



Mark Carroll²

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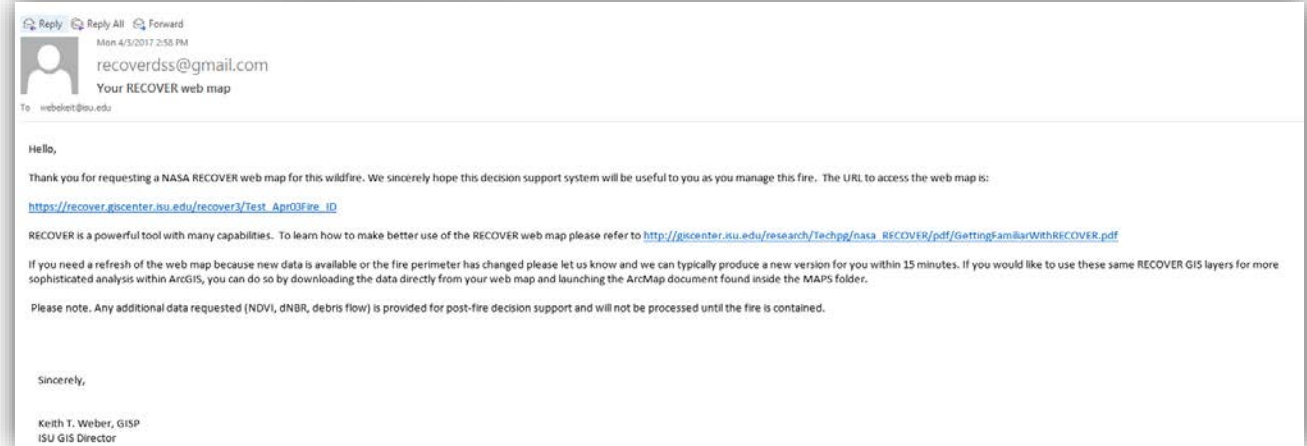
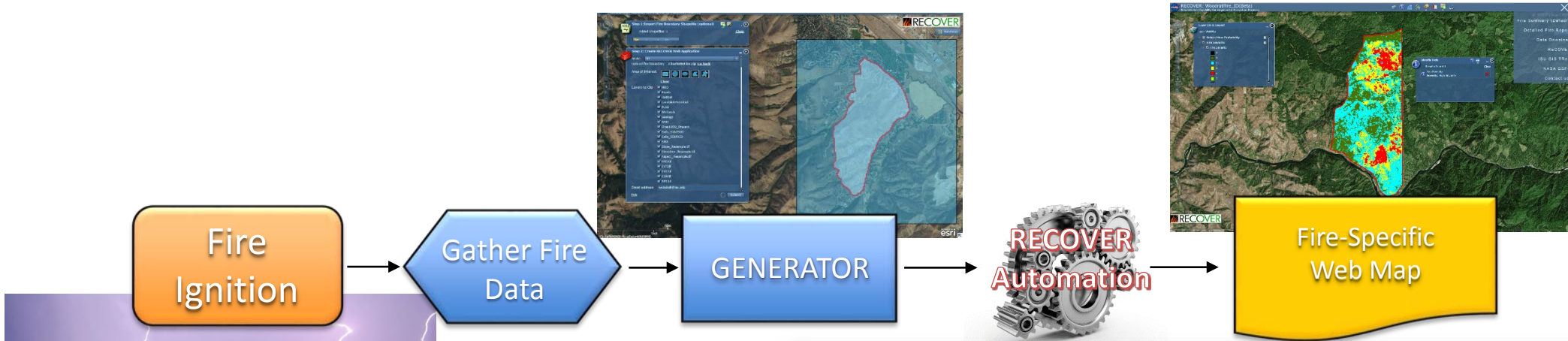


