

# QFES response to the 2018 fires

**AFAC 2019  
Melbourne**

**Andrew Sturgess\*\* and Mika Peace\***

\*\*Queensland Fire and Emergency Services

\*Bureau of Meteorology and Bushfire and Natural Hazards CRC

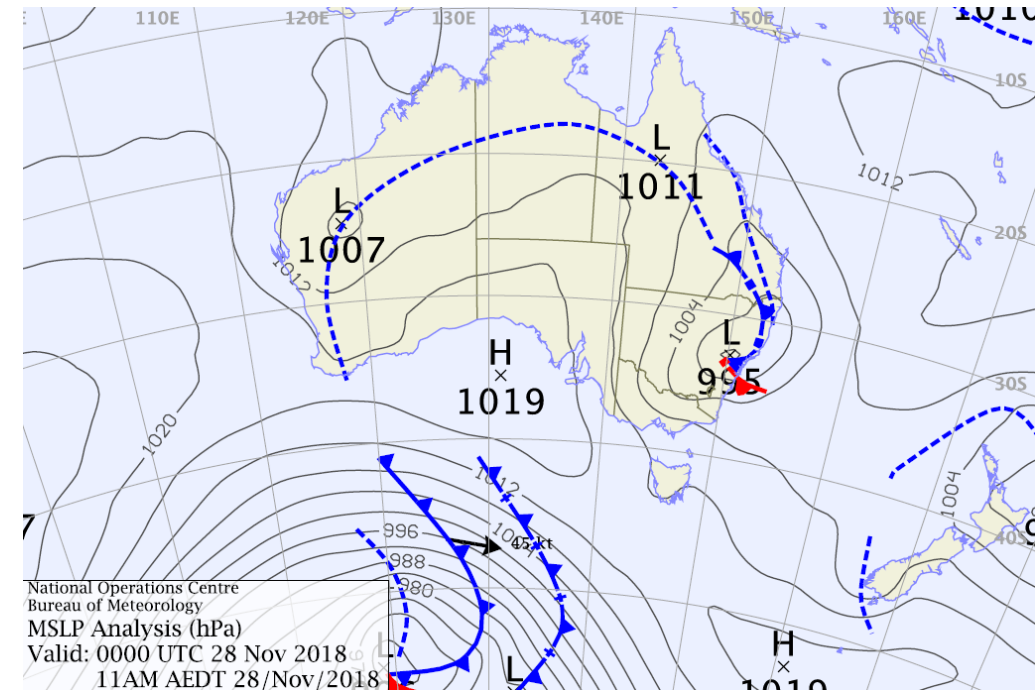
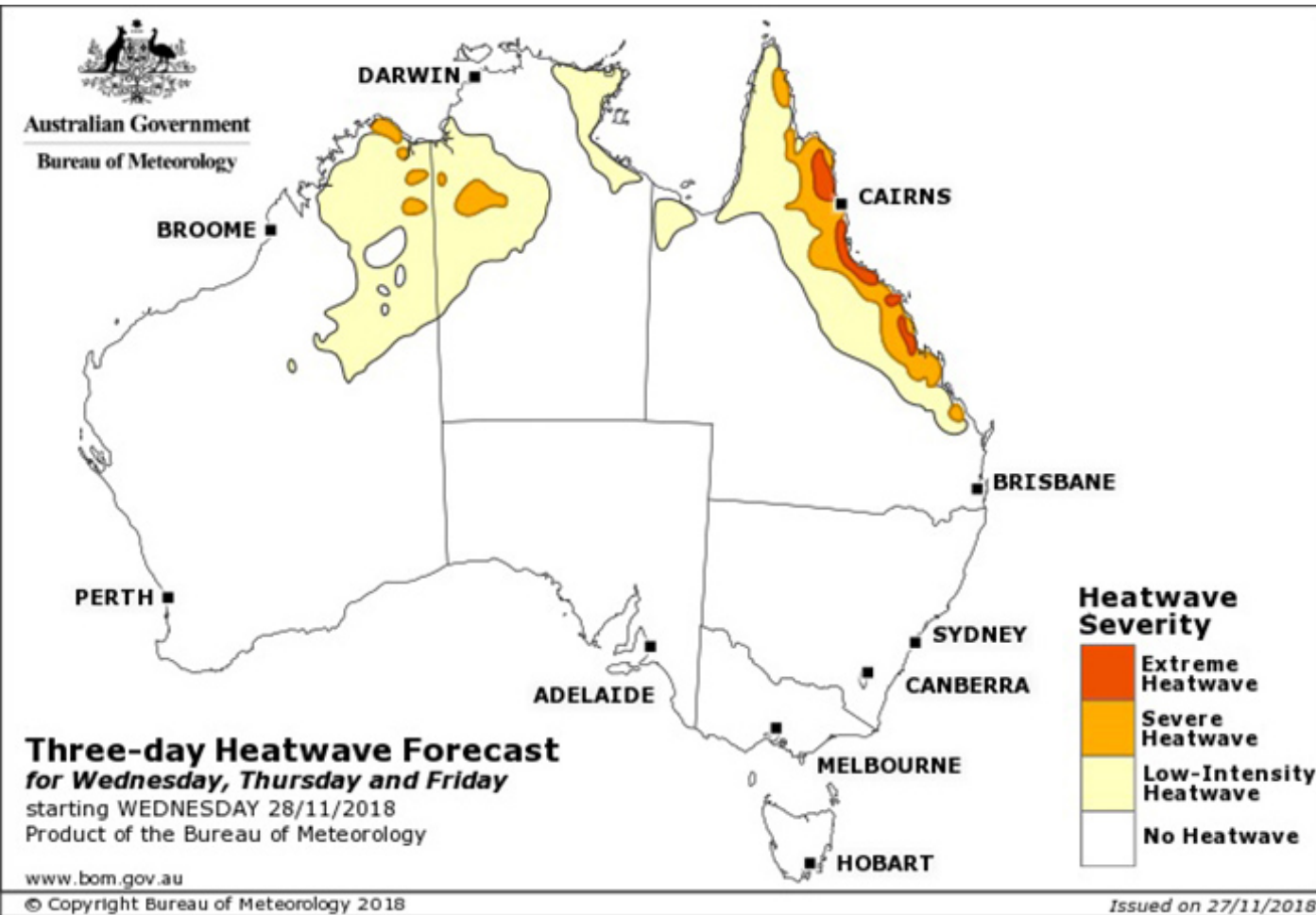


