Success Stories

The Southern Fire Exchange and JFSP bring professionals together to improve outcomes

> "The RxCADRE team is pioneering new data-gathering technologies and new approaches to collaborative science.
>
> —Roger Ottmar
> RxCADRE Lead

The JFSP Fire Science Exchange Network spans the entire US and works to connect fire managers, fire researchers and natural resource managers with relevant fire science information, tools, and research needs. The Fire Science Exchanges are regional collaborations that include agencies, non-profits, universities and research stations working together to improve fire management outcomes and drive science forward.

RxCADRE to FASMEE:
Advancing Fire Science Collaboration

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Models are essential tools for fire-related planning and preparedness. Models help predict smoke movement and fire spread patterns, but all need real data to check their accuracy. From 2008-2021 the Joint Fire Science Program (JFSP) supported a growing network of scientists, consultants and fire managers who collected fire data to develop and test the next generation of fire and smoke models. These JFSP funded collaborations have continued to grow, building fire science partnerships across the country and accelerating model development.

Prescribed Fire Science Consortium members prepare a UAV to sample smoke during a collaborative Florida prescribed fire. Photo by David Godwin.

RxCADRE team members from the Environmental Protection Agency measured emission levels in the smoke plume. Photo by Roger Ottmar.

The mission of the Southern Fire Exchange (SFE) is to increase the availability and application of fire science information for natural resource management and to serve as a conduit for fire managers to share new research needs with the research community. The SFE is part of the Joint Fire Science Program Fire Science Exchange Network, a national consortium of 15 regional fire science exchanges.

SOUTHERN
Fire Exchange

JOINT FIRE SCIENCE PROGRAM

UF|IFAS
UNIVERSITY of FLORIDA

Fire Science Collaborative Timeline

	RxCADRE 2008	RxCADRE 2011	RxCADRE 2012	FASMEE 2019 - 2022	RxFire Science Consortium 2017 - Present
Event	5 Research Prescribed Fires in Florida	2 Research Prescribed Fires in Florida	9 Research Prescribed Fires in Florida	Western Wildfire Campaign as well as Research Prescribed Fires in Georgia and Utah	9 Research Prescribed Fires in Florida, Georgia, Montana and New Jersey
Collaborators	30 nationwide scientists land managers	30 nationwide scientists and land managers 20 scientists from the Department of Defense, NOAA, NASA, and EPA	90 nationwide scientists and land managers 20 agencies, universities and contractors (including Scion Research, Department of Defense, 5 US Forest Service Research Stations, NASA and EPA)	Over 20 entities including US Forest Service, EPA, USGS, Tall Timbers Research Station, Desert Research Institute and multiple universities FASMEE has collected data on large western wildfires and prescribed fires and will begin data collection in the Southeast in 2022.	Over 21 organizations, including all 5 US Forest Service Research Stations, the Southern Fire Exchange, North Atlantic Fire Science Consortium and Tall Timbers Research Station
How it Happened	Core group members are scientists from three US Forest Service Research Stations, Los Alamos National Laboratory and the National Institute of Standards and Technology (NIST). In 2008 and 2011, the team began collecting data on prescribed fires, such as fuel loads, fuel consumption and wind patterns. They called these highly-instrumented collaborative research prescribed burn events RxCADRE.		In 2012, the Joint Fire Science Program funded the largest RxCADRE data collection effort. Many agencies and groups of land managers collected data across fire-related disciplines using state-of-the-art tools.	The success of RxCADRE motivated the development the Fire and Smoke Model Evaluation Experiment (FASMEE), an interdisciplinary collaboration to collect data on large wildfires and prescribed fires to assess and improve smoke and fire spread models.	Another fire science collaboration that blossomed from RxCADRE, supporting new collaborative research burns in Florida, Georgia, New Jersey, Utah and Montana. These collaborative fire science research events have been patterned after the successes of RxCADRE.

Fire managers and fire researchers observe experimental unmanned aerial system (UAS) operations at a RxFire Science Consortium research burn in North Florida. Photo by David Godwin.

RxCADRE Research and Data Outcomes

RxCADRE is an example of how a highly successful collaboration among science funding programs, interdisciplinary research groups and wildland fire managers can result in high-impact science that help to solve the fire management problems of today and tomorrow.
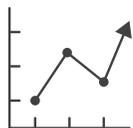
Data

128 datasets on fuels, meteorology, fire behavior, energy, smoke emissions, fire effects

https://www.frames.gov/catalog/14769

https://www.frames.gov/catalog/19986

Models

FIRETEC
https://www.fs.fed.us/rm/forest-woodland/higrad-firetec/

Project Websites

https://firelab.org/project/rxcadre-project
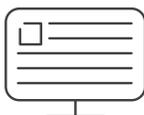
Publications

10-paper issue of International Journal of Wildland Fire, 2016: 25(1)

https://www.publish.csiro.au/wf/issue/7979

Outreach

20+ presentations, webinars, factsheets, and videos:

https://www.firescience.gov/Digest/FSdigest16.pdf

RxCADRE Future Directions

Models developed and refined through RxCADRE are being used by federal agencies, state agencies, research institutions, consulting companies, and landowners. JFSP support for RxCADRE has led to a cascade of new fire science and management collaborations among fire scientists and fire managers that are closely connected with the Fire Science Exchange Network.

The incident command post for the RxCADRE 2012 event at Eglin Air Force Base provided a central location for research teams and fire management operations to collaborate in realtime. Photo by Roger Ottmar.

Learn more about our partners, products, and activities at **southernfireexchange.org**.
Learn more about the Joint Fire Science Program and the Fire Science Exchange Network at **firescience.gov**.