Strategic Investment in Aerial Infrared Technology

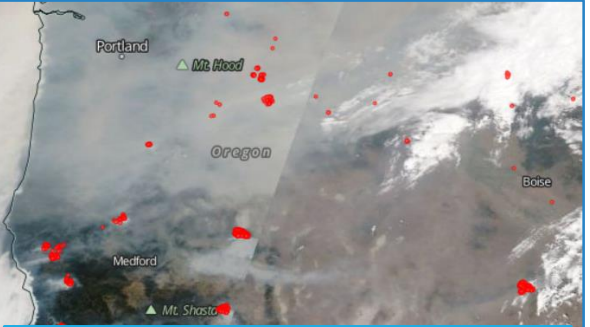*Finding and keeping fires small.*

Horse Prairie Fire as seen through FLIR IR sensor, 2017

Initial Attack Benefits

- **Real-time decision support for response and resource management**

- **Locate fires when small, at night, and through smoke (nearly 20 days of reduced visibility due to smoke)**

- **30 + unreported fires found to date**

Data provided to Blue Mountain Dispatch after Distributed Real Time Infrared detection mission.
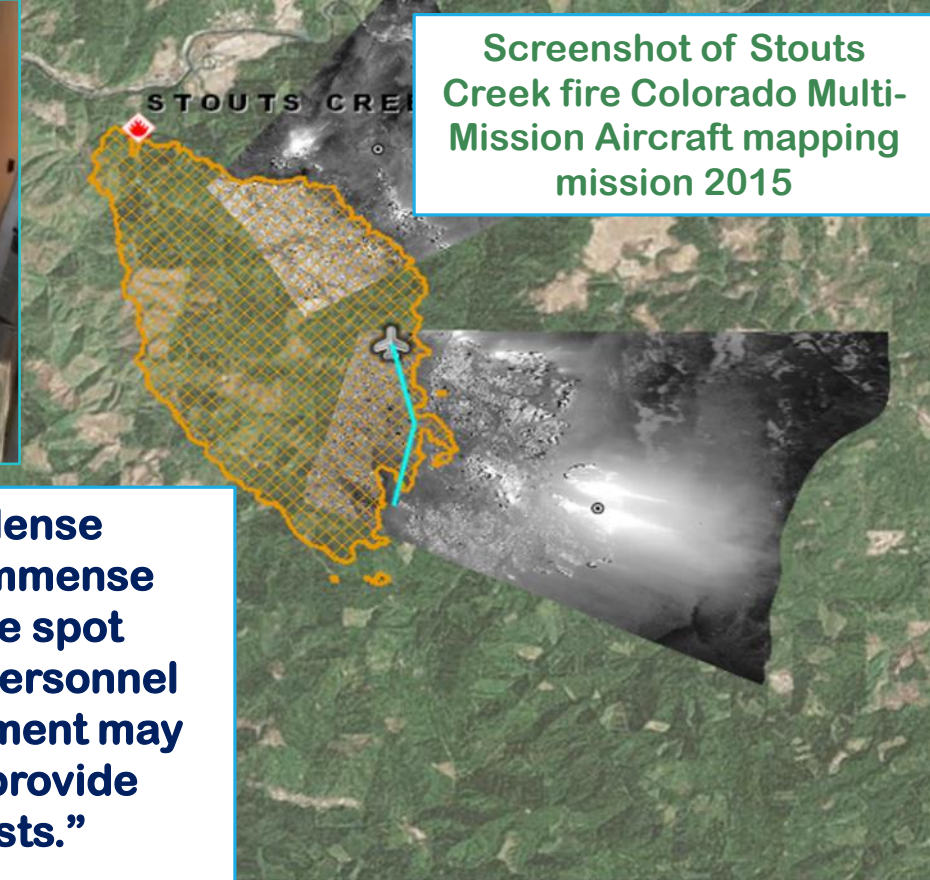
Satellite image of Oregon Aug. 20 when data was provided.

