

# Climate Change Impacts on Winegrowing Regions in Southern California: From the Perspective of a Regional Climate Model



**SAN DIEGO STATE UNIVERSITY**

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## What is Winegrape?

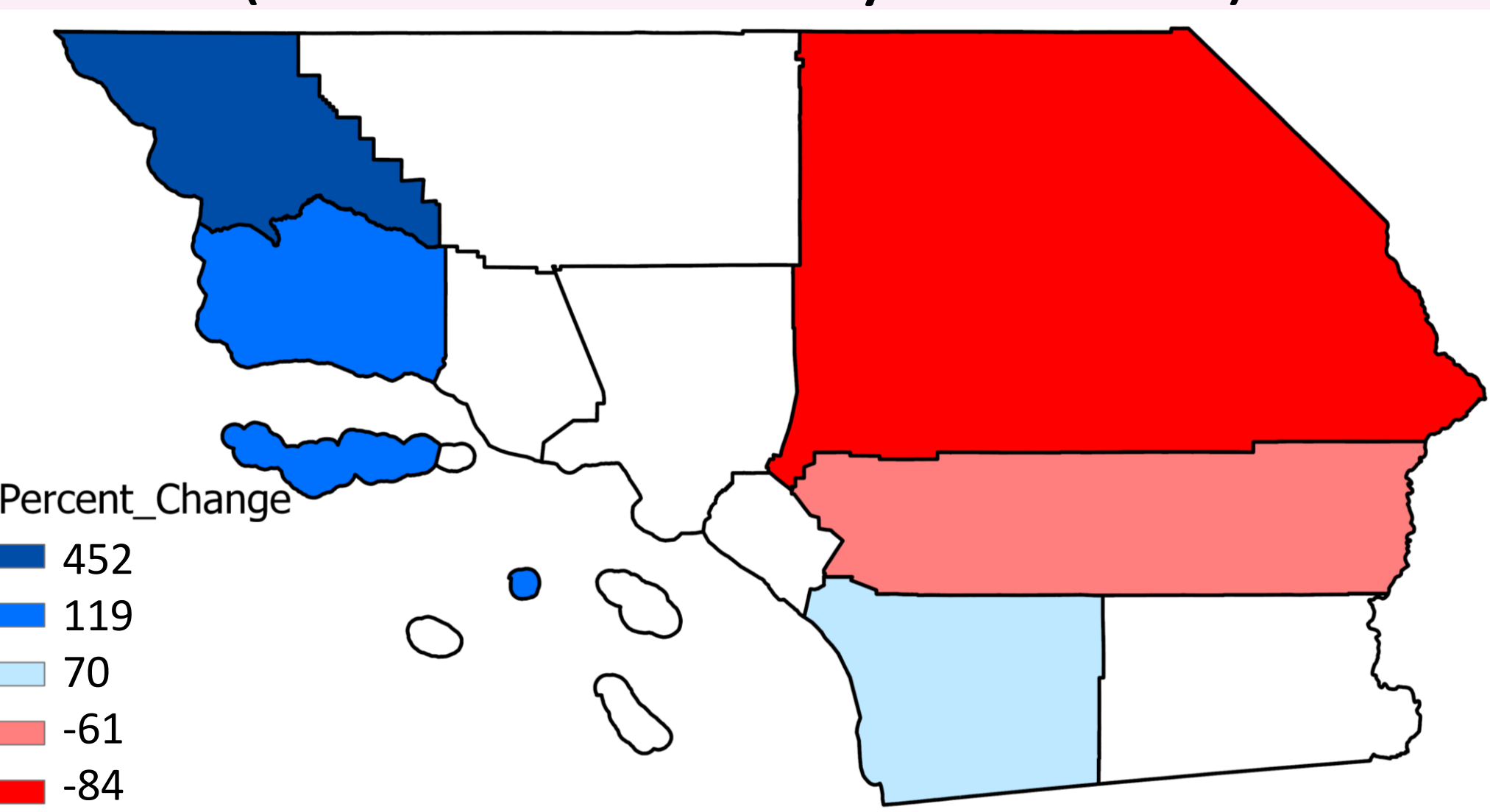
- Winegrape describes the type of grapes, grown on grapevines, used specifically for wine production
- Indices involving temperature are used to classify wine regions based on climate classifications and winegrape suitability



