Satellite data usage in fire research, New Zealand

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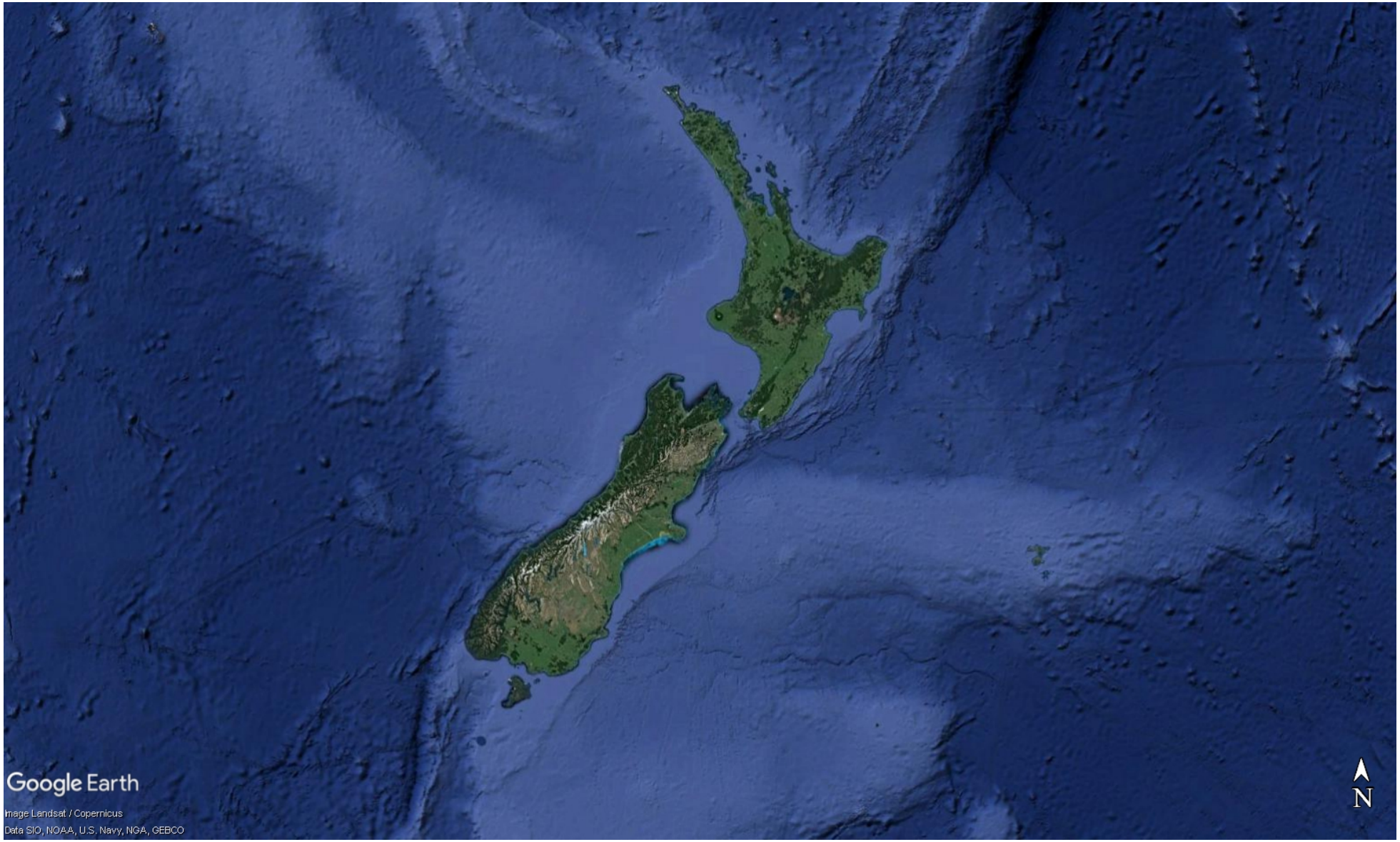
Image credit: Martin van Beynen, 2017

Scion Rural Fire Research Group - Purpose

- Develop the science and technology needed to protect life and property and manage fire in the landscape

