The NASA RECOVER DSS

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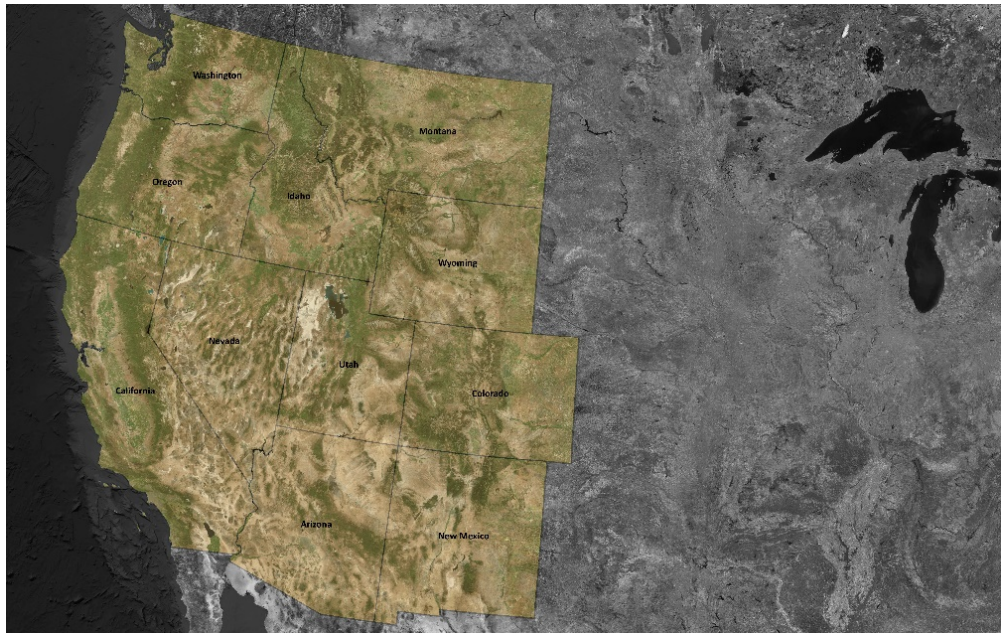
What is RECOVER?

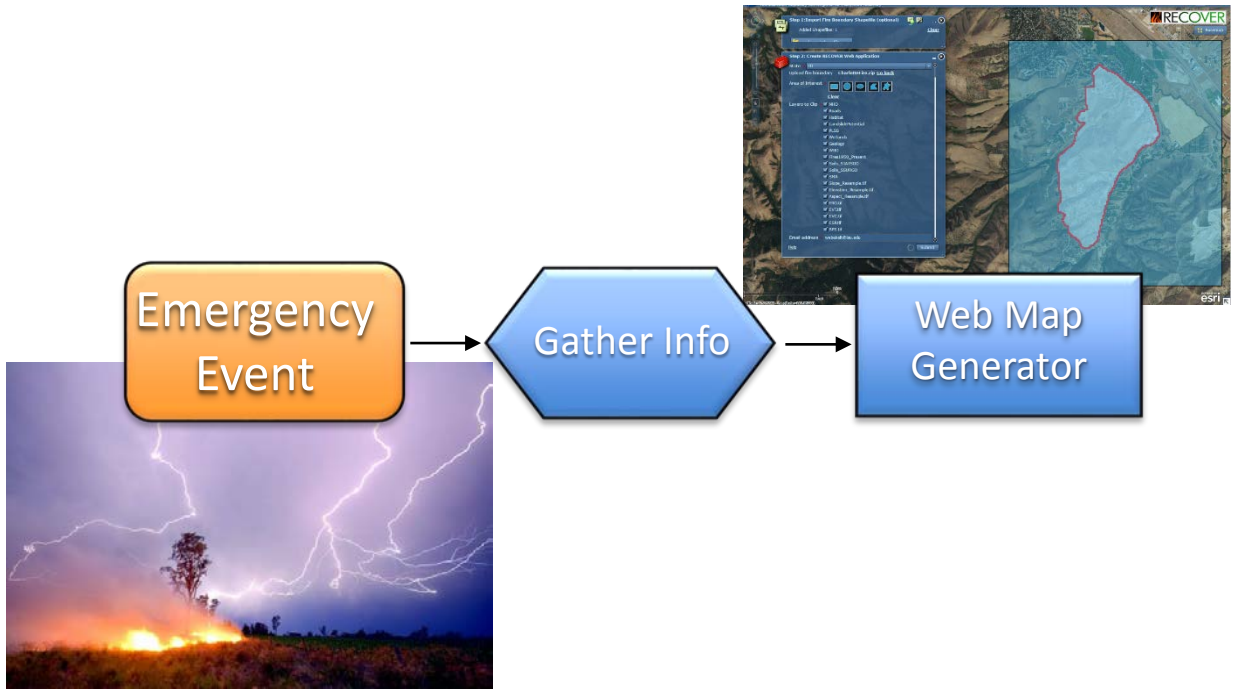
- Customer-driven
- Secured, Decision Support System (DSS)
  - Rapid assembly of site-specific data
  - Delivered in a customized GIS analysis environment



