

Modeling Fire Behavior with Landfire in Alaska



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AK LANDFIRE – General Impressions

- Based on one season of experience, for geospatial fire behavior modeling, the AK Landfire data is a good place to start.
- Under-prediction of fire spread in FSPro appears to be an issue
- Modifications to the data may be necessary depending on the model and the type of fire season

AK LANDFIRE – Some observations

- NOTE: Observations are based on 2010 fire season, early start and very active fires. This season followed the late July and August active fires of 2009.

AK LANDFIRE – Some observations

- Aspect
 - Landfire
 - WFDSS



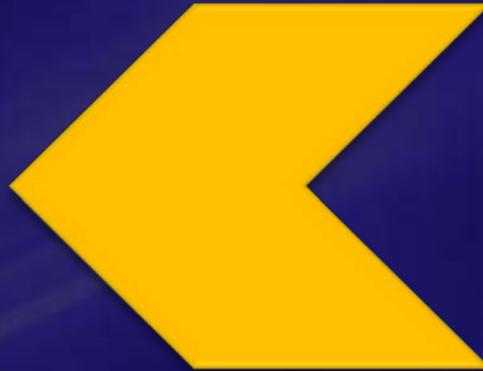
Image from WFDSS
2/1/2011

AK LANDFIRE – Some observations

- Riparian areas



Fuel Model 189



Landfire



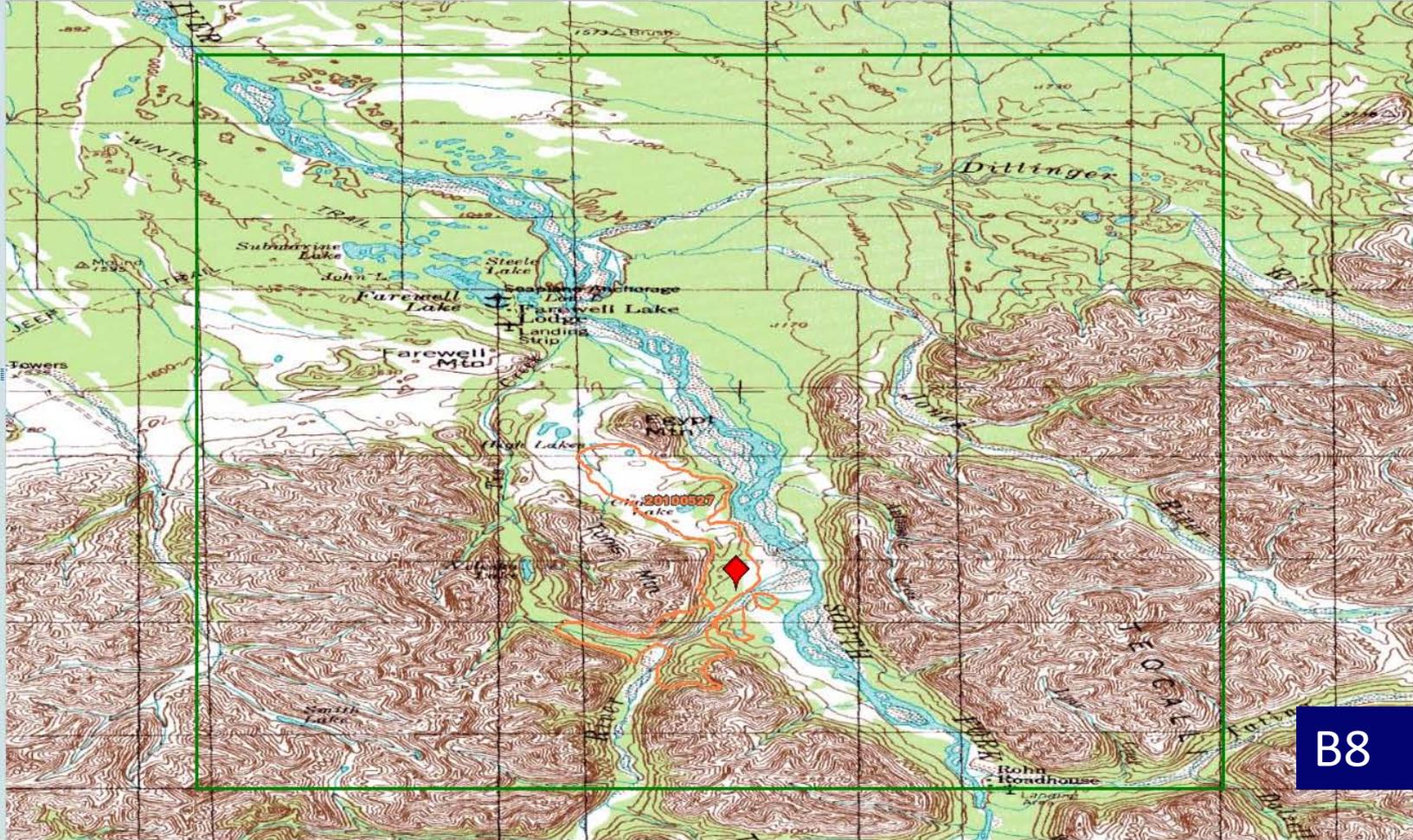
Fuel Model 183



Fuel Model 182

2010 Turquoise Lake Fire

Layers Base Layers Incident Analysis Short Term Results Arrival Time Major Paths Basic Output Ignition Layer Transparency 100% Layer Order 2nd of 3 LCP Masks Landscape Extent Fire-Related Reference Values Editable



B8

Finney Crown Fire (1998)

Brian Sorbel on Production | [Sign out](#)
Analysis: Cal8.2; 5/28-5/29; 20 hrs; 142=144; Herb=30%; F

Wildland Fire
Decision Support System

National Preparedness Level: 2

Incident: 137 Turquoise Lake / 2010-AKSW-004137

My Home Incidents **Analyses** Intelligence Data Management

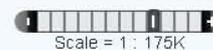
[Help](#) | [Feedback](#)

