

**DETECT  
QUANTIFY &  
DIFFERENTIATE  
FOREST  
DAMAGE**  
**#forestAi**

**Fire & storm damage examples  
2023 from Chile and NZ**

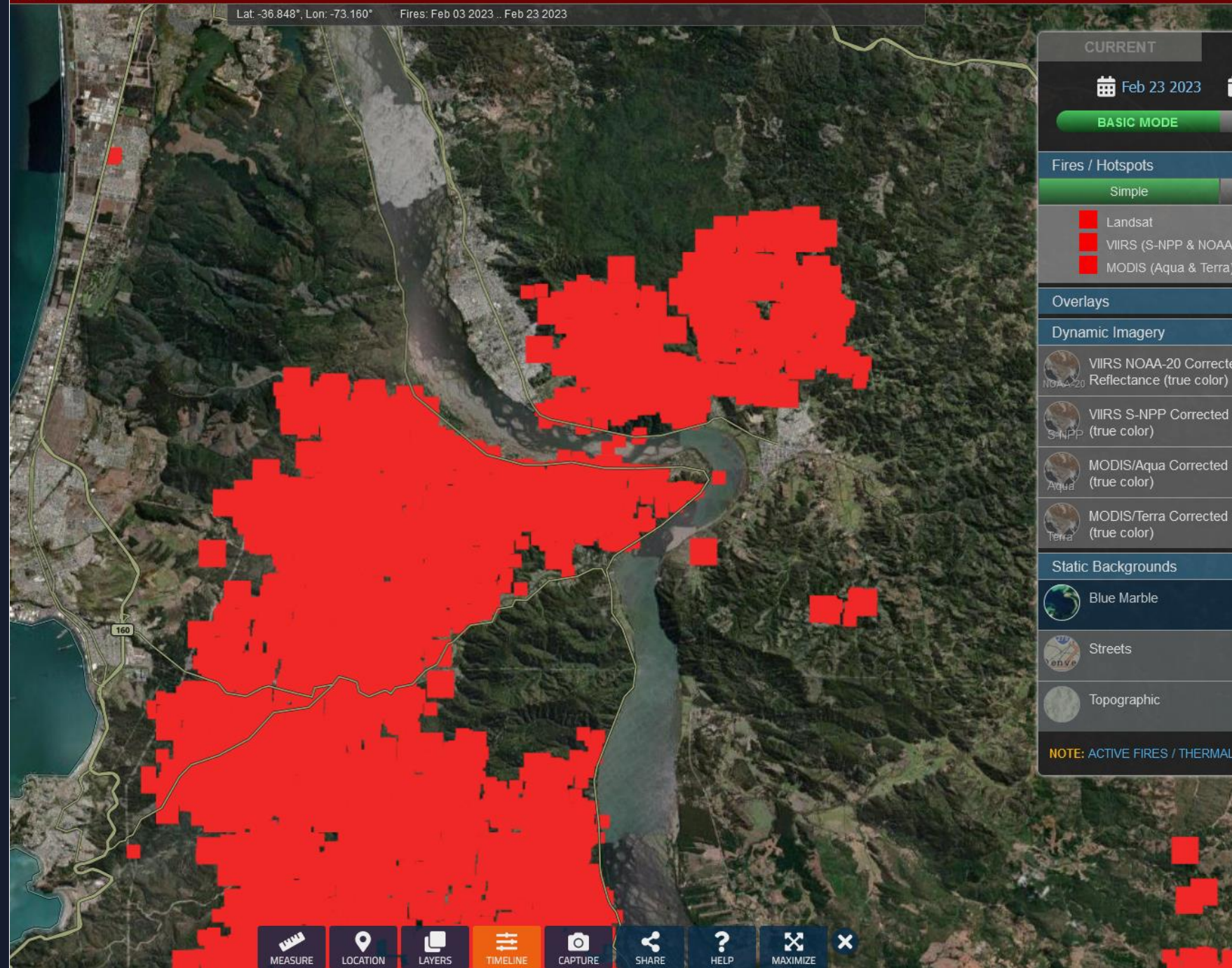


# FIRE DAMAGE

## Chile forest fires