



National Infrared Operations Update

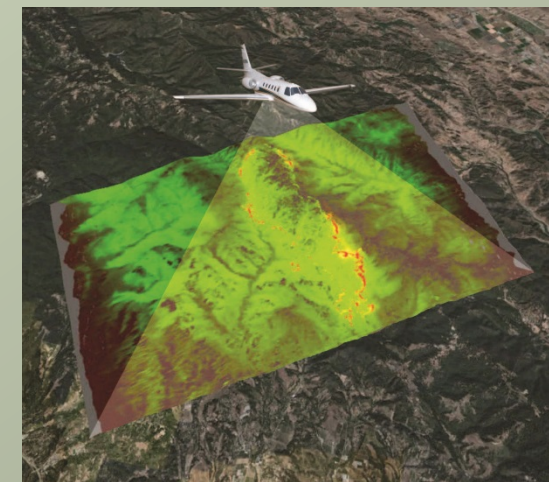
TFRSAC Spring 2019

Tom Mellin,
National Infrared Program Manager



NIROPS Platforms & Systems

- 2 FS aircraft
- 3 Phoenix Imaging Systems
 - 2 thermal bands (3-5 μm , 8-12 μm)
 - 120° field of view
 - 6 mile swath at 10,000 ft AGL
 - Ortho-imagery delivered via Aircell
 - Can image 300,000 acres per hour
- Supplemental support via Aircraft 3
- Service ordered by the incident

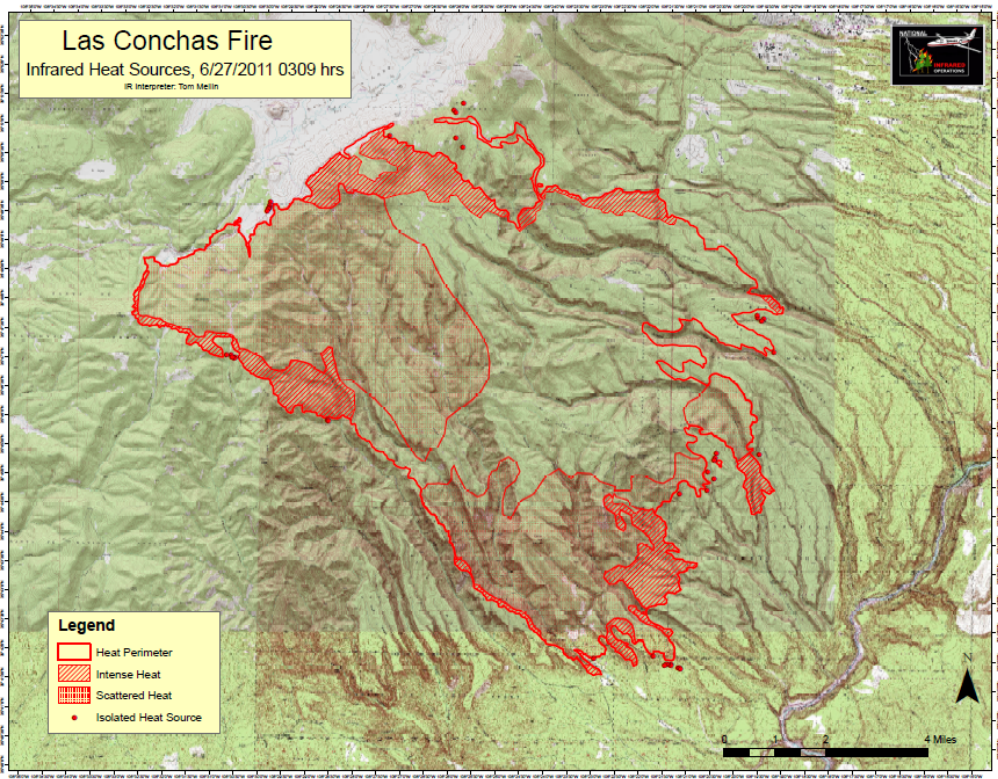
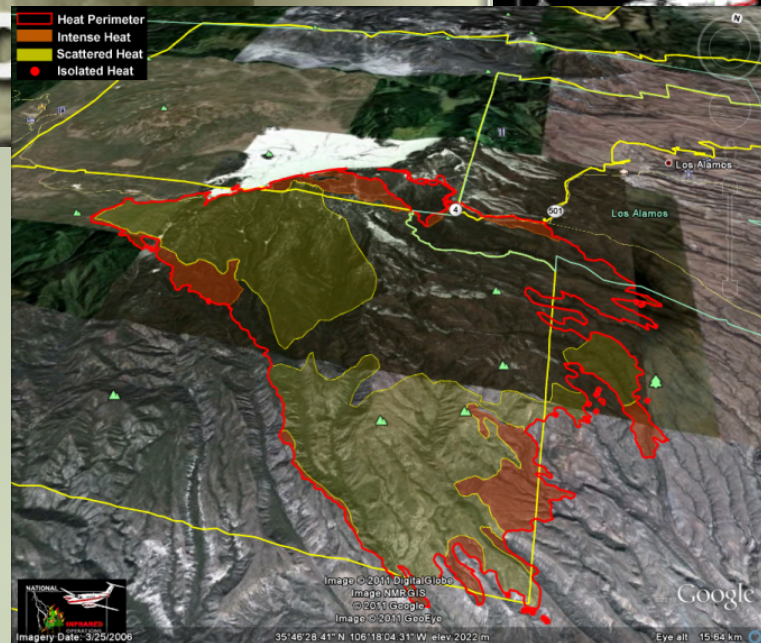


