FIREBALL

Get a sample of Real Time Data

1. Get the PDF-Maps App
2. Get net video player
   a. Android - MX Player
   b. iOS – VLC
3. Associate your Wi-Fi with fireball
4. URL for MAP http:// 10.1.1.2
   a. Click on either PDF to download
   b. When down chose open with PDF-Maps
5. URL for Real Time IR http://10.1.1.4:8080
   a. Open the URL as a network stream in the video app

Disseminating Fire Location and Intensity Intel

The Digital Age Finally Covers the Last Mile

&

Breaks the 12 hour Planning Cycle

Fireball

Airborne Field Observers

Fireball

Airborne Field Observers

Intelligence in Time…

to Make a Difference

Tim Ball

775 848 4462

tim@fireballit.com

www.fireballit.com

What mapping should do for you

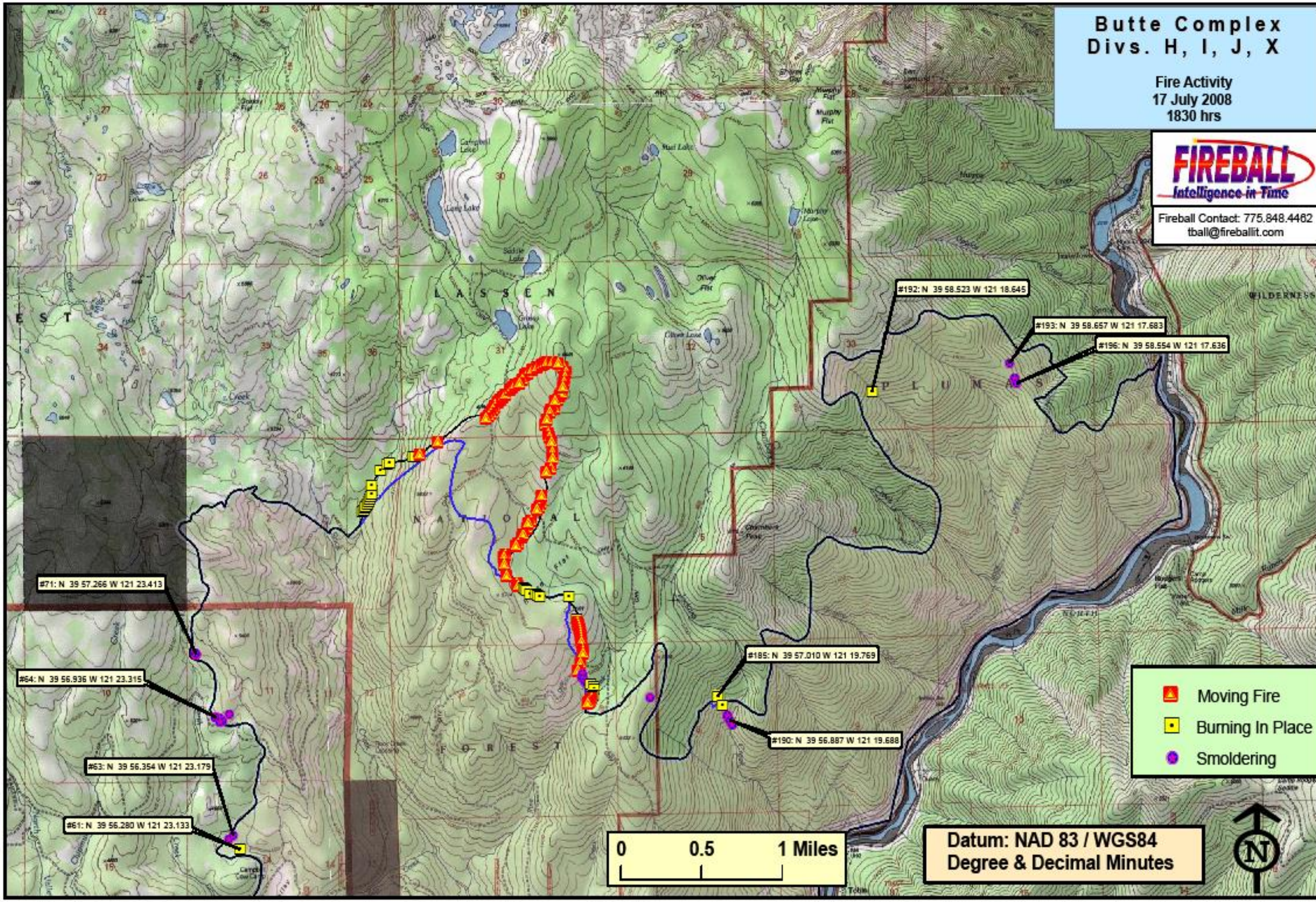
- Products: What information do good incident maps convey?
  - Current Perimeter
  - Fire Activity Level & Potential
  - Values at Risk
  - Fuels
  - Interior Fire Activity that Threatens Perimeter