Feb 2023

### Daily fire hotspot mapping by NASA

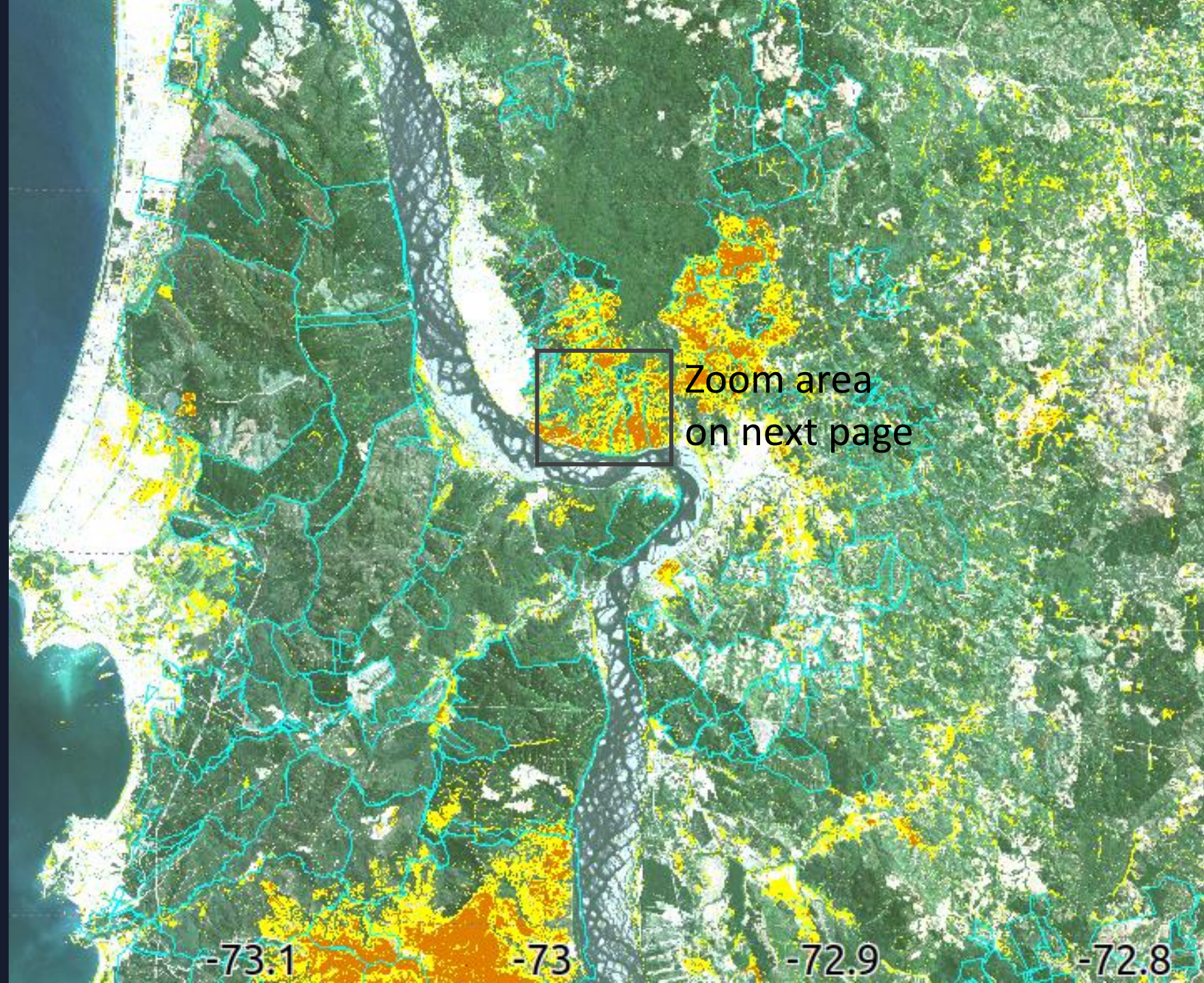
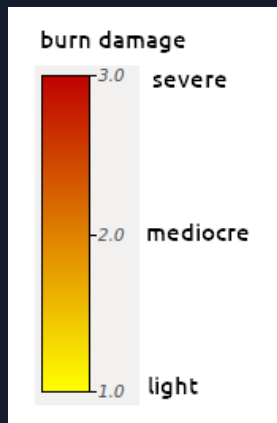
- All fire hotspots
- Between 01 and 23 Feb
- BioBio region, south of Concepcion