1- ISU GIS TReC

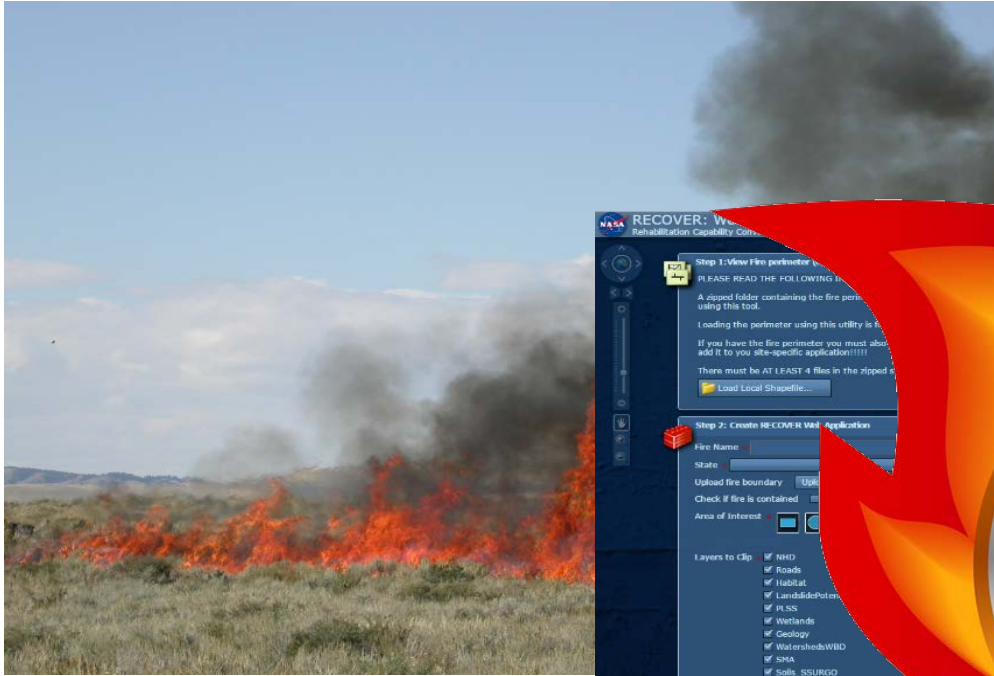
2- NASA Goddard Space Flight Center



RECOVER Architecture



The Capability

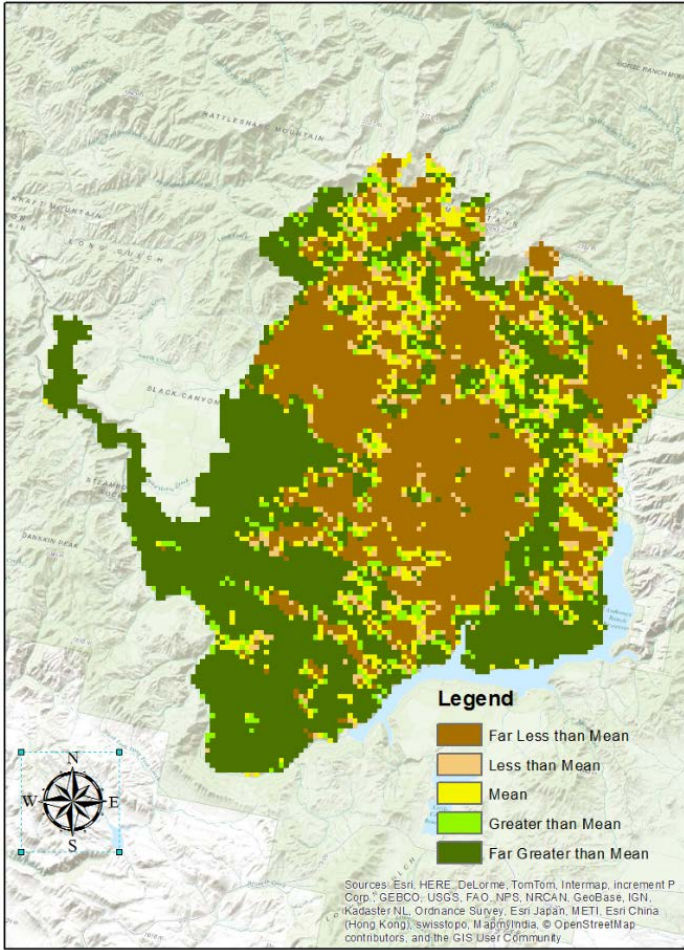


5min

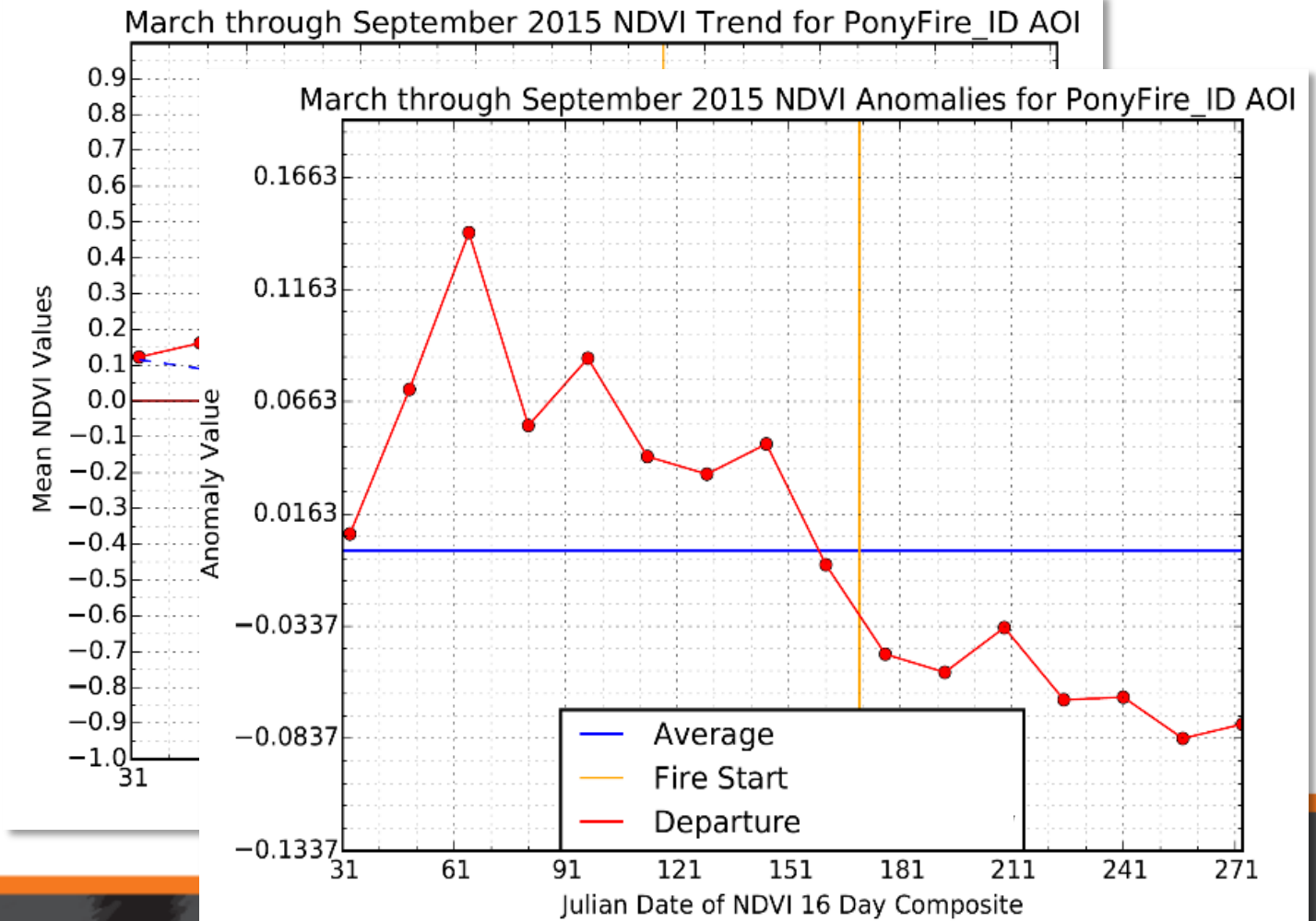


Environmental Anomaly Detection

Map layer

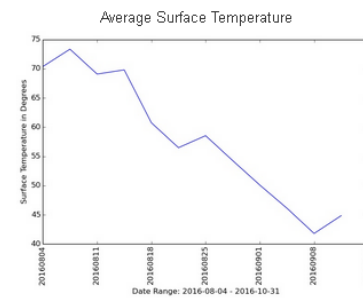
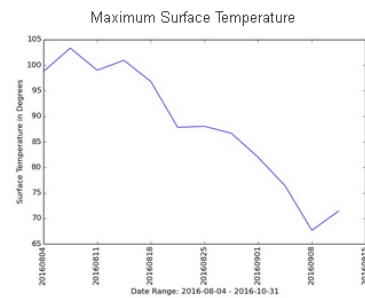
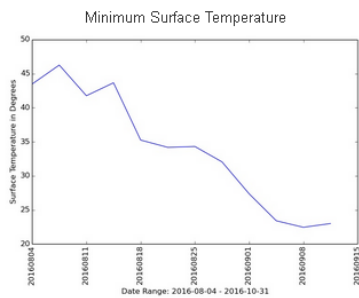
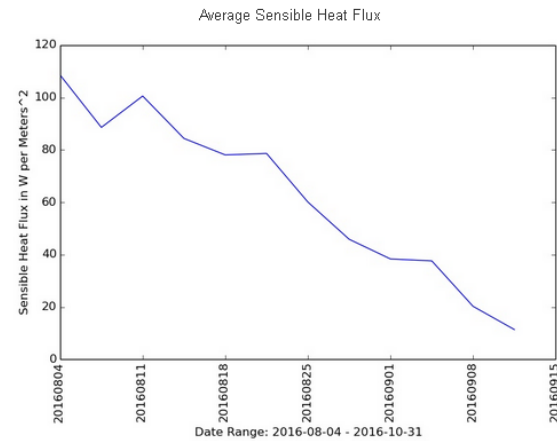
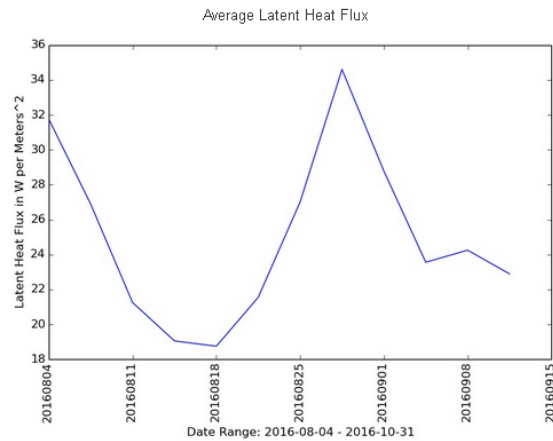
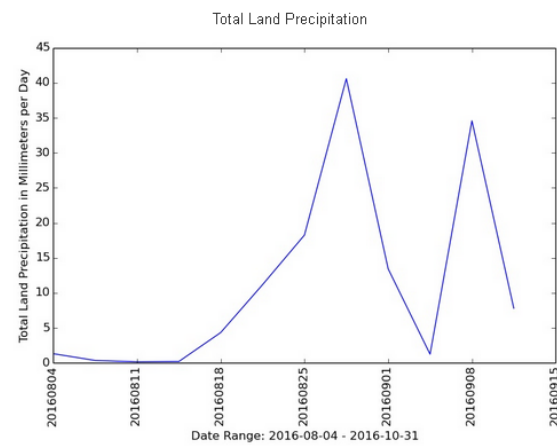
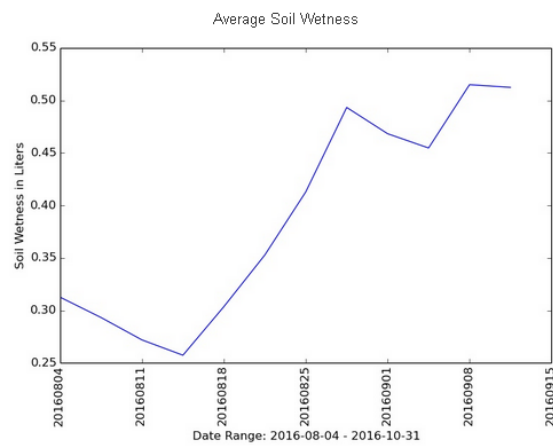


Graphs



Weather and Climate Information

- Risk of fire goes up when weather conditions are hot and dry
