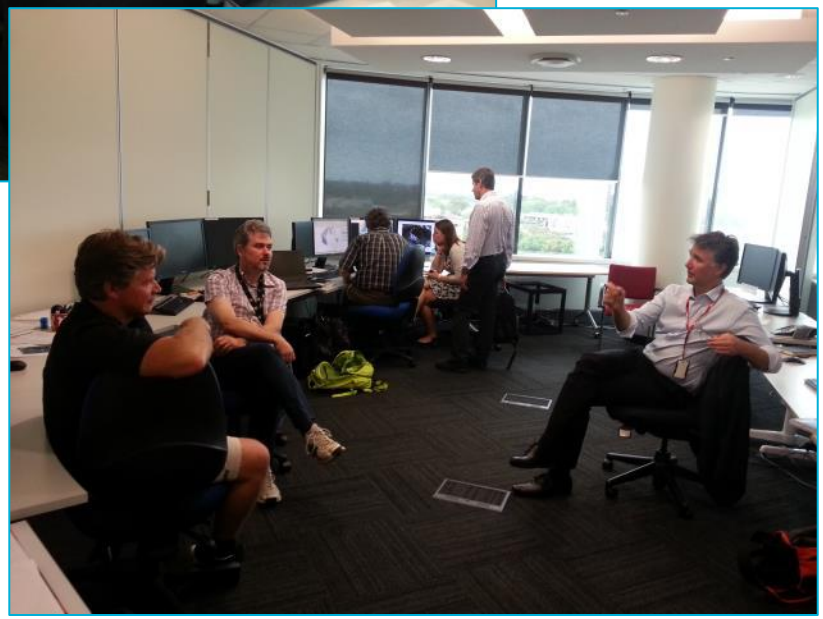
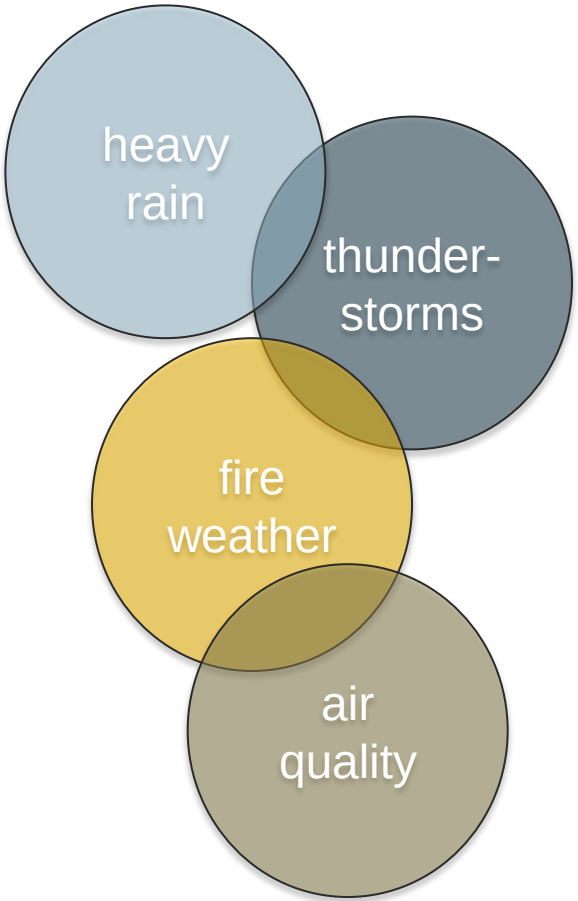
Forecast Demonstration Projects - Exposing Research to Operations