Products Delivered to Incident daily

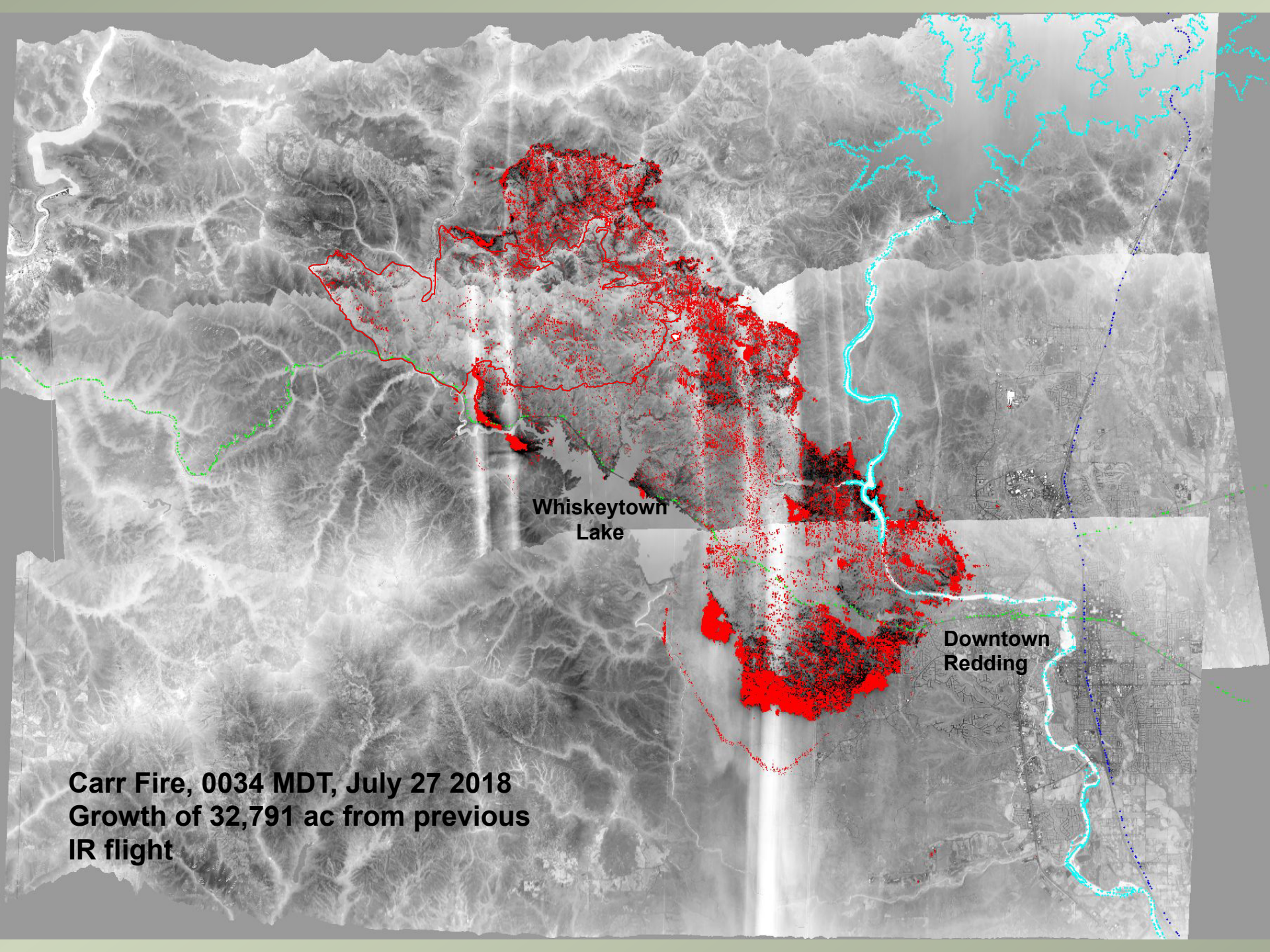
Shapefiles, map, kmz, log

Layers

- Isolated Heat Source
- Heat Perimeter
- Intense Heat
- Scattered Heat



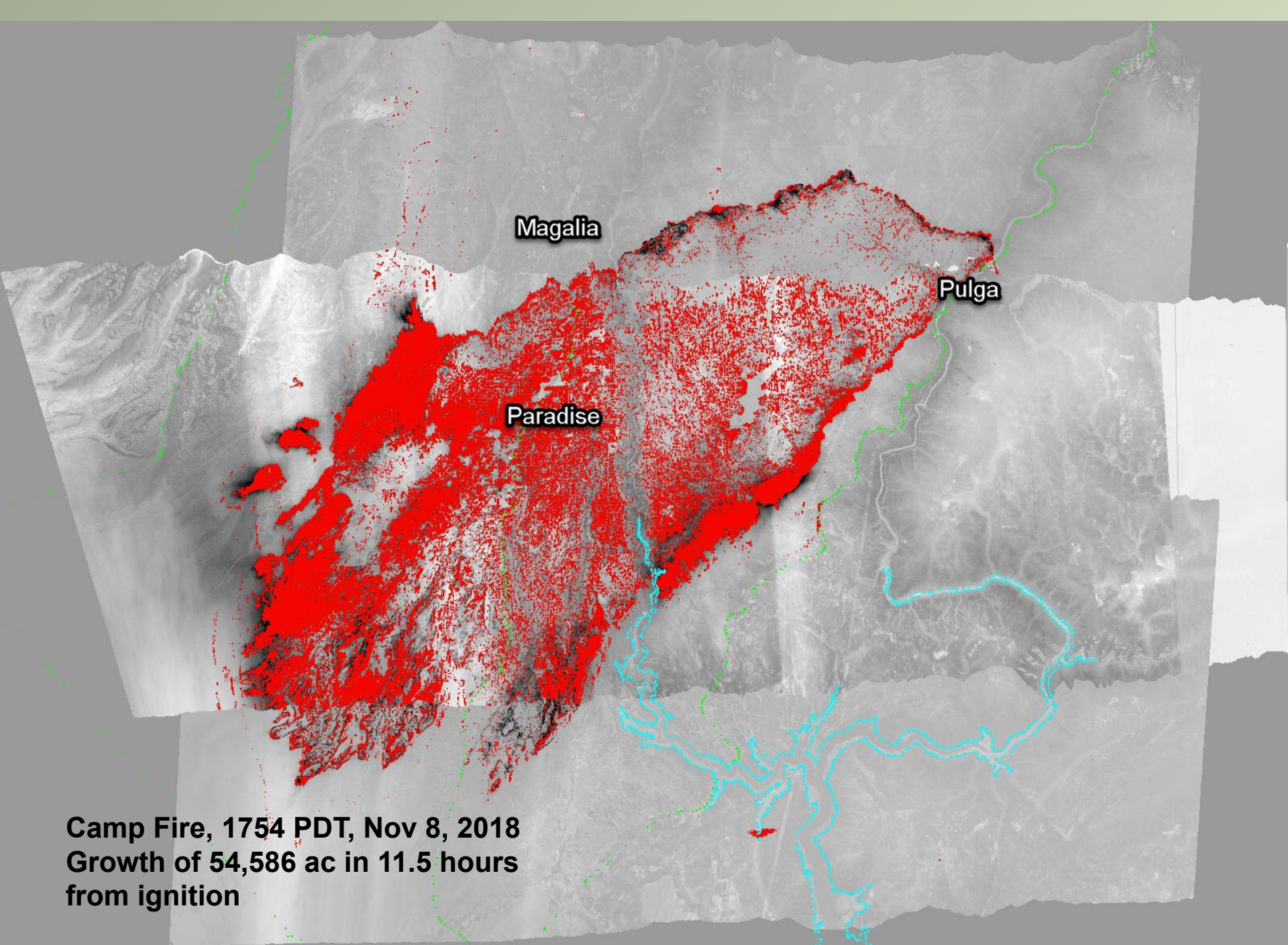
INFRARED INTERPRETER'S DAILY LOG			
Incident Name: Las Conchas	IR Interpreter(s): Tom Mellin	Local Dispatch Phone: 505-438-5600	Interpreted Size: 43,623 acres
Flight Time: 0309	Flight Date: 06/27/2011	Interpreter(s) location: R3 RO	National Coordinator: Tom Mellin
		Interpreter(s) Phone: 505-301-8167	National Coordinator Phone: 505-301-8167
Ordered By: Reinartz IMTI	Order Number: [REDACTED]	Aircraft/Scanner System: 149Z	Pilots/Tech: Johnson/Berain
IRIN Comments on imagery: 6 runs, only 5 that covered fire, all different directions, crew did great job to cover all the fire, orthorectification good, lots of sensor saturation and hot gasses		Weather at time of flight: clear	Flight Objective: provide first perimeter for fire
Date and Time Imagery Received by Interpreter: 06/27/2011 0400		Type of media for final product: shapefiles, kmz, pdf map	
Date and Time Imagery Delivered to Incident: 06/27/2011 0600		Electronic file sent to: ftp://ftp.nfic.gov/incident_Specific_Data/SOUTHWEST/2011_Incidents/Las_Conchas/IR/20110627/	
<p><i>Comments/notes on tonight's mission and this interpretation:</i> This was the first look at the fire with no other initial perimeter to go on. Rough perimeter posted at 0500, then rest of shapefiles plus new perimeter posted later. On NE edge intense heat is 0.3 miles from Water Canyon and Ponderosa Campground. Area of Intense heat in Frijoles Canyon just south of Burnt Mesa. On SE edge of fire Intense heat in Capulin Canyon, Intense heat has reached San Miguel ruins, Sanchez Canyon, Eagle Canyon, and Cochiti Canyon, and up on to Horn Mesa. On SW edge, intense heat is almost to Woodard Ridge. West edge of fire is 0.3 miles from Los Griegos and 0.7 miles from Cerro Pelado Lookout. On Northern edge, heat has crossed North of Route 4 just East of Las Conchas Campground but still south of East Fork of the Jemez. Mostly the heat is south of Route 4. Isolated heat sources north of burnout are suspect and should be checked.</p>			