- 25-year history of research across a wide range of areas

New Zealand


Google Earth
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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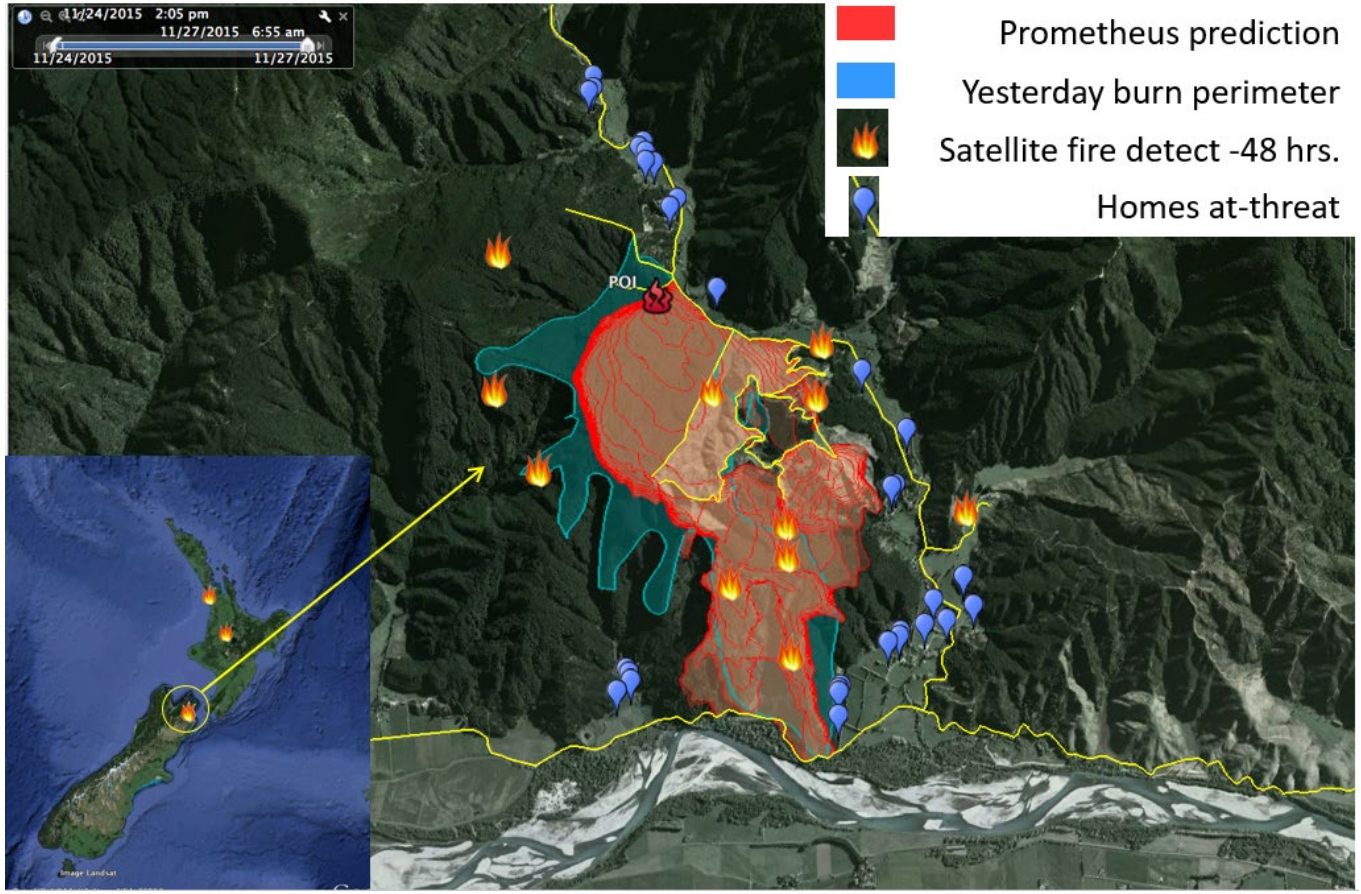
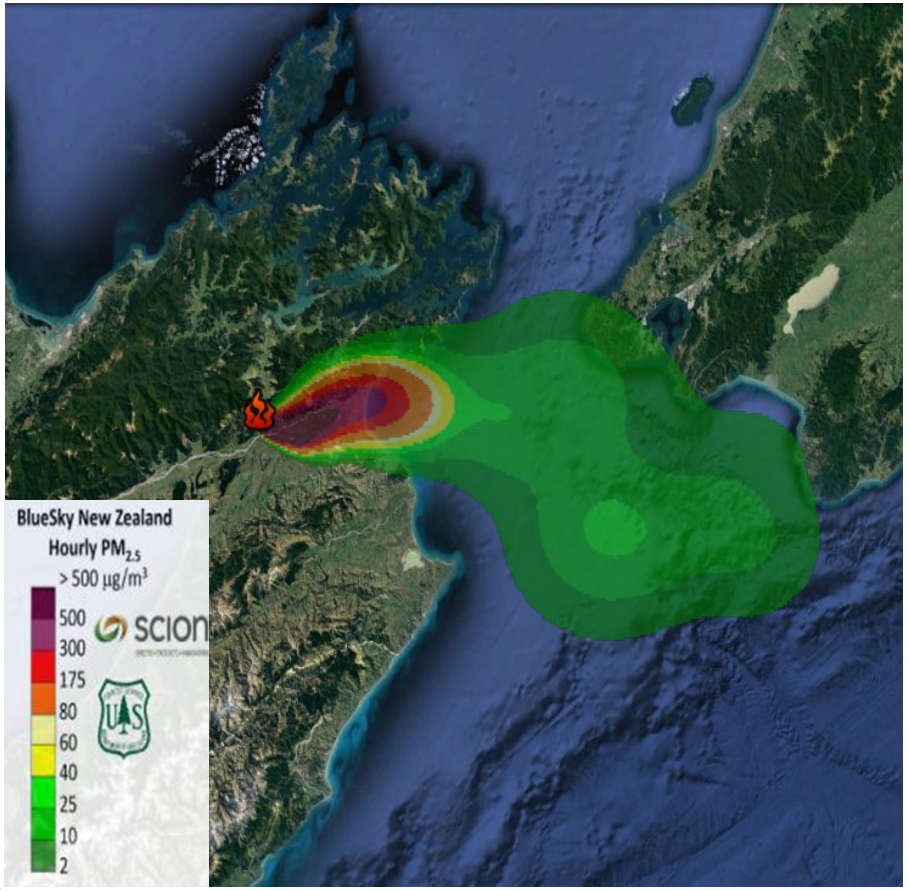
Real-time Fire Growth and Smoke Forecasting