Sydney Oct to Dec 2014



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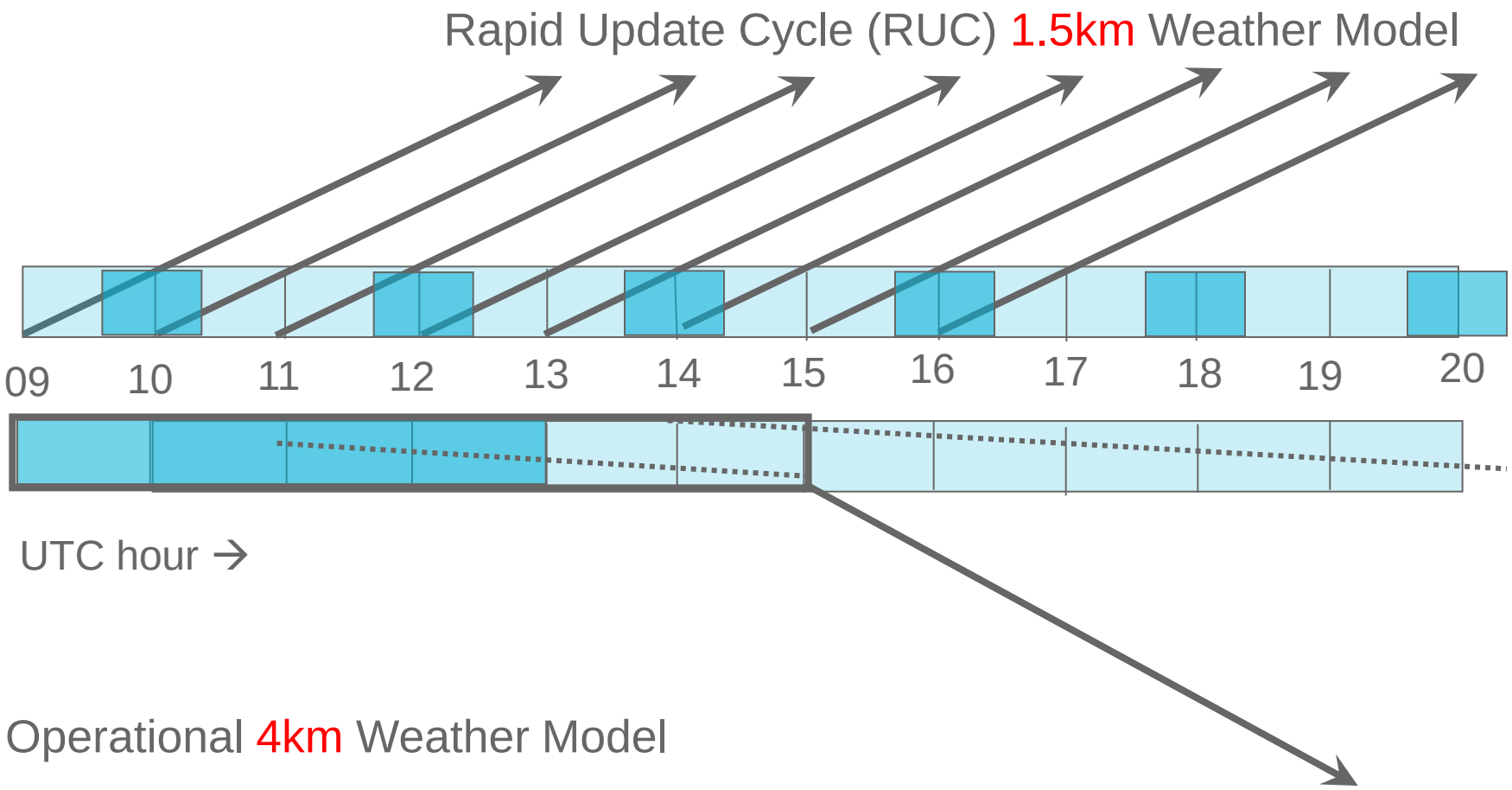
Model with More Up-To-Date Information, More Frequently



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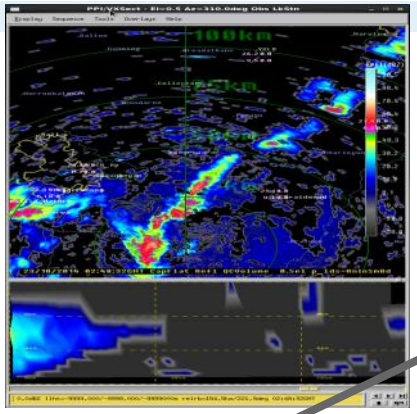
Model with More Up-To-Date Information, More Frequently