Whiskeytown
Lake

Downtown
Redding

Carr Fire, 0034 MDT, July 27 2018
Growth of 32,791 ac from previous
IR flight



Camp Fire, 1754 PDT, Nov 8, 2018
Growth of 54,586 ac in 11.5 hours
from ignition



2018 –

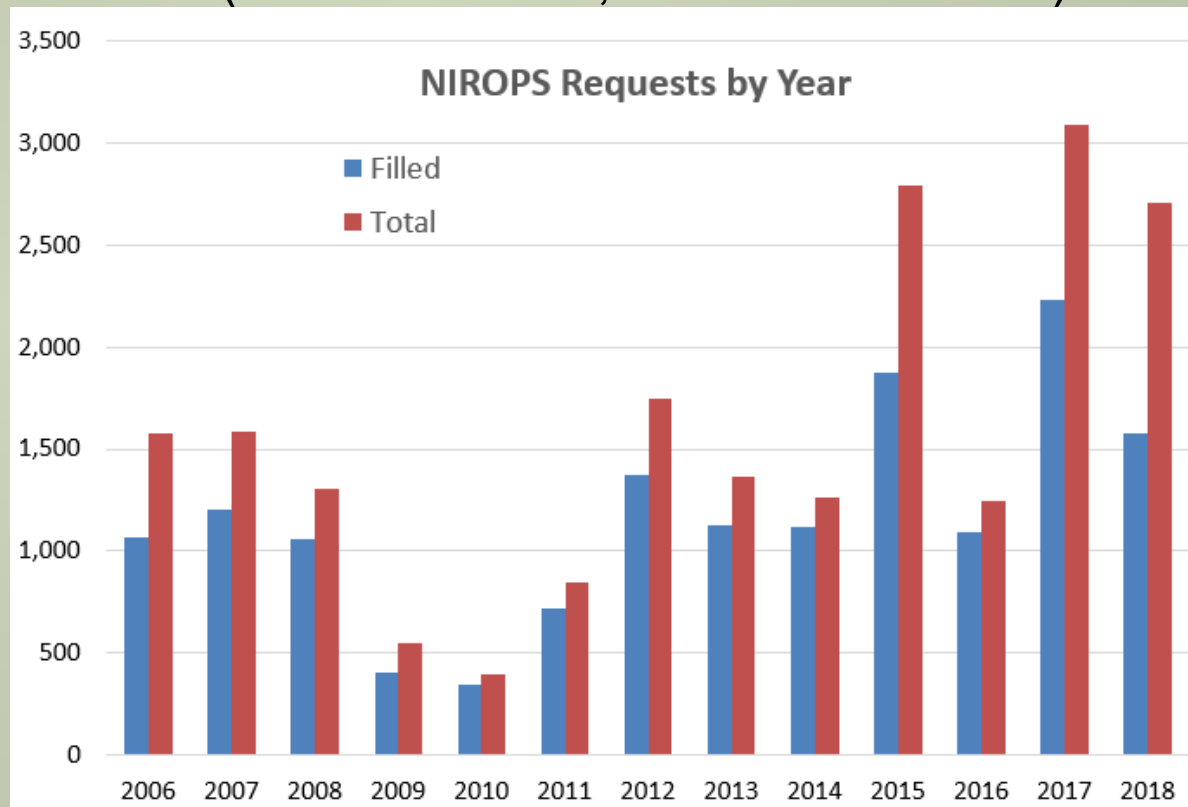
- 8.77 million acres burned, 132% of the ten year average (2008-2017)
- Went to PL4* on July 22, dropped to PL3 on September 8
- Included 35 days at PL5
- Early start – April 13 in AZ & NM
- Last mission flown – Camp fire on Nov 20

*PL = Preparedness Level (1 thru 5)