More than this…

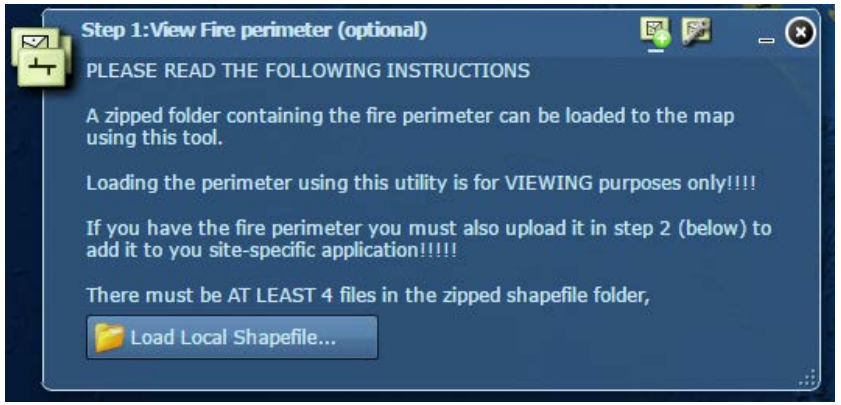
- RECOVER is an architecture
  - Funded as a post-wildfire capability
  - Practiced as a fire decision support system
  - Evolving into an event management and actionable information portal for…
    - Emergencies
    - Project planning
    - Eclipse event preparation

How Does it Work?

