

Wildfire Science & Technology Commons

Open Collaborations for a Wildfire Resilient Future

NIST [UC San Diego](#) **WIFIRE** **PROWESS**
Proactive Wildfire & Environmental Sustainability Solutions





Welcome to the launch of Wildfire Science & Technology Commons!

The **Wildfire Science & Technology Commons** is a bold new initiative designed to accelerate technological innovations for wildland fire management and mitigation.

The Growing Megafire Threat



2023 was the warmest year according to NASA - since modern record-keeping began around 1880, and the past 10 consecutive years have been the warmest 10 on record.

According to the National Interagency Fire Center (NIFC) in 2023:

56,580 FIRES

**2,693,910
ACRES BURNED**



Wildland Fire Mitigation and Management Commission

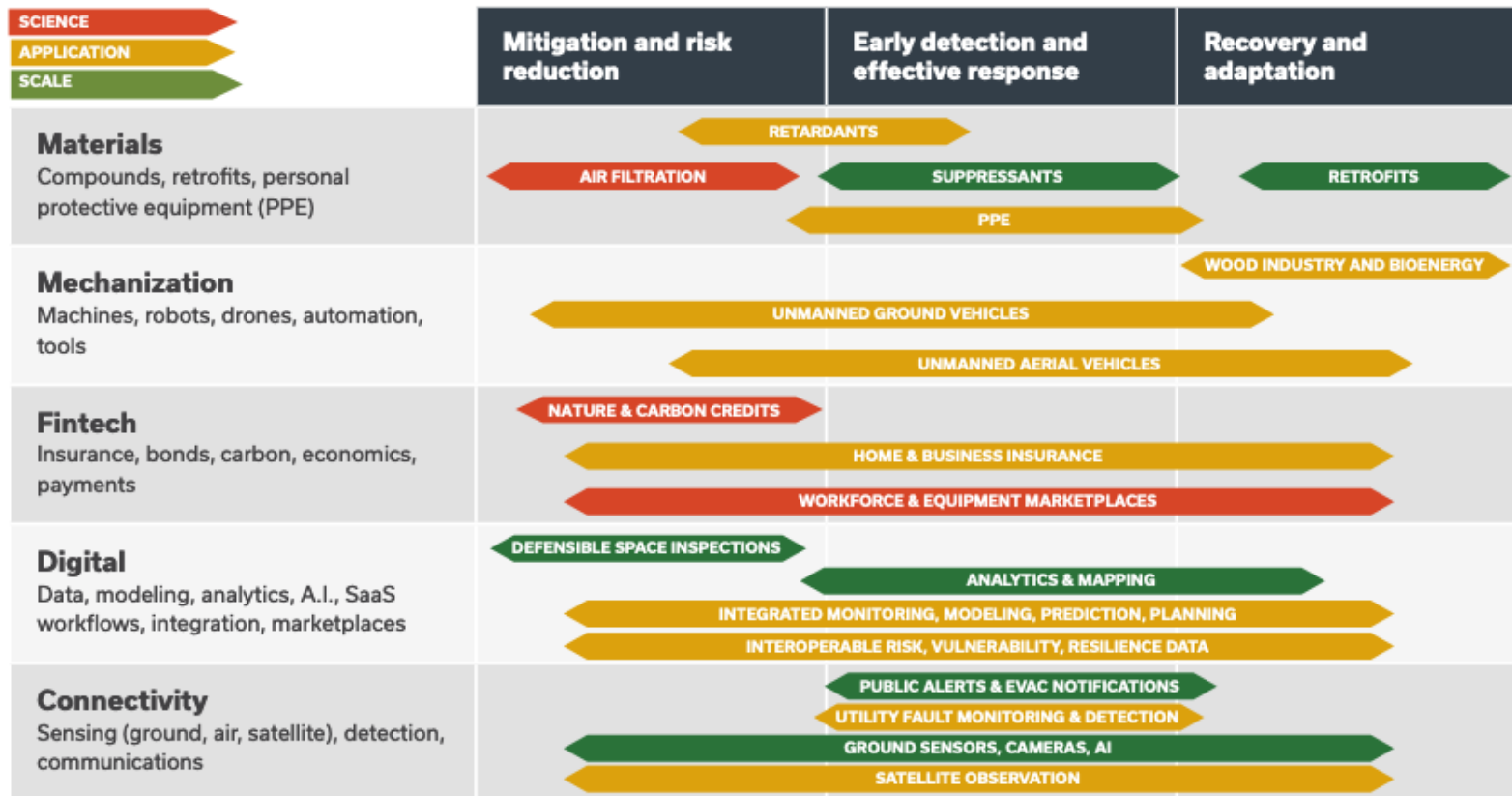
<https://www.usda.gov/topics/disaster-resource-center/wildland-fire/commission>

