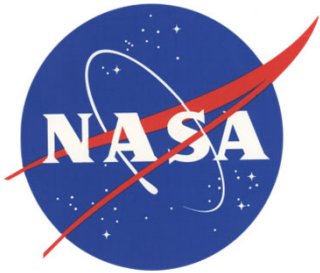




NASA RECOVER 2.0

Post-fire Decision Support System



Keith T. Weber, GISP (PI), ISU GIS TReC
Brad Quayle (Co-PI), USDA Forest Service GTAC

Importance of Spatial Data in Fire Recovery

- Fire Managers and Land Managers need to know:
 - Where “things” are (structures, infrastructure, and people)
 - Where “things” used to be (pre-fire landscape)
 - What was the effect of the fire on these “things” (fire severity)
 - Maps *can* show these “things”
 - Smart maps show these things + provide actionable information



"This morning, you were preaching to the Choir again...
and we've had just about enough of that!"

RECOVER 1.0 (beta)

- 2012-2019
- 103 wildland fires
- 11 western states
- 16 different federal & state agencies



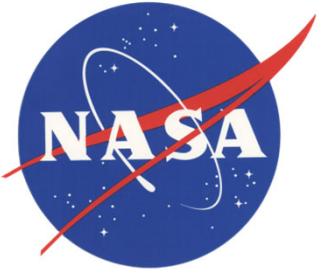
Enhancements Provided by RECOVER

- Rapid data acquisition
- Cross-organizational collaboration
 - (breaking down silos)
- Common Operational Picture (uniform geospatial context)



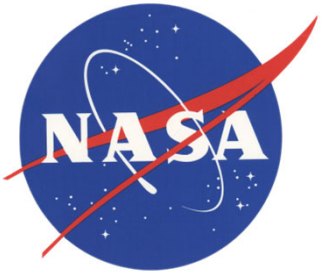
What is RECOVER 2.0?

- A Cloud-based, Smart-Map for Post-wildfire recovery planning and monitoring
- Like the original RECOVER, it remains 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, as well as state agencies

RECOVER 2.0



- Made possible by a grant from NASA Earth Sciences Wildland Fire Management Program
– David S. Green, PhD, Program Manager

Meet the RECOVER 2.0 Team

- Keith T. Weber¹
- Brad Quayle²
- Craig Baker²
- Ali Reiner²
- Kindra Blair¹
- Austin Thompson¹
- Visit the RECOVER 2.0 webpage at https://giscenter.isu.edu/research/Techpg/NASA_RECOVER2/

1- Idaho State University GIS Training and Research Center (GIS TRc)

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

Data Architecture

- RECOVER covers the Western US
- Esri ArcGIS Online Cloud
- Leveraging existing, authoritative data streams
- Data packages/File Geodatabase
 - Vector and raster data
 - Automated Map Services



GIS Base Layers

- RECOVER currently provides
 - 28 Base Layers automatically clipped to the fire extent¹ (envelope)

VECTOR DATA (fgDB)

Geology
Habitat
Historic/past fires
LandslidePotential
NHD Rivers and Streams
NHD Surface water bodies
WBD Watershed Boundaries
Post-wildfire debris flow models
State boundaries
County boundaries
PLSS
Roads
SMA
Soils STATSGO
Soils gSSURGO
Wilderness Status

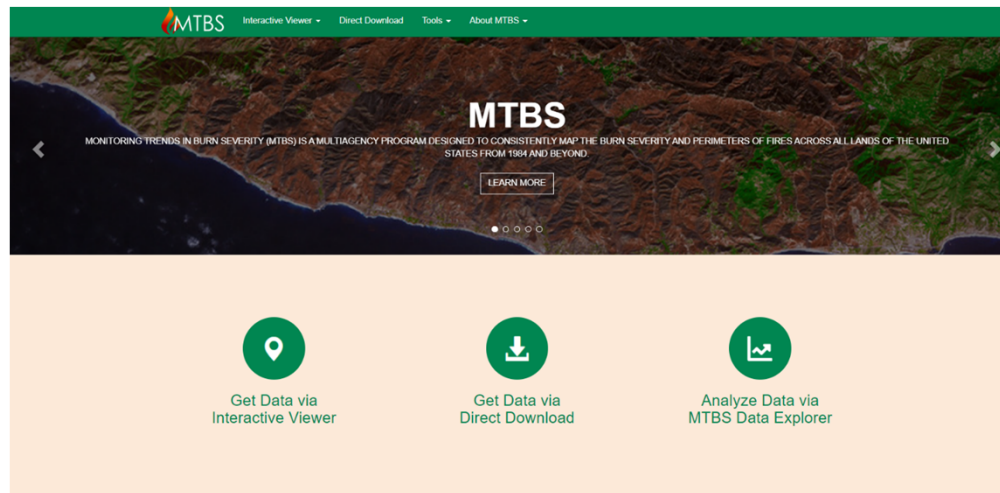
RASTER DATA

Relative Ecosystem Resilience/Resistance
LANDFIRE BPS
LANDFIRE EVC
LANDFIRE EVT
LANDFIRE FVT
Elevation
Aspect
Slope_DEG
Slope_PCT
Steep Slopes >30%
Precipitation forecast
Weather satellite imagery

1- fire extent + 5km buffer

Plus...

