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# NASA RECOVER 2.0

## Post-fire Decision Support System



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Brad Quayle (Co-PI), USDA Forest Service GTAC

**ROAR**



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# Acknowledgements

- RECOVER is supported by a NASA Applied Sciences grant (Keith T. Weber, PI and Brad Quayle, Co-PI)

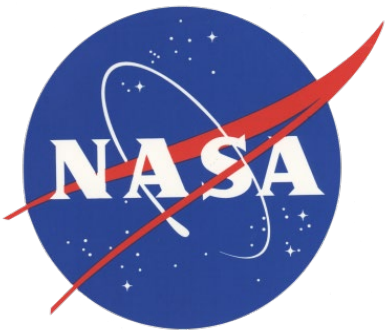


**ROAR**



# What is RECOVER 2.0?

- A Cloud-based platform for Post-wildfire management and long-term monitoring
- RECOVER 2.0 is a Customer-driven, Customer-centric\* Decision Support System (DSS)



\* Our “customers” are agency/organizational wildfire and land managers at the USDA Forest Service, DOI BLM, NPS, NWS, as well as state agencies, and county emergency managers



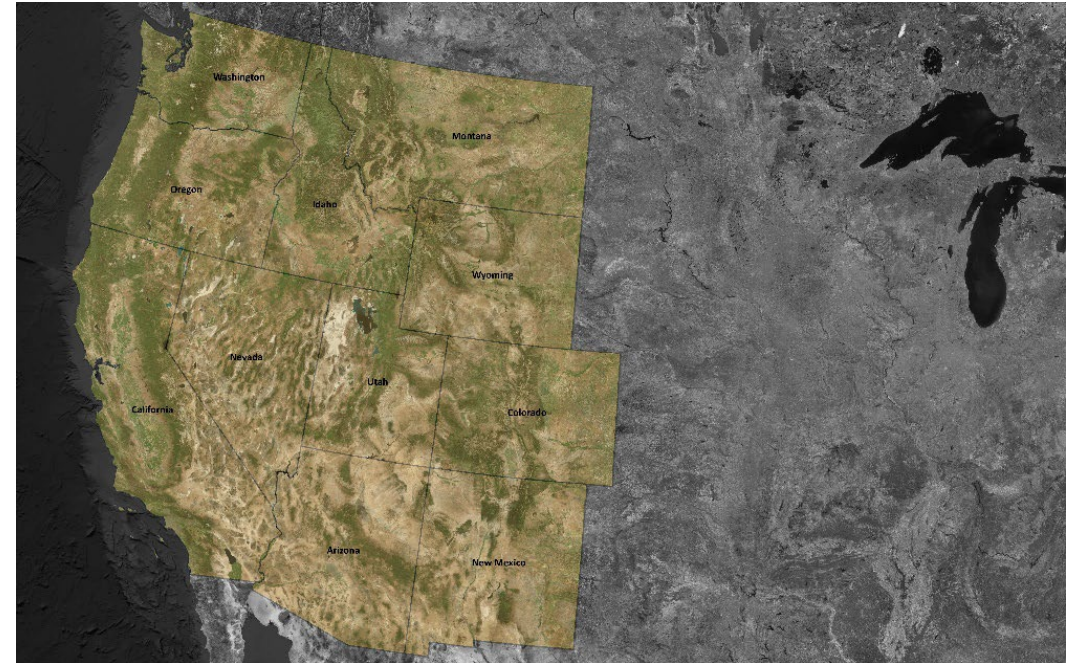
# Enhancements Provided by RECOVER

- Rapid spatial data acquisition specific to post-wildfire events
- Cross-organizational collaboration
  - RECOVER breaks down silos
- Common Operational Picture (uniform spatial context)



# Data Architecture

- **Base Layers** with wall-to-wall coverage across the Western USA ( $n = 37$ )
- Use of authoritative data
- Automated processing using our **Large Fire Trigger**
- Delivers **RECOVER Data Packages**
- Leverages Esri's ArcGIS Online (AGOL) cloud and Portal