**Business**  
Cooperative Research  
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# Antecedent conditions and weather

- Below average rainfall for several months
- Series of 'Extreme' heatwaves
- Very dry fuels
- Low pressure system Wednesday 28<sup>th</sup>
- Windy + dry + heatwave



## **Andrew assembled a multidisciplinary team with complimentary skills and ability to work cohesively**

- The team had worked together over a number of years and had Interstate/International experience
- Mika and I provided advice to the fire ground, regions and state-based decision makers.
- This advice/input included;
  - Working with Fire Behaviour Analysts to refine prediction inputs
  - Safety messages for firefighters
  - Video and phone conferences with Regional Operations Centres
  - QDMC briefings

**With multiple fires and unprecedented conditions the questions were:**

**How will the weather impact fire behaviour? What will the fire behaviour look like?**

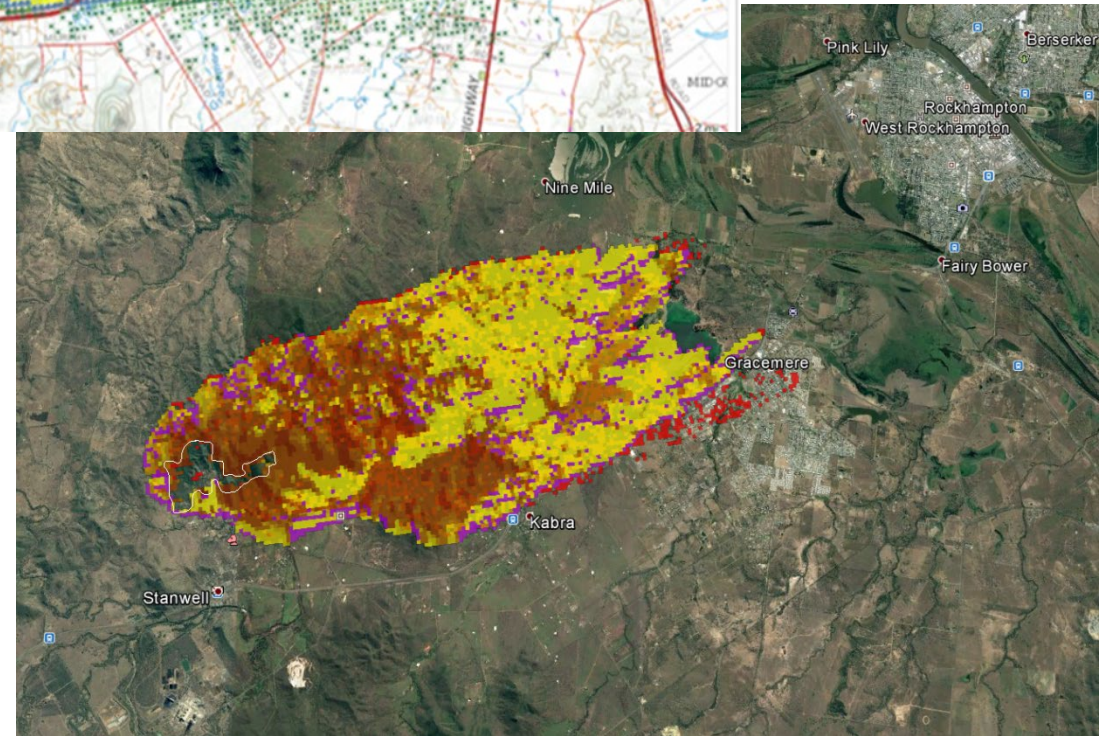
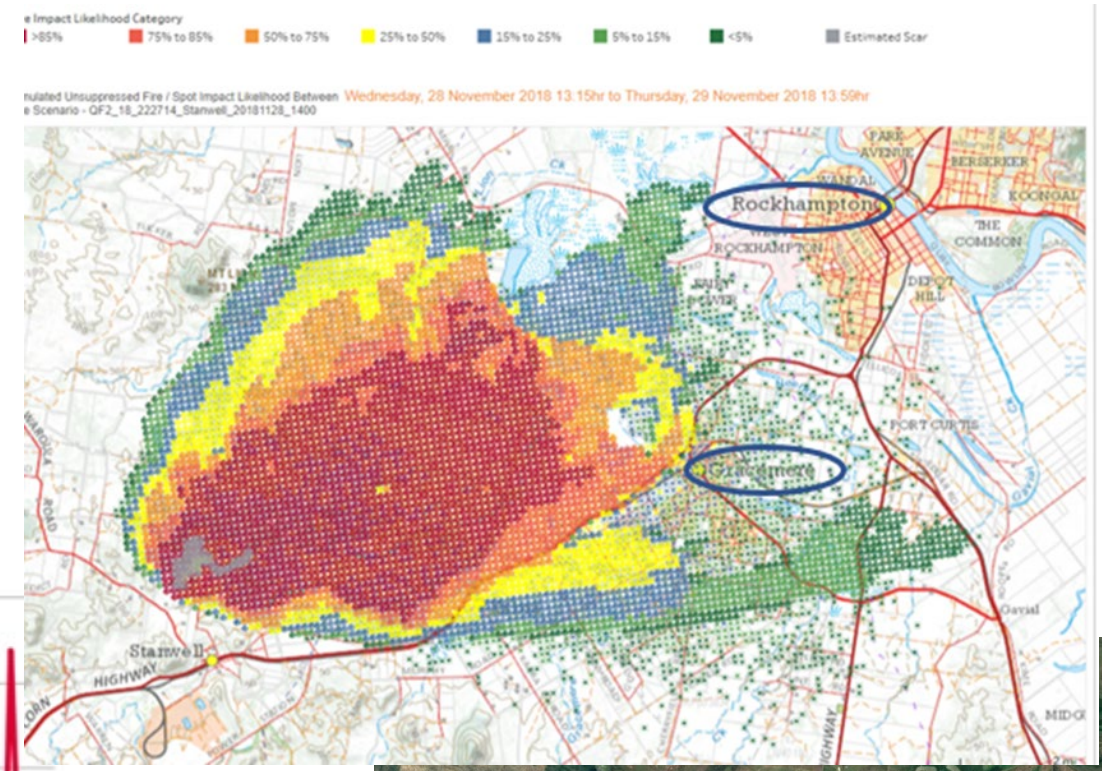
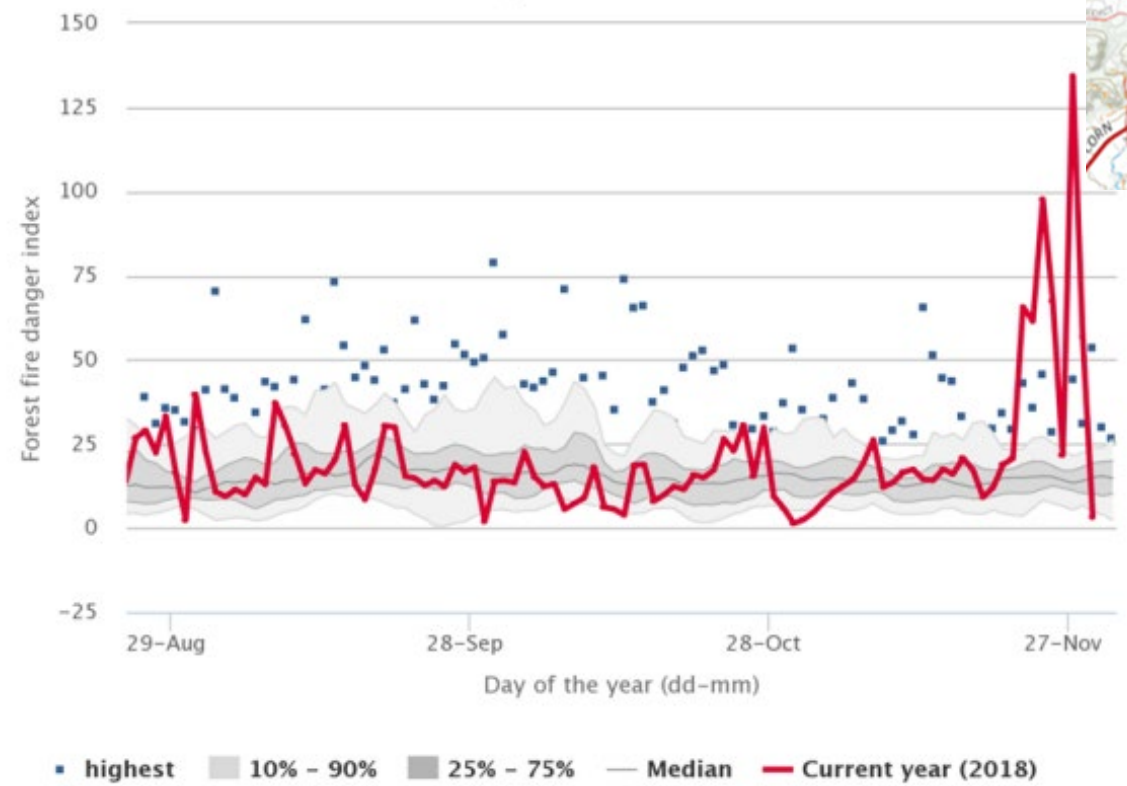
## **Prodigious demand for meteorological information and interpretation**