- RECOVER will provide (proposed)
 - Fire severity layers dNBR (MTBS)
 - Long-term monitoring data



Other Spatial Data

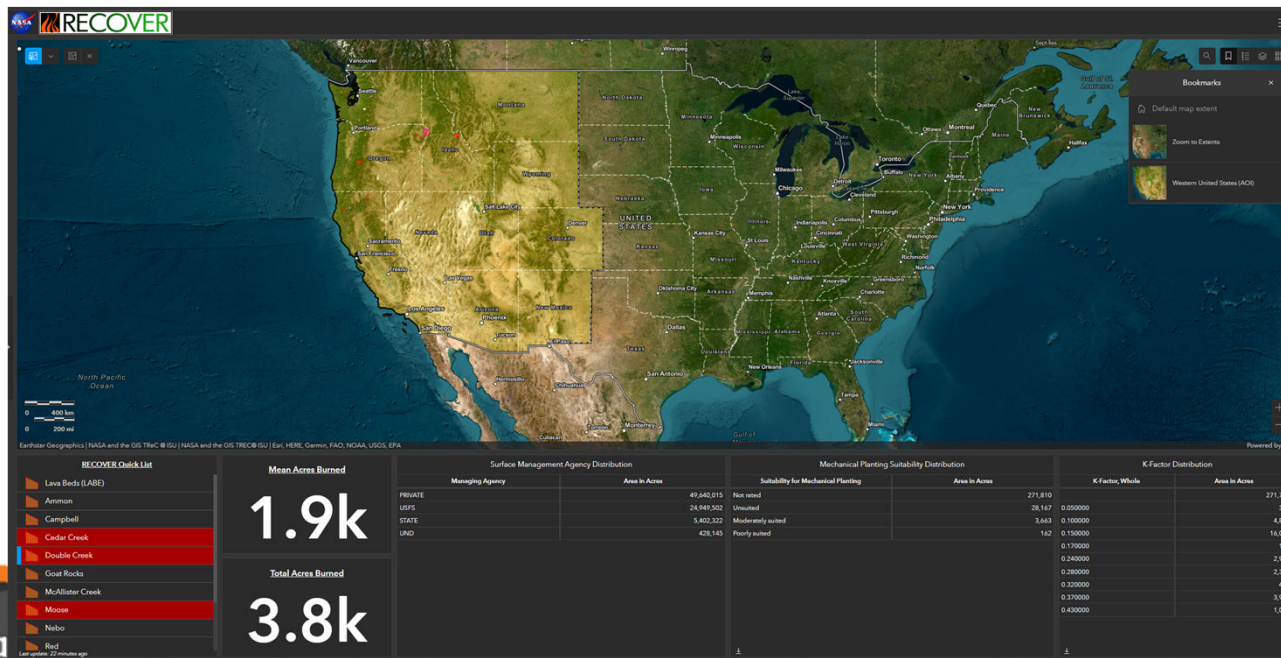
- To suggest additional layers please let us know
 - webekeit@isu.edu
 - brad.quayle@usda.gov

Making RECOVER Even Faster

- Pre-emptive automation processing using our **Large Fire Trigger** automates data package development and updating
 - ArcGIS Python scripting
 - Output data package (ZIP)
 - Quick and easy download from RECOVER's dashboard

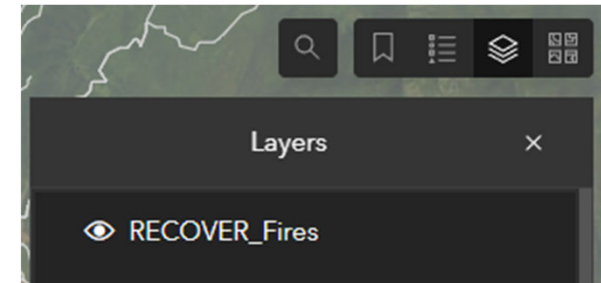
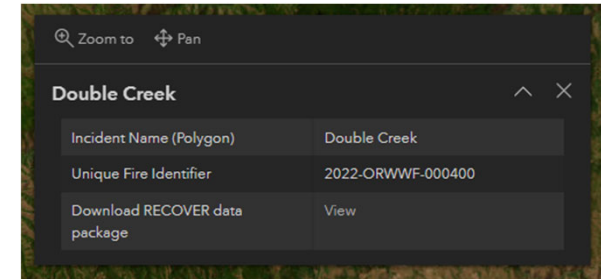
RECOVER 2.0 Workflow

