



National Infrared Operations

USDA Forest Service

Fire and Aviation Management

Infrared Missions for Fire Operations

FAM Operations has identified four mission areas IR is used:

1. Detection
2. Large Fire Mapping
3. Tactical Incident Awareness and Assessment
4. Dashboard

Each mission has different requirements/capabilities.

No “silver bullet” that can do all the missions

NIROPS

- NIROPS fulfills the Large Fire Mapping mission
 - Map 50-70 fires in one operational period
 - Nation-wide in scope
 - Provide pdf map, KMZ/KML, GIS-ready shapefiles, IRIN log
- NIROPS products and services are in high demand
- Demand is increasing
- 2 planes w/ AC3 surge: based on workload from the last decade
- Need ways to increase capacity
 - Increase role of vendor aircraft (manned and unmanned)
 - Sustain agency aircraft, sensors, and staffing

Efforts to Sustain NIROPS in 2019

2019 End Product Contract, July 2019 - July 2020 (Dec 2020 w/ 6 mos. Ext)

- Five vendors under BOA to provide surge capacity for NIROPS
- Deliverable: NIROPS map products to FTP site
- Manned aircraft w/ commercial step-stare EO/IR systems
- Assigned to “cluster” of fires in a 500 mile area
- Limited opportunity in 2019 to exercise all vendors

Other IR Contracts: R4 IR Mapping Contract (2016-2021)

- Used in GB for smaller timber fires (night) and desert fires (day time)
- Used as a “regional IR” platform (GACC ordered/assigned)
- Deliverables: NIROPS-like map products to FTP site
- Camera-ball system ~10,000 acres per hour

Sustaining NIROPS (Aircraft)

Short Term (2019-2020):

- 2019 evaluated vendor capability to provide NIROPS products
- End Product and CWN contracts
- Market research of current gen technology and software
- Evaluate aircraft and sensor capabilities
- National vs Regional 'model'
- EPC vs EU
- Initiate process to acquire new aircraft

Longer Term (2020-2025):

- Maintain organic capability
- Aircraft modernization
 - Aircraft replacement schedule
 - N149Z replacement
 - N144Z?
- Sensor modernization
 - Re-engineer Phoenix –miniaturize, increase functionality, automate
 - or–
 - Convert to commercial system
- Future role of vendors (TBD)

NIROPS (Satellites)

National Systems:

- Firehawk –AC3 has been our go-to for surge capacity
- Analyst support is limiting factor
- Options?
 - Additional analysts from partner agencies
 - AC3 is considered surge, not primary
- Renew MOU for 2020-2025

Commercial / HDDS Systems:

- 2018-2019 evaluated use commercial imagery via HDDS sat systems for fire mapping
- Some commercial systems capable of providing hi-fidelity imagery
- Issues:
 - Limited coverage
 - Difficult to 'task' satellites
 - 12-24 hr latency
 - Requires additional post-processing

Sustaining NIROPS

- NIROPS has been the go-to asset for IR mapping and SA updates
- Emerging need for additional imagery (Tactical IAA):
 - IR to inform mop-up
 - Monitoring impingement of MAPS or trigger points
 - Spot fire detection in real-time
 - Provide over-watch of ground operations in reduced visibility or inversions
- Suspect 10% (or more) of NIROPS requests are to meet tactical needs
- Tactical IAA and NIROPS are different “missions” (some overlap)
- Different missions, different requirements/capabilities
- Fire Imaging Technologies Users Guide
 - Focus on selecting the ‘right tool for the job’

End State

NIROPS

- Sufficient capacity to meet demand
 - 2 Agency, 1 EU + AC3
 - Aircraft and sensor modernization
 - 1 EU contract in 2020 (90 days)
- Surge for peak year demands
 - EPC vendors, large UAS
- Standard products and access for end users
 - Same look and feel as NIROPS
 - Standard map products (shapefiles, KMZ/KML)
 - Easily retrieved and exploitable products

Other IAA missions

- Identify role and “best use”
- Evaluating other IAA platforms
- “Right tool for the job”
- Provide advice to end users
- Ordering mechanism
- In coordination with NIROPS
 - In addition to
 - In lieu of