

Where there's FIRE

THERE'S SMOKE

Last fall, smoke affected your life and health. This fall, drought and more fires? Learn about climate change and wildfires, the dangers of smoke and how to protect your health at home.

Thursday, May 13, 6-7:30 Pacific time

Program & registration: sacbreathe.org/where-theres-fire

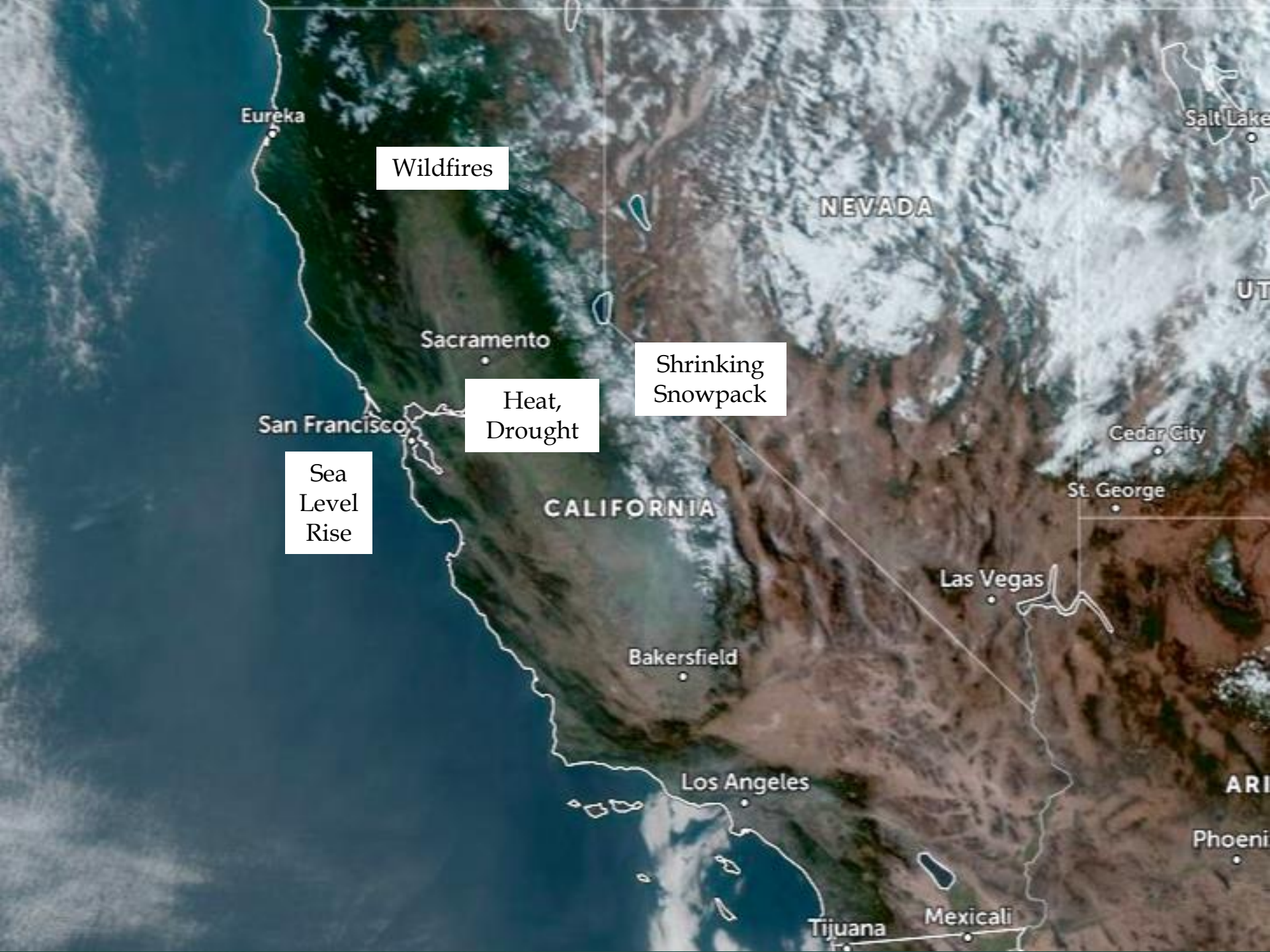
Dana Nuccitelli *environmental scientist & climate journalist*

Dr. Helene Margolis *epidemiologist UC Davis*

Jeff Williams *air pollution specialist, CARB*

Who is this guy?

- B.A. in Astrophysics from UC Berkeley, 2003
- M.S. in Physics from UC Davis, 2005
- Environmental Scientist and Risk Assessor working at McClellan Business Park since 2006
- Climate journalist for SkepticalScience.com (since 2010), The Guardian (since April 2013), Yale Climate Connections (since October 2018)
- NCSE 2016 Friends of the Earth award winner
- Author of 10 peer-reviewed climate science papers
- Author of Climatology versus Pseudoscience
- Citizens' Climate Lobby Sacramento Chapter member, national Science Team Lead



