Climate Change and the Future of California's Fire Seasons

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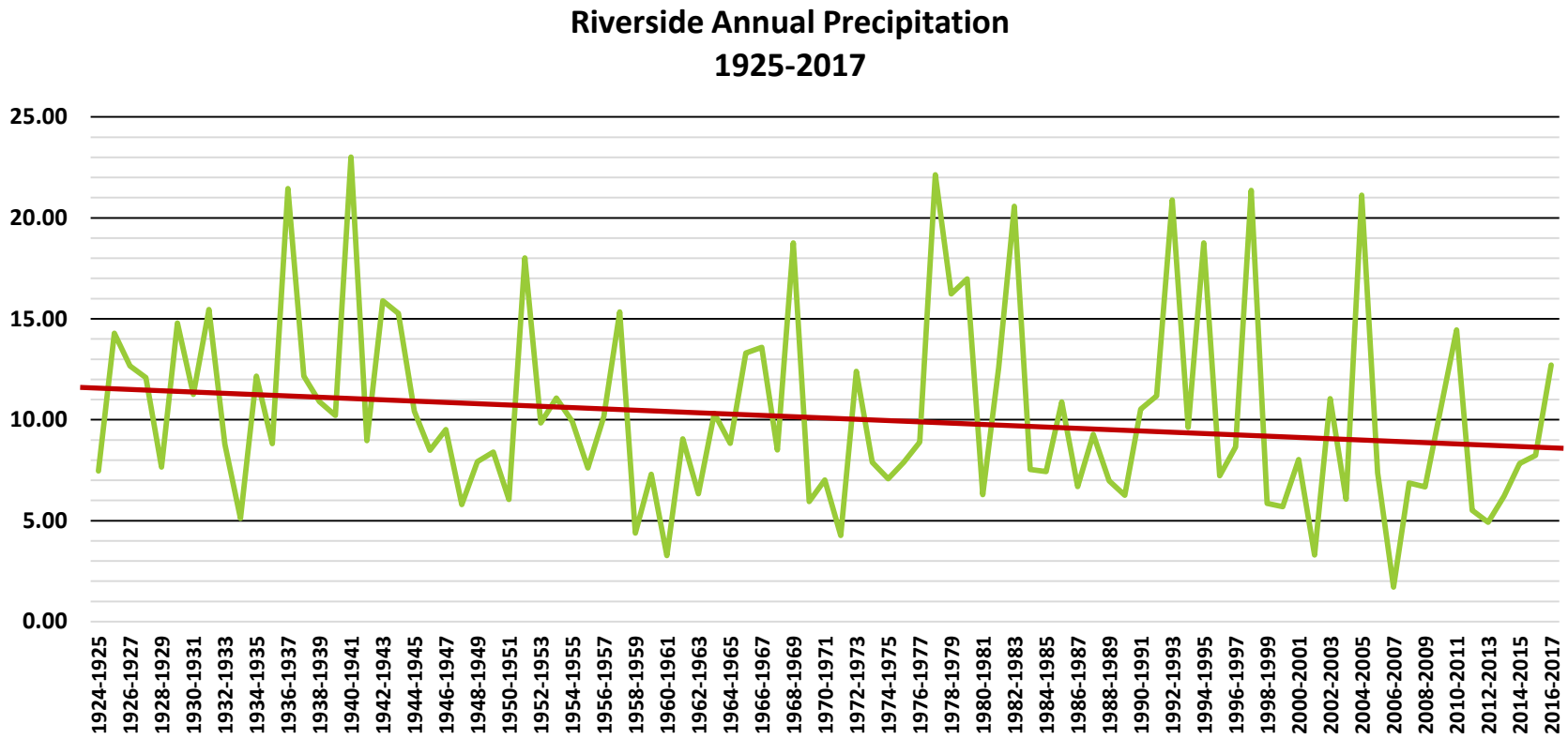
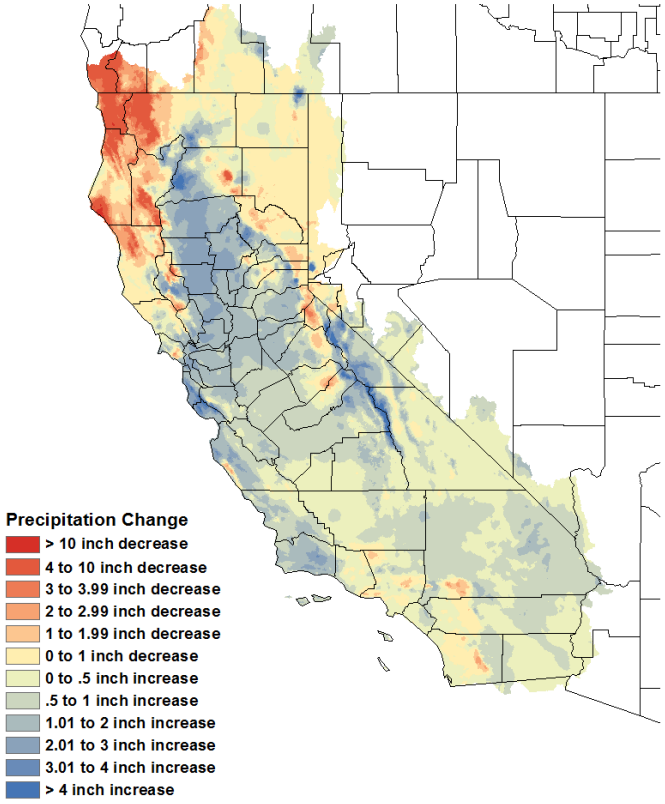
Our Climate is Changing

