



**Australian Government**  
**Bureau of Meteorology**



Tasmania Fire Service



# Fire weather and prototype fire danger ratings for the Gell River fire, Tasmania

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# Overview

- Gell River fire occurrence
- Description of meteorology
- AFDRS and its application
- Limitations and prospects

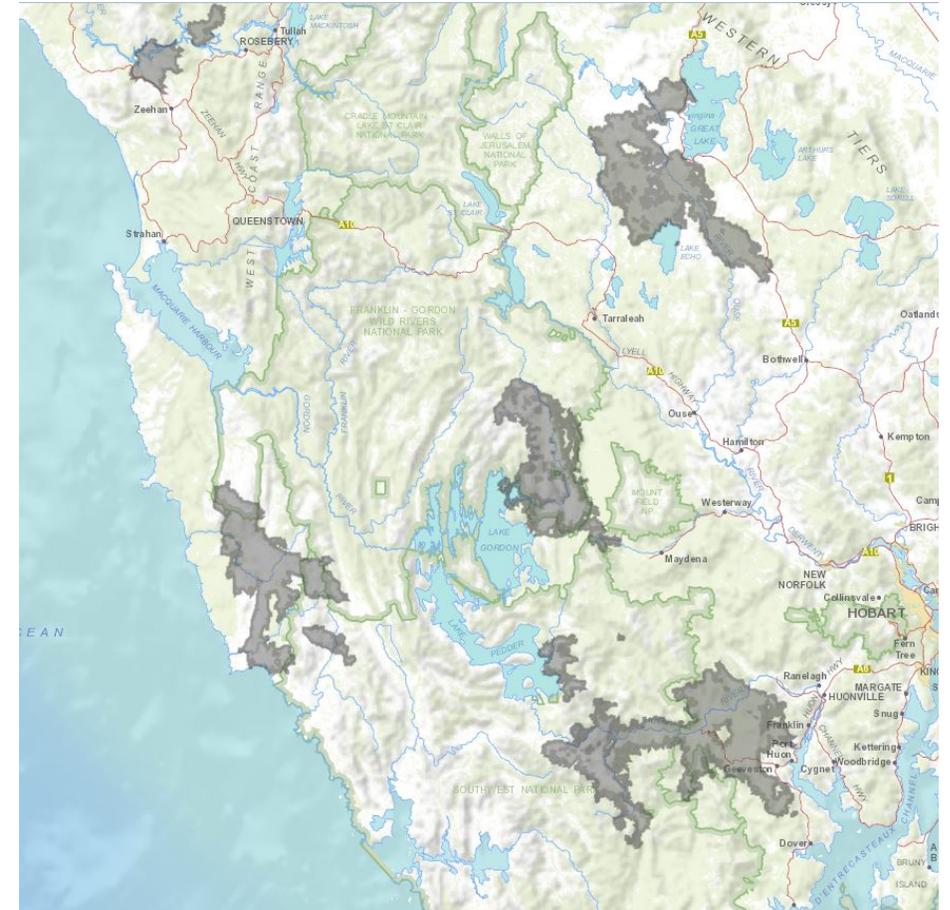


Image courtesy State of Tasmania

# Gell River fire

Tas fires 2018-19: 210,000-odd ha, 126 fires