Wildfires

Shrinking
Snowpack

Heat,
Drought

Sea
Level
Rise

Eureka

Sacramento

San Francisco

CALIFORNIA

NEVADA

Salt Lake

UT

Cedar City

St. George

Las Vegas

Bakersfield

Los Angeles

ARI

Phoeni

Tijuana

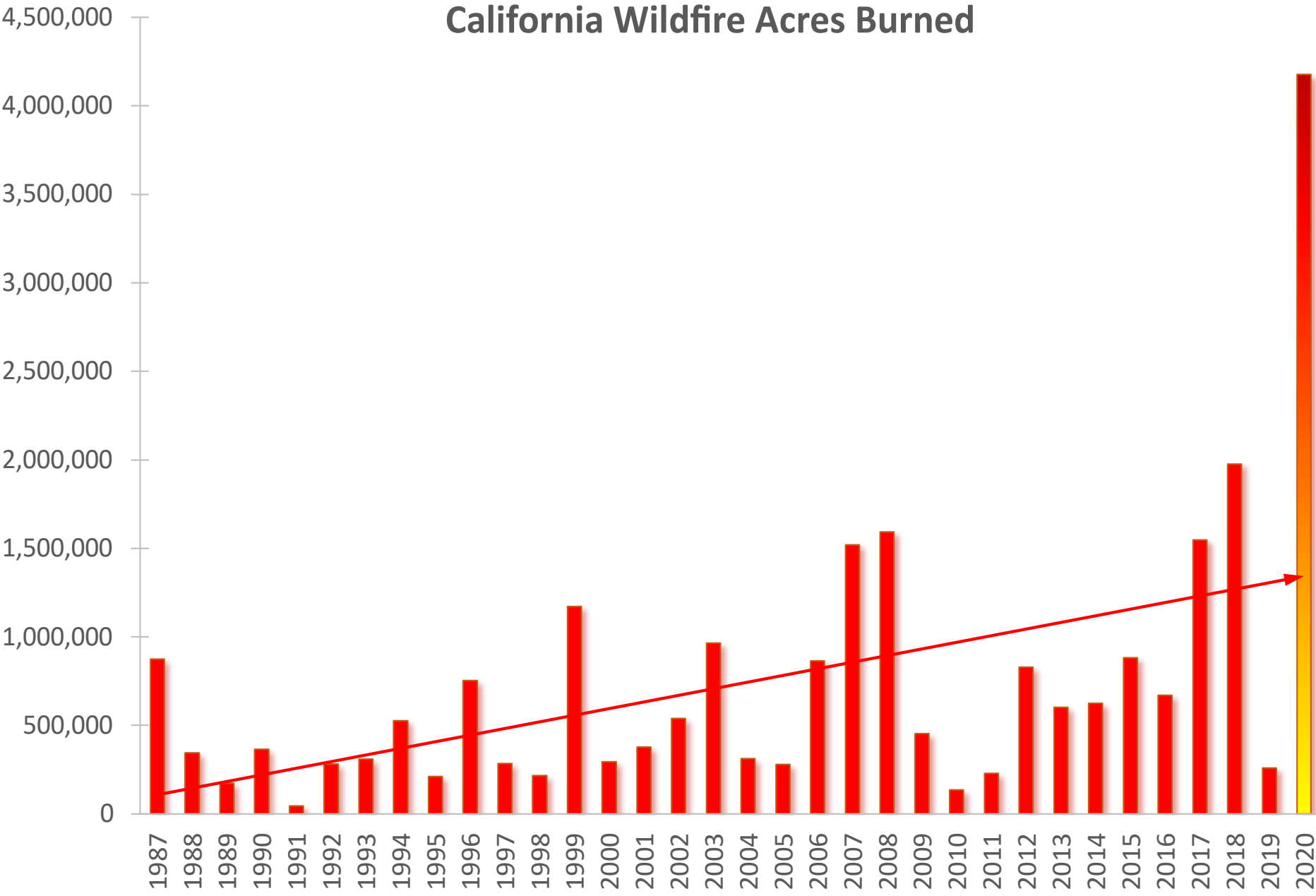
Mexicali

Let's Talk About Wildfires

Top 20 Largest California Wildfires

	<i>FIRE NAME (CAUSE)</i>	<i>DATE</i>	<i>COUNTY</i>	<i>ACRES</i>	<i>STRUCTURES</i>	<i>DEATHS</i>
1	AUGUST COMPLEX (<i>Under Investigation</i>)*	August 2020	Mendocino, Humboldt, Trinity, Tehama, Glenn, Lake, & Colusa	1,032,649 !!	935	1
2	MENDOCINO COMPLEX (<i>Under Investigation</i>)	July 2018	Colusa, Lake, Mendocino & Glenn	459,123	280	1
3	SCU LIGHTNING COMPLEX (<i>Under Investigation</i>)*	August 2020	Stanislaus, Santa Clara, Alameda, Contra Costa, & San Joaquin	396,624	222	0
4	CREEK FIRE (<i>Under Investigation</i>)*	September 2020	Fresno & Madera	377,693	853	0
5	LNU LIGHTNING COMPLEX (<i>Under Investigation</i>)*	August 2020	Sonoma, Lake, Napa, Yolo & Solano	363,220	1,491	6
6	NORTH COMPLEX (<i>Under Investigation</i>)*	August 2020	Butte, Plumas & Yuba	318,930	2,352	15
7	THOMAS (<i>Powerlines</i>)	December 2017	Ventura & Santa Barbara	281,893	1,063	2
8	CEDAR (<i>Human Related</i>)	October 2003	San Diego	273,246	2,820	15
9	RUSH (<i>Lightning</i>)	August 2012	Lassen	271,911 CA / 43,666 NV	0	0
10	RIM (<i>Human Related</i>)	August 2013	Tuolumne	257,314	112	0
11	ZACA (<i>Human Related</i>)	July 2007	Santa Barbara	240,207	1	0
12	CARR (<i>Human Related</i>)	July 2018	Shasta County & Trinity	229,651	1,614	8
13	MATILJA (<i>Undetermined</i>)	September 1932	Ventura	220,000	0	0
14	WITCH (<i>Powerlines</i>)	October 2007	San Diego	197,990	1,650	2
15	KLAMATH THEATER COMPLEX (<i>Lightning</i>)	June 2008	Siskiyou	192,038	0	2
16	MARBLE CONE (<i>Lightning</i>)	July 1977	Monterey	177,866	0	0
17	LAGUNA (<i>Powerlines</i>)	September 1970	San Diego	175,425	382	5
18	SQF COMPLEX (<i>Lightning</i>)	August 2020	Tulare	170,384	228	0
19	BASIN COMPLEX (<i>Lightning</i>)	June 2008	Monterey	162,818	58	0
20	DAY FIRE (<i>Human Related</i>)	September 2006	Ventura	162,702	11	0

