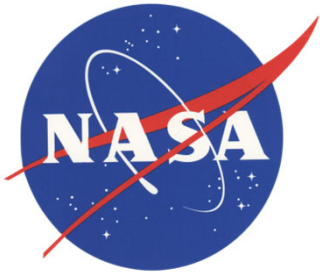# NASA RECOVER 2.0
Post-fire Decision Support System

Keith T. Weber, GISP (PI), ISU GIS TReC

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

Pocatello | Idaho Falls | Meridian | Twin Falls

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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 (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

- It remains a Customer-driven, Customer-centric* Decision Support System (DSS)
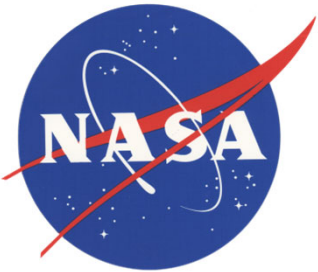
* Our "customers" are agency/organizational wildfire and land managers at the USDA Forest Service, DOI BLM, NPS, as well as state agencies

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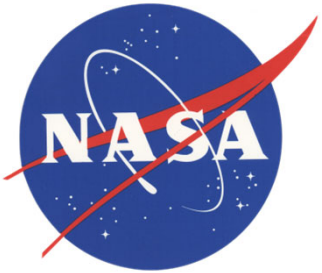
RECOVER 2.0

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

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Meet the RECOVER 2.0 Team

- Keith T. Weber[1]
- Brad Quayle[2]
- Craig Baker[2]
- Ali Reiner[2]
- Kindra Blair[1]
- Austin Thompson[1]

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

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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

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GIS Base Layers

- RECOVER will provide (proposed)
  - 25+ base layers automatically clipped to the fire extent[1] (envelope)
  - Summary reports

VECTOR DATA (fGDB)
Geology
Habitat
Historic/past fires
LandslidePotential
NHD
PLSS
Roads
SMA
soils_STATSGO
soils_gSSURGO
WBD
Wetlands
Wilderness Status

RASTER DATA
Landfire BPS
Landfire EVC
Landfire EVT
Historic fire frequency
Elevation
Aspect
Slope_DEG
Slope_PCT
Hillshade
Precipitation forecast
Weather satellite imagery

1- fire extent + 5km buffer

Plus…

- RECOVER will provide (proposed)
  - Fire severity layers (MTBS)
 - Landslide/Debris flow Hazard (USGS)

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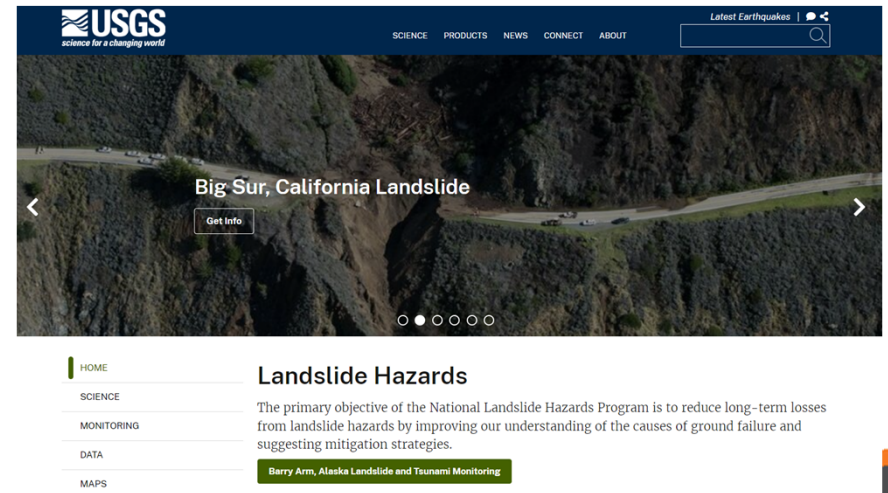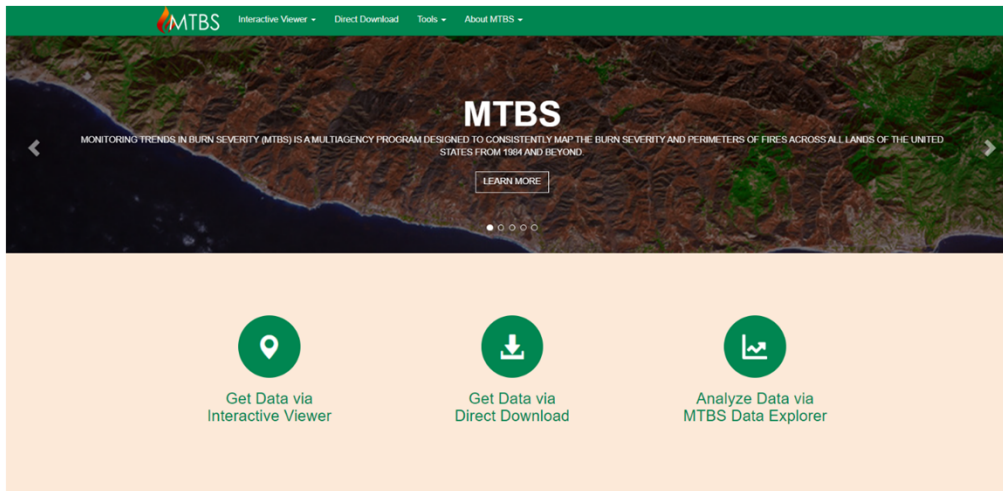
Other Spatial Data

