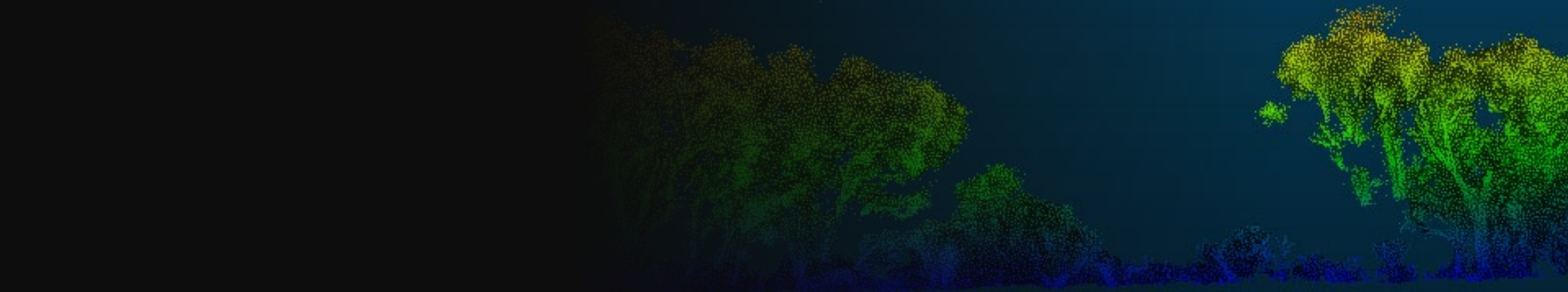


# Characterising fuel and fire behaviour in shrublands using MLS and thermal drone imagery

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Simeon Telfer – RMIT University & SA Country Fire Service





DIRECTION  
Unavailable

53H PA 438 424

# Kangaroo Island Coastal Mallee

- 2019-2020 Burnt almost half the island
- 2 fatalities
- Dozens of properties
- 1,000 of stock
- 10,000 wildlife
- 2006



Ravine

A0B J\_Pippos  
FB501



# Prescribed burning in coastal mallee

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Best tool to control fires

Difficult to implement due to extreme fire  
behaviour

Semi-arid mallee model is not suitable







Coastal Mallee  
Prescribed burning is difficult



# Predicting Prescribed burns outcomes depends on fuel

**Crown Fire**



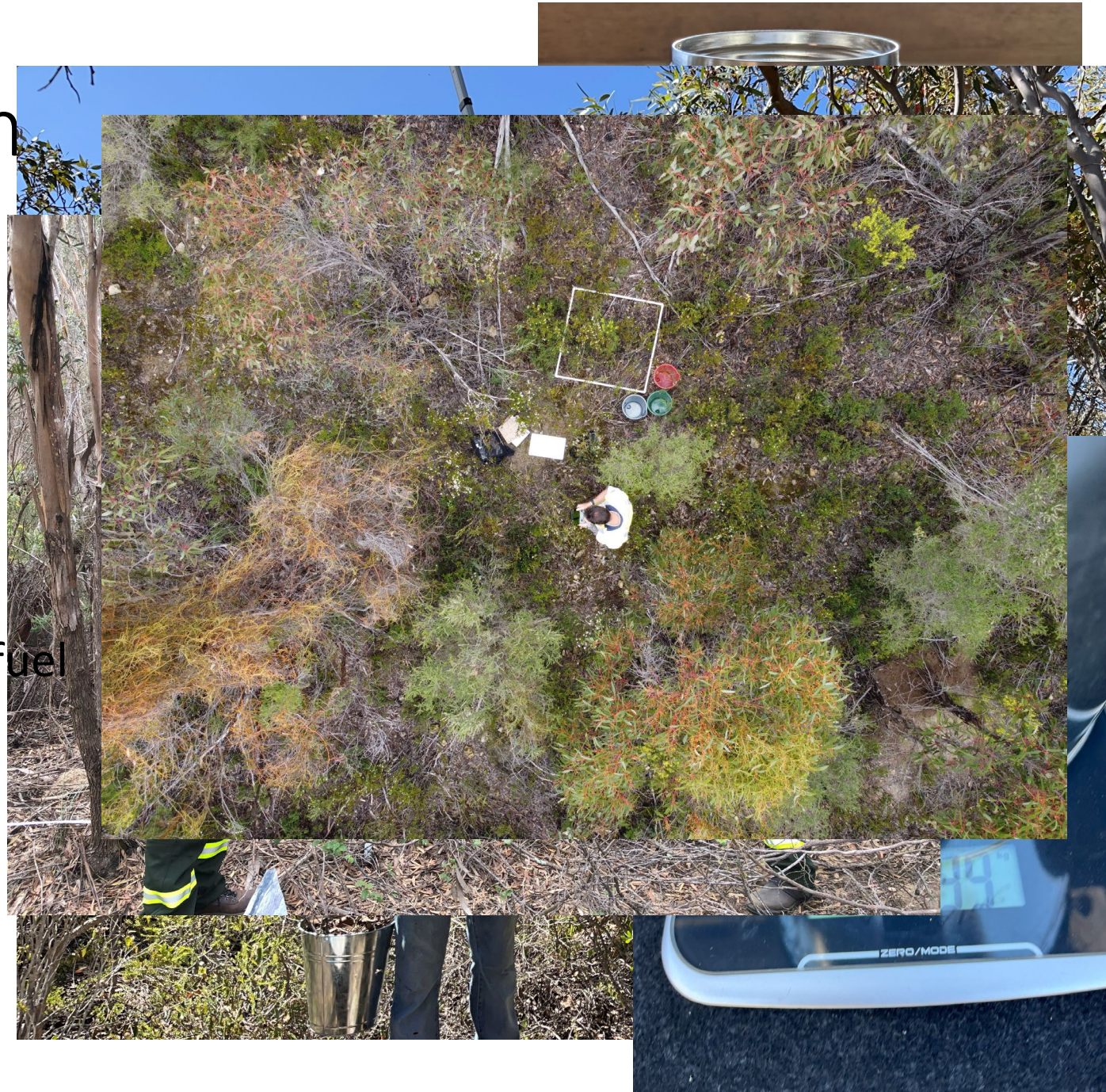
**No-Go**





# Field fuel sampling m

- Field data collection
- Point intercept transect
  - Height of each fuel strata at 1-2m spacings through centre of plot
- Destructive sampling
  - Live and dead fuel weight for each fuel strata
  - Subsample fuel moisture sample to derive oven dried weight (ODW)





# 3D Remote Sensing me

- 27 Hovermap plots on Kangaroo Island and south of Port Lincoln – Another 24 identified for capture
- Tried a few different control points before settling on retroreflective GCP with submeter RTK GPS
- Processed to produce high density point clouds using Hovermap software (thanks Johann)
- Georeferenced in CloudCompare
- From the point clouds, fuel metrics were derived
- Feedback from Milestone 1, focussed on single solution using Hovermap Mobile Laser Scanner (MLS) backpack mode, as it is the best



