Colorado
Multi Mission Aircraft
& CO-WIMS
Rapid Attack Capabilities

- **Heli-Tankers**
  - Type II and Type III helicopters with helitack crews
  - Provide quick reaction suppression to small fires in remote areas of Colorado wilderness

- **Single-Engine Air Tankers**
  - Pre-positioned throughout the state based on risk assessment

- All aircraft can be launched within 20 minutes of notification
The Multi-Mission Aircraft

• Pilatus PC-12 aircraft
  – FAA certified airframe and operations
  – Pressurized, high-altitude, affordable, and long endurance
  – Night operations

• Systems installed:
  – Color and thermal cameras
    • Fire detection
    • Fire mapping
    • Firefighter safety overwatch
    • Evacuation monitoring
  – Broadband internet
    • CO-WIMS access
    • Direct delivery of imagery and surveillance information
    • Internet chat, real-time video, and email
  – Data and image processing
  – Interoperable voice radios

• Minimum crew of two
  – Pilot and Mission System Operator (MSO)
Sensor

• MX-15HDi
  – Color camera
  – Infra-red camera
On-Aircraft View

• Small fire detection – Video – YouTube
• Fire Behavior – Video – YouTube
• Personnel Overwatch – Video – YouTube
• Fire Mapping – Video – YouTube
• Aviation Monitoring – Video – YouTube
• Prescribed Burn Monitoring – Video - YouTube
Where the MMA Operates

Class A Airspace

MMA Ops Area

FTA

The MMA Does Not Need to Enter the FTA!
How Will the MMA Help Me?

• Where is the fire?
  – Smoke reports
  – Fire maps
  – Control line monitoring

• Where are my people
  – Safety overwatch and evacuation vectoring directly to ground crews

• Fire behavior description
  – Spread rates and fire progression
  – Spot distances

• All hazards
  – Real-time mapping (floods, spills, etc.)
  – Generic mapping tools (hazard, life-safety, and other non-fire hazards)
  – Search and rescue assistance
Limitations and Caveats

• The MMA can not see through clouds
• Availability is subject to:
  – Other requests and priorities as determined by the DFPC (not the USFS!)
  – Aircraft maintenance issues (typically 90+% available)
  – Weather
    • Low clouds over the target area
    • Severe weather conditions at the aircraft takeoff location or landing zone
• The MMA does not produce survey quality imagery
  – Images loaded in CO-WIMS are typically correctly registered within 3%-8%
    • Dynamic, mountainous terrain affects accuracy (flatter is better)
    • Distance from the aircraft affects accuracy (closer is better)
• Response time
  – “Red” status – airborne 20 minutes after notification
  – “Yellow” status – airborne 60 minutes after notification
  – “Green” status – airborne 4 hours after notification
  – Transit time <45 minutes to anywhere in Colorado
  – Total response time is Status Time + Transit Time
Communications

• VHF Radios
  – The MMA follows the interagency frequency guides

• UHF Radios
  – 8CALL90, 8TAC91, 8TAC92, and 8TAC93

• Google Chat & Email
Other Missions

• CO-WIMS and the MMA are built with wildfire in mind, but are useful for many missions
  – Natural disaster response – floods, earthquakes, search and rescue efforts
  – Man-made events – chemical spills, border patrol, terrorist attacks, riots, and other public safety incidents
  – Research and development – agricultural tasks, environmental monitoring, and wildlife and habitat survey

• Voice and data communications are interoperable with any organization
  – VHF FM communications
  – 800 MHz band nationwide channels
CO-WIMS

Colorado Wildfire Information Management System
Why Should I Care About CO-WIMS?

- CO-WIMS brings you
  - an up-to-date picture of the wildfire situation across the state (and beyond, actually – across the US)
  - Maps, and imagery from MMA aircraft of wildfire incidents in Colorado
What is CO-WIMS?

A web-based decision-support system

- Accessible to designated personnel
- On desktop and laptop computers, tablet devices, and smart phones
- Access to:
  - Near real-time aircraft intel from State of Colorado’s Multi-Mission Aircraft (MMA)
  - National fire and resource info
  - Weather, fuels, potential fire behavior
  - Colorado Risk Assessments
  - Jurisdictions

- Mapping
  - Create and track incidents
  - Map incidents
  - Map special risks
- Share information
Everyone sees this Common Picture immediately
Command View: National and Regional

Tabs summarize information (Nation, Region, and Incident)

Switch to tactical views for detailed incident information

“Play” incidents

Zoom to GACC

Click on the Map or a Fire to get summary information
Data Sources

- Property ownership, values, watersheds, structures, weather, precipitation, CO-WRAP, and many other data layers are available