

# August Complex Wildfire Smoke Effects on Solar Power Production in California

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22 September 2023

Juliano et al.  
(2022, *Environ. Res. Letters*)

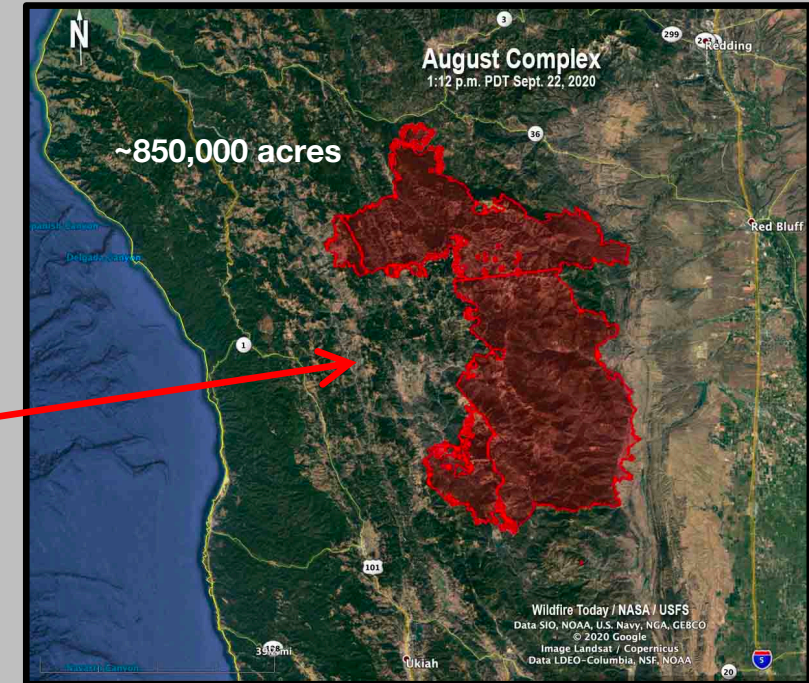
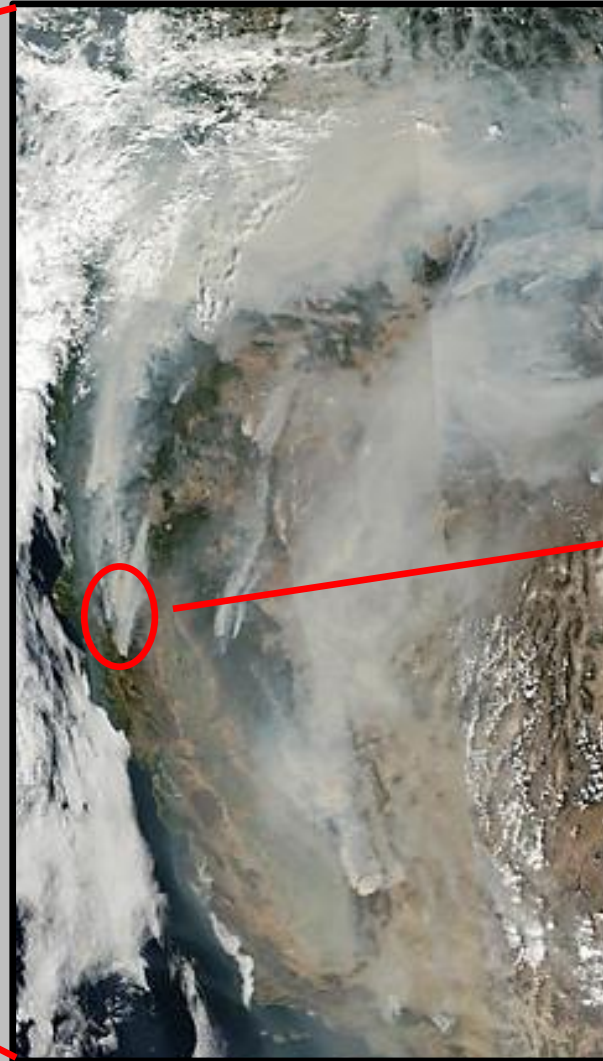
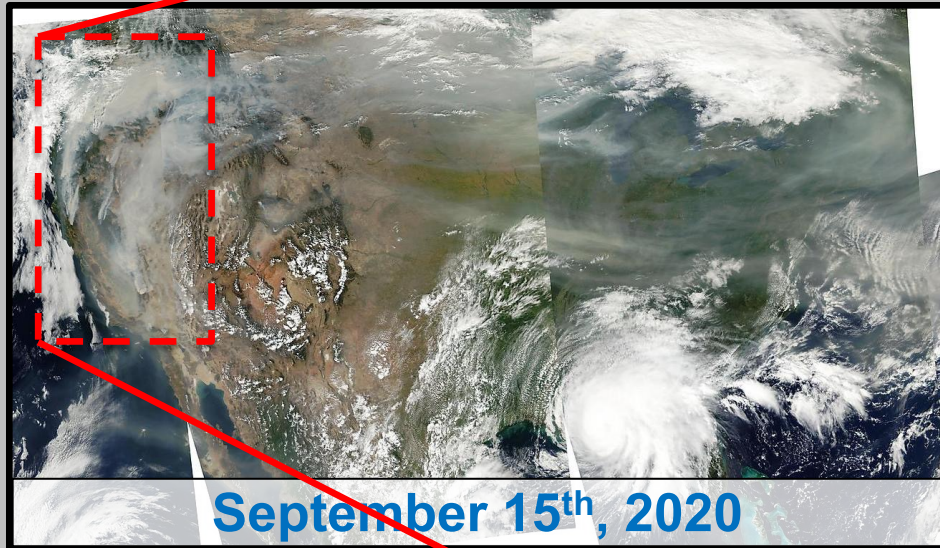