# FIRE DAMAGE

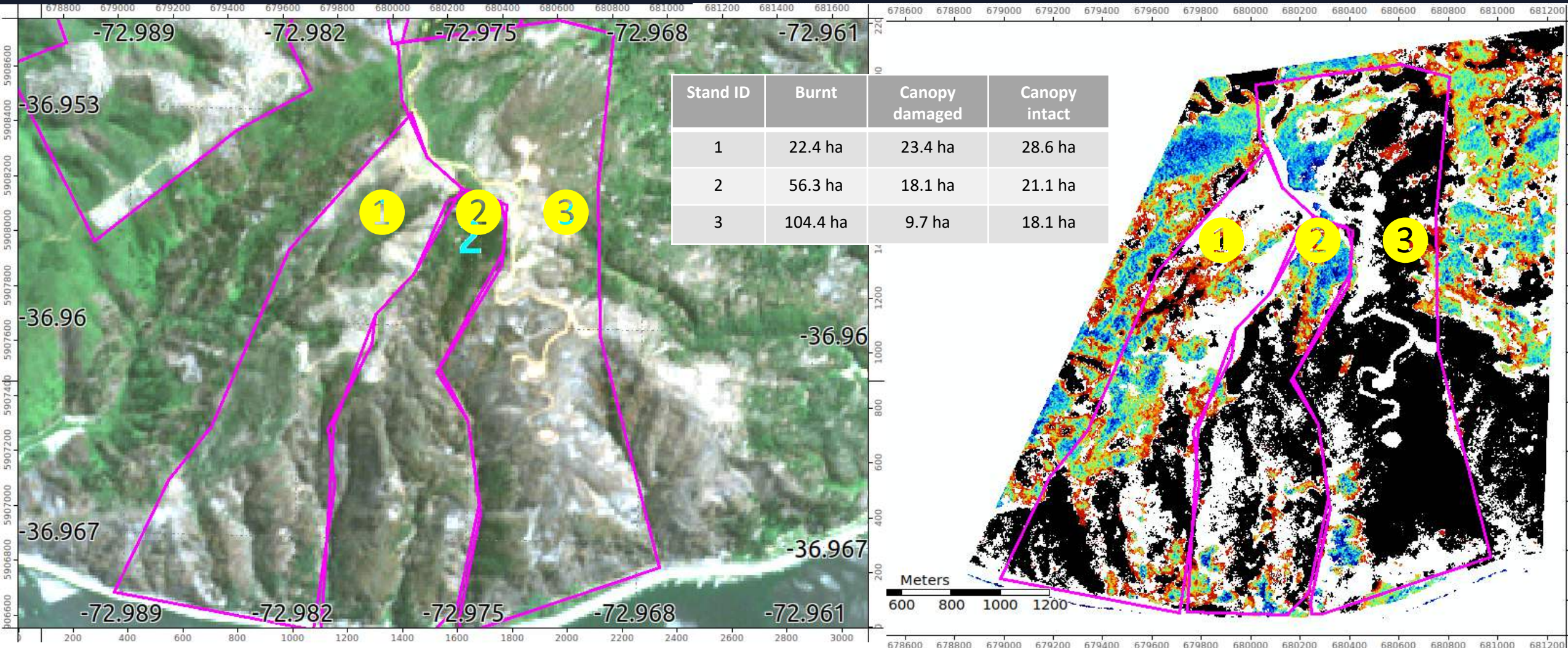
## Change detection and quantification of burnt area

- Comparing 17 Feb with 29 Dec
- Quantification of area that was burnt
- Determination of severity of burn damage



## DAMAGE DIFFERENTIATION – HOW MUCH LIVE CANOPY IS LEFT?

Zoom into one area just north of the river. Assessing damaged area and severity of damage in three example compartments. How much canopy is left, how much of it is partially damaged. **Quantify the recoverable merchantable timber for each compartment.**

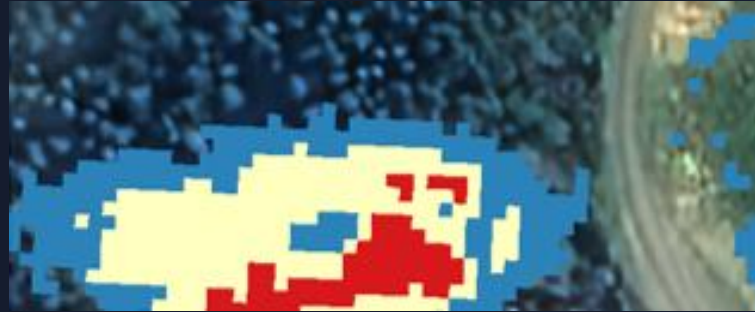


# STORM - OVERVIEW OF ANALYSIS RESULTS



## LANDSLIDES

Detection of landslides caused by storm and heavy rains. Differentiation from any other canopy gaps or areas of bare ground and rocks.