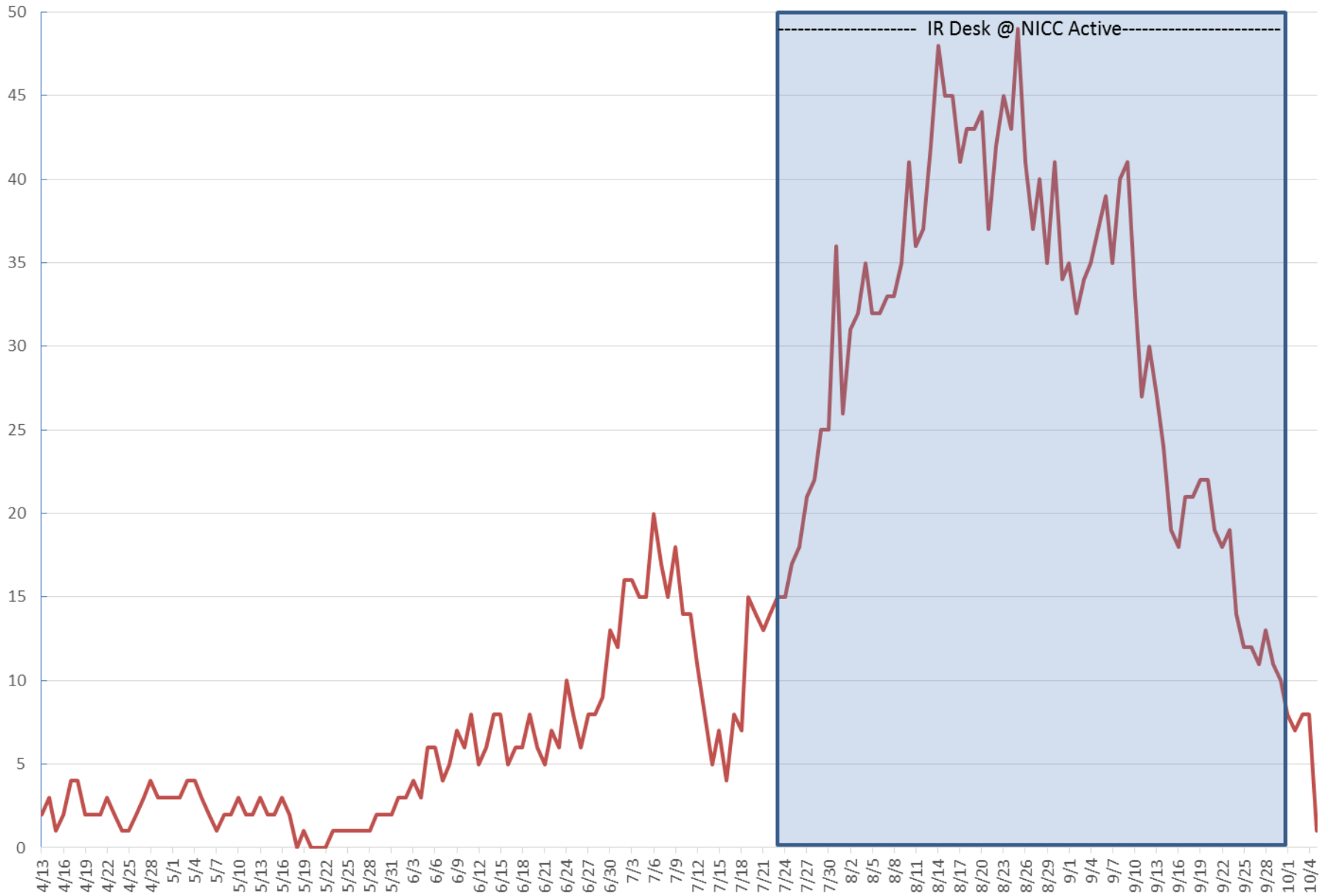


2018 NIROPS Requests

- 2,746 total requests with 1,610 filled
 - 10 yr avg (2008-2017) 1,461 requests and 1,136 filled
 - 5 yr avg (2013-2017) 1,952 requests and 1,490 filled
 - 42% UTF rate, 33% non-Wx UTF (2015 33% UTF, 26% non-Wx UTF)
 - Aircraft 3 filled
- 15% of missions
(13% in 2017)



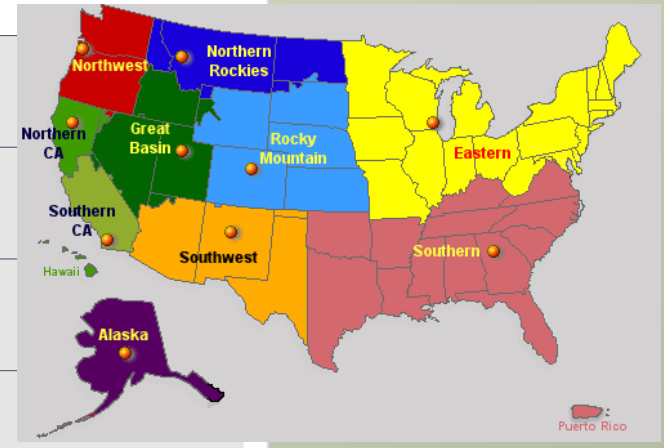
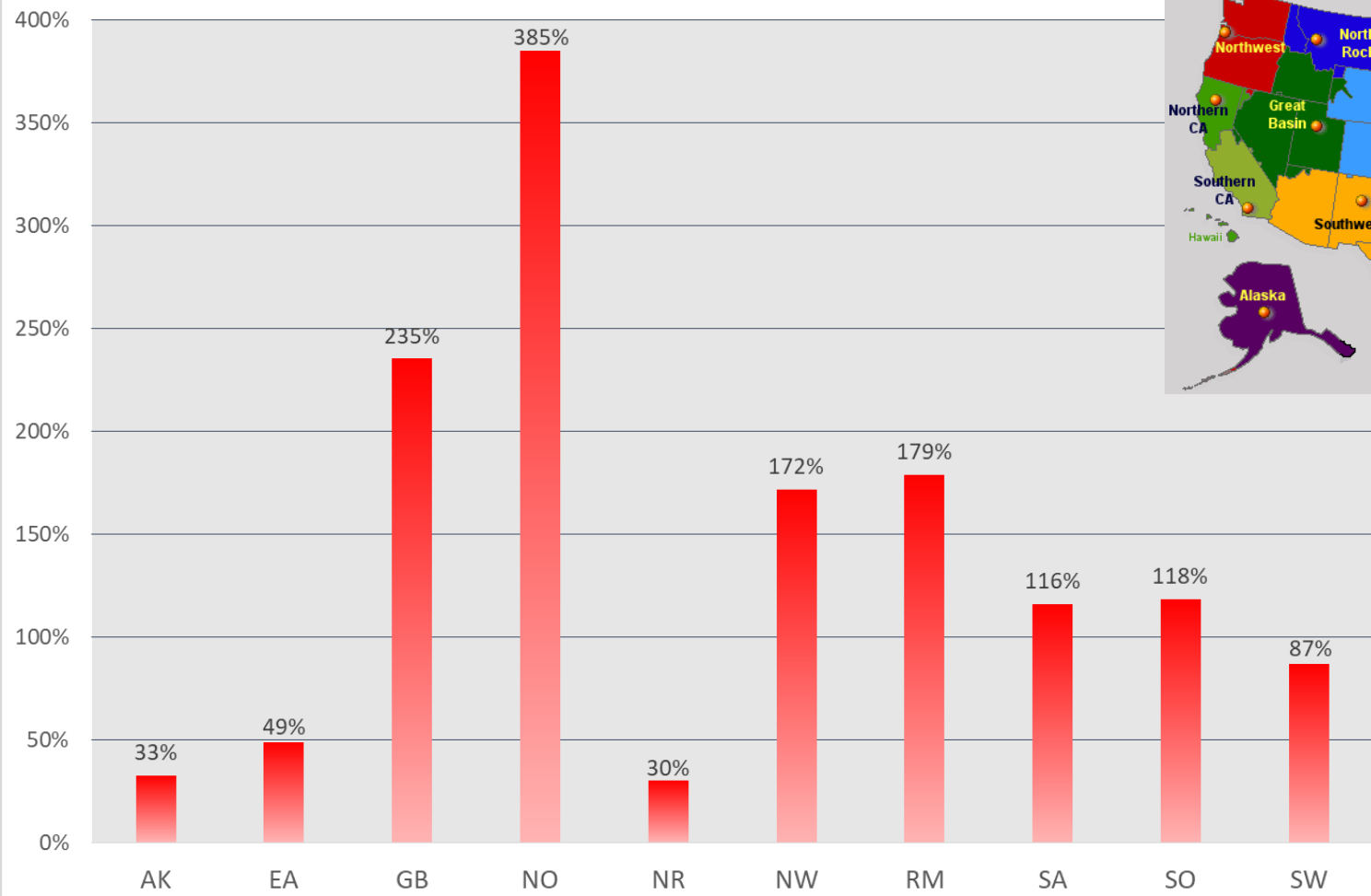
NIROPS requests, 4/13 - 10/5, 2018