Common Grapevine: *vitis vinifera*

## Motivation

Percent Change in Acreage Bearing  
(1985 vs. 2010 5-year mean)

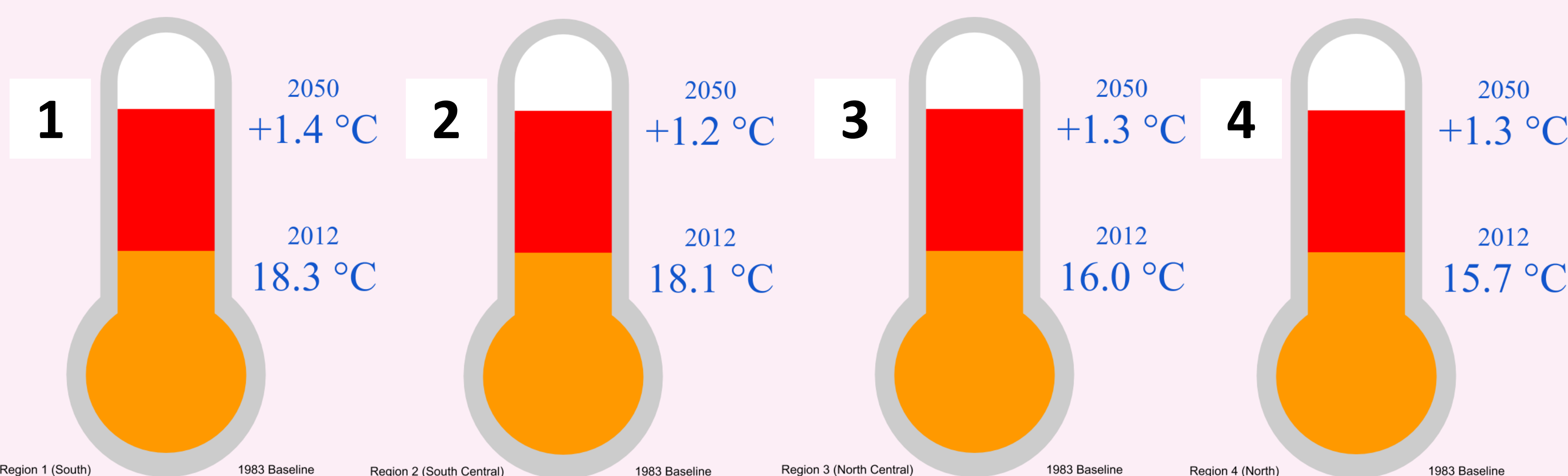
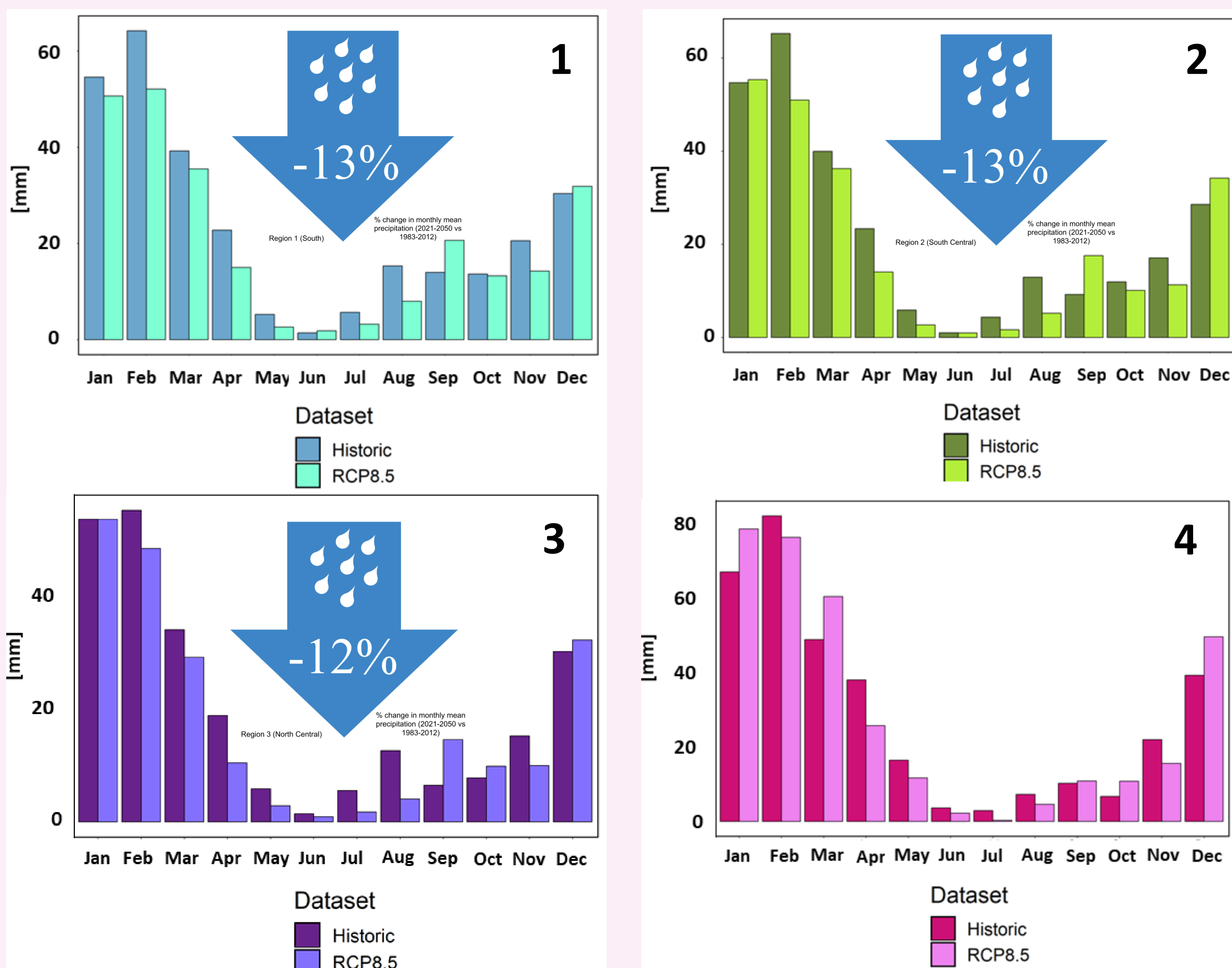