## CANOPY DAMAGE OR LOSS

Detection of damage to the forest canopy. Differentiation of damage severity, ranging from light damage (some loss of branches or parts of crowns) to severe (complete loss of tree canopy, fallen trees and completely broken tree tops).

DAMAGE CLASSES	AREA (ha)
Landslides "Hale"	34.1
Landslides "Gabrielle"	83.3
Canopy light damage	363.7
Canopy medium damage	114.8
Canopy severe damage	17.4

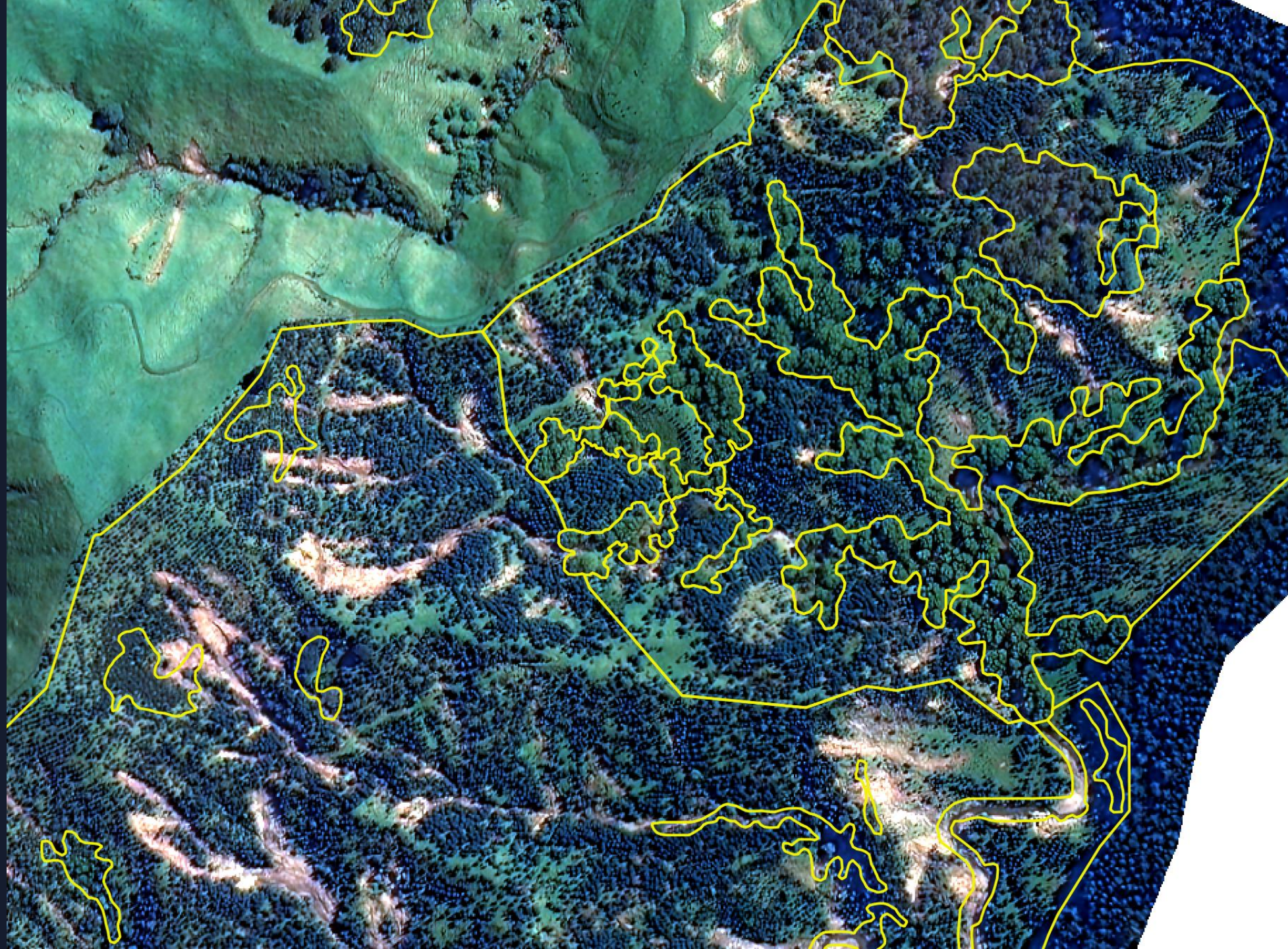