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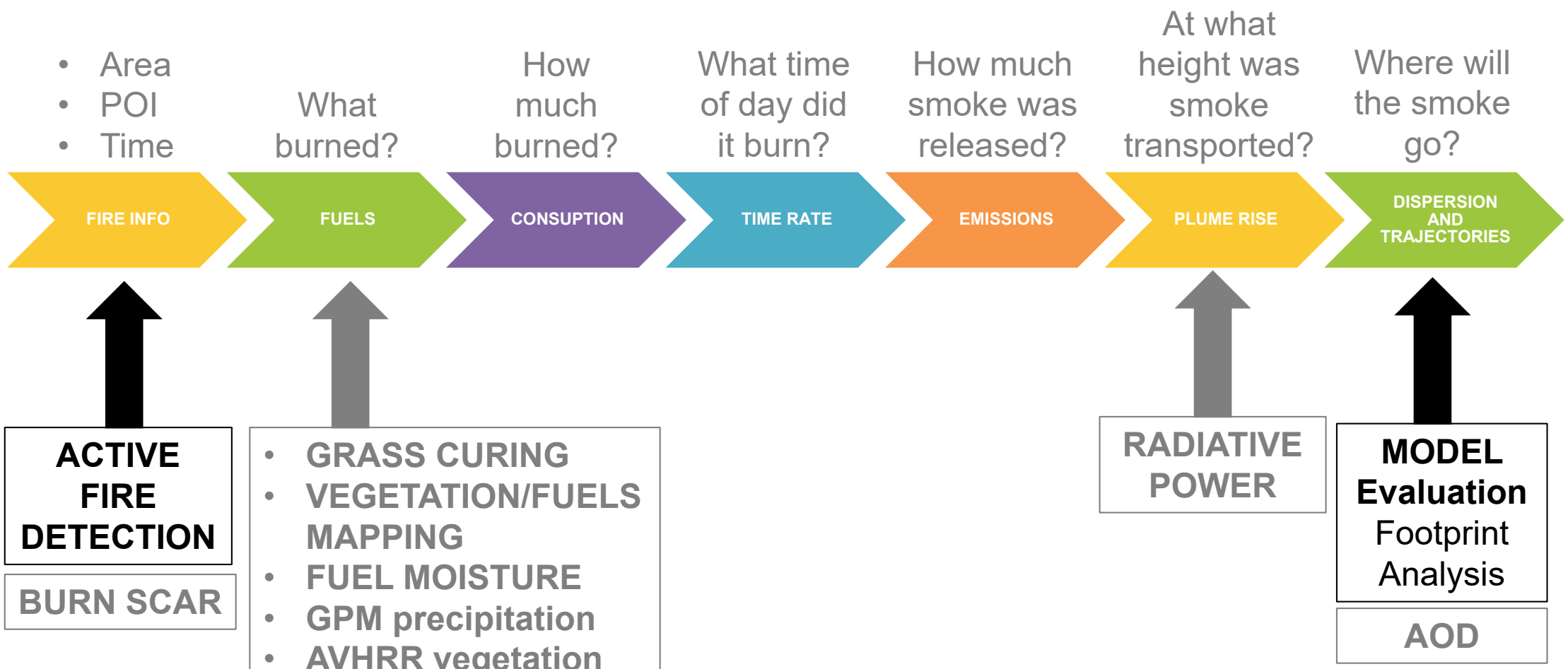
The BlueSky Smoke Modelling Framework