- Fire behaviour elements discussed:
  - Plume depth, organisation, entrainment processes and development
  - Spotting potential
  - Wind speed and direction and timing and variability of wind changes
  - Topographic and coastal wind and fire interactions

# Wednesday 28 November

- The Gracemere fire
- 'Catastrophic' at Rockhampton Airport

Forest fire danger index  
Rockhampton Aero (39083)

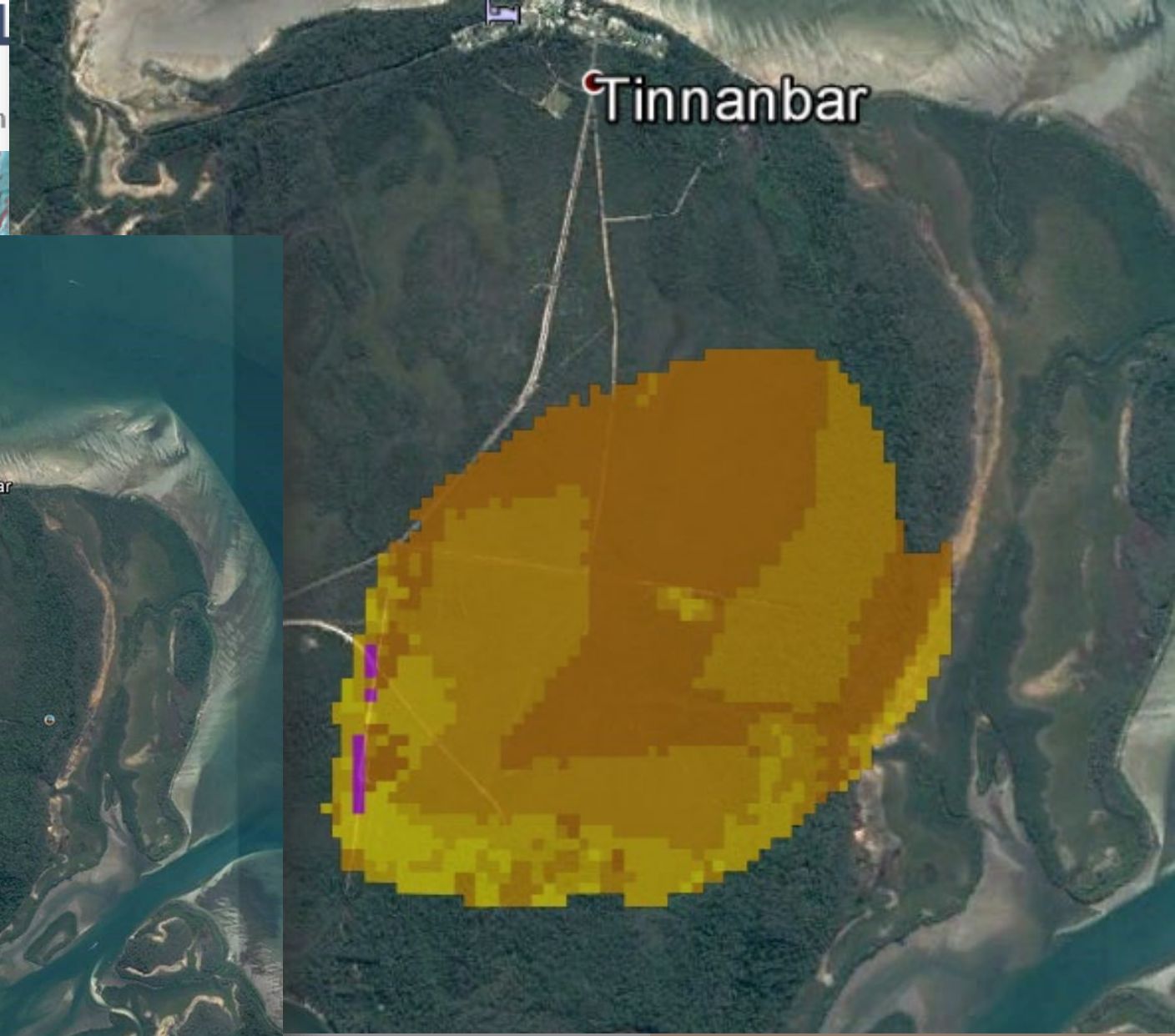


## Thursday 29 November

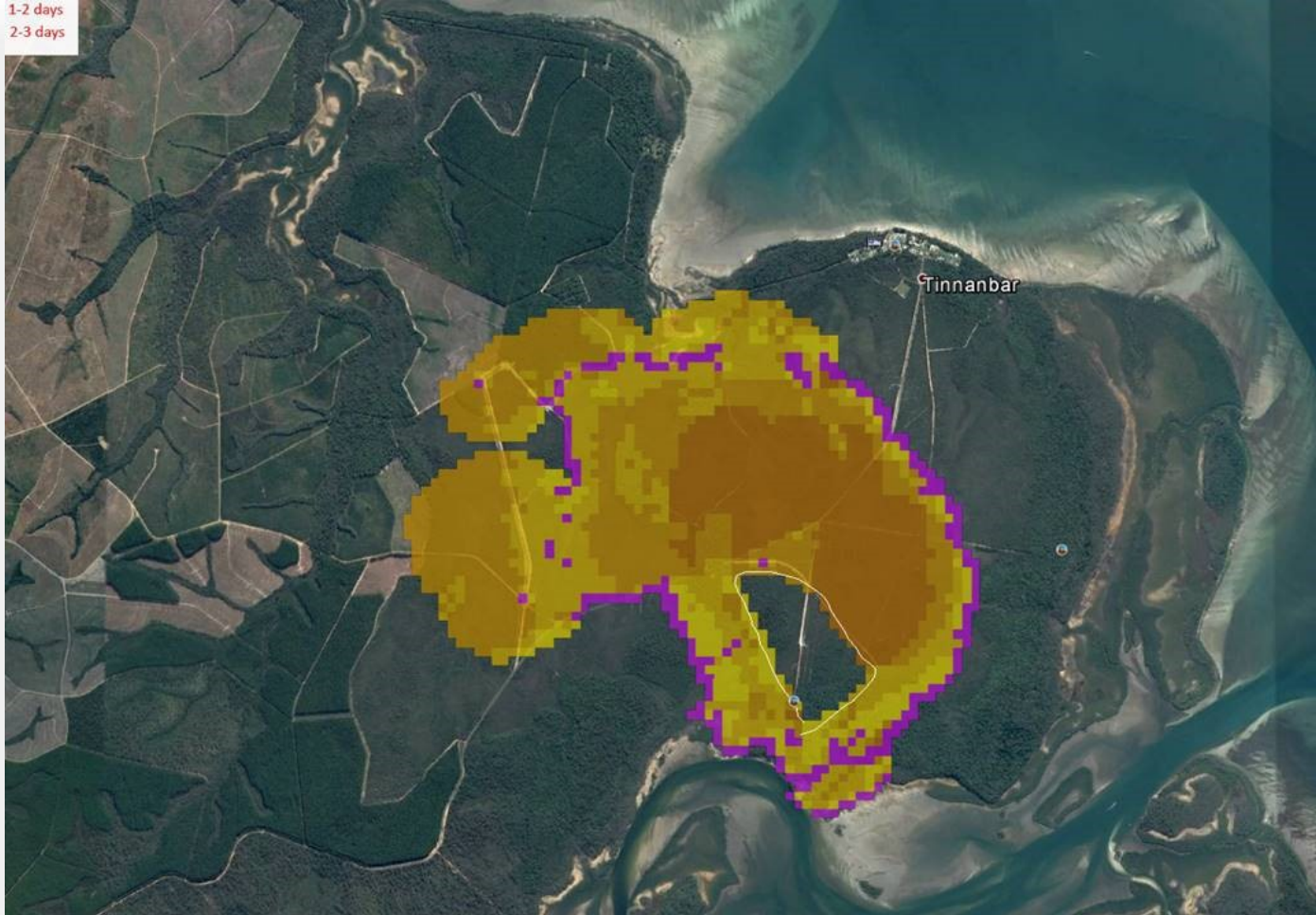
- Tinnanbar fire
- Evacuate or not?
- Heathy fuels
- Sea breeze or not. What time?
- Experimental ensemble runs