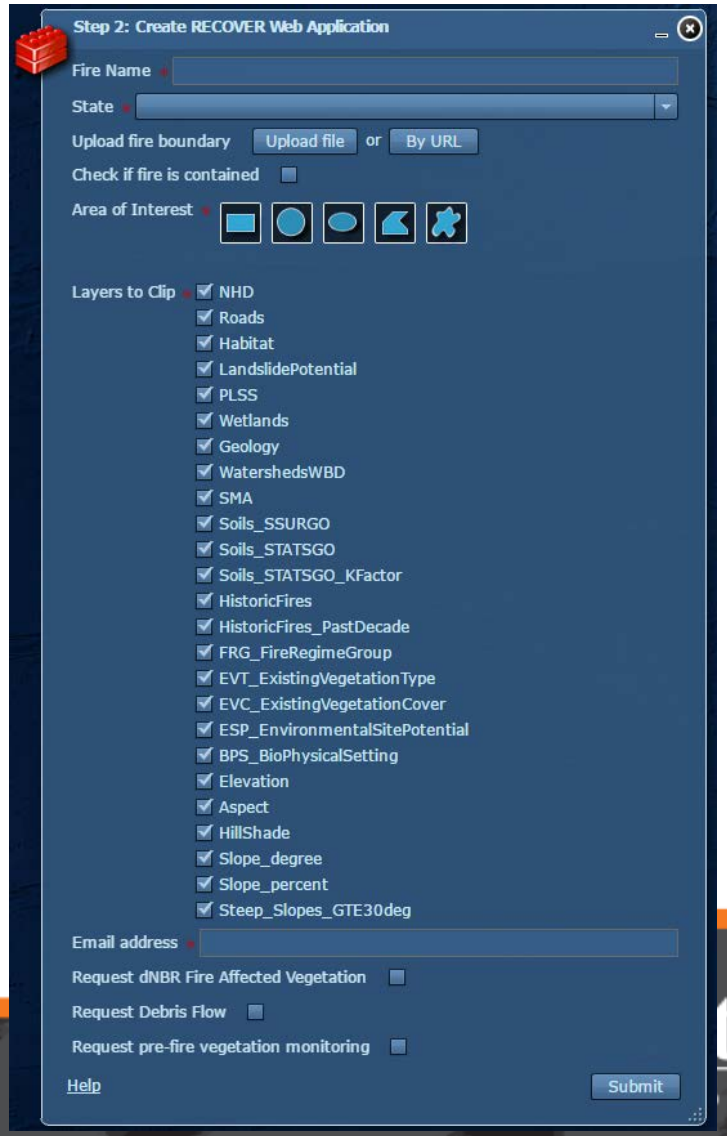


Generator

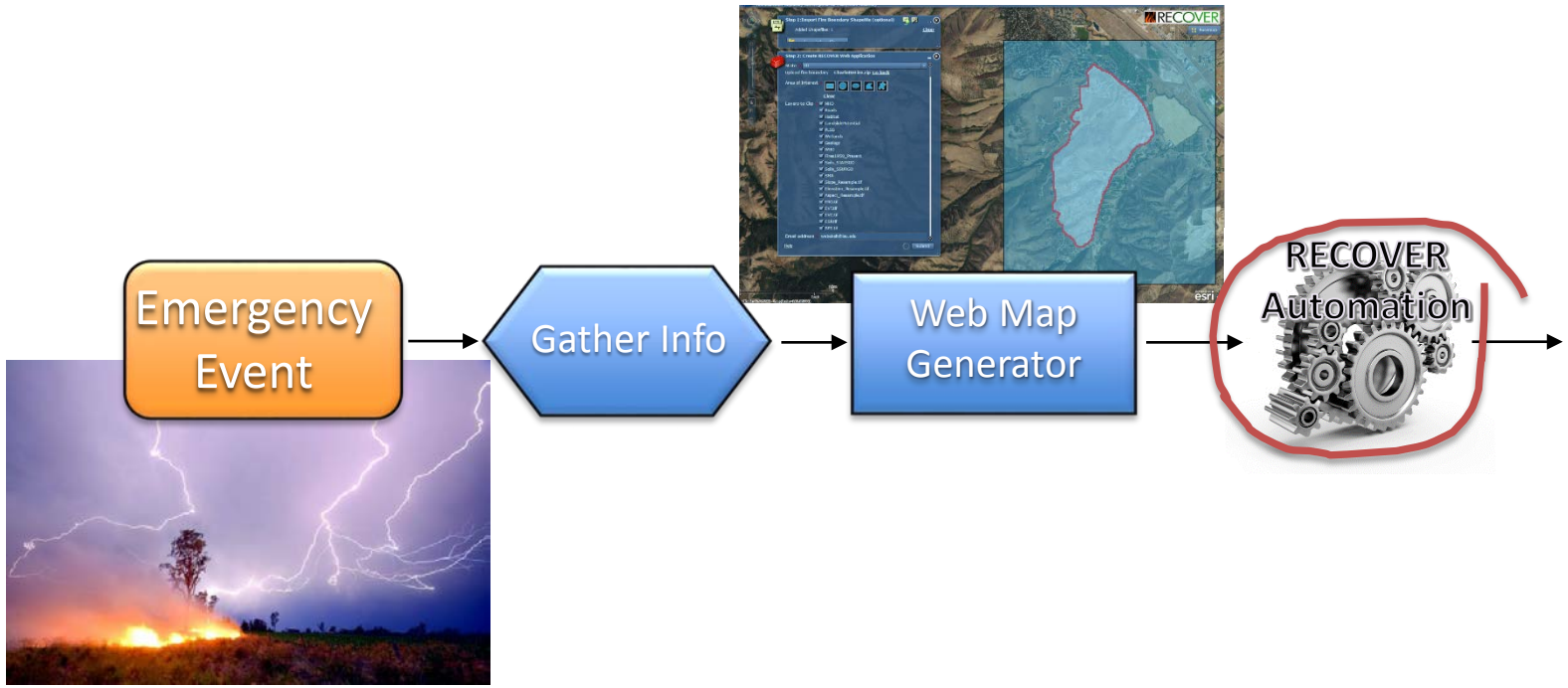
Step one



Step two

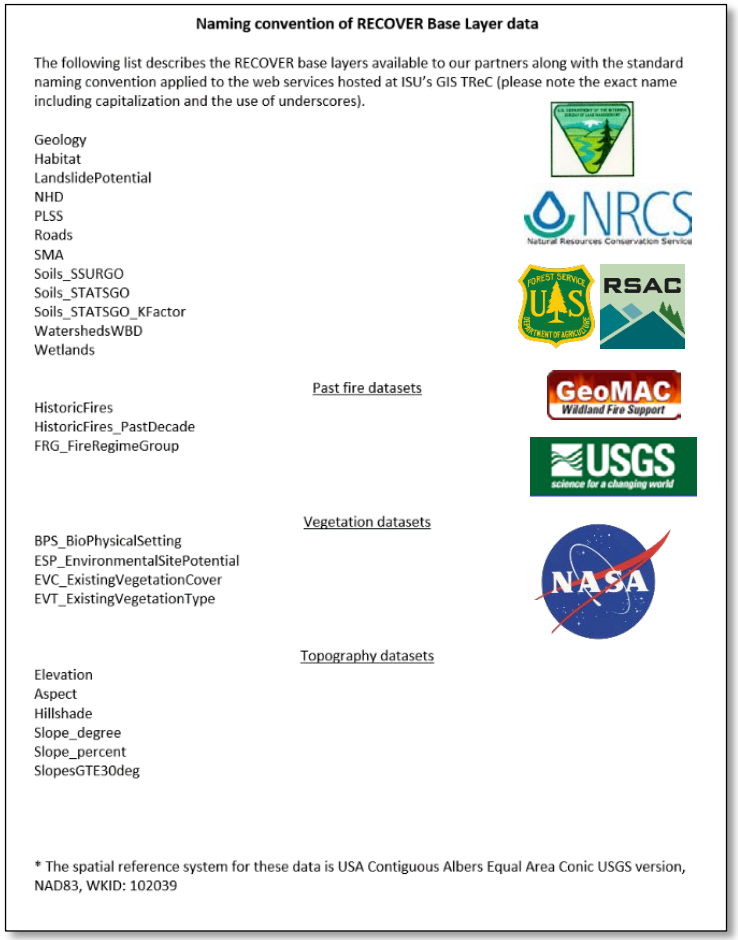


How Does it Work?



GIS Layers

- By default each RECOVER web map contains…
  - 25 base layers automatically clipped to the spatial extent of the event
  - Derived from authoritative sources
  - Site-specific reports



Naming convention of RECOVER Base Layer data

The following list describes the RECOVER base layers available to our partners along with the standard naming convention applied to the web services hosted at ISU's GIS TReC (please note the exact name including capitalization and the use of underscores).

Geology
Habitat
LandslidePotential
NHD
PLSS
Roads
SMA
Soils_SSURGO
Soils_STATSGO
Soils_STATSGO_KFactor
WatershedsWBD
Wetlands

Past fire datasets

HistoricFires
HistoricFires_PastDecade
FRG_FireRegimeGroup

Vegetation datasets

BPS_BioPhysicalSetting
ESP_EnvironmentalSitePotential
EVC_ExistingVegetationCover
EVT_ExistingVegetationType

Topography datasets

Elevation
Aspect
Hillshade
Slope_degree
Slope_percent
SlopesGTE30deg

* The spatial reference system for these data is USA Contiguous Albers Equal Area Conic USGS version, NAD83, WKID: 102039

Done in 5-minutes!

- Once submitted from our Generator, the web map will be ready in about 5-minutes