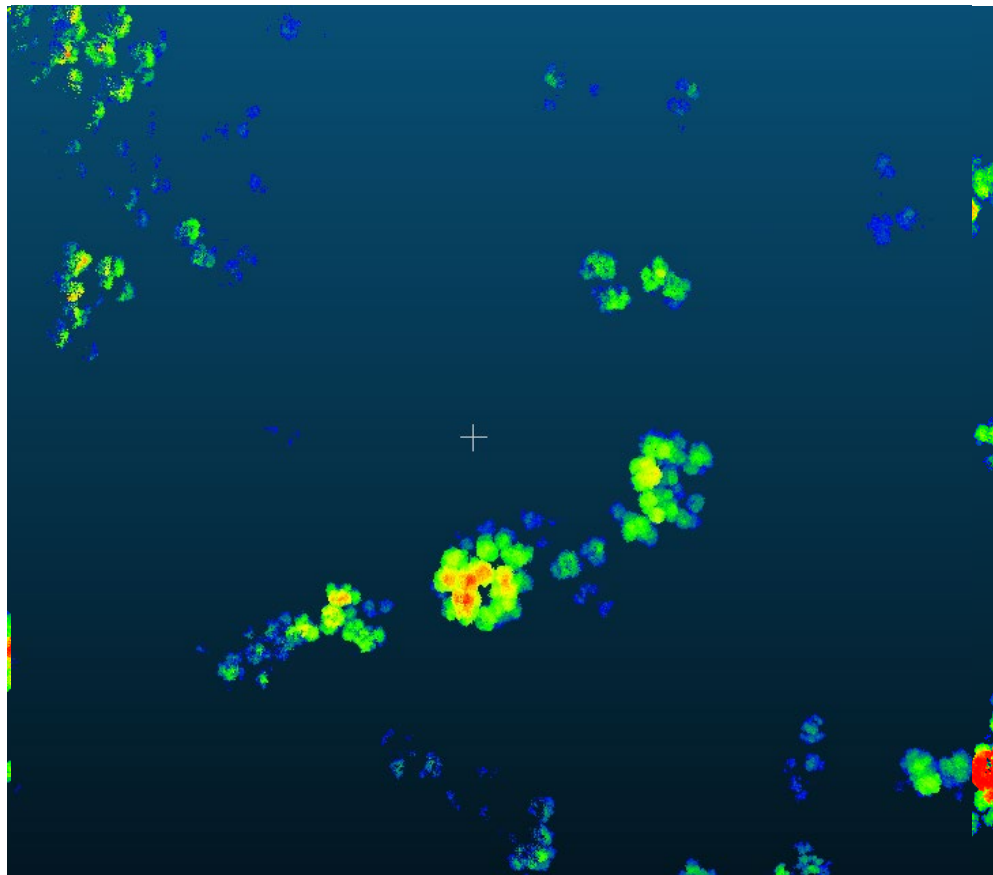
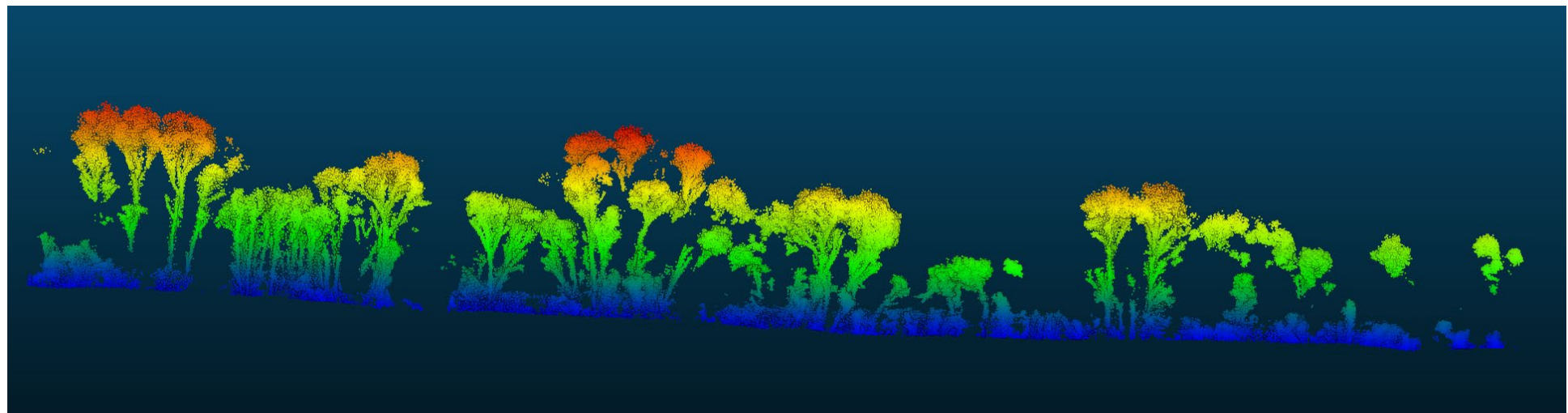




