



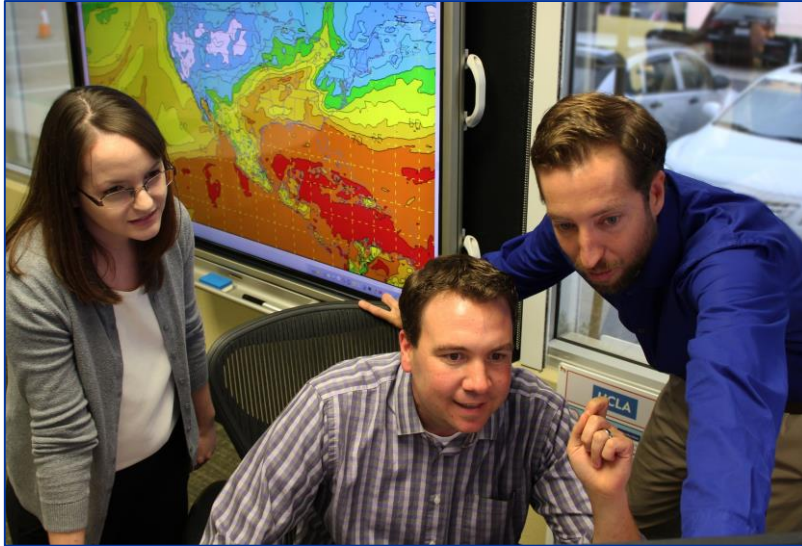
A  Sempra Energy utility®

Wildfire Risk Mitigation

Western LAMPAC Conference
Maui, HI

April 19, 2018

SDG&E's Meteorology Program



Initially integrated directly into
Electric Distribution Operations

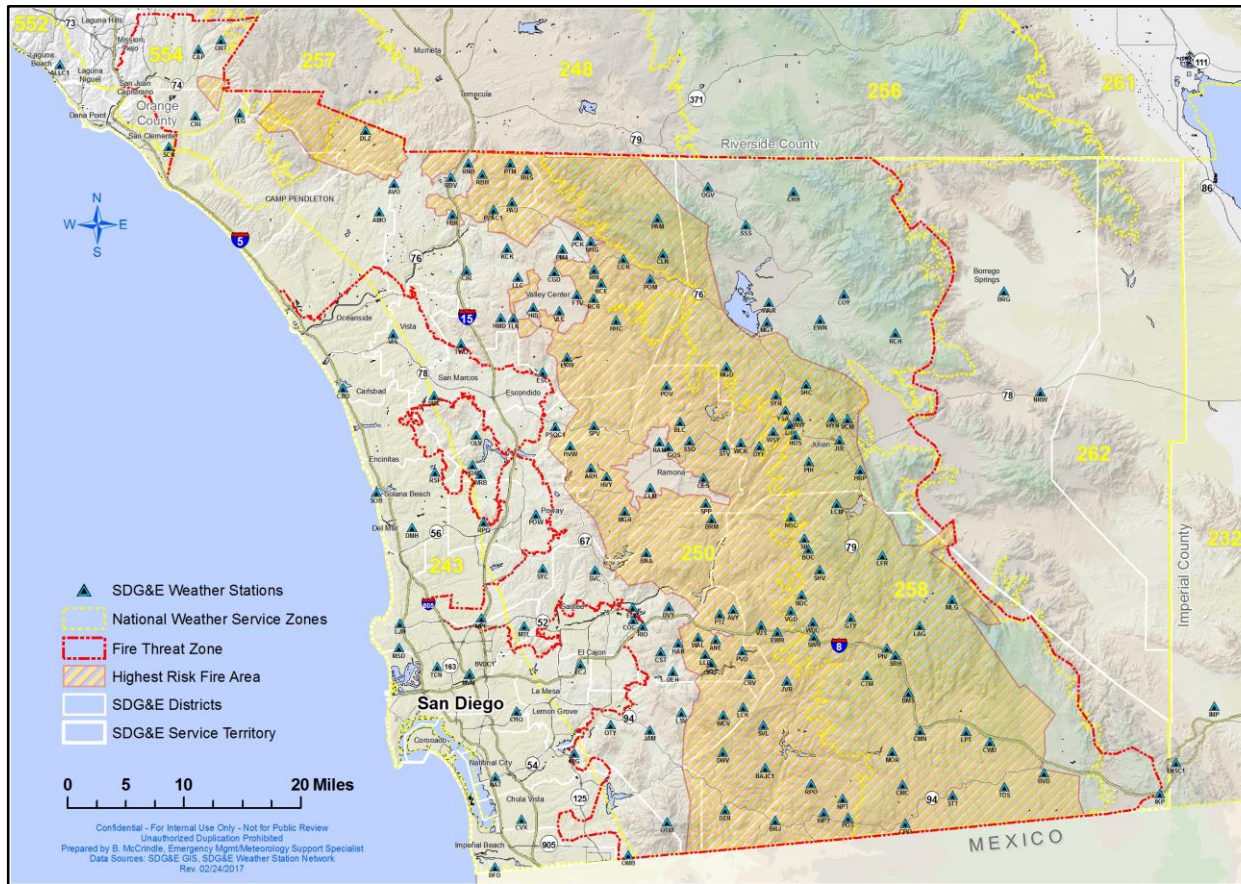
Later moved into the Emergency
Management department

