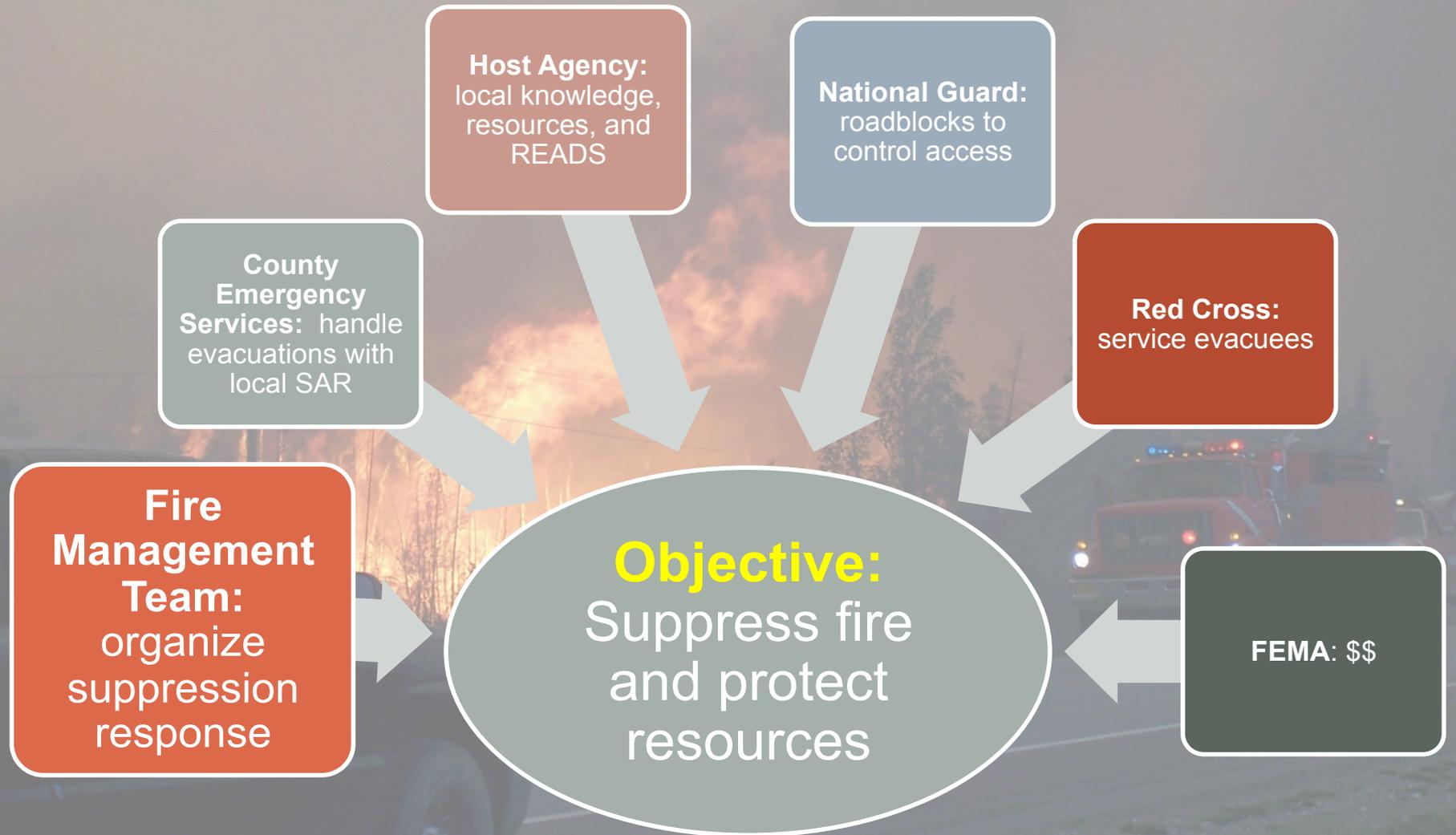