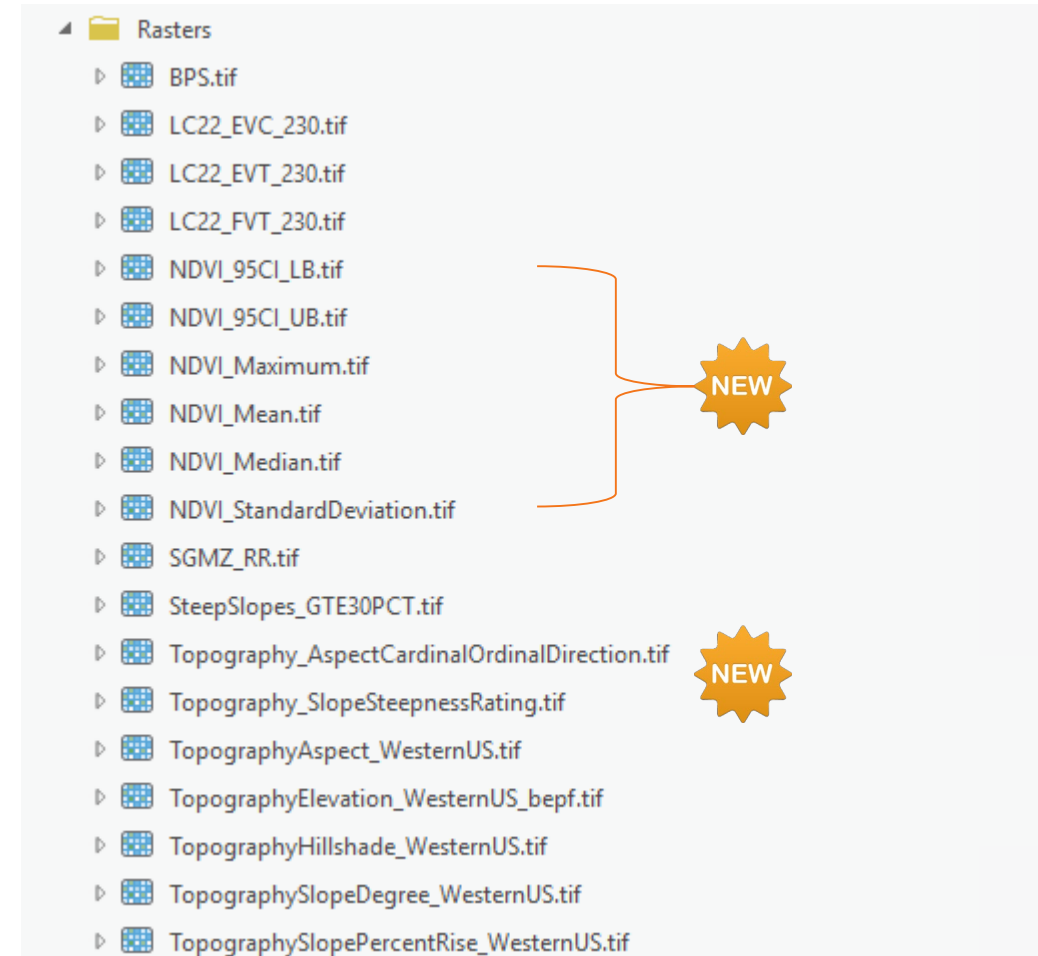


# RECOVER Base Layers

- Updated SSURGO base layer including Hydrologic Soil Group data (in support of request from USACE)



Plus four additional web service streams provided in Layer files (LYRX)







# Web Service Layers

- Fire severity (BAER team preliminary dNBR)
- Debris flow models (USGS Landslide Hazards Program)
- Stream gage stations (USGS)
- Streams and surface water (USGS NHD)



# Plus

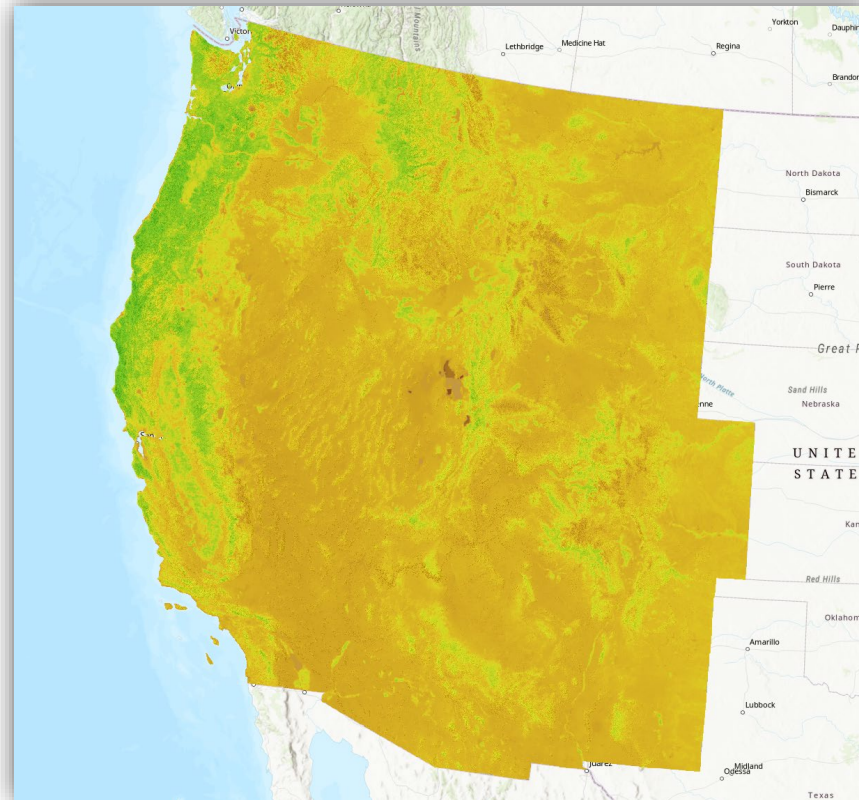
- Automated **Executive Summary Reports** for each fire
- Long-term post-fire monitoring using NASA satellite imagery
  - ✓ Step one: Develop a decade long baseline NDVI from Landsat imagery (over 18,000 scenes processed)
  - ✓ Step two: Create a multi-dimensional image service of these data
  - ✓ This service can be used in a web map or in the desktop
  - ✓ Step three: Develop a web interface and tutorial to determine baseline conditions within a fire area
    - Step four: Automate collection of current NDVI imagery for the fire area to compare to the long-term trend