ON FIRE: The Report of the Wildland Fire Mitigation and Management Commission

Chapter 6 : Integrating Modern Science & Technology

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FireTech as an Industry



State of FireTech applications for wildfire risk management (2023)



Wonder Labs



<https://www.wonder-labs.org/state-of-firetech.html>



Progress in the development and application of FireTech solutions can be assessed along the following broad and overlapping stages:

1. Research and development: prove the science and test methodology across contexts
2. Pilots and operationalizing: demonstrate applications for community wellbeing and ecosystem resilience
3. Achieving scale: through partnerships across new geographies and verticals


The Bottlenecks in FireTech



Lack of standards and collaborative practices to accelerate innovations and solutions

Slow access to data and models compared to the rate science and tech are evolving

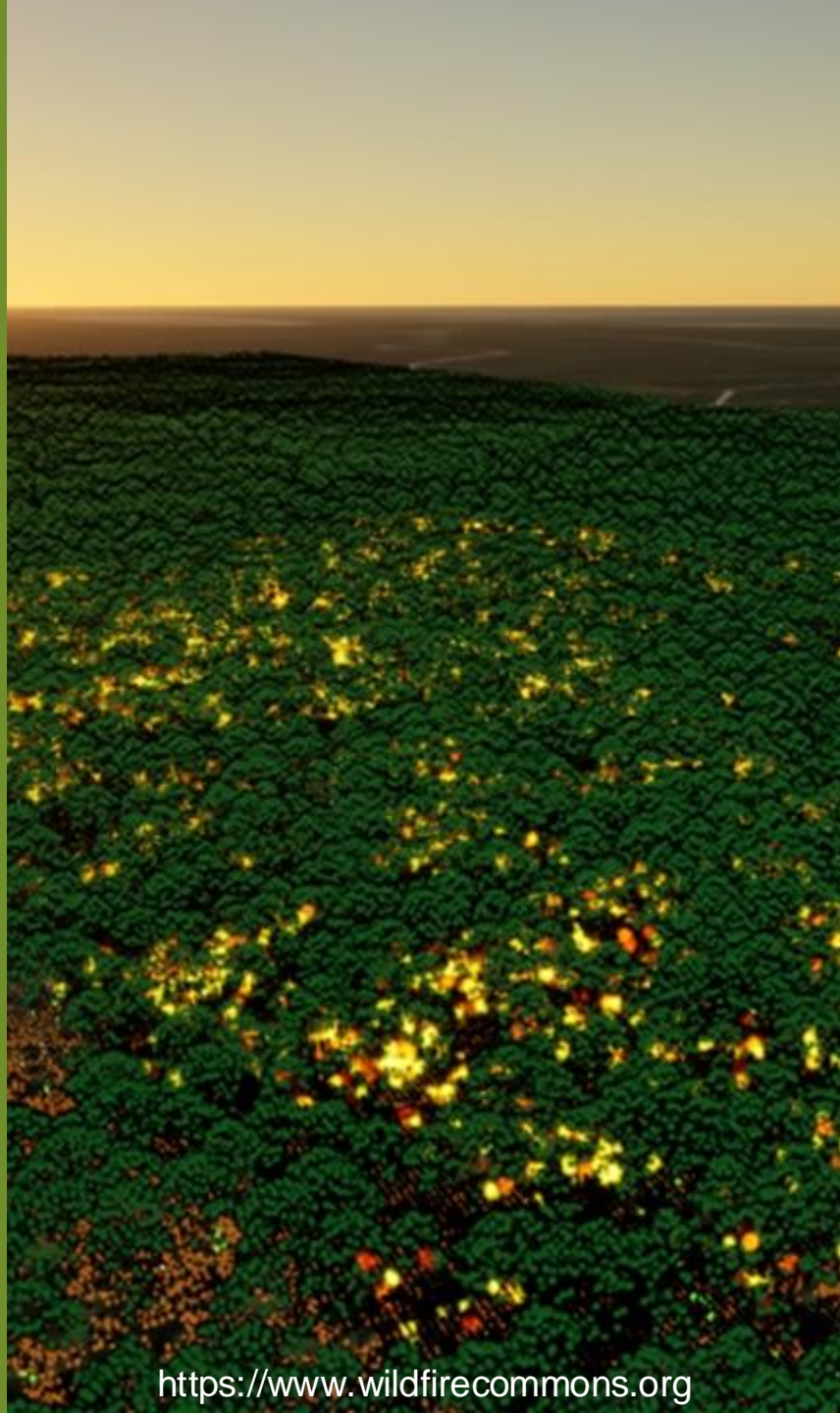
Hardship around evaluating new science and technology toward solutions