"Check Your E-mail"

Reply Reply All Forward

Tue 3/28/2017 7:29 AM

recoverdss@gmail.com

Your RECOVER web map

To webekeit@isu.edu

Hello,

Thank you for requesting a NASA RECOVER web map for this wildfire. We sincerely hope this decision support system will be useful to you as you manage this fire. The URL to access the web map is:

https://recover.giscenter.isu.edu/recover3/TestMar28_01Fire_ID

RECOVER is a powerful tool with many capabilities. To learn how to make better use of the RECOVER web map please refer to http://giscenter.isu.edu/research/Techpg/nasa_RECOVER/pdf/GettingFamiliarWithRECOVER.pdf

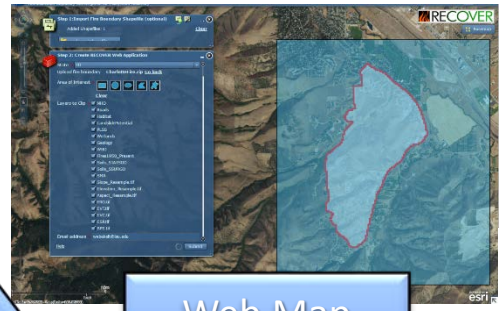
If you need a refresh of the web map because new data is available or the fire perimeter has changed please let us know and we can typically produce a new version for you within 15 minutes. If you would like to use these same RECOVER GIS layers for more sophisticated analysis within ArcGIS, you can do so by downloading the data directly from your web map and launching the ArcMap document found inside the MAPS folder.

Please note. Any additional data requested (NDVI, dNBR, debris flow) is provided for post-fire decision support and will not be processed until the fire is contained.

How Does it Work?