San Diego provided  
**697 jobs** and generated  
a regional impact of  
**\$50 Million** (2017)

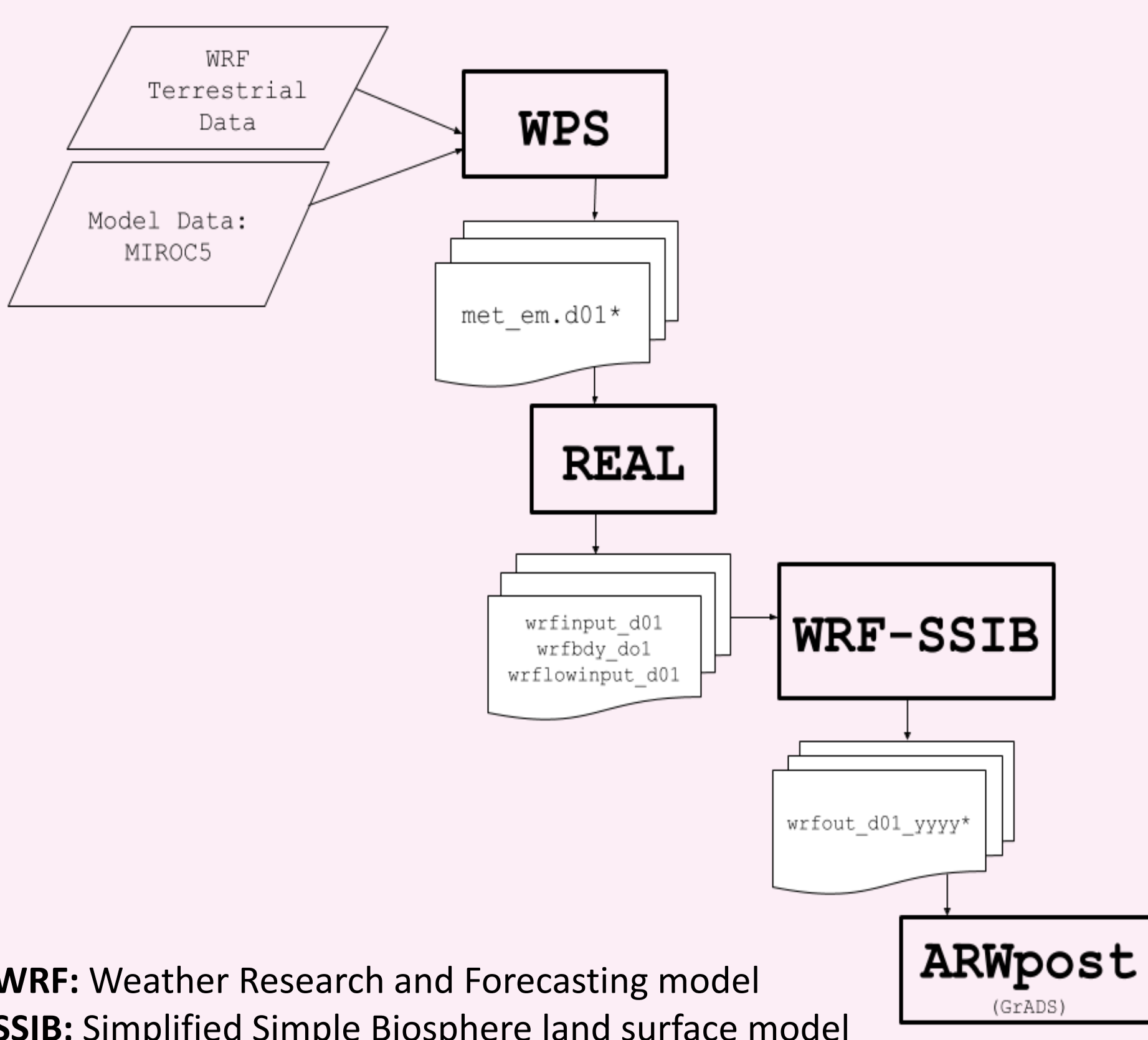
Santa Barbara provided  
**9,158 jobs** and generated  
a regional impact of  
**\$1.7 Billion** (2013)

(SDCVA 2018; SBCVA 2013)