**How can we
better utilize data and science
to advance and accelerate FireTech
toward solutions?**

Our Intent

Create an
Enabling
Platform and
Community of
Practice



<https://www.wildfirecommons.org>

A National Institute of Standards and Technology supported initiative to:

- accelerate innovation
- foster open science
- promote transparency
- enable collaboration
- prepare for scale
- forge coalitions

Special thanks to:

Senator Alex Padilla (D-CA) and
Representatives Juan Vargas (CA-52) and Sara Jacobs (CA-51) for
their support through the Congressional appropriations process.



Our Mission

Bring together and support a community of practice to break down the barriers that currently exist between wildland fire-related data, models, and tools.



Our Vision

Create a seamless and smart platform to enable collaborations for FireTech solutions that revolutionize how we understand, respond to, and prevent wildfires.

Together, we can protect lives, property, and ecosystems from the ever-growing threat of wildfires.

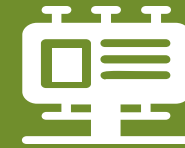
Wildfire Science & Technology Commons



Wildfire
Commons
Community of
Practice



Wildfire
Commons
Community
Marketplace



FireForge
Platform

Driving Tasks

01

Building a Community of Practice

Engage the wildfire science and technology community, as well as the community of application, to support thought leadership of the Wildfire Commons.

02

Wildfire Commons Framework

Develop a functional framework for the integration and sharing of data, models, and tools to drive next-generation fire science and operational practice.

03

Case Studies for Vegetation & Fuel

Demonstrate impact through interconnected case studies related to landscape and wildland fire fuels management technologies.

04

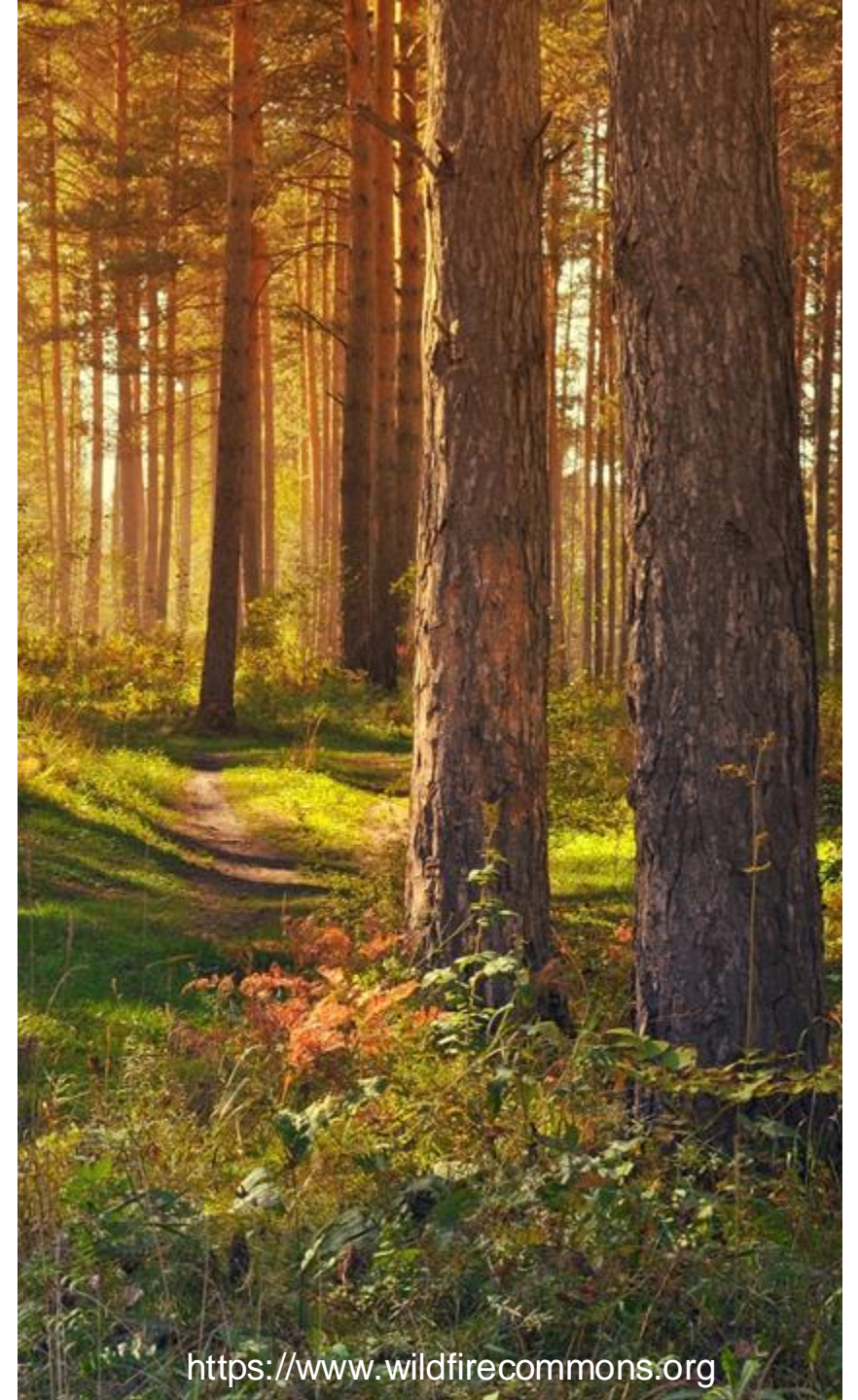
Pathfinder Projects for Future Directions

