**Comparison of Capabilities**

\*Phoenix System is daytime capable but not currently utilized by NIROPS

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| **Capabilities** |
| ***Platform*** | ***IR and Color Capability*** | ***Day and Night Capability*** | ***Video*** | ***Real Time Link to Ground*** | ***Display Product on Fire Map*** | ***Air Attack Capability*** | ***Cost*** | ***Notes*** |
| **NIROPS** | Dual Band IR Only | Night Only \* | No | Capable | Yes | No | $1250/hr King Air $1850/hr Jet | Covers 6 mile swath width at 10,000 feet |
| **DRTI** | IR, EO | Yes | Yes | Yes, range limited | Yes | No |   |  |
| **MMA** | IR, EO Wide and EO Narrow | Yes | Yes | Radio, text and email | Yes | Yes | @ $1500/hour |  |
| **Night Watch AA51** | HD IR and color camera, Laser. | Night only | Yes |  | YES | ATGS assigned | $5060/day availability$2249/hr. Flight rate |  |
| **Firewatch Cobra** | HD IR and color camera, Laser. | Day Only | Yes | Yes, BMS M/W data link, Rover units as well | Yes | ATGS assigned | 2,800 per FLT hr. includes ATGS, data van, on site GIS and complete support staff |  |

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| **Initial and Extended Attack Uses** |
| ***Platform*** | ***IA Perimeter*** | ***Large Fire Perimeter*** | ***Monitor Burnout Operations*** | ***Monitor Impingement on MAPs*** | ***Spot Fire Detection*** | ***Direct Forces to Hot Spots*** | ***Monitor Effectiveness of Tactics*** | ***Locating People*** |
| **NIROPS\*\*** | Not Real Time | Best Use | No | Not Real Time | Best Use | No | No | No |
| **DRTI** | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **MMA** | Yes | Yes | Best Use | Best Use | Best Use | Best Use | Best Use | Yes |
| **Night Watch AA51** | Yes | Yes | Yes | Yes | Yes | Yes | Yes\* | Yes |
| **Firewatch Cobra** | Yes | Yes | Yes | Yes | Best Use | Best use | Yes\* | Yes |

\*\*Phoenix System has capabilities not utilized currently by NIROPS

**MMA Aircraft State of Colorado**

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**Most Effective Capabilities**

* Initial attack and detection (utilizing lightning detection maps)
* Spot detection in support of burnout
* Able to walk crews right into the spot or heat
* Able to communicate directly with the ground resources
* Laser target for tanker and helicopter drops
* Locating people in a closed area ahead of a burn or fire

Figure : MMA Aircraft

**DRTI Distributed Real-Time Infrared Aircraft**



**Most Effective Capabilities**

* Perimeter detection/ updating previous perimeter maps on large fires.
* Spot detection Identifying and monitoring trigger points
* New fire detection
* Identifying and monitoring trigger points
* Live feed fire behavior analysis
* Hot Spot surrounded by unburned fuel
* Identifying Safety Zones
* Life and property detection/ Locating people ahead of a fire during evacuation operation

Figure : Ground crew looking at DRTI information

We observed some dissatisfaction with some products (MMA and DRTI) during field testing. It is important to note that much of that was a result of the lack of sufficient information provided on the request. We are accustomed to ordering NIROPS by just requesting to “fly the fire” and identifying a box that encompasses the extent of the burned area and a buffer region on all sides. Different sources and technology that do not utilize a line scanner or fly grids require additional information to get a good product. For example the Colorado MMA aircraft utilizes a three-lens sensor (IR/Color wide/Color narrow) that must be pointed at the target by the operator. Simply instructing them to “fly the fire” on a larger incident does not give them enough information to get the intended result. Producing an overview IR product on a larger incident is not the best use of this technology. The request should include either a kml (no kmz) with targeted areas identified as labeled polygons or a descriptive narrative such as “check for spot fires across the 498 Road” or “check for hot spots above the structures in the Parson Draw drainage in Division P”. Including a kml or hard copy of the Operations Map with the request is also a good idea.

More information can be found in the January 2017 Fire Imaging Operational Capabilities Report.