

Twenty-Sixth Tactical Fire Remote Sensing Advisory Committee (TFRSAC) Meeting

Hosted By:

USDA-Forest Service: Everett Hinkley and Brad Quayle

NASA Applied Science Program: Vince Ambrosia



**3 November 2016
National Interagency Fire Center (NIFC)
Boise, ID**

TFRSAC Schedule: 3 November (AM)



8:30 AM

Meeting start:

Morning Session (100 minutes)

Welcome and Introductions / Logistics (15)

Ambrosia / Hinkley

Forest Service Outlook (20)

E. Hinkley / Lisa

Elenz

NASA Outlook (20)

Ambrosia

View from NIFC / National IR Program Manager (20)

T. Mellin

AMS Update (20)

Quayle / Smith, Kazimir, Buechel

10:00 AM

Break (15 min)

10:15 AM

Resume Morning Session (105 minutes)

USFS UAS Update (20)

Jami Anzalone

Dept. of Interior UAS Update (20)

Gill Dustin

Colorado Multi-Mission Aircraft (20)

Bruce Dikken

NNU sUAS Activities(20)

Dale Hamilton

Wildfire XPRIZE (15)

David Ayward

12:00 PM

- 1:15 PM

Lunch

TFRSAC Schedule: 3 November (PM)



1:15 PM Afternoon Session #1 (100 minutes)

Canadian Fire Season (25)	Tim Lynham / Josh
Johnston Update: Hawkeye / Thermal Summit (25)	Hawkeye Team
FASMEE Developments (25)	N. French / M. Dickinson
UAS Demo on the North Fire, Cibola NF, NM. (25)	Guilbert Dustin (BLM)

3:10 PM Break

3:20 PM Afternoon Session #2 (100 Minutes)

CALFIRE Update (20)	Predator B Jana Luiz
Wildfire SBIR – Processing, Exploitation & Delivery (20)	Chris Rowley
Practitioner Involvement with SBIR (20)	Ed Freeborn
Snow Valley Cameras for Fire Detection(20)	T. Ball / C. Pennypacker

5:00 PM Wrap-Up Discussions and Plans / Ideas (20)

5:20 PM Close Meeting

Additional Topics on Deck:

Fire Danger Project

Natasha Stavros



NASA Overview

ROSES-2011 A.35 Phase II Projects



Zachary Holden / USDA Forest Service:

A Prototype System for Predicting Insect and Climate-Induced Impacts on Fire Hazard in Complex Terrain;

Sher Schranz / NOAA:

Wildland Fire Behavior and Risk Prediction;

James Vogelmann / USGS EROS Center

Improving National Shrub and Grass Fuel Maps Using Remotely Sensed Data and Biogeochemical Modeling to Support Fire Risk Assessments;

Birgit Peterson / USGS EROS Center:

Enhanced Wildland Fire Management Decision Support Using Lidar-Infused LANDFIRE Data;

Karyn Tabor / Conservation International Foundation

An Integrated Forest and Fire Monitoring and Forecasting System for Improved Forest Management in the Tropics;

Wilfrid Schroeder / University of Maryland

Development and Application of Spatially Refined Remote Sensing Active Fire Data Sets in Support of Fire Monitoring, Management and Planning;

Stephen Howard / USGS EROS Center:

Utilization of Multi-Sensor Active Fire Detections to Map Fires in the US;

Mary Ellen Miller / Michigan Tech Research Institute (MTRI):

Linking Remote Sensing and Process-Based Hydrological Models to Increase Understanding of Wildfire Effects on Watersheds and Improve Post-Fire Remediation Efforts;

Keith Weber / Idaho State University

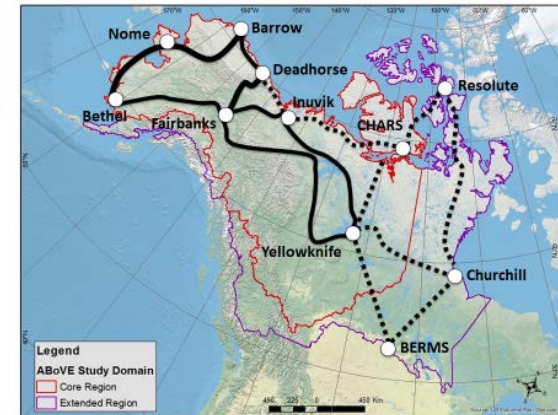
RECOVER: Rehabilitation Capability Convergence for Ecosystem Recovery;

NASA ABoVE Campaign



The ABoVE field campaign seeks a better understanding of the vulnerability and resilience of ecosystems and society to the changing environment in the Arctic and boreal regions of western North America.