Work with the community of practice to select pathfinder projects to scale data and models for future application.

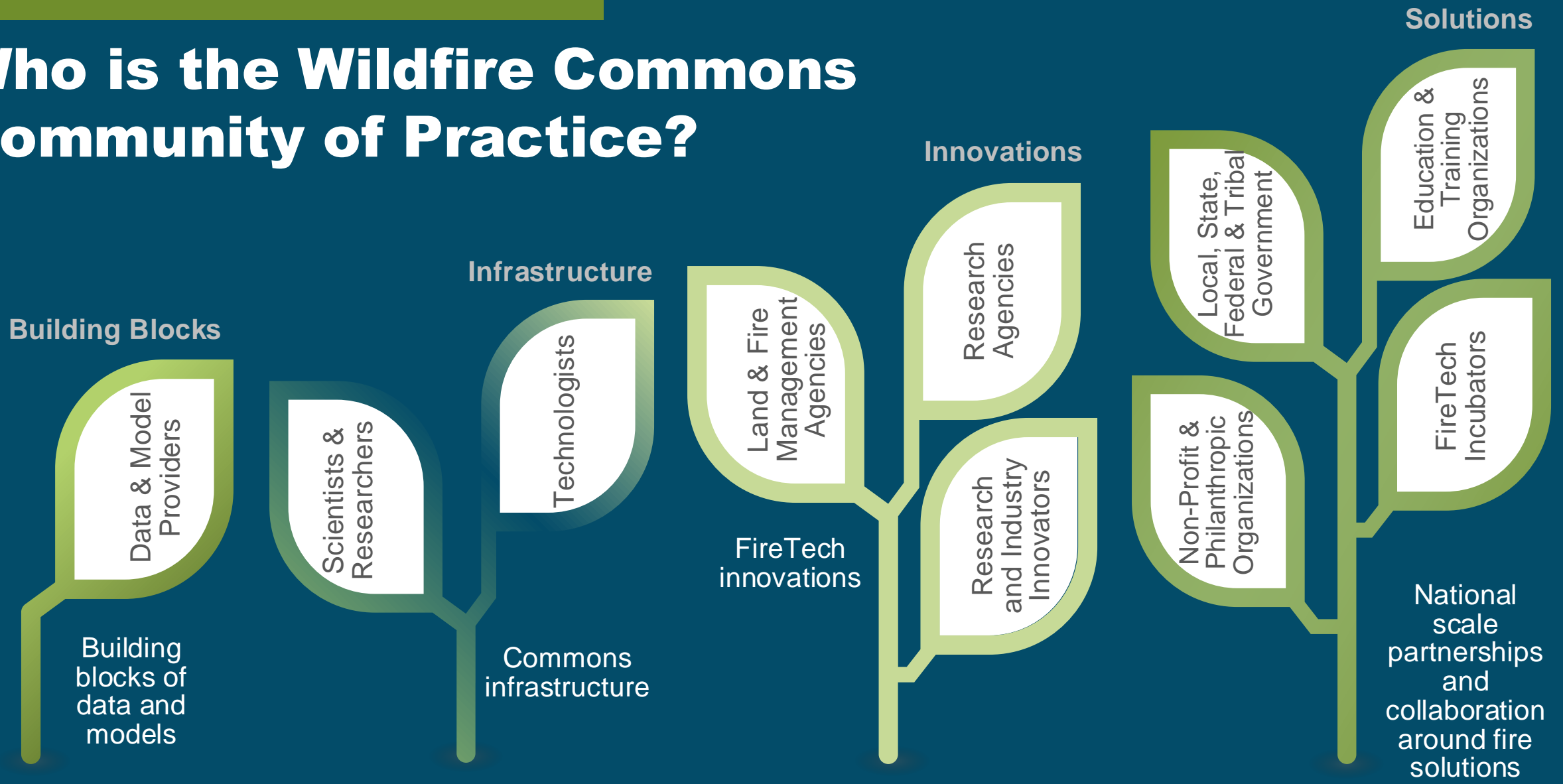
05

Creation of Blueprint for Future Phases

Planning achievable, scalable, and sustained use of the Wildfire Commons for collective impact.



Who is the Wildfire Commons Community of Practice?



Practice Towards Solutions





Wildfire Commons Community Marketplace

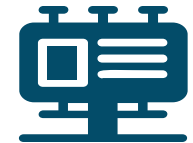
A community marketplace for wildfire data, models, and tools as building blocks for innovations that persist in an interoperable, accessible, and effective commons enabling more research to practice workflows and associated **best practices**.



Badging and Tagging
Standards



Access Controls and
FireForge Integration



Integration with
External Platforms

The FireForge Platform



Catalog

Data, models, and tools available for discovery and exploration



Workspace

Collaborative community spaces to drive innovation development



Sandbox

Cloud-compatible exploration & prototyping environment

FireForge Platform

Collect

Curate

Integrate

Explore

Data, Model
& Tool Catalogs



FireForge
Sandbox

CASE STUDY

Researchers and technologists working on 3D fuel and fire modeling will come together to use the FireForge platform to create new innovations.

PATHFINDERS

Showcase and multiply the impact of existing efforts that leverage open data and open science for wildland fire solutions.

How can you participate?



Wildfire Commons Community of Practice

Wildfire Commons Community Marketplace

FireForge Platform

Collect

Curate

Integrate

Explore

Data, Model
& Tool Catalogs