## Precipitation & Temperature by 2050



## WRF-SSIB model

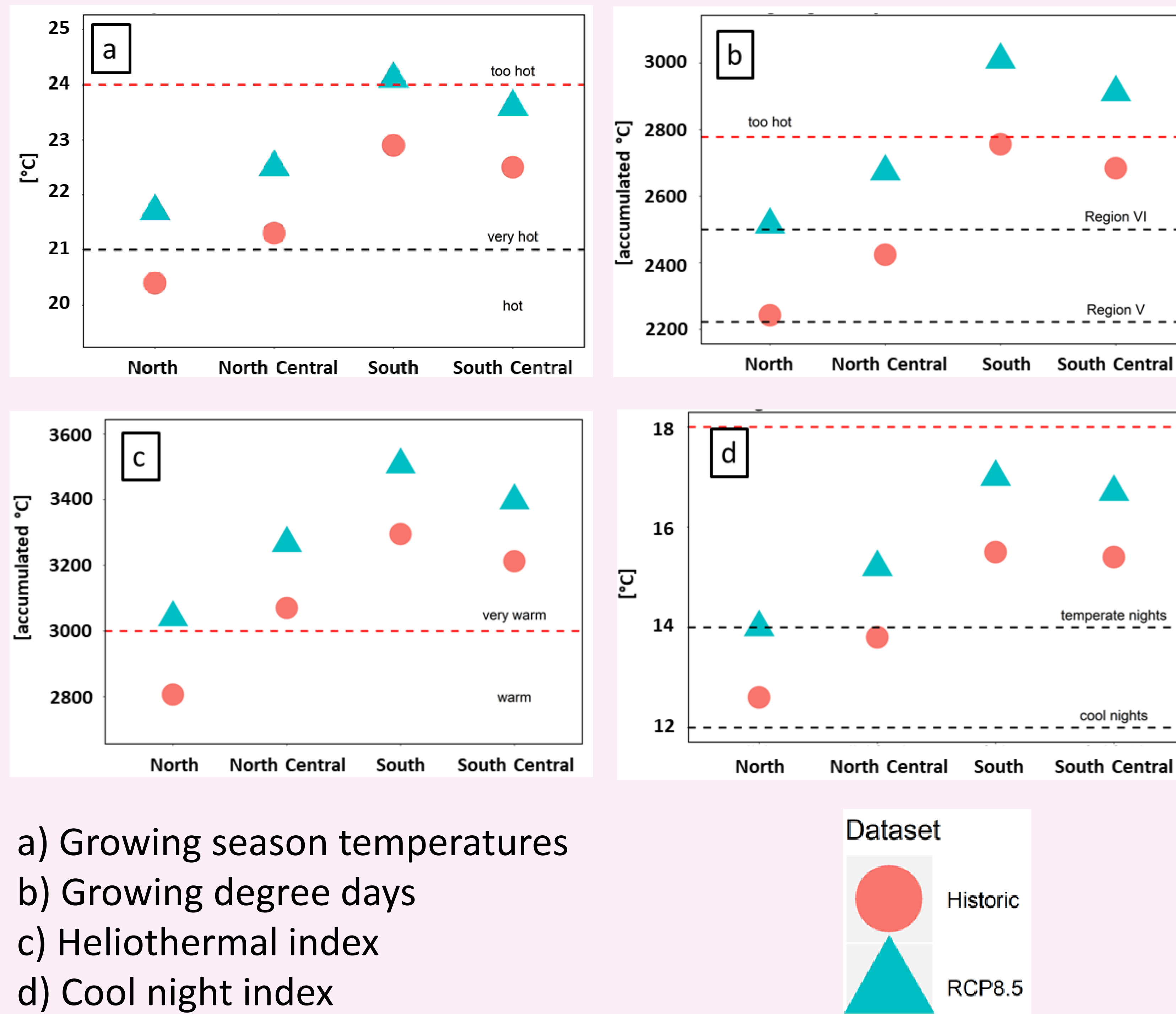


WRF: Weather Research and Forecasting model  
SSIB: Simplified Simple Biosphere land surface model

## Research Question

How will global warming  
(based on RCP8.5  
warming scenario) affect  
Southern California's  
precipitation and  
near-surface  
temperature and  
ultimately climate  
structures for winegrape  
crop suitability?

## Climate Change and Winegrape Indices



- a) Growing season temperatures
- b) Growing degree days
- c) Heliothermal index
- d) Cool night index

## Conclusion

This research suggests that by mid-century warmer climate conditions could impact the ripening stage of grapevines and ultimately lead to changes in wine composition and quality. The projected increases in temperature highlight the need for adaptive capacity within this sector.