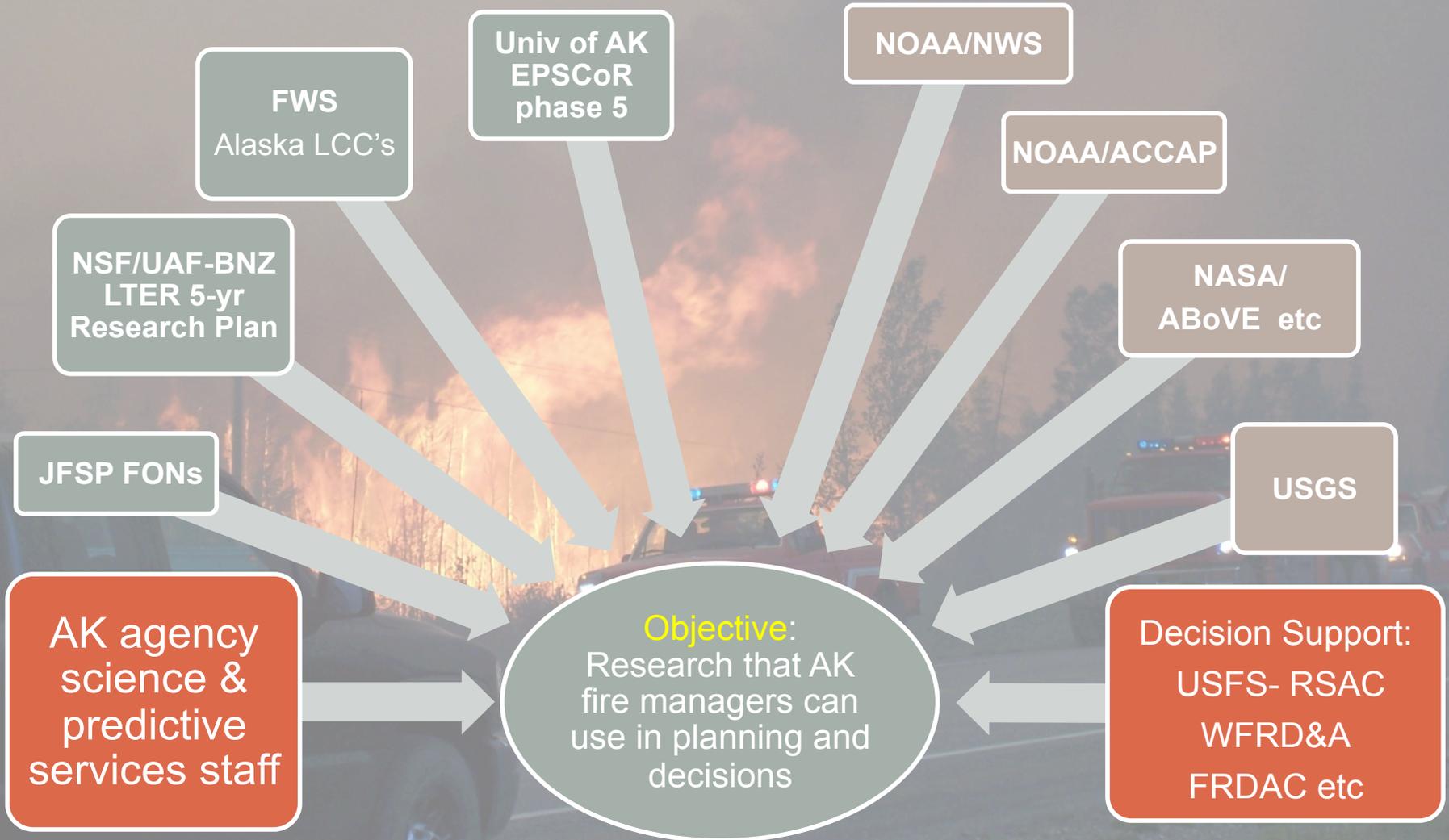