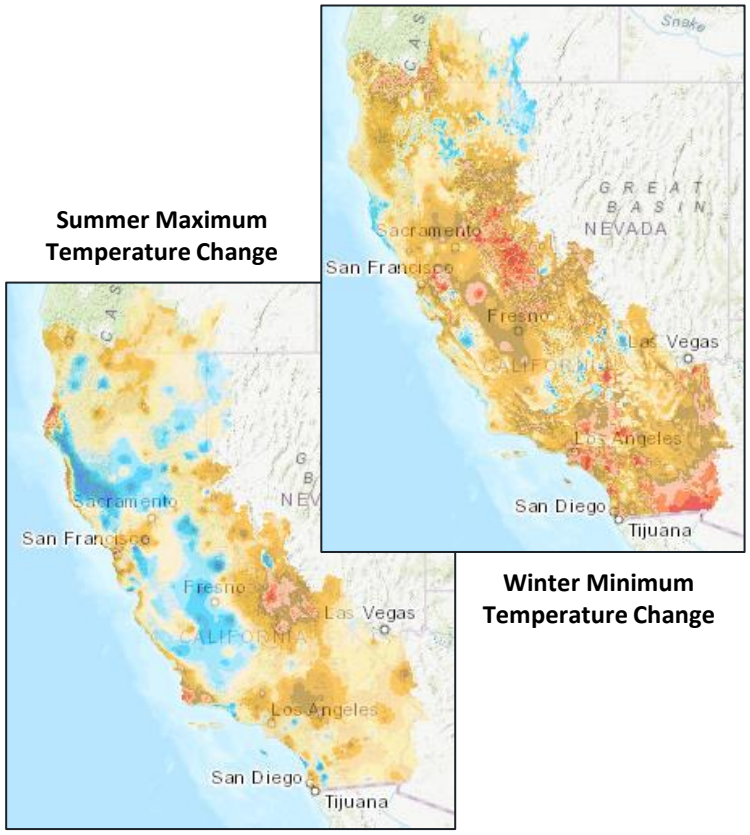


Our Climate is Changing

Historical Change in Precipitation (1951-1980 to 1981-2010)



Summer Maximum Temperature Change



Winter Minimum Temperature Change

A Few Things About Future Climate Projections

There are at least 30 statistically downscaled global circulation climate models which contain a high degree of variability.

For the sake of simplicity, the climate projections shown here use an ensemble approach containing 10 model members.

Change of Mean Projected Annual Total Precipitation for 2016-2075

Wetter

Drier

Overall, much of Southern and Central California is projected to be drier, while the northern half of the state is expected to be wetter in the coming decades.