Menu **Map** Info Results

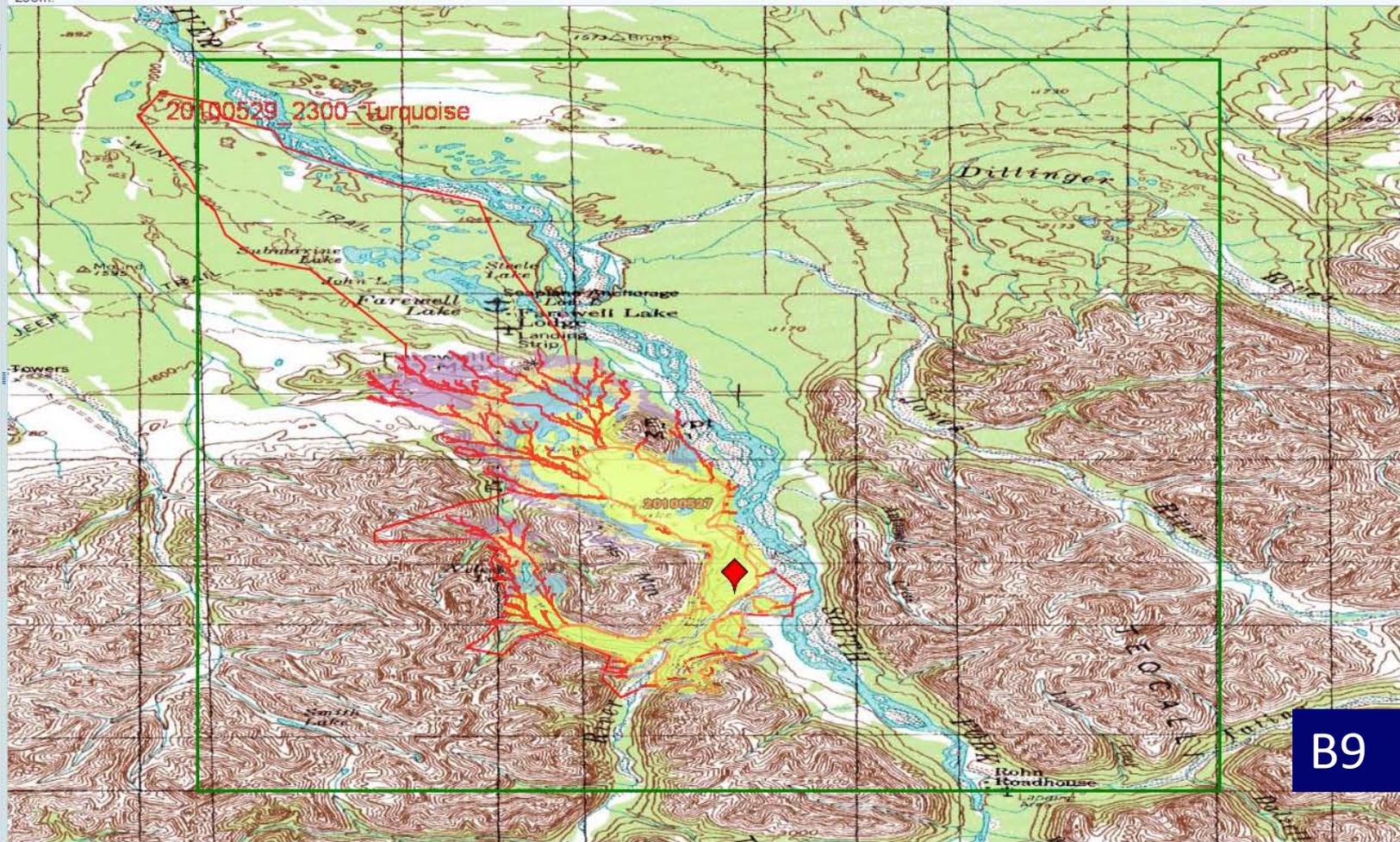
Messages (0)

- Layers
- Base Layers
- Incident
 - Fire Perimeters
 - Turquoise 6_4_2010
 - 20100529_2300_Turquoise
 - new21100522
 - new20100527
 - newer20100528
 - new20100525
 - Mgmt Action Points
 - Points of Interest
- Analysis
 - Short Term Results
 - Arrival Time
 - Major Paths
 - Basic Output
 - Ignition
 - LCP Masks
 - Landscape Extent
- Fire-Related
 - Reference
 - Values
 - Editable

Drag to pan. Shift-click, drag, and release to zoom. Double-click to re-center and zoom.

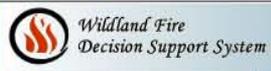


Latitude: 62.66659 Longitude: -153.85255



B9

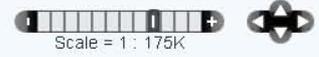
Scott/Reinhardt Crown Fire (2001)