Rapid Update Cycle (RUC) 1.5km Weather Model

09 10 11 12 13 14 15 16 17 18 19 20

UTC hour →

Operational 4km Weather Model

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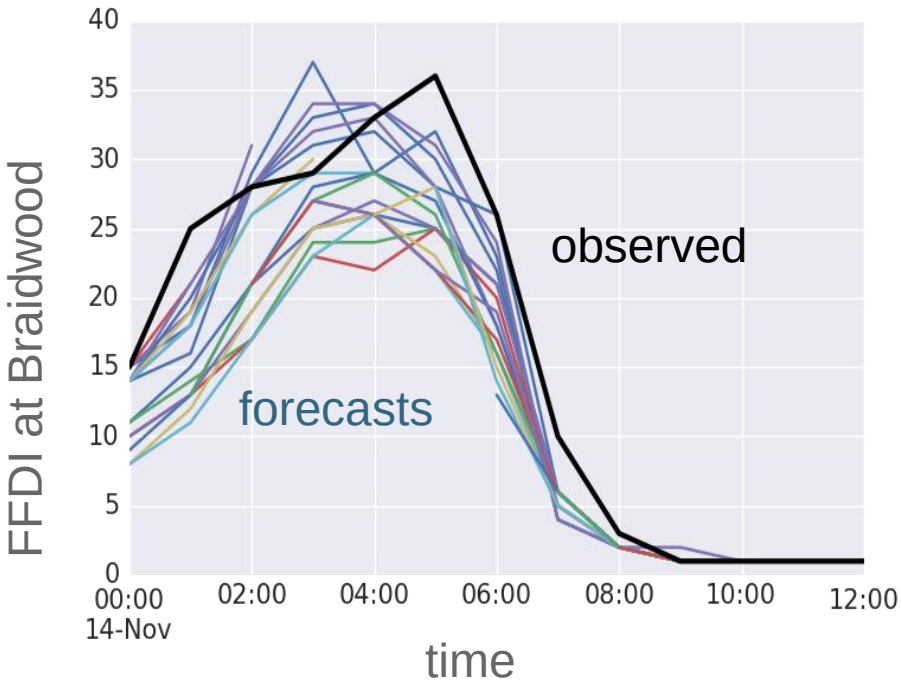
Too Much Information!



Quick response?

Worsening conditions?

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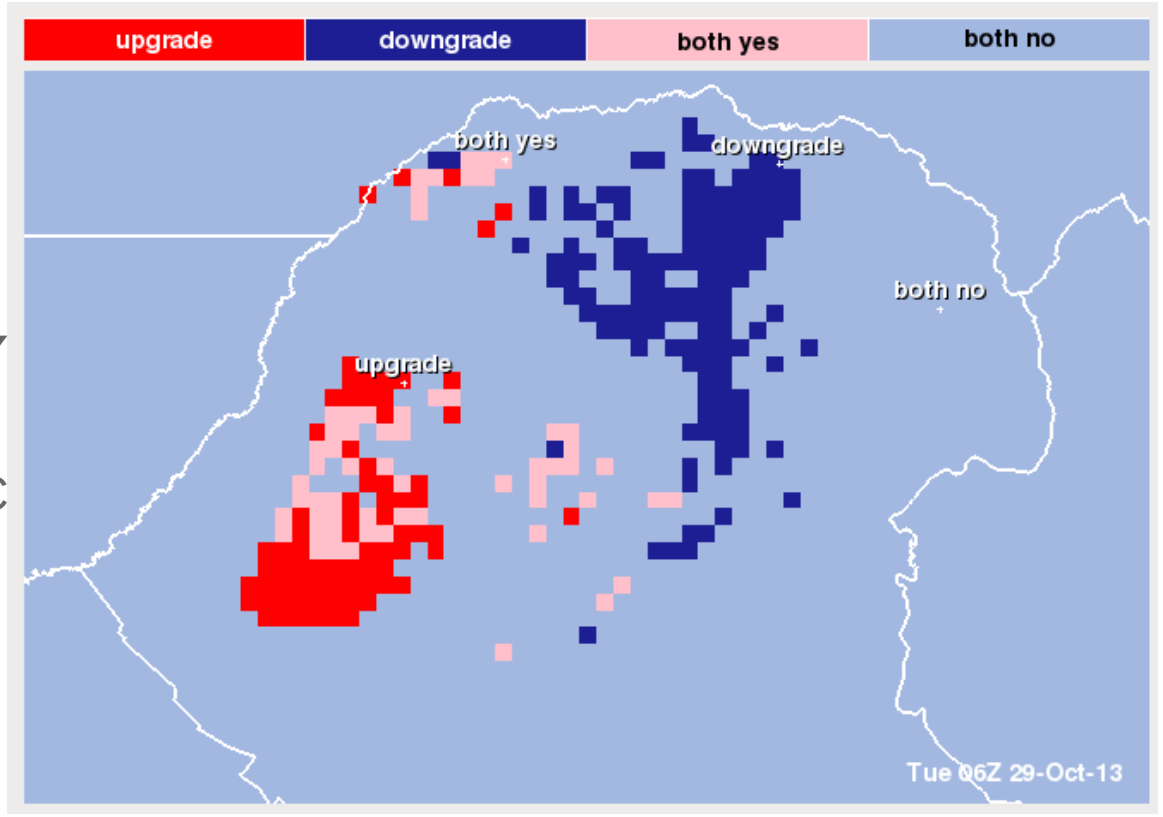
Alerting the Forecaster to the Important Information