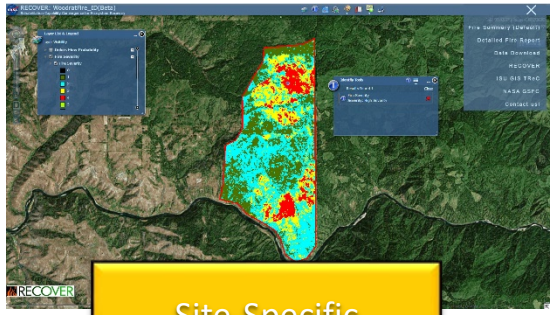
Fire Ignition

Gather Fire Info



Web Map Generator

RECOVER Automation



Site-Specific Web Application

Fire specific reports

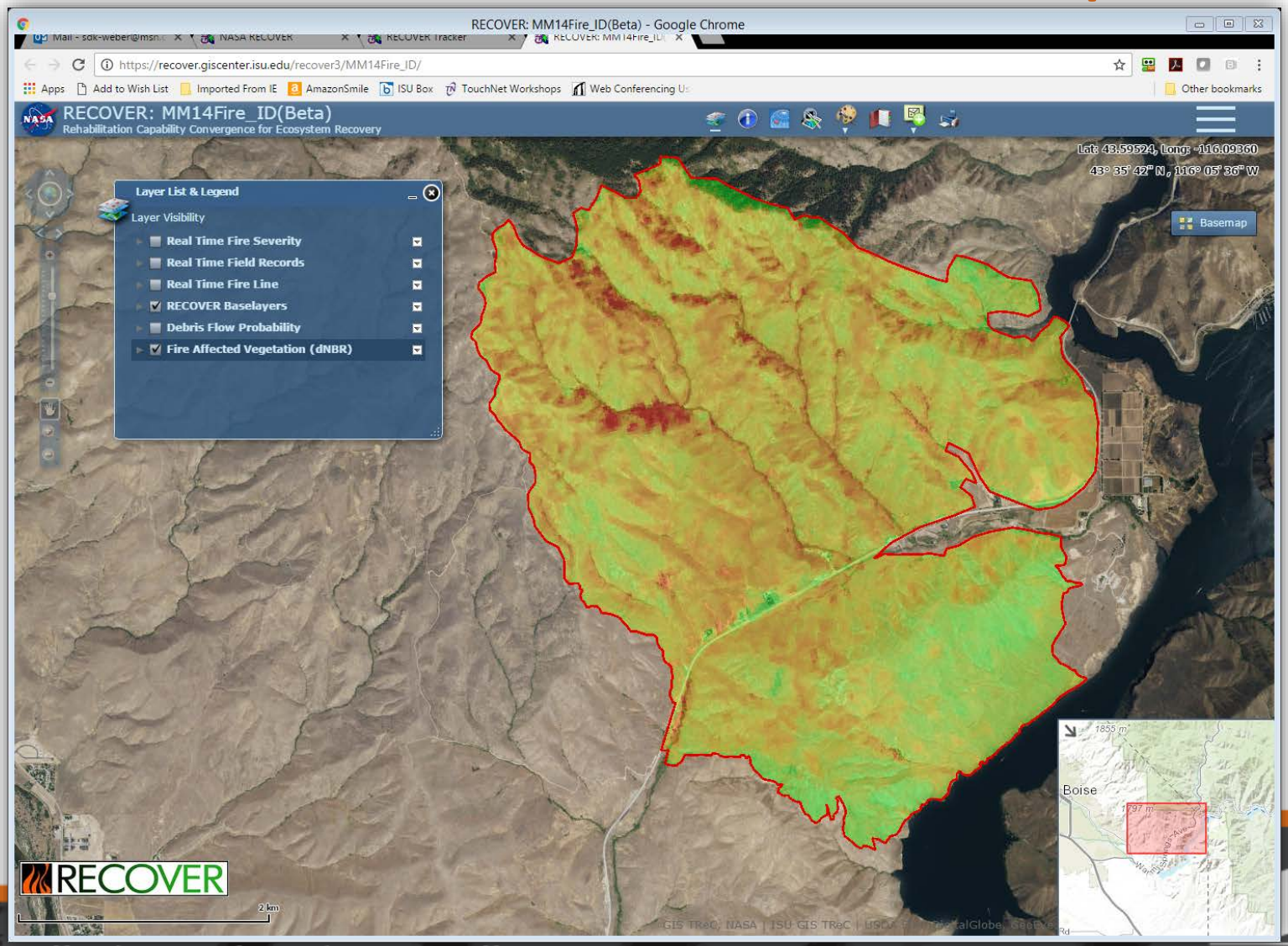
Additional Data Requests

Email Notifications

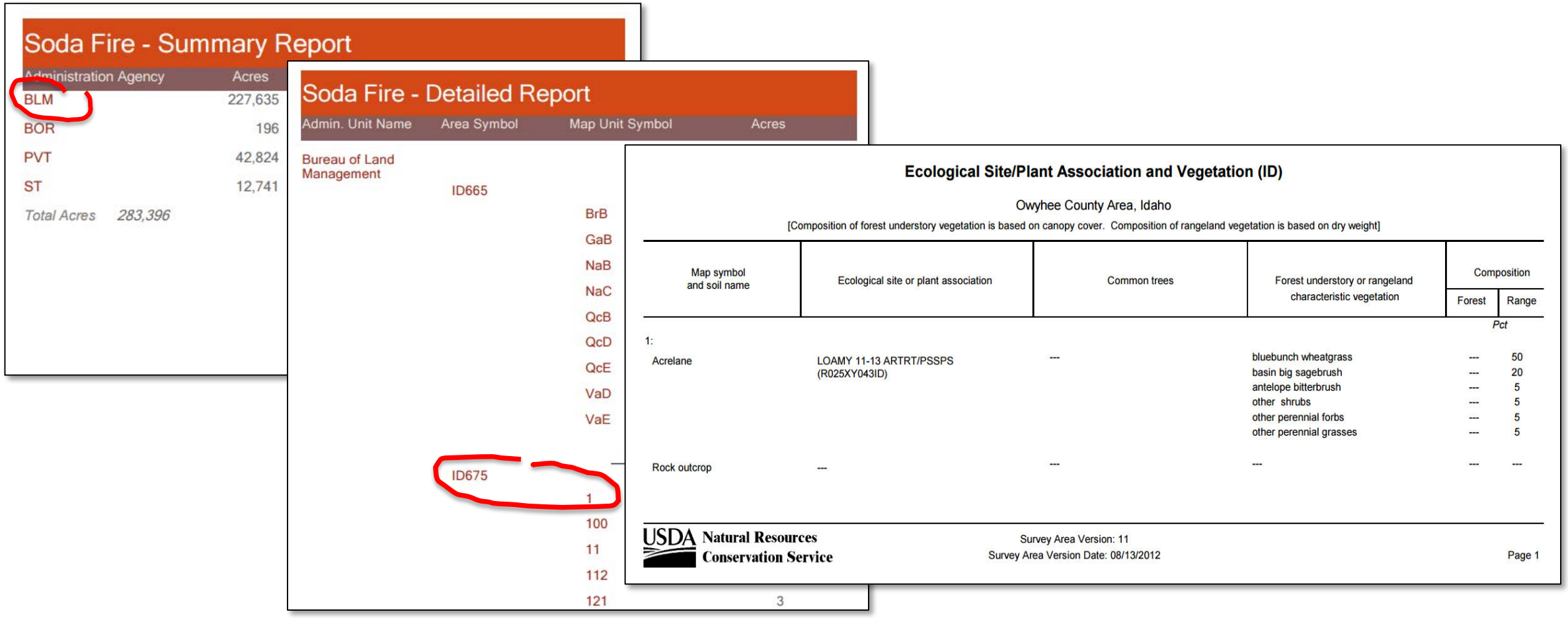
Process Additional Data

Create Map Services

A RECOVER Web Map



Reports



Soda Fire - Summary Report

Administration Agency	Acres
BLM	227,635
BOR	196
PVT	42,824
ST	12,741
Total Acres	*283,396*

Soda Fire - Detailed Report

Admin. Unit Name	Area Symbol	Map Unit Symbol	Acres
Bureau of Land Management			
	ID665		
		BrB	
		GaB	
		NaB	
		NaC	
		QcB	
		QcD	
		QcE	
		VaD	
		VaE	
	ID675		
		1	
		100	
		11	
		112	
		121	3

Ecological Site/Plant Association and Vegetation (ID)

Owyhee County Area, Idaho

[Composition of forest understory vegetation is based on canopy cover. Composition of rangeland vegetation is based on dry weight]

Map symbol and soil name	Ecological site or plant association	Common trees	Forest understory or rangeland characteristic vegetation	Composition	
				Forest	Range
				Pct	
1:					
Acrelane	LOAMY 11-13 ARTRT/PSSPS (R025XY043ID)	---	bluebunch wheatgrass	---	50
			basin big sagebrush	---	20
			antelope bitterbrush	---	5
			other shrubs	---	5
			other perennial forbs	---	5
			other perennial grasses	---	5
Rock outcrop	---	---	---	---	---