National Preparedness Level: 2
Incident: 137 Turquoise Lake / 2010-AKSW-004137

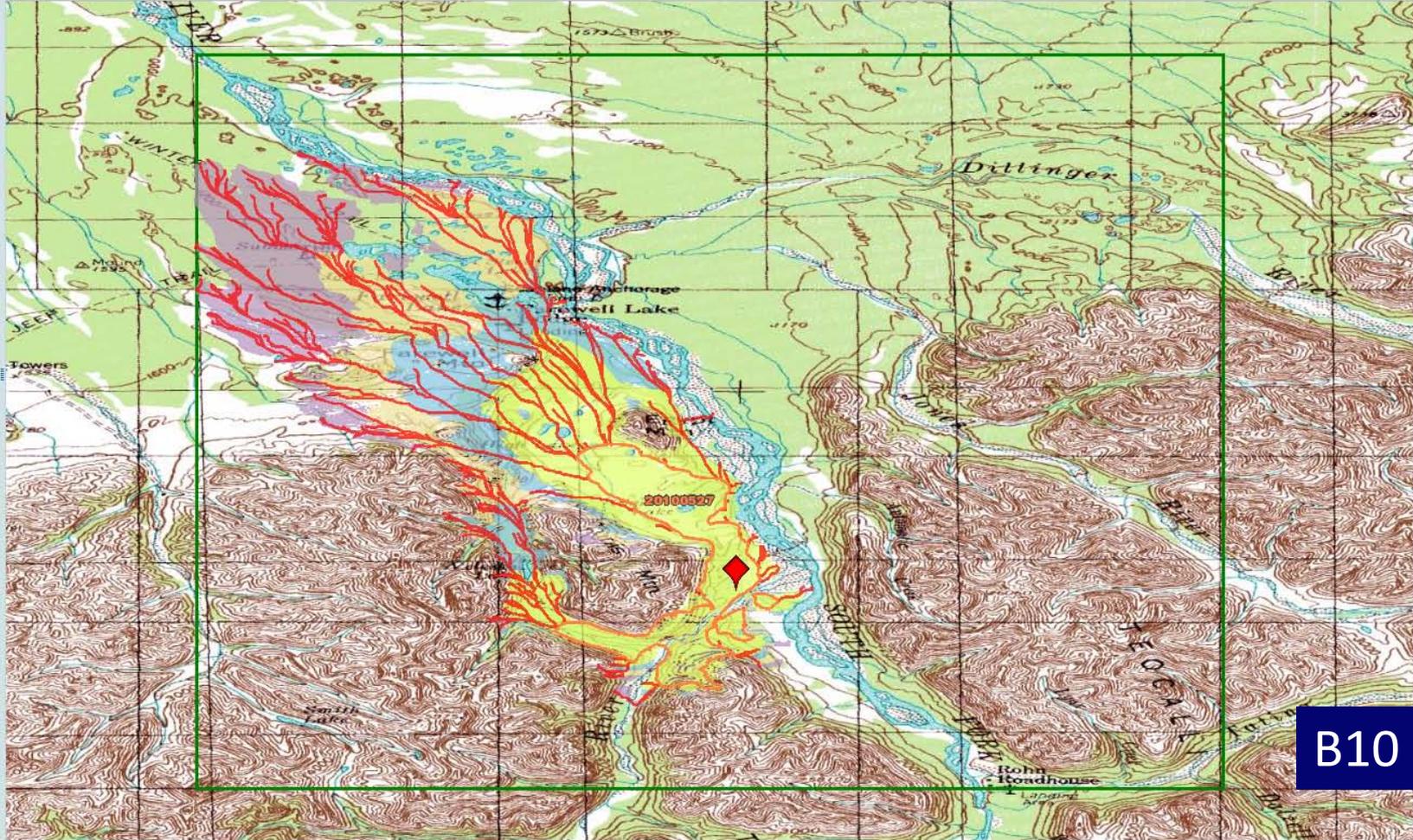
Brian Sorbel on Production | [Sign out](#)
Analysis: Cal8.1; 5/28-5/29; 20hrs; 142=144; Herb=30%

Messages (0)
Drag to pan. Shift-click, drag, and release to zoom. Double-click to re-center and zoom.