Now under a brand new department
Fire Science and Climate Adaptation

Established after the '07 fires
Three full-time Meteorologists
24/7/365 operational support

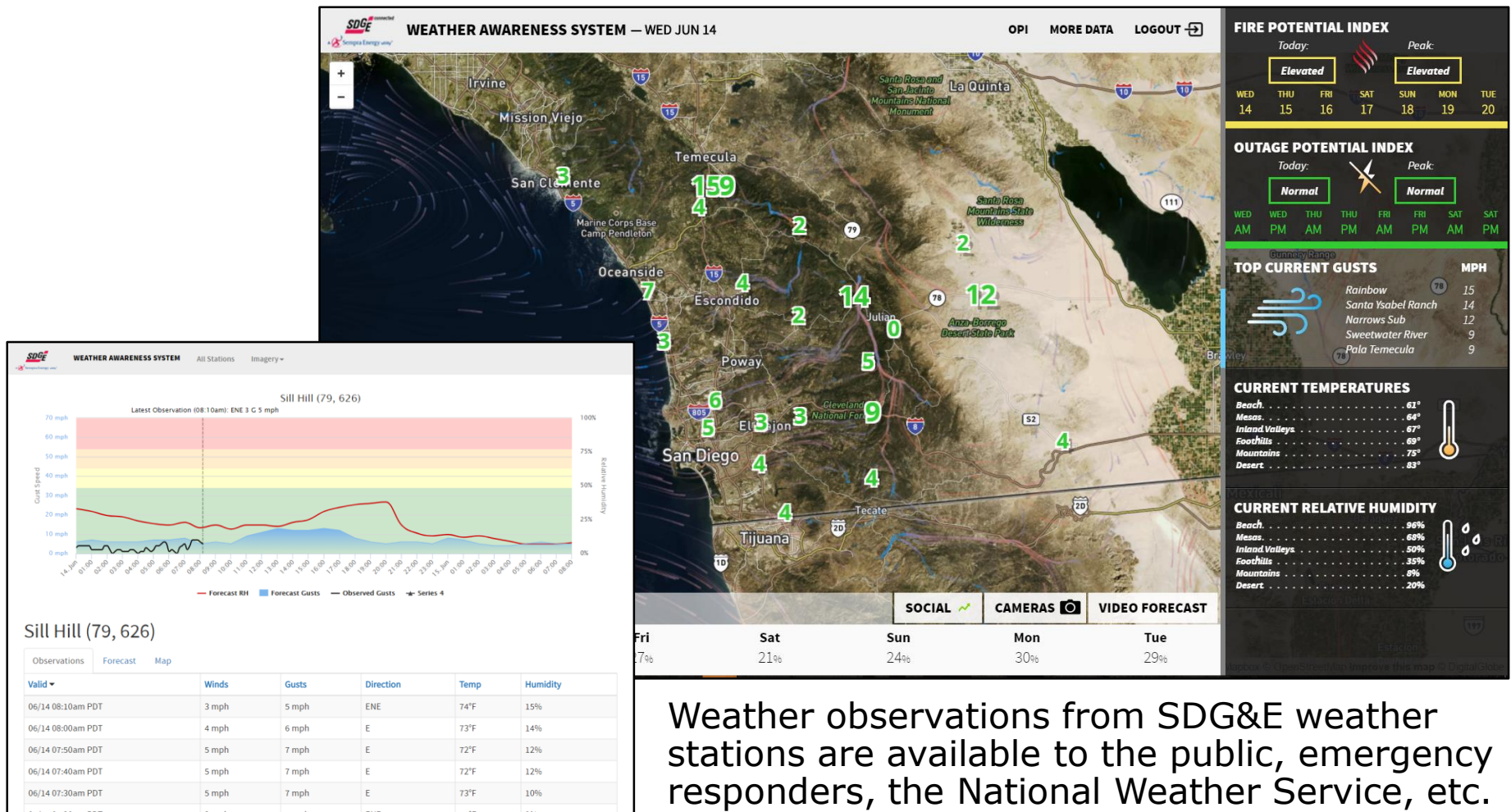


SDG&E Weather Network: 170 Weather Stations



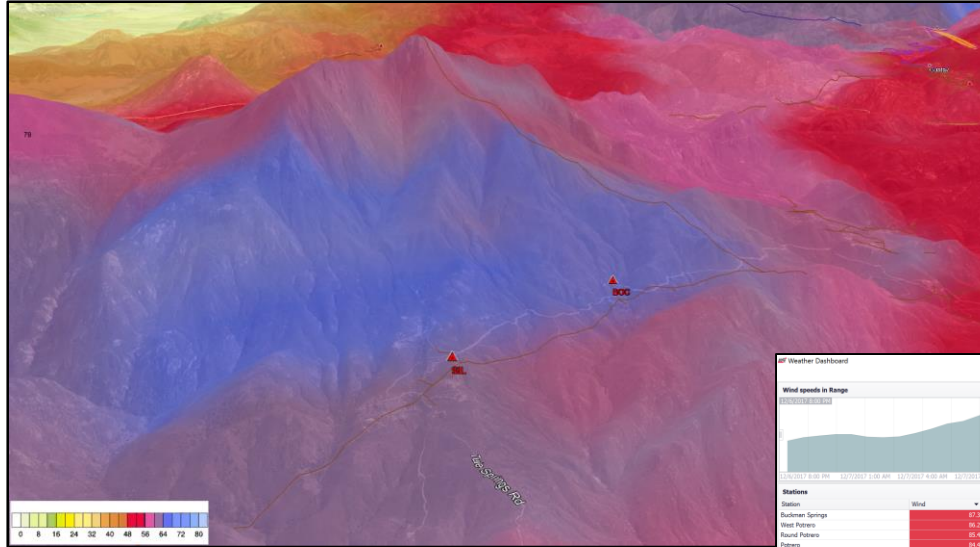