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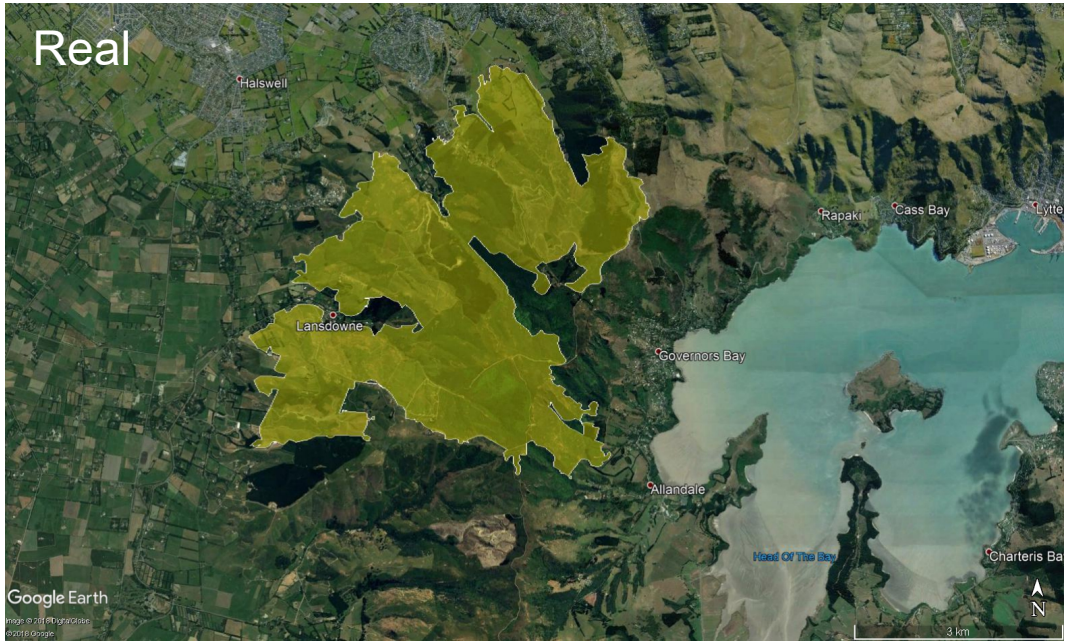
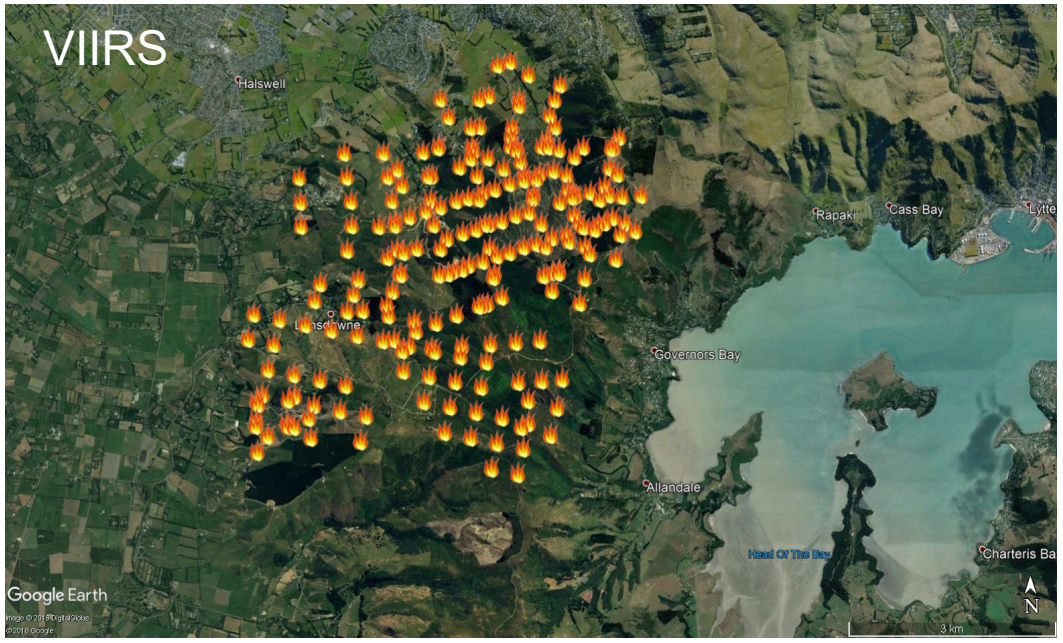