- In the lead up to the fire season the fire managers will monitor for drought conditions to identify locations that may be more susceptible to burn
- During active fire conditions firefighters measure temperature and humidity at regular intervals (sometimes every 30 minutes) to record changes
- Post-fire managers will look for potential heavy rain conditions that may raise the risk of flash flood



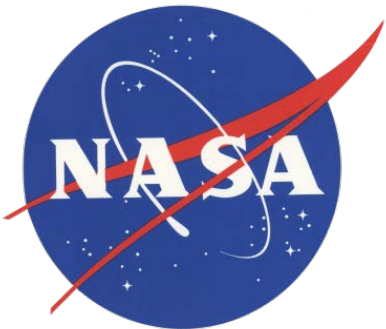
MERRA-2 in RECOVER

- For each MERRA-2 variable, operation and week combination:
 - Invoke the MERRA/AS API to retrieve each file.
 - As each finishes, download it and convert it to ASCII gridded XYZ format.
- Aggregate each MERRA-2 variable, operation and week combination:
 - Create a CSV file with columns: (x, y, (week: value))
 - Plot the CSV, creating a PNG graph.
- Compile the set of PNG graphs into an HTML report.

Next Steps with MERRA-2 Data

- Provide anomaly measurements for variables of interest (i.e. deviation from the long term mean for Temperature, Precipitation, etc.)
- Expand variables provided to end users
- Support capabilities for long term monitoring post-fire to accompany the physical measurements of vegetation etc.
- Evaluate ensemble results with other reanalysis and observational data sets

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