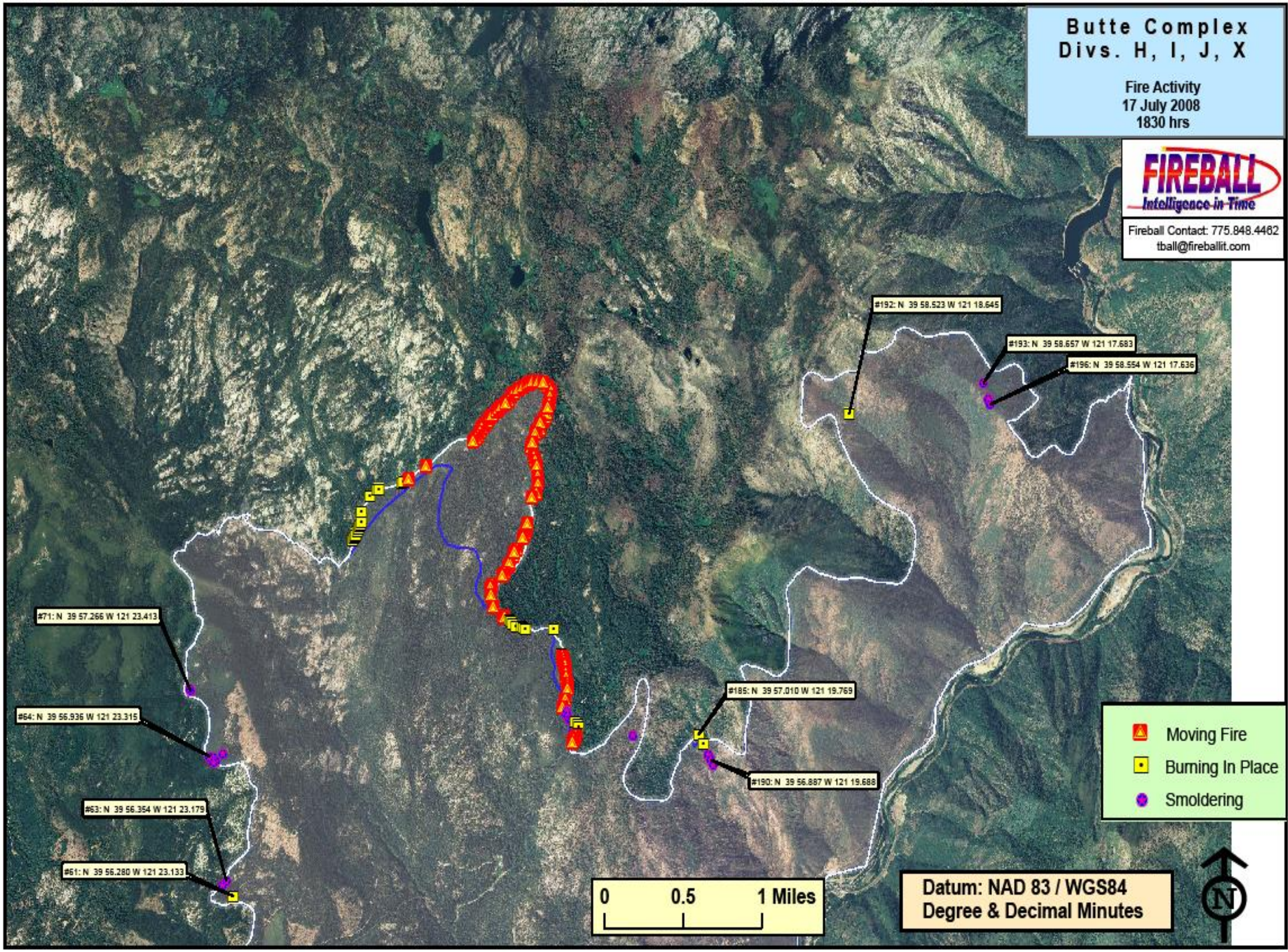
“at-a-glance simple”

Oh, and did I mention deliver it NOW!

Three Time Frames For Intel Delivery

- In-Flight (*Wi-Fi Direct and/or Cell*)
- Immediately upon Landing (*Hard Copy & Cell*)
- Briefing package *(Hard Copy, Wi-Fi, Cell)*


Butte Complex
Divs. H, I, J, X
Fire Activity
17 July 2008
1830 hrs
FIREBALL
Intelligence in Time
Fireball Contact: 775.848.4462
tball@fireballit.com
LASSEN
NATIONAL
FOREST
PLUMAS
#192: N 39 58.523 W 121 18.645
#193: N 39 58.657 W 121 17.683
#196: N 39 58.554 W 121 17.636
#71: N 39 57.266 W 121 23.413
#64: N 39 56.936 W 121 23.315
#63: N 39 56.354 W 121 23.179
#61: N 39 56.280 W 121 23.133
#185: N 39 57.010 W 121 19.769
#190: N 39 56.887 W 121 19.688
Moving Fire
Burning In Place
Smoldering
0 0.5 1 Miles
Datum: NAD 83 / WGS84
Degree & Decimal Minutes
N



