



COLORADO

**Center of Excellence for Advanced
Technology Aerial Firefighting**

Department of Public Safety

CO-FPS Development Work for 2017



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Department of Public Safety

CO-FPS Development - 2017

Periods of Performance for 2017

- 1 December 2016 to 30 June 2017 (7 months)
- 1 July 2017 to 30 June 2018 (12 months)

Results in the first period will inform the second period statement of work.

IOC CO-FPS Products

18 hour predictions of:

Experimental Products available now
are checked ✓

Fire extent ✓
Rate of spread ✓
Heat release ✓
Smoke concentration ✓
Significant fire phenomena ✓

Fire behavior product group

Turbulence intensity ✓
Downdraft and updraft regions ✓
Wind shear regions ✓

Aviation hazard product group

Wind speed, direction, gustiness ✓
Surface air temperature ✓
Surface relative humidity ✓

Fire weather product group

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The general tasking areas will remain similar

- Task 1: Stakeholder Support (**bi-monthly** meetings)
- Task 2: CO-FPS Development & **Performance Assessment**
- Task 3: Co-FPS Demonstration
- Task 4: Training
- Task 5: Project Management & Outreach

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Three primary areas of focus in 2017 will be:

1. Assess the applicability and feasibility of utilizing **cloud computing** to speed-up simulation runtime
2. Update the fuel datasets to **include the Scott & Burgan (40) fuel models**
3. **Assess the performance of CO-FPS products** with a focus on fire perimeter and rate of spread using MMA and other datasets

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Additional enhancements include:

4. Implement a **rapid simulation capability** for initial attack decision support (10x faster output)
5. Expand the CAWFE® model **data retention period to 72 hours** so simulations can be run for ignition times up to three days prior
6. Resources permitting, begin work to **create a training function** whereby historical weather and wildfire datasets will be available for training and analysis. Up to 10 pre-selected wildfire cases will be packaged
7. Resources permitting, begin work on a time-series (meteogram) product for spot forecasts

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We will also:

1. Assess and upgrade, where applicable, CO-FPS products (fire weather, fire behavior, and aviation hazard)
2. Refine and improve crown fire treatments
3. Collaborate with Intterra to refine, where applicable, the CO-FPS product interface in CO-WIMS
4. Support the ongoing CO-FPS operational demonstration
5. Support training sessions (up to 3 before 30 June)

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Performance Assessment

1. Focus on fire perimeter and rate of spread
2. Analyze MMA IR + VIS video data (using a student hire) to create case datasets with higher temporal and spatial resolution
3. Case study selection and acquisition of data are critical aspects of this task

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Other Potential Enhancements:

- Group wind products and use progressive disclosure
- Add HRRR AQ product (state domain)
- Expand WRF-Fire AQ product to larger domain
- Users want to overlay wind speed/direction on AQ product
- User want wind speed shown with vectors for all wind products