Earlier RUC forecast

Later RUC forecast



Graphical Forecast Editor

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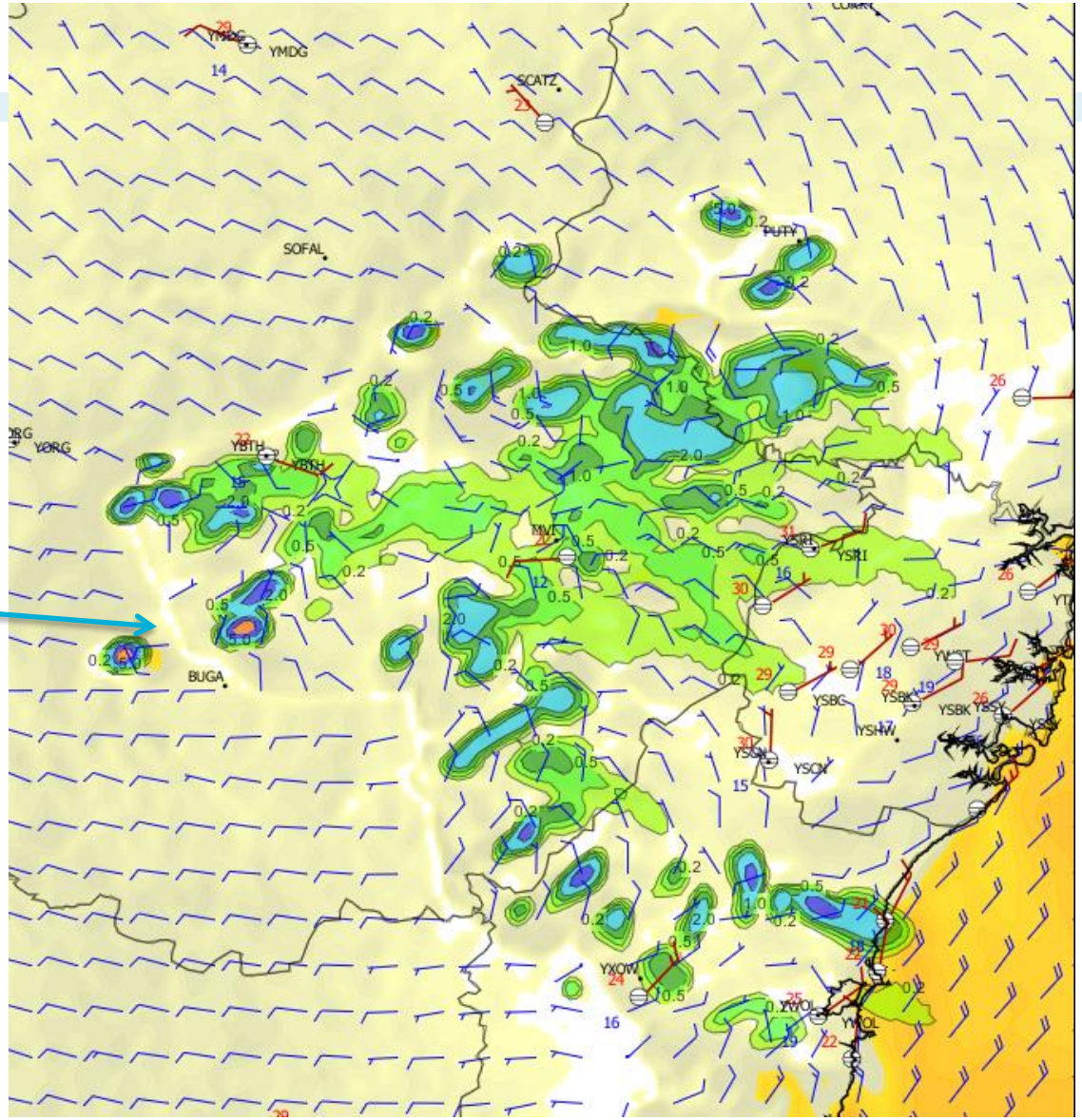
High Resolution Weather Model Output