SDG&E owns and operates the largest utility mesonet in the nation

SDG&E Weather Network: 170 Weather Stations



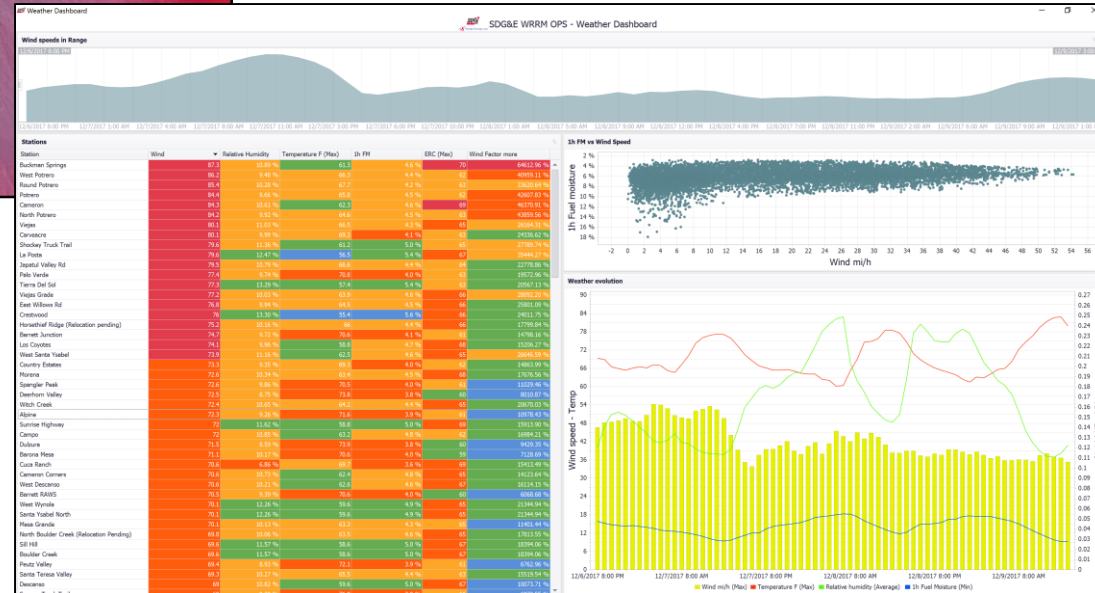
Weather observations from SDG&E weather stations are available to the public, emergency responders, the National Weather Service, etc.