California Wildfire Acres Burned



The Ghost of Summer Yet to Come

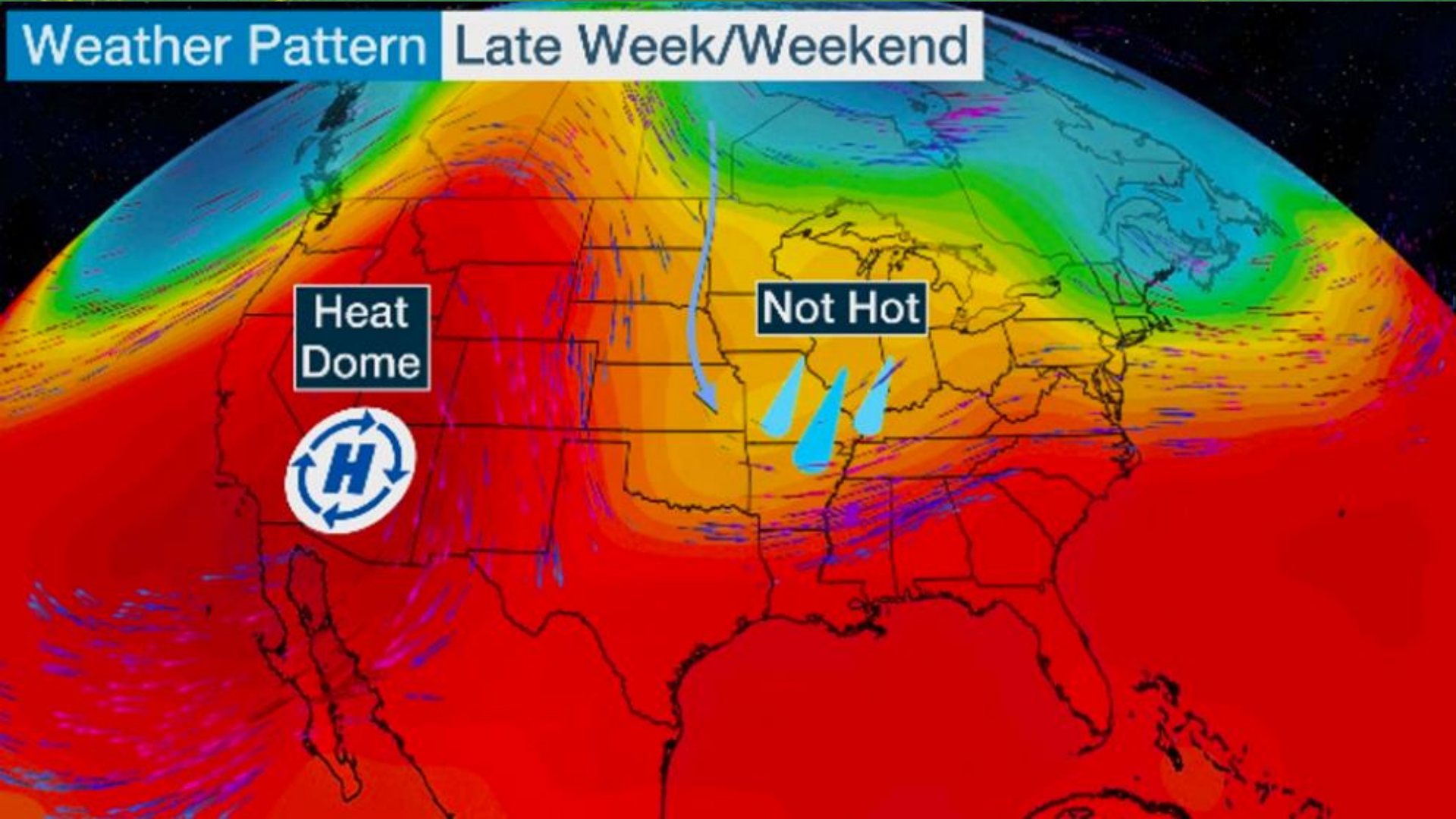


The Ghost of Summer Yet to Come



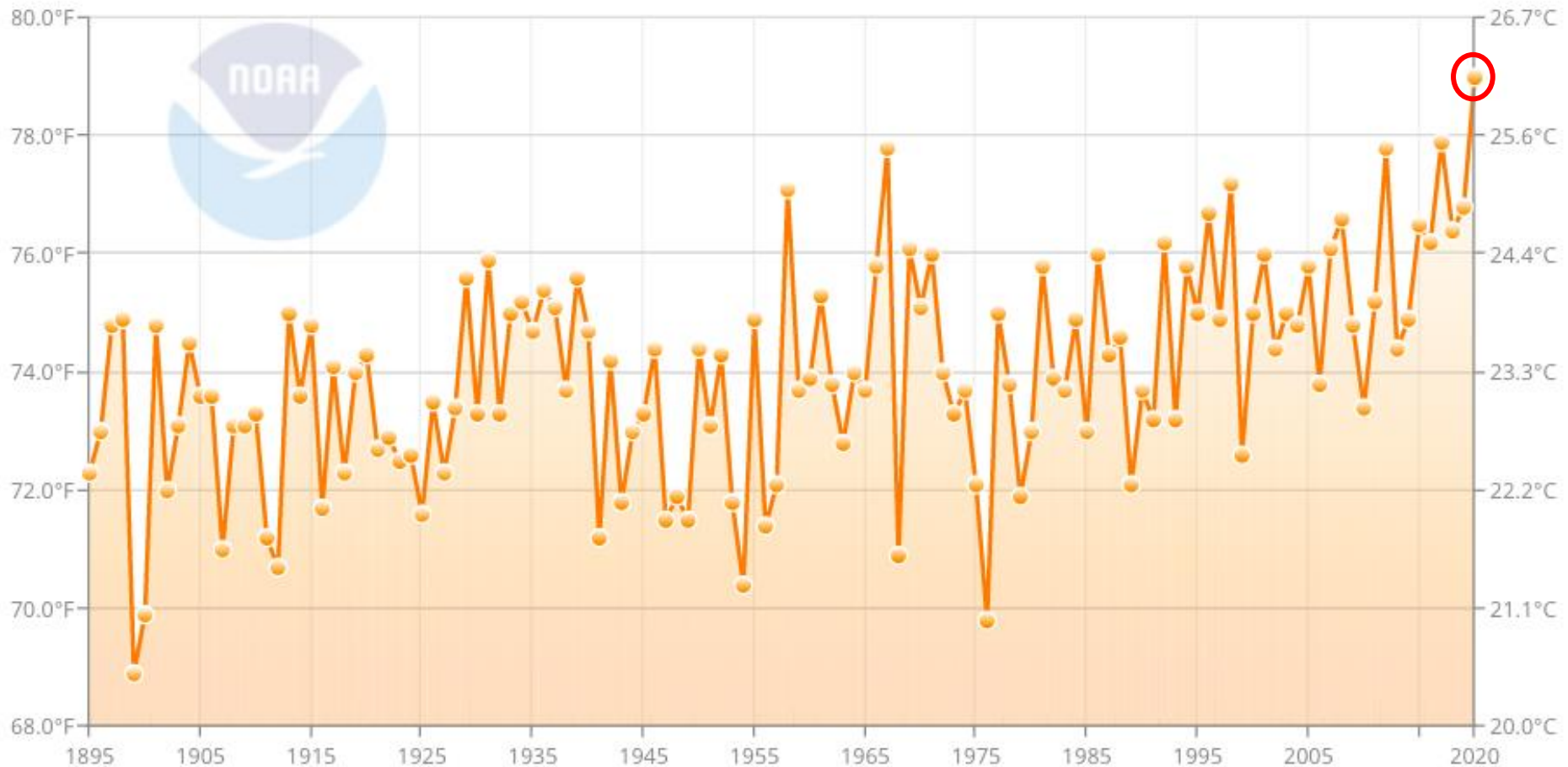
What Happened in August 2020? The Perfect Storm