THE “UNIFIED COMMAND” ANALOGY:



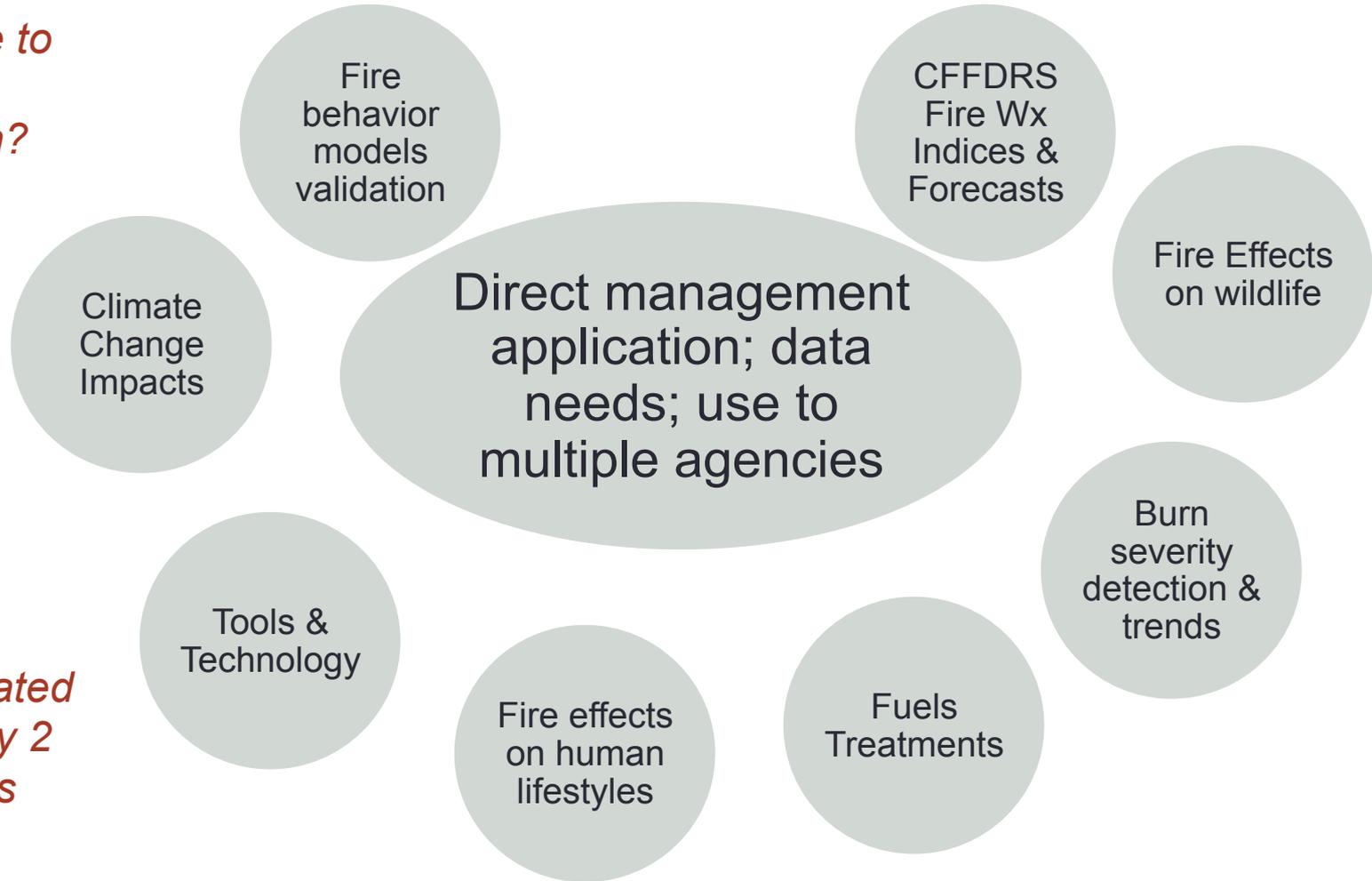
THE “UNIFIED COMMAND” ANALOGY:



FRDAC (Fire Research Development and Applications Committee)

RESEARCH NEEDS LIST

*Unique to
Alaska
Region?*



*Updated
every 2
years*

Agency Fire/Fuels Science Providers:



About WFM RD&A

- Mission and Vision
- Annual Reports
- Meet our Staff
- Latest News
- 2015 Detailer Program



Decision Support

- References and Guidance
- GA Editor Resources
- Line Officer Resources
- Tech Transfer & Publications
- Decision Support Training
- NFDSC



Fuels & Fire Ecology

- Tools
- Fuels Training
- Additional Resources



Weather Climate & Smoke

- What is the Rocky Mountain Center (RMC)?
- RMC Fire Weather Products
- RMC Smoke Forecast

Forest Service Research & Development
Rocky Mountain
Research Station



Pacific Wildland Fire Sciences Lab



Photo By: [Gina Wing](#)

A few examples





Joint Fire Science Program Funding Opportunities

- Topics for JFSP funding this include **implications of changing ecosystems for fire and fuels management in Alaska**
- Proposals are due November 13
- Focus on **management-relevant science**