- A wildfire has occurred
- Visit the RECOVER dashboard
 - Select the fire from the RECOVER Quick List



Interacting with RECOVER

- Click the fire polygon to reveal its pop-up
 - Optionally, download the Data Package
- Expand the Layers list to explore the fire area

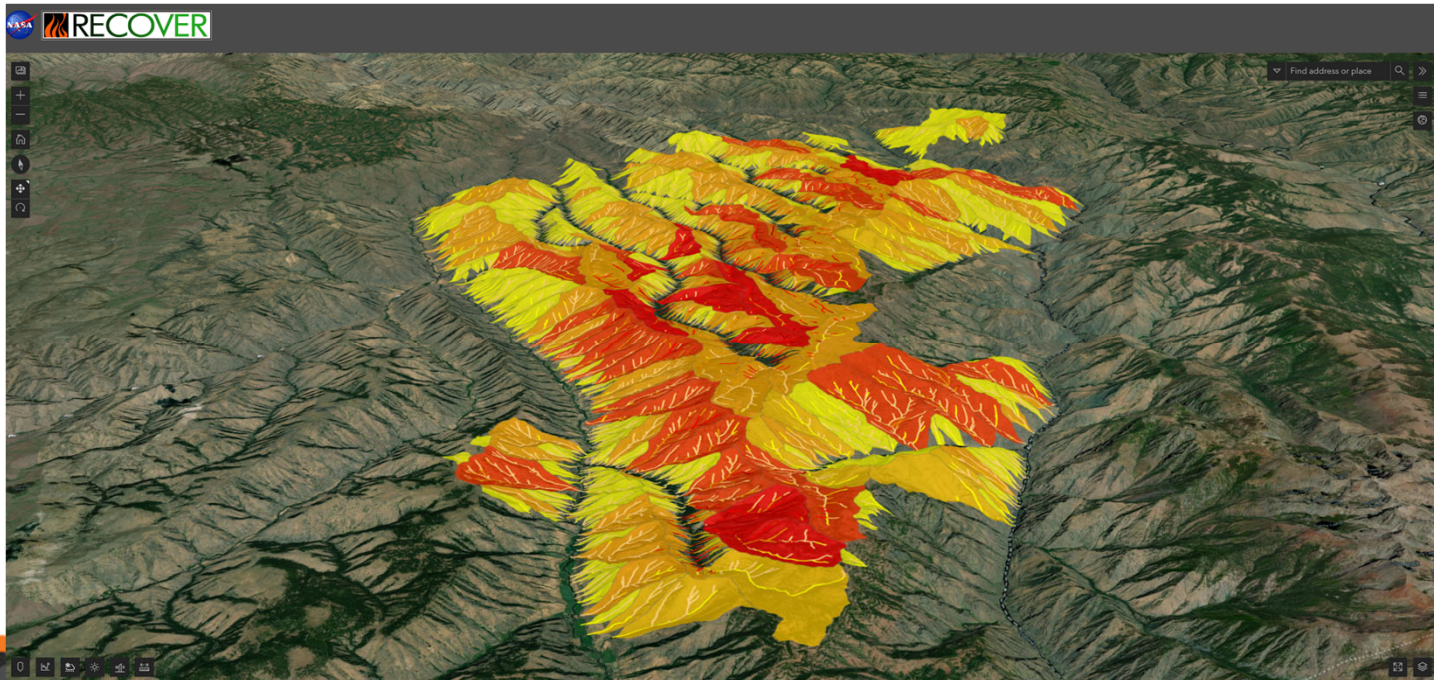


28 Data Layers

- Currently, RECOVER provides 28 data layers from authoritative sources (USGS, NASA, NOAA, etc.)
 - Turn layers on/off to visualize these data
 - Click a feature to view data describing that feature

Explore RECOVER in 3D

- Using the menu (upper-right corner), open the RECOVER 3D Viewer



What if...

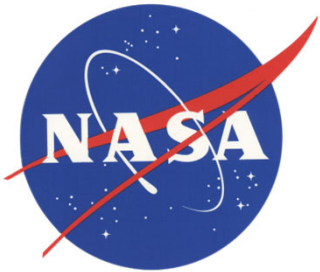
- A fire AOI is not shown in the dashboard?
 - We have new geoprocessing models to run SUBMITTED fires
- I have other data to add for a specific fire?
 - This is under construction but already possible
- Contact us! Using the RECOVER web page at https://giscenter.isu.edu/research/Techpg/nasa_RECOVER2/index.htm

Still Under Construction...

- Summary reports/Dashboard widgets
- Unclassified or Preclassified fire severity (dNBR)
- Long-term vegetation monitoring post-fire (Regeneration Index RI)
- Sign in/log in

Questions & Discussion?

webekeit@isu.edu



RECOVER is a NASA Applied Sciences sponsored project. K. T. Weber (PI), J. Schnase (Co-PI) and M. Carroll (Co-PI), Goddard Space Flight Center