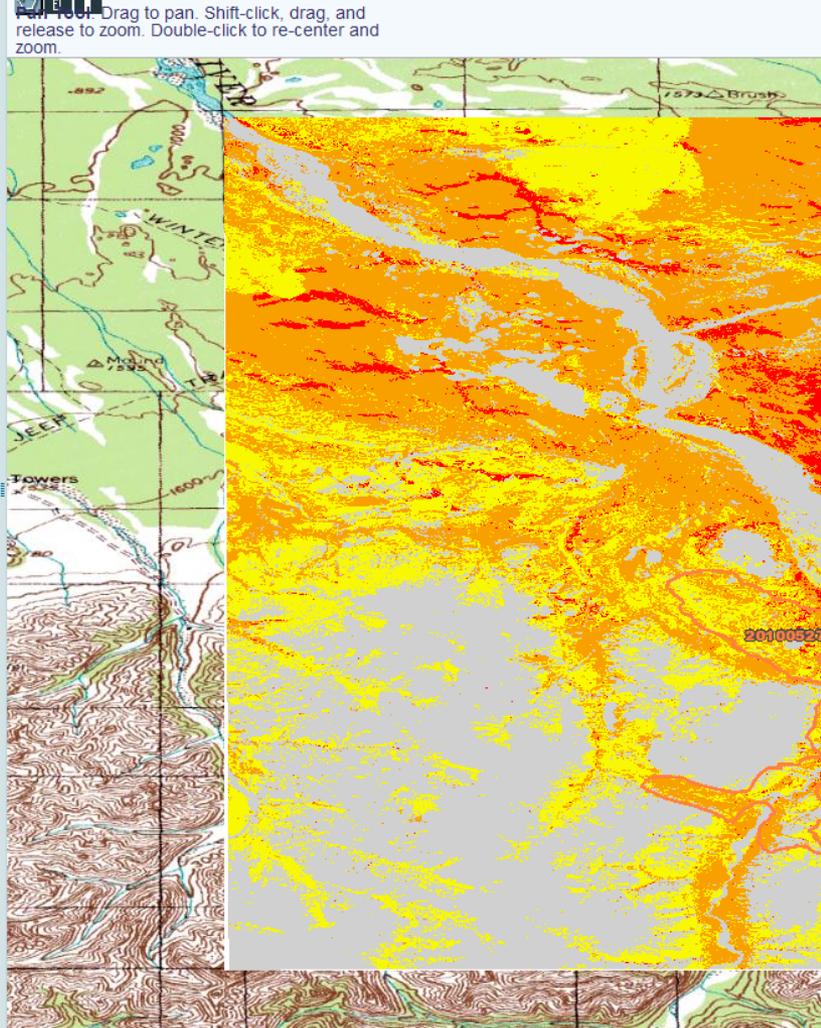
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- Layers
 - Base Layers
 - Incident
 - Analysis
 - Short Term Results
 - Arrival Time
 - Major Paths
 - Basic Output
 - Ignition
 - Layer Transparency: 100%
 - Layer Order: 2nd of 3
 - LCP Masks
 - Landscape Extent
 - Fire-Related
 - Reference
 - Values
 - Editable



B10

- Base Layers
 - Incident
 - Analysis
 - Short Term Results
 - Arrival Time
 - Major Paths
 - Basic Output
 - Flame Length
 - Rate of Spread
 - Fireline Intensity
 - Heat per Unit Area
 - Crown Fire Activity
 - Solar Radiation
 - 1 Hr Fuel Moisture
 - 10 Hr Fuel Moisture
 - Max Spread Direction
 - Wind Direction
 - Wind Speed
 - Ignition
 - LCP Masks
 - Landscape Extent
- Fire-Related
 - Reference
 - Values
 - Editable