Weather Pattern Late Week/Weekend



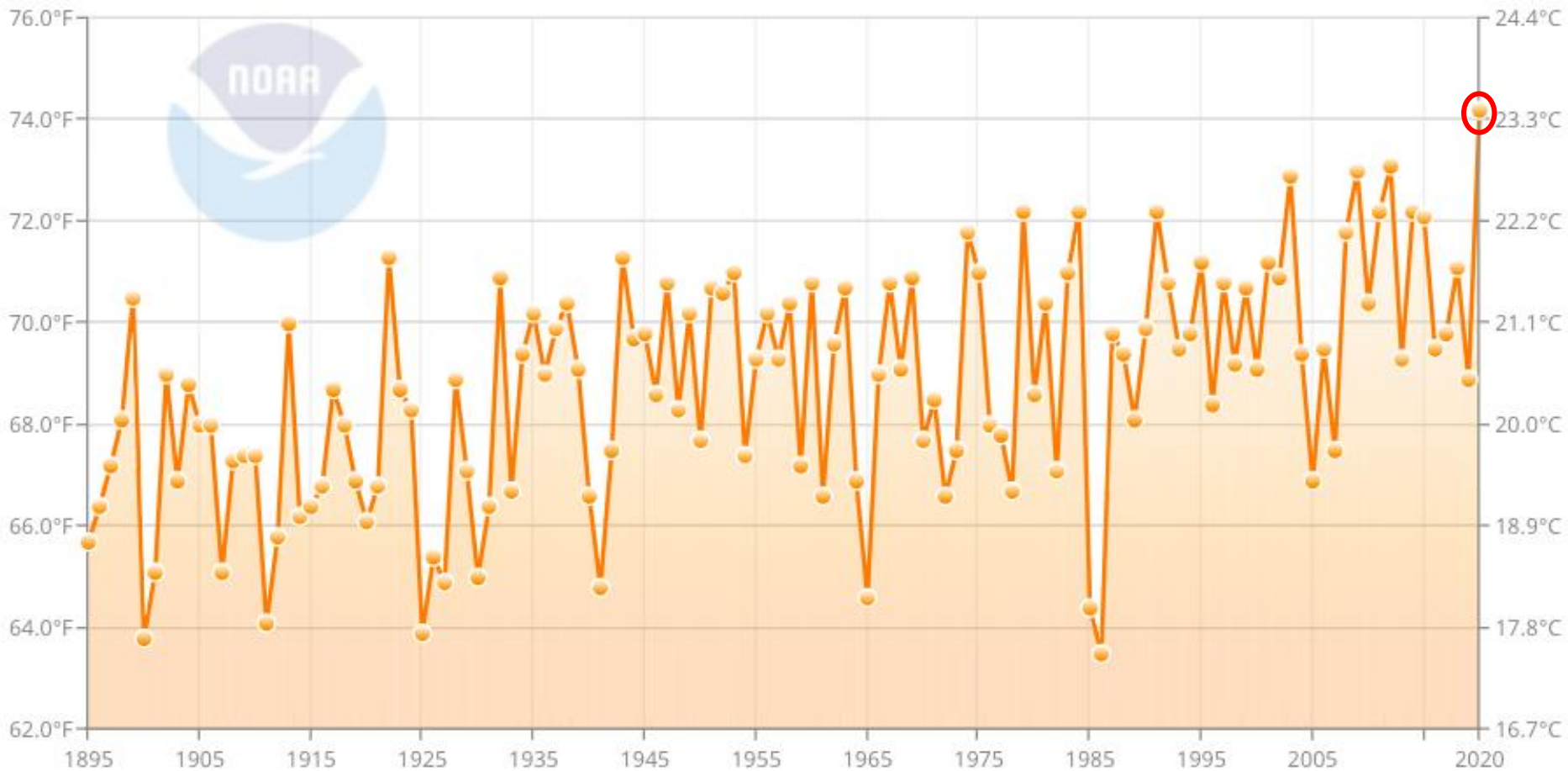
California's Hottest August on Record

California Average Temperature
August



California's Hottest September on Record

California Average Temperature
September



Heat Dome Coincided with Tropical Storm Fausto

W

TROPICAL STORM FAUSTO

WINDS:
40 MPH

PRESSURE:
1004 MB

MOVEMENT:
NW 15 MPH

LOCATION:
20.7 N 119.6 W

TS

Baja
California
mexico

Mexico

8/16/20

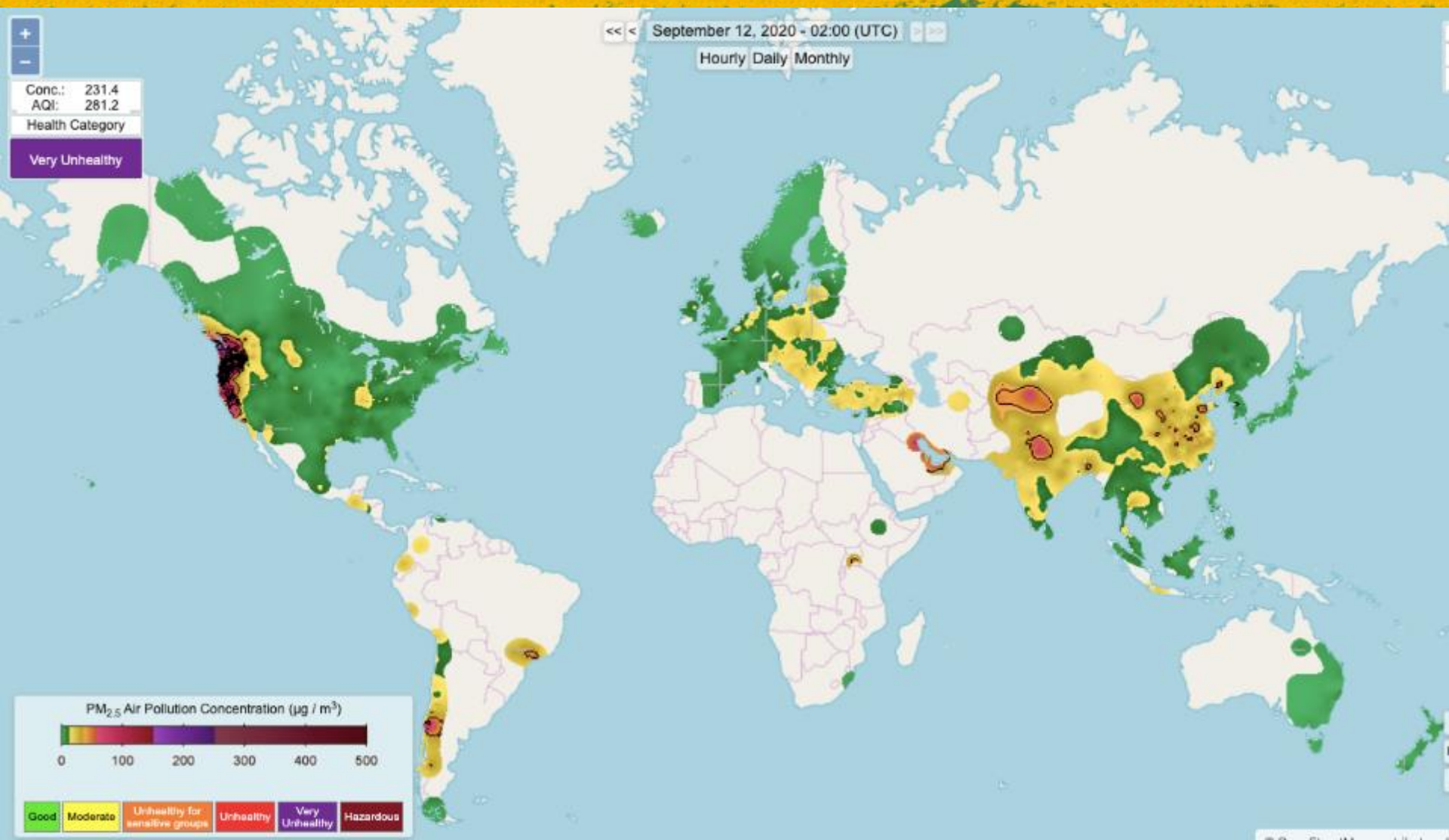
ISSUED BY NHC SUN 0800 AM

8/16/20

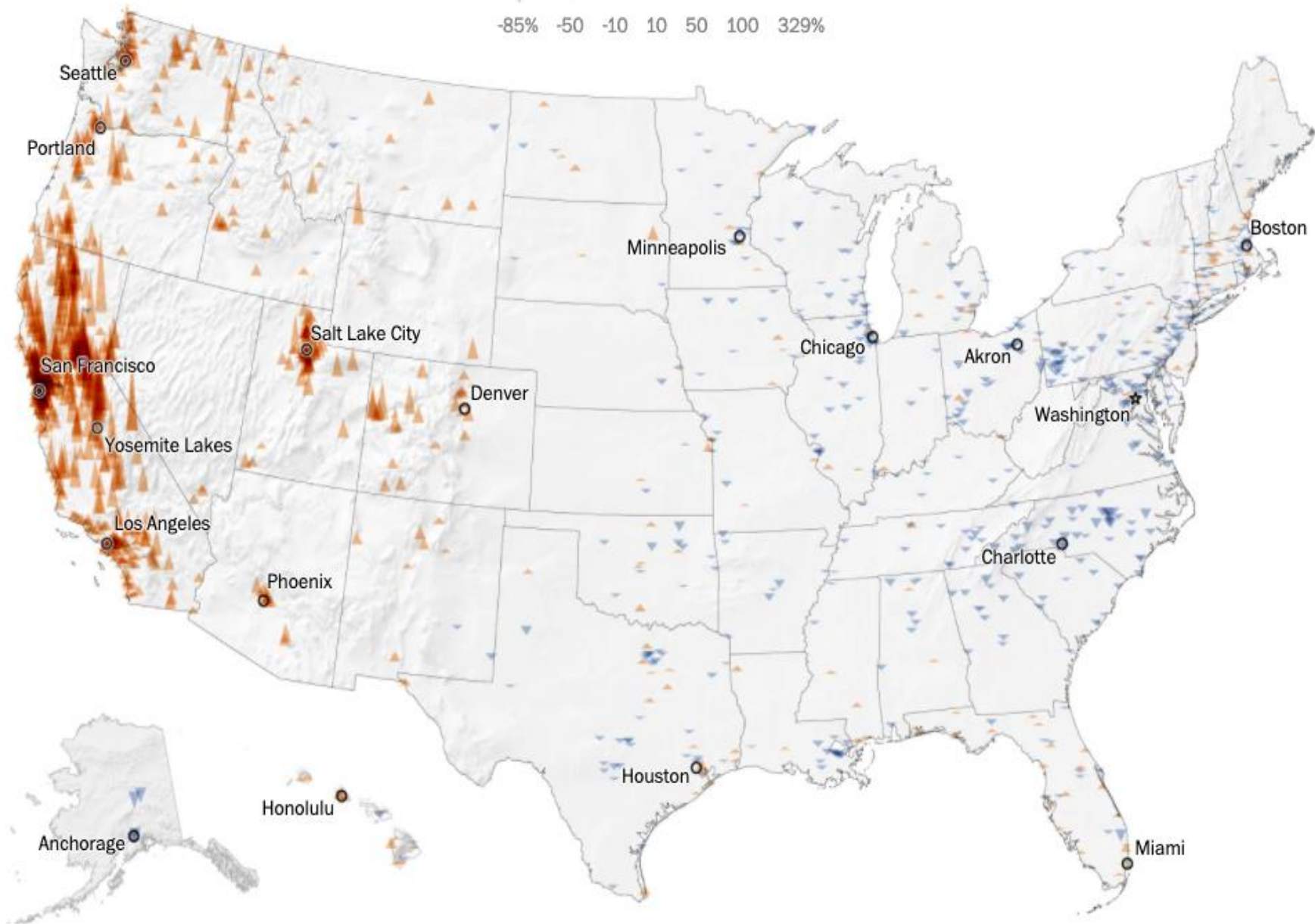


Craig Nole
PHOTOGRAPHY

Worst Air Quality in the World, Again