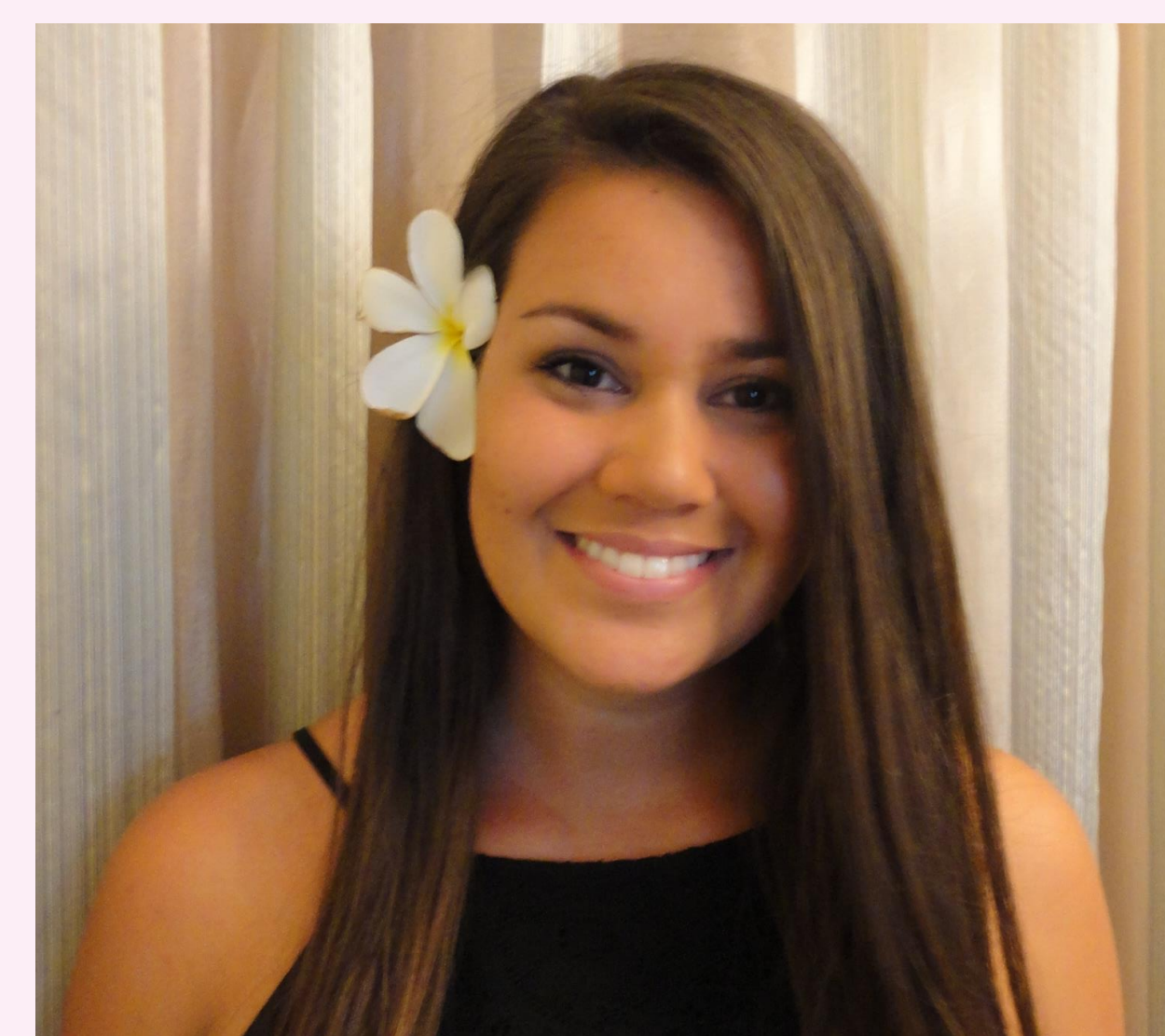
### About the presenter:

I am a second-year master's student from the department of Geography, and will be getting my M.S. in Watershed Science. I am also a second-year NOAA-CREST fellow. I received my B.S. in Physical Geography from the University of California Santa Barbara in 2016.

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## Study Regions