Gell River: 35,000 ha, 607 km boundary

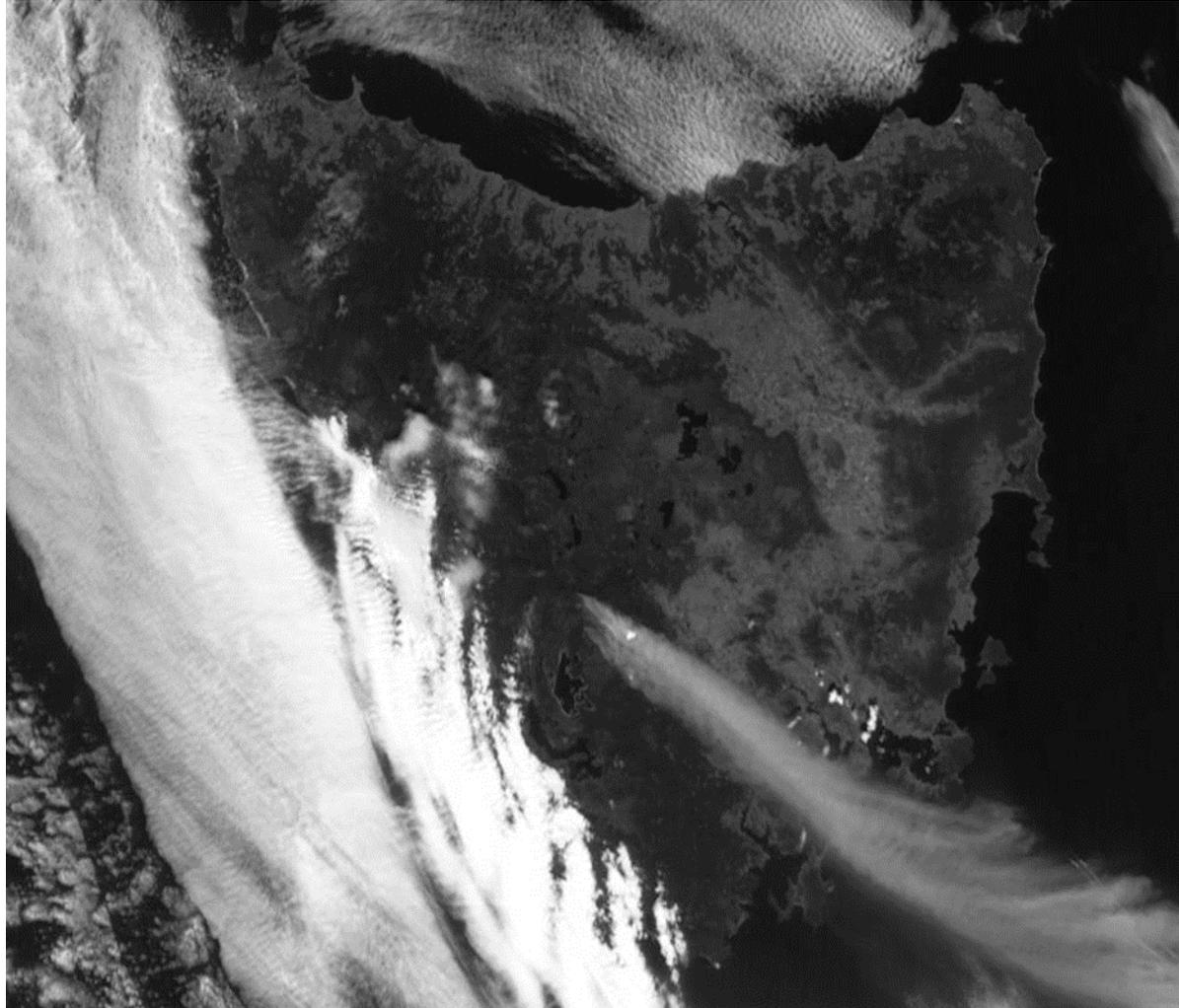
natural values

threatened communities

threatened major transmission infrastructure

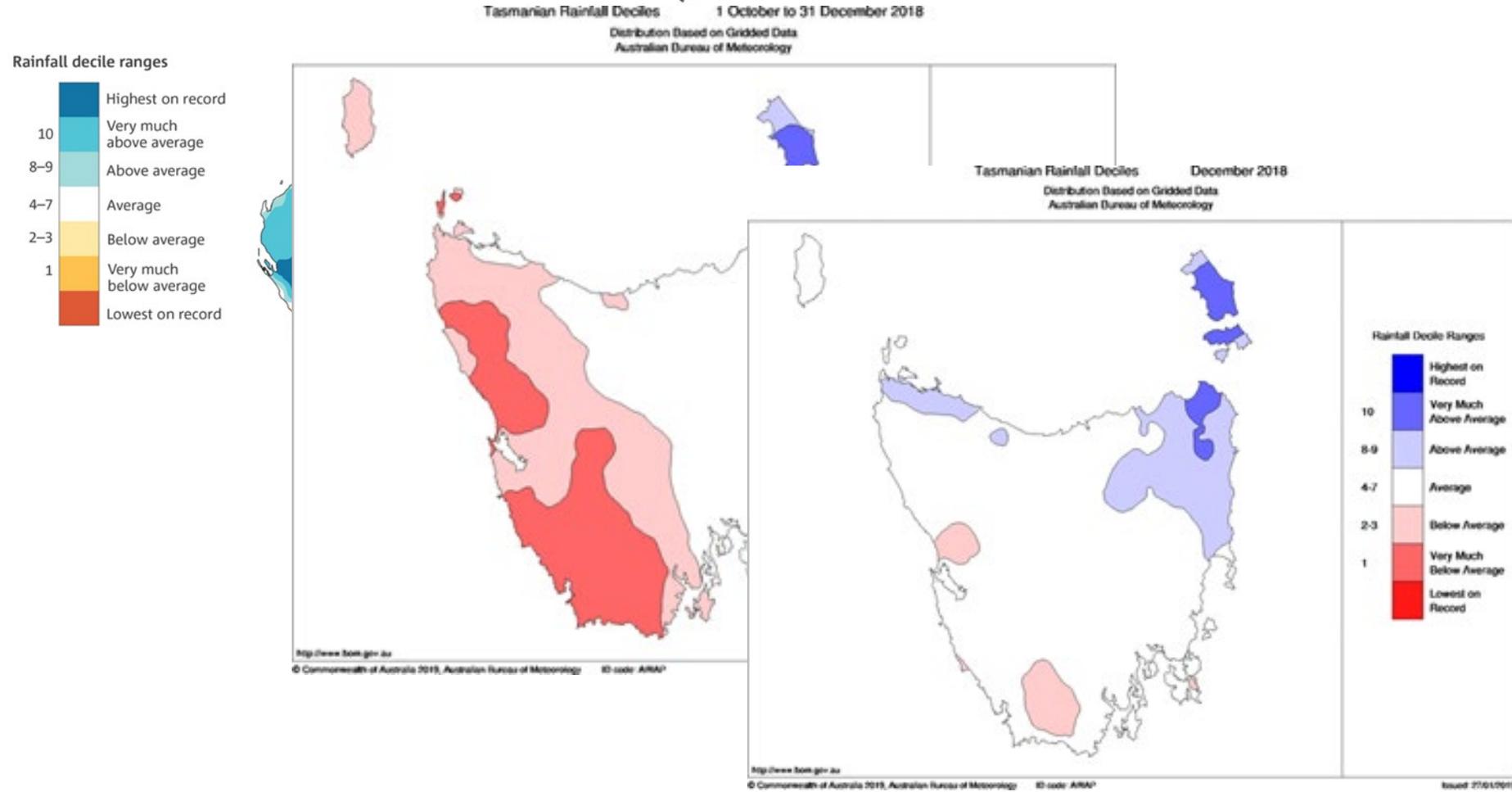
plantation impacts



