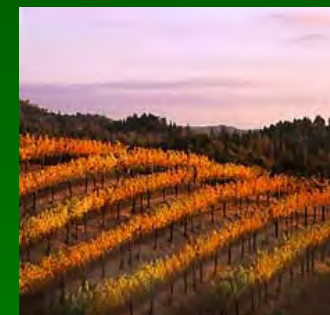


# Vintage 2007: Umpqua Valley Reference Vineyard Report



Greg Jones  
Department of Environmental Studies  
Southern Oregon University



Umpqua Valley Winegrowers Association  
Syndi Beavers, President

# Outline of Talk

- Project Overview
- Weather/Climate Overview
- Phenology Overview
- Composition Overview
- Summary, Forecast, and Future



# Reference Vineyards

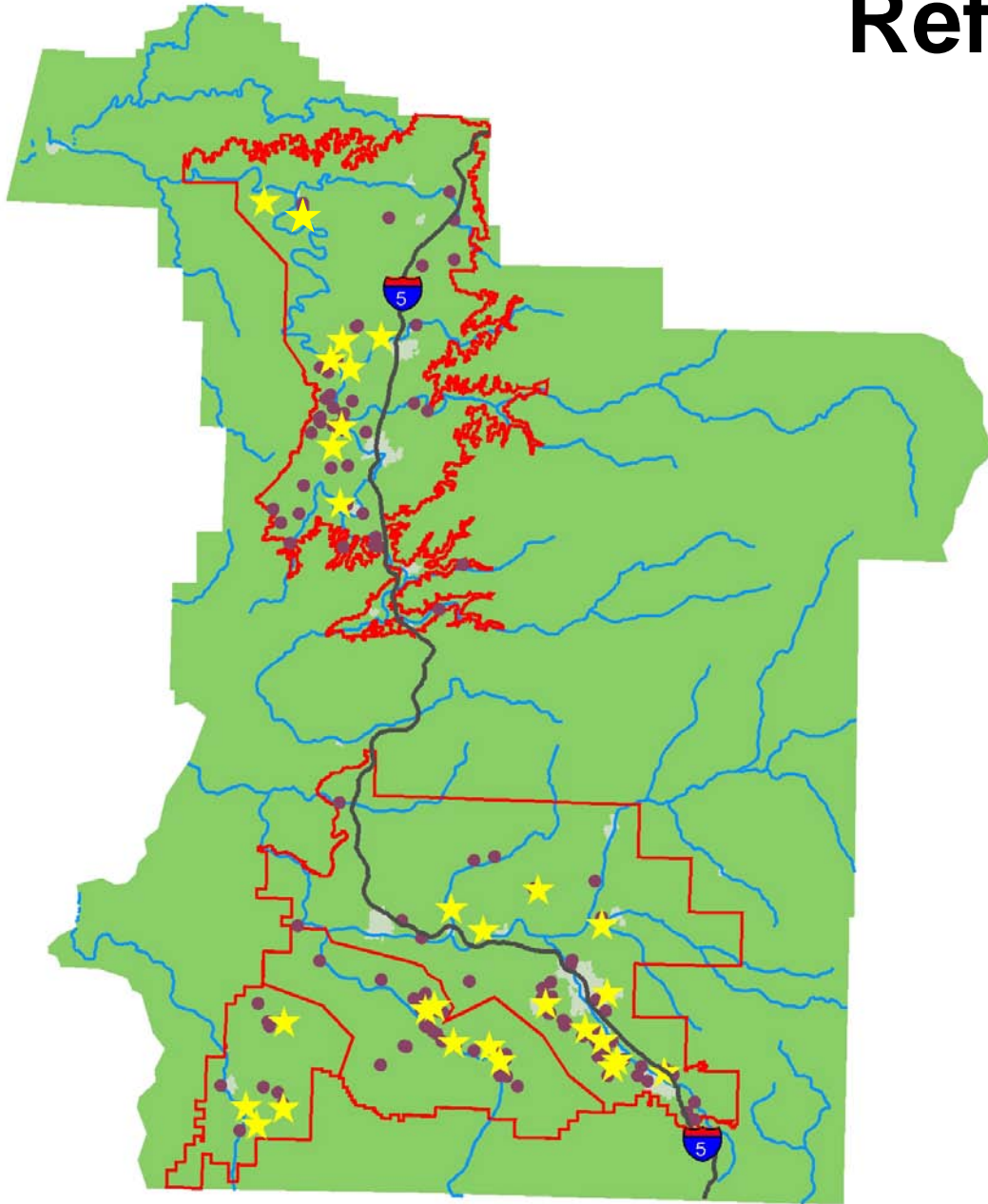
## Established:

Rogue and Applegate Valleys  
20 Vineyards in 2003

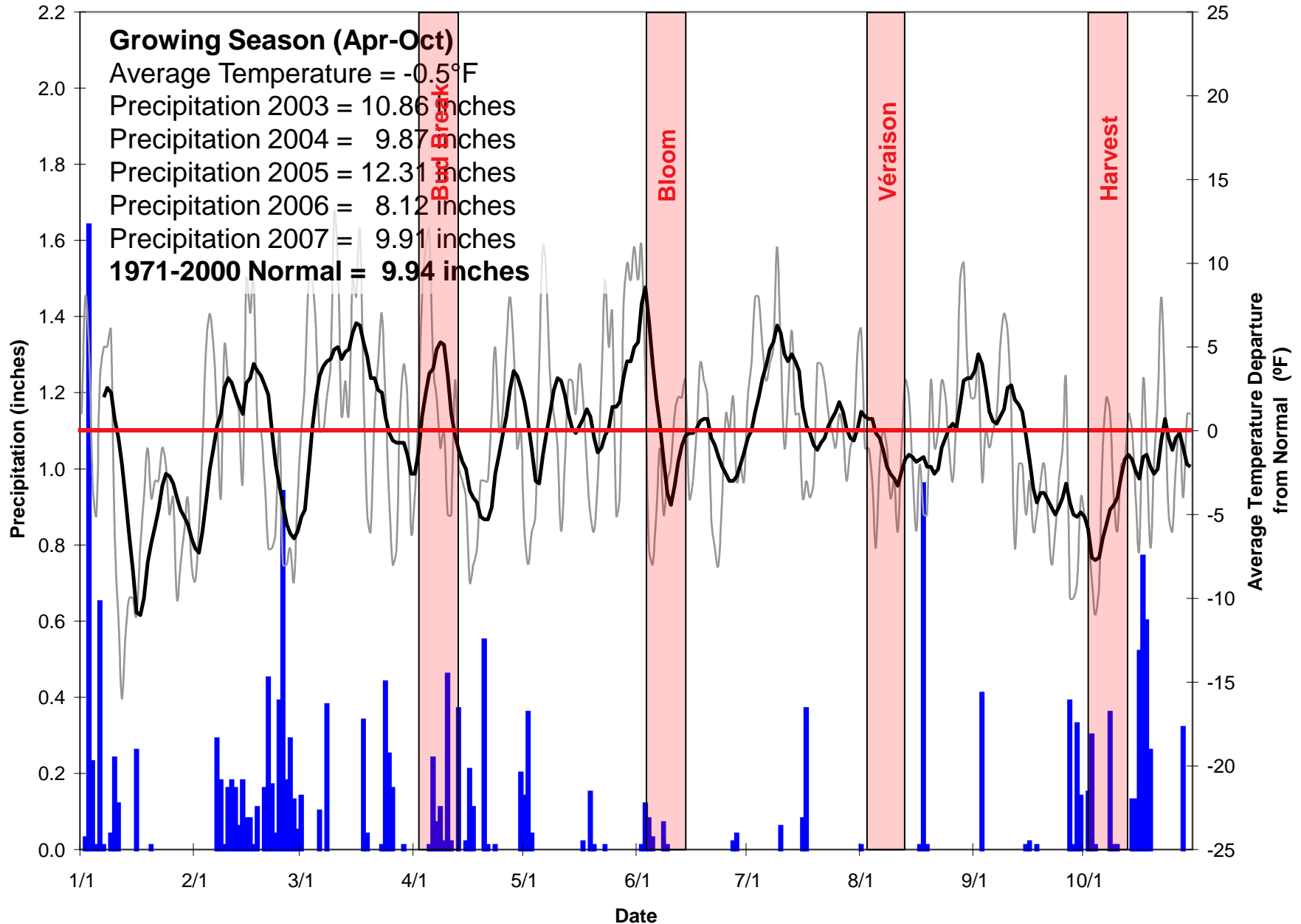
Umpqua Valley  
9 Vineyards in 2004

## Purpose:

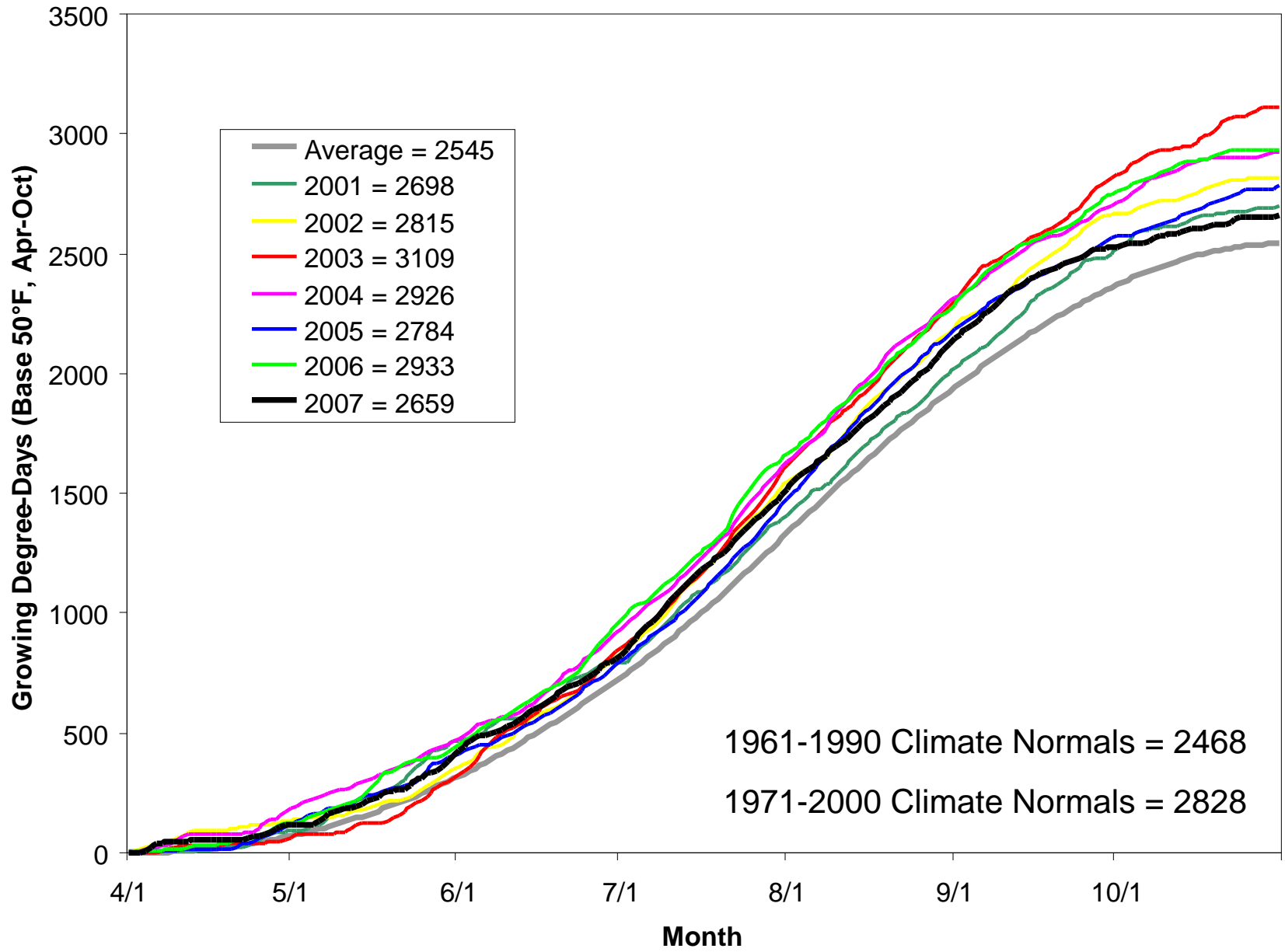
Develop a baseline understanding of temporal and spatial variations in climate, plant growth potential, and fruit ripening characteristics



# Roseburg 2007 – Temperature Departures from Normal and Precipitation

