Poster: 2

Convergence of wildfire and water data: An open science model to harness new generation fire data for mapping post-fire hydrologic changes

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INTRODUCTION

Earth data monitoring fire hazards has grown concomitantly, yet our open science capability to quantify how wildfires impact water resources remains obscure. There is no generalizable open science model to converge the vastly dissimilar nature and types of fire and water data, models, and tools to quantify increasing likelihoods of post-fire flash floods and degrading water quality. In response to these limitations, our framework incorporates geospatial analytics, linking satellite data with vegetation and soil moisture information, and works seamlessly with the process-based Soil and Water Assessment Tool (SWAT) and a hybrid machine learning model, Support Vector Machine (SVM). Prototype applications have demonstrated high accuracy in predicting streamflow in large, fire-impacted watersheds across the western U.S.

NSF I-GUIDE 2024 Open Science Champion Awardee

ADHERENCE TO FAIR PRINCIPLES

- Easy to locate
- Relevant data repositories

Findable

- Promotes Inclusivity
- Retrievable formats

Accessible

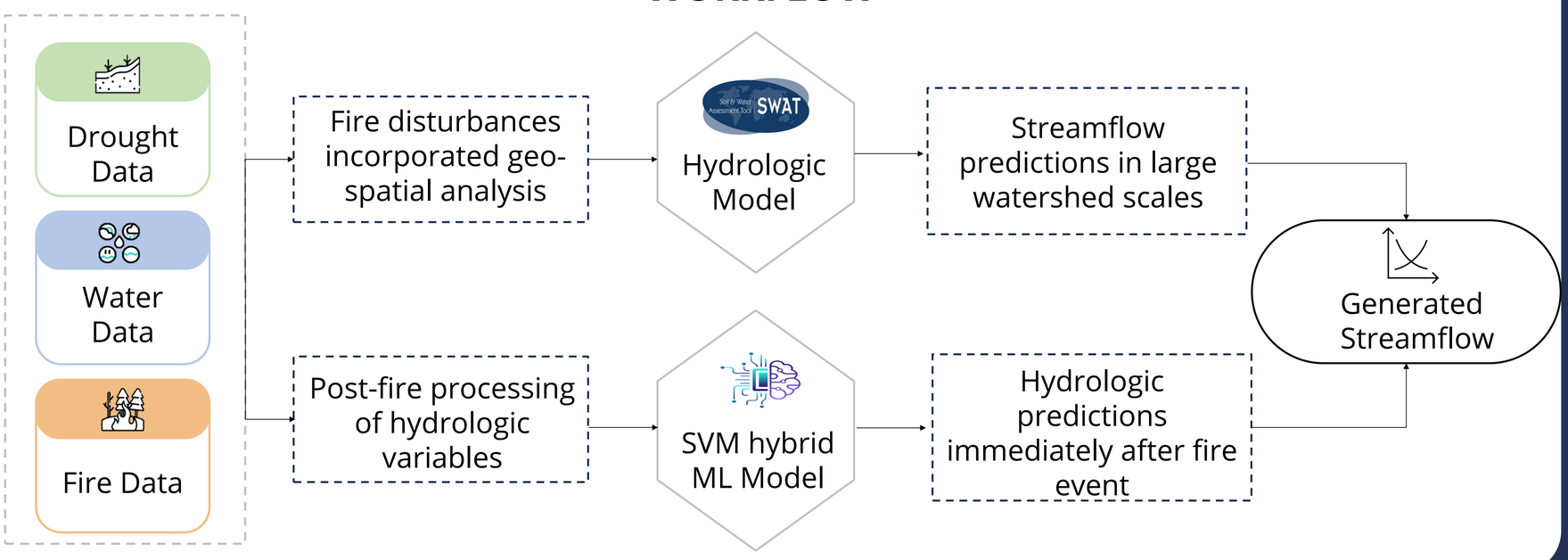
- Integration with other datasets and tools
- Standardized ontologies