**FireForge
Sandbox**

Shared Metadata, Badges &
Standard Vocabulary

Paths for Participation

Collective Impact
Backbone Organization
Conceptualization

Use-Inspired
Translational Pathfinders

Landscape and Fuel
Management Case
Study



Timeline



Initial Working Groups

10-15 members through nomination and invitation: Nominations open!

Opportunity Assessment

- organize firetech priority
- identify innovation gaps
- evaluate state of the possible through science and technology
- create blueprints for future innovations

Outcomes: strategic guidance reports and annual blueprints for firetech innovations

Standards

- define and implement a standard vocabulary
- facilitate seamless discovery and integration of building blocks
- create pathways for evolving the vocabulary

Outcomes: published vocabulary to improve discoverability of materials

Marketplace

- establish recognition criteria and badges
- enable community to assess the quality and relevance of materials
- encourage the participation and engagement
- promote best practices

Outcomes: comprehensive criteria documentation, badging system, and evaluation

Scale & Sustain

- create pathways between the commons and the policy & practice ecosystem
- assess opportunities and innovations for expansion
- explore innovations that can sustain impact

Outcomes: collective impact strategies to maintain, scale and adapt innovations and solutions



Principles of Community

- Collaborate with community of practice
- Support common vocabularies, standards and practices for smooth collaboration
- Sustain open data and open science
- Defend data sovereignty and ethical conduct through all community practices