# More About the NDVI Baseline

- Provides you with mean, **median**, minimum, maximum, standard deviation, and both upper and lower bound 95% CI data layers





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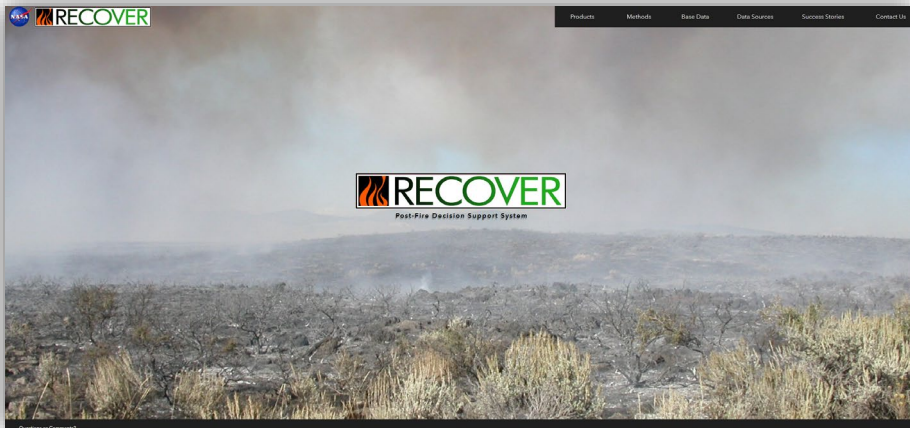
# Using RECOVER

[https://giscenter.isu.edu/research/Techpg/nasa\\_RECOVER2/index.htm](https://giscenter.isu.edu/research/Techpg/nasa_RECOVER2/index.htm)

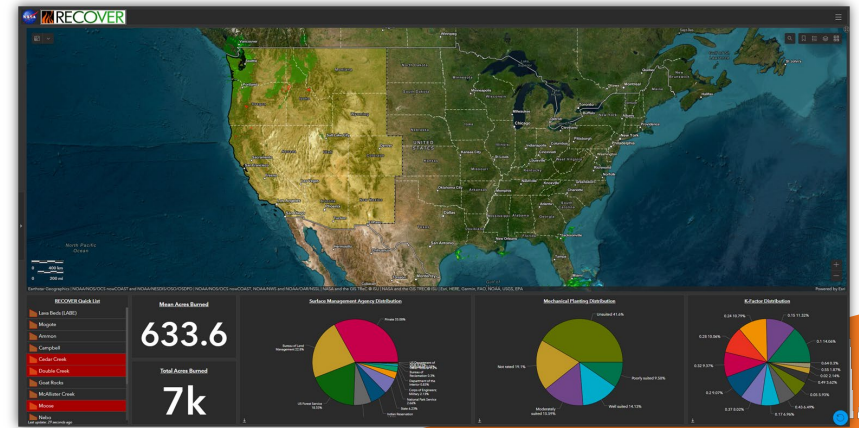
## Web Page

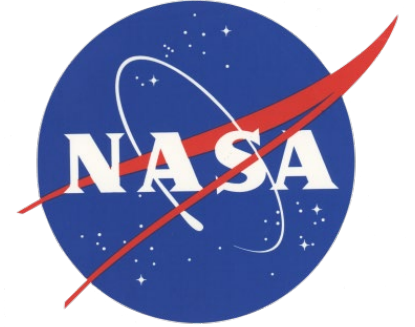


## Experience Builder



## Dashboard





# Questions?



- Meet the RECOVER Team
  - Keith T. Weber<sup>1</sup> [webekeit@isu.edu](mailto:webekeit@isu.edu)
  - Brad Quayle<sup>2</sup>
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  - Mark Nigrelli<sup>2</sup>
  - Michael Bogle<sup>2</sup>
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1- Idaho State University GIS Training and Research Center (GIS TRcC)

2 – USDA Forest Service Geospatial Technology and Applications Center (GTAC)

## Ideas to Improve RECOVER



Nobody has responded yet.  
Hang tight! Responses are coming in.