



**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)



MX-15HDI Sensor



Gap-Filler – Operations Began Aug 31<sup>st</sup>

# Sensor



- MX-15HDi
  - Color camera
  - Infra-red camera



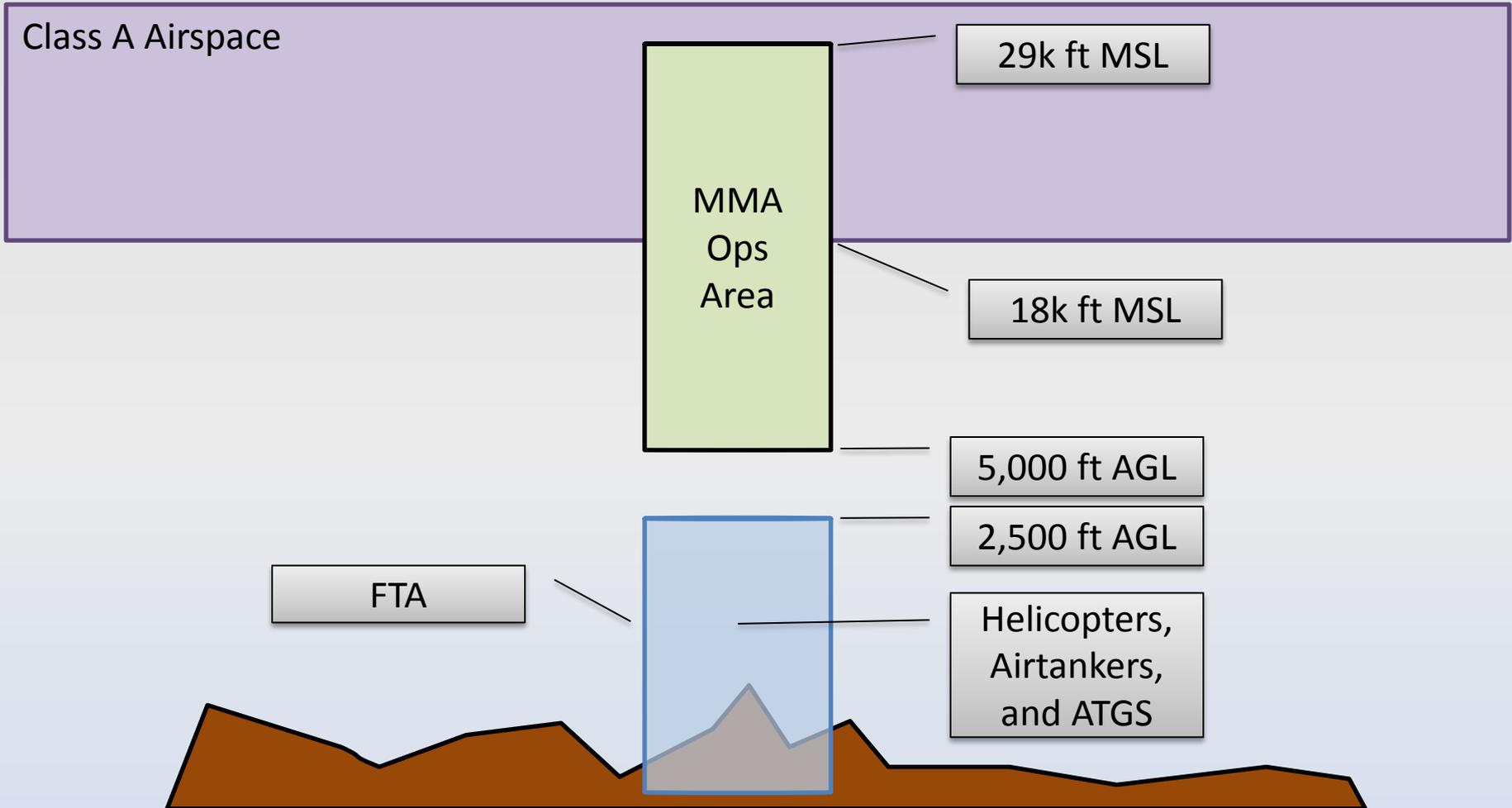


# On-Aircraft View

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- 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



**The MMA Does Not Need to Enter the FTA!**

# How Will the MMA Help Me?

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- 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

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- VHF Radios
  - The MMA follows the interagency frequency guides
- UHF Radios
  - 8CALL90, 8TAC91, 8TAC92, and 8TAC93
- Google Chat & Email