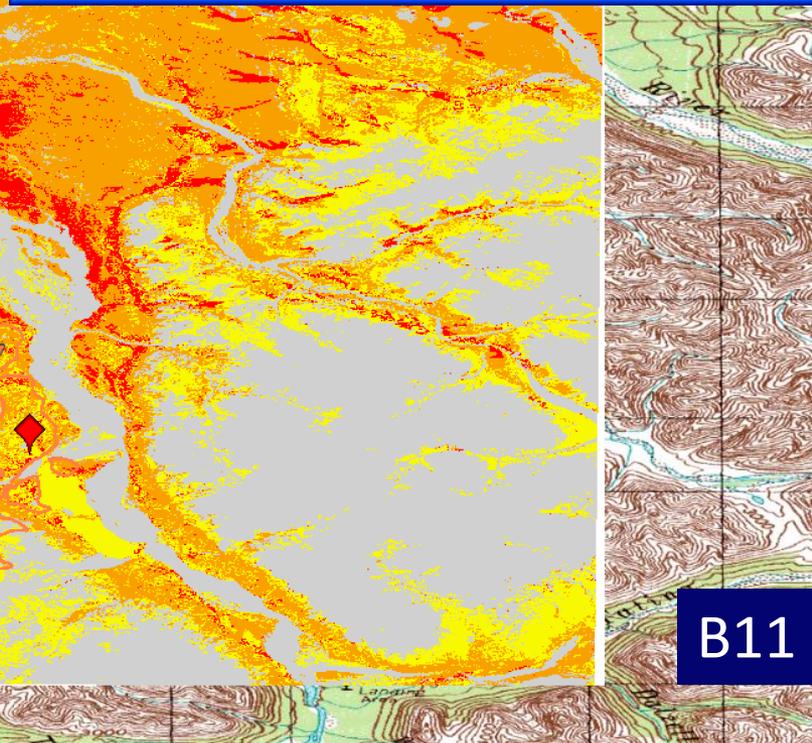
Incident	Analysis	Analysis Date	Time
137 Turquoise Lake	Cal8; 5/28-5/29; 20hrs; 142=144	05/28/2010	13:00

Wind Speed	Direction	RAWS Station
20 mph	160° azimuth	500624 - FAREWELL

Crown Fire Activity Legend

Resolution: 30 meters Units: no applicable units

Value	Freq
No Fire	489,701
Surface Fire	294,519
Passive Crown	458,641
Active Crown	51,890
No Data	9,926



Landscape Edits for use with Finney Crown Fire in FSPro / STFB

- Change TU4 to SH5 (optional: change all TU models to SH5)
- Multiply Canopy Base Height by 0.6
- For Timber fuel models, set Canopy Bulk Density to 0.3 kg/m³
- If percent canopy cover is between 25% and 45%, multiply by 0.85
- If percent canopy cover is greater than 46%, multiply by 0.7

Finney Crown fire with no edits to AK Landfire

Wildland Fire Decision Support System National Preparedness Level: 2
 Incident: 137 Turquoise Lake / 2010-AKSW-004137

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 Analysis: 4_May28_7day_no_lcp_mods

My Home Incidents Analyses Intelligence Data Management

Menu **Map** Info Results Messages (0)

Legend

Fire Spread Probability

Red	80-100%
Orange	60-79%
Yellow	40-59%
Light Green	20-39%
Dark Green	5-19%
Blue	0.2-4.9%
Pink	< 0.2%

