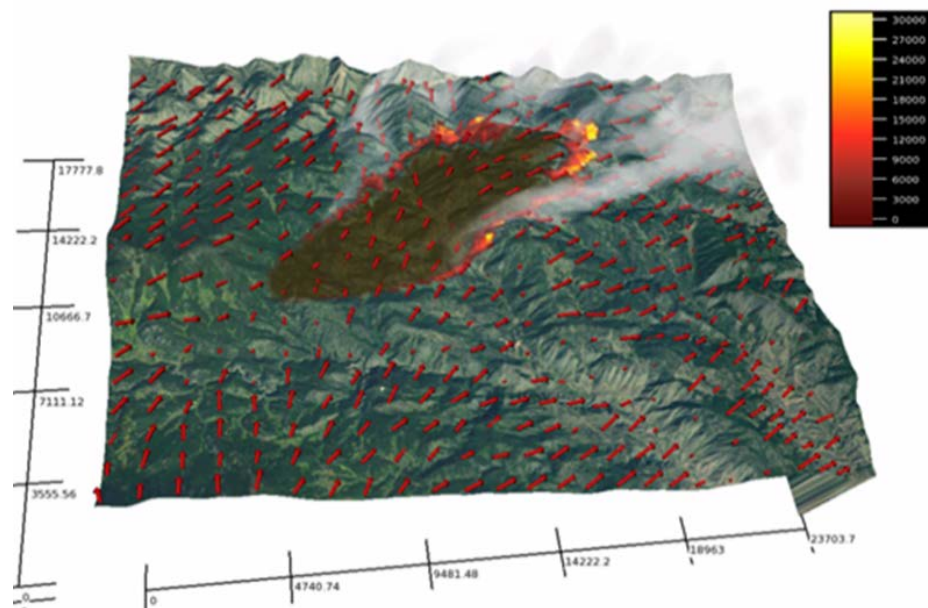
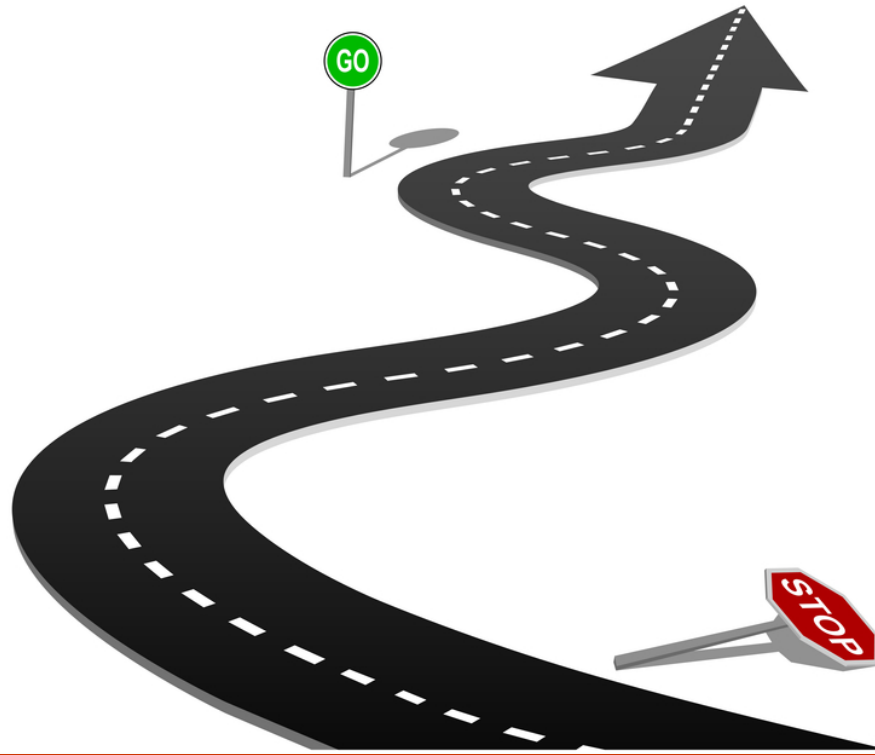