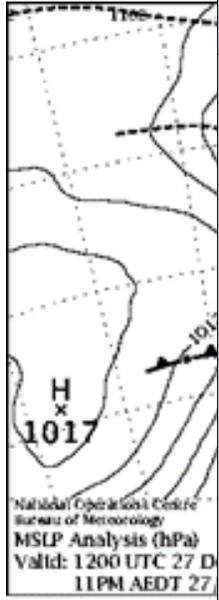


Himawari-8 image from 4 January 2019

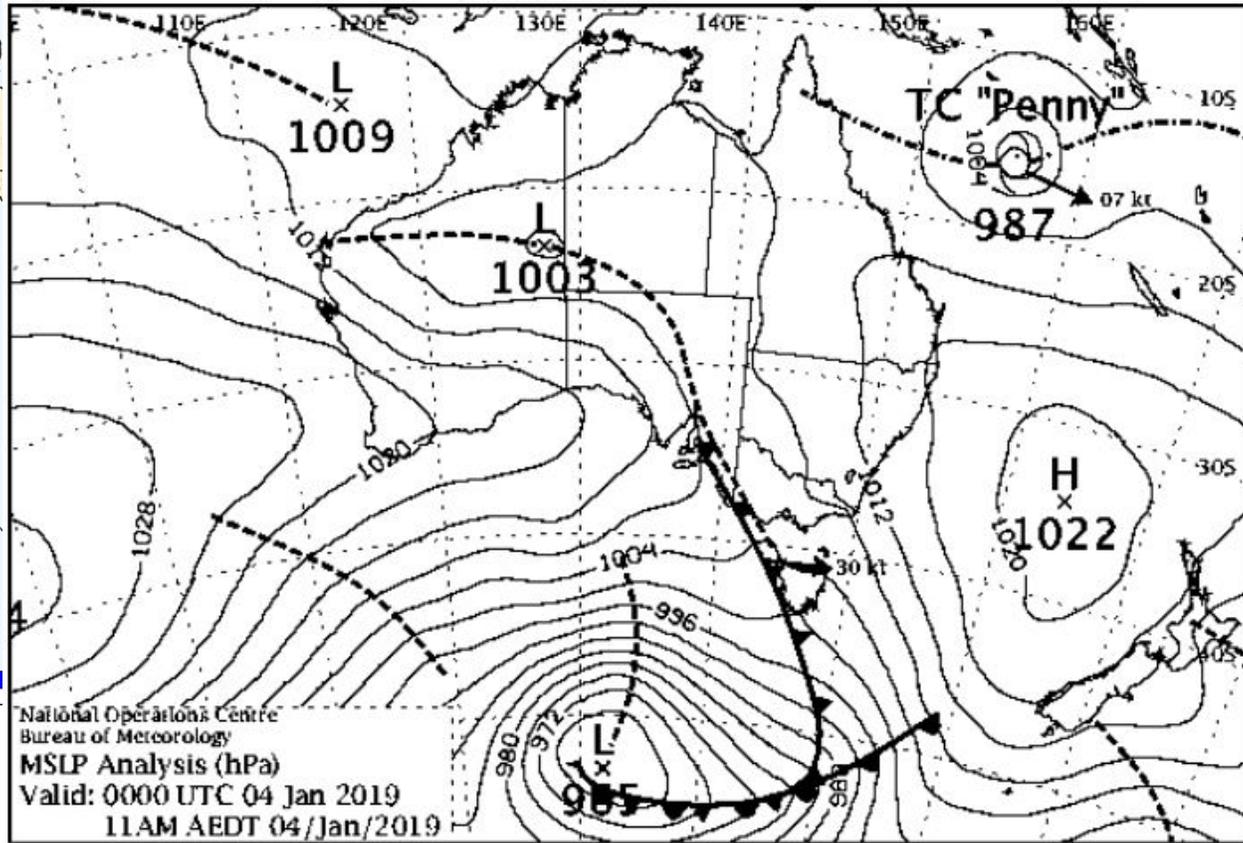
# Weather effects on fire



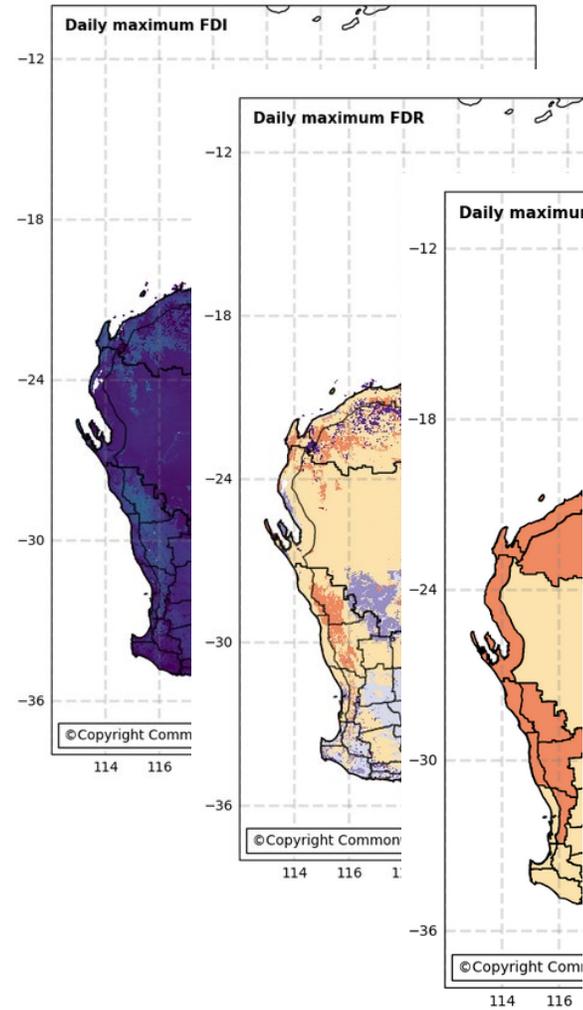
24h lighting to: Thu 27-Dec 13:00 UTC [Fri 28-Dec-2018 12:00am Local]



