Canadian Progress - 2016-2017

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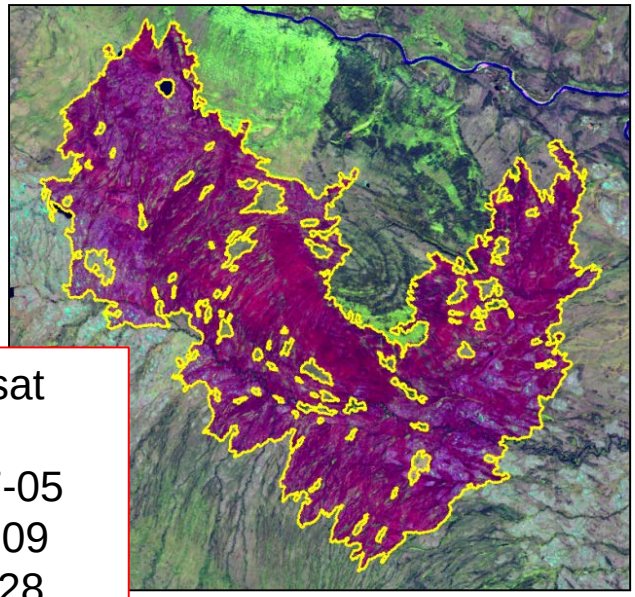
GOFC-GOLD Fire IT meeting, UK 2017

The National Burned Area Composite of Forest Fires in Canada

The National Burned Area Composite (NBAC) is an operational, NRCan-produced, end-of-season burned area geospatial product based on the best available data source representing a fire event.

NBAC fire polygon and attribution



Mapping source: Landsat
Fire cause: Lightning
Fire start date: 2013-07-05
Fire end date: 2013-07-09
Capture date: 2013-09-28
Burn class: Fully burned area
76% - 100% burned
Burned area: 9,943 ha

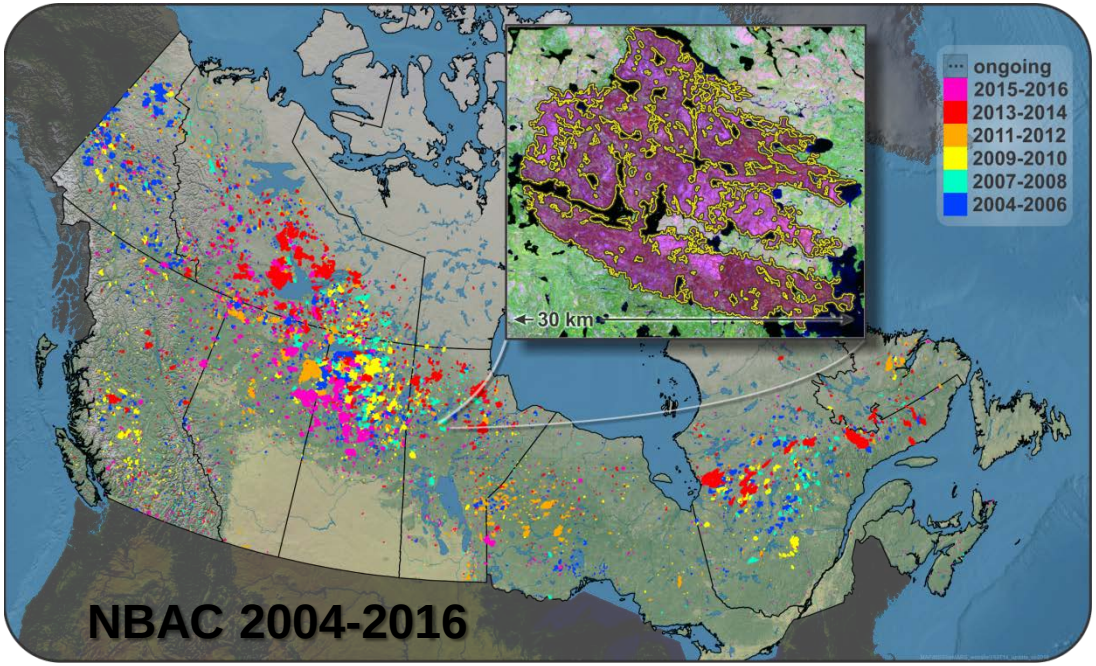
CFS creates new burned area polygons from Landsat where fire management agencies missed a fire event or post-fire delineations could be improved.

Fire attribution from the agency data (fire cause, start date, end date) are maintained in all NBAC polygons.