- 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)
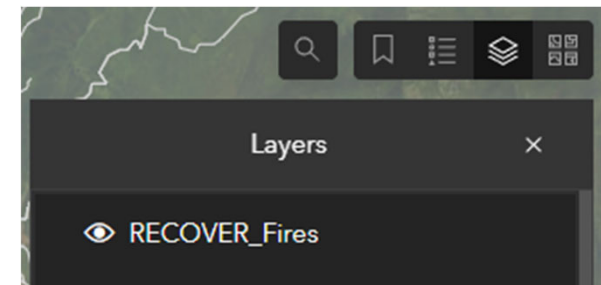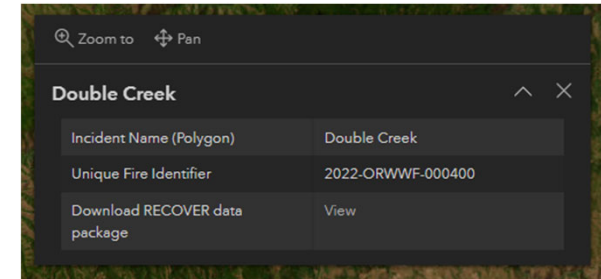 - Quick and easy download from RECOVER's dashboard

RECOVER 2.0 Workflow

- A wildfire has occurred

- Visit the RECOVER dashboard
  - Select the fire from the RECOVER Quick List
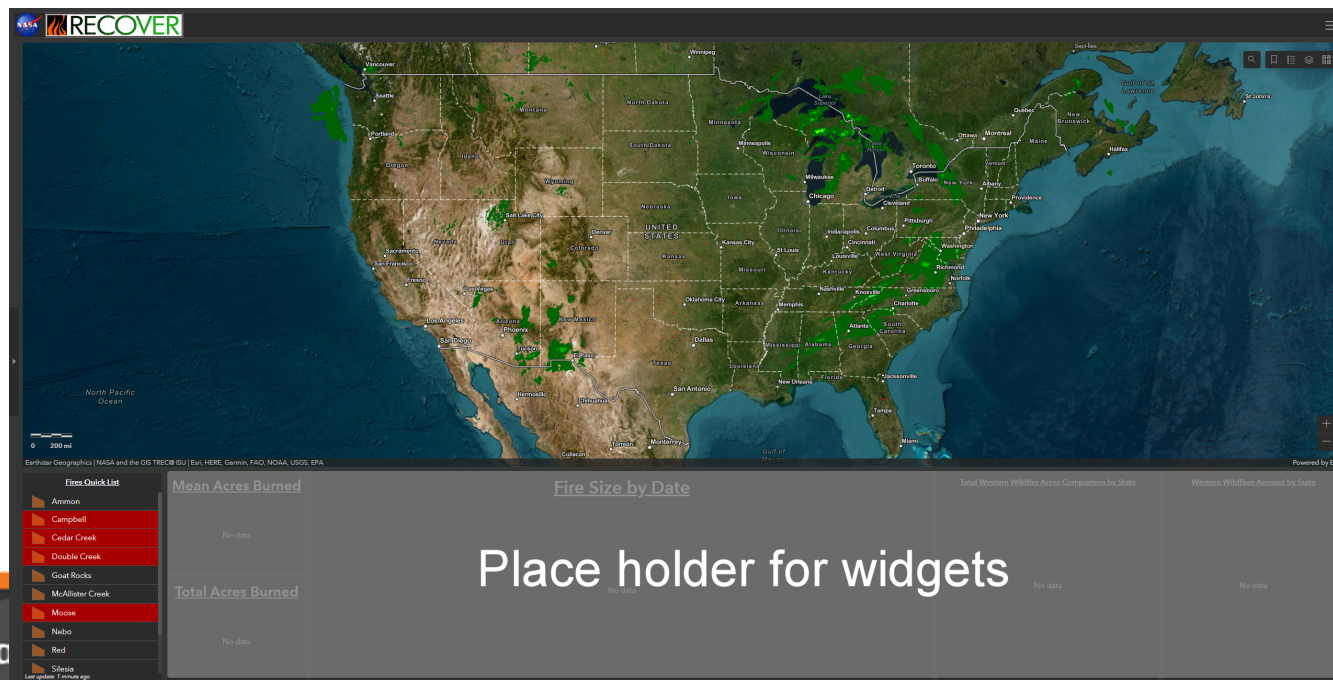
Interacting with RECOVER

