Briefing Paper

Colorado Multi-Mission Aircraft (MMA)

What is the MMA? – The Multi-Mission Aircraft is a Pilatus PC-12, a single engine turboprop aircraft. It is a fully capable IFR aircraft that has a service ceiling of approximately 30,000 feet and is capable of traveling at 250 knots. It is equipped with a sensor array and associated software that was originally developed as an Intelligence, Surveillance, and Reconnaissance (ISR) resource for U.S. military forces. The system has been adapted for use in wildland fire and other civilian all-hazard events, and allows for video and still photo capture as well as creation of vector products. Typical mission duration is 4 to 5 hours. The aircraft and crew are available on a standard 14-hour duty day with an 8-hour flight limit for the pilots, though we can arrange for an additional pilot in cases where there might be a demand for more flight time.

Where does the MMA operate? – Typically, the MMA operates at 18,000 to 20,000 feet. This is well above the Fire Traffic Area and Temporary Flight Restrictions established on most wildland fire incidents and allows us to operate without interfering with the tactical aircraft that are operating within the FTA.

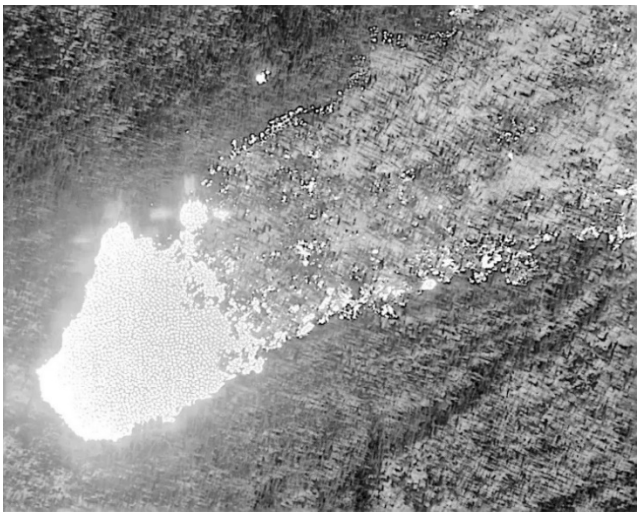
What can the MMA do for me? – The MMA utilizes a MX-15 sensor ball that contains three cameras, Infrared, Electro-optical (color) wide, and Electro-optical narrow. The Infrared camera can see through smoke, but not clouds. By utilizing these cameras, the operators can detect heat sources from many miles away and can gain and share situational awareness to ground forces and Incident Management Teams. The cameras are linked to a mapping system that allows the operators to create fire perimeters and point data such as new fire detections, spot fires, fire access, and structures. All vector data is sent in the form of KML files, photos are JPG's, and video is exported as MP4.

How do I communicate with the MMA? – The aircraft is equipped with three programmable FM radios, two AM aircraft radios, and an 800 MHz radio. In addition, the on-board AirCell allows for email and Google Chat functionality any time that the aircraft is above 10,000 feet. These features allow us to deliver photos, video, and vector products to the ground in near real time, though a constraining factor is often the ground user's connectivity to a cellular network.

How are these products delivered? – As mentioned above, email is one method for delivering our products. They are also uploaded to the Colorado Wildfire Information Management System (CO-WIMS), a browser-based application that can be accessed by registered users, and from which most products can be downloaded. Access to CO-WIMS can be set up quickly in advance of a requested mission. It also viable to deliver products via a file sharing application, such as Drop Box or Google Drive.

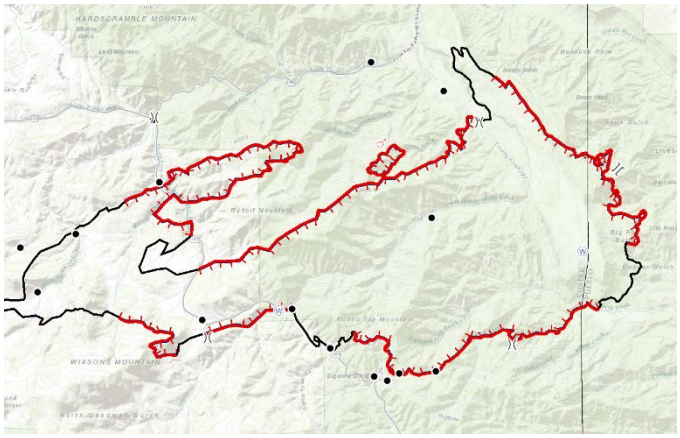
What is the best use of the MMA? - The MMA was initially authorized by the Colorado Legislature as a tool for wildland fire detection, which it excels at. It has also proven to be an effective tool during initial and extended attack, gathering and disseminating information to ground forces about fire activity and growth, access, escape routes, safety zones, values at risk, and the effectiveness of tactical aircraft on the fire. It can be utilized to monitor burnout operations, locate spot fires, provide overwatch for personnel, and gain information such as preliminary damage assessments in areas where ground forces have not yet accessed. Though the MMA utilizes infrared technology, it is not the same as the USFS NIROPS aircraft, and should be considered as a complement to NIROPS rather than a replacement. The MMA can be utilized at night, but the lack of light negates the ability to use the electro-optical cameras and decreases the overall capability of the aircraft.

What information does the MMA need from me? – More information is better! A minimum is a latitude/longitude, air to ground frequency, and a ground contact. It is also important for us to know if any other aircraft are assigned to the fire, and what frequencies that will be operating on. We can import existing fire perimeters and point data as KML files. Beyond that, please provide clear expectations about the area that you want us to look at, what types of products (photo, video, vector) you would like, and how to get them to you. It is best for our operators to talk to the requesting party prior to the mission so that they can get a clear picture of what's being requested and have the ability to ask questions, but we can also be tasked while airborne. "Fly the fire" is something that works for NIROPS, but does not work well for the MMA as we typically focus the camera on a specific area rather than creating a box around the fire. Specific objectives, such as focusing on a division or geographic area, are great.



Can the MMA function as an Air Attack platform? – Yes, if the personnel are available. We have ATGS-qualified operators within the program, but need to know that they're needed for the mission in advance. The best use of the MMA in an aerial supervision role is normally for initial attack or relief when a dedicated air attack is not available. When working in the air attack role, the MMA will operate within the Fire Traffic Area at typical air attack altitude. We strive to perform our ISR mission even when performing the air attack role, however the low altitudes and flight patterns necessary for air attack may limit the capability of our cameras and mapping systems.

What does the MMA cost? – Currently, the daily availability is $3800 a day, and the hourly flight rate is $1800. This includes the aircraft and pilot salary; operator salary and overtime as well as subsistence for the pilot and operators are additional costs. The operator's base schedule is twelve hour days, but can be extended to up to sixteen hours. The MMA will normally come with two operators, as the workload in the back of the aircraft can be very demanding.



How do I order the MMA? – The aircraft and crew is ordered through ROSS as an "Infrared Flight". We are based in Centennial, Colorado, the home dispatch center for orders is the Rocky Mountain Coordination Center. Interagency orders generally require some degree of coordination prior to the order being placed, please call the DFPC Duty Officer at 720.460.9367 to discuss availability and logistics prior to placing an order in ROSS. Users of the aircraft need to understand that, while rare, the MMA is subject to recall if needed within the State of Colorado due to fire activity or the lack of availability of our second aircraft.

Who can I call if I have any other questions? – The Unit Chief for the MMA is Bruce Dikken, he can be reached at bruce.dikken@state.co.us or by phone at 720.749.7685. Alternately, please contact the on-call DFPC Duty Officer at 720.460.9367.