# Other Missions

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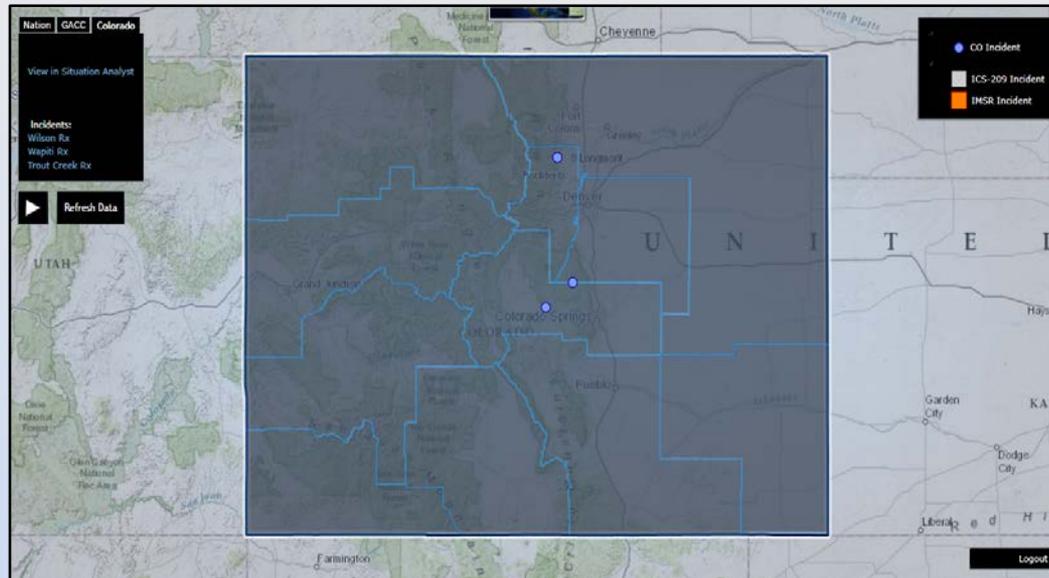


- CO-WIMS and the MMA are built with wildfire in mind, but are useful for many missions
  - Natural disaster response – floods, earthquakes, search and rescue efforts
  - Man-made events – chemical spills, border patrol, terrorist attacks, riots, and other public safety incidents
  - Research and development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

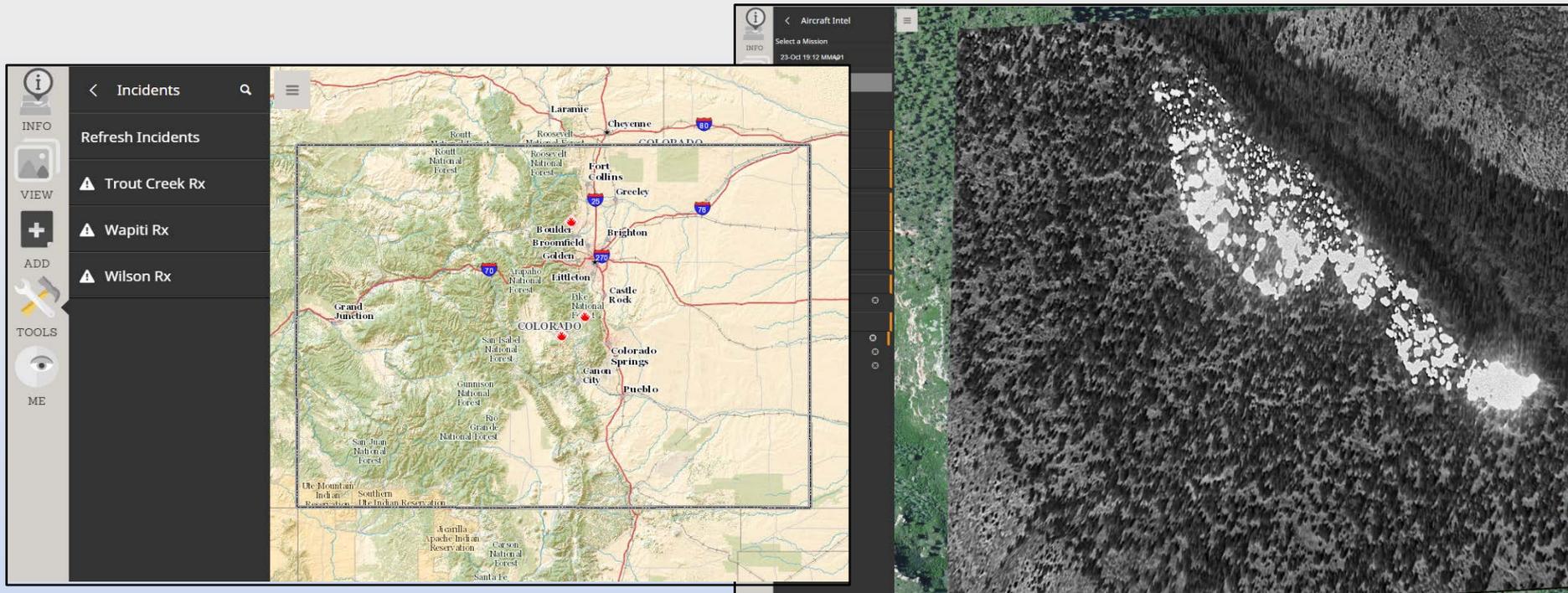
## Colorado Wildfire Information Management System