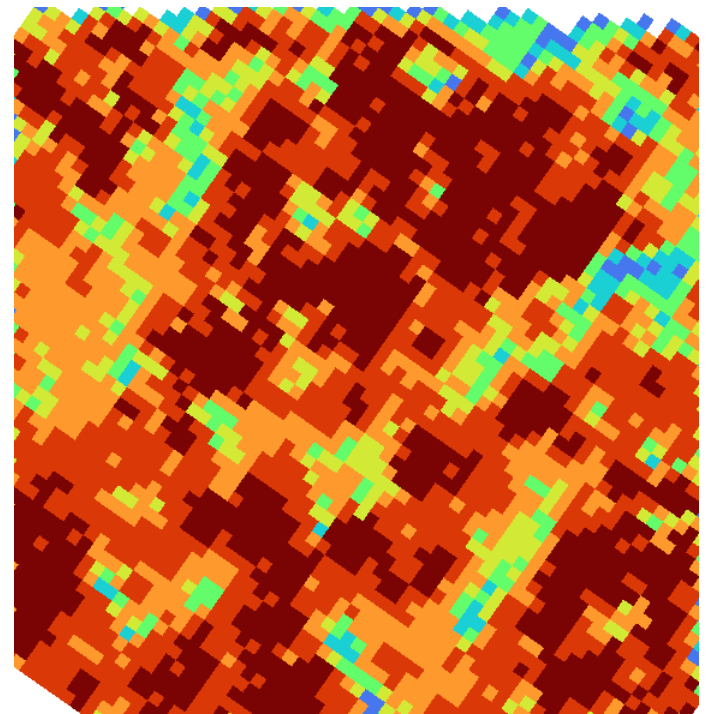




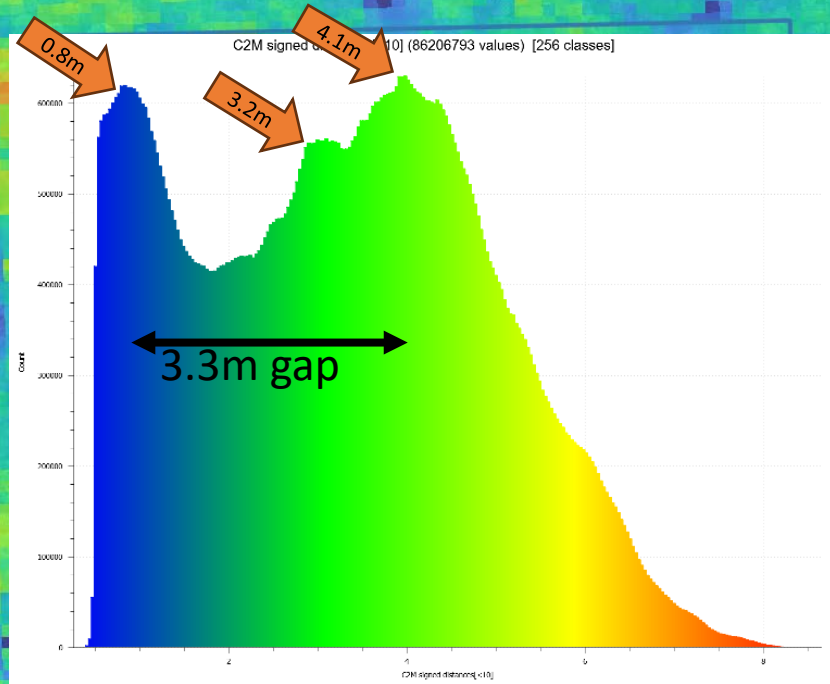
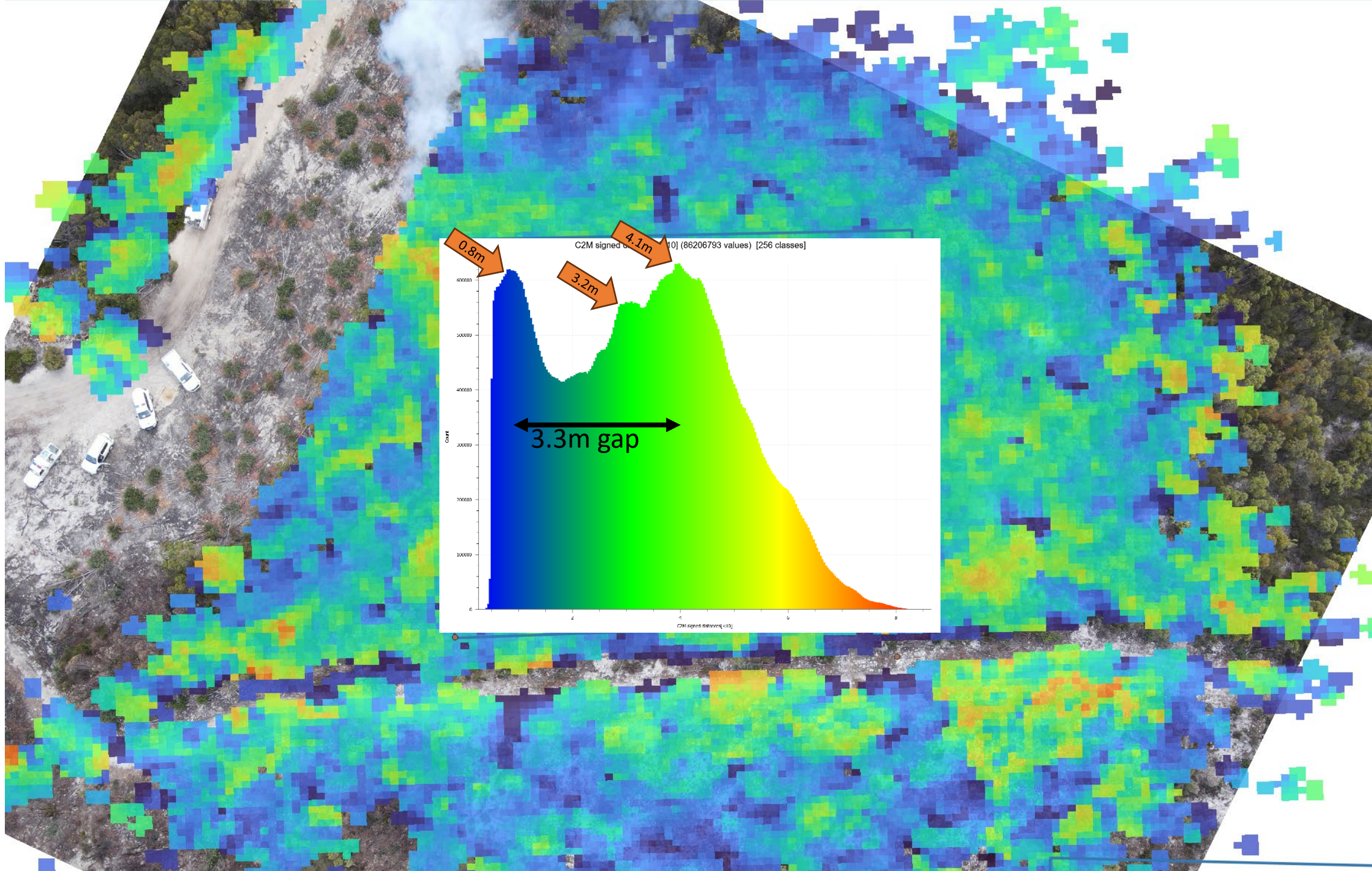