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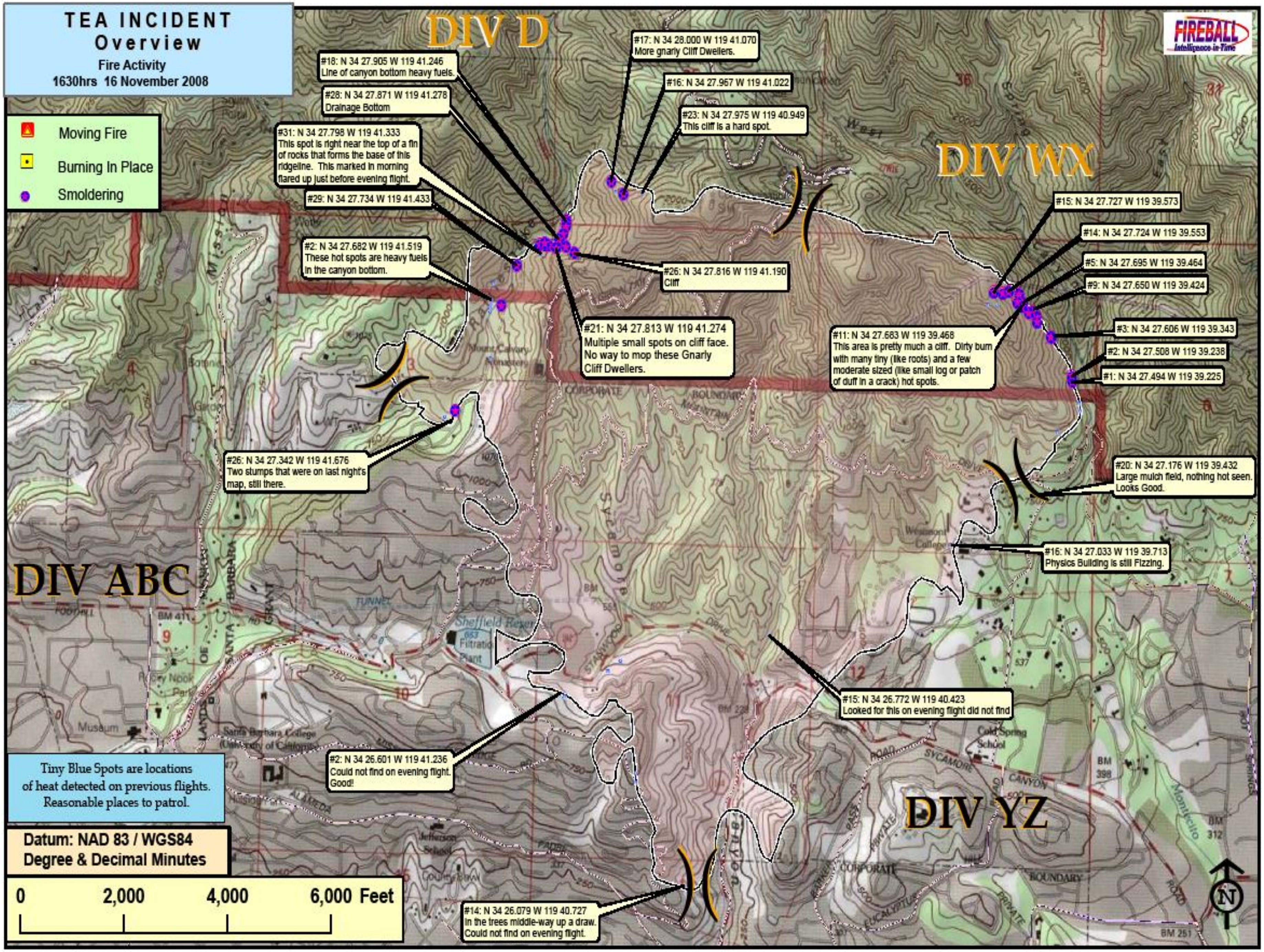
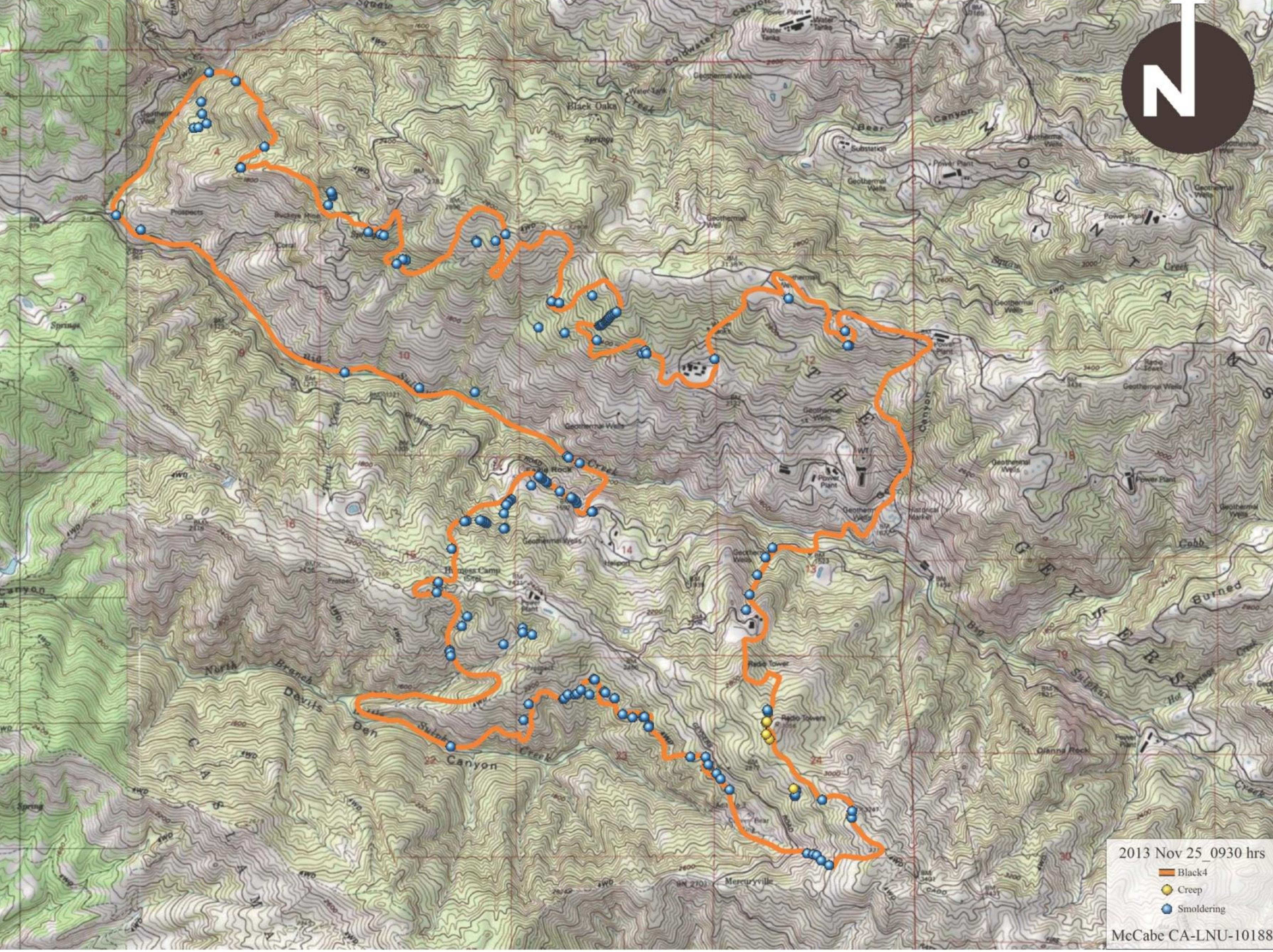
Moving Fire
Burning In Place
Smoldering
0
0.5
1 Miles
Datum: NAD 83 / WGS84
Degree & Decimal Minutes
N