- **6 Thematic Research Areas:**
 - Disturbance
 - Permafrost
 - Hydrology
 - Flora and Fauna
 - Carbon Biogeochemistry
 - Societal Impacts



Proposed flight lines for the 2017 ABoVE Airborne Campaign

- Initial NASA projects for ABoVE selected in late summer 2015
- Additional projects have been identified and project members have become part of the ABoVE Science Team (44 total ABoVE Projects)
- ABoVE Science Team is developing ABoVE Science Implementation Plan and the Airborne Remote Sensing Science Plan

NASA ABoVE website: <http://above.nasa.gov/>



Wildfire-Related Workshops

October 6 - 8, 2015, Idaho State University



Objectives: Provide an in-depth hands-on training on the use of Earth Observation data and tools for wildfire applications such as analyzing pre- and post-burn land surface conditions, near real time data acquisition for incident management, and creating burn extent and severity maps.

Tools: RECOVER, the MODIS and VIIRS active fire mapper, the Level 1 and Atmospheric Archive and Distribution System (LAADS web), Worldview, the Fire Information for Resource Management System (FIRMS), and the USGS Earth Explorer.

November 14, 2016, ISS2, Long Beach, CA



Objectives: The workshop will detail the applications of NASA resources to decision-making activities for:

- air quality forecasting
- smoke, fire, and PM2.5 monitoring
- image interpretation
- data access for inclusion in modeling efforts

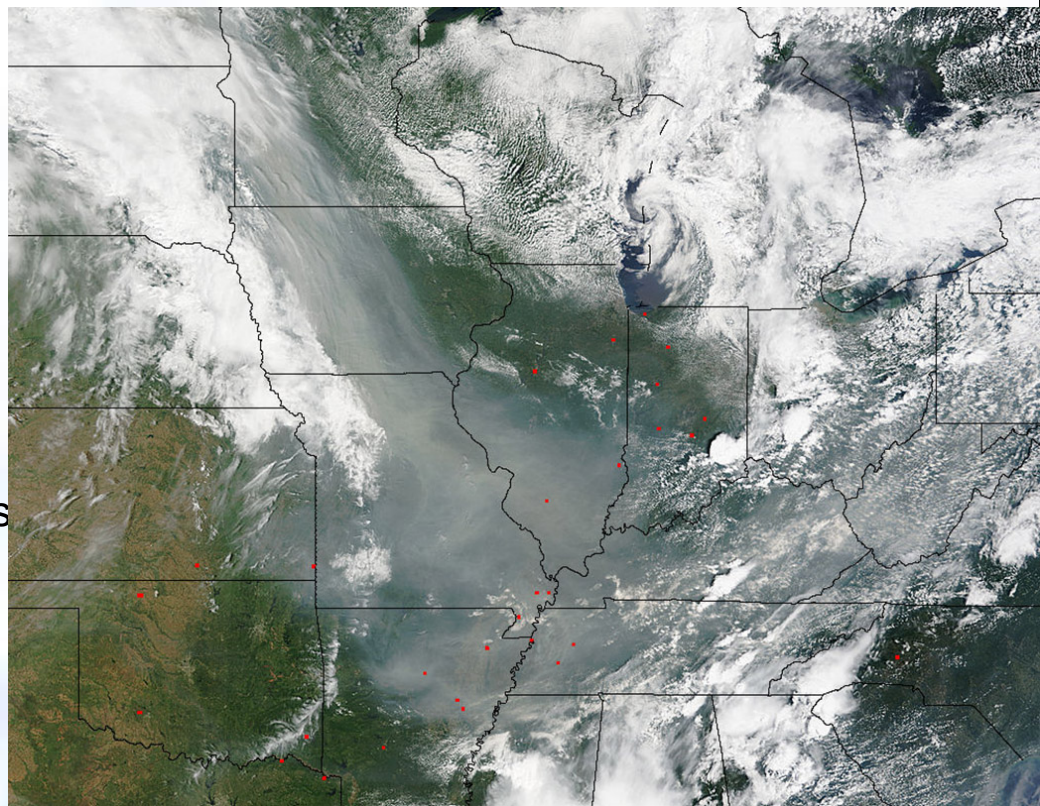
The training will provide practitioners in wildland fire, smoke management, public health, and air quality management with tools to incorporate satellite remote sensing into their decision-making process.