- Click the fire polygon to reveal its pop-up
  - Optionally, download the data package
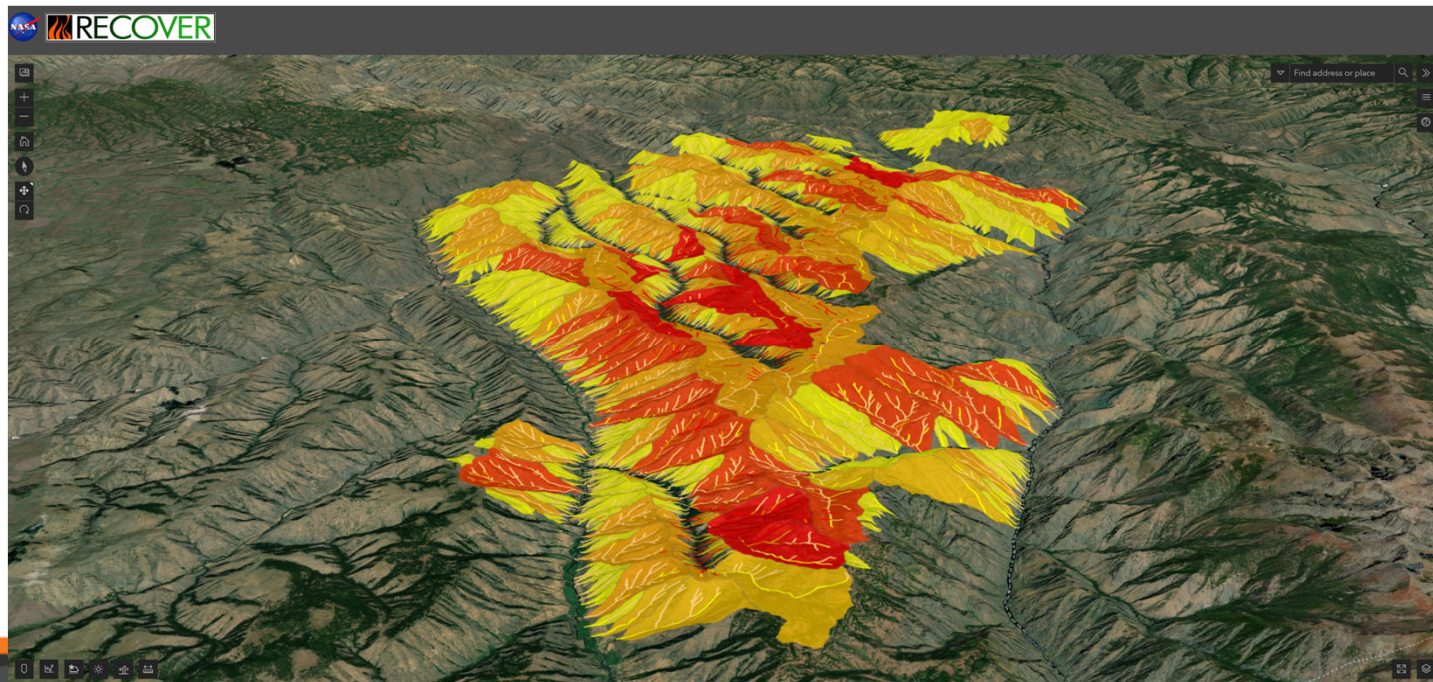

- Expand the Layers list to explore the fire area

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25+ Data Layers

- Currently, RECOVER provides 25 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

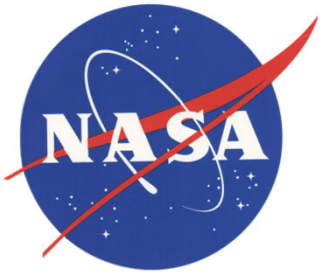- Using the menu (upper-right corner), open the RECOVER 3D Viewer

Still Under Construction…

- Summary reports (PDF)
- Sign in/log in
- What if:
  - A fire is not shown in the dashboard?
  - I have other data to add for a specific fire?

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Questions & Discussion?
webekeit@isu.edu

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