Nancy Fresco, Scott Rupp



NSF: Bonanza Creek LTER 5-yr plan and expanded site network

- Understand **successional dynamics** and **ecosystem processes** of black spruce forests and how these systems will respond to **changing climate and disturbance regimes**
- Renewal due in February
- Focus on **basic** research and **long-term** measures

Roger Ruess, Teresa Hollingsworth

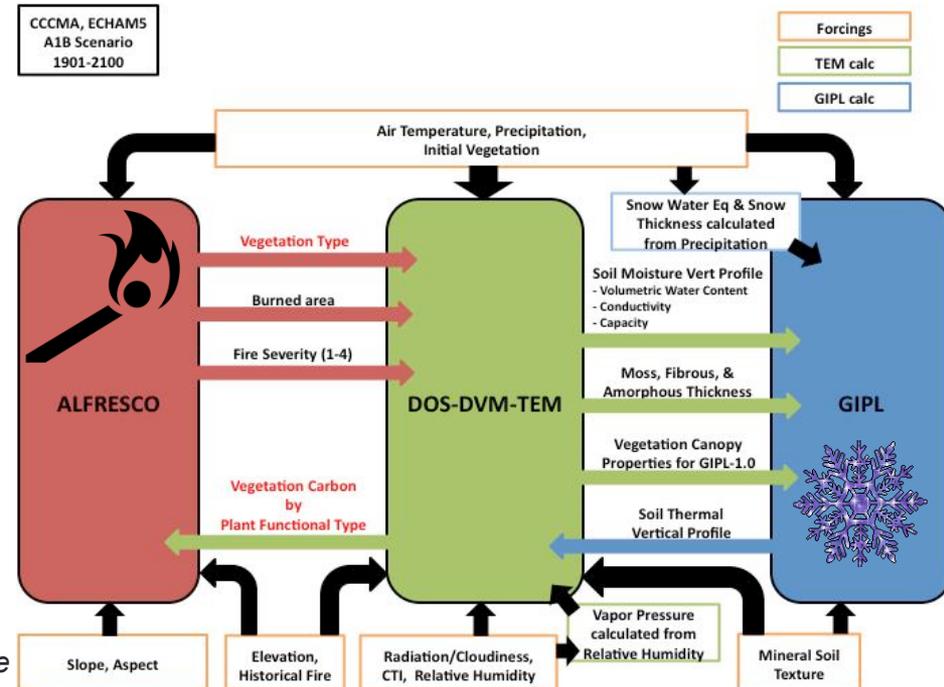
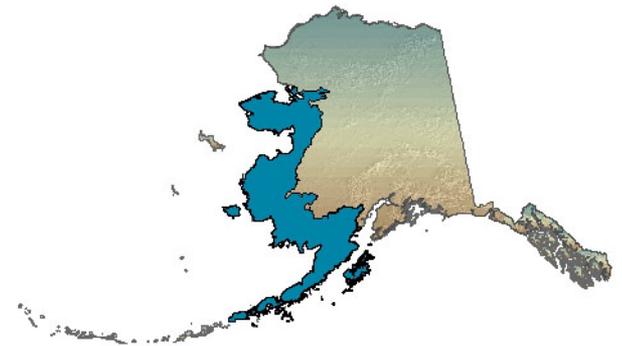


Figure from LTER website

FWS: Western AK LCC

- Informing decision-makers about **climate change effects on terrestrial habitat features** and their impact on important resources/services in western Alaska
- Pre-proposals due November 2
- Focus on **synthesis, communication**, and stakeholder understanding

Western Alaska LCC



Karen Murphy



Alaska EPSCoR: Phase 5 (begin 2017)

- How can we understand **regime shifts and tipping points in large-scale ecosystems** in Alaska? The two focal areas are coastal/marine and **FORESTS & WILDFIRE**. *Anupma Prakash*
- Pre-proposals due October 31
- Focus on **capacity-building**, stimulating collaborations, workforce development