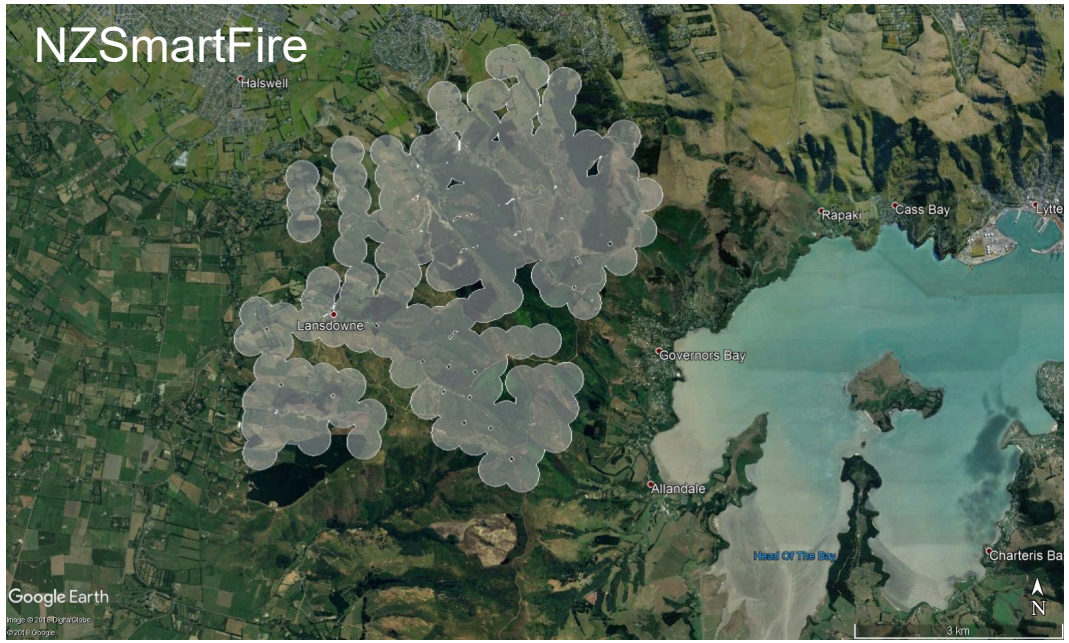
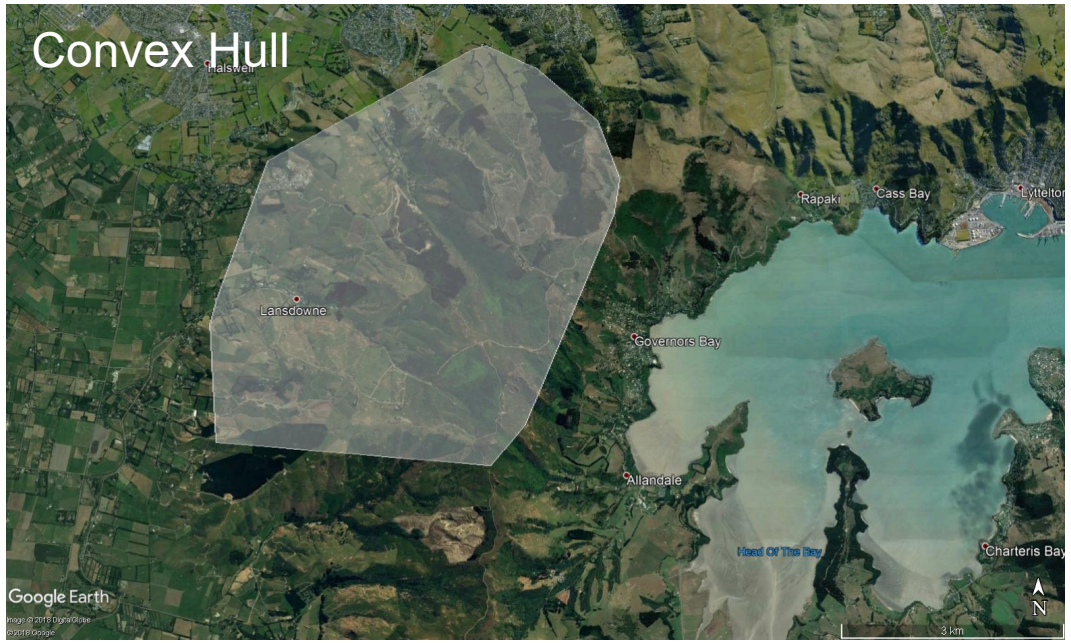
Active Fire Detection