# 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

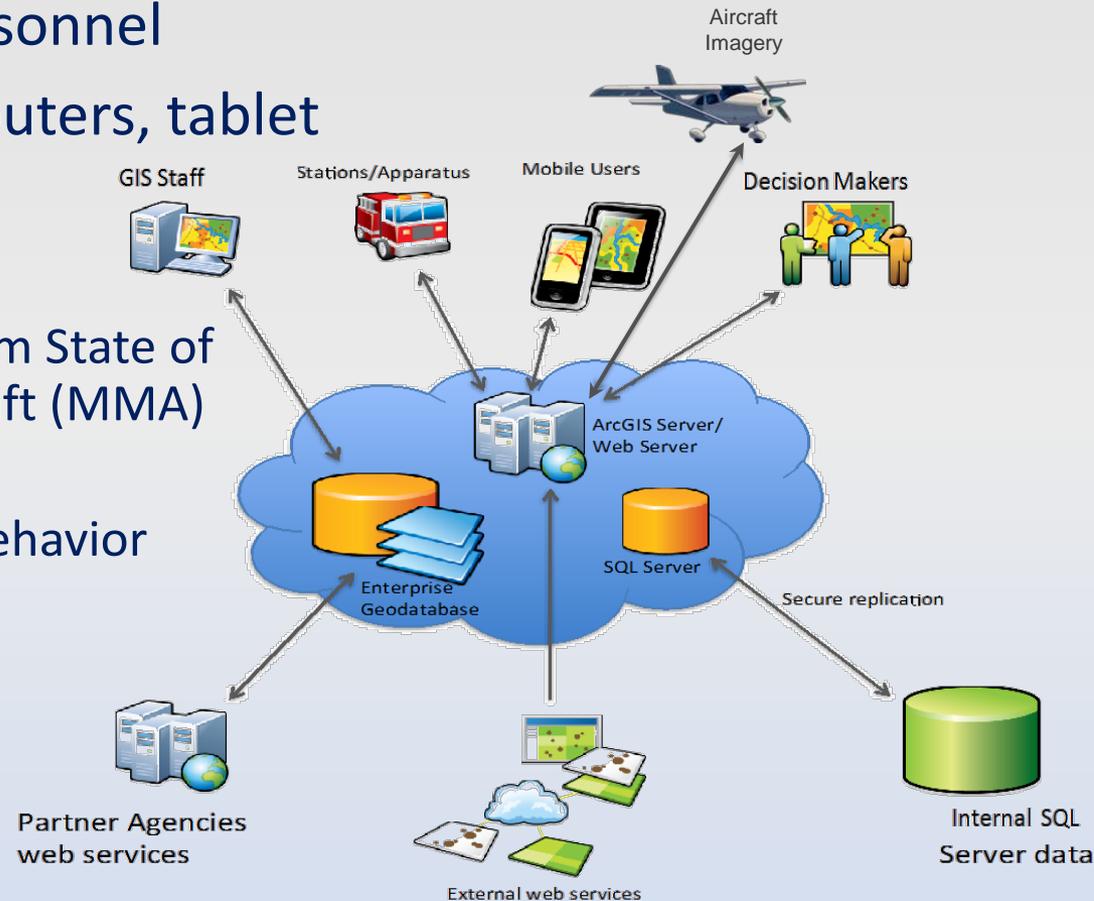




# What is CO-WIMS?

## 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

The screenshot displays a web-based interface for monitoring incidents. At the top left, there are tabs for 'Nation' and 'GACC'. The main content area is a map of the Rocky Mountain region, with a white outline highlighting the area. A legend in the top right corner identifies incident types: a blue dot for 'CO Incident', a grey square for 'ICS-209 Incident', and an orange square for 'IMSR Incident'. The map shows several blue dots representing incidents in Colorado. A sidebar on the left provides summary information for the 'Rocky Mountain' region, including preparedness levels, fire statistics, and resource counts. A 'Refresh Data' button is located below the sidebar. At the bottom left, a 'Play' button is visible. A 'Logout' button is in the bottom right corner.

**Nation** **GACC**

**Rocky Mountain**  
View in Situation Analyst

Preparedness level:  
New fires:  
New large fires:  
Contained large fires:  
Uncontained large fires:  
Area command teams committed:  
NIMOs committed:  
Type 1 IMTs committed:  
Type 2 IMTs committed:  
**ROSS resources**  
Air tankers:  
Fixed wing aircraft  
Helicopters: 1  
Fire crews: 3  
Engines: 3

Incidents:  
Trout Creek Rx  
Wapiti Rx  
Wilson Rx

**Refresh Data**

**Other GACCs with incidents**  
Northern California • Northwest • Southern  
Southwest

**Colorado**

**CO Incident**  
**ICS-209 Incident**  
**IMSR Incident**

**Logout**

“Play”  
incidents

Zoom to  
GACC

Click on the Map or a Fire to  
get summary information