# Colorado Decision Support System for Prediction of Wildland Fire Weather, Fire Behavior, and Aircraft Hazards



CO-FPS Stakeholder Meeting #3  
23 February 2016  
Department of Public Safety, Centennial, CO

# CO-FPS Development Schedule and Major Milestones



# Work Plan Outline

## Year 1 Tasks

- Task 1: Stakeholder Committee Support
- Task 2: CO-FPS Development
- Task 3: CO-FPS Demonstration
- Task 4: Training
- Task 5: Project Management & Outreach

# Work Plan Outline (Year 1)

## Task 1: Stakeholder Committee Support & User Requirements

- Supporting the organization of meetings
- Participating in stakeholder meetings
- Preparing meeting materials and minutes
- Document lessons learned, update functional and computing requirements, recommend system refinements and upgrades for subsequent years

# Work Plan Outline (Year 1)

## Task 2: CO-FPS Development and Configuration

- Develop functional requirements
- Develop system performance metrics
- Develop computing requirements
- Develop automated CO-FPS data ingest & QC sub-systems
- Develop and configure system to operate over Colorado
- Develop interface with CO-WIMS
- Develop and refine fire behavior, aviation hazard, and fire weather products
- Test and refine components and system interoperability
- Prepare system for live initial operating capability (IOC) demonstration
- Prepare IOC system code for delivery to DFPC

# Work Plan Outline (Year 1)

## Task 3: CO-FPS Demonstration

- Operate and support CO-FPS during 3 month demonstration (Sep-Oct-Nov 2016)
- Demonstrate ability of system to handle 3 (actual and/or user generated) simultaneous fires (5,000 to 25,000 acres)
- Demonstrate fire behavior, aviation hazard, and fire weather products
- Demonstrate CO-WIMS interfaces
- Validate user requirements
- Conduct a System Acceptance Test (SAT) in November

# Work Plan Outline (Year 1)

## Task 4: Training

- Develop training plan
- Conduct training on system capabilities
- Conduct four (4) pre-demonstration training sessions for “hands-on” users (2 sessions) and users that only have access to the output products (2 sessions)
- Training topics to include:
  - System capabilities and limitations
  - Data sources and processing
  - Product interpretation
  - Interfaces to CO-WIMS
  - Performance verification
  - Other agreed upon topics