Benefits:
Convection-resolving
Topographic detail

Thunderstorm outflow



10m wind barbs
Precipitation
Site observations

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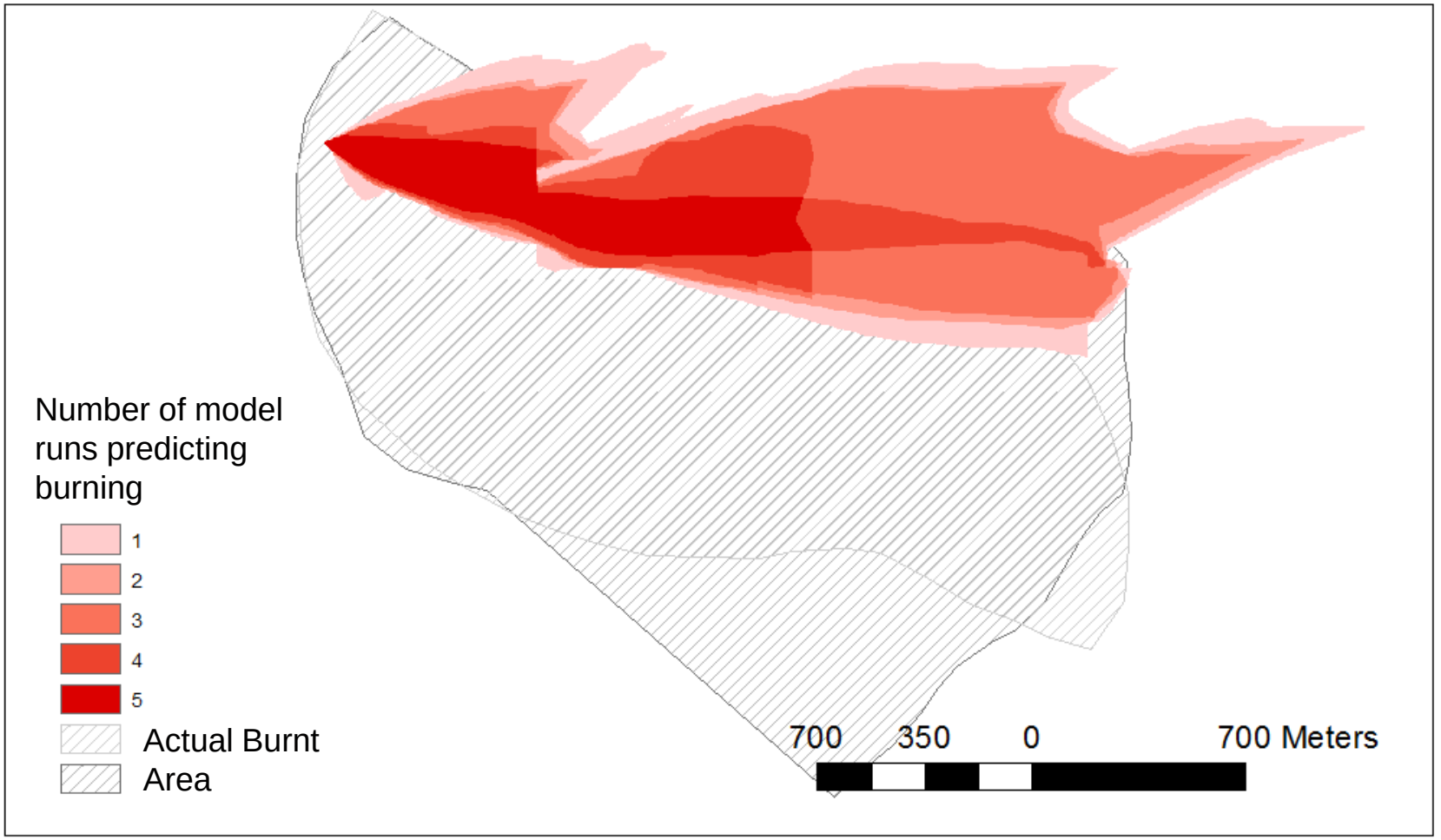
Value of High Resolution Rapid Updates for Fire Modelling (RFS/BoM)