SDG&E High Performance Computing Program: Using Big Data to Enhance Situational Awareness



- Two high-performance computing clusters leverage weather data to run forecast models tuned to the SDG&E service territory

- Provides superior understanding of weather and vegetation moisture to support day-to-day and proactive emergency operations



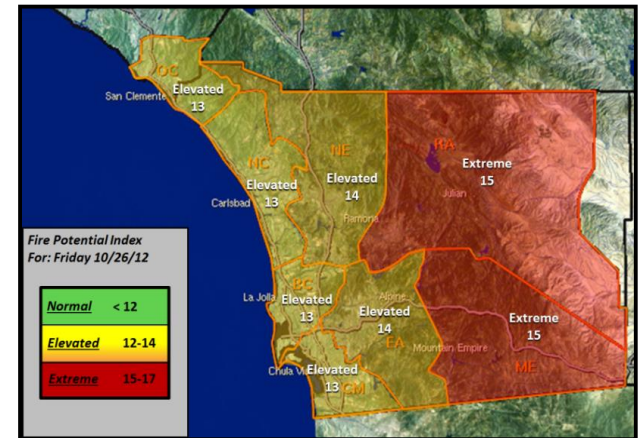
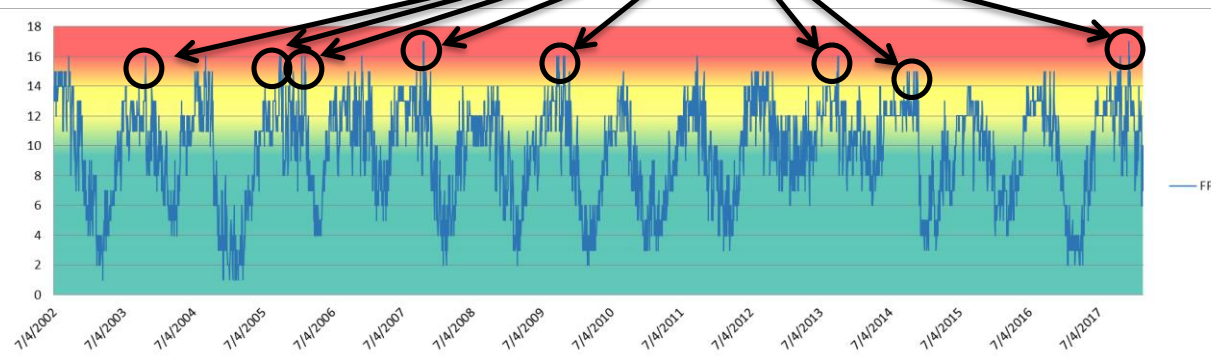
SDG&E's Fire Potential Index (FPI)

The Fire Potential Index is a planning and decision support tool designed to reduce the risk of a wildfire while improving efficiency and reliability

- Incorporates weather, live fuel moisture, dead fuel moisture, and greenness of the annual grasses
- Calculated at the district level
- Issued 12:30 pm daily
- Used to inform operational decisions, work restrictions, resource allocation
- Shared broadly within the community

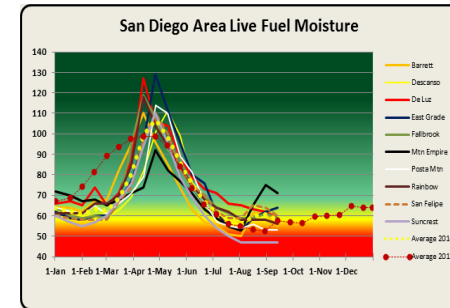
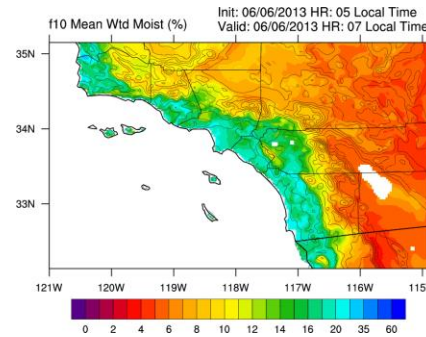
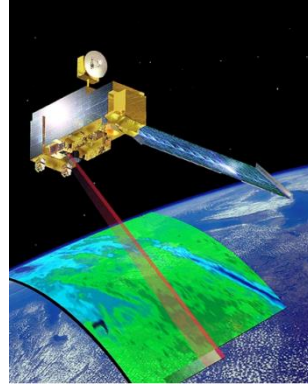
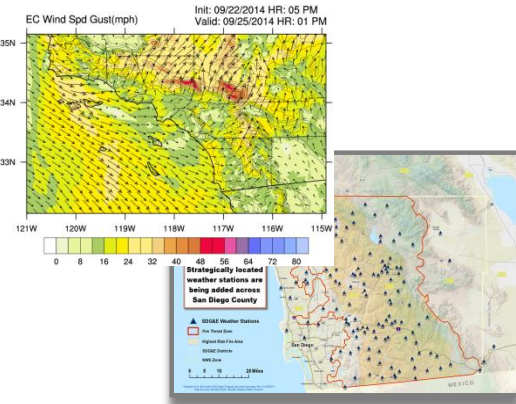