Change of Mean Projected Precipitation (April/May/June) for 2016-2075

Wetter

Drier

Climate models suggest the spring months will be drier over Southeast California and wetter over much of Northern and Central California

Change of Mean Projected Precipitation (Sep/Oct/Nov) for 2016-2075

Wetter

Drier

Climate models predict the fall months to be drier over Southern and Central California and wetter over much of Northern California

Change of Mean Projected Annual Max/Min Temperature for 2016-2075

Mean Maximum Temperature

Mean Minimum Temperature

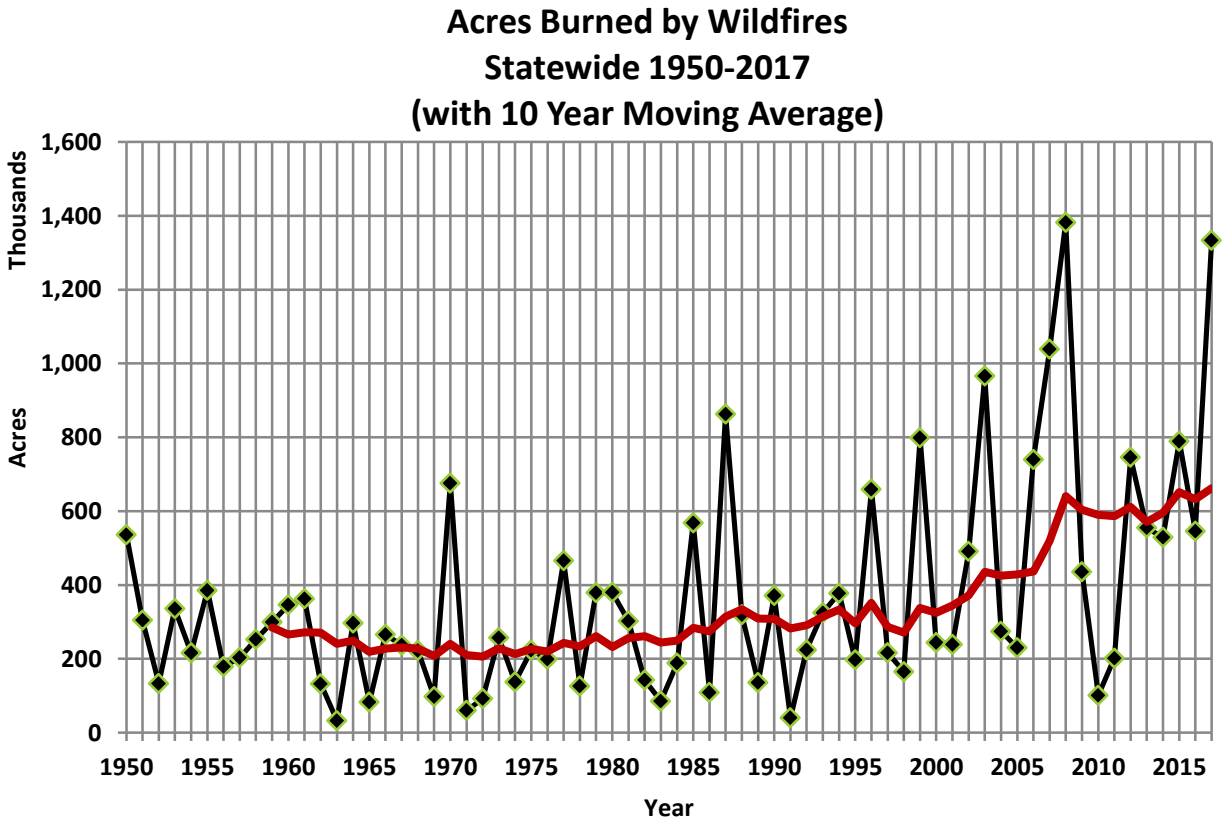
7° F

1° F

The North American Monsoon (NAM)

Research suggests that there will be a weaker monsoon signal over the Desert Southwest in the decades ahead.