TEA INCIDENT
Overview
Fire Activity
1630hrs 16 November 2008
Moving Fire
Burning In Place
Smoldering
DIV D
DIV WX
DIV ABC
DIV YZ
FIREBALL
Intelligence-in-Time
#18: N 34 27.905 W 119 41.246 Line of canyon bottom heavy fuels.
#28: N 34 27.871 W 119 41.278 Drainage Bottom
#31: N 34 27.798 W 119 41.333 This spot is right near the top of a fin of rocks that forms the base of this ridgeline. This marked in morning flared up just before evening flight.
#29: N 34 27.734 W 119 41.433
#2: N 34 27.682 W 119 41.519 These hot spots are heavy fuels in the canyon bottom.
#17: N 34 28.000 W 119 41.070 More gnarly Cliff Dwellers.
#16: N 34 27.967 W 119 41.022
#23: N 34 27.975 W 119 40.949 This cliff is a hard spot.
#26: N 34 27.816 W 119 41.190 Cliff
#21: N 34 27.813 W 119 41.274 Multiple small spots on cliff face. No way to mop these Gnarly Cliff Dwellers.
#15: N 34 27.727 W 119 39.573
#14: N 34 27.724 W 119 39.553
#5: N 34 27.695 W 119 39.464
#9: N 34 27.650 W 119 39.424
#3: N 34 27.606 W 119 39.343
#2: N 34 27.508 W 119 39.238
#1: N 34 27.494 W 119 39.225
#11: N 34 27.683 W 119 39.468 This area is pretty much a cliff. Dirty burn with many tiny (like roots) and a few moderate sized (like small log or patch of duff in a crack) hot spots.
#26: N 34 27.342 W 119 41.676 Two stumps that were on last night's map, still there.
#20: N 34 27.176 W 119 39.432 Large mulch field, nothing hot seen. Looks Good.
#16: N 34 27.033 W 119 39.713 Physics Building is still Fizzing.
#15: N 34 26.772 W 119 40.423 Looked for this on evening flight did not find
#2: N 34 26.601 W 119 41.236 Could not find on evening flight. Good!
#14: N 34 26.079 W 119 40.727 In the trees middle-way up a draw. Could not find on evening flight.
Tiny Blue Spots are locations of heat detected on previous flights. Reasonable places to patrol.
Datum: NAD 83 / WGS84
Degree & Decimal Minutes
0 2,000 4,000 6,000 Feet
N