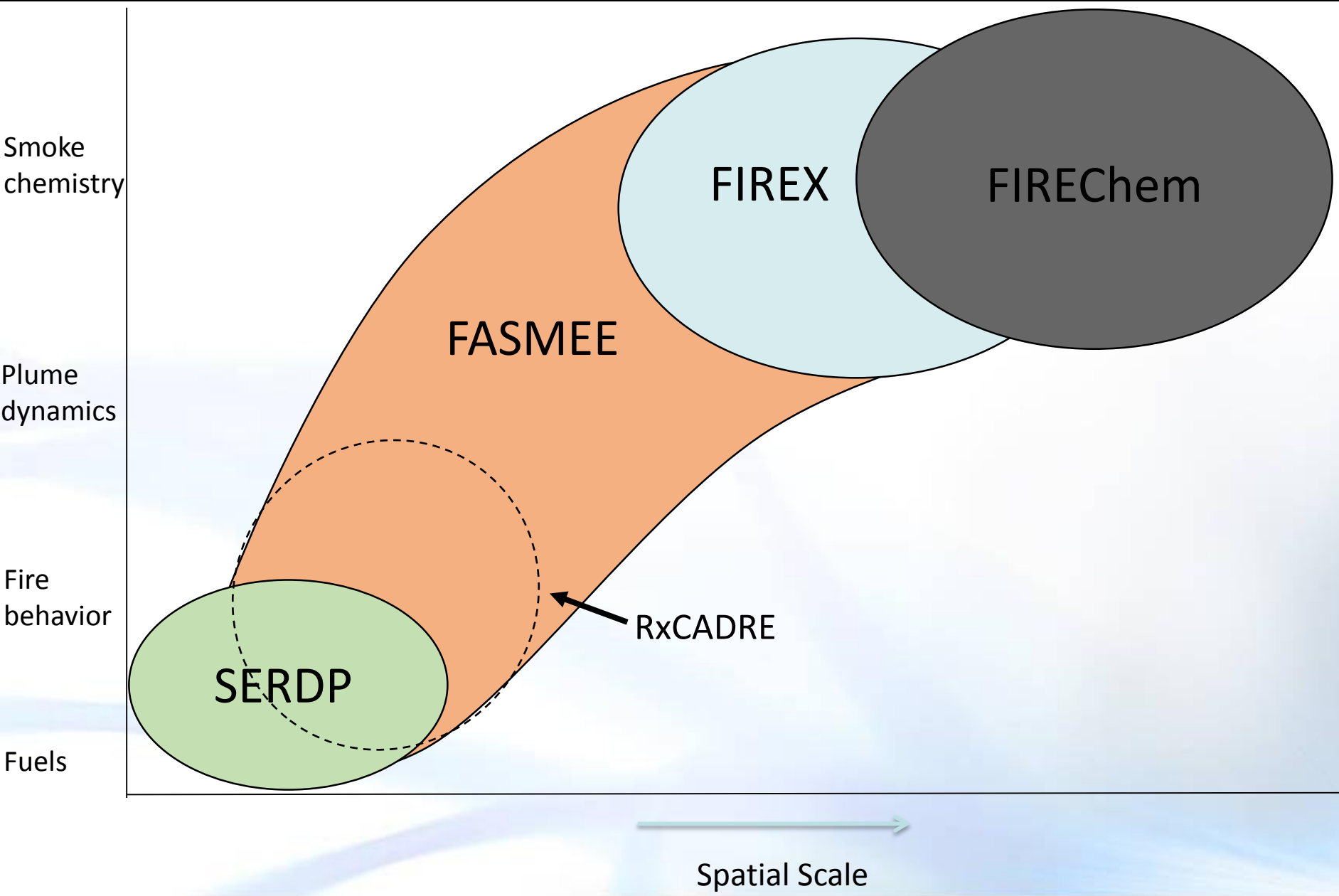
FIREChem: A Cooperative Wildfire Air Quality Field Study



- A NASA sponsored field study (July 23rd to September 15th, 2018) to focus on the links between satellite and ground-based measurements of both fresh and aged biomass burning plumes in the continental United States.
- Coordinated sampling with the NOAA FIREX and Joint Fire Science Program FASMEE field campaigns. Coordinated aircraft flights with NOAA P-3. NASA DC-8 will be ready to sample FASMEE burn in Fishlake National Forest, Richfield, UT during first 2 weeks of Sept. 2018.
- Actively working with NSF and EPA to leverage opportunities for additional aircraft and ground-based measurements.
- FIREChem will include NASA DC-8 & B200 aircraft for *in situ* sampling and remote sensing to measure upwind and downwind of natural and agricultural fires.
- Goals: (1) improve our understanding of the transport of and chemical transformations in biomass burning plumes and their impact on air quality, and (2) improve the ability to incorporate wildfires into air quality forecast models using satellite products.