## SEEK SHELTER: Tinnanbar bushfire as at 3.1

29th Novem



1-2 days  
2-3 days

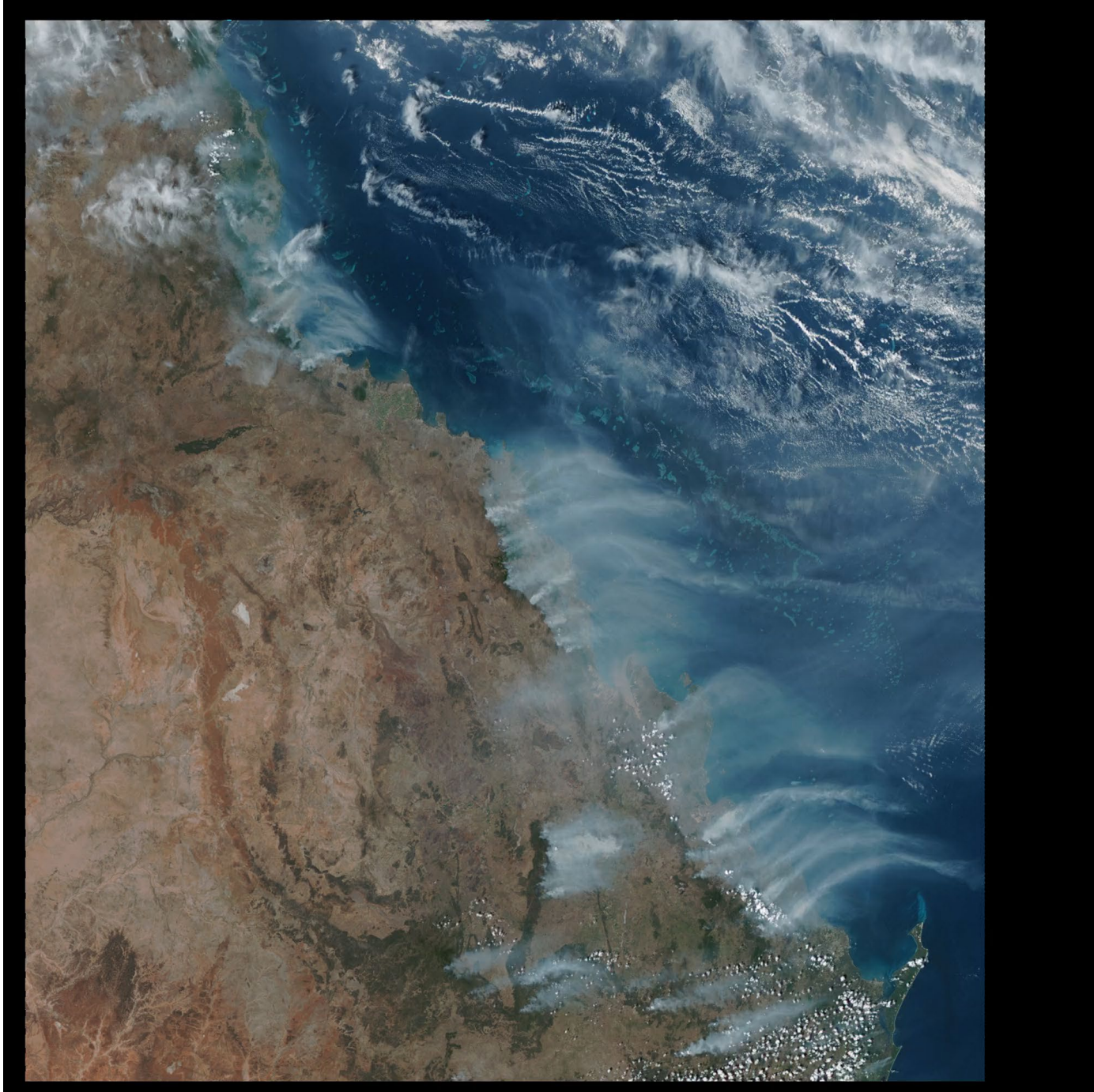


## Friday 30 November

- Multiple fires near Mackay
- Strong vertical wind shear

Credit:

BoM Satellite team - Leon  
and Vincent for requesting  
and processing the data and  
JMA for the rapid scan



# Andrew's reflections



- Queensland Disaster Management arrangements activated for the first time for a bushfire.
- The State Disaster Management team needed to rapidly determine who to trust to provide expert advice to assist them making time critical, high consequence decisions.
- We played a key role in turning this team of experts into an expert team.
- Mika and I provided complementary strengths as well as the requisite skills, knowledge, temperament and experience to support managers making these critical decisions.



## Mika's reflections

- No surprises
- Communication repeat briefings
- The role of science
- BoM new service model; working more closely with customers



## The value of multidisciplinary teams: testimonials from Rusty, Kent and Ben

### **Kent Barron** [QFES FBAN]

*Mika's experience and knowledge was of great benefit on an unprecedented fire weather day. Having a meteorologist with Mika's skill sets working side by side with us as Fire Behaviour Analysts led to more honed forecasts, better prepared prediction products and in turn, a better service to the community.*