N
2013 Nov 25_0930 hrs
Black4
Creep
Smoldering
McCabe CA-LNU-10188

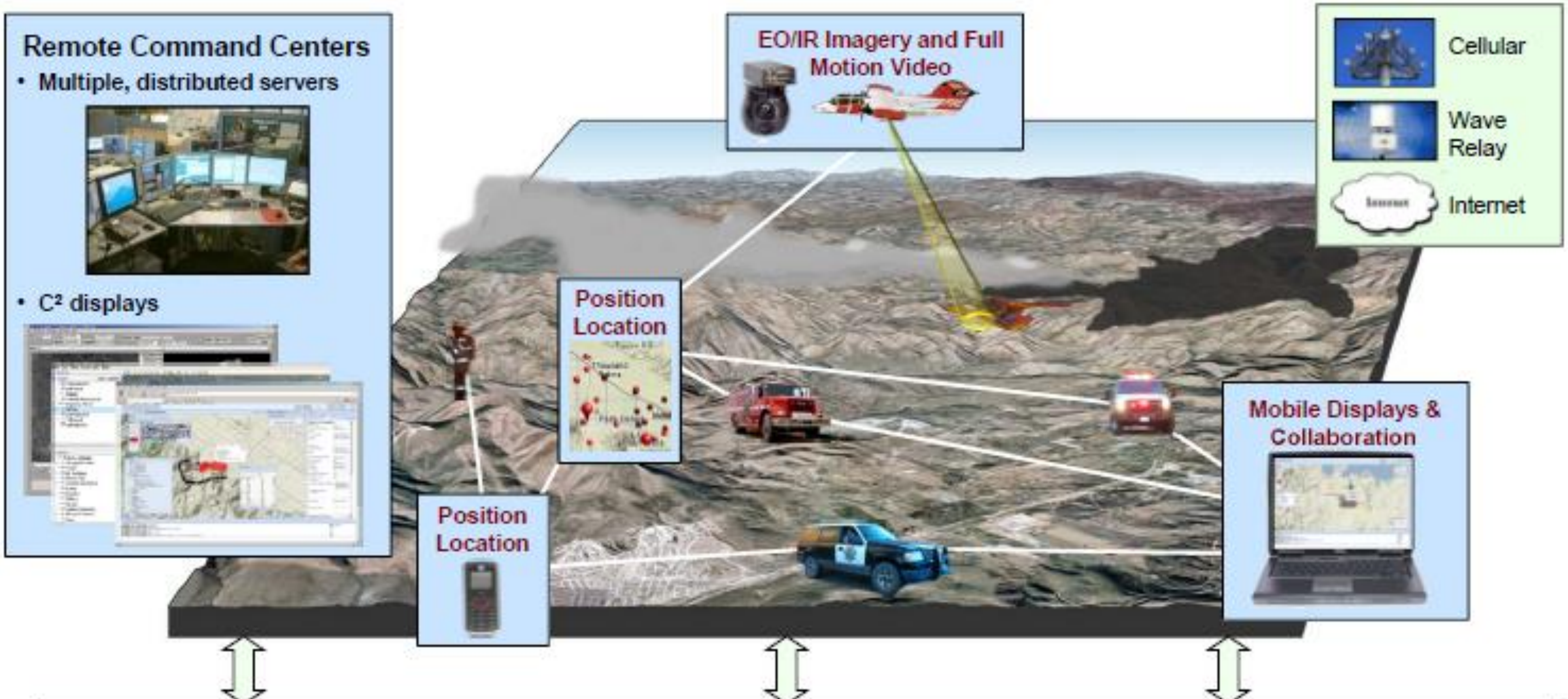
Products

Six Types with Three Time Frames

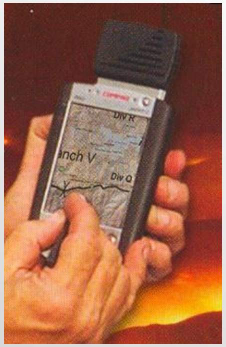
- In Flight:
  - PDF-Maps (Full Detail) Via Wi-Fi & Cell & NICS
  - Video Down Link (Visible & IR)
- Immediate Post-Flight:
  - Overview Maps (Hard Copy Whole Incident, Less Detail)
  - PDF-Maps (Electric)
  - Video Clips with GPS Track (Electric)
  - Shapefiles
  - Data Submitted to NICS
- Briefing
  - Division Level (Hard Copy Detailed maps, Lat/Lon Callouts)
  - PDF-Maps (Full Detail Electric)
  - Mug Shots (Photos with specific guidance)
  - Overview Maps (Hard Copy Whole Incident, Less Detail)