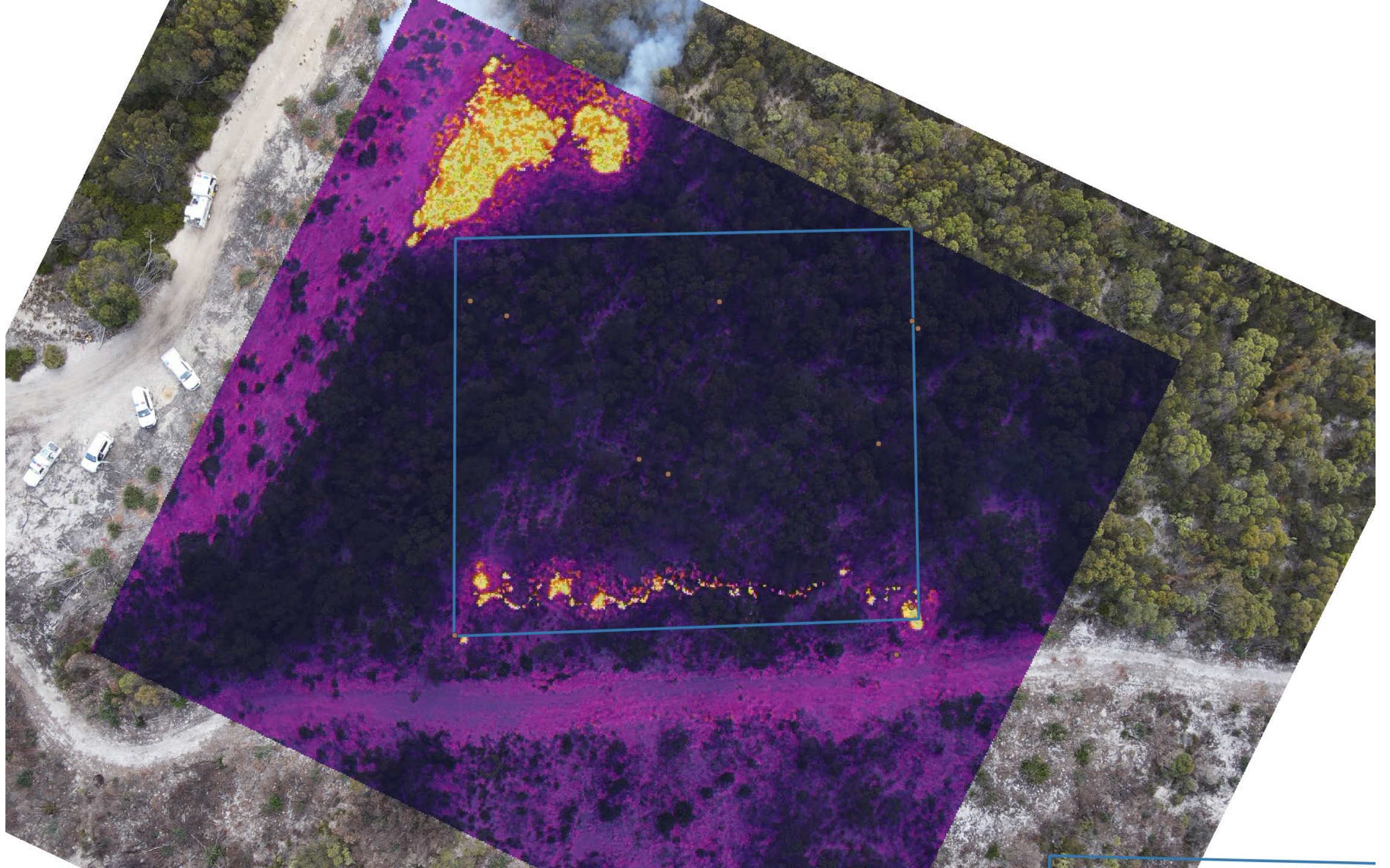
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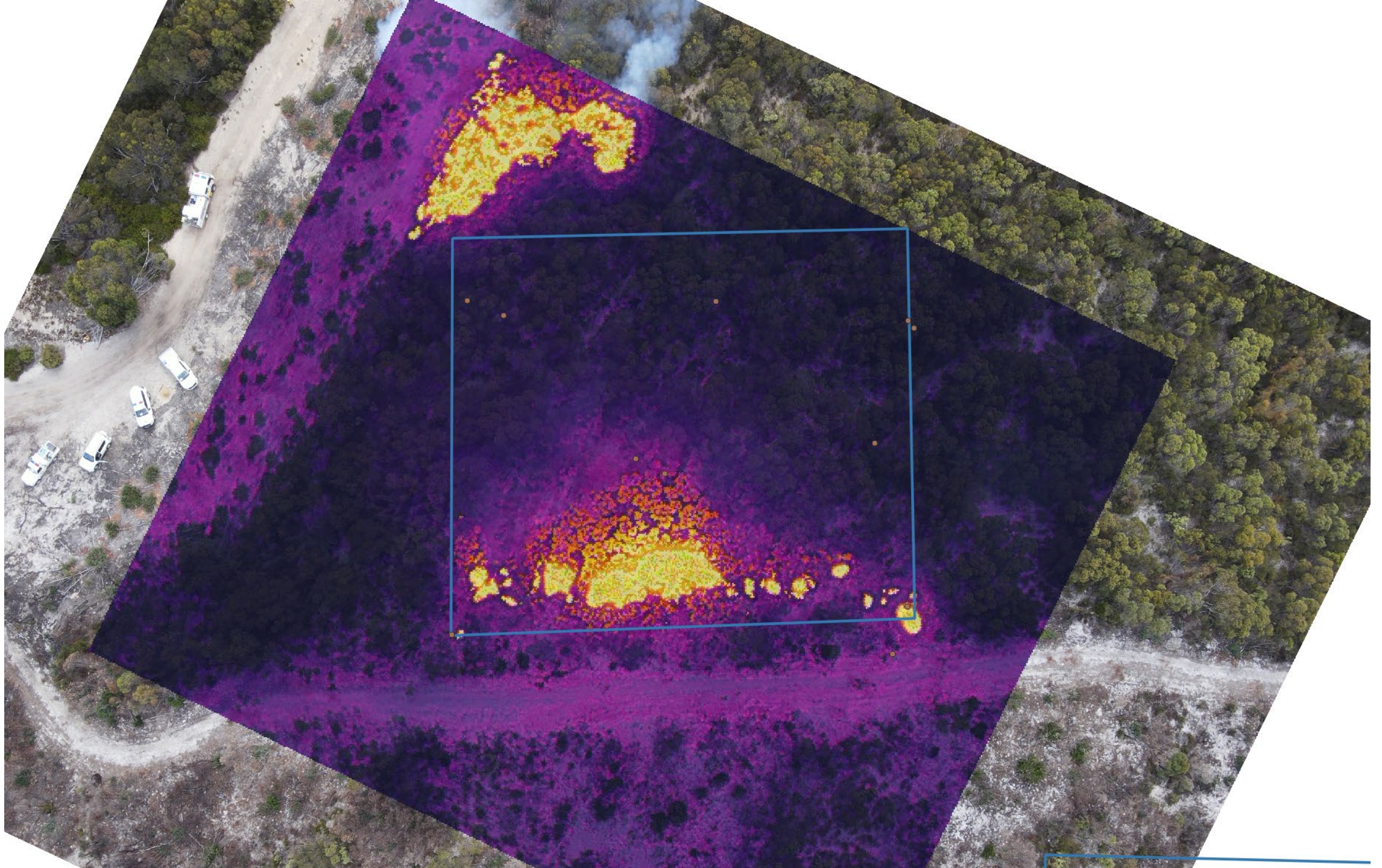