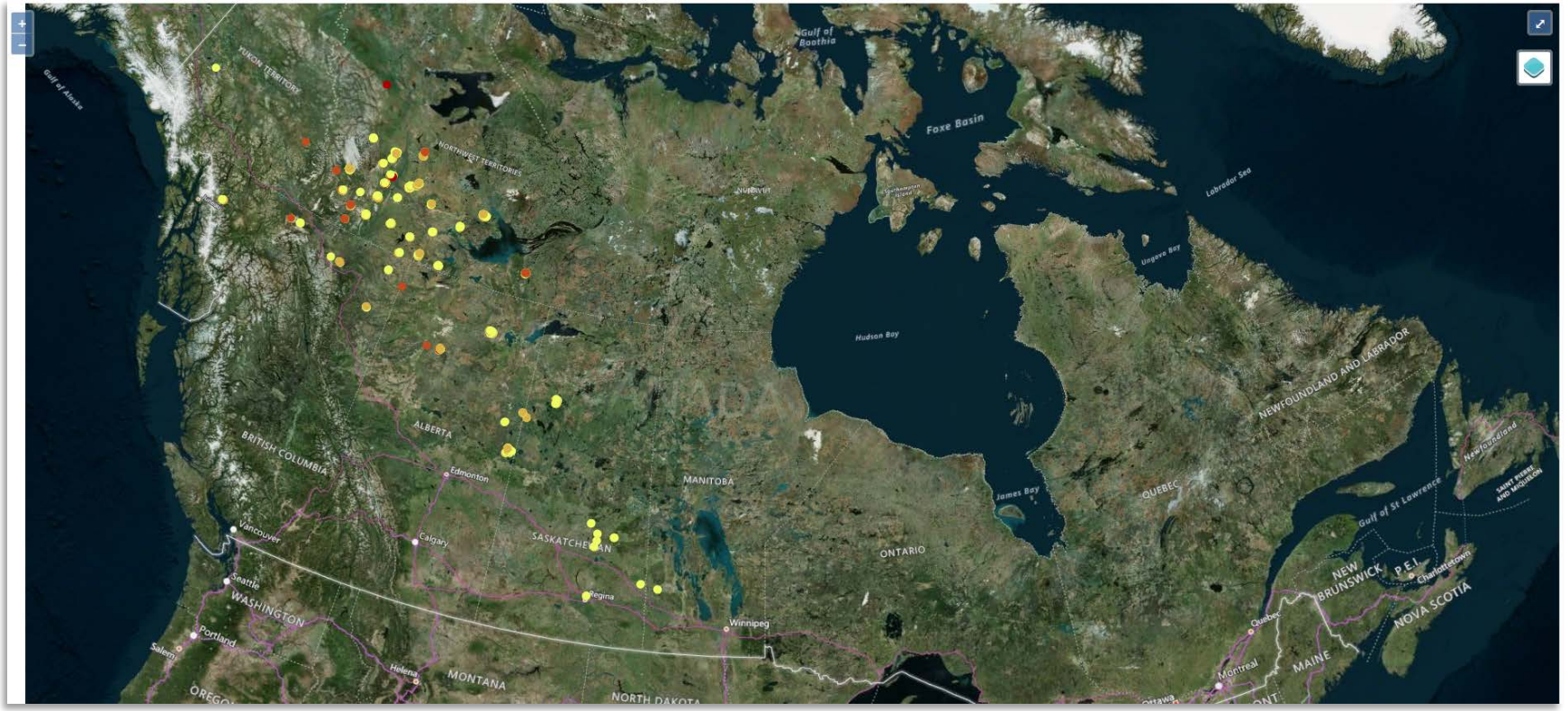
The NBAC fire history polygon data is available on the **Canadian Wildland Fire Information System** website (http://cwfis.cfs.nrcan.gc.ca/datamart).

NBAC is adaptive to emerging technologies for fire mapping (Sentinel-2) and integration of new fire attribution (burn severity).

NBAC will continually be produced annually by NRCan.

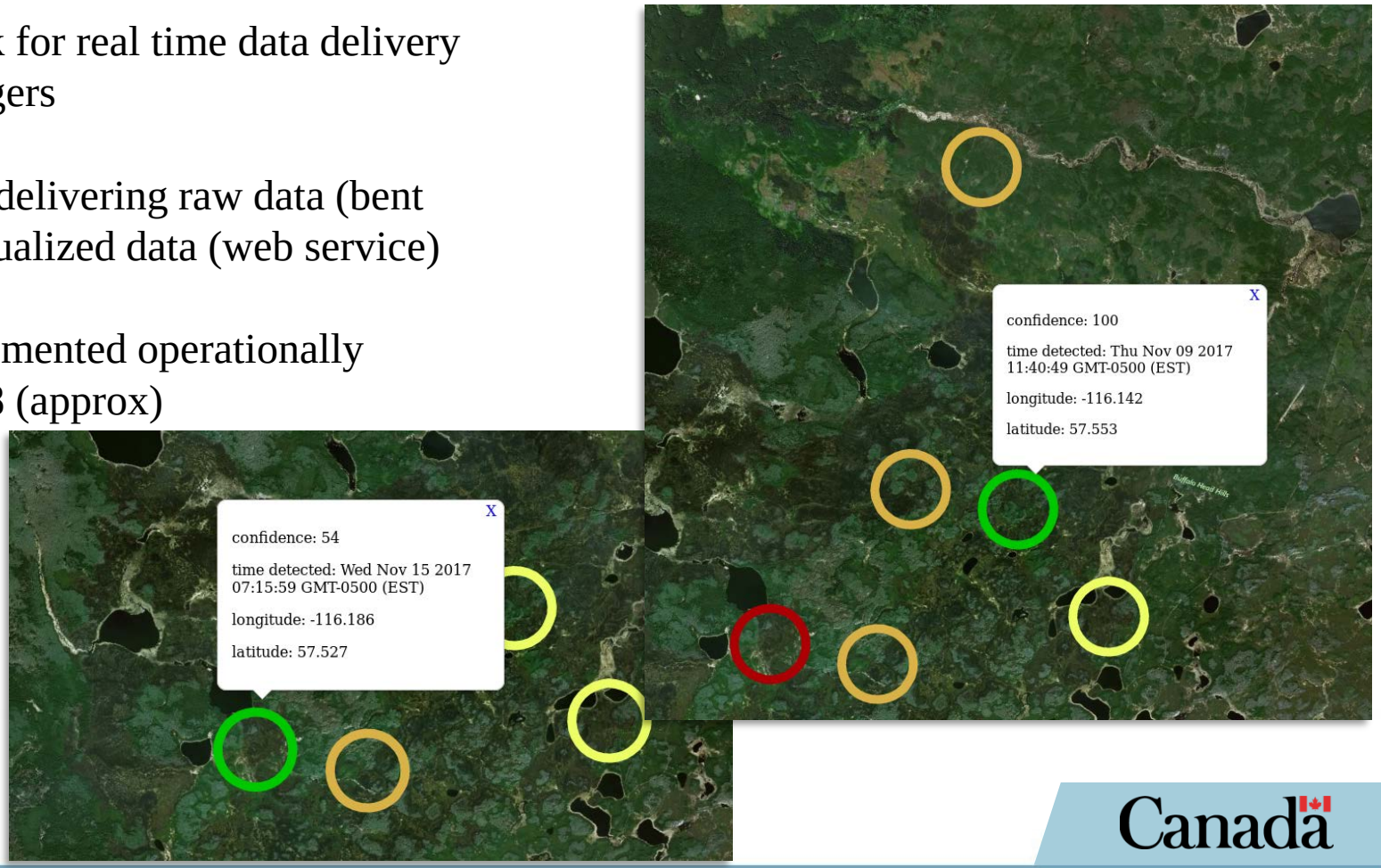


Consolidated Fire Detection and Monitoring System (CFDMS)