Hume Highway Coolac grass fire, 14 Nov 2014



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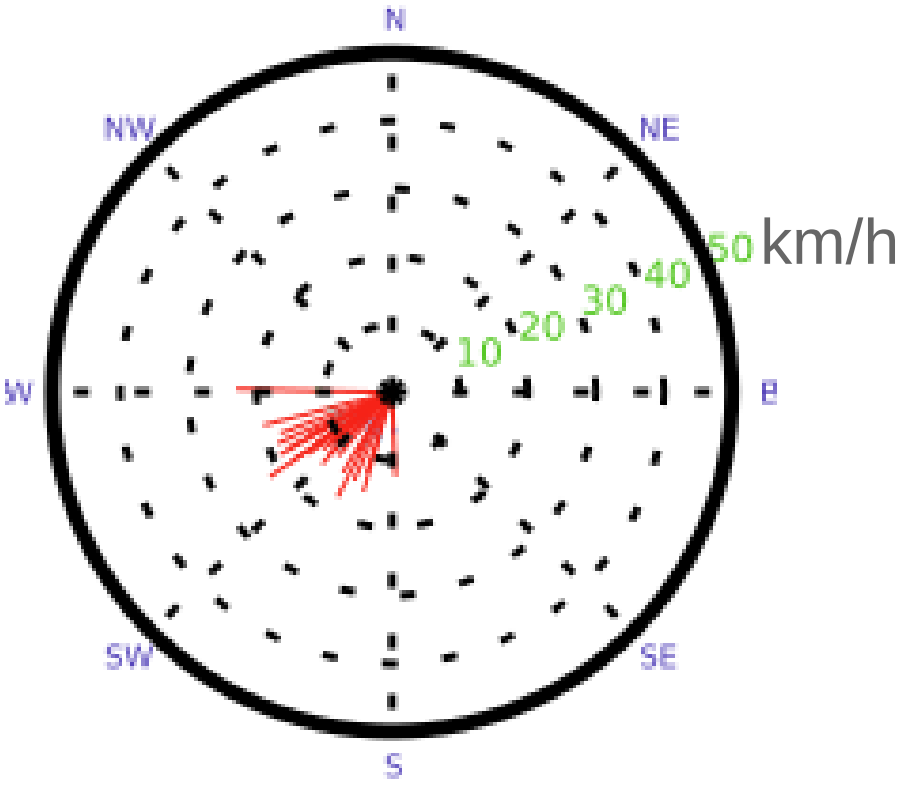
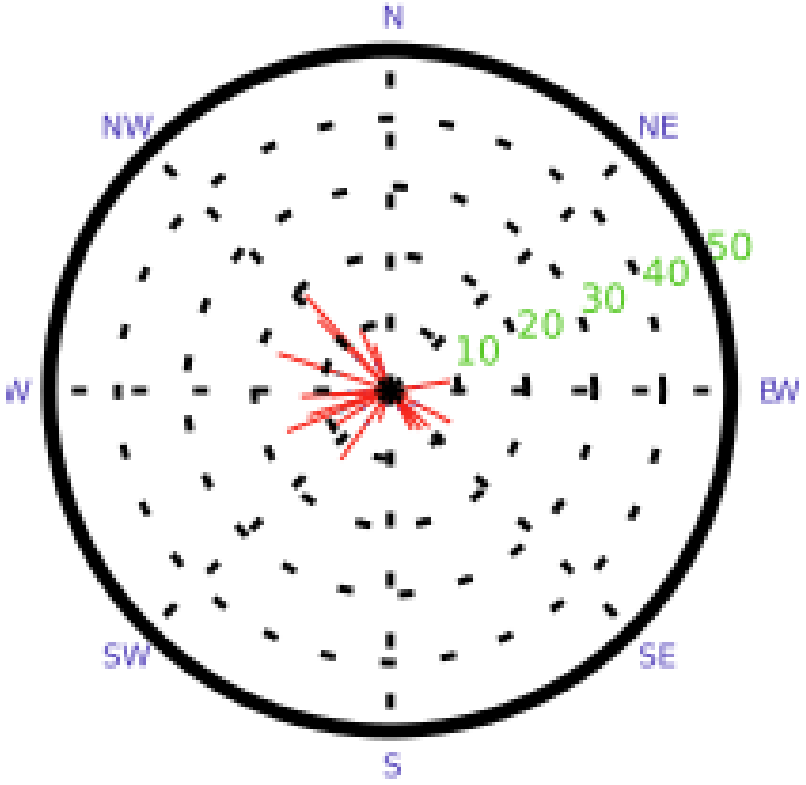
Summarizing Range of Long-Term Ensemble Forecasts for a Location