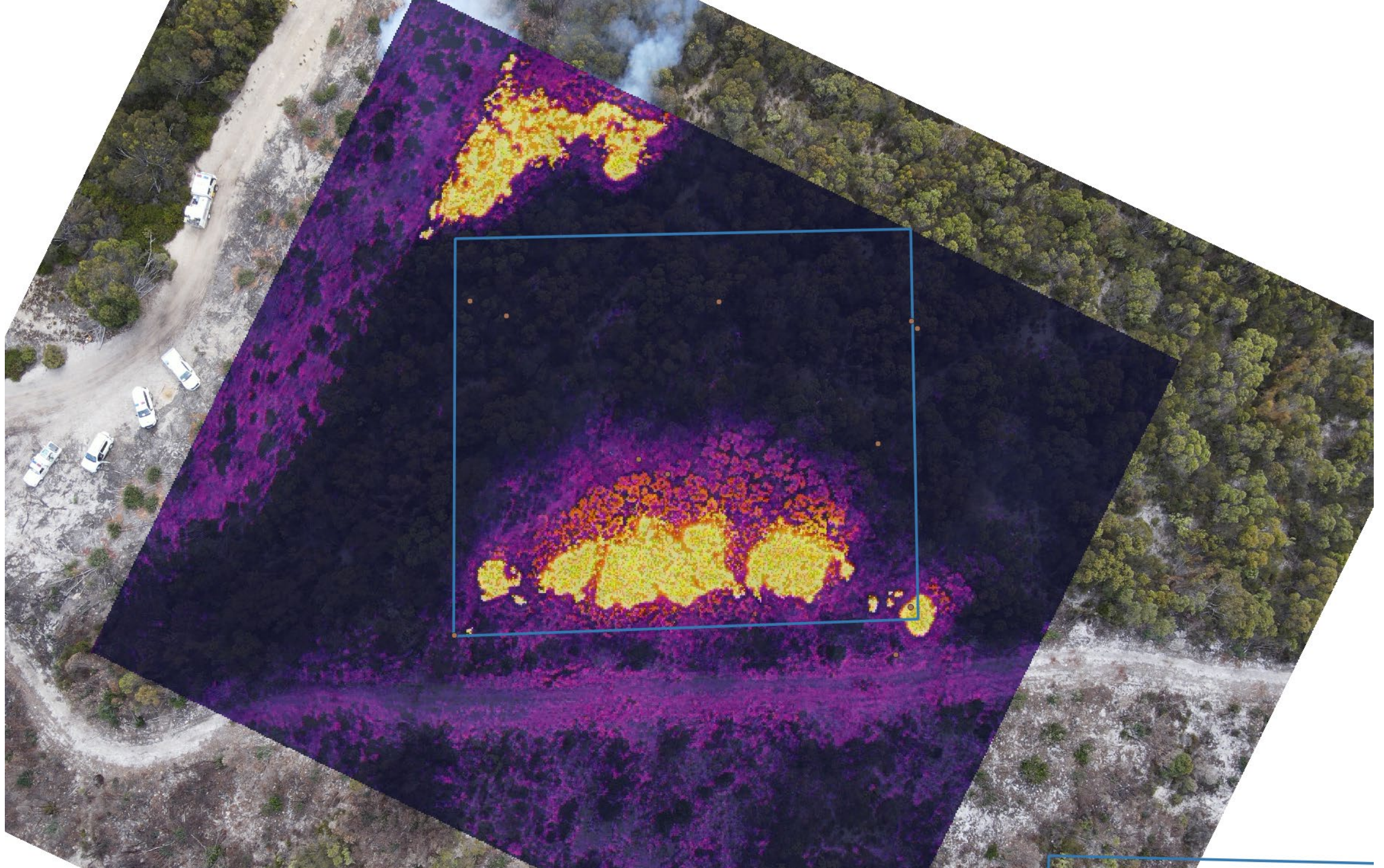




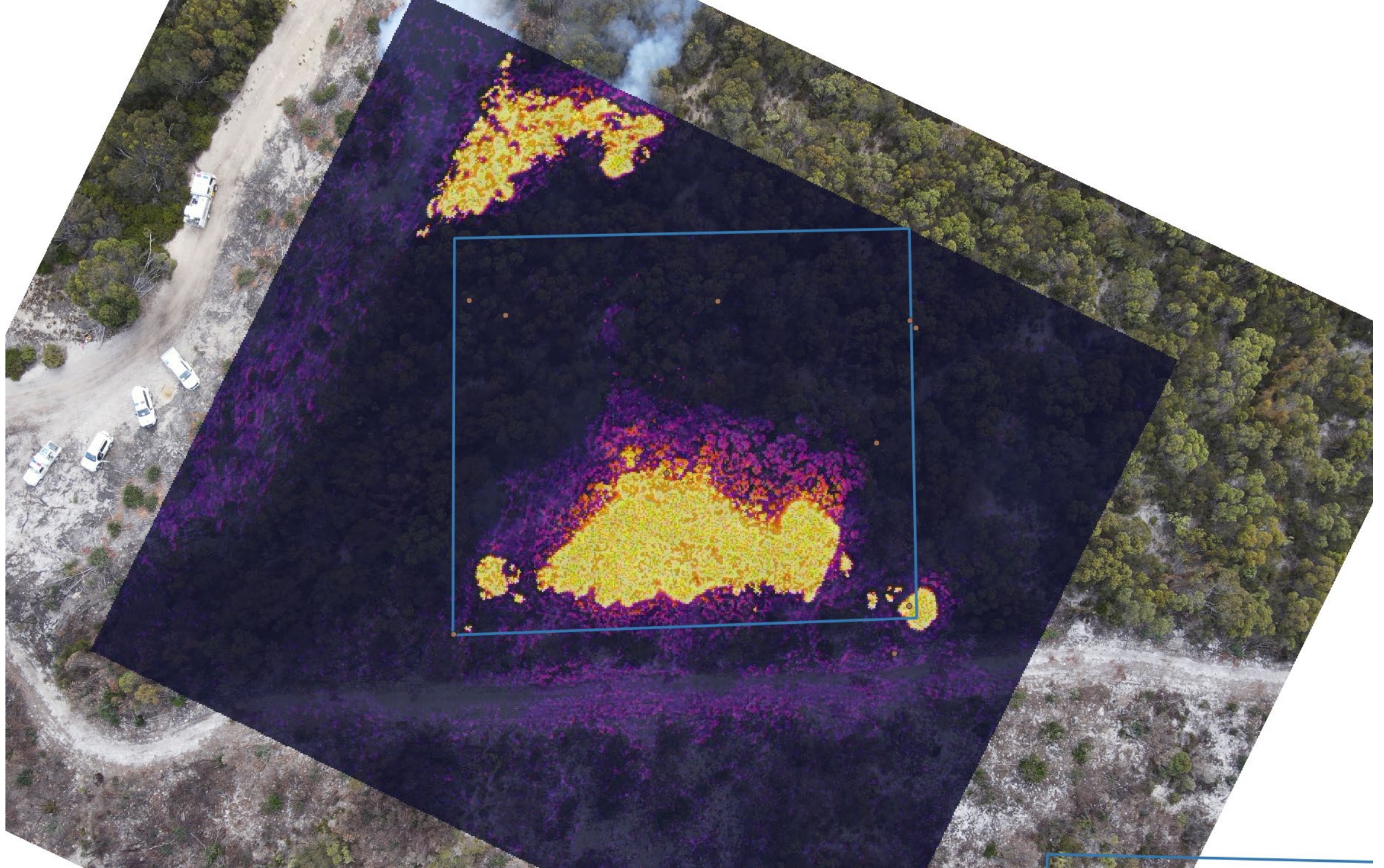




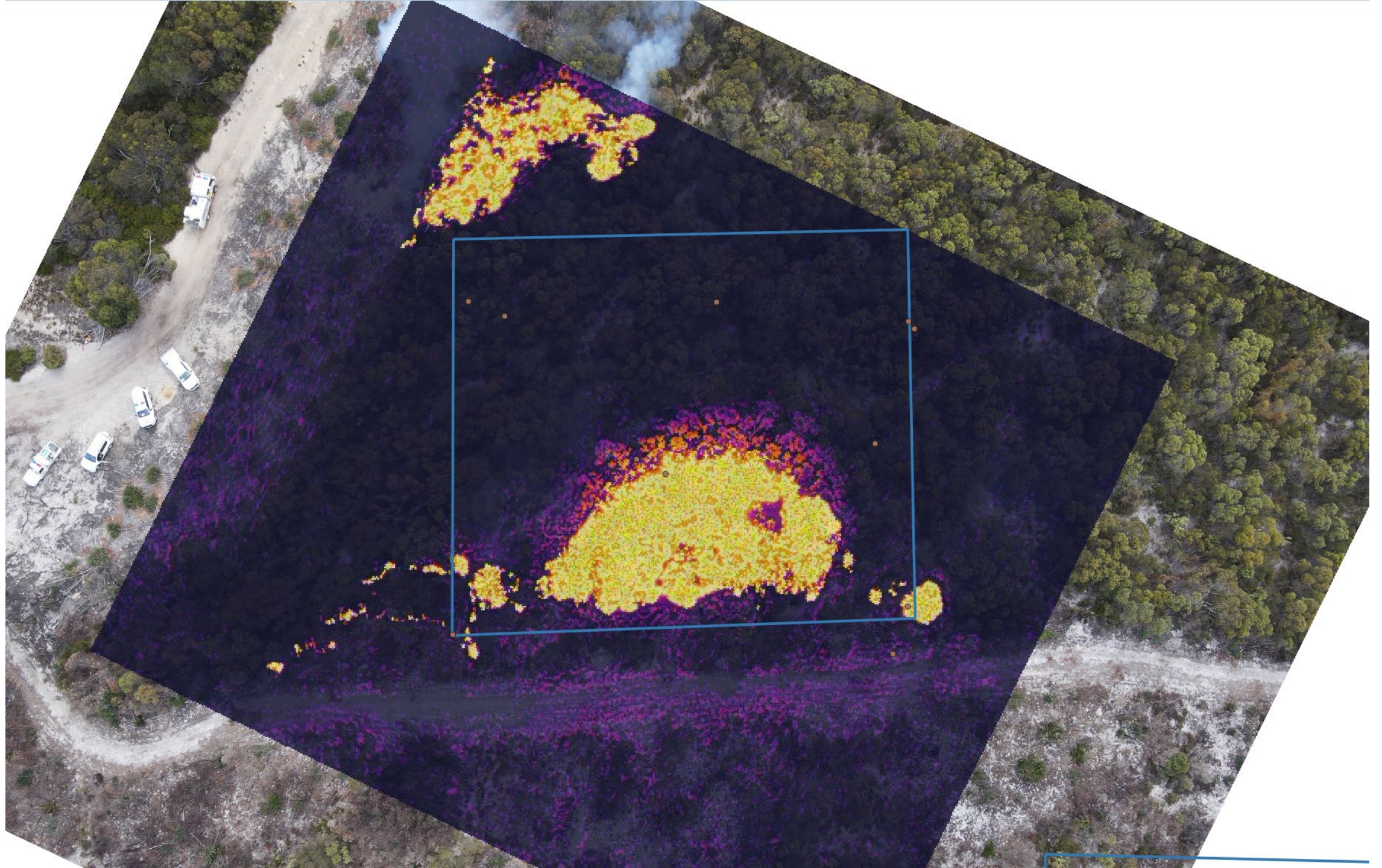