NICS System Overview

Homeland Security
Science and Technology



Ancient History, 2003



Historic First Ever
Live Firemap Download
HP-IPAQ
GrandPrix Fire BDU

Map Printed on Hood of
Patterson's Vehicle

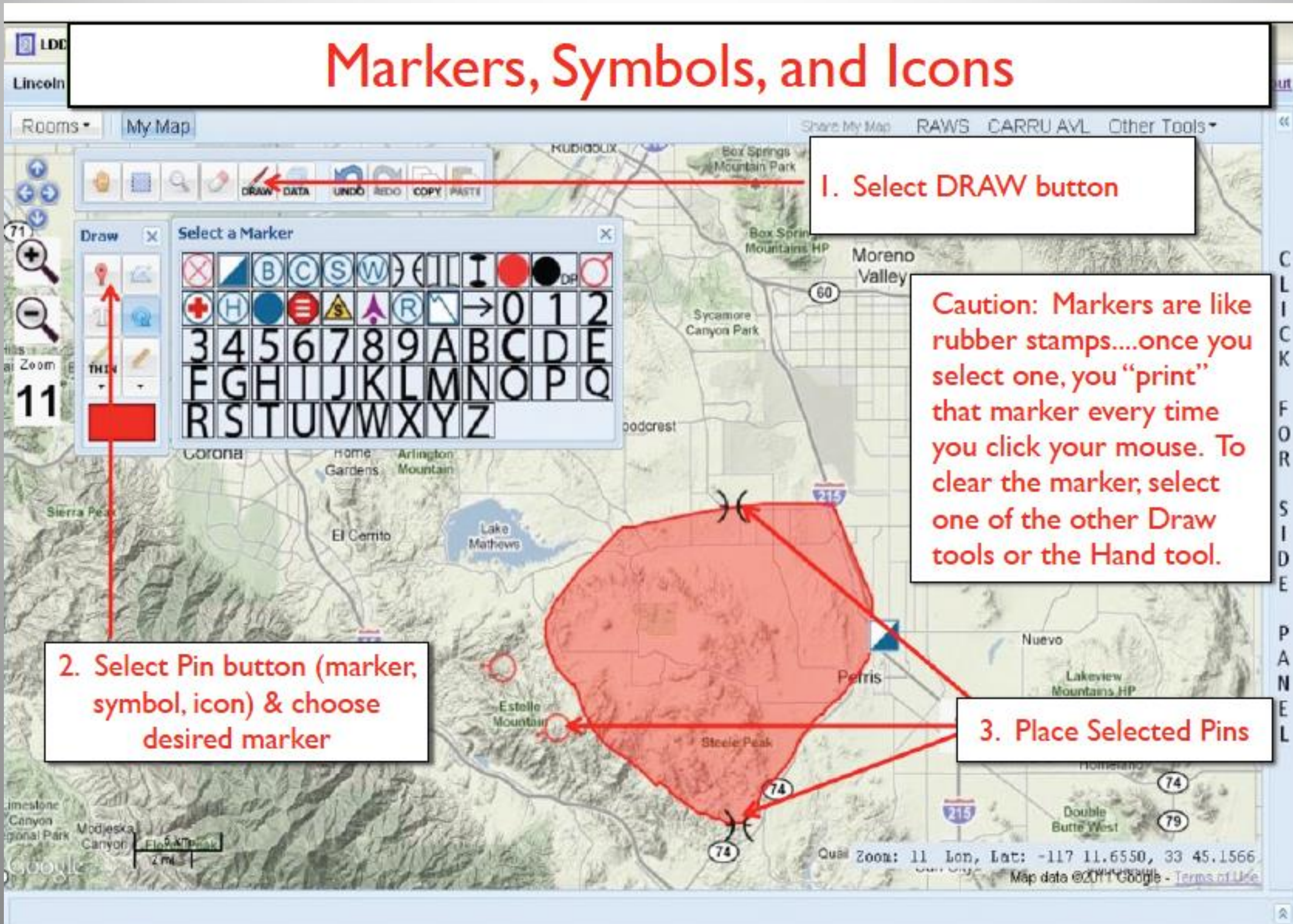
Smart Phone Revolution

PDF & JPG
Available via FTP
today

Android
Apps is Available
months
Maps &
Live-Video

Military Proven
Video Link
15 miles
Solid

Markers, Symbols, and Icons



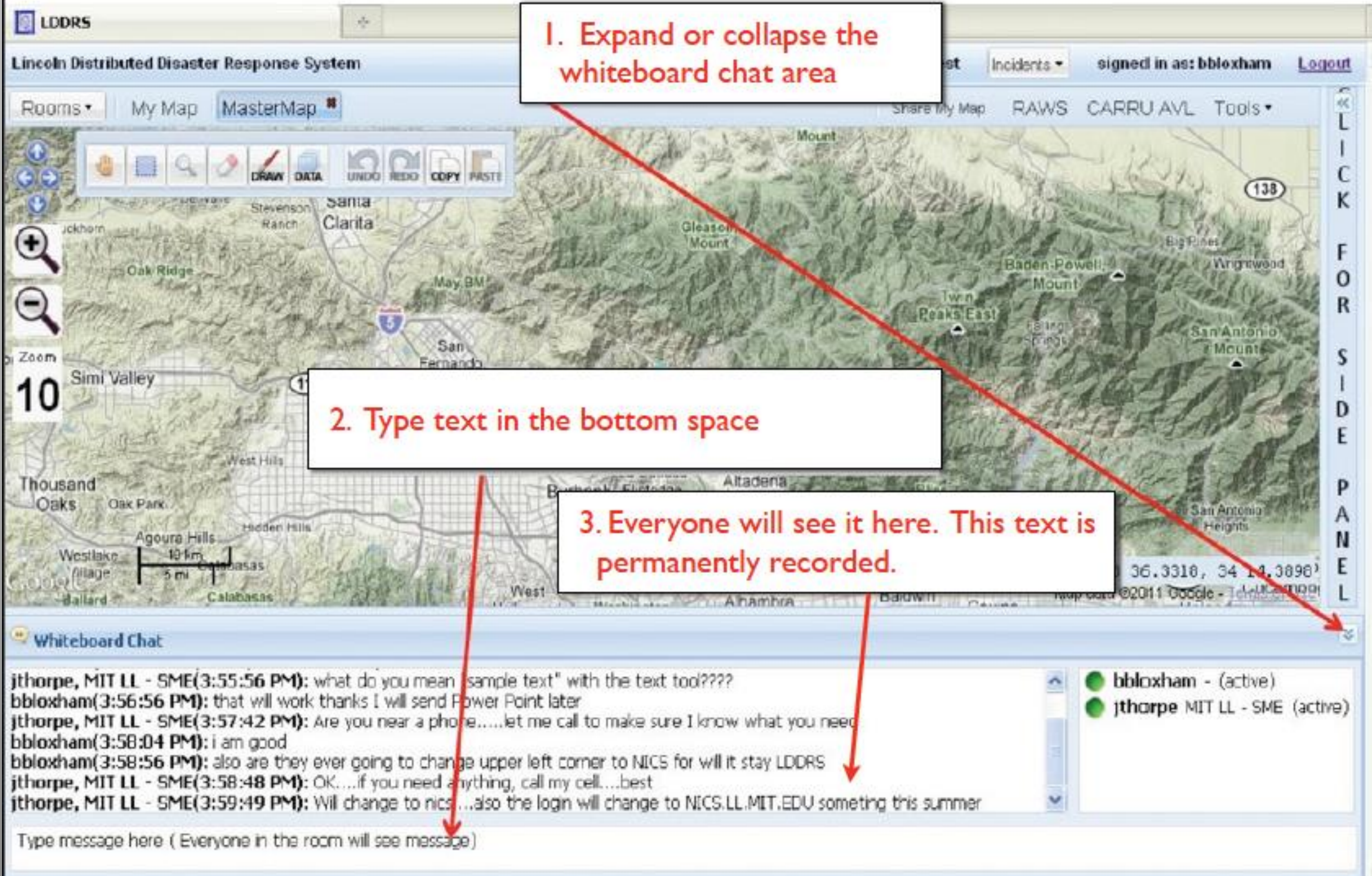
1. Select DRAW button