+ Total 24hr stikes GPATS: 545 Age (minutes)  
Total 24hr stikes WZ: 817

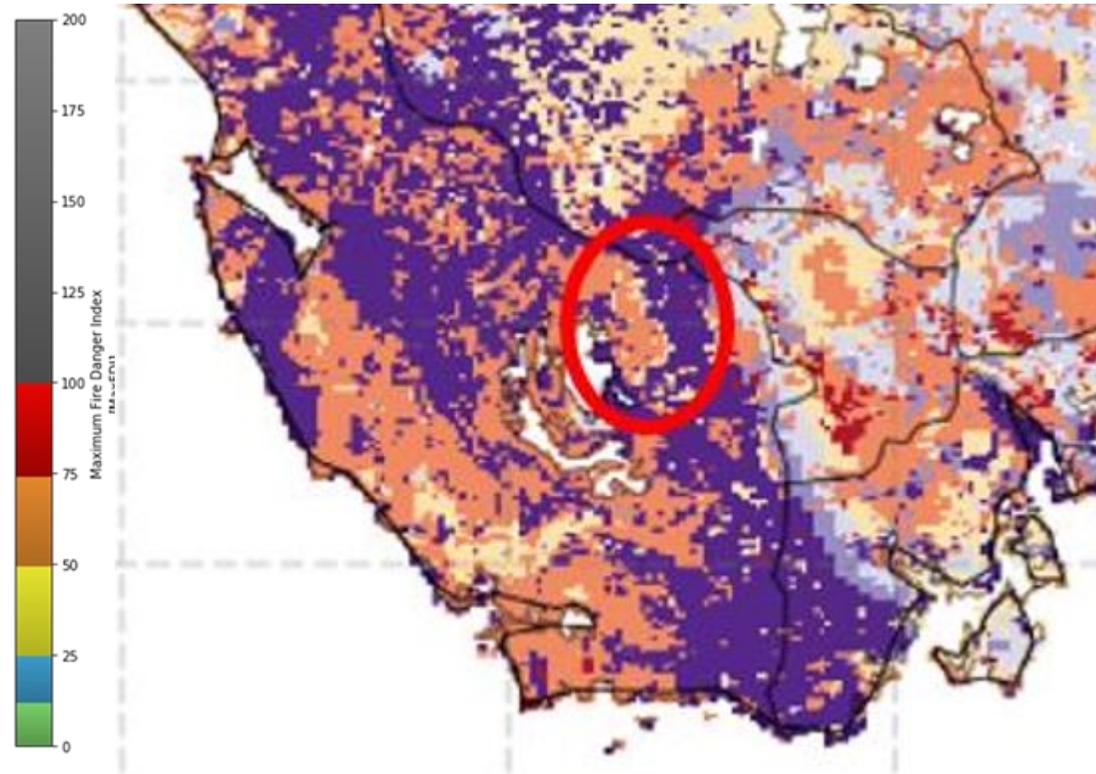
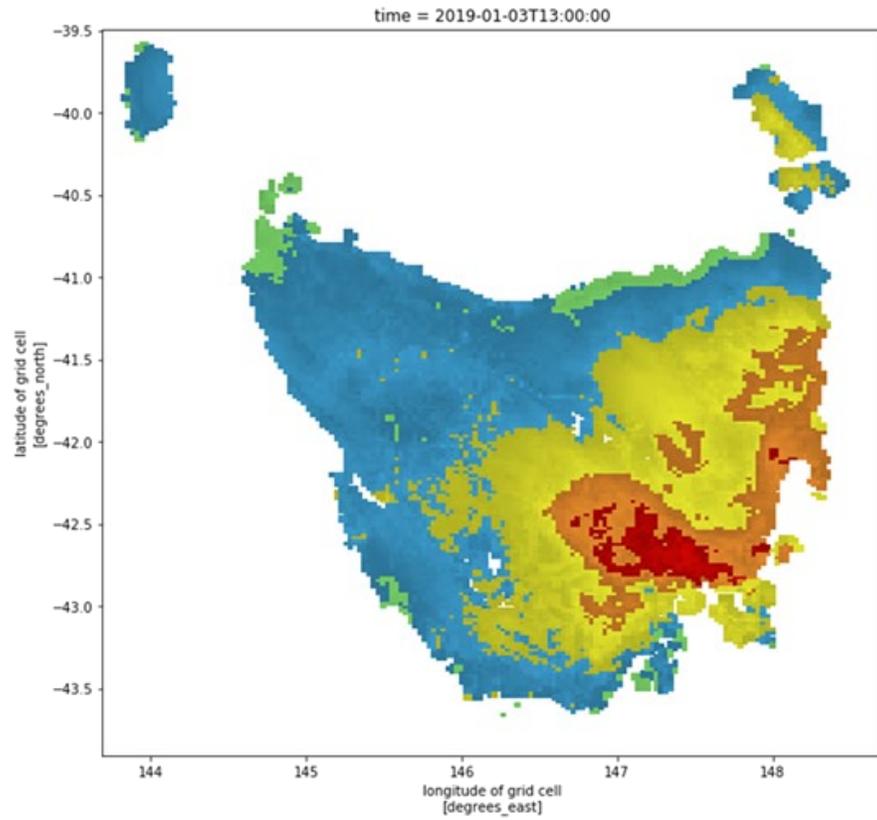