Consolidated Fire Detection and Monitoring System (CFDMS)

- Frame work for real time data delivery to fire mangers
- Capable of delivering raw data (bent pipe) or visualized data (web service)
- To be implemented operationally March 2018 (approx)

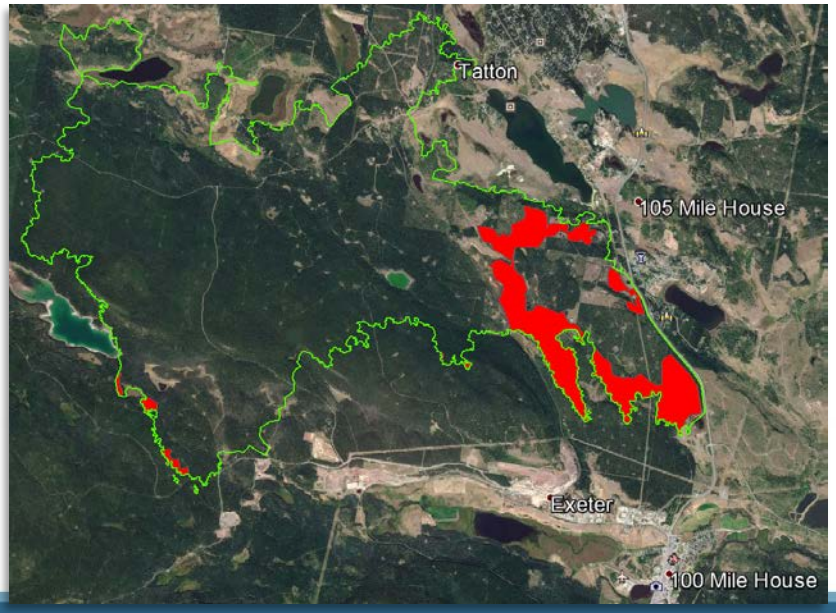


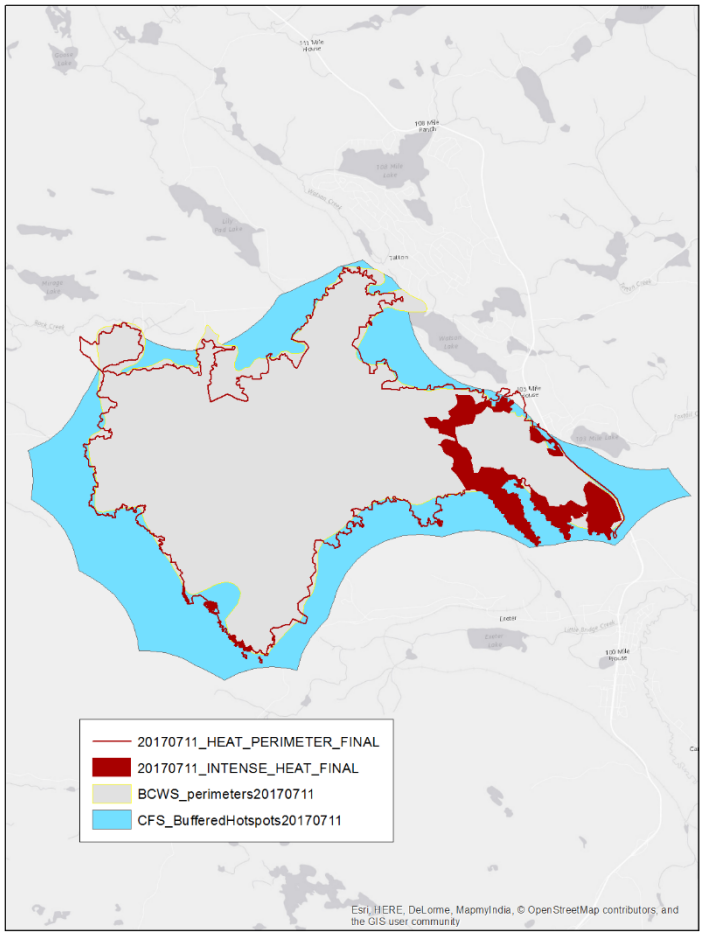
Tactical Wildfire Mapping Systems (TWFMS)

- In 2017 the Canadian Forest Service launched Canada's first national tactical fire mapping service
- NIROPS/Aircraft 3-like product
- it is ONLY available for emergency situations, where there is an imminent threat to life, infrastructure or values
- In 2017 TWFMS was first deployed for "proof of concept" to support the state of emergency in BC, beginning the first week of July
- That deployment persisted for 72 days
  - Data provided 58 days
  - ~ 215 separate maps produced

Tactical Wildfire Mapping Systems (TWFMS)

- The primary outputs are high resolution fire perimeters
- Shown here as compared to modis buffered hotspots