# Work Plan Outline (Year 1)

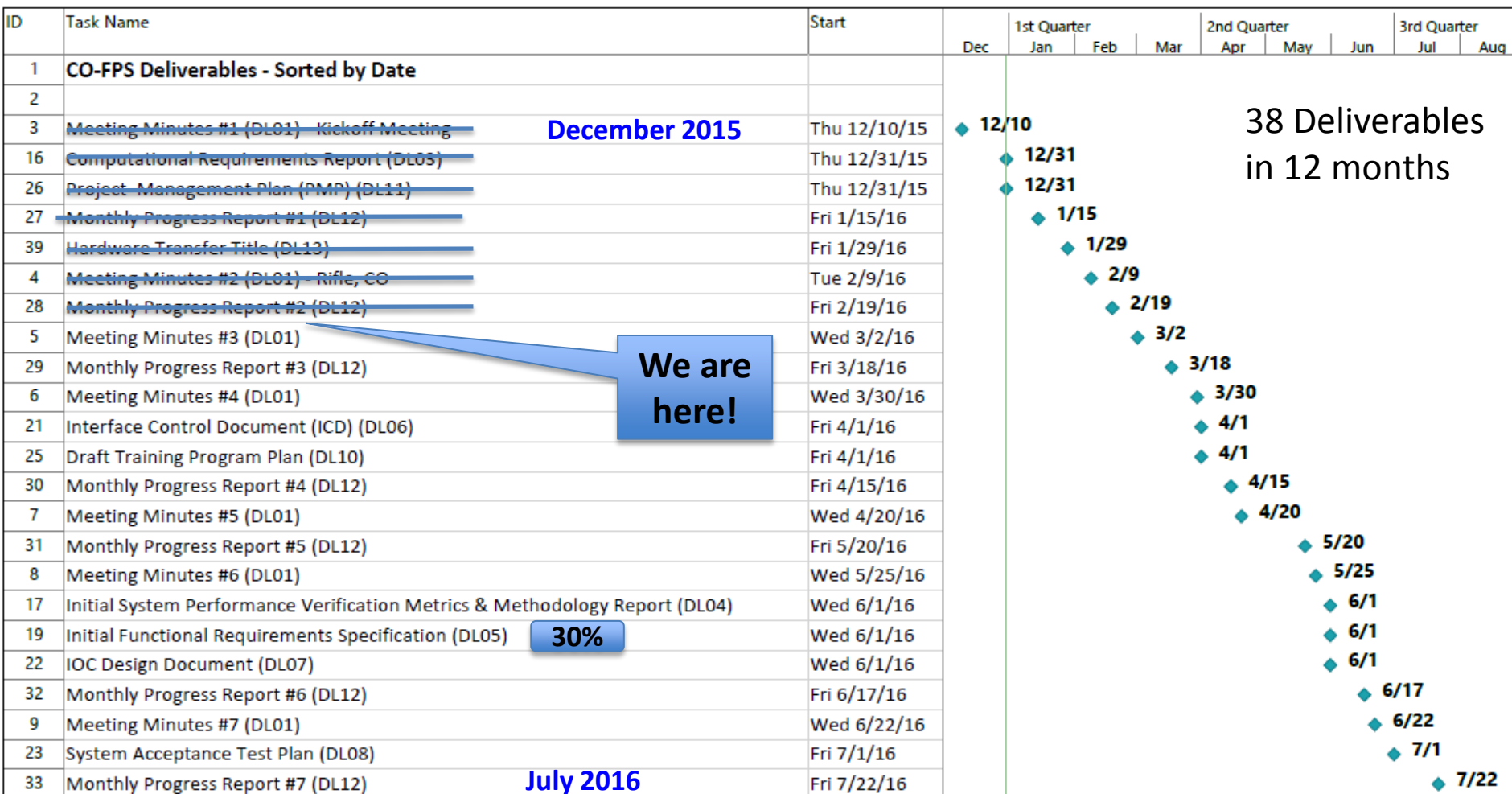
## Task 5: Project Management & Outreach

- Manage project (planning, budgeting, tracking, etc.)
- Prepare Project Management Plan
- Prepare Monthly Status Reports
- Evaluate and discuss stakeholder feedback
- Address technical questions
- Participate in project status meetings
- Support outreach activities