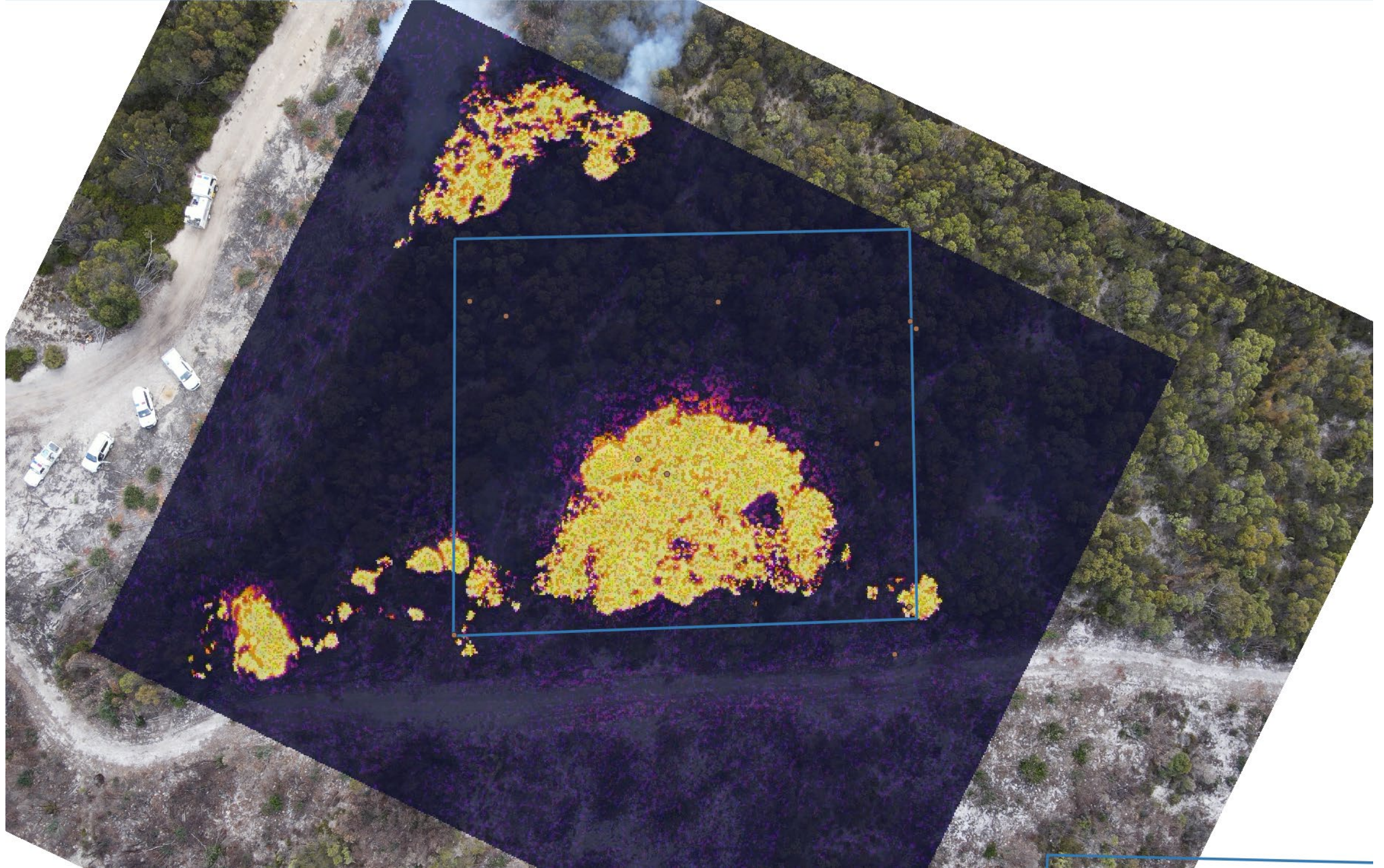




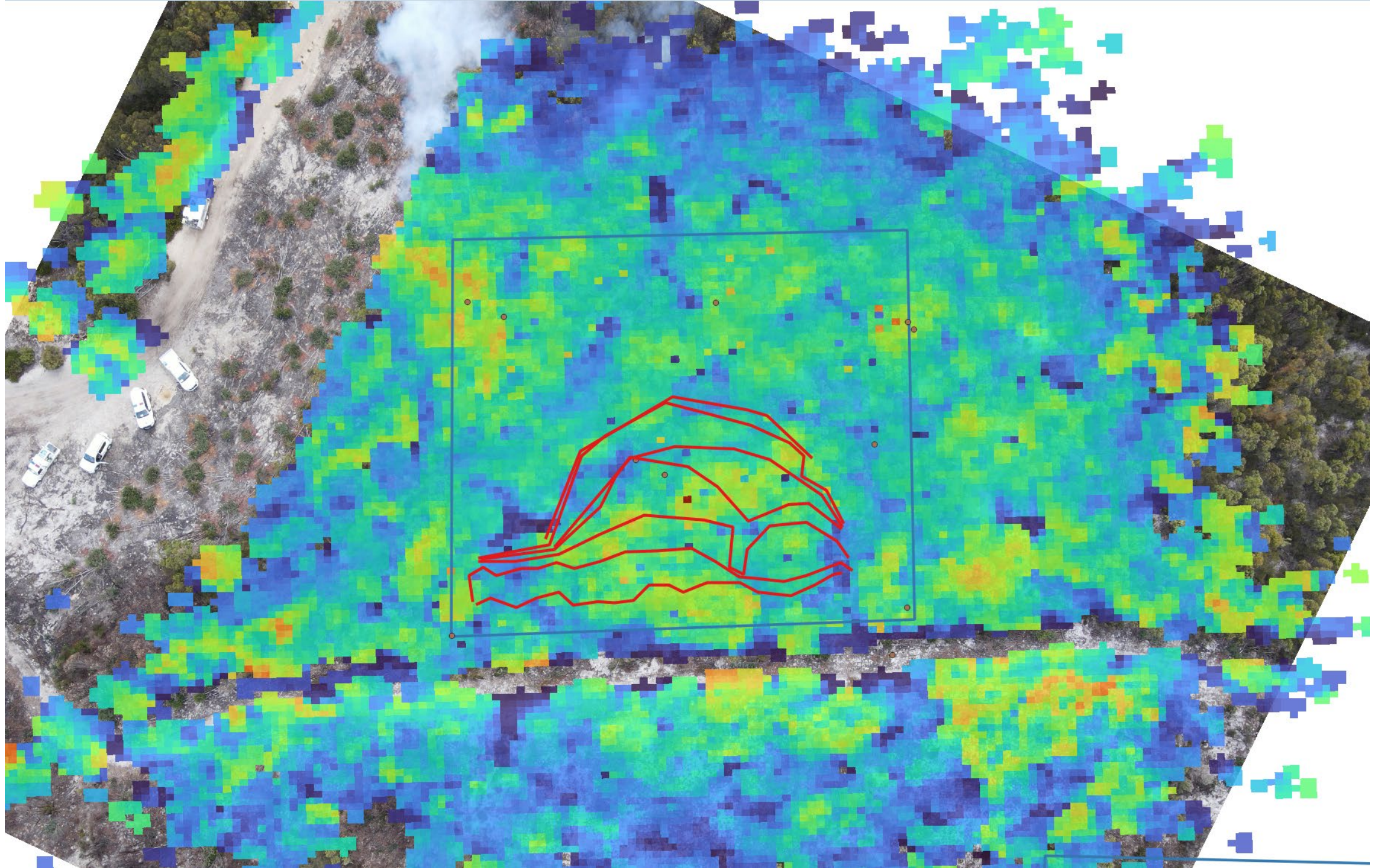