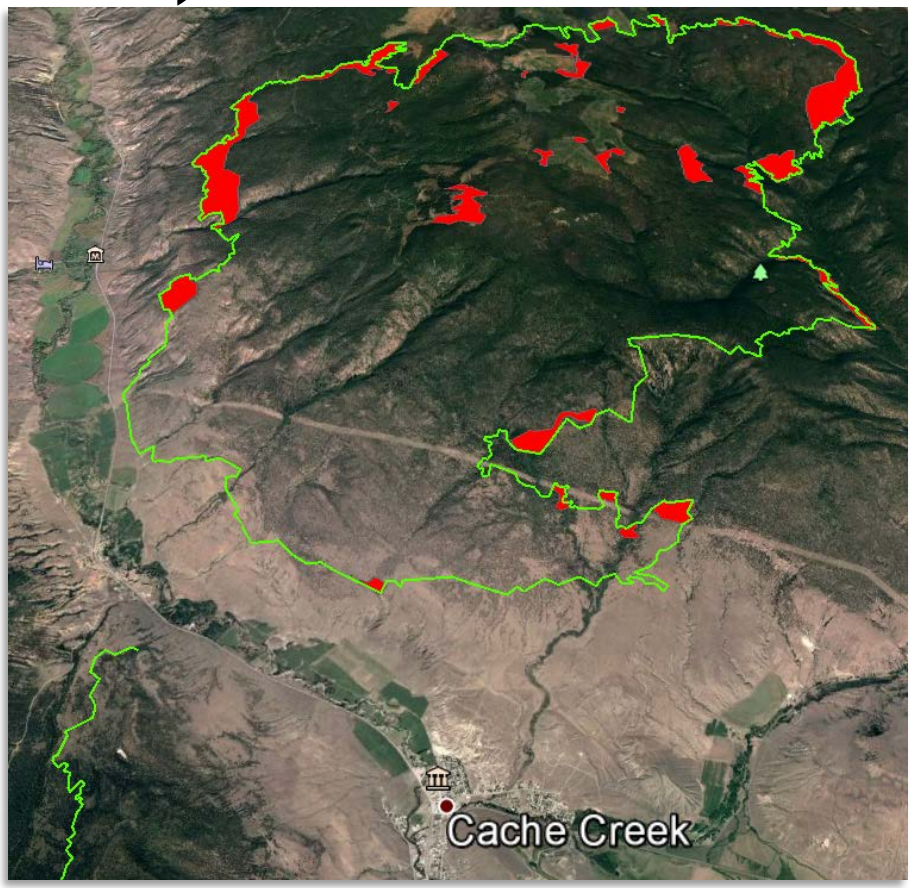




Tactical Wildfire Mapping Systems (TWFMS)

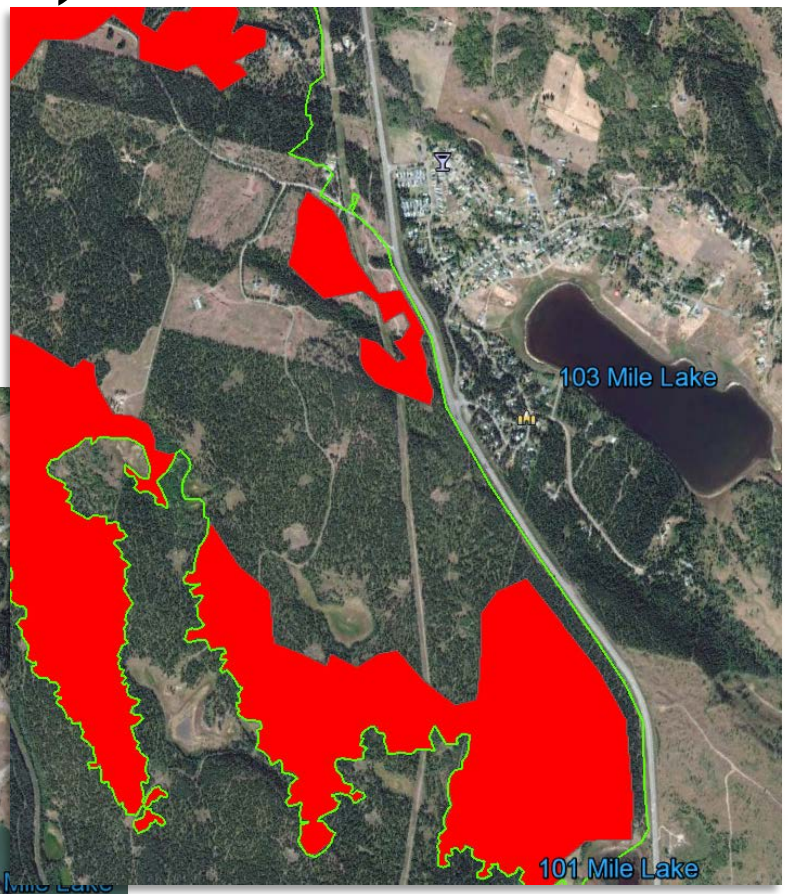
- also provides polygons mapping areas of:
  - Intense heat (possibly flaming)
  - Scattered heat (dense smouldering)
  - Isolated heat (isolated smouldering or spot fires)

- Products are delivered as GIS shapefiles and as google earth kmz files for easy distribution



Tactical Wildfire Mapping Systems (TWFMS)

- The precision will allow you to known which side of the road its on…. For when that is an important factor