Caution: Markers are like rubber stamps....once you select one, you "print" that marker every time you click your mouse. To clear the marker, select one of the other Draw tools or the Hand tool.

2. Select Pin button (marker, symbol, icon) & choose desired marker

3. Place Selected Pins

Public Whiteboard Chat

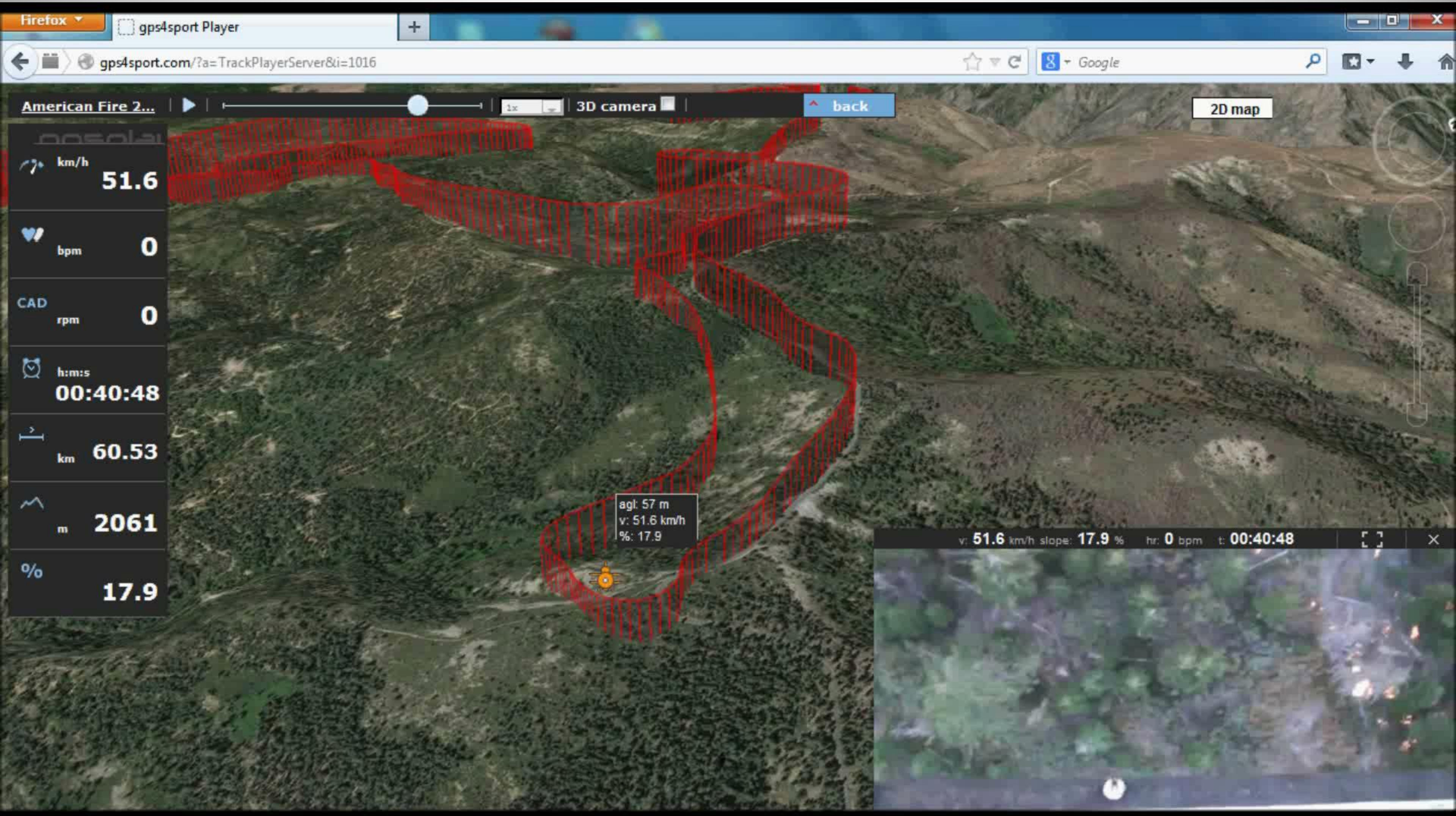


In-Flight Video

- Via Wi-Fi
- Any Smartphone, Tablet, or Laptop
- Tracking Antenna needed to get to ICP
- IR Stream
- Visible Stream