○ Major Wildfire



	Thu 10/25	Fri 10/26	Sat 10/27	Sun 10/28	Mon 10/29	Tue 10/30	Wed 10/31	Thu 11/01
ME	Normal 11	Extreme 15	Elevated 13	Elevated 12	Normal 11	Normal 11	Normal 11	Normal 10
RA	Normal 11	Extreme 15	Elevated 13	Elevated 12	Normal 11	Normal 11	Normal 11	Normal 10
EA	Normal 10	Elevated 14	Elevated 12	Normal 11	Normal 11	Normal 10	Normal 10	Normal 10
NE	Normal 10	Elevated 14	Elevated 12	Normal 11	Normal 11	Normal 10	Normal 10	Normal 10
OC	Normal 10	Elevated 13	Normal 11	Normal 11	Normal 10	Normal 9	Normal 9	Normal 9
NC	Normal 10	Elevated 13	Normal 11	Normal 11	Normal 10	Normal 9	Normal 9	Normal 9
BC	Normal 10	Elevated 13	Normal 11	Normal 11	Normal 10	Normal 9	Normal 9	Normal 9
CM	Normal 10	Elevated 13	Normal 11	Normal 11	Normal 10	Normal 9	Normal 9	Normal 9

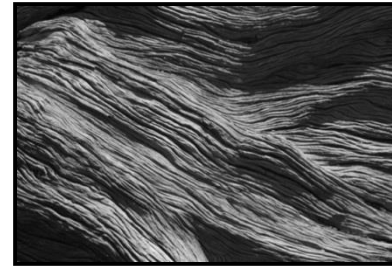
SDG&E's Fire Potential Index (FPI)



Weather
(wind speed & humidity)



Grasses



Dead Fuels

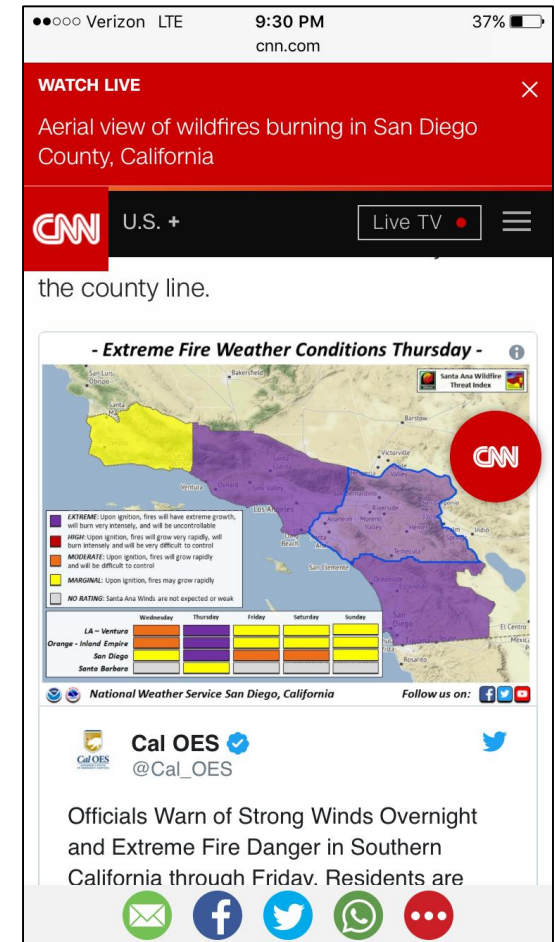
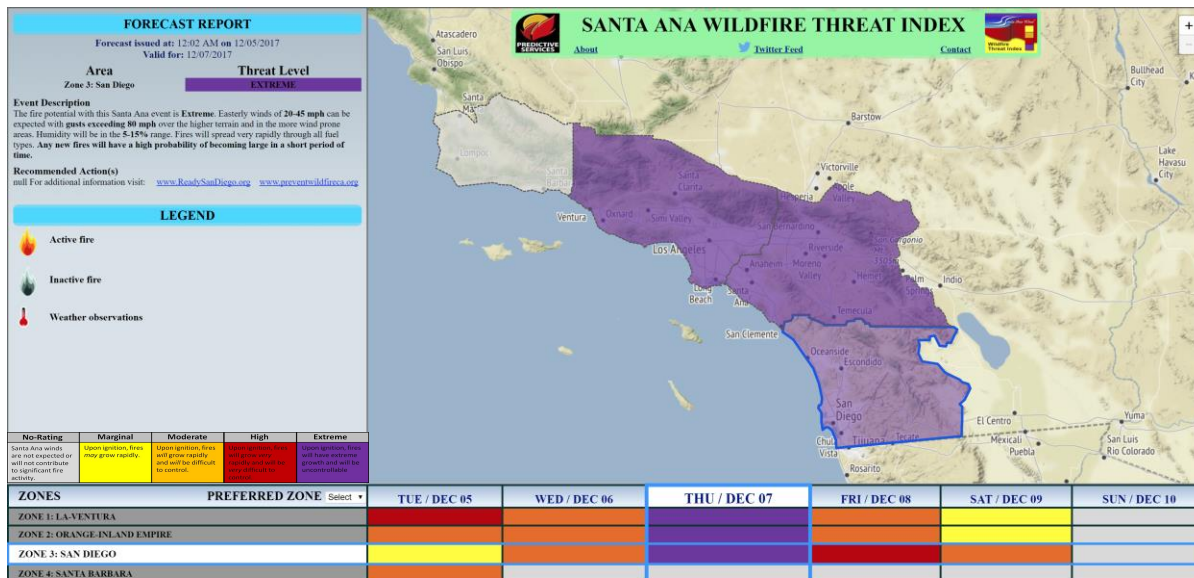