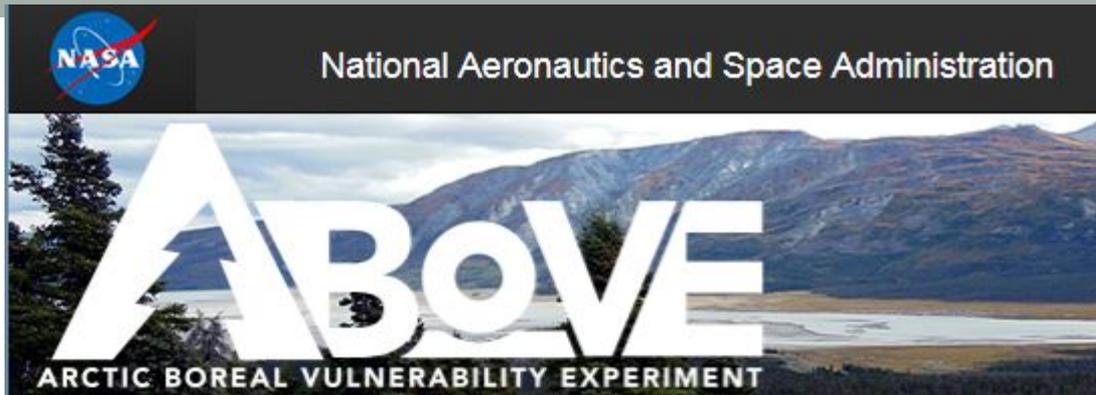
Seasonal Climate Forecasting Applied to Fire Management in Alaska

- A proposal to NOAA-Modeling, Analysis, Predictions and Projections program
- Scientist team: [Uma Bhatt](#), Bieniek, York, Peng
- Collaborators: Brettschneider, Thoman, Petrescu, Jandt, Ziel, Branson, Strader, Alden
- The goal: build specific AK forecast **products** on the 2-week to seasonal time scale. Increase the forecast lead-time for the Canadian Forest Fire Weather Index System (CFFWIS) from the current 48-hours to several months by utilizing new seasonal forecast models (CFSv2 and NMME). Use 'map typing' applied to meteorological fields in Alaska, a methodology that has been developed in the western US to evaluate lightning ignition risk (LIR).

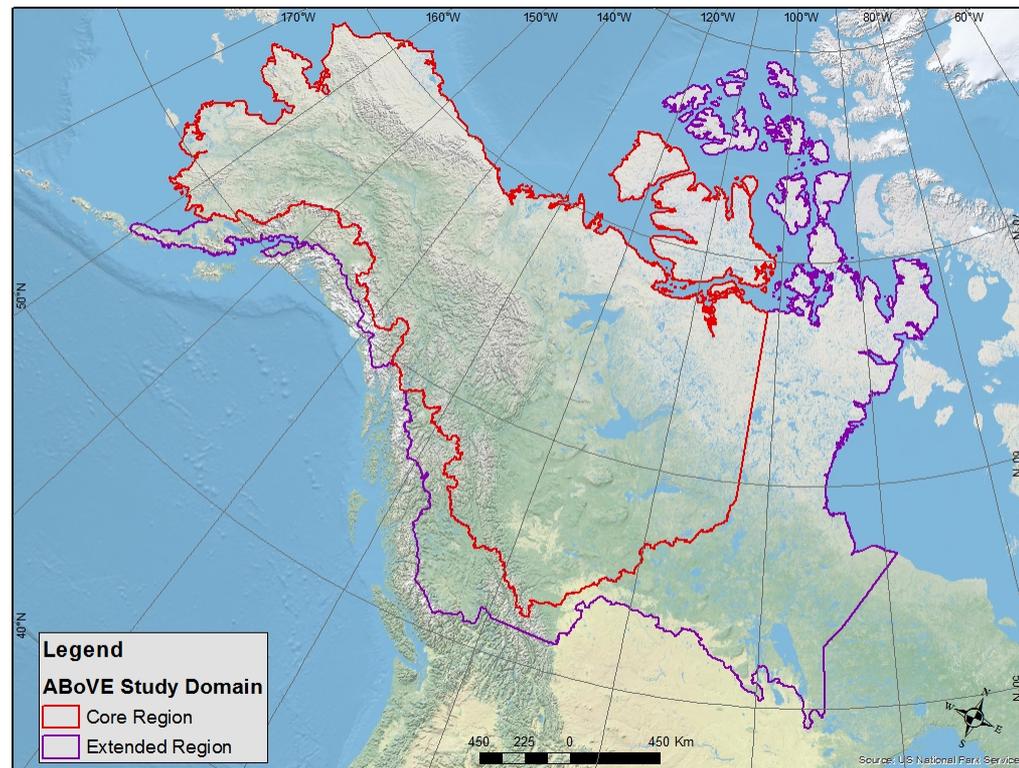
Summer-Spruce Calibration

- Buildup Index & Fine Fuel Moisture Code are first factors
- Air Temp
- Fire Weather Index