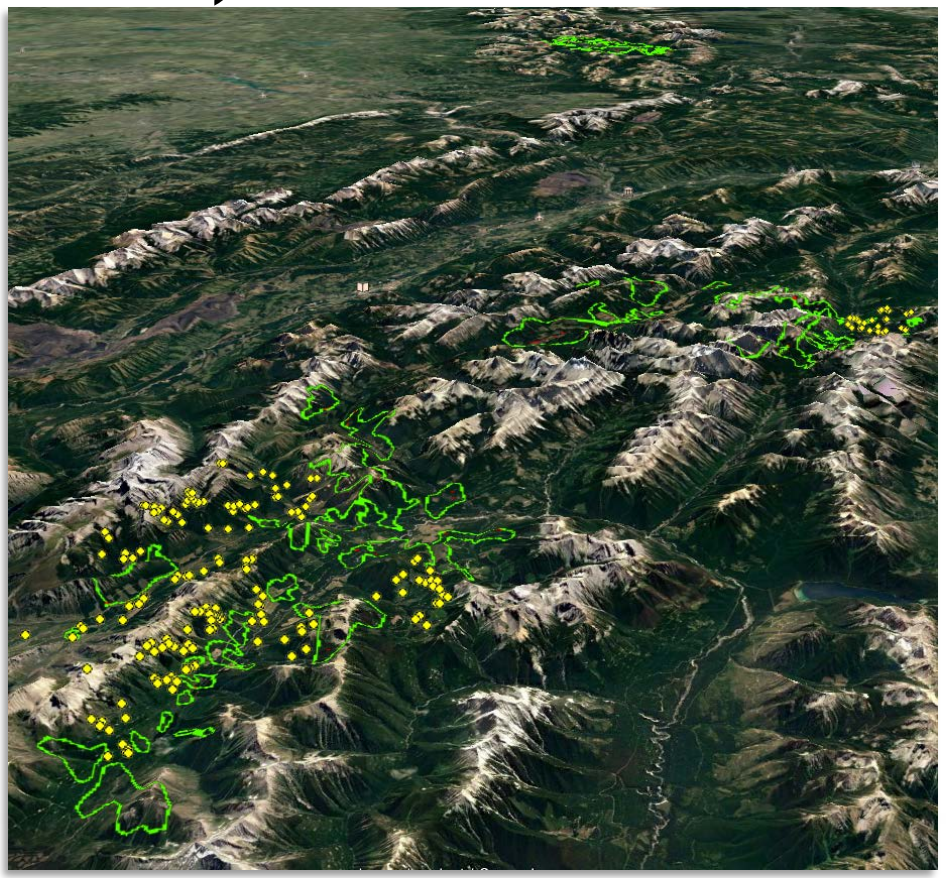


Tactical Wildfire Mapping Systems (TWFMS)

- Heat based product, vulnerable to cloud obscuration
- No cost to end user

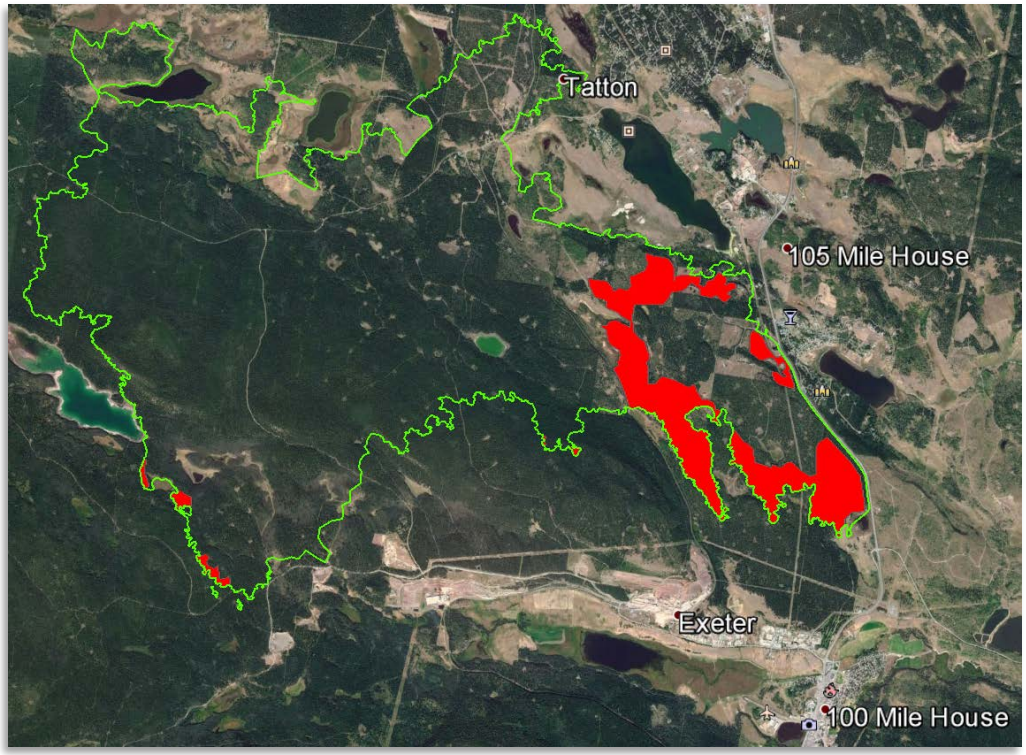
BUT…

- The first deployment required over 2000 man-hours to accommodate the 72 day state of emergency….



TWFMS - Automation

- Since September we have automated 70% of the process
- We expect to have the process fully automated by spring
- Requiring only user supervision