USDA Natural Resources Conservation Service

Survey Area Version: 11
Survey Area Version Date: 08/13/2012

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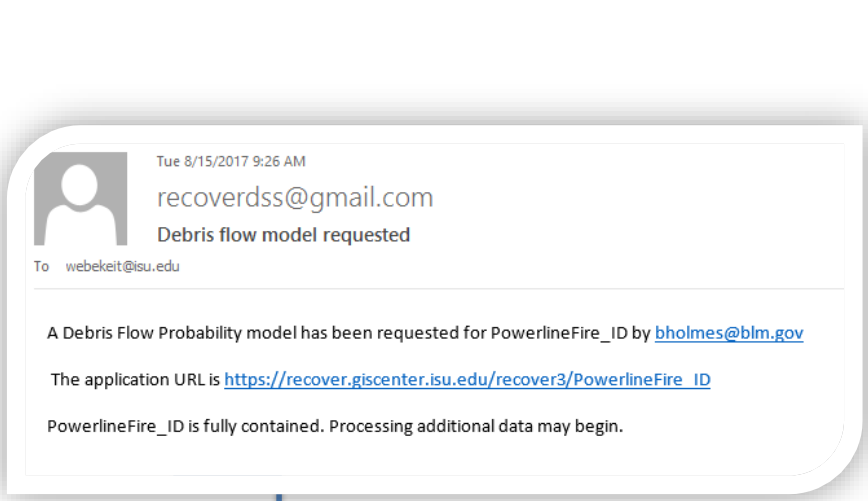
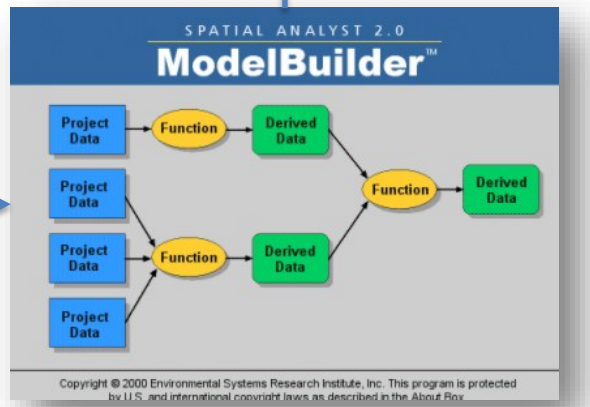
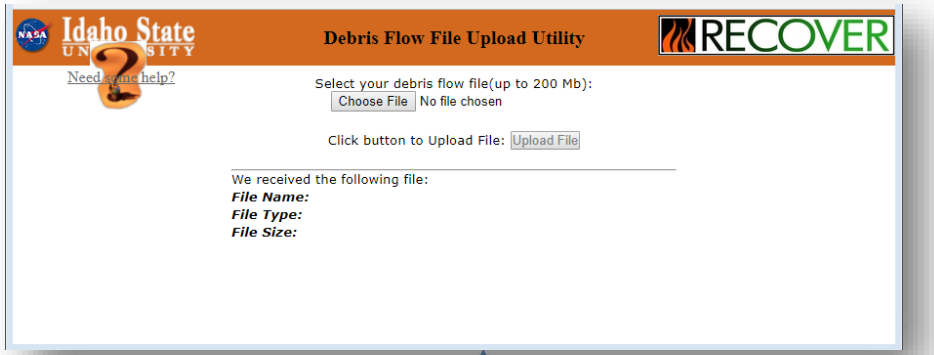
Additional data requests

- Fire-affected Vegetation
- **Debris-flow probability (AKA mudslide or landslide)**
- Long term vegetation comparison
  - Uses 16-day MODIS NDVI imagery
  - Long-term average NDVI (2001-present)
  - Current fire season compared against long-term trend