Thu 13 1600



3 days ahead

Mon 17 1600



6 days ahead

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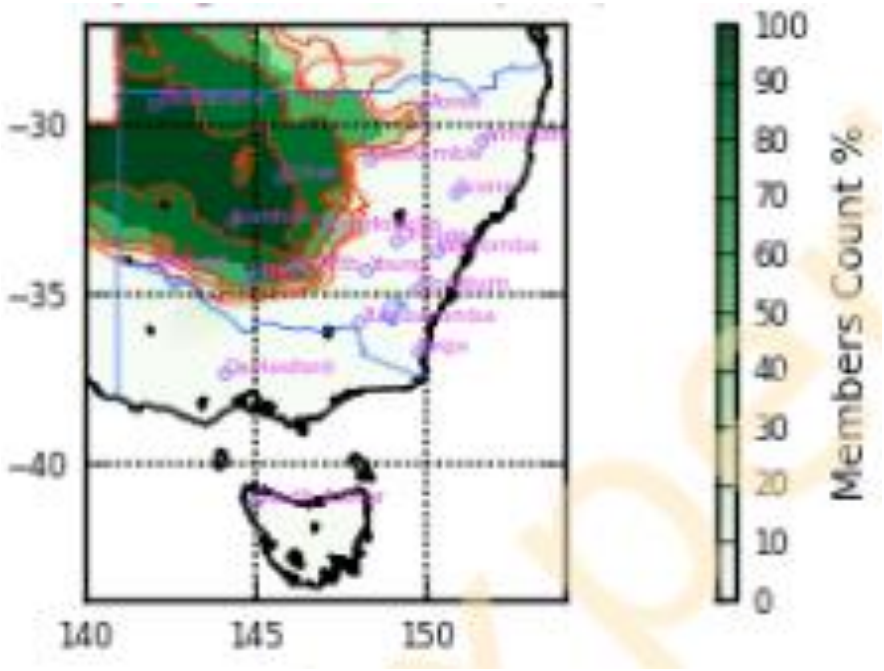
Estimating Risk of Higher Fire Dangers Later in the Week



FFDI 25+ (Very High and Above)