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Burn Scars

- Uses:
  - Fire Register
  - Refining historical data
- Potential Challenges:
  - NZ’s fast changing fuel types and landscape

Vegetation Monitoring

- **Grass Curing:** a satellite curing algorithm combined with ground-based observations (either visual, soil moisture or pasture model data)
  - Best satellites to use selected based on GSD, global revisit time and longevity
    - NOAA JPSS Constellation
    - GCOM-C1
    - Sentinel-3 Constellation
    - Sentinel-2 Constellation
- **AVHRR Vegetation Change Translated to Fuels Mapping**
- **Fuel Moisture/Soil moisture**

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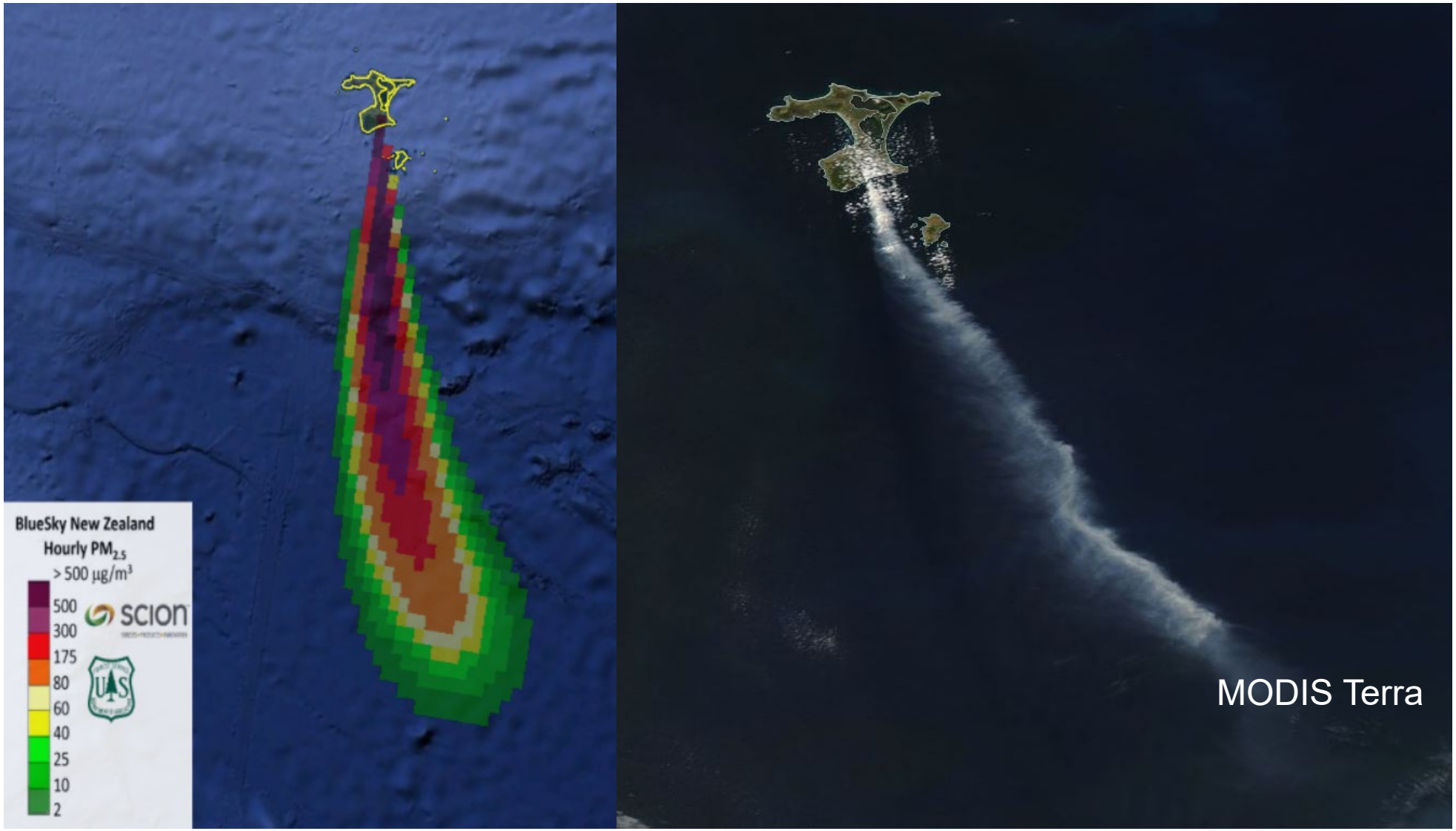
Model Evaluation