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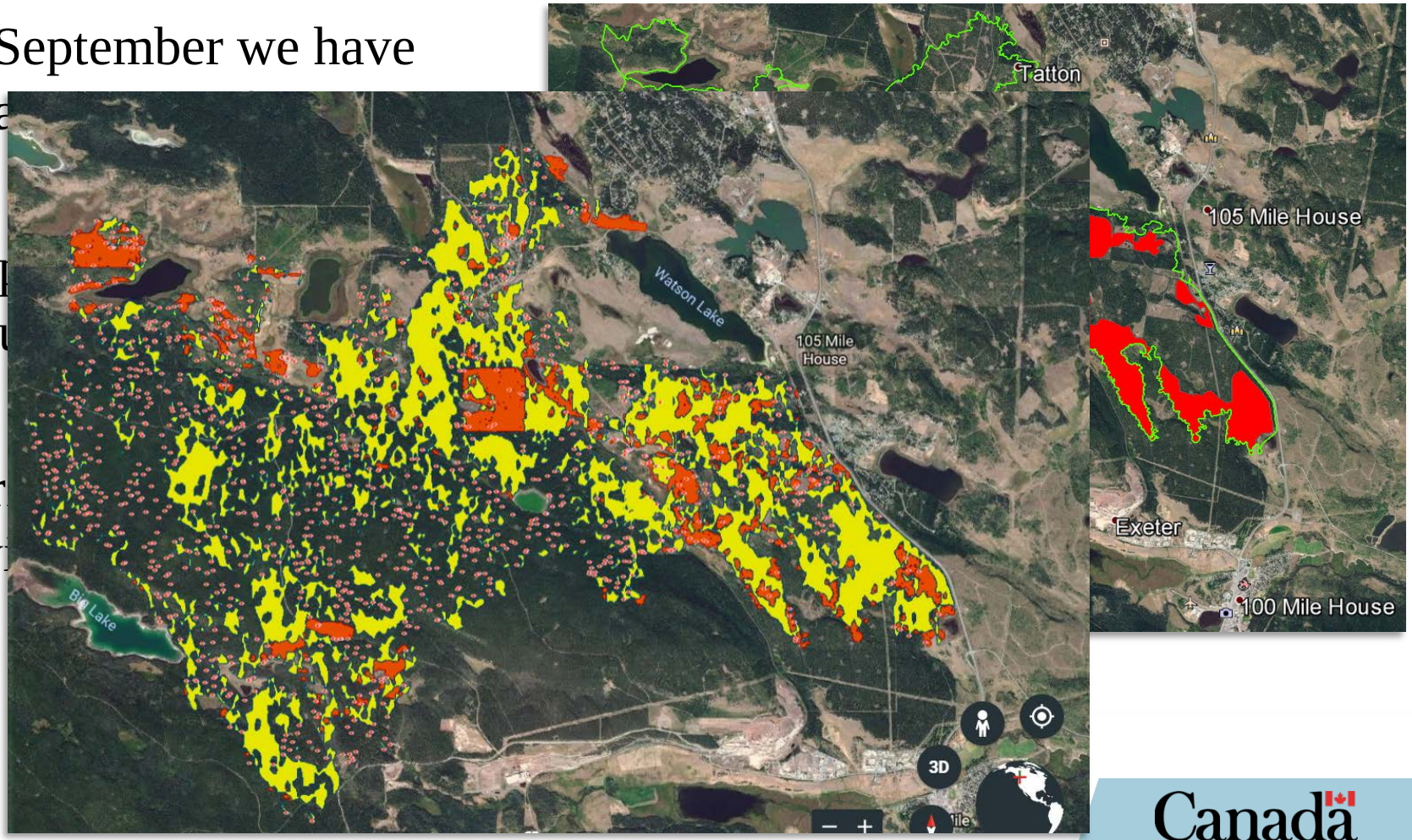
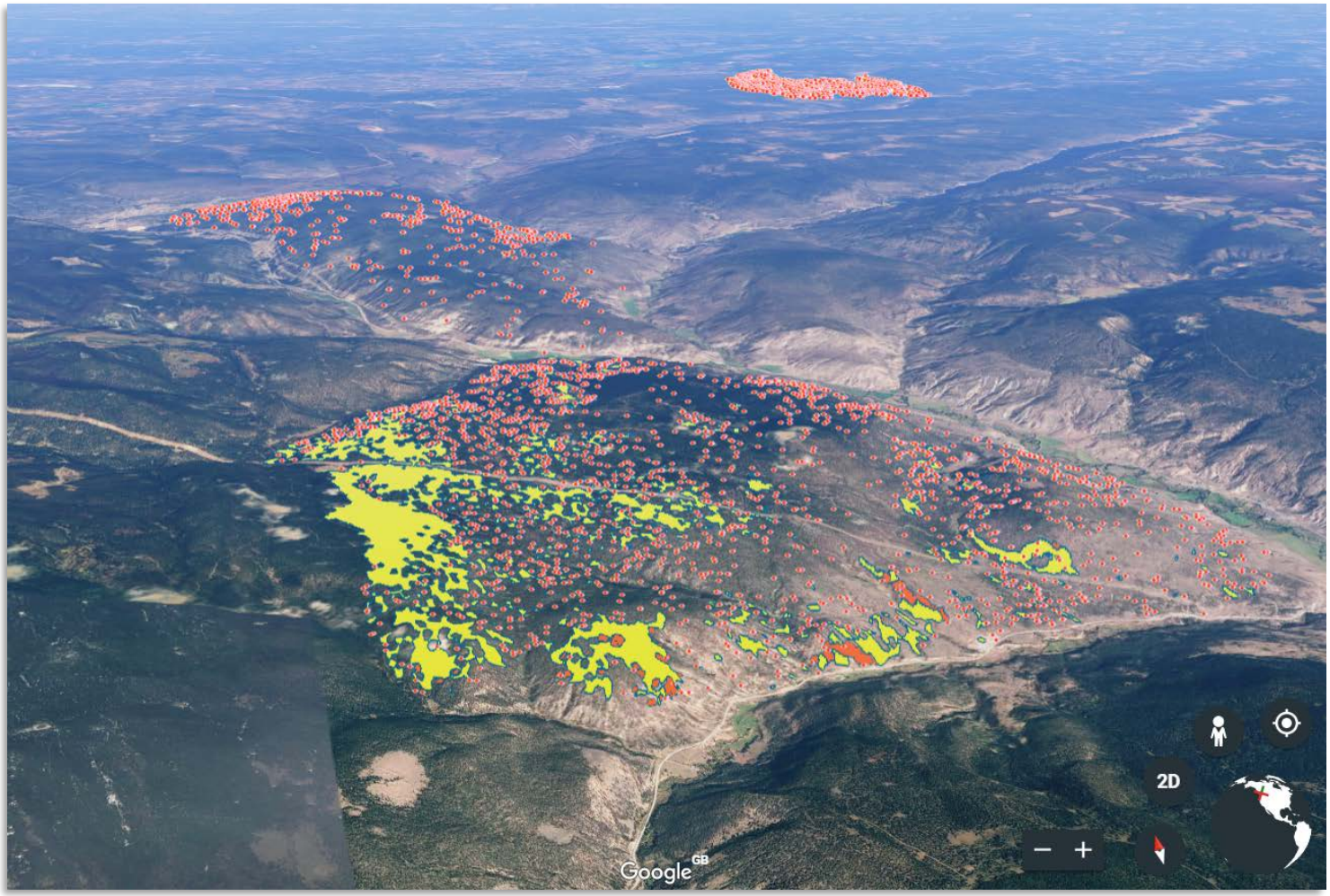
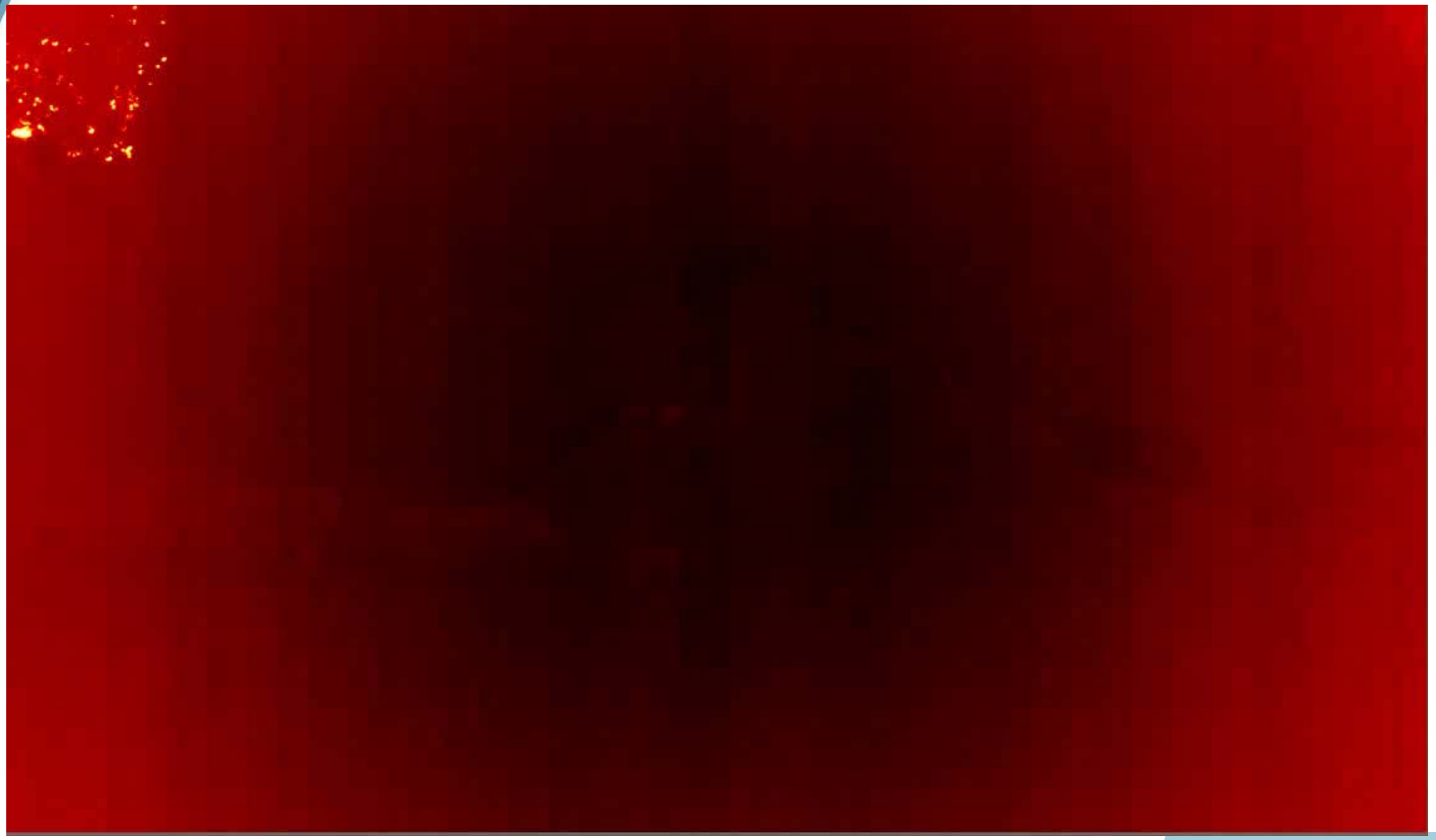