## QUANTIFICATION OF RESULTS

All analysis results are provided as georeferenced maps to guide ground crews to the place of action. Maps are easily integrated into any standard GIS softwares. Results are quantified by damage class and can be broken down to smaller areas or individual compartments.

## RGB IMAGE

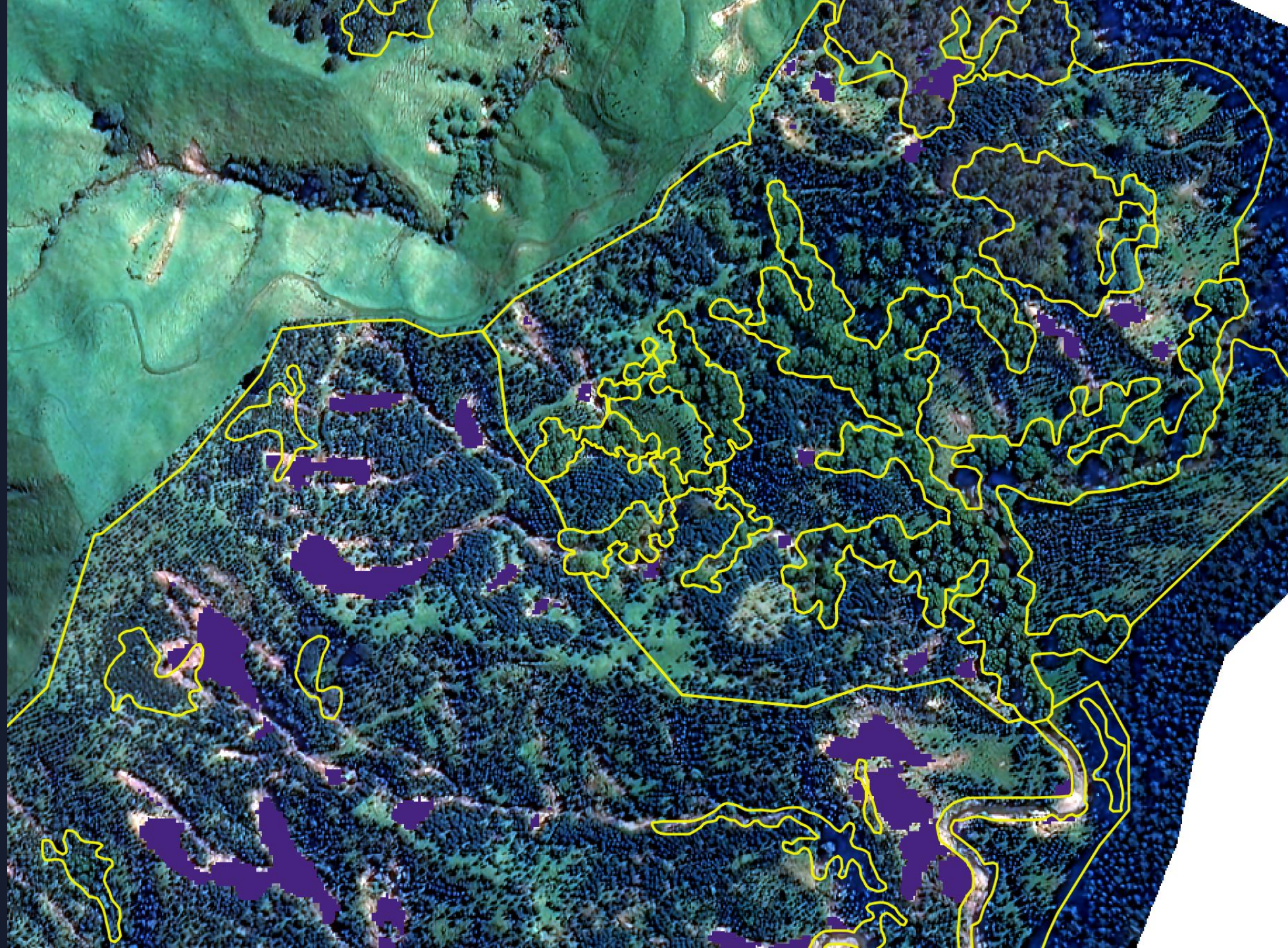
This is a 0.5m satellite image after Gabrielle for illustration.