Change in pollution levels from 2019-2020



Wildfire Smoke 5x Worse for Health



ARTICLE



<https://doi.org/10.1038/s41467-021-21708-0>

OPEN

Wildfire smoke impacts respiratory health more than fine particles from other sources: observational evidence from Southern California

Rosana Aguilera ^{1,3}✉, Thomas Corringham ^{1,3}, Alexander Gershunov¹ & Tarik Benmarhnia^{1,2}

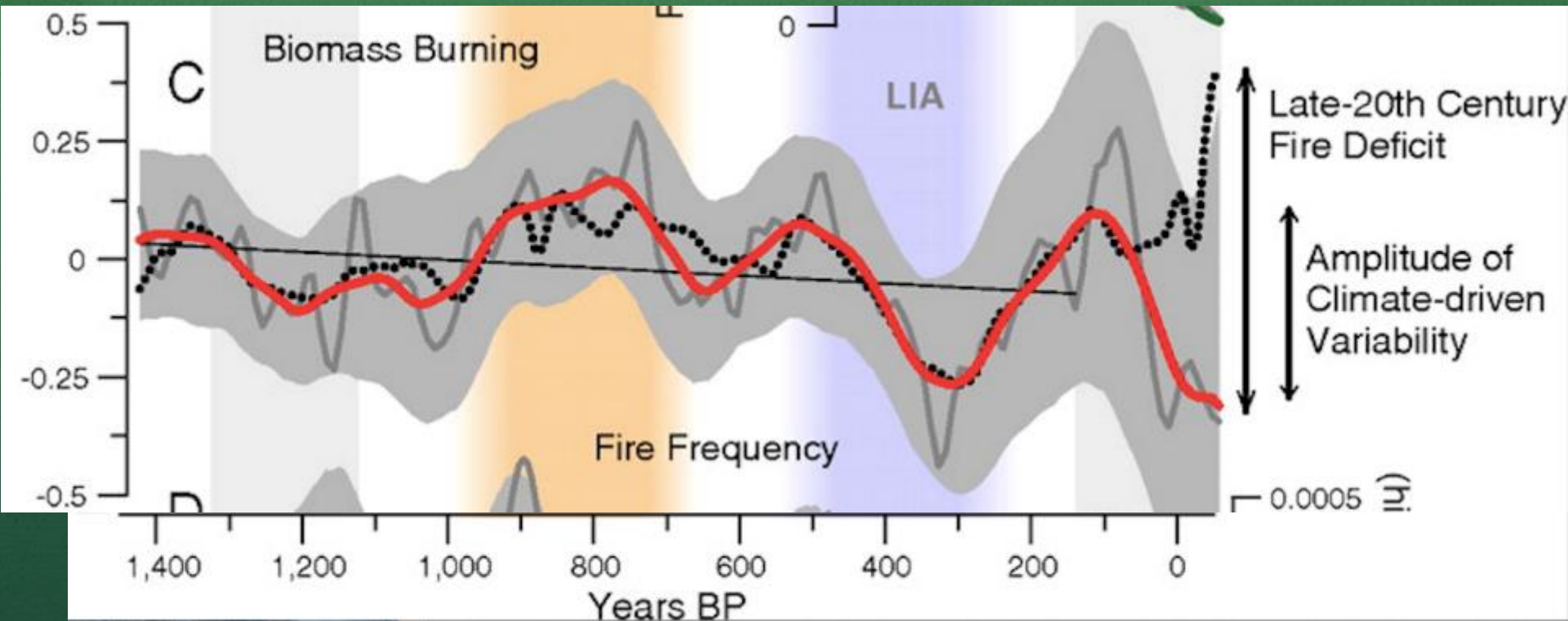
Wildfires and Science are Not Partisan



▶ MICHAEL SHELLINGER | "APOCALYPSE NEVER" AUTHOR
ENVIRONMENTALIST: FIRES ARE THE RESULT OF FOREST
MISMANAGEMENT & THE BUILD UP OF WOOD FUEL