# Status of Deliverables

as of 22 February 2016



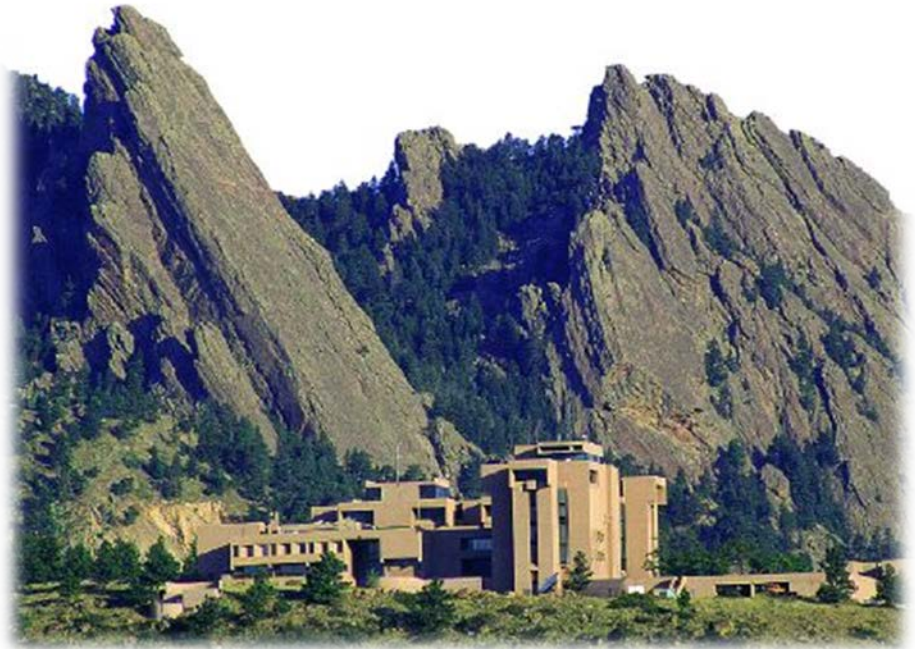
# Status of Deliverables

ID	Task Name	Start	Dec	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10	Meeting Minutes #8 (DL01)	Wed 8/3/16		<div>August 2016</div>											
34	Monthly Progress Report #8 (DL12)	Fri 8/19/16		<div>8/3</div>											
11	Meeting Minutes #9 (DL01)	Wed 8/31/16		<div>8/19</div>											
15	CO-FPS Summary Document (DL02)	Thu 9/1/16		<div>8/31</div>											
35	Monthly Program Report #9 (DL12)	Fri 9/16/16		<div>9/1</div>											
12	Meeting Minutes #10 (DL01)	Wed 9/28/16		<div>9/16</div>											
13	Meeting Minutes #11 (DL01)	Wed 10/19/16		<div>9/28</div>											
36	Monthly Progress Report #10 (DL12)	Fri 10/21/16		<div>10/19</div>											
18	Final System Performance Verification Metrics & Methodology Report (DL04)	Tue 11/1/16		<div>10/21</div>											
20	Final Functional Requirements Specification (DL05)	Tue 11/1/16		<div>11/1</div>											
37	Monthly Progress Report #11 (DL12)	Fri 11/18/16		<div>11/1</div>											
40	Initial Operating Capability System Code (DL14)	Wed 11/30/16		<div>11/18</div>											
24	System Acceptance Test Report (DL09)	Thu 12/1/16		<div>11/30</div>											
14	Final Meeting Minutes #12 (DL01)	Wed 12/14/16		<div>12/1</div>											
38	Final Progress Report (DL12)	Fri 12/16/16		<div>12/14</div>											
				<div>December 2016</div>											

# NCAR Staffing

NCAR has 13 staff members working on the CO-FPS project, but none are full time on the project. Job categories include:

- Scientists
- Software Engineers
- Statistician
- System Administrators
- Project Manager
- GIS specialists



# Major Technical Milestones

(2016)

## January – February

- Computing hardware purchase and set-up
- CAWFE® software installation & CO-FPS initial data ingest code development

## March- April

- Sample CO-FPS to CO-WIMS data exchange (with Intterra support)
- Interface Control Document (ICD) development
- CO-FPS initial test runs (data flow case studies)
- Prepare draft Training Plan

# Major Technical Milestones

## (2016)

### May-June

- Initial (limited) stakeholder viewing of selected products on CO-WIMS
- Initial (limited) stakeholder triggering of simulated wildfires for testing and refinement
- Testing of real-time ingest of MMA fire line data
- Functional Requirements Specification due

### July-August

- End-to-end system testing, dataflows, workflows
- Stress testing of system (e.g., multiple simultaneous fires)
- Site Acceptance Test Plan due
- Training

# Major Technical Milestones

(2016)

## September - October

- Training continues
- System demonstration begins, but refinements continue
- Work with stakeholders on testing workflows, bug identification, system refinements, etc.
- Deliver year 1 Summary Document that includes year 2 development recommendations

## November

- System demonstration continues
- Conduct Site Acceptance Test (SAT) of initial operating capability (IOC)
- Prepare final reports
- Deliver IOC software