Interoperable

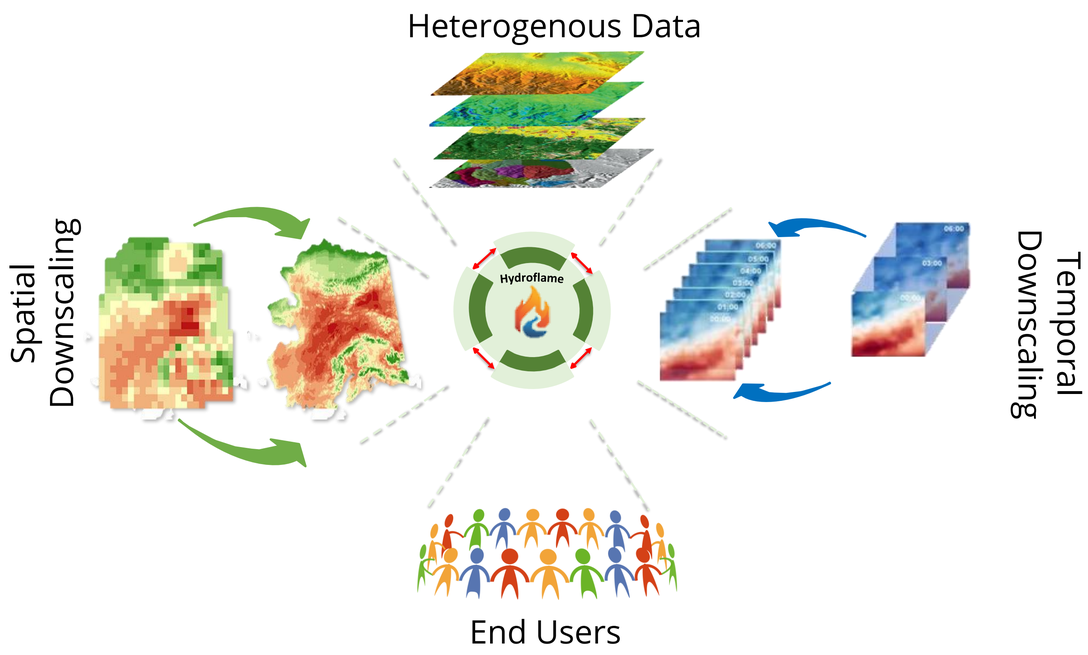
- Reproducible across multiple watersheds
- Well described metadata

Reproducible

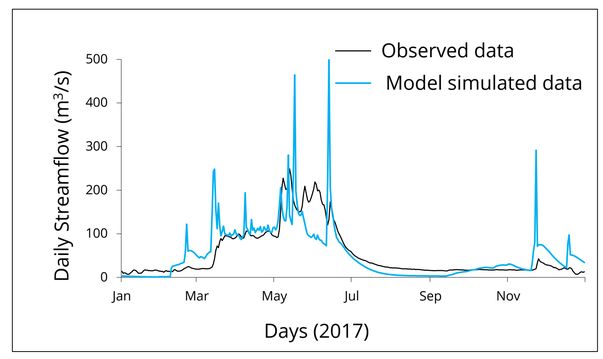
WORKFLOW



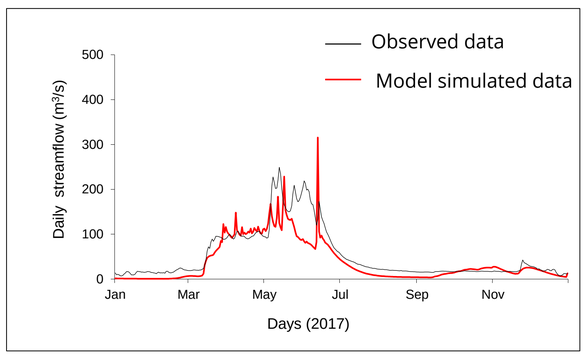
DATA CONVERGENCE



IMPLICATIONS

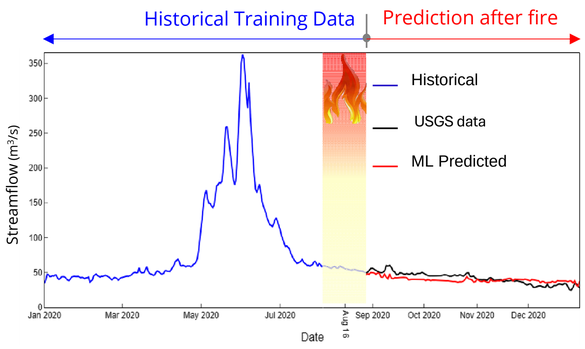


i. Conventional Model



ii. Modified Model

Initial Results from Hydrologic Model



Initial Results from ML Model

SUCCESS STORIES

Explore additional insights through news stories by visiting the links or scanning the QR codes below:

https://www.uta.edu/news/news-releases/2024/09/12/uta-to-lead-nasa-wildfire-grant

https://www.rcac.purdue.edu/news/6836

HydroFlame

www.hydro-flame.org

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