Debris-flow Workflow



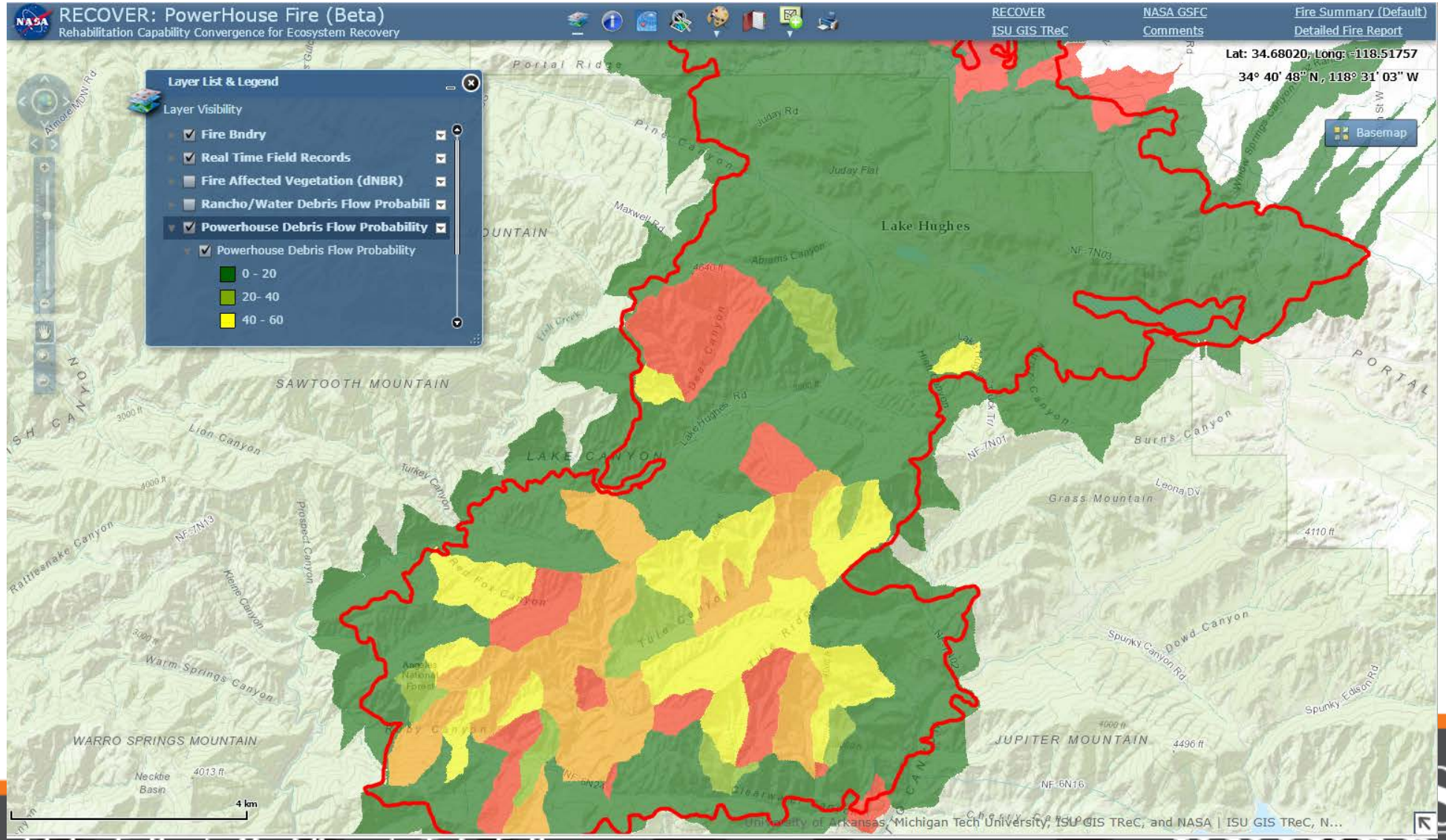




Debris Flow Ingestion

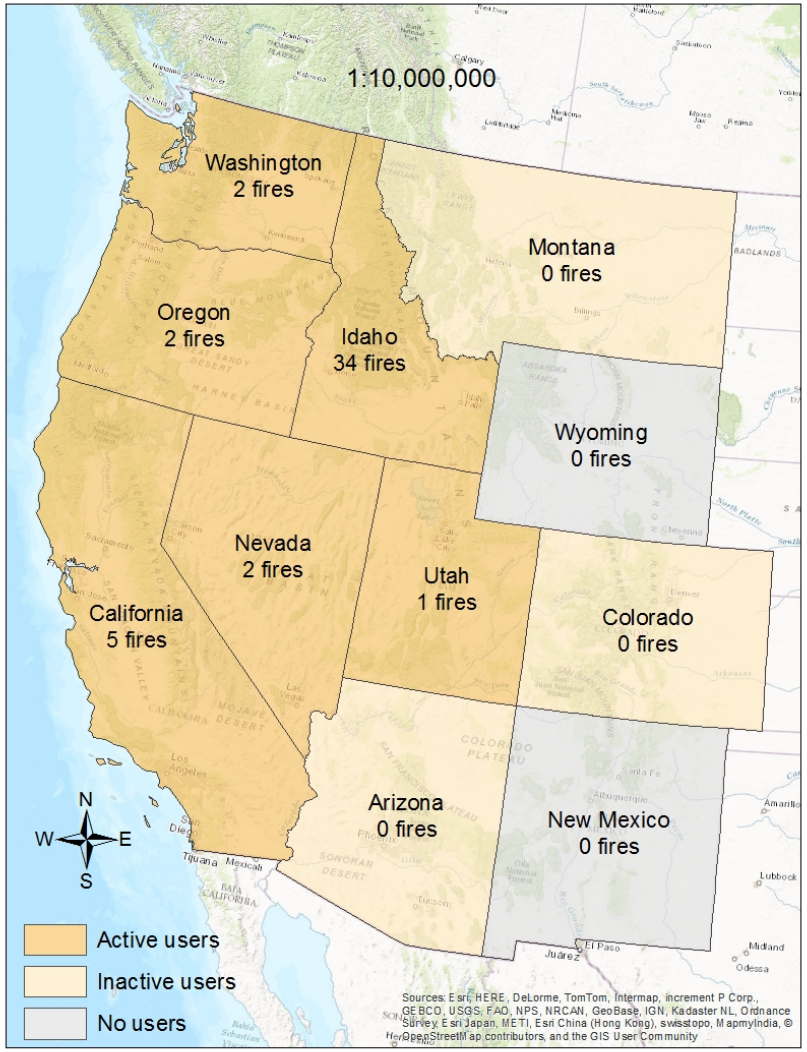
- Once the MAP PACKAGE has been uploaded
  - These GIS data and reports are ingested (added) into the appropriate RECOVER DSS website
  - This is a highly automated, yet monitored process

Finished Product



RECOVER is being used…

- 46 wildfires have used RECOVER
  - 2.4M acres burned
- Nine (9) fires in 2017
  - Seven (7) requested debris-flow models (78%)
  - All (9) have requested fire severity models (100%)



Significance of RECOVER

- Enables visualization in *context*
- Rapidly provides *actionable information*
- Offers *cross-organizational collaboration* and sharing

Questions?

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