EXECUTIVE BRANCH'S CONSTITUTIONAL RESPONSIBILITY TO COUNT THE WHOLE NUMBER OF PERSONS IN

Excessive Fire Suppression



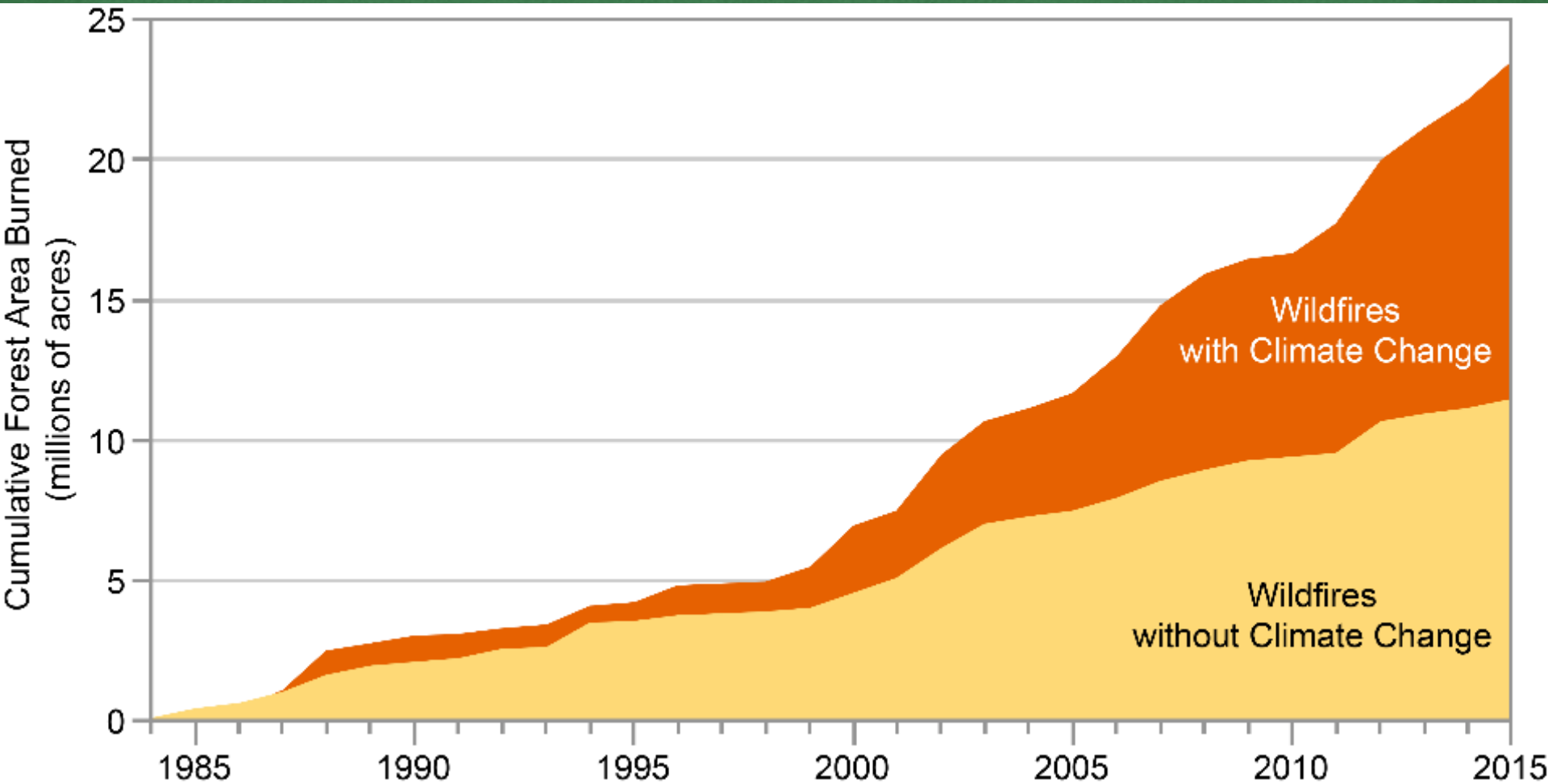
From the 2018

National Climate Assessment Report

“the area burned by wildfire from 1984 to 2015 was twice what would have burned had climate change not occurred. Furthermore, the area burned from 1916 to 2003 was more closely related to climate factors than to fire suppression, local fire management, or other non-climate factors.

Climate change has driven the wildfire increase, particularly by drying forests and making them more susceptible to burning.”

From the 2018 National Climate Assessment Report



Timely CA Wildfire Study by the Foremost Experts

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Climate change is increasing the likelihood of extreme autumn wildfire conditions across California

Michael Goss^{1,10} , Daniel L Swain^{2,3,4} , John T Abatzoglou^{5,6} , Ali Sarhadi¹ , Crystal A Kolden^{5,7} ,
A Park Williams⁸  and Noah S Diffenbaugh^{1,9} 

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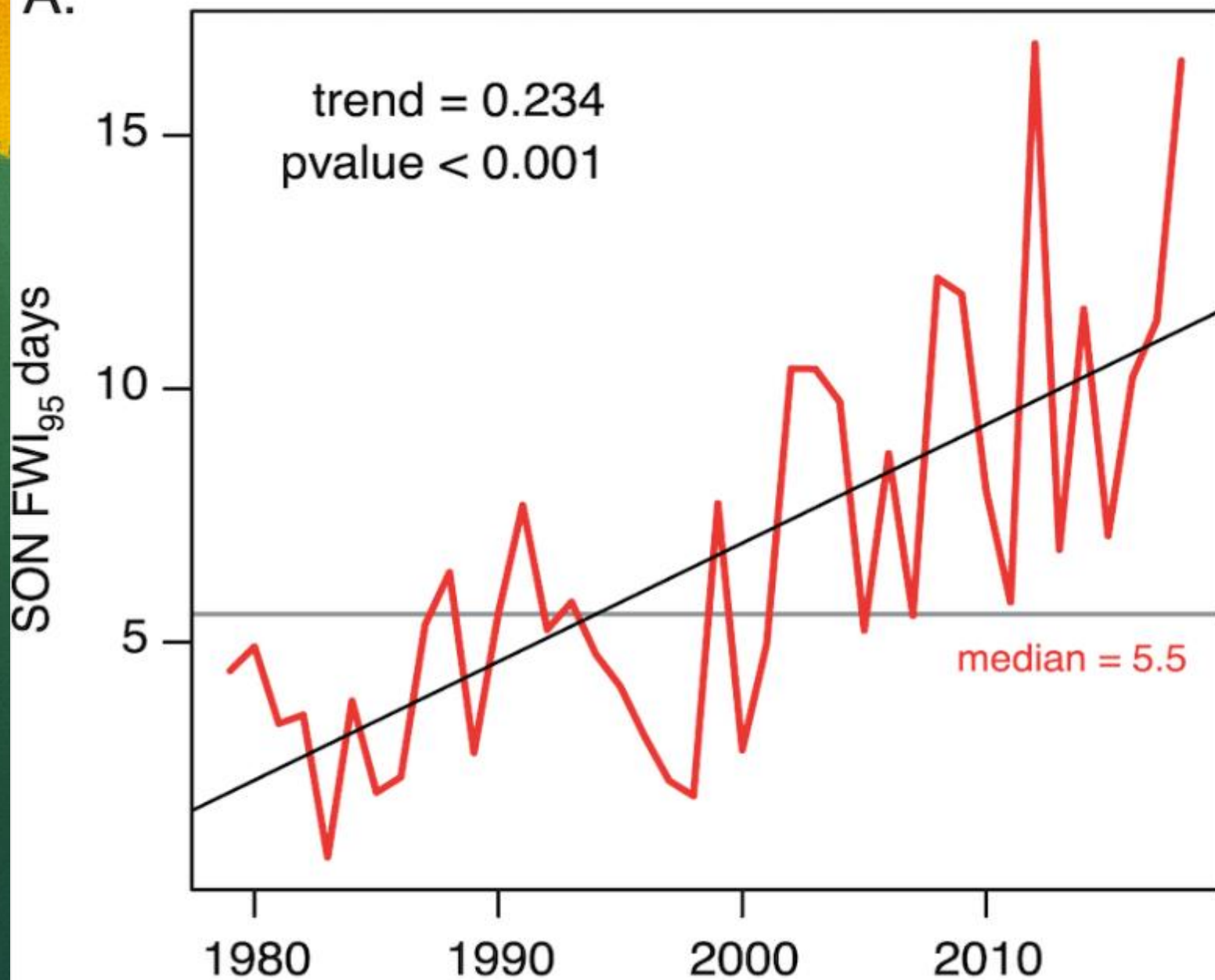
Turn on MathJax