Damage analysis is done on 3m Planetscope data using time series to differentiate new damage caused by the cyclone from old problems prior to the storm.



## LANDSLIDES

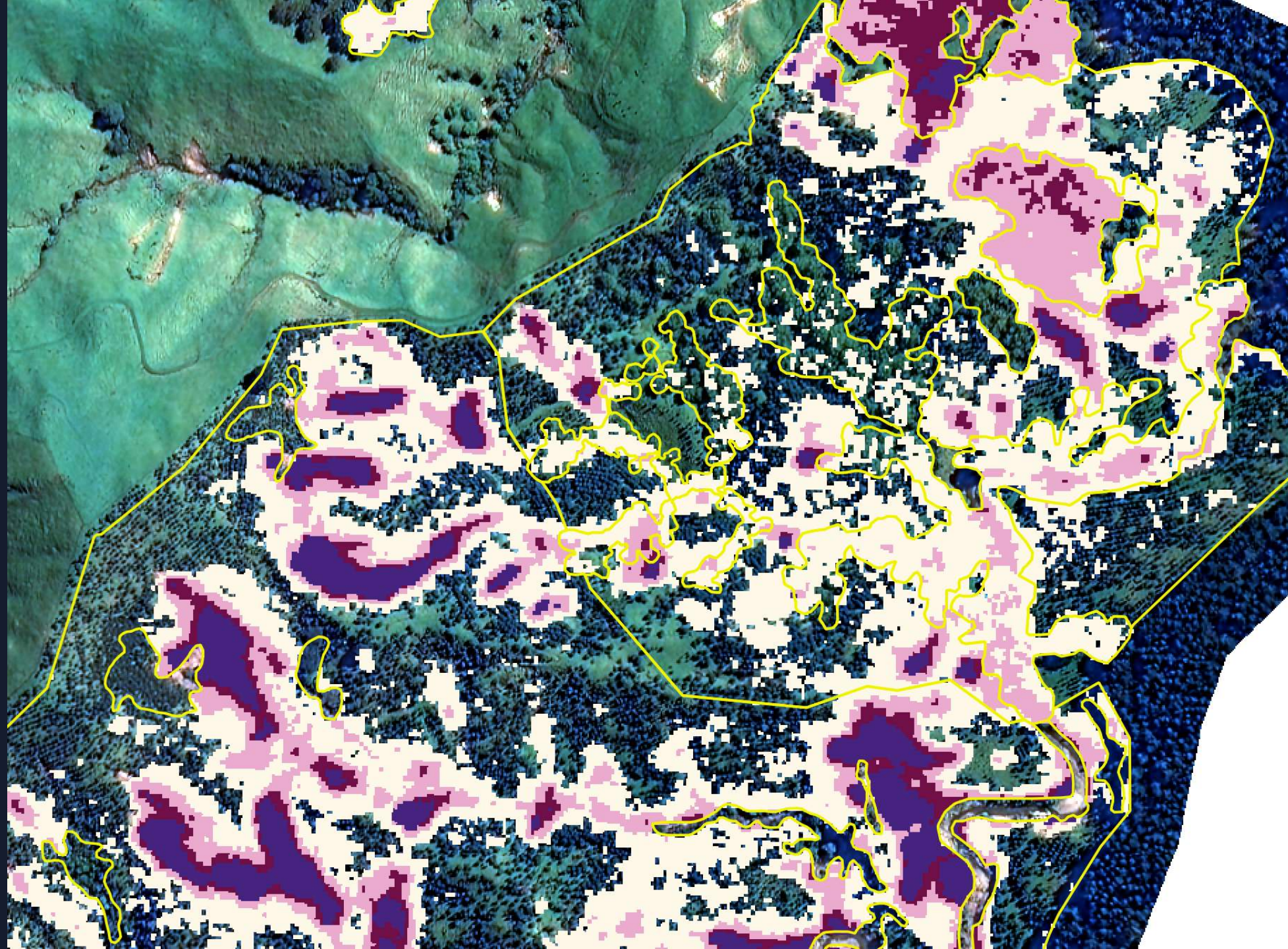
Analysis based on 3m  
Planetscope data to  
automatically detect  
landslides and measure  
total area affected by  
landslides.



