

## Saliency & Wildfire

### Award Year:

2014

### Principal Investigator:

Andrew Plantinga, University of California, Santa Barbara

Naomi Tague, University of California, Santa Barbara

### Associated Program:

[Data-Intensive Analysis and/or Modeling for Socio-Environmental Synthesis](#) [1]

### Collaborative Site:

[Group Collaboration](#) [2]

### Email List:

[saliencywildfire@lists.sesync.org](mailto:saliencywildfire@lists.sesync.org) [3]

### Email List Archives:

[List Archive](#) [4]

The current multi-year drought in the western U.S. highlights the increasing challenges posed by wildfires. While science in the past decades has substantially improved our understanding of wildfire as an integral part of ecosystems, questions remain about how fire, human actions, climate, and ecosystem responses co-evolve. As more people are exposed to fires and fire risk, these linkages between human actions to mitigate fire risk and the environmental consequences of fire increase. We hope to develop a new approach to examine the complex linkage among fire management actions such as fuels treatments, fire risk, and post-fire effects, including risks to water resources and other ecosystem services. We use saliency theory, which predicts that management actions will be more responsive to salient wildfire events, to guide data-driven analysis of previous public fire management decisions. We then link these results to a spatial model of ecosystem dynamics, hydrology, and fire risk. We employ state-of-the-art software engineering techniques to develop and evaluate this model by integrating extensive biophysical, climate, and management datasets. We also take advantage of new approaches for presenting results of complex modeling to stakeholders, including resource managers and the public. We work closely with COMPASS, an organization that focuses on science communication, and a visual artist to help translate model results into intuitive graphics of multi-directional relationships that underlie fire risk. Results of this work will improve our understanding of wildfire risk and more importantly present information that can help managers more effectively target limited management resources.

### Media Coverage:

SESYNC Research-in-Action Series:

[Computer models aren't playing with fire](#) [5] (Science Node)

[Scientific Simulations in Stream and Ecosystem Synergies](#) [6] (People Behind the Science Podcast)

[Dying California forests offer a glimpse into climate change](#) [7] (CBC News)

**Participants:**

Sarah Anderson, University of California, Santa Barbara

Ryan Bart, University of California, Santa Barbara

Jude Bayham, Yale University

Patricia Champ, USDA Forest Service

Janet Choate, University of California, Santa Barbara

Heather Hodges, University of California, Santa Barbara

Matthew Hurteau, University of New Mexico

Maureen Kennedy, University of Washington

Shawn McCoy, University of Pittsburgh

Brian Miles, University of North Carolina at Chapel Hill

Max Moritz, University of California, Berkeley

Antoine Randolph, City University of New York

Ethan Turpin, University of California, Santa Barbara

Randall Walsh, University of Pittsburgh

Matthew Wibbenmeyer, University of California, Santa Barbara

William Burke, UC Santa Barbara

Maureen Kennedy, University of Washington, Tacoma

Wendy Meiring, University of California, Santa Barbara

---

**Source URL:**

<https://www.sesync.org/project/data-intensive-analysis-and-or-modeling-for-socio-environmental-synthesis/salience-wildfire>

**Links**

[1] <https://www.sesync.org/opportunities/data-modeling-ses-2>

[2] <https://collab.sesync.org/groups/saliencewildfire>

[3] <mailto:saliencewildfire@lists.sesync.org>

[4] <https://lists.sesync.org>

[5] <https://scienode.org/feature/computer-models-arent-playing-with-fire.php>

[6] <http://www.peoplebehindthescience.com/?s=tague>

[7] <http://www.cbc.ca/news/technology/dying-california-forests-offer-a-glimpse-into-climate-change-1.3187672>