Fire Activity by GACC

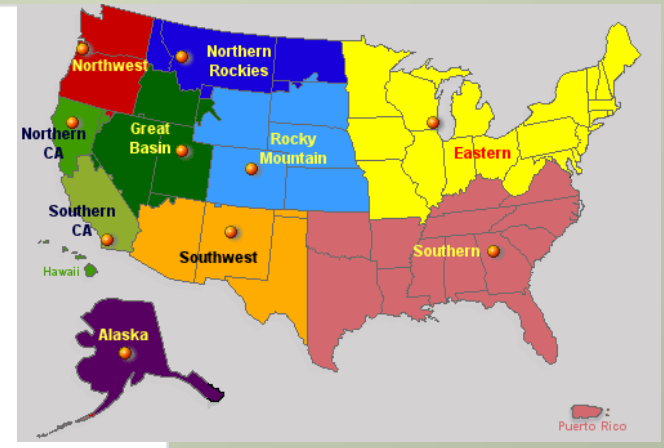
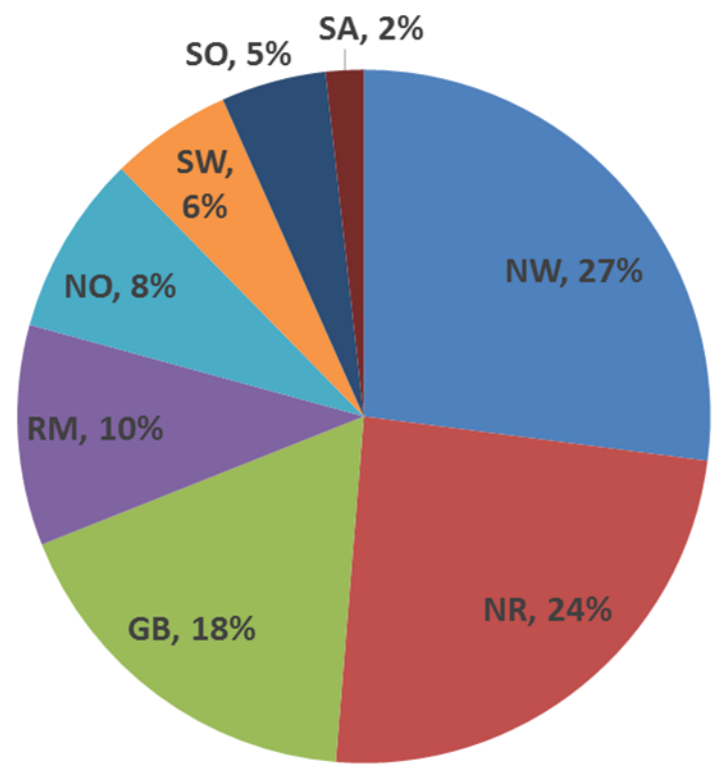
Acres Burned by GACC - 2018
(as a percent of each GACC's 10-year average)





2018 – Orders by GACC

Percent of NIROPS orders by GACC





Busiest Night – 8/23/18, 40 Fires

● N144Z (30 fires)

- Monument, Brownstone, Davis, Goldstone, Whale Butte, Howe Ridge, Paola Ridge, Coal Ridge, Wigwam, Sterling Cx, Beaver Creek, Gold Hill (MT)
- Cougar, Surprise Creek, Rabbit Foot, Copper Mtn, Smith Creek, Rampike, Bible Back, Stewart Creek, Kiwah (ID)
- Bannock Lakes, Cougar Creek, Horns Mtn, Crescent Mtn, McLeod, Holman, Boyds, Wrong Creek, Miriam (WA)

● N149Z (9 fires)

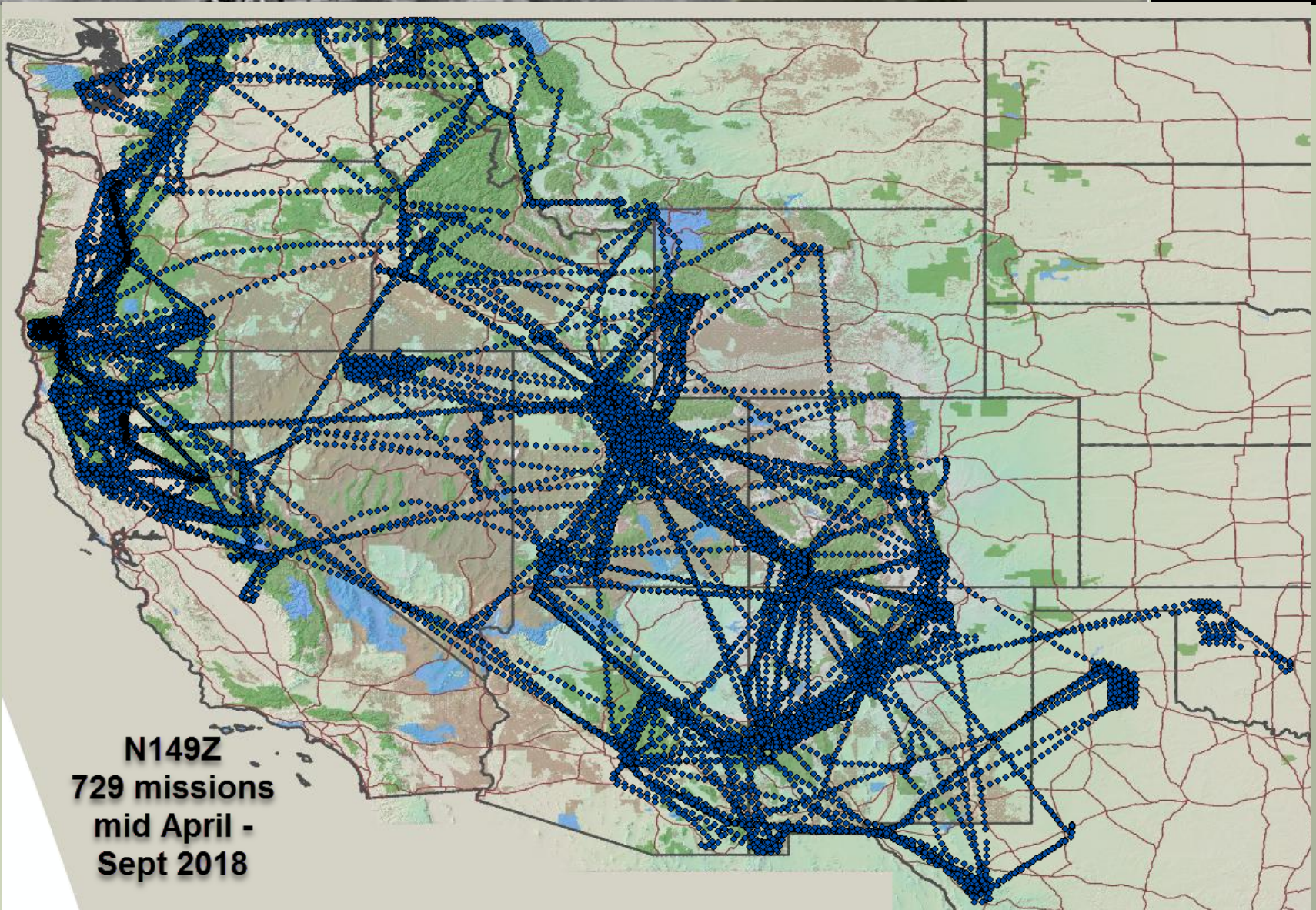
- Taylor Creek (OR)
- Ramsey Canyon (OR)
- Natchez (OR)
- Terwilliger (OR)
- Miles (OR)
- Stone (CA)
- Mendocino Cx (CA)
- Hirz (CA)
- Mill Creek 1 (CA)