"Photos from the DRTI flight yesterday…they found over 15 fires we didn't know we had because of smoke. Photos and Lat/Long for each fire. Coolest thing ever." – Joe Hessel, District Forester

Large Fire Benefits

- **Firefighter safety**

- Spot fire identification & monitoring

- Situational awareness and decision support

- Perimeter mapping

Screenshot of Stouts Creek fire Colorado Multi-Mission Aircraft mapping mission 2015

"Looking for spot fires under a dense smoke layer or in the dark has immense benefits. Not only for locating the spot fires but for assuring safety of personnel on the ground. The initial investment may be high…but the value it would provide would far outweigh the fiscal costs."
– Matt Howard, Unit Forester

STOUTS CREEK

IR platforms used by ODF (2015-2018)

Colorado MMA (PC-12)

FLIR (PC-12)

TacAero Cessna 182H

Military DRTI (RC-26) & Lakota (T3 Helo)

230 Hours Flown

Precision - Martin LMXE

Insitu - Boeing Scan Eagle

Approx. $1.5MIL Spent

2015 → 2016 → 2017 → 2018

Colorado MMA (PC-12):
- Assigned to ODF for 14 days

- 12 detection missions / 15 unreported fires found statewide

- 11 large fire mapping missions (multiple fires including Stouts Creek)

- 60 hours of flight time

➤ Aviation Unit Conducted IR demo in EOA to share applications and capability

➤ Below average year for lightning strikes/less aerial detection demand

Colorado MMA (PC-12):
- Ordered, but **unavailable**

FLIR Corp Demo (PC-12):
- Flew 48 hours for large fire support (Horse Prairie and Eagle Creek)

IR Capable Unmanned Aircraft Systems (UAS):
- Flew 72 hours large fire support (Horse Prairie and Eagle Creek)

Colorado MMA (PC-12):
- Ordered, but **unavailable**

Distributed Real Time Infrared (DRTI) RC-26:
- **One** mission/ 15 unreported fires found in NEO (heavy smoke)

- **UAS** Flew 35 hours large fire support (Garner Complex - night ops)

TacAero (Cessna 182):
- Flew 25 hours large fire support / 10 hours detection

Colorado MMA (PC-12):
- Ordered, but **unavailable**

Overview

Total Investment = $750,000

- **Infrared sensor**
- **Mapping hardware/ software**
- **Data downlink equipment**
- **Installation**

*System is transferable to a new platform.

Investment Benefits

- **Per flight hour savings = $5,750**

- **Estimated savings based on annual flight hour average (57.5):**
  - ✓ **1 yr. = $330 K**
  - ✓ **2.3 yrs. = Breakeven**
  - ✓ **20 yr. (sensor lifespan) = $6.6 MIL**

- **Target for completion is fire season 2019.**

- **Finding and keeping fires small, before they become large and costly.**

Implementation Phases: Key Activities and Milestones

Initiation → Planning → Execution → Monitoring and Controlling → Closing

Initiation
- EFCC Meeting (3/5/19)
- **Milestone # 1: Project Charter Accepted & Signed**

Planning
- Project Team Kickoff Meeting (3/7/19)
- **Milestone # 2: Project Plan Accepted by Sponsor (3/11/19)**

Execution
- Procurement (4/4/19)
- Cockpit Retrofit (5/17/19)
- IR & Mapping Install (6/7/19)
- Testing & Training (6/30/19)
- **Milestone #3: Aircraft & System Available (7/1 – 7/31)**

Monitoring and Controlling
- Ongoing throughout all phases
- Weekly status meetings
- Risk Management

Closing
- Document lessons learned
- **Milestone # 4: Gain formal project acceptance (Jul)**
- **Milestone # 5: Project close and file archive (Jul)**

Project Risks

- **Aggressive Timeline** (goal for completion July 2019)

- **Procurement Processes** (Mixed methods; sole source, ITB, etc.)

- **Dependency** on external contractors to complete the work

DO YOU KNOW THE NAME OF THIS FIRE?