Code of Conduct: <https://www.wildfirecommons.org/get-involved/code-of-conduct>

Partner with the Wildfire Commons

Showcase your
work in the
Marketplace

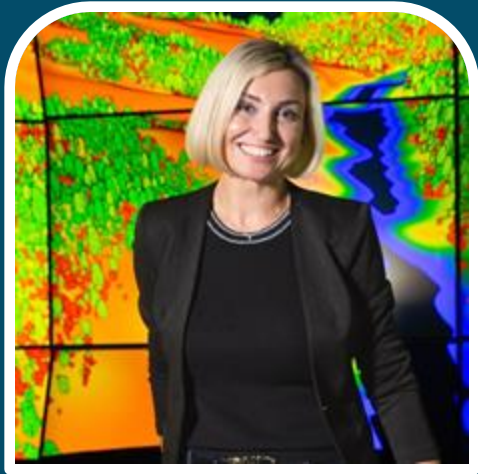
Create a
Pathfinder
project

Become a
member

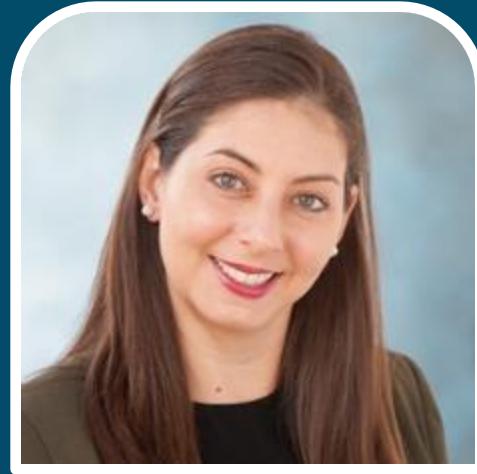
Participate in
the Case Study

Join the
Working Groups

We understand there are many wildfire initiatives, and finding the right partners for effective collaboration is essential. At the Wildfire Science & Technology Commons, our mission is to foster community-driven collaboration and transparency with expertise in wildfire mitigation and management. Together, we can combine our strengths and expertise to create a safer, more resilient future.



Ilkay Altıntaş
Principal Investigator



Melissa Floca
Community of Practice Lead & Partnerships



Claire Stirm
Project Manager & Engagement



Katie O'Laughlin
Lead Developer



Dan Crawl
Systems Operations



Kate Kaya
Developer



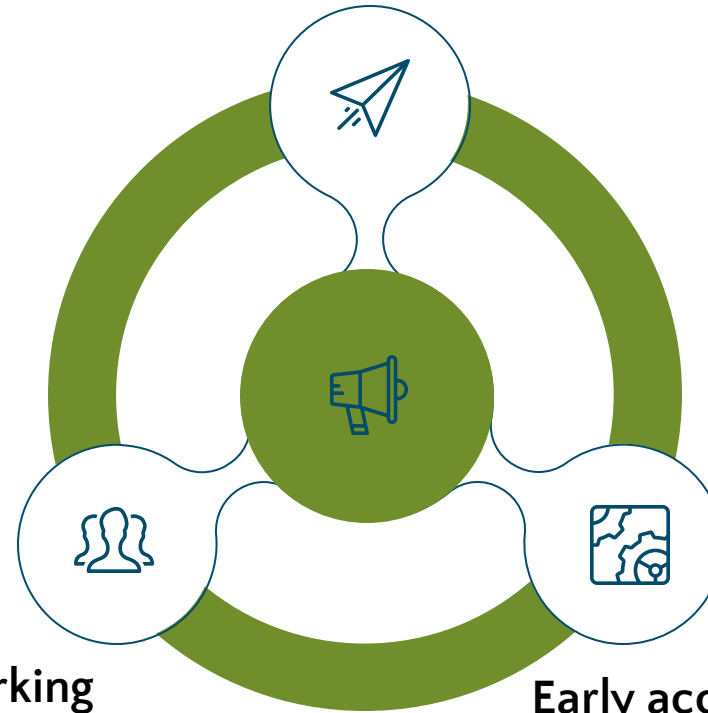
Jenny Lee
UI/UX Designer

**Meet
Our
Team**

What You Can Expect From Us



Monthly connections with updates
on community and project
opportunities



Participate in Working
Groups to define the future
of Wildfire Commons

Early access to the FireForge
Platform & ability to integrate
your data, models, and tools



**WILDFIRE
SCIENCE & TECHNOLOGY
COMMONS**

THANK YOU

NIST

UC San Diego



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