

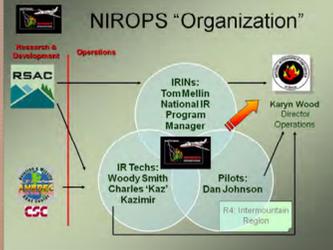


NATIONAL INFRARED OPERATIONS

<http://nirops.fs.fed.us>



The National Infrared Operations Group has been flying infrared detection and mapping missions since 1966. The 'Group' is made up of the scanners and technicians at NIFC in Boise, Idaho; the aircraft and pilots based in Ogden, Utah; and a nationwide network of infrared interpreters, coordinators, and technical specialists.



The Phoenix Systems, composed of line scanners with supporting hardware and software, are maintained and operated by the infrared technicians in Boise. The dual channel sensors allow for discrimination between fire and hot objects such as heated rocks.

- ❖ 2 Thermal Bands: 3-5 μm and 8-12 μm
- ❖ Field of View: 120 °
- ❖ Swath Width at 10,000 feet above ground level: 6.5 miles (10.5 km)
- ❖ Ortho-rectification: GPS/IMU, National Elevation Data
- ❖ Production Rate: 300,000 acres per hour (121,406 hectares per hour)
- ❖ Aircell Telecommunications System (2009)



IR Tech Station Inside N149Z



Missoula, Montana 2003

Infrared interpreters (IRIN) are needed to turn the thermal imagery to information. These skilled individuals receive the imagery from the aircraft via a central FTP site and derive the infrared maps and GIS datasets for the Incident Management Teams (IMT). IRINs are trained in interpreting the thermal imagery during a week-long course (S-443) and then initially work as trainees with a qualified interpreter. Each incident must order an IRIN to have an infrared scanner request filled.

When there are multiple fires in a geographic area, a group or "pod" of interpreters and trainees works to meet the data needs of all the incidents from a central location.

Increasingly, IRINs provide remote support to IMTs from their home work units. Widely available broadband Internet access, a central FTP site, and the Aircell system for in-flight imagery delivery have aided in the development of "geographically distributed IR interpretation".



Kalispell, Montana Pod 2003

At Preparedness Level 4 (PL4**), a National IR Coordinator takes over the infrared aircraft operations from the aviation desk at the National Interagency Coordination Center (NICC). Duties include compiling scanner order requests, prioritizing fires according to National Multi-Agency Coordination Group (NMAC) direction, mission planning, flight following, and reporting back to the NICC.

**PL stands for Preparedness Level which ranges from 1 – 5 with 5 being the highest level of activity and resource mobilization.



N144Z

The Forest Service operates two infrared aircraft -- a Cessna Citation Bravo II (N144Z) and a Beechcraft Super King Air 200 (N149Z). Thermal imagery is acquired at night when the temperature difference between the terrain and the fire is maximized, making it easier to identify and map heat sources. Other benefits of night missions are: minimal air traffic over the incidents, and moderation of fire behavior (less imagery saturation). Thermal sensors cannot 'see' through clouds and thick canopies.

Terrain effects from slope and aspect relative to the aircraft are minimized by flying adjacent overlapping strips or strips at different flight angles relative to the terrain.

NIROPS aircraft are able to cover multiple fires across multiple states during each mission, allowing for cost sharing of the aircraft and crew. It has become routine to have the two aircraft cover up to 30 incidents each night during active fire seasons.



N149Z

Online Scanner Request + ROSS A# + IRIN

NATIONAL INFRARED OPERATIONS

NIROPS Online IR Scanner Request Form

Request Properties

Incident Number: WY-RAD-005649 Incident Name: Farnis Mountain
 Project Number: WY-RAD-005649 A Number: A4
 Order Number:
 Created: 2011-10-04 11:27:22
 Created By: jacob

Incident Information

GACC: Rocky Mountain Area GACC
 Ordering Line: WY-ROSS
 Ordering Line Phone: 505-296-9863
 Local Dispatch: Rawlins Dispatch
 Local Dispatch Phone: 800-295-9953
 SUTL: Ange Foster
 SUTL Phone: 307-333-3804
 Average Incident Elevation: 2200
 Approximate Fire Size: 750 (acres)