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California Frequency of Autumn Days with mean FWI exceeding 95th percentile (FWI₉₅)

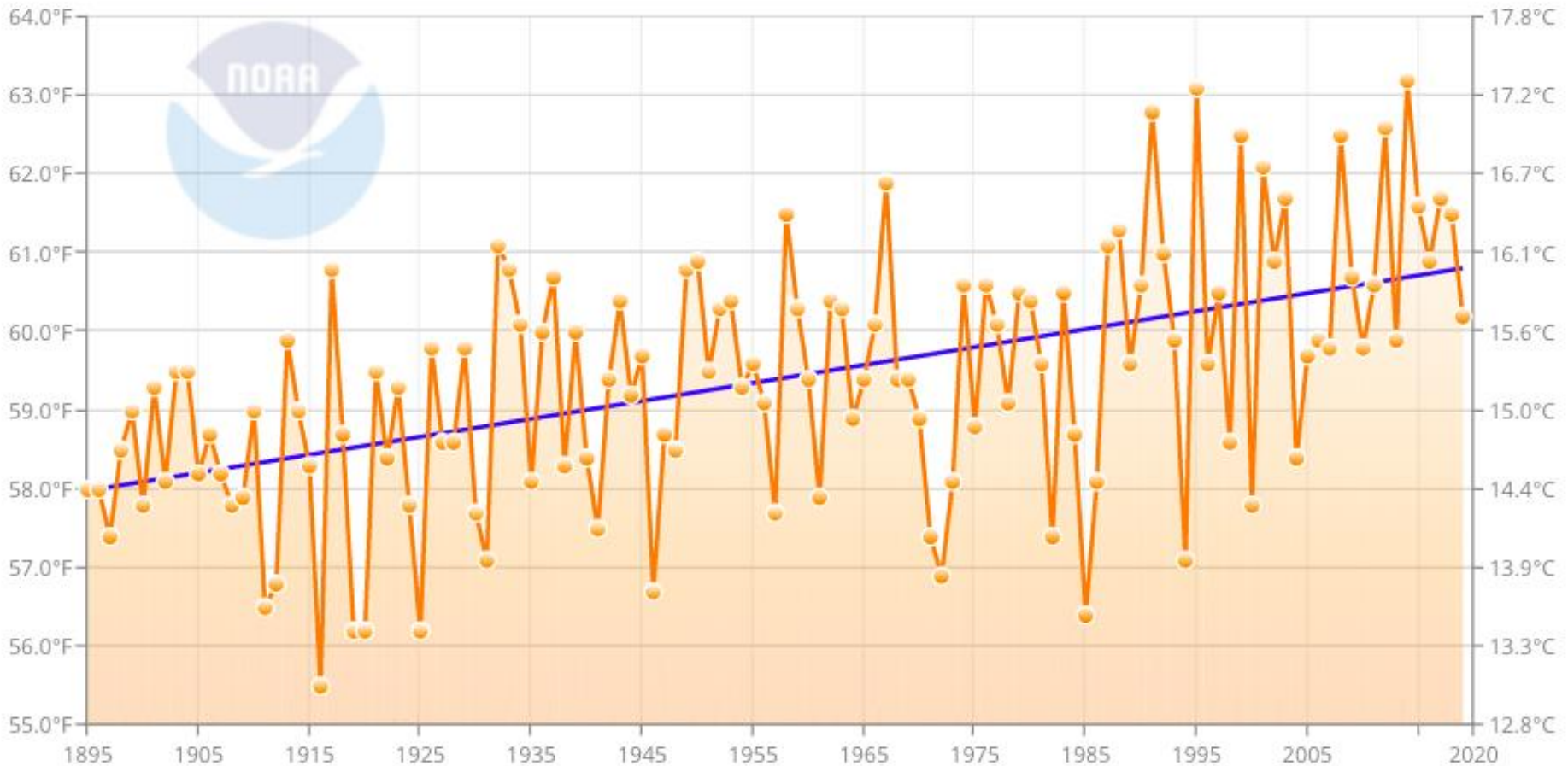
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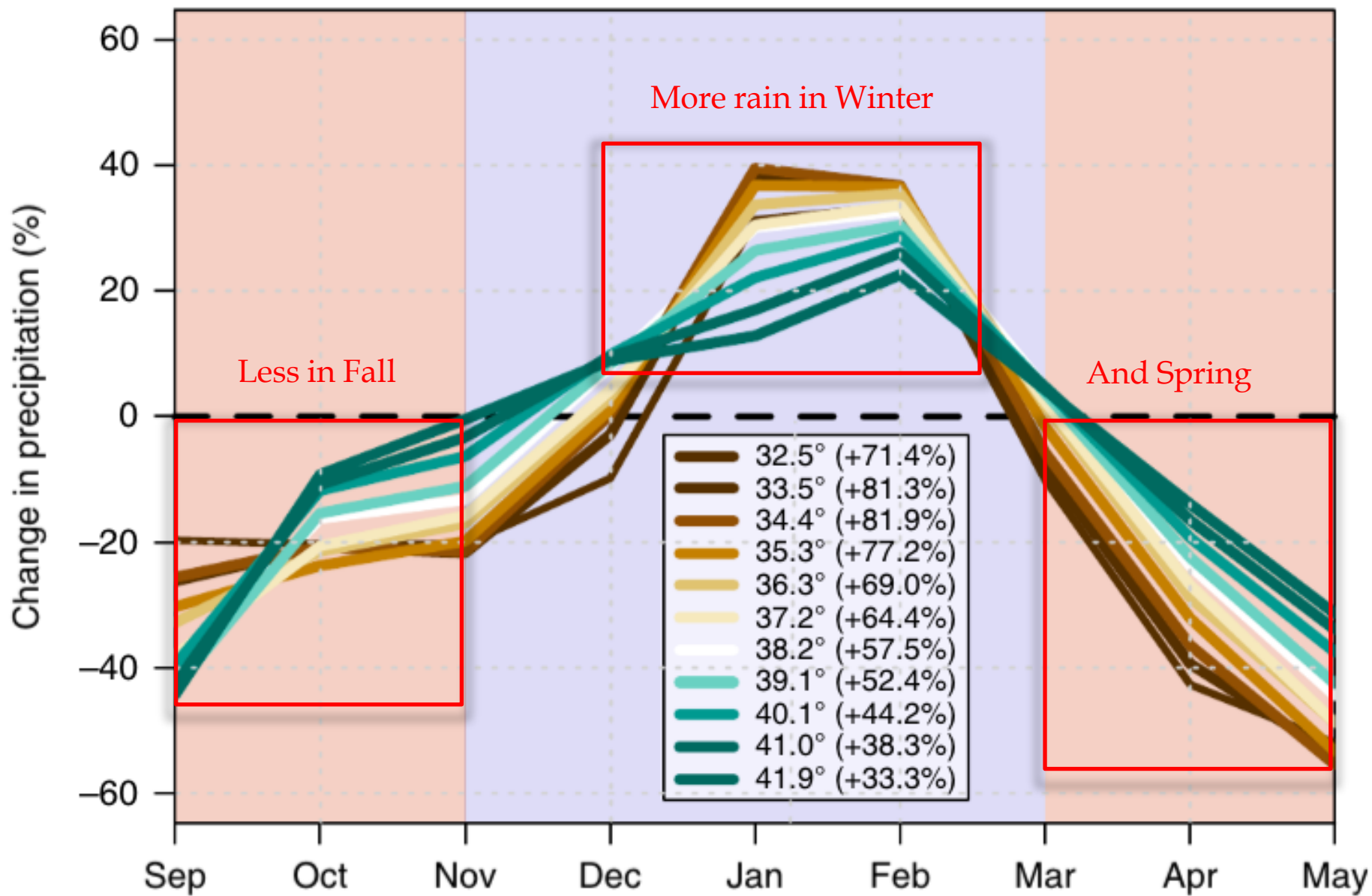
Factor #1: Rising Temperatures

California Average Temperature
September–November

— 1895–2019 Trend
(+0.2°F/Decade)



Factor #2: Less Autumn Rain

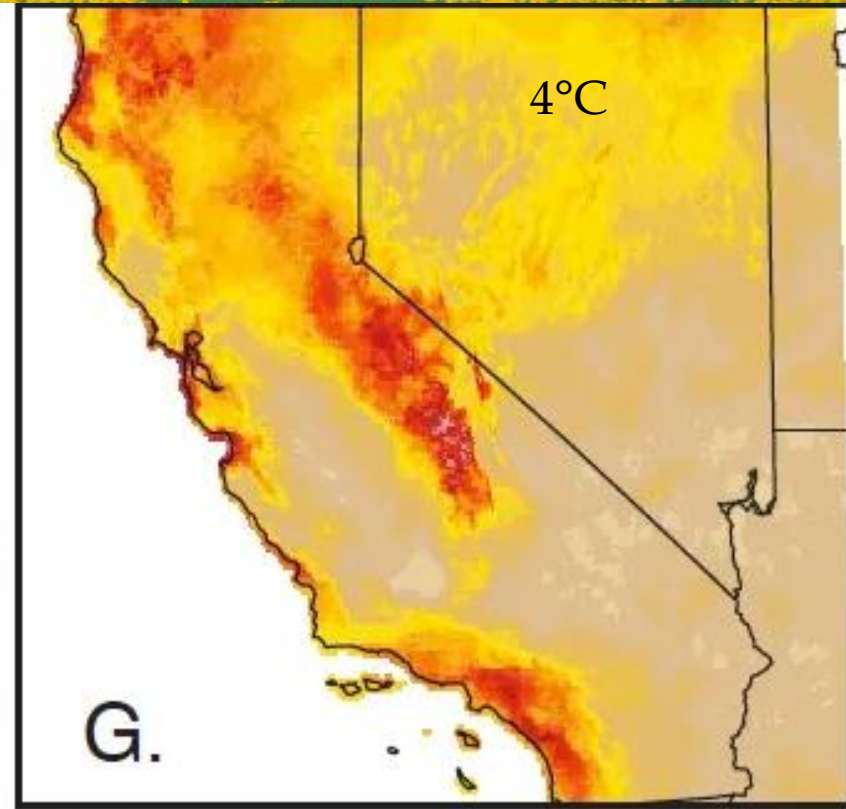
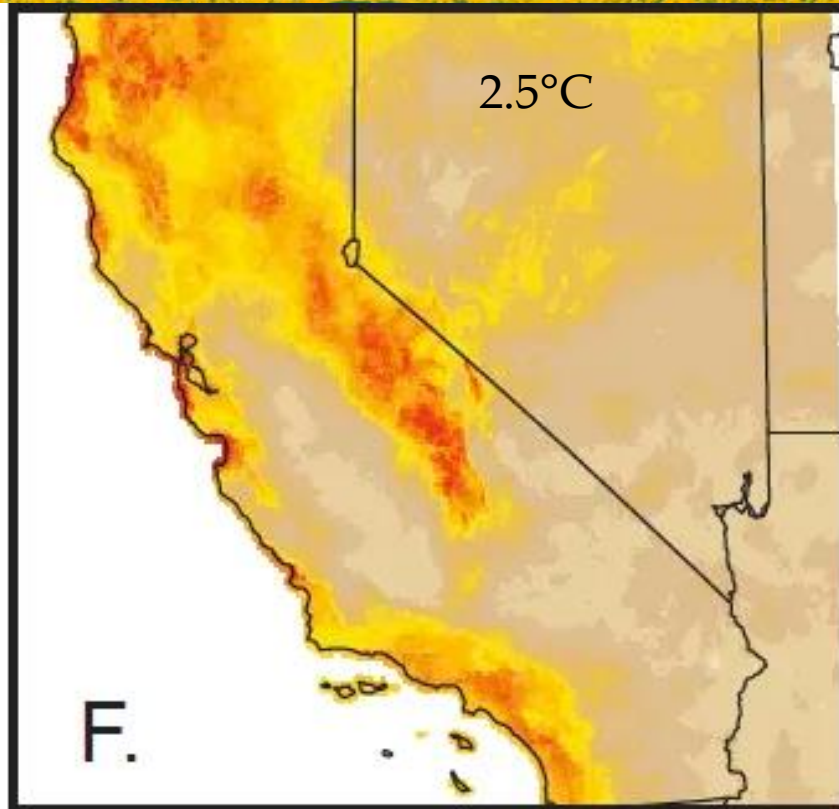


Climate Threat Multiplier

“Climate change can thus be viewed as a wildfire ‘threat multiplier’ amplifying natural and human risk factors that are already prevalent throughout California.”

What Does the Future Hold?

2066-2095



0 2 4 6 8 10 12 14 16 18 20

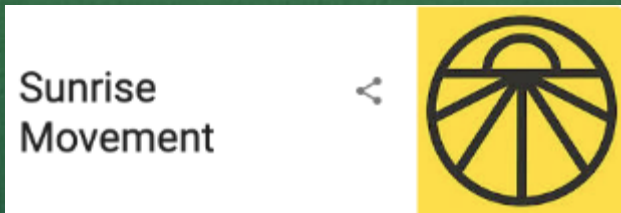
SON FWI₉₅ days/autumn

Let's Be Like Scrooge



What Can You Do?

- VOTE!!!
- Join a grassroots climate advocacy group



- Reduce your personal carbon footprint
 - Eat less meat (especially beef)
 - Use less energy
 - Burn less gasoline



Citizens' Climate Lobby

Dana Nuccitelli

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@dana1981