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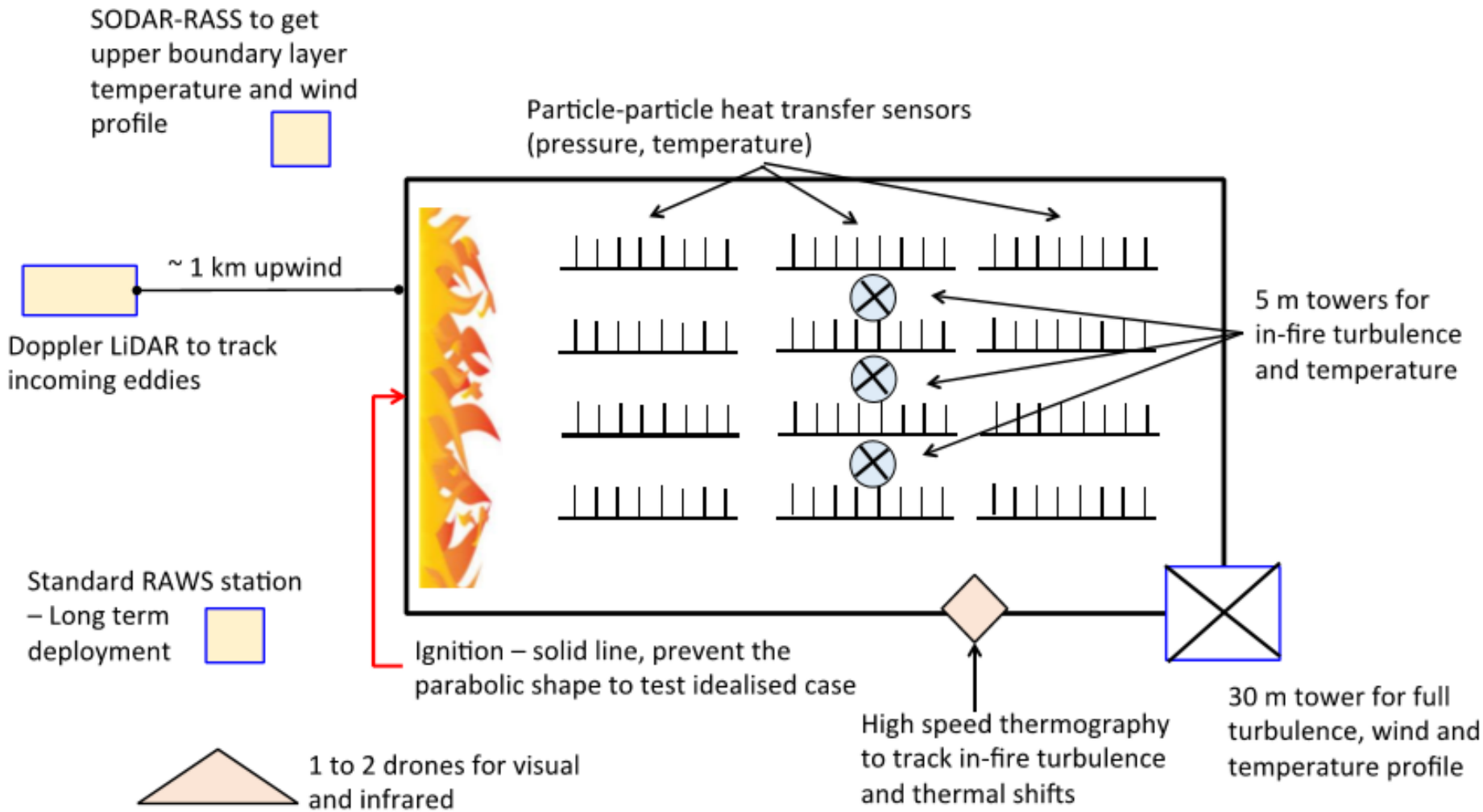
Experimental Stubble Burns – Next year shrub!!!

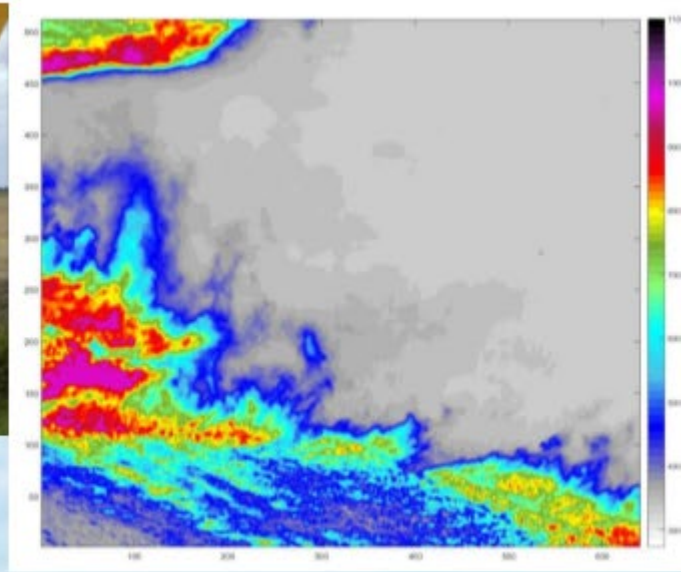
Testing a new theory

- The most cohesively equipped burns
- Unique instrumentation designed just for this research



Collaboration!

