**National Systems Support   
to Wildland Fire Community**

**Aircraft3/Firehawk Fire Mapping**

The Aircraft3/Firehawk Fire Mapping product is derived from multiple sources, and provides large scale fire detection/mapping to support incident command operations which include:

* High resolution fire map products needed for daily 6:00 AM Incident Command briefing
* Delineated fire perimeter and active fire areas
* Identification of problem areas – hot spots inside and outside containment line
* Identification of hot spots during the mop-up phase

The cooperative work with the National Geospatial-Intelligence Agency (NGA) began in 1992-93 with the Red Sky project. The first operational deployment of the Firehawk capability was in 1994. Continued process and product refinement between the US Forest Service (USFS) and NGA has resulted in a reliable, high quality, field-accepted product. Requests and operational support are conducted during periods of extensive wildfire activity. Firehawk (referred to as “Aircraft 3”) is designed to be used as a “gap filler” when other assets are exhausted, and is engaged at higher national preparedness levels, typically PL4 and PL5, though the asset has been utilized at PL2 and PL3 on occasion. The decision to activate Aircraft3/Firehawk to augment NIROPS requests resides with the National Interagency Coordination Center (NICC) and the National Interagency Fire Center (NIFC). Liaison activities between incidents being supported by Aircraft3/Firehawk and NGA are handled by the Disturbance Assessment Services (DAS) program at the Geospatial Technology and Applications Center (GTAC). See the Aircraft3/Firehawk Support to Wildland Fire protocol document for detailed activities.

The Aircraft3/Firehawk unclassified product is intended to have the same “look and feel” as products from NIROPS which include:

* ArcGIS format shapefiles, geographic coordinates, WGS84
* “Read me” file with mapping analysts’ observations of fire activity
* Time Stamp in UTC (Zulu) time
  + Approximate data acquisition window (± 30 minutes of actual time of acquisition)
* Google Earth KMZ product
* Mask shapefiles that include “No data” and “cloud cover”

**Hawkeye Fire Detection and Reporting System**

The **Hawkeye Fire Detection and Reporting System** is a program which uses airborne and space borne remote sensing assets to rapidly detect and report new fire starts within the continental United States. Detected fire starts are relayed to the **Ignition Point Database** (IgPoint) operated and managed by the USFS. The format is simple: Latitude/Longitude, date/time, level of confidence (low, moderate and high). Once the alert arrives in the IgPoint Database, anomaly detections are queried and retrieved to the appropriate response authority (e.g., The Enterprise Geospatial Portal or EGP). Local dispatch offices using the EGP view newly reported detections within a few minutes of reporting and allows the local authorities to determine the appropriate response based on local conditions – weather, fuel conditions and proximity to assets at risk.

The **Ignition Point Database** provides a single, consistent mechanism for input, documentation and notification of fire ignition information. The database includes all necessary measures to protect the reporting source and facilitates direct notification messages to the recipients via the USFS Fire and Aviation Management (F&AM) staff at NIFC.

Hawkeye - Key Points

* Through the Ignition Point Database, any source of fire detection (remote sensing) data can be funneled
* 2012 to 2014: Experiments were conducted, policy enacted and concept of operations (CONOPS) completed
  + Demonstrated a fire alert capability together with rapid reporting
  + Fire alerts have a low false alarm rate
  + All forensic case studies were very positive for system fire alerts
* 2015: First year of full distribution to the Enterprise Geospatial Portal (decision support tool)
* Future Hawkeye capability will provide enhanced false alarm de-confliction through fusion of multiple sources

**Fireguard – Rapid Fire Monitoring on Emerging/Ongoing Fire Events**

Fireguard (formerly Firefly) is a national system that provides near real-time information from multiple sources on suspected wildfires to National Guard units. National Guard analysts assess the information and provide location and perimeters of probable fires to local and state wildfire agencies in coordination with the USFS and regional Geographic Area Coordination Centers (GACCs).

Fireguard can detect wildfires (i.e. typically several acres) within minutes of ignition, possibly

providing the first notification of a wildfire, and in particular, at night and in remote areas. Fireguard is available 24/7 during the wildfire season to National Guard units trained and certified in how to interpret the data. Fire perimeters are reported at an accuracy of 1 km and may be updated as often as every 15-minutes depending on need.

Fireguard may be of great benefit for reporting on the most active portions of wildfires encroaching on or within the wildland urban interface (WUI), especially in the initial phases of a fire where the situation

may be confusing or not well understood. Fireguard can show the general location of where a fire is currently and with frequent updates, and can provide information indicating the direction and rate of spread. This information is critical for rapid assessment of dynamic situations to support timely evacuation of residents and protection of property and critical infrastructure.

**Points of contact for additional information:**

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