

*Colorado Decision Support System for Prediction of Wildland
Fire Weather, Fire Behavior, and Aircraft Hazards*

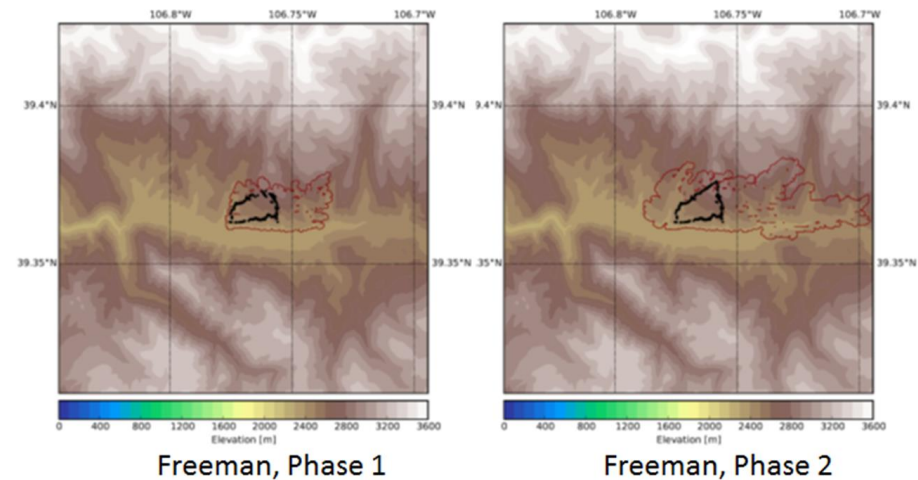
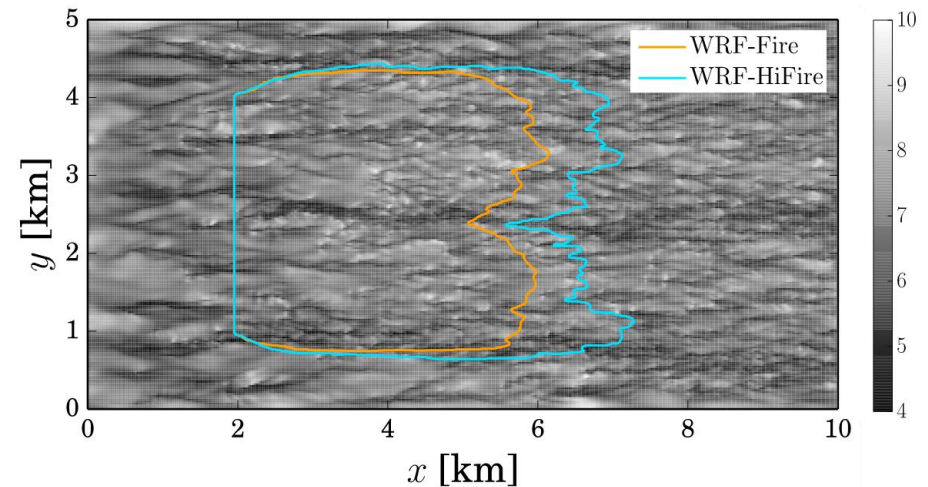
CO-FPS development plans
for FY 17-18

Barbara Brown and NCAR Team

1 August 2017

Period 2 Accomplishments (1 Dec '16 – 30 June '17)

- 72-h **data** retention
- Improved **level set algorithm** for fire spread predictions
- **Scott and Burgan fuel model** implemented and tested
- Evaluation of **cloud computing** feasibility
- **Rapid simulation** capability
- Initial **assessment** (11 fires)
- Investigated **effect of active fire area** on the rate of spread and heat release



Overview of planned efforts for Period 3 (July 2017 through June 2018)

- Continue current efforts to
 - Evaluate and improve the modeling system
 - Provide products to CO-WIMS
- Training functionality on CO-WIMS (stored cases)
- New developments:
 - Air Quality
 - Initial spotting capability
 - Temperature and humidity maps
- Further implementation/testing of cloud computing

Modeling system activities and improvements

- Further testing and enhancements of Scott and Burgan fuel model implementation
- Air quality
 - Products (average/peak hourly concentration)
 - Bridging domains (i.e., crossover from high resolution to lower resolution)
- Use feedback from evaluation results to improve CO-FPS model prediction performance
- Investigate initial approaches for generating spot fires and to set ignitions at more than one point in time

“Cloud” implementation of CO-FPS

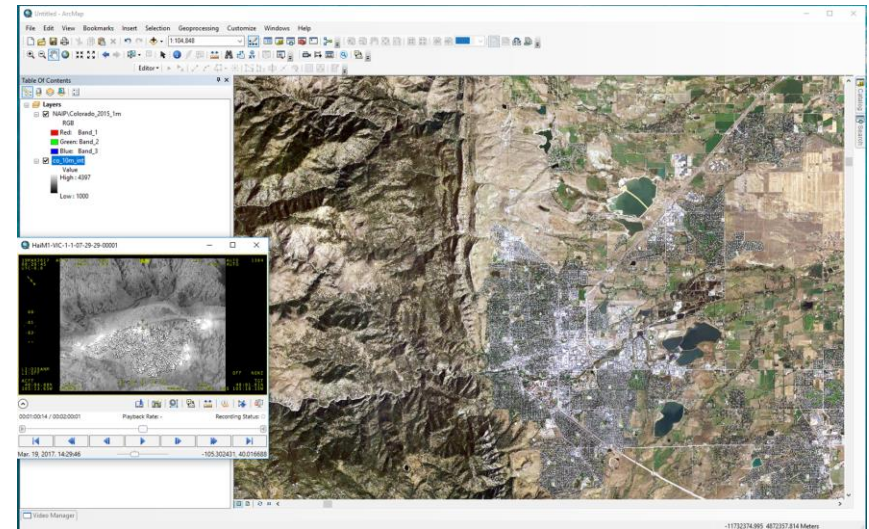
- Goal: Further test and optimize ability to run CO-FPS in the cloud (AWS)
- Initial efforts in Period 2 indicated the system can be efficient and economical
- Investigate ways to optimize model performance (forecasting and nowcasting) in cloud environment
- In-house system will remain available

Product developments

- Refine existing products (Thresholds, Units, Symbols)
- New products
 - Surface relative humidity and temperature maps
 - Significant Fire Phenomenon
 - Air quality indicators
- Training capability
 - 5 “canned” cases that can be run via CO-WIMS
- Additional capabilities
 - Time-zone specification
 - Alert capability based on thresholds/rate of change
 - Connect to larger/coarser domains (e.g., smoke)
- Test performance in the cloud

Evaluation

- Extend evaluation from Spring 2016 to include additional 2017 cases
 - Expand number of fires
 - Test impacts of model refinements
 - 2 evaluation reports plus ongoing discussions
- Expand datasets
 - New approaches to obtaining fire perimeters (satellite, ArcGIS Full Motion Video)



Synergistic activities

- Communication and potential collaborations with USFS Fire Science Laboratory and other USFS research groups
- NASA-funded project related to fuel moisture estimation
- Investigating other collaborations and activities via NOAA and NSF

THANK YOU!
QUESTIONS?