Live Fuels

Fuel Moisture

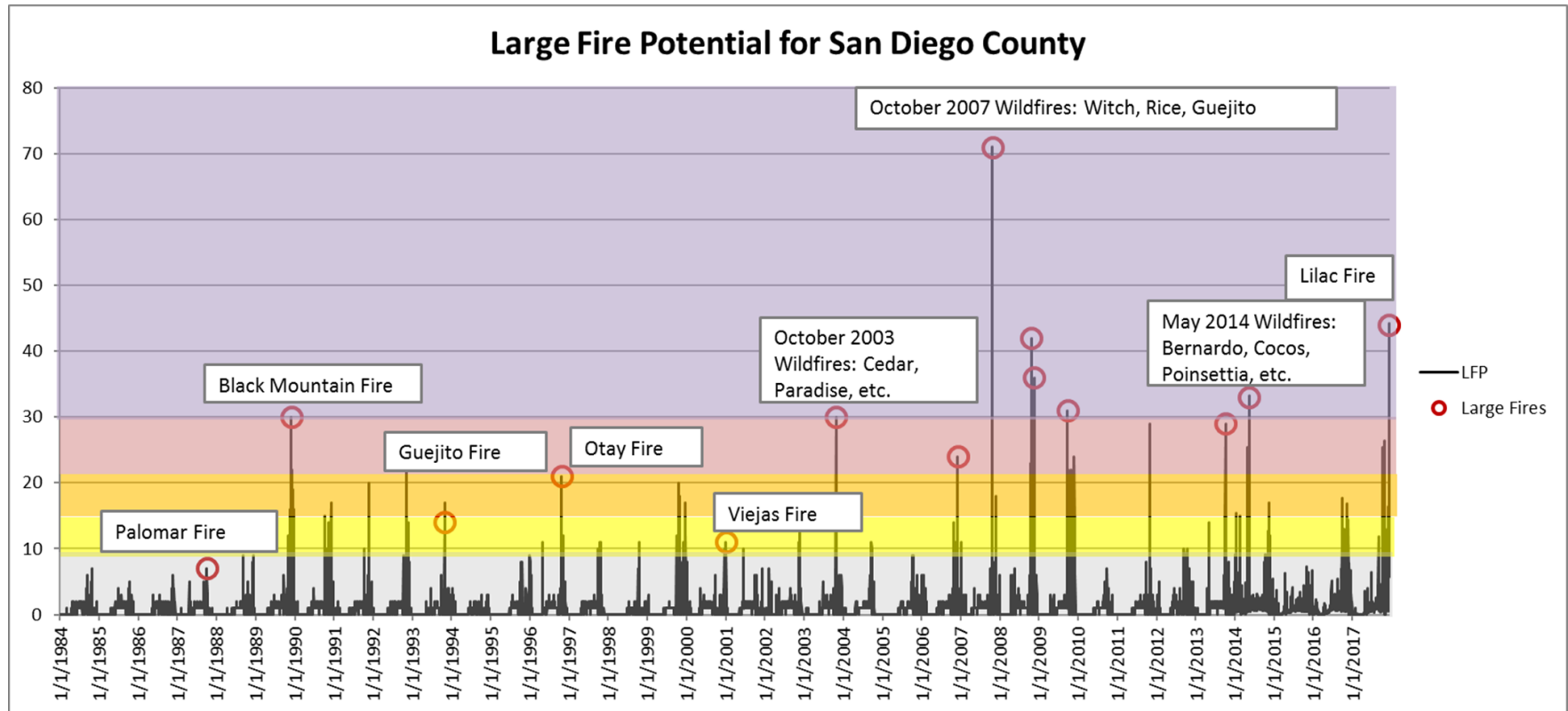
The Santa Ana Wildfire Threat Index

- SDG&E collaborated with the US Forest Service (USFS) and UCLA to create this decision support tool for fire agencies and the general public
- Calculates the potential for large wildfires based on the winds, humidity and dryness of vegetation
- Calculated values correlated to historical wildfires to rate the Santa Ana wind event on a scale from “Marginal” to “Extreme”