● Aircraft 3 (1 fire)

- Watson Creek (OR)

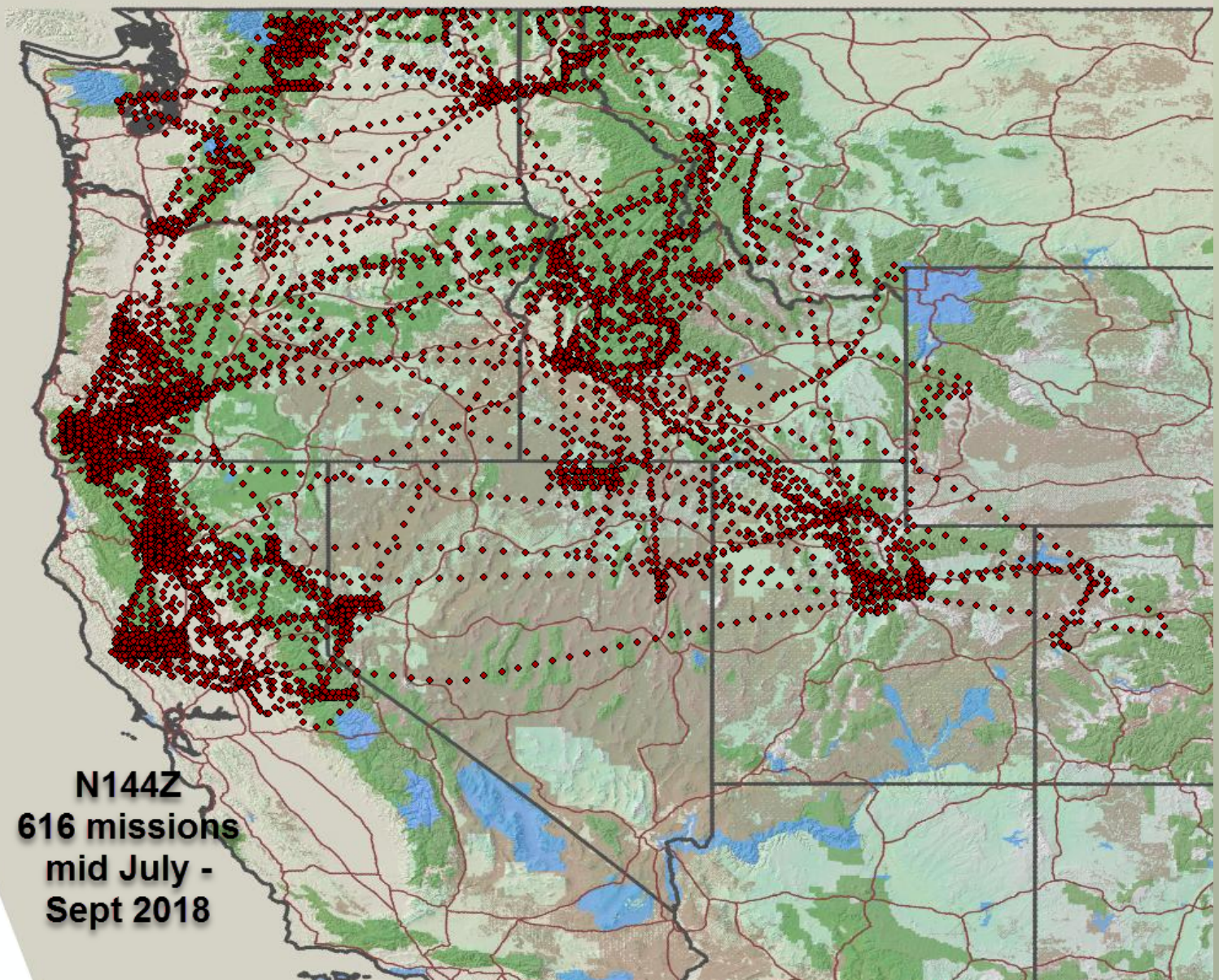
2017 Busiest night was 9/1 with 48 fires flown,
29 by 144Z, 13 by 149Z, 6 by AC3

NATIONAL INFRARED OPERATIONS



N149Z
729 missions
mid April -
Sept 2018

NATIONAL INFRARED OPERATIONS

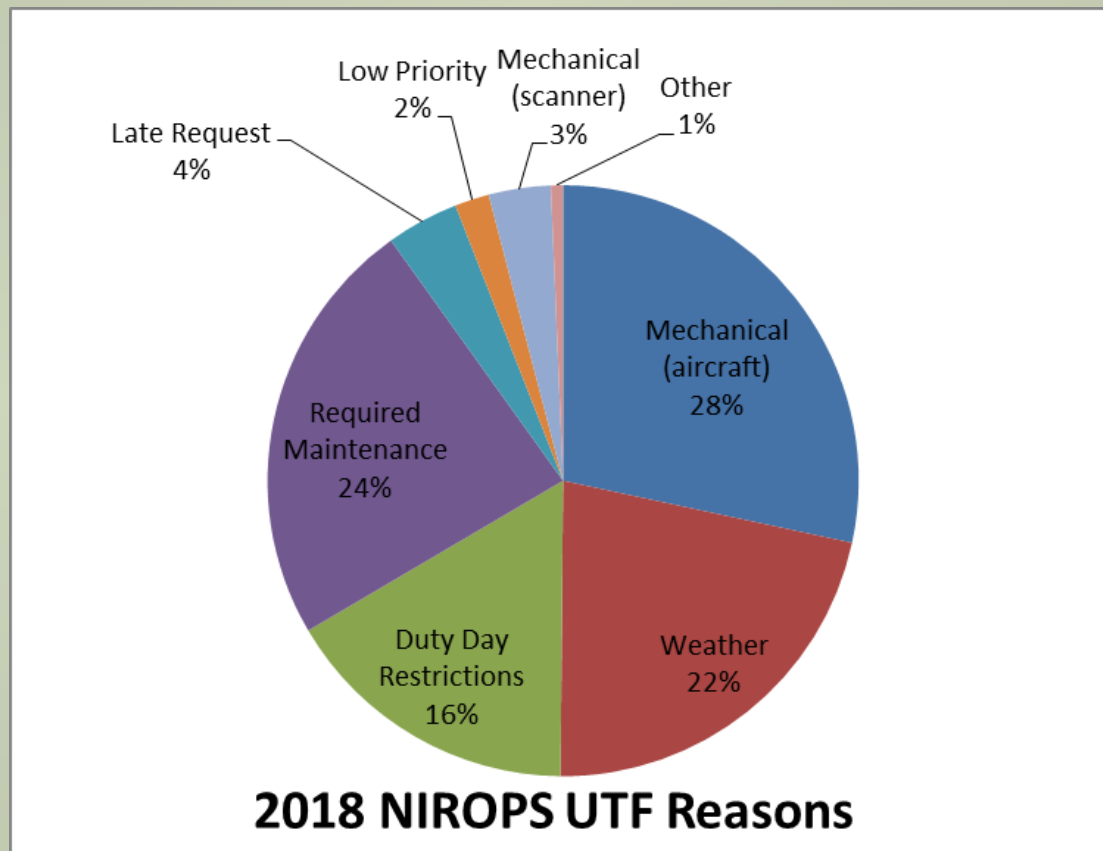


N144Z
616 missions
mid July -
Sept 2018



UTFs (Unable to Fill)