SPRUCE (Summer)	BUI < 40.0	BUI 40.0 to 59.9	BUI 60.0 to 89.9	BUI 90.0 to 109.9	BUI 110.0+
FFMC Less than 80.0	LOW	LOW	LOW	LOW	LOW
FFMC 80.0 to 81.9	LOW	LOW	LOW	MODERATE	MODERATE
FFMC 82.0 to 83.9	LOW	LOW	MODERATE	MODERATE	MODERATE
FFMC 84.0 to 85.9	MODERATE	MODERATE	MODERATE	HIGH	HIGH
FFMC 86.0 to 88.9	MODERATE	MODERATE	HIGH	HIGH	HIGH
FFMC 89.0 to 89.9	HIGH	HIGH	HIGH	VERY HIGH	VERY HIGH
FFMC 90.0 to 91.9	HIGH	HIGH	VERY HIGH	VERY HIGH	VERY HIGH
FFMC 92.0 to 92.9	HIGH	HIGH	VERY HIGH	VERY HIGH	VERY HIGH
FFMC 93.0+ and Temp < 75.0	VERY HIGH IF FWI < 40.0	VERY HIGH IF FWI is less than 40.0	VERY HIGH IF FWI is less than 36.0	VERY HIGH IF FWI is less than 36.0	VERY HIGH IF FWI is less than 28.0
FFMC 93.0+ and Temp 75.0 to 79.9	VERY HIGH IF FWI < 40.0	VERY HIGH IF FWI is less than 40.0	EXTREME IF FWI is at least 36.0	EXTREME IF FWI is at least 36.0	EXTREME IF FWI is at least 28.0
FFMC 93.0+ And Temp 80.0+	EXTREME IF FWI is at least 40.0	EXTREME IF FWI is at least 40.0	EXTREME IF FWI is at least 36.0	EXTREME IF FWI is at least 36.0	EXTREME IF FWI is at least 28.0



- In August 2015, NASA selected 21 proposals for the initial research investigations to begin the **Arctic-Boreal Vulnerability Experiment (ABoVE)** field campaign—a study of ecosystem responses to environmental change in western North America's Arctic and boreal region and the implications for social-ecological systems.





Projects funded in 2015 by NASA as part of the ABoVE Field campaign:

- **1) Long-Term Multi-Sensor Record of Fire Disturbances in High Northern Latitudes.** This project will develop and implement a new approach to produce medium resolution (30m) records of fire disturbances guided by moderate resolution (250 to 1000m) datasets. *Tatiana Loboda*
- **2) Quantifying long-term impacts of single and repeated wildfire burning in North American tundra on organic soil carbon stocks and ecosystem functioning.** The proposed project will focus on investigating and quantifying fire-induced changes in Alaskan tundra with a specific aim to assess the region's vulnerability to on-going and future environmental change and the changes to carbon cycling in this ecosystem. *Tatiana Loboda*
- **3) Increasing fire severity and the loss of legacy carbon from forest and tundra ecosystems of northwestern North America.** This project will conduct research in tundra ecosystems north of Denali National Park and boreal forest and peatland ecosystems in the Northwest Territories to determine factors controlling fires that burn organic soils common to these ecosystems in order to understand the role of fire in terrestrial carbon cycling. *Michelle Mack*



Projects funded in 2015 by NASA as part of the ABoVE Field campaign (cont.):

- **4) Understanding the vulnerability and resiliency of boreal-taiga ecosystems to wildfire in a changing climate:** A study of the 2014 Northwest Territories wildfires. *Laura Bourgeau-Chavez*
- **5) Developing a spatially-explicit understanding of fire-climate forcings and their management implications** across the ABoVE domain *Brendan Rogers*
(Webinar—Next week—Oct 20!)
- **6) A Joint USFS-NASA Pilot Project to Estimate Forest Carbon Stocks in Interior Alaska** by Integrating Field, Airborne and Satellite Data *Doug Morton*

Considerations for Decision Needs:

- **Time horizons** - days, weeks, seasons.
- **Decision contexts** - strategic vs tactical, competing values
- **Leveraging information** - real time, current, forecast,
- **Uncertainty** - quality of climate and landscape descriptions, accuracy and temporal resolution of forecasts.
- **Information overload** - collapse of decision-making, formatting and pre-processing for users.

