Colorado Multi Mission Aircraft & CO-WIMS
A Little History......

• Colorado is a “local control” state.
• Wildland fire management responsibility was moved from the Colorado State University system to the Department of Public Safety on July 1, 2012.
• Senate Bill 13-245, created the Colorado Firefighting Air Corps (CFAC), and required that DFPC submit a report to the legislature by April 1, 2014 recommending what the CFAC should consist of.
• MMA program stood up on September 1st, 2014.
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)

• Based in Centennial, CO
  – Deployable to many forward operating locations
On-Aircraft View

• Small fire detection – Video – YouTube
  • Example 2
  • Example 3

• Fire Behavior – Video – YouTube

• Personnel Overwatch – Video – YouTube
  • Example 2

• Fire Mapping – Video – YouTube

• Aviation Monitoring – Video – YouTube

• Prescribed Fire Monitoring – Video – YouTube
Where the MMA Operates

Class A Airspace

MMA Ops Area

FTA

Helicopters, Airtankers, and ATGS

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

• Mop-up surveys
• Damage Assessment - Photo
• Aerial Supervision
Limitations and Caveats

• The MMA can not see through clouds
• Availability is subject to:
  – Other requests and priorities as determined by the DFPC
  – 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
  – “High Alert” status – airborne 20 minutes after notification
    • Defined as April 1 through October 31, can be extended or modified at DFPC discretion.
  – “Standard Alert” status – airborne 4 hours after notification
  – Transit time <45 minutes to anywhere in Colorado
• Loiter time as much as 5+ hours
Communications

- **VHF Radios**
  - The MMA meets the avionics requirements for a type I ATGS platform.
- **UHF Radios**
  - 8CALL90, 8TAC91, 8TAC92, and 8TAC93
- **Google Chat & Email**
• CO-WIMS and the MMA are built with wildfire in mind, but are useful for many missions
  – Search and Rescue
  – 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
Cost and Getting Access

- Local Government Agencies
  - No cost for fire detection missions
  - No cost for the first operational period of an incident
    • Subject to negotiation and cost share agreements for subsequent operational periods

- Federal agencies
  - Detection flights are often no cost, as the aircraft is flying local responsibility areas concurrently.
  - Incident cost - $3300/day, $1500/hour
    • Daily availability often waived in state
  - Ordered through ROSS as an “Infrared Flight”
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
Questions?