¹ SAWTI is peer-reviewed and published in the American Meteorological Society (AMS) Journal of Weather and Forecasting. <http://journals.ametsoc.org/doi/abs/10.1175/WAF-D-15-0141.1>

The Santa Ana Wildfire Threat Index

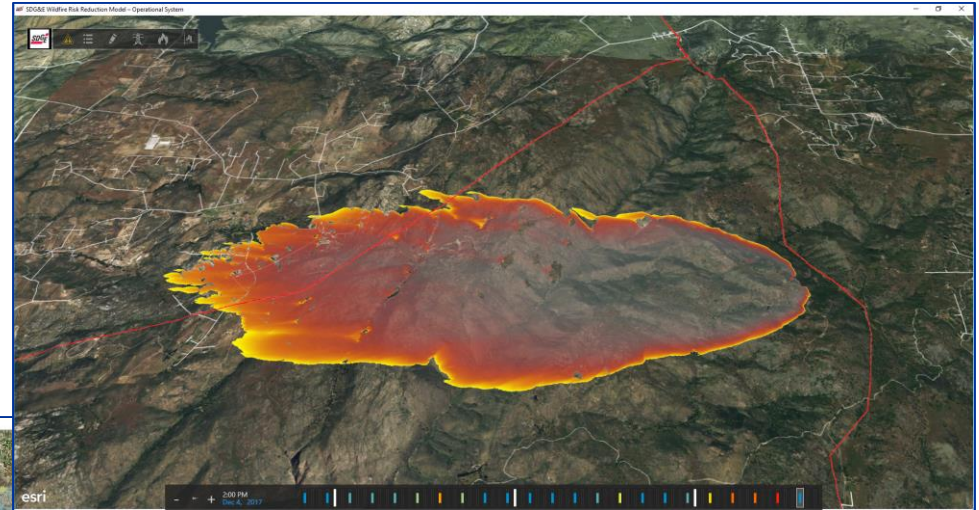
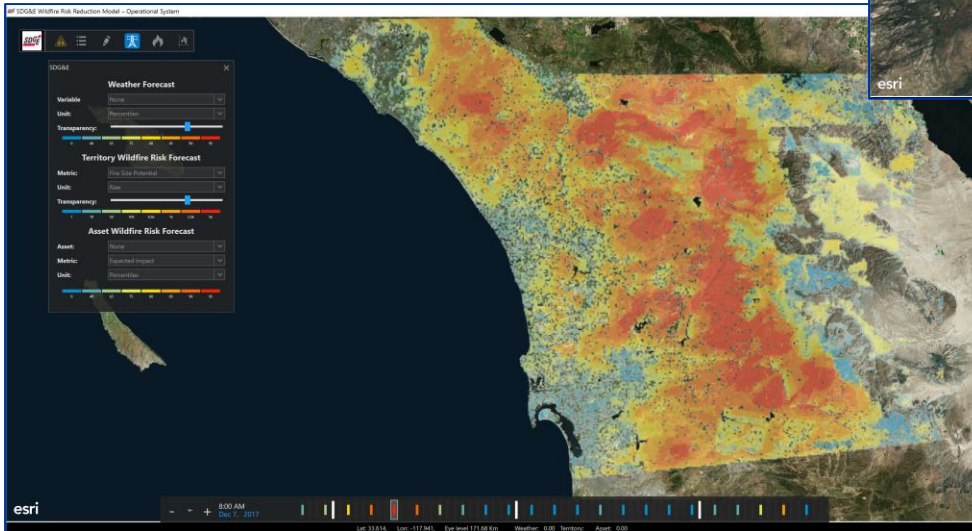


No-Rating	Marginal	Moderate	High	Extreme
Santa Ana winds are not expected or will not contribute to significant fire activity.	Upon ignition, fires <i>may</i> grow rapidly.	Upon ignition, fires <i>will</i> grow rapidly and <i>will</i> be difficult to control.	Upon ignition, fires will grow <i>very</i> rapidly and will be <i>very</i> difficult to control.	Upon ignition, fires will have extreme growth and will be uncontrollable

SDG&E's Wildfire Risk Reduction Model (WRRM)

Wildfire Risk Reduction Modeling (WRRM)

- Uses simulations generated from weather conditions, historical fires and outages, and vegetation data to assess wildfire risk across our system. This model is used to prioritize system hardening efforts.