TWFMS - Automation



CAL/VAL Missions



Pickle Lake Flights

…SLSTR was unserviceable that week…

All is not lost!

- Two calibrate MWIR cameras
- Visible imagery
- Radiosonde data
- Coincident flights with many other sensors:
  - Midnight (IC 3-4)
  - 1000 ish (IC 3-4)
  - 1300 ish (IC 4)
  - 1800 ish (IC 4-5)

Sakwite Lake PB

~200 Ha blowdown ignited via helitorch, Oct 2017

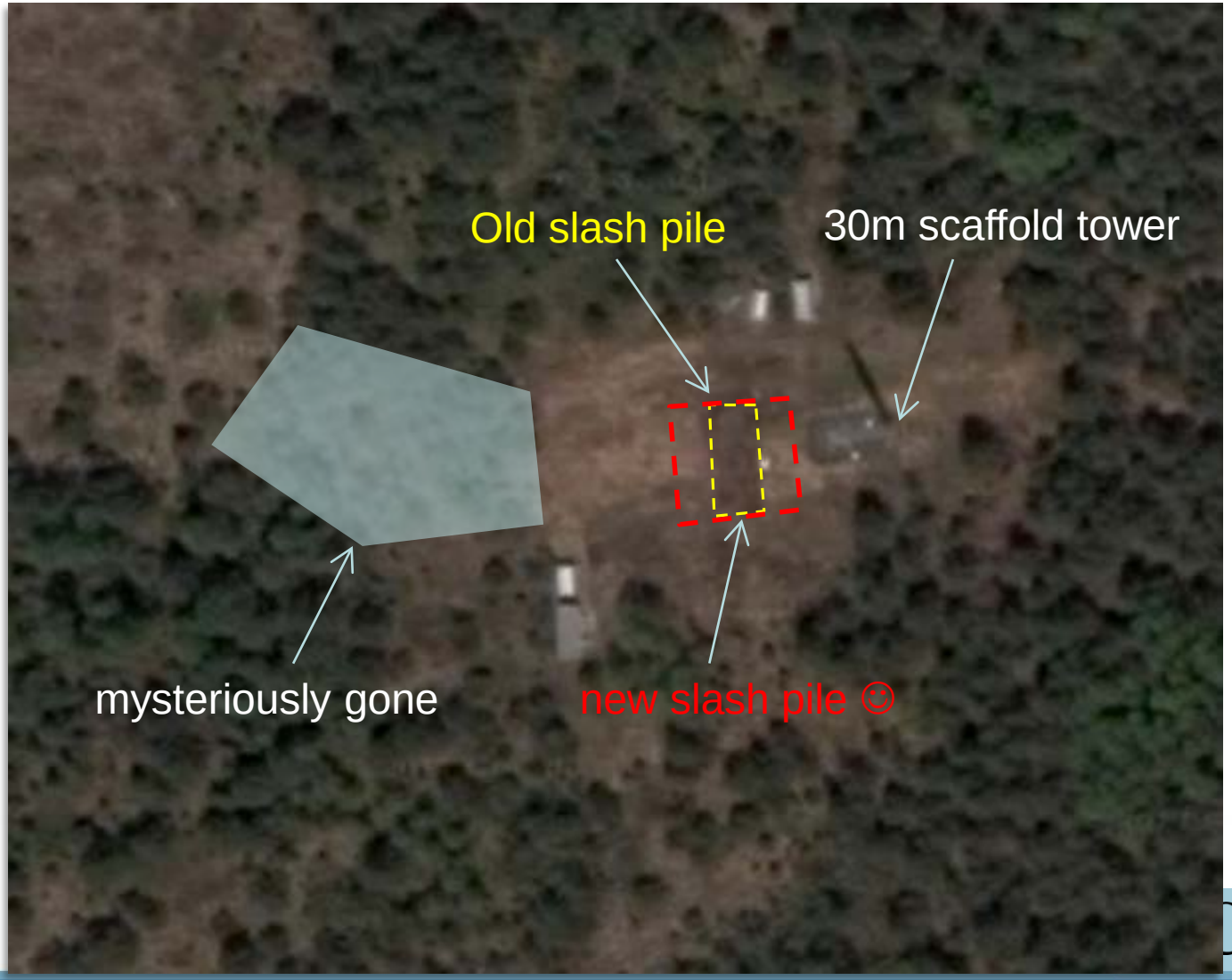
Data Acquired:

- Burn extent
- Fuel consumption
- Plume height
- Clearly visible on GOES

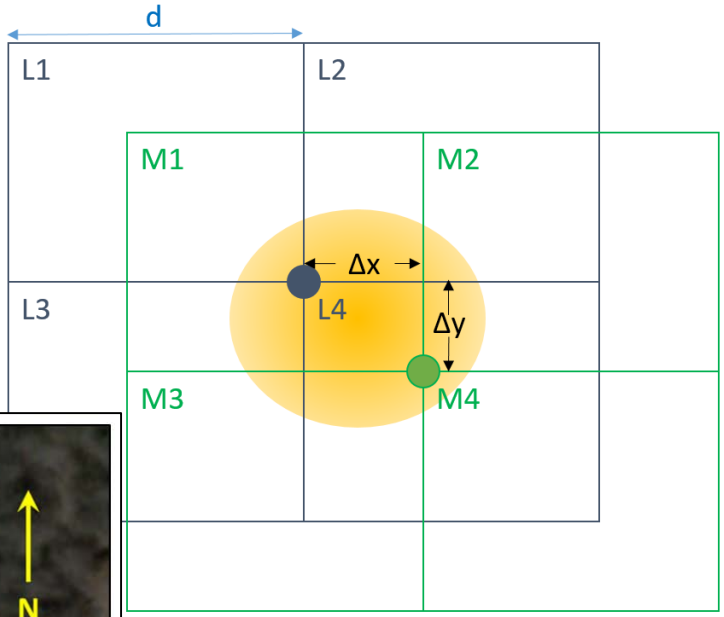
Rose Experimental Burn Station

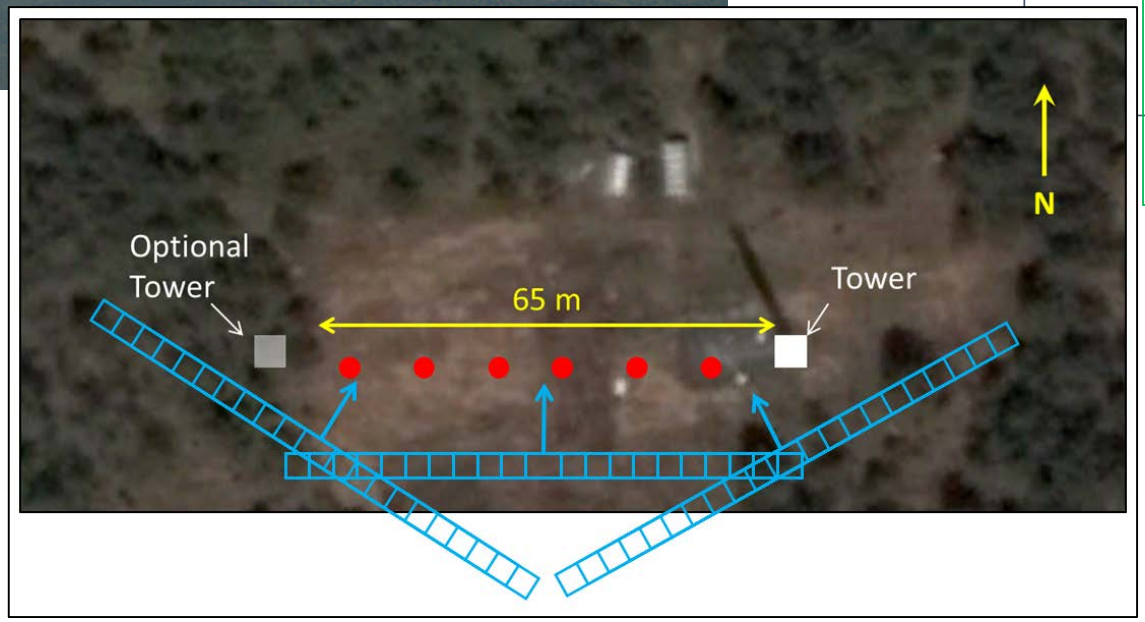
Rose Experimental Burn Station

Rose Experimental Burn Station



Rose Experimental Burn Station





Airborne CWFMS campaign Fall 2018

Thank you

Questions?

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