Layers

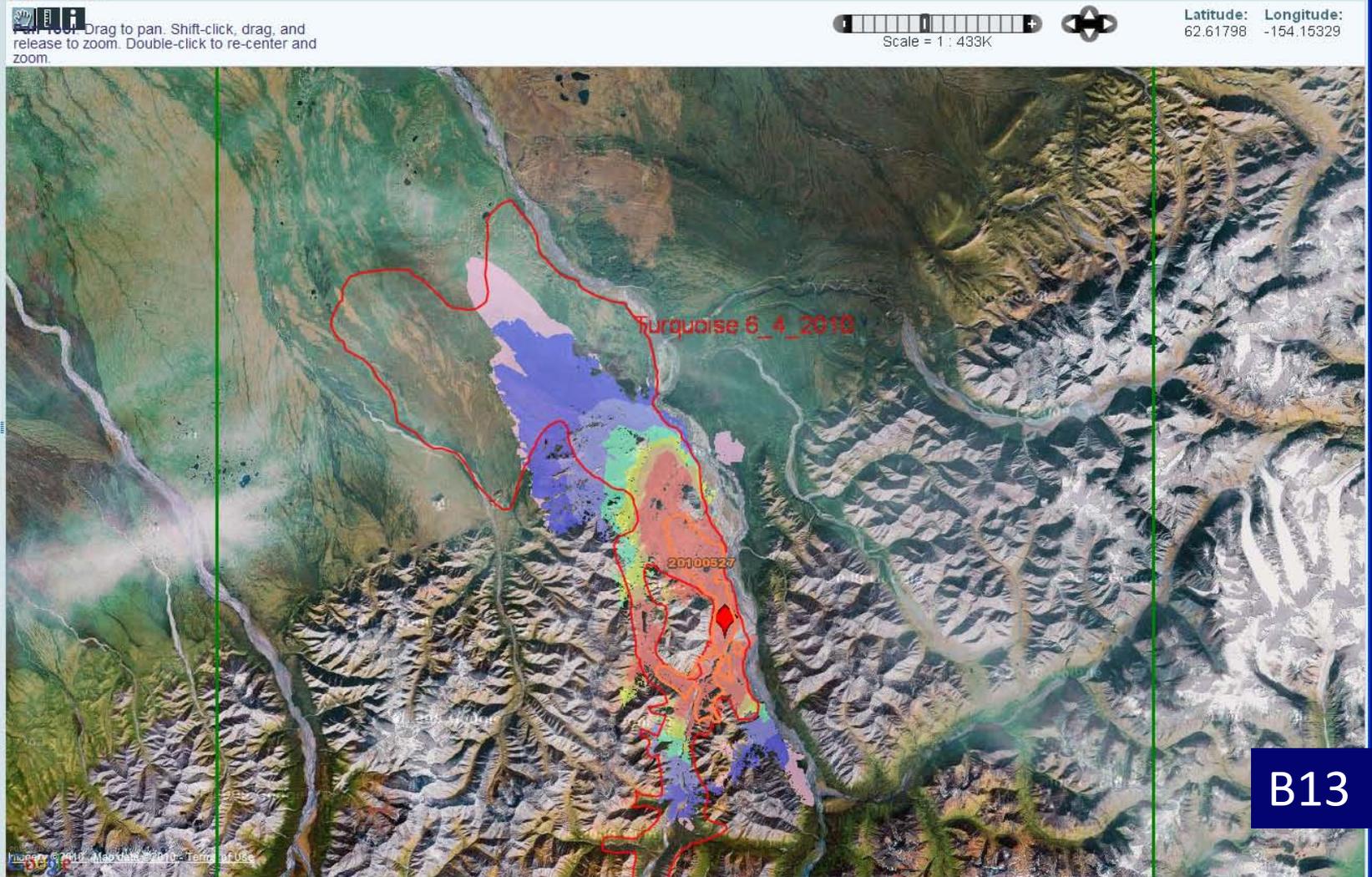
- Base Layers
 - WFDSS Topos
 - Google Maps
 - Google Physical
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 - new20100527
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 - FSPro Results
 - Ignition

Layer Transparency: 100%

Layer Order: Top

- LCP Masks
- Landscape Extent

- Fire-Related
 - Reference
 - Values
 - Editable



Scale = 1:433K

Latitude: 62.61798 Longitude: -154.15329

B13

Finney Crown fire with AK 2010 .lcp edits

Wildland Fire Decision Support System National Preparedness Level: 2
 Incident: 137 Turquoise Lake / 2010-AKSW-004137
 Brian Sorbel on Production | [Sign out](#)
 Analysis: 3_May28_7day_161-165=145