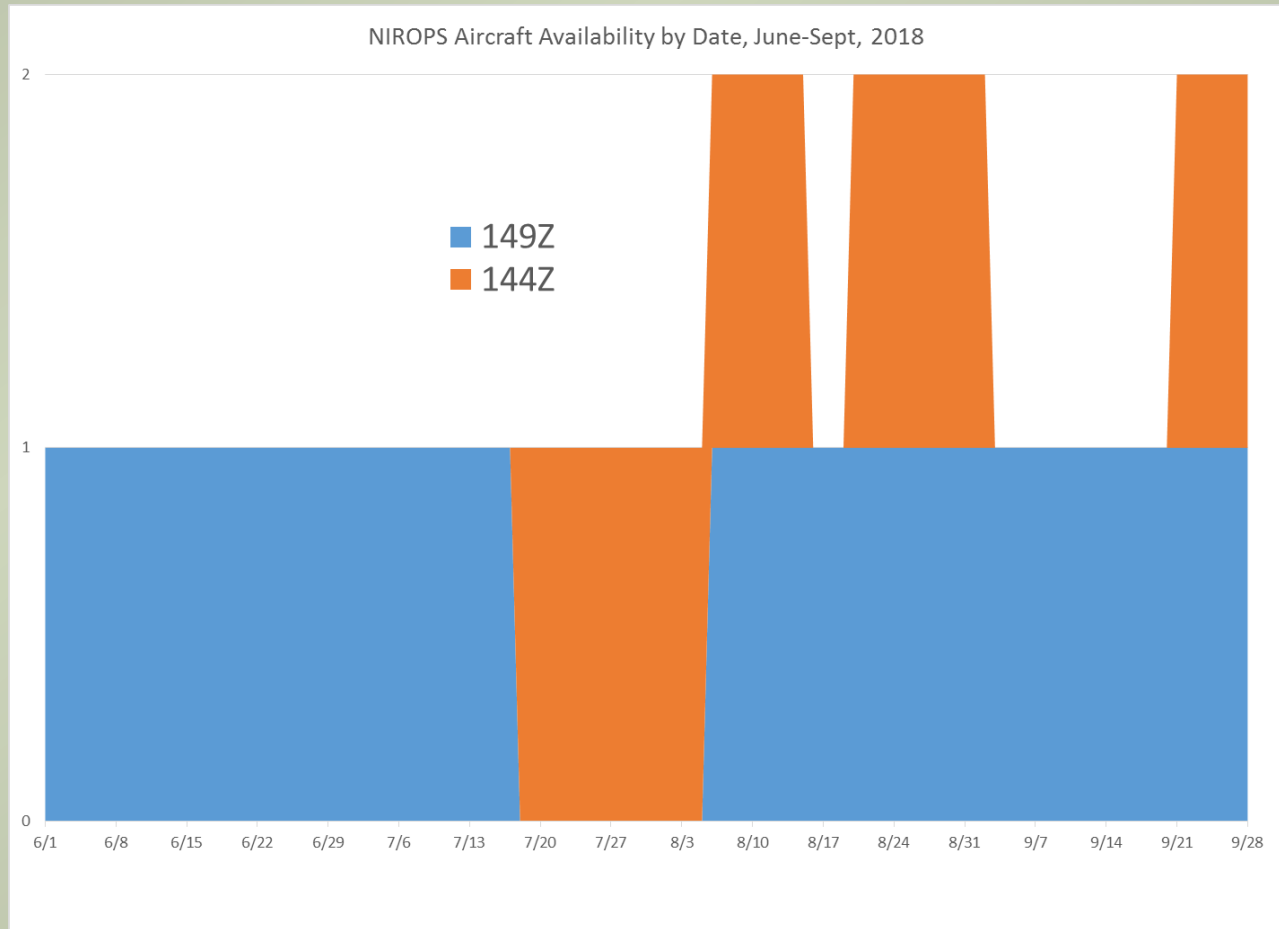
- 1,061 total UTFs (NIROPS only)
- UTF rate drops from 42% to 33% when weather UTFs are not counted
- UTF for Aircraft 3 - 23% (18% non-weather)





1 vs 2 Planes

- 31 nights with both planes flying from June thru Sept
- 1 plane
 - 47% UTF
 - 39% non-Wx UTF
- 2 planes
 - 31% UTF
 - 18% non-Wx UTF

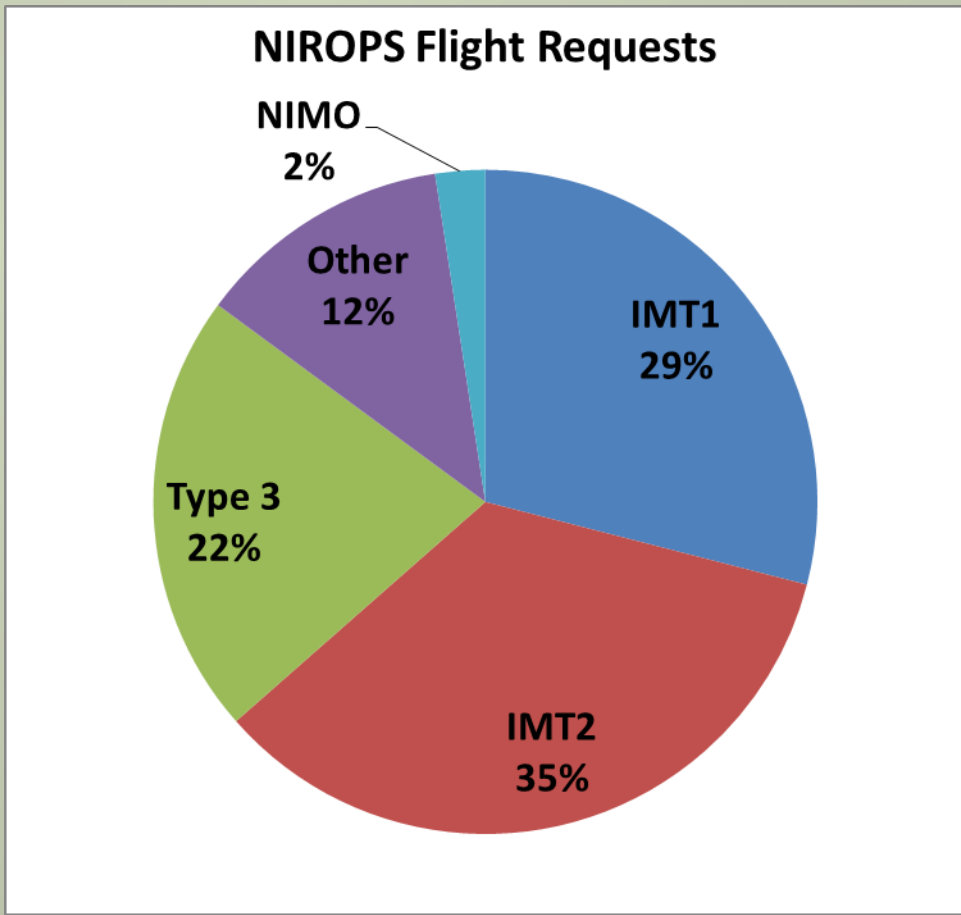




Who is Requesting?