Regional IR

GACC IR Liaison (or Regional Coordinator if assigned):
 IR: Melinda McGarr
 Phone: 303-275-5211
 Email: mcmcgarr@fs.fed.us
 Cell: 720-660-6971

National IR

National IR Program Manager: Tom Mellin
 Phone: 505-842-3845
 Email: tmellin@fs.fed.us
 Cell: 505-301-8167

IR Interpreter

IR Interpreter: Melinda McGarr
 Phone: 303-275-5211
 Email: mcmcgarr@fs.fed.us
 Cell: 720-660-6971
 IR Interpreter Location: Denver, CO

Delivery Information

Requested flight time (local at 2200 incident):
 IR Deliverables location: Abasco@blm.gov
 jacob@blm.gov
 acoc@blm.gov

Scan Box Information

Scanbox 1 Edit Manually Edit Google Maps Delete

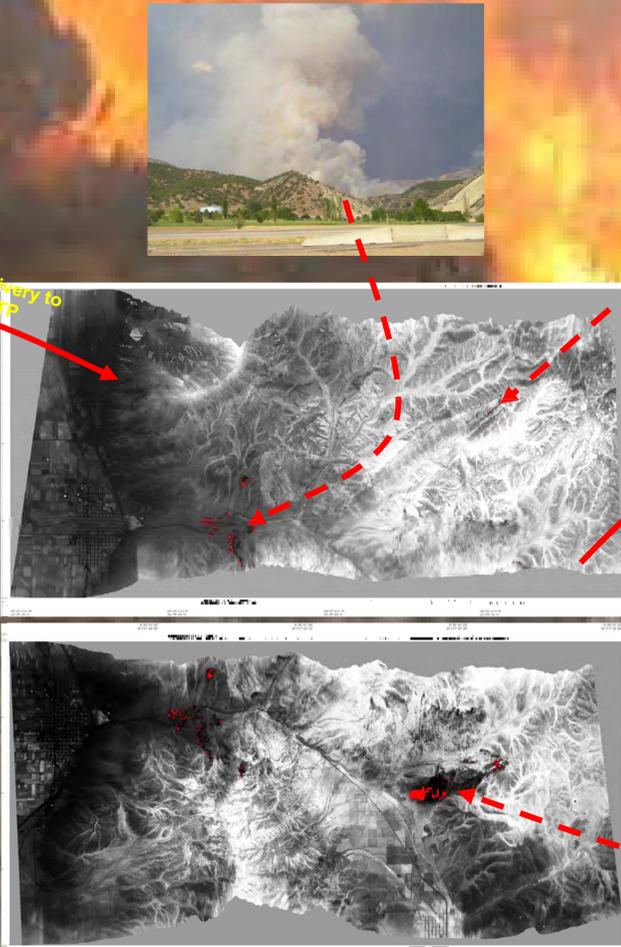
Comments

User Comments: Thank you!
 Admin Comments:

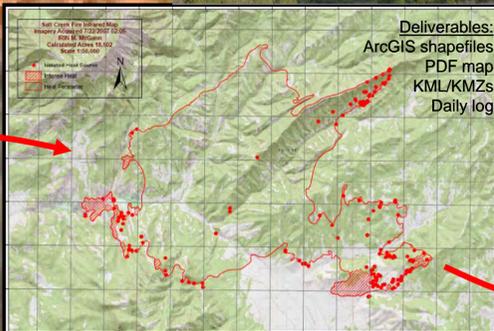
Update existing request Submit as new flight request

NIROPS 3833 © Development Area: Boise, ID 83700

Flight and delivery to IRIN via FTP



Interpretation



Deliverables:
ArcGIS shapefiles
PDF map
KML/KMZs
Daily log

Incident GIS



Morning Briefing at Incident Command Post (ICP)



Retardant Drop and Background Photos: Salt Creek Fire, Nephi, Utah, July 23, 2007, by Mike Johnson