FIREChem Interaction With Other Campaigns

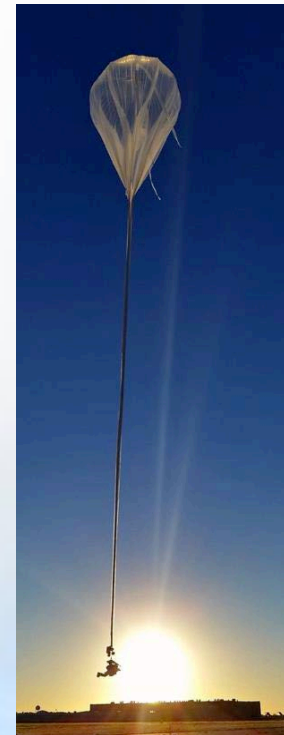
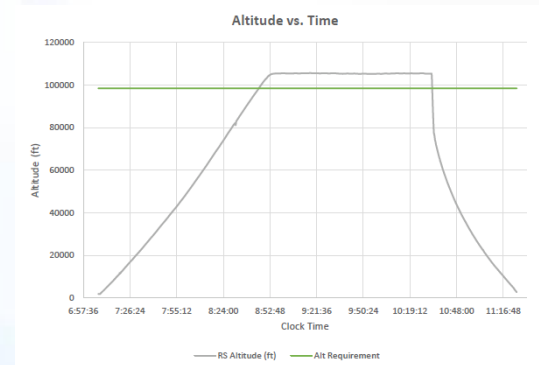


LTA Fire Imaging Mission Concept



NASA Projects & Programs Directorate (NASA-Ames) and World View Enterprises (<http://worldview.space/>) exploring joint mission development demonstration focused on long-duration fire imaging mission development.

- World View Principal Staff include: Dr. A. Stern (Former NASA Chief Scientist) and M. Kelly (former NASA Astronaut)
- Statollite LTA Platform:
 - High altitude capable (46km)
 - Heavy Payload capable (4500 kg)
 - Long-duration flight (up to months)
 - Persistent Flight over AOI
 - Rapid deployment
 - Pinpoint Landing with recoverable payloads
 - Downlink / Uplink Control / sensor data





- NASA Applied Sciences Program updated website:
 - <http://appliedsciences.nasa.gov/wildfires-program>
 - Updates on Current announcements
 - Upcoming Events
 - Library of Conference announcements, agendas, documents, publications
 - Project graphics and updates
 - News Items
 - Videos
 - Links to Partner Agencies

Recent & Upcoming Activities



- **NASA Wildfire PIs** (Weber and Miller), supported the Canadian Ft. McMurray Wildfire Complex with modeling efforts (Summer 2016);
- **Workshop:** “*Application of Satellite Remote Sensing Data for Fire and Smoke Monitoring*”; 2nd International Smoke Symposium, Long Beach, CA (14 November 2016)
- **NASA ASP-Wildfire Program Mtg;** Boulder, CO (28 Feb – 2 Mar 2017)
- **UAS Workshop**, NASA Ames, Hosted by USGS; POC: Bruce Quirk quirk@usgs.gov; (March 28-30, 2017);
- **Workshop:** “*Opportunities to Apply Remote Sensing in Boreal / Arctic Wildfire Management & Science*”; Fairbanks, AK (4-7 April 2017);
- **Special Sessions at ISRSE-37**, Tshwane, South Africa (8-12 May 2017):
 - *Improving Wildfire Knowledge Through Earth Observations: From Local to Global Perspectives*;
 - *Paradigm Shift: Autonomous Aerial Vehicles Supporting Earth Observations*;
- **NASA-ARC / USFS-RSAC re-writing SAA verbiage**, Provides collaboration mechanism for 2017-2022.



NASA Applied Science Program - Wildfire

<http://appliedsciences.nasa.gov/>

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