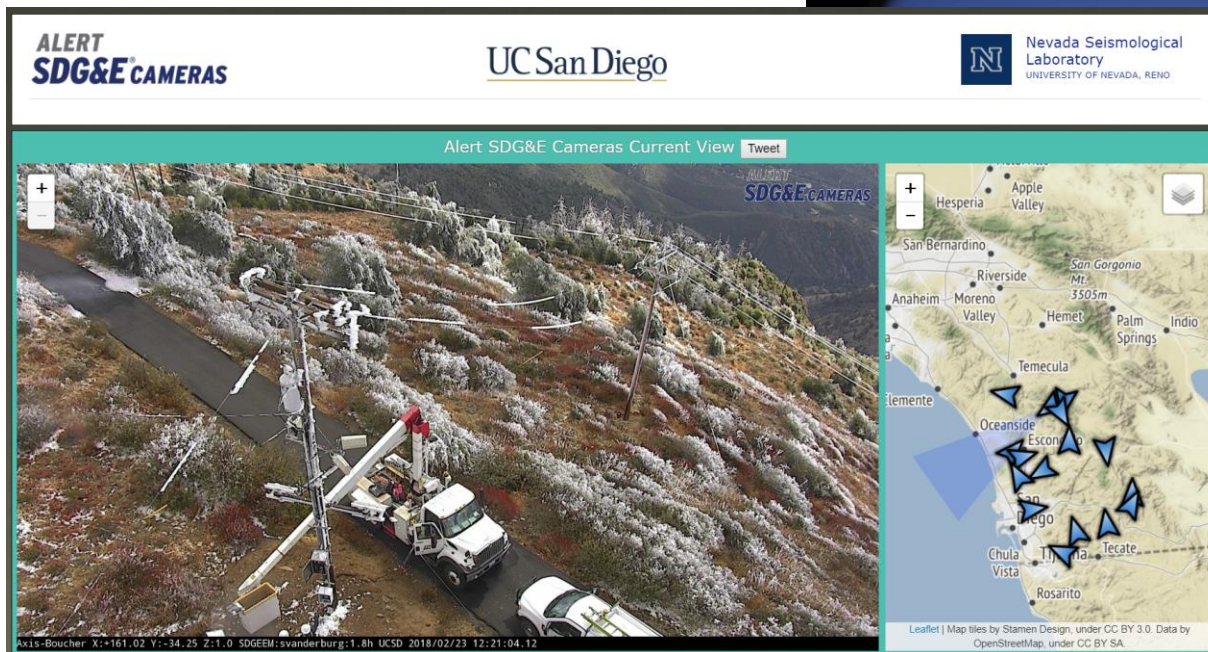
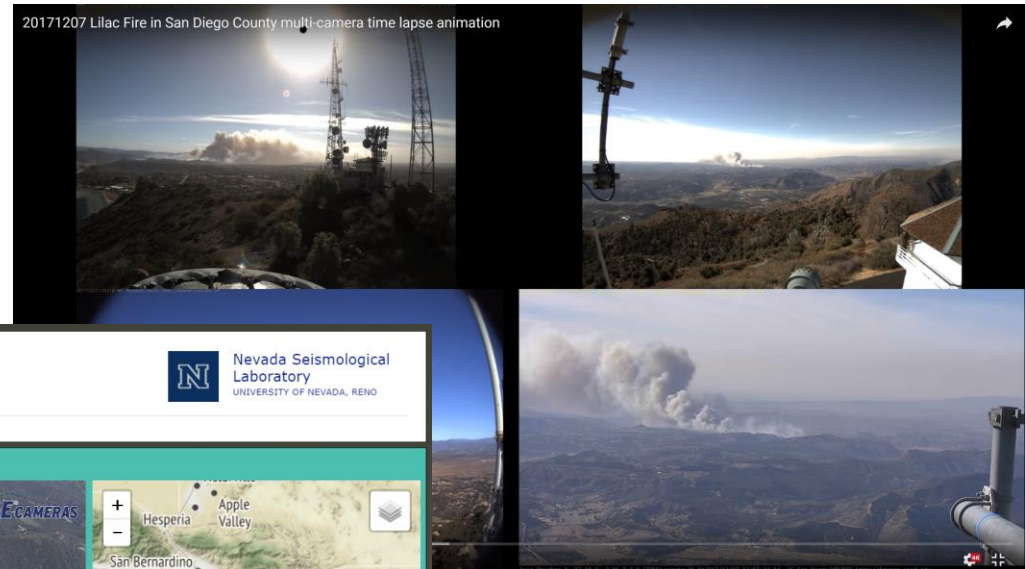


WRRM Ops

- Integrates current weather and vegetation information daily to simulate the growth of millions of virtual wildfires across the service territory.

Alert SDG&E Cameras & HPWREN Cameras

16 Pan-Tilt-Zoom (PTZ)
mountaintop cameras
available to fire agencies,
SDG&E, and the public



80 fixed HPWREN-
connected cameras on
many major hilltops and
mountaintops across
San Diego County

Questions?