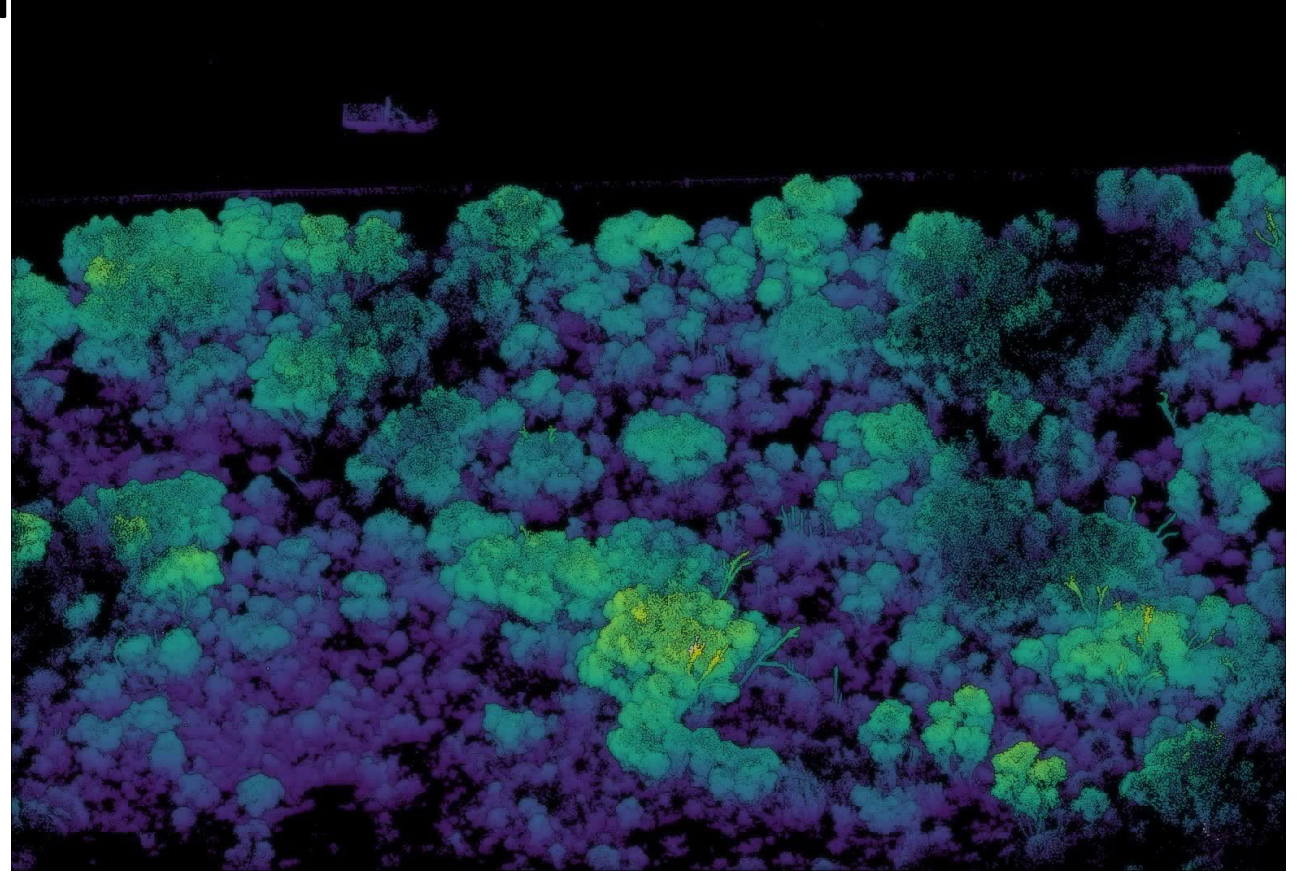
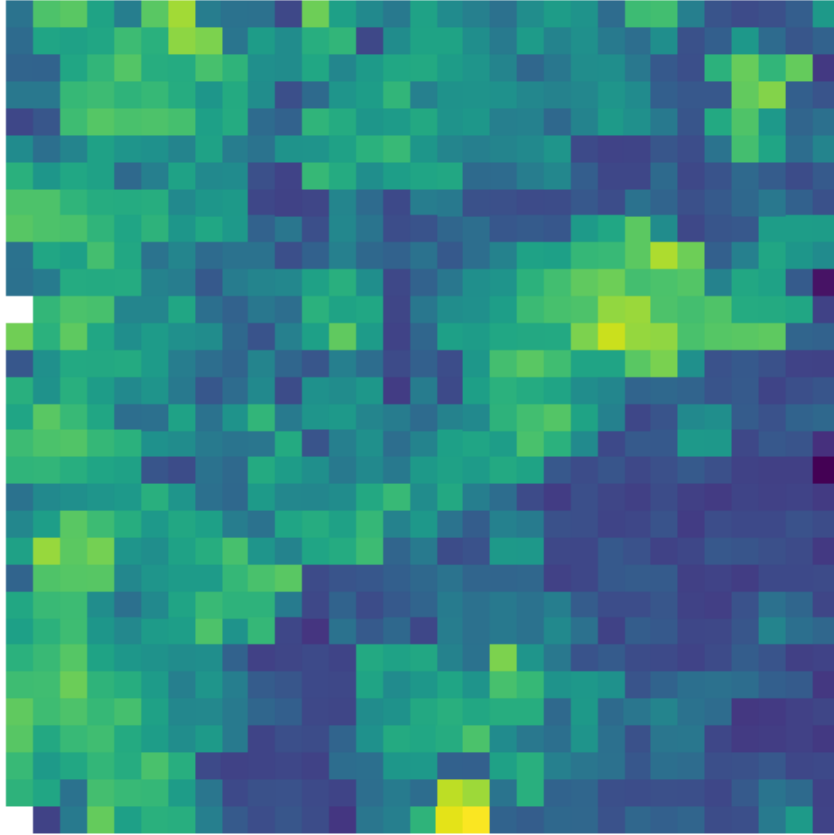






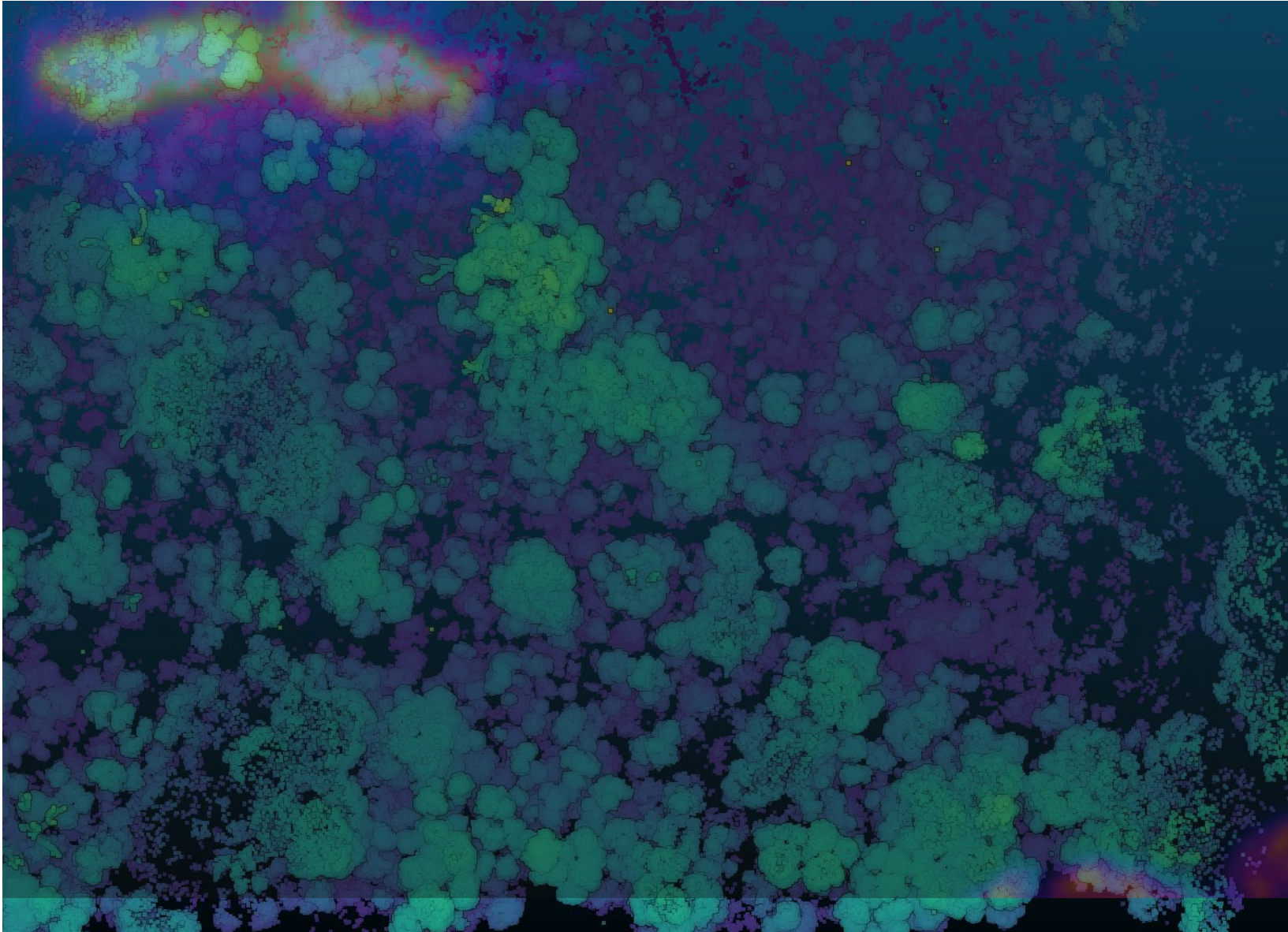


# Muirranata Plot example





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# Next Step – AI Deep Learning Fuel elements