My Home Incidents Analyses Intelligence Data Management

Menu Map Info Results

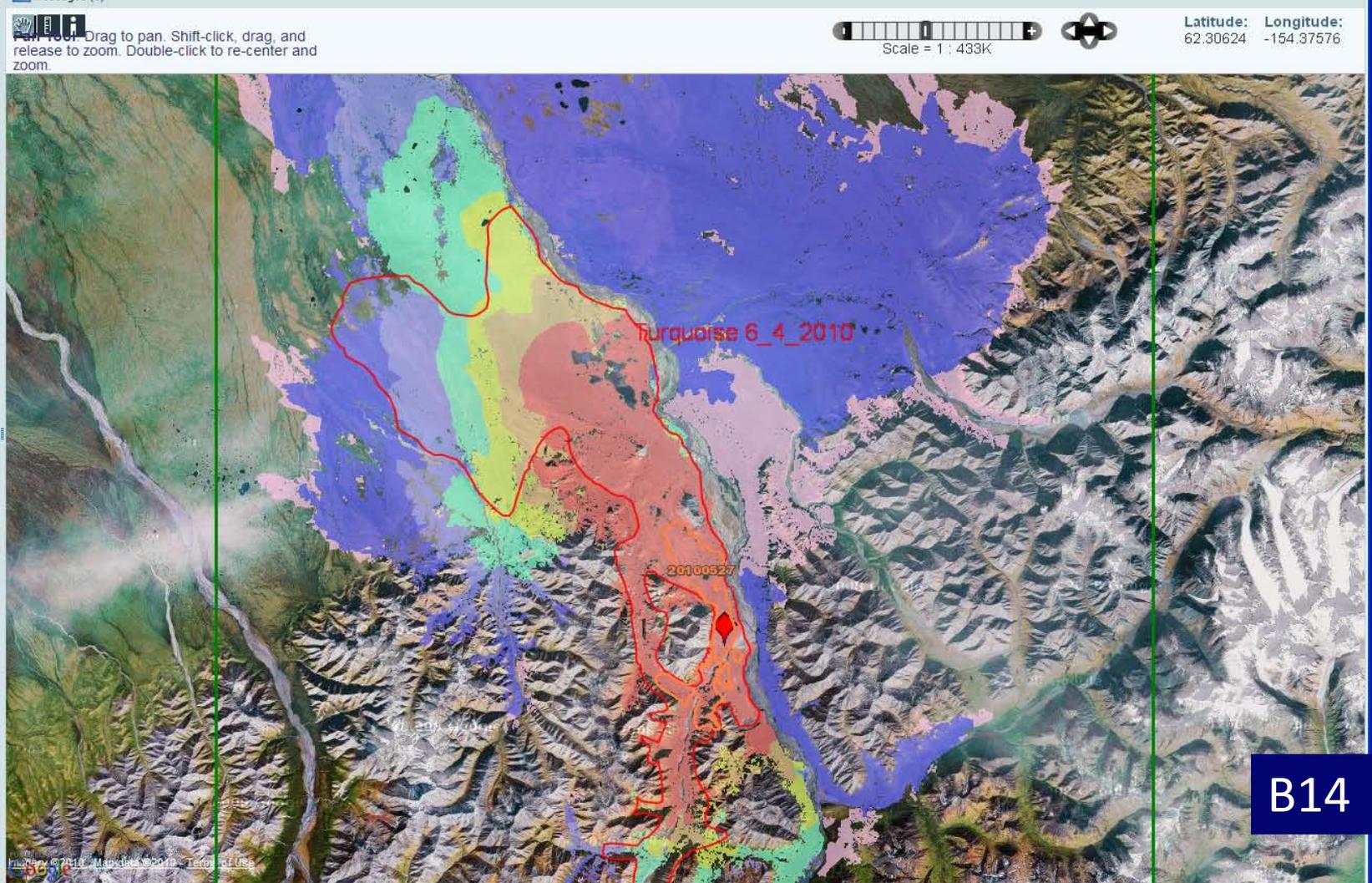
Legend

Fire Spread Probability

- 80-100%
- 60-79%
- 40-59%
- 20-39%
- 5-19%
- 0.2-4.9%
- < 0.2%

Layers

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 - Layer Transparency: 100%
 - Layer Order: Top
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B14