## CANOPY DAMAGE

Landslides + vitality analysis based on 3m Planetscope data.

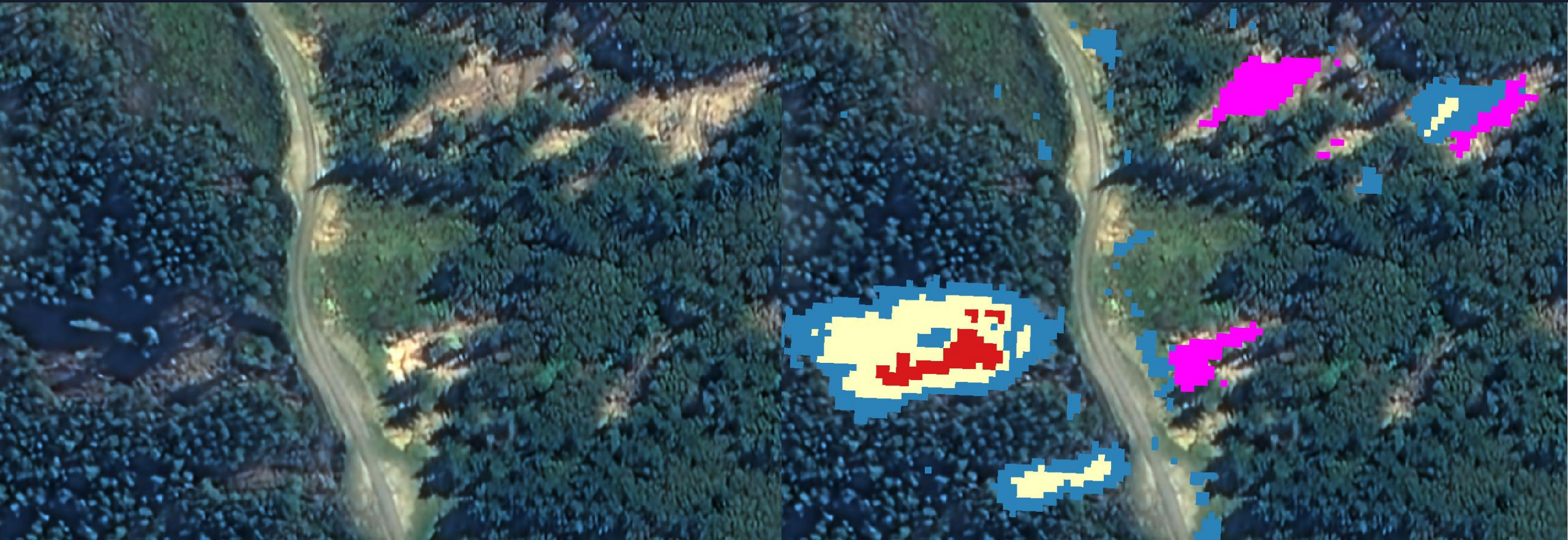
Differentiating canopy damage in three classes:



## DAMAGE QUANTIFICATION

Total area affected in each class of damage assessment is calculated from the analysis results. Georeferenced maps guide ground crews to take direct action. Older damages or canopy gaps are not falsely shown as new damage.

DAMAGE CLASSES on 5000 ha	AREA (ha)
Landslides "Hale"	34.1
Landslides "Gabrielle"	83.3
Canopy light damage	363.7
Canopy medium damage	114.8
Canopy severe damage	17.4





## HOW TO GET STARTED

All we need from your is a kml or shp and the desired dates of analysis (pre-/post-event).

We find the suitable satellite data and run the full analysis for you.

Turnaround is usually less than 3 days.

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