We will see IR example later

Vis Clip



Firefox
gps4sport Player
gps4sport.com/?a=TrackPlayerServer&i=1016
Google
American Fire 2...
3D camera
back
2D map
km/h
51.6
bpm
0
CAD
rpm
0
h:m:s
00:40:48
km
60.53
m
2061
%
17.9
agl: 57 m
v: 51.6 km/h
%: 17.9
v: 51.6 km/h slope: 17.9 % hr: 0 bpm t: 00:40:48

IR Clip from LNU McCabe Incident 11/25/2013_0900

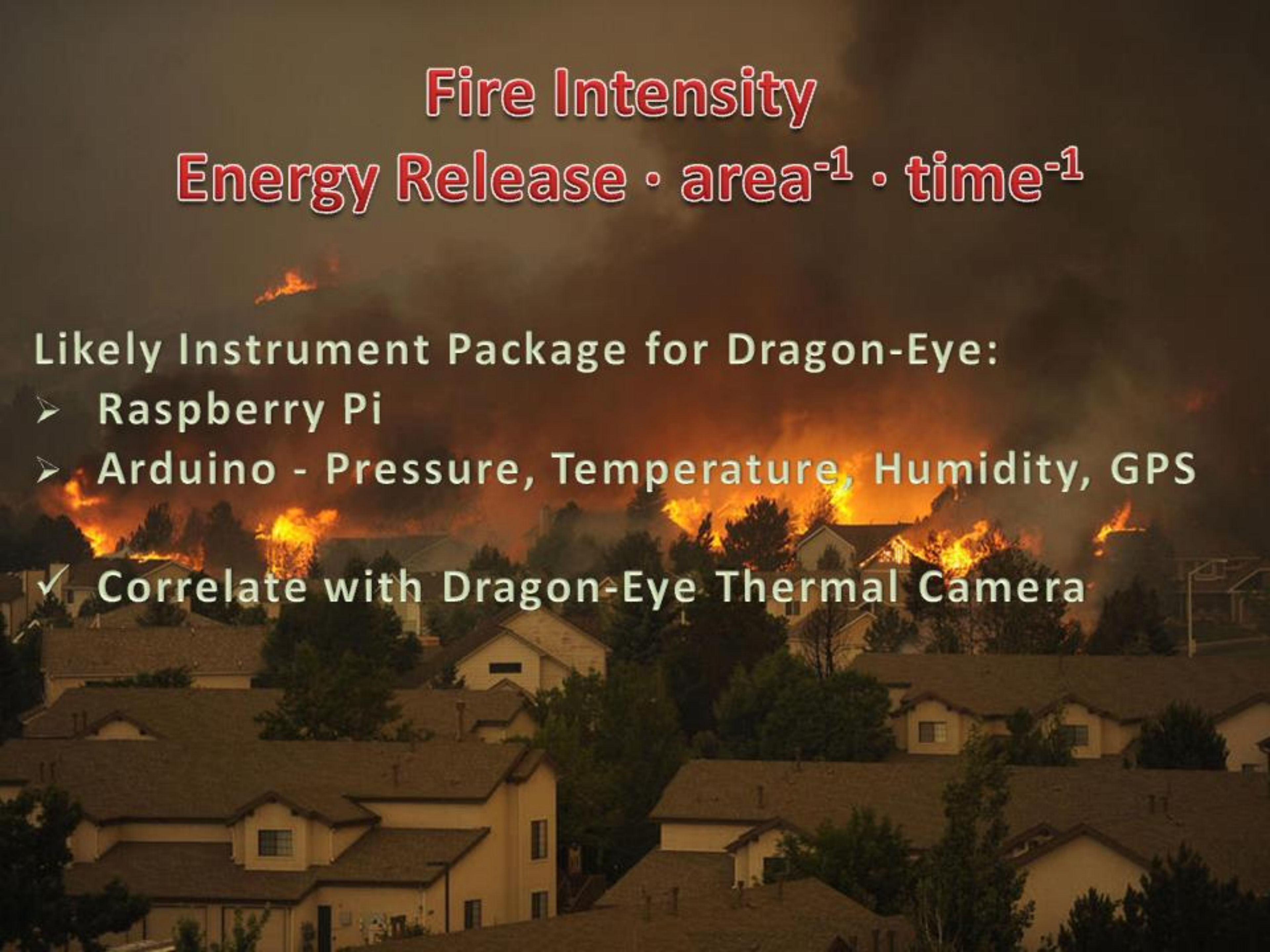
Fire Intensity
Energy Release · area^{-1} · time^{-1}

Integrated Intensity value needed.

Measurement:

Difference in energy content of the air in and out of the smoke plume.

- Simple temperature and humidity record flying in and out of the plume.
- Calculate Δ-virtual potential temperature
- Allows calculation of energy input at the surface.



Fire Intensity
Energy Release · area^{-1} · time^{-1}

Likely Instrument Package for Dragon-Eye:

- Raspberry Pi
- Arduino - Pressure, Temperature, Humidity, GPS

✓ Correlate with Dragon-Eye Thermal Camera

Fireball

Airborne Field Observers

Systems based in:

Redding

Reno

Van Nuys

Fireball

Airborne Field Observers

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