# Generation of ratings and forecasts



Region	AAC	Rating	CHaines	Spotting dist (m)	WCDI
Central and Eastern	WA_FW039	Category 4	No		No
Northern	WA_FW038	Category 4	No	50	No
North Kimberley Coast	WA_FW001	Category 2	No	50	No
West Kimberley Coast	WA_FW002	Category 4	No		No
Kimberley Inland	WA_FW003	Category 4	No	50	Yes
East Pilbara Coast	WA_FW004	Category 5	No		Yes
West Pilbara Coast	WA_FW005	Category 5	No		No
Ashburton Inland	WA_FW007	Category 5	No		Yes
East Pilbara Inland	WA_FW006	Category 4	No		No
Exmouth Gulf Coast	WA_FW008	Category 5	No		Yes
North Interior	WA_FW013	Category 4	Yes		No
Gascoyne Coast	WA_FW009	Category 5	Yes		No
Gascoyne Inland	WA_FW010	Category 4	Yes		Yes
Goldfields	WA_FW011	Category 4	No		No
South Interior	WA_FW014	Category 5	No		No
Eucla	WA_FW012	Category 3	No		No
South West Land Division	WA_FW010	Category 4	Yes	1614	Yes

# Forecast fire danger



# How did the forecasts perform?



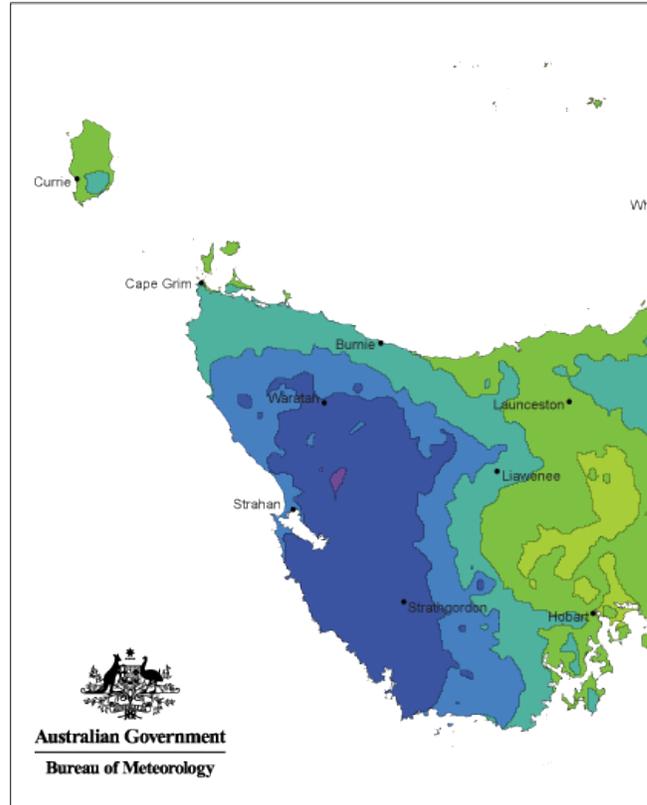
Rapid run through moorland

Burnt into forest in places,  
but held at edges in others



# Limitations and prospects

Input data key:  
Soil moisture  
Fuel mapping

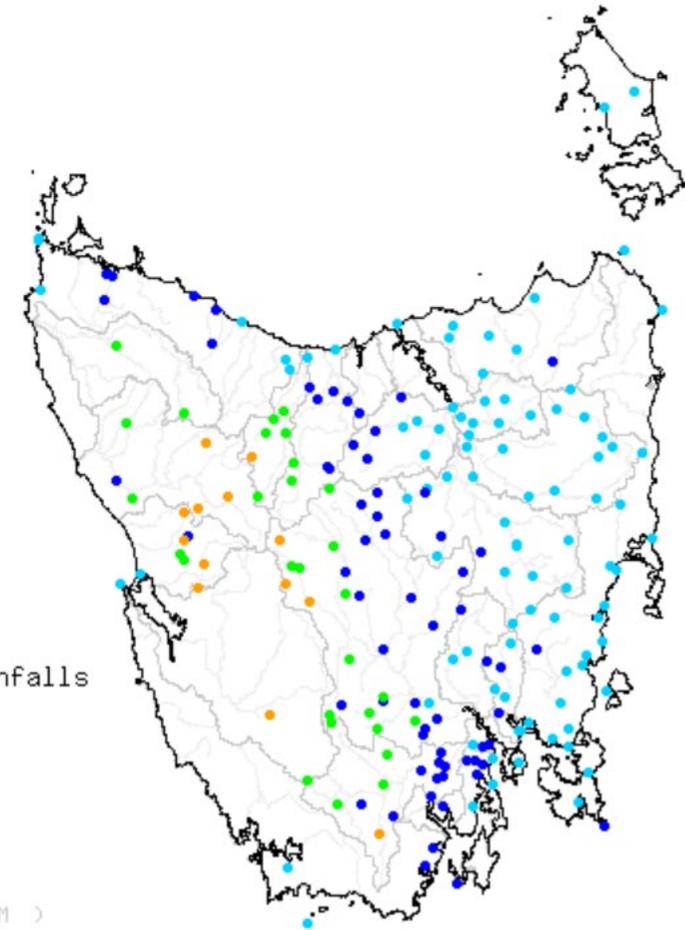


Modelling:  
Fuel moisture  
Organic soils...

24 Hour Rainfalls  
to 9AM 21/08/19

- 100+ mm
- 50 to 99 mm
- 25 to 49 mm
- 10 to 24 mm
- >0.2 to 9 mm
- 0 mm

(Updated 04:35PM )



# In summary

ADFRS forecast integrates fire behaviour model output

Not only improved forecast, easier to assimilate

Of course, a lot of scope for improvement

ADFRS modular framework set up to permit this.



**Australian Government**

**Bureau of Meteorology**

# Thank you...

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