### **Ben Twomey** [QFES FBAN]

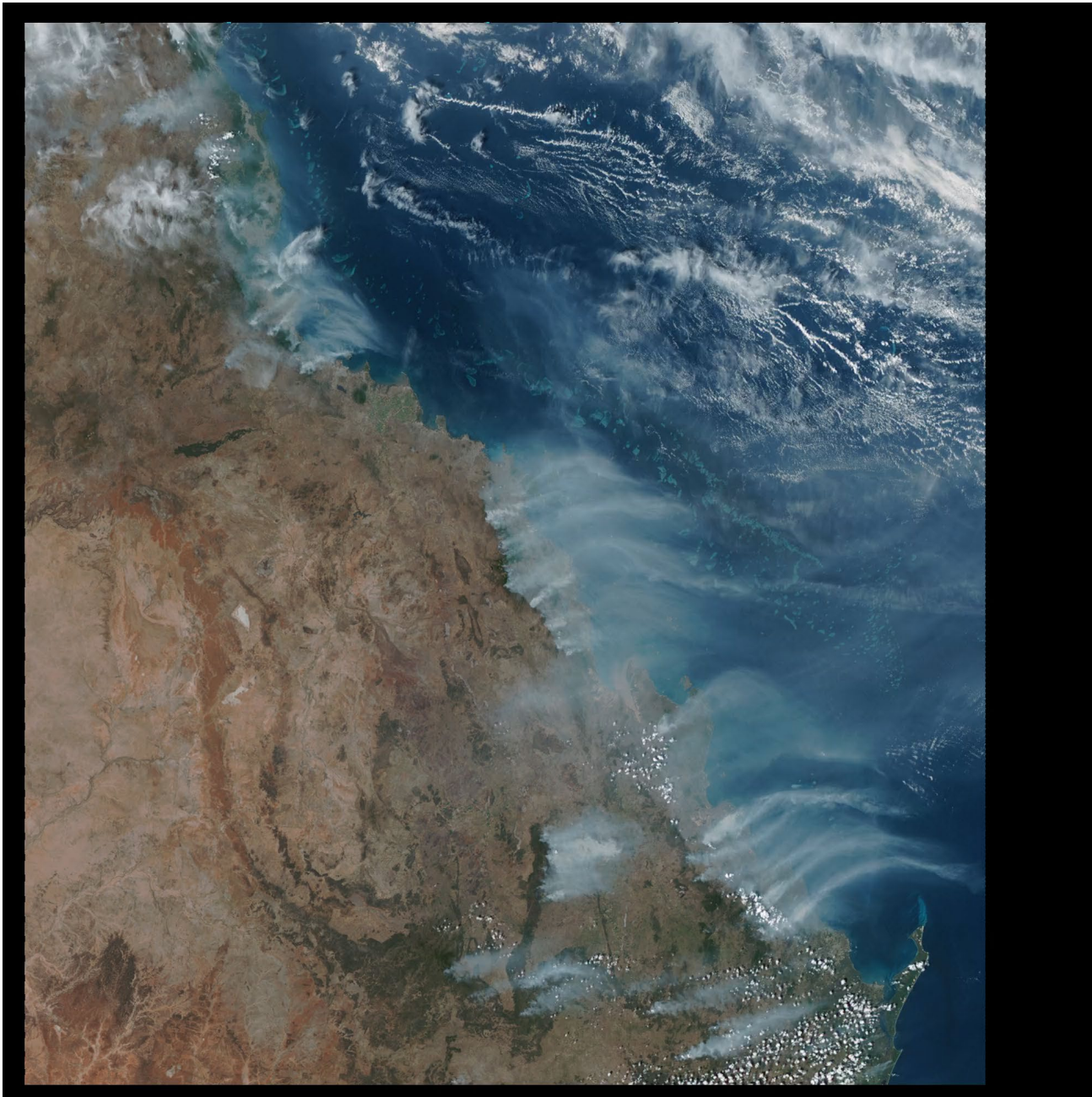
*The Agnes Water and Deepwater fire was along the coastal strip. As the inland westerly weather approached the coast, the coastal sea breeze and the resulting convergence zone was very difficult to time and account for in predictions. Mika was able to apply her expertise to account for this providing increased rigour and traceability in fire spread predictions.*

### **Russell Stephens-Peacock** [QFES FBAN]

*Mika was all about the communication of a complex topic into a language that I could understand. Mika was talented in providing only what I needed to know at the time in a format that I could understand.*

# Lessons learned

- Extreme weather events will increase in intensity and frequency with cascading and overlapping events
- Pressure and scrutiny to provide optimal response to the Australian community
- Likely that the worse-case scenario is beyond what we can imagine (black swan event)
- Organic response to call in available assistance is imperative to respond to emerging disasters
- Numerical Weather Prediction - accurate guidance 7-10 day lead time (planning)
- Support front-line with science knowledge and capability of researchers
- Realise benefits of research investment in critical periods, ultimately strengthening operational decisions
- Bilateral benefits embedding researchers in operations
- Support and trust from organizational leaders



Questions and discussion?

**Thank you**