SODAR
3 Drones
Imaging
30 m tower



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Te Whare Wānanga o Waitaha


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Fire Research
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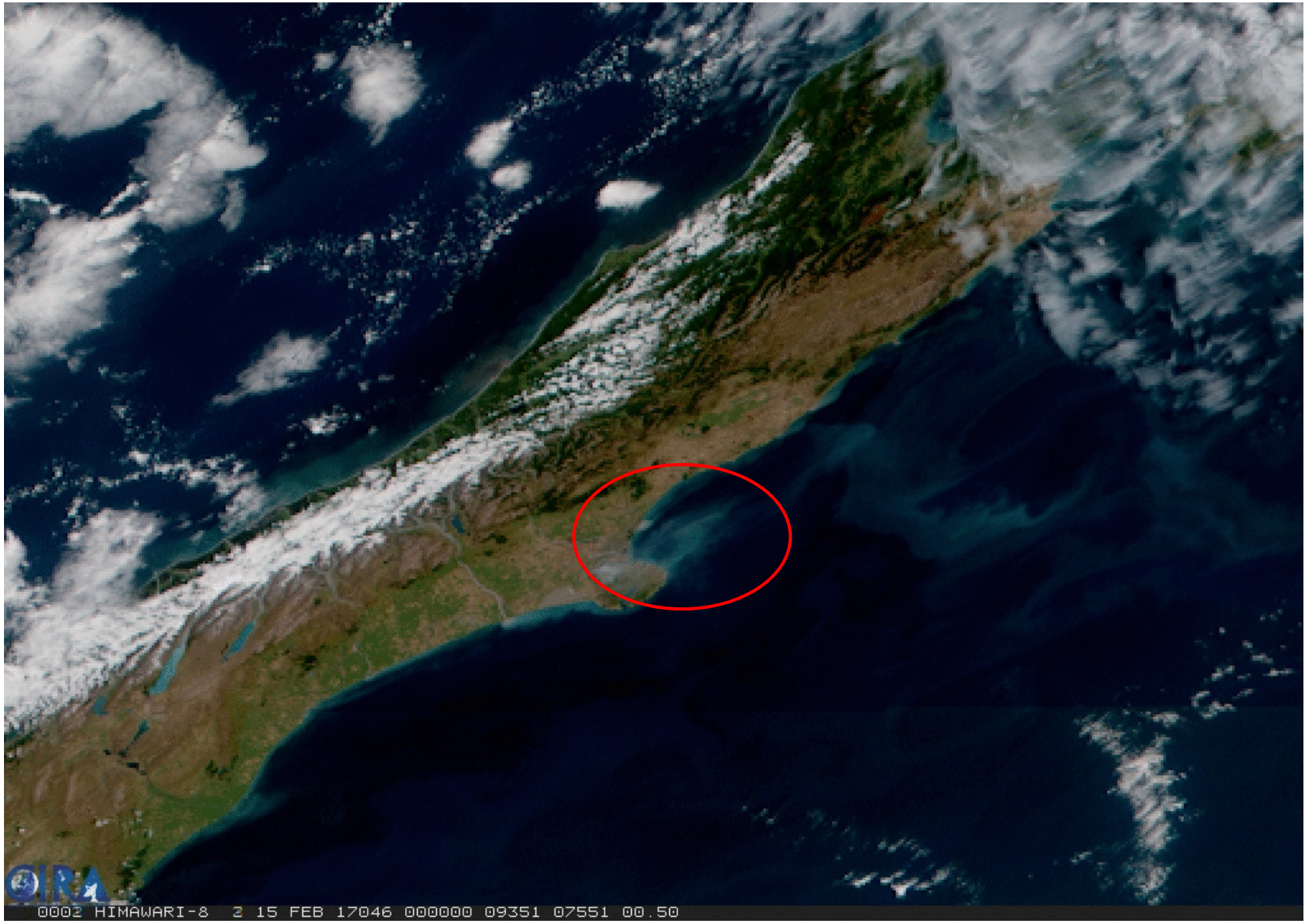

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