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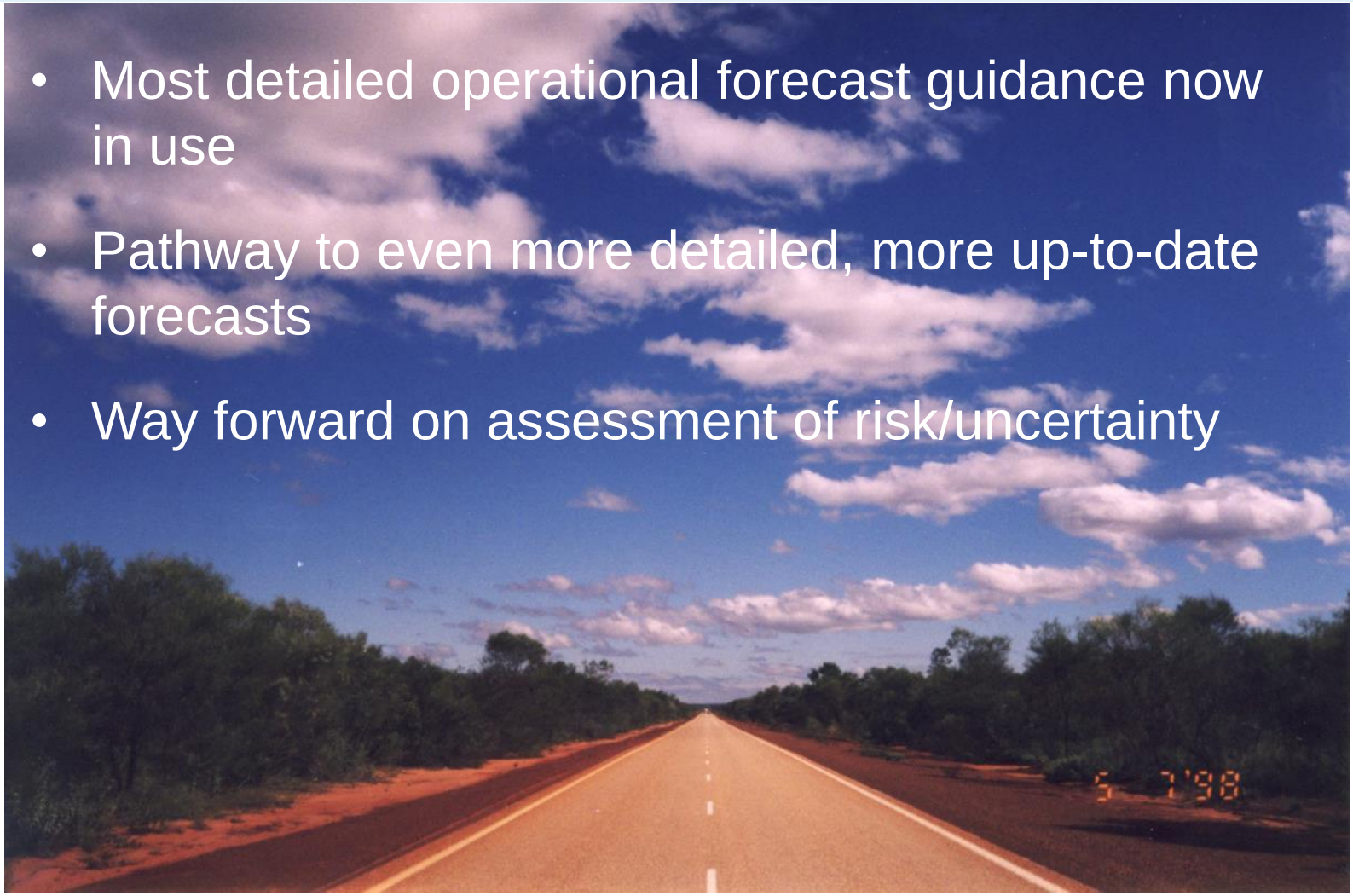
Benefits for Fire Management Community



- Most detailed operational forecast guidance now in use
- Pathway to even more detailed, more up-to-date forecasts
- Way forward on assessment of risk/uncertainty

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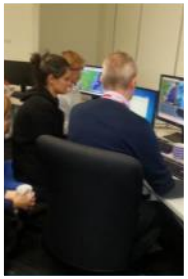
What Next?

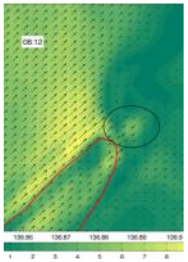
Many understandings from recent research need to be incorporated

Wednesday
Very High
Very High
High
Low-Moderate
Low-Moderate
Low-Moderate

Need to trial new approaches to fire danger rating



Value of exposing research in operational setting



Is it time for a Forecast Demonstration Project for fire predictive services?