- 87 orders did not fill out (out of 2,724)
- Prioritization is key

Team Type	non-weather UTF rate
Other	44%
Type 3	46%
Type 2	28%
Type 1	21%
NIMO	22%



Prioritization of fires for IR

- Type of team assigned – Type 1, 2, 3, etc.
- Values at risk, WUI, evacuations
- Priority listings in National IMSR
- GACC priority listings
- ★ Geographic location and grouping of fires ★
- Activity during the day
 - Satellite fire detections – MODIS, VIIRS
 - Plume activity – visible satellite
- Consultation with NICC
- Heat detected from previous NIROPS flights
- Expected weather over incident
- Feedback from IRINs

Extended Support to numerous incidents

- Natchez (OR) – 63 flights
- Mendocino Complex (CA) – 38 flights
- Hendrix (OR) – 33 flights
- 416 (CO) – 32 flights
- Klondike (CA) – 31 flights
- Garner Complex (OR) – 29 flights
- Hirz (CA) – 28 flights
- Ferguson (CA) – 28 flights
- Crescent Mountain (WA) – 28 flights
- Cougar Creek – 27 (WA)



It Takes a Team!

- IR Techs - 9 person rotation
- Pilots – 3 FS fulltime
- 42 different IRINs, 2 trainees got assignments
- National IR desk staffed from 7/22 to 10/1 by 3 different IRCNs
- Aircraft 3 (Firehawk) coverage key during maintenance on NIROPS aircraft- AC3 liaison at GTAC and NGA/USGS/FS analysts
- R4 Aviation maintenance crew

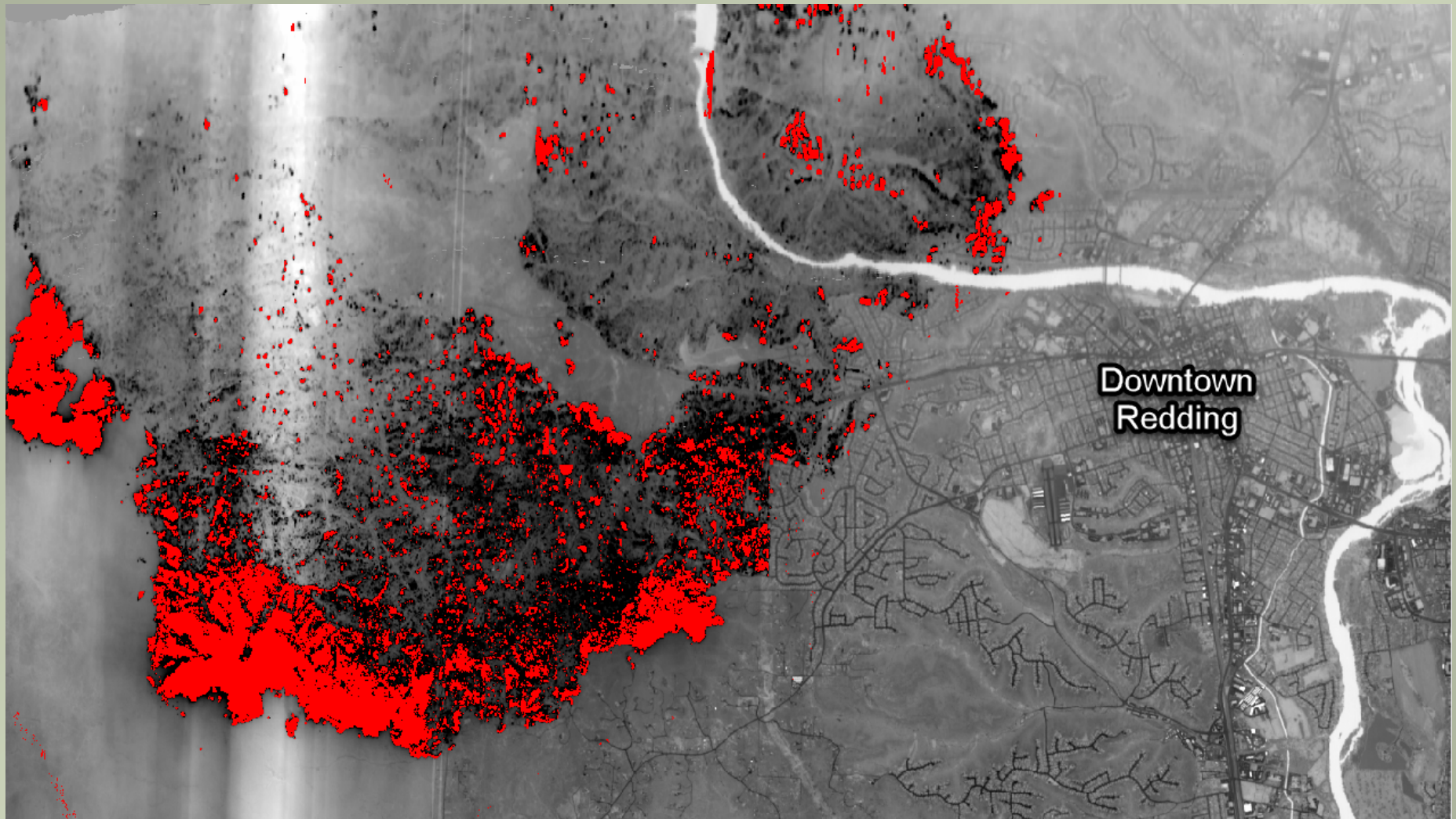
Takeaways from 2018

- Aircraft 3 support has been substantially reduced
- Planes are getting older every year!
 - 149Z – 34 years old (1985)
 - 144Z – 18 years old (2001)
- Coordination with other IR resources is key
 - DRTI, MMA, Owyhee Air, AA51
 - Doesn't usually reduce NIROPS requests
- Other IR resources are complementary to NIROPS but don't replace our capacity and products

IR Mapping contract

- Forest Service should have multiple vendors on contract to provide IR mapping
- Will deliver the same suite of products as NIROPS (unlike CO MMA and DRTI)
- Vendor will handle product development and delivery – no IRIN needed
- Vendors will be assigned to fires same as 144Z, 149Z, Aircraft3

NATIONAL INFRARED OPERATIONS



Carr Fire (CA)
July 27, 2018 2334hrs PDT

Questions?