Monitoring Weather Conditions Near Wildfires

Due to the dangerous and highly susceptible nature of wildland fires to change and threaten lives and property, it is critical to monitor and be aware of conditions surrounding these wildfires. The vulnerability of fire-fighting personnel and the public to changing weather conditions near wildfires necessitates improved monitoring of those meteorological conditions around the nation. As part of the National Mesonet Program of the National Weather Service, SynopticLabs/MesoWest provides access to weather observations from over 30,000 locations that are made available by hundreds of data providers (https://synopticlabs.org). Federal and state agencies most responsible for fighting wildfires support the Remote Automated Weather Station (RAWS) network to monitor conditions in fire prone areas nationwide while the National Weather Service often deploys portable RAWS stations as part of fire suppression operations.

Improving access to RAWS and other observations in intuitive web displays is critical for improved situational awareness. To acquire the necessary data, basic fire metadata from GeoMAC is downloaded and archived. Using that metadata, the Synoptic Labs Mesonet API (synopticlabs.org/api) is queried to obtain the IDs, coordinates, and distance from fires for all nearby weather stations. Of particular interest is to provide web-based displays that help alert fire personnel and the public to weather conditions that are defined by them to be critical to monitor, e.g., user-selectable changes in winds, temperature, moisture, or weather conditions.