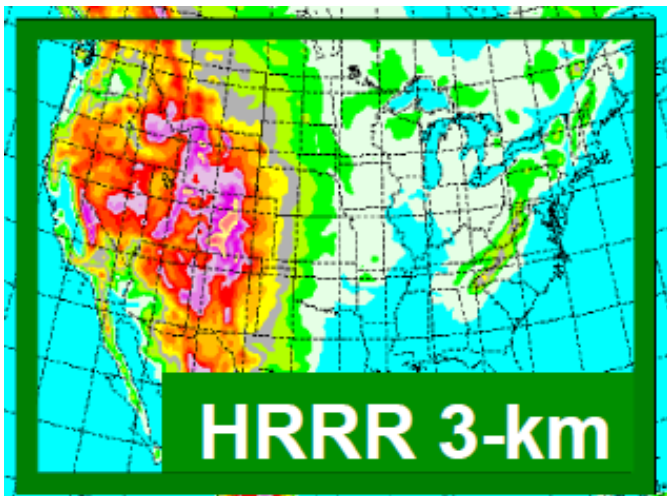
# Questions

# Reference Slides



# CO-FPS Model Nesting

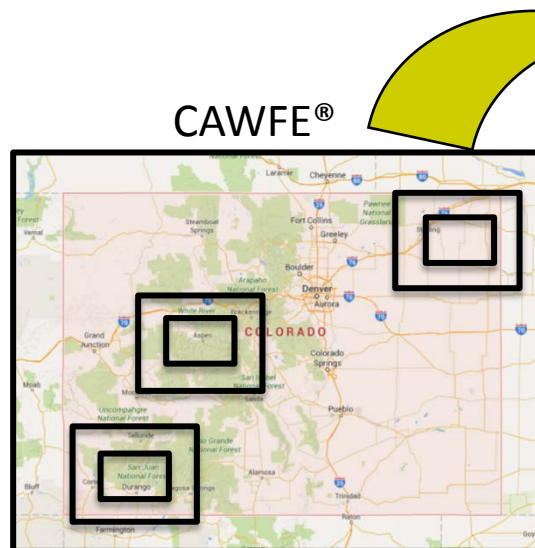
Source - NWS



CONUS Scale

High-Resolution Rapid Refresh model

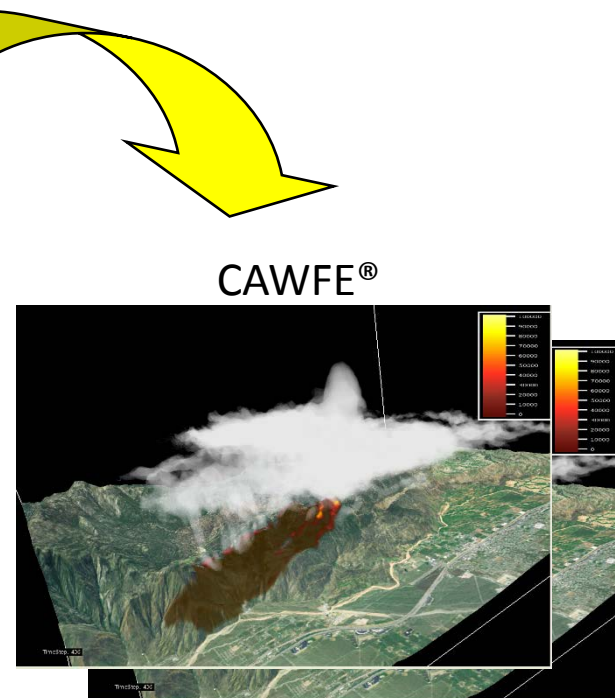
- Hourly updates
- 24 hour forecasts



3 km over Colorado

Hourly updates

1 km outer subdomain



100 meter (finest grid)

Wildland Fire Scales

# Initial Operating Capability CO-FPS Products

18 hour predictions (at user defined increments) of:

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

## Fire behavior product group

Will be calculated on 100 m fire scale grids when triggered

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

## Aviation hazard product group

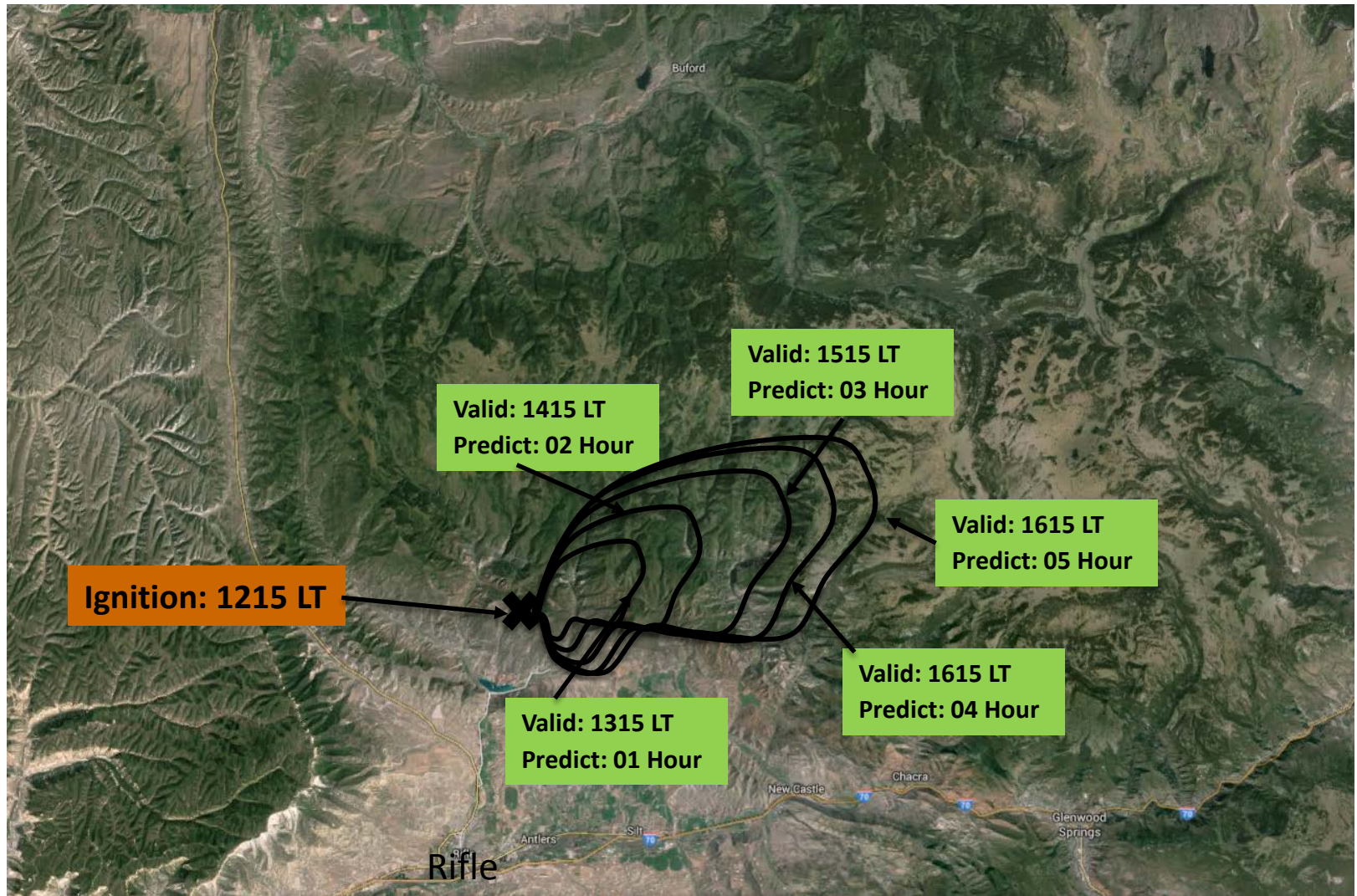
Will be calculated on 3 km (state scale)  
Could also be provided on 1 km, and fire scale grids (100 m)

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

## Fire weather product group

Will be calculated on 3 km (state scale)  
Could also be provided on 1 km, and fire scale grids (100 m)

# Fire Rate of Spread Storyboard





# Wind Vector Storyboard

How much information is too much information w.r.t. gridded data?

Do you need to see the fire weather data on the 100 m grid, 1 km, and/or 3 km?

Note: the fire behavior output will be created on the 100 m grid