California's Wildfire Activity



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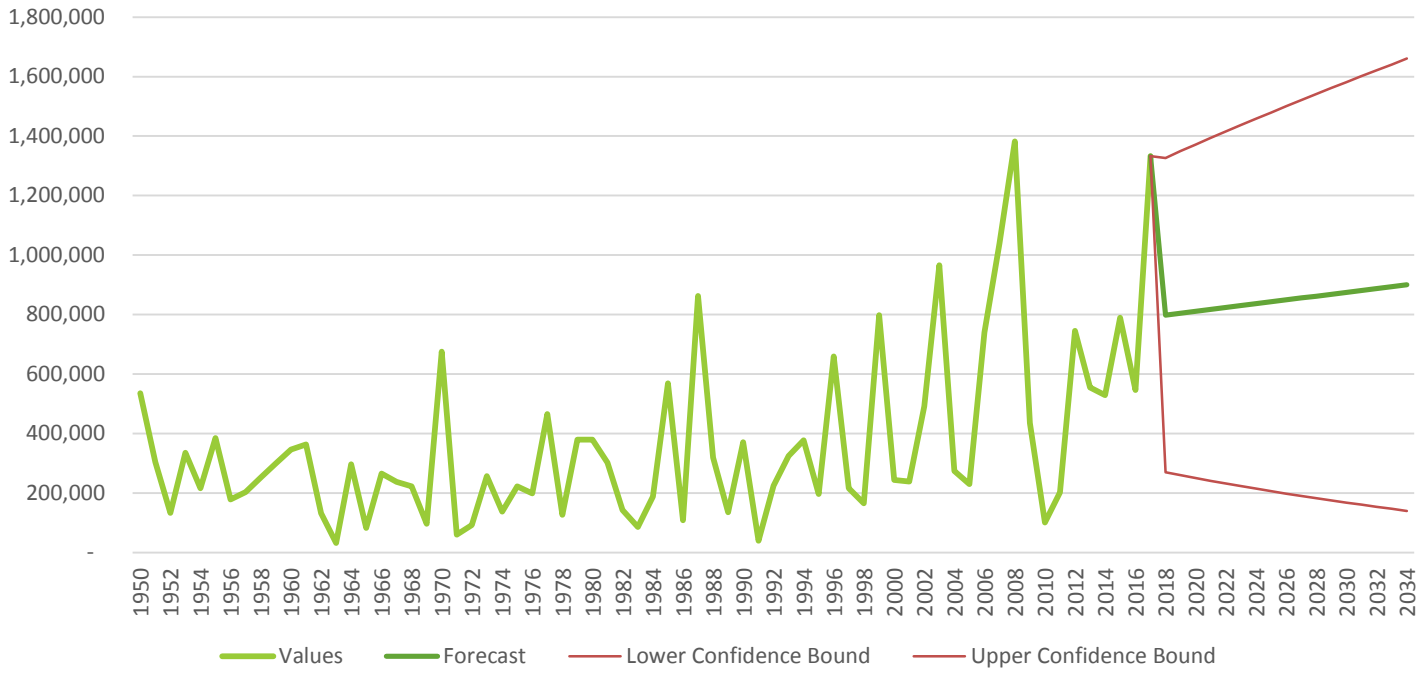

How will our changing climate affect future fire seasons in California?

Facts

Over the past 60 years:

- Maximum and minimum temperatures have been increasing in many areas of the state.
- It has become drier over parts of Northern and Southern California and slightly wetter across the central portions of the state.
- The number of acres burned due to wildfires has been increasing.
- Most of California's wildfires are caused by human activity.

Questions to consider

Since most wildfire causes are human related, how will the following change over the next 30-60 years?

- Population
- Demographics
- Human behavior
- Economy
- Transportation infrastructure
- Changes in the Wildland Urban Interface regions

How will our changing climate affect future fire seasons in California?

Assumptions (Not Facts) based on anticipated changes in weather conditions

During the next 30-60 years:

- Maximum and minimum temperatures are projected to increase statewide.
- Annual precipitation amounts are expected to decrease over the southern half of the state and increase over Northern California.
- The spring and fall months are expected to be drier over the southern portions of the state.
- The NAM signal may weaken with less lightning activity over California during the summer.
- Drought frequency and intensity may increase.
- Tree mortality may become more commonplace.
- Fuel loading may increase in the north and decrease in the south.

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Conclusions

- The length of fire season may increase in the south.
- Potential for more wind related wildfires during the fall months over Southern California.
- The length of fire season may change little in the north.
- There may be fewer lightning related fires in the Sierra and over Northern California.
- Potential for more severe fires in the south due to possible drier fuel conditions.
- Fire behavior may become more extreme, especially in the south.

Questions?

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PREDICTIVE SERVICES

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Thank You