Collaborators: *Pedro A. Jiménez, Branko Kosović, Trude Eidhammer (NCAR), Gregory Thompson (JCSDA), Larry K. Berg and Jerome Fast (PNNL), Amber Motley (CAISO), Andrea Polidori (SCAQMD)*





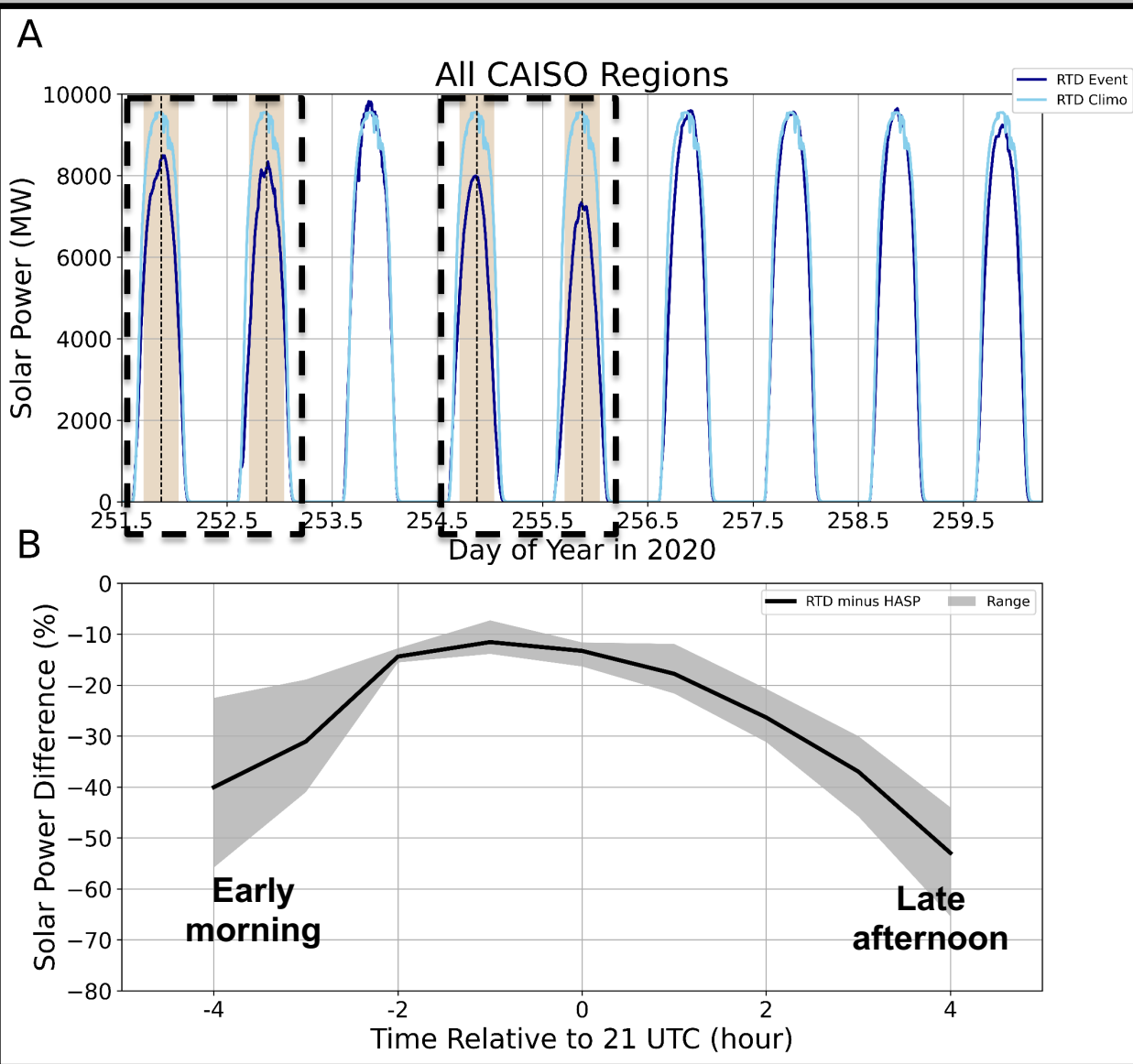
# 2020 August Complex in California



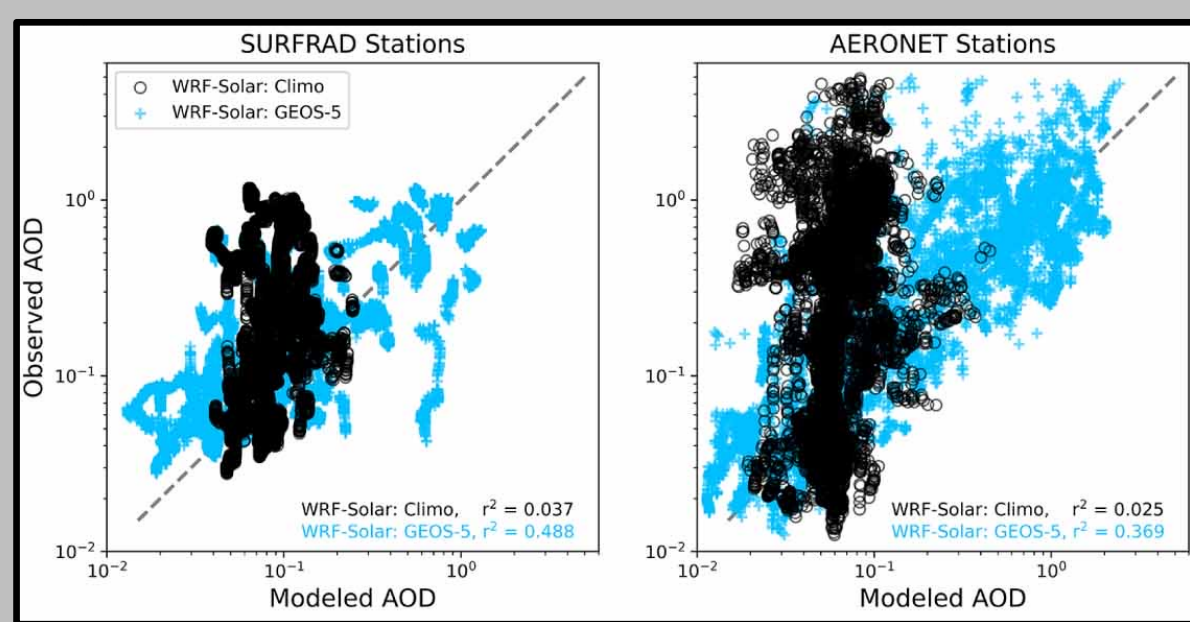
Wildfire Today: <https://wildfiretoday.com/2020/09/22/august-complex-of-fires-in-northern-california-has-burned-846000-acres/>

# Why do we care about wildfire smoke?

- Air quality deterioration → health detriment
- Attenuation of shortwave radiation → reduction in solar energy production

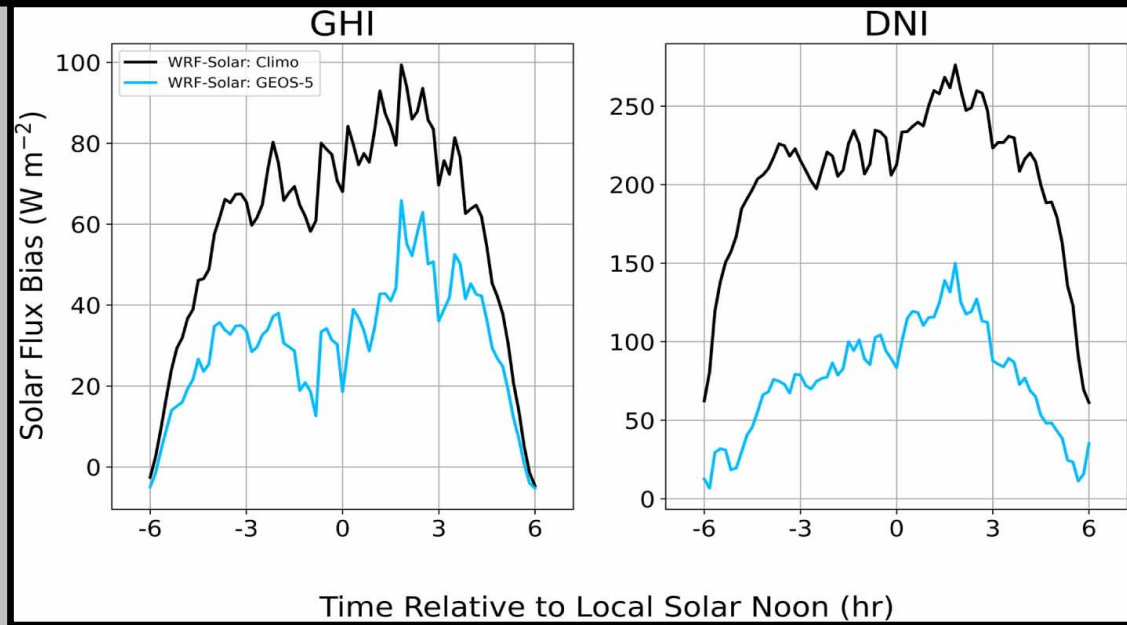






**Aerosol loading is more accurately captured by WRF-Solar when:**

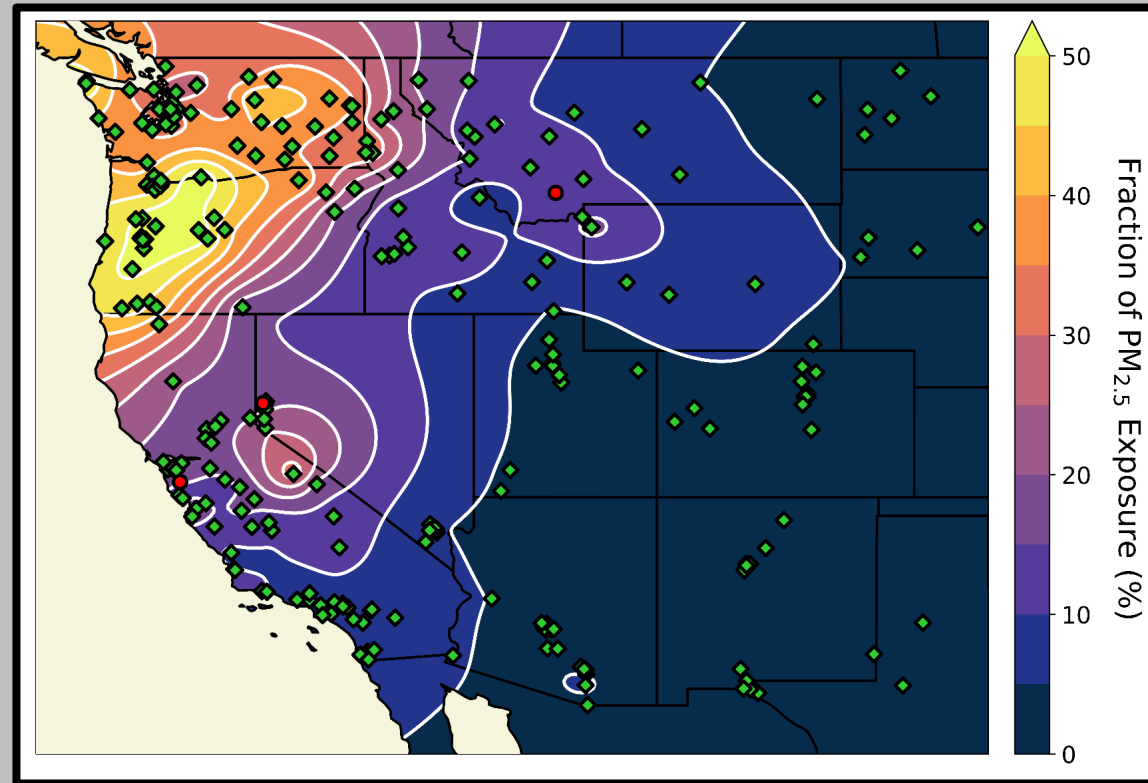
- 1) using a realistic aerosol forcing dataset that relies on satellites and**
- 2) including the absorbing effects of black carbon**



**WRF-Solar forecast improves by ~50%**

\*Across all SURFRAD and SOLRAD sites from 7–16 September 2020

# Thank you!



**Fraction of yearly PM<sub>2.5</sub> exposure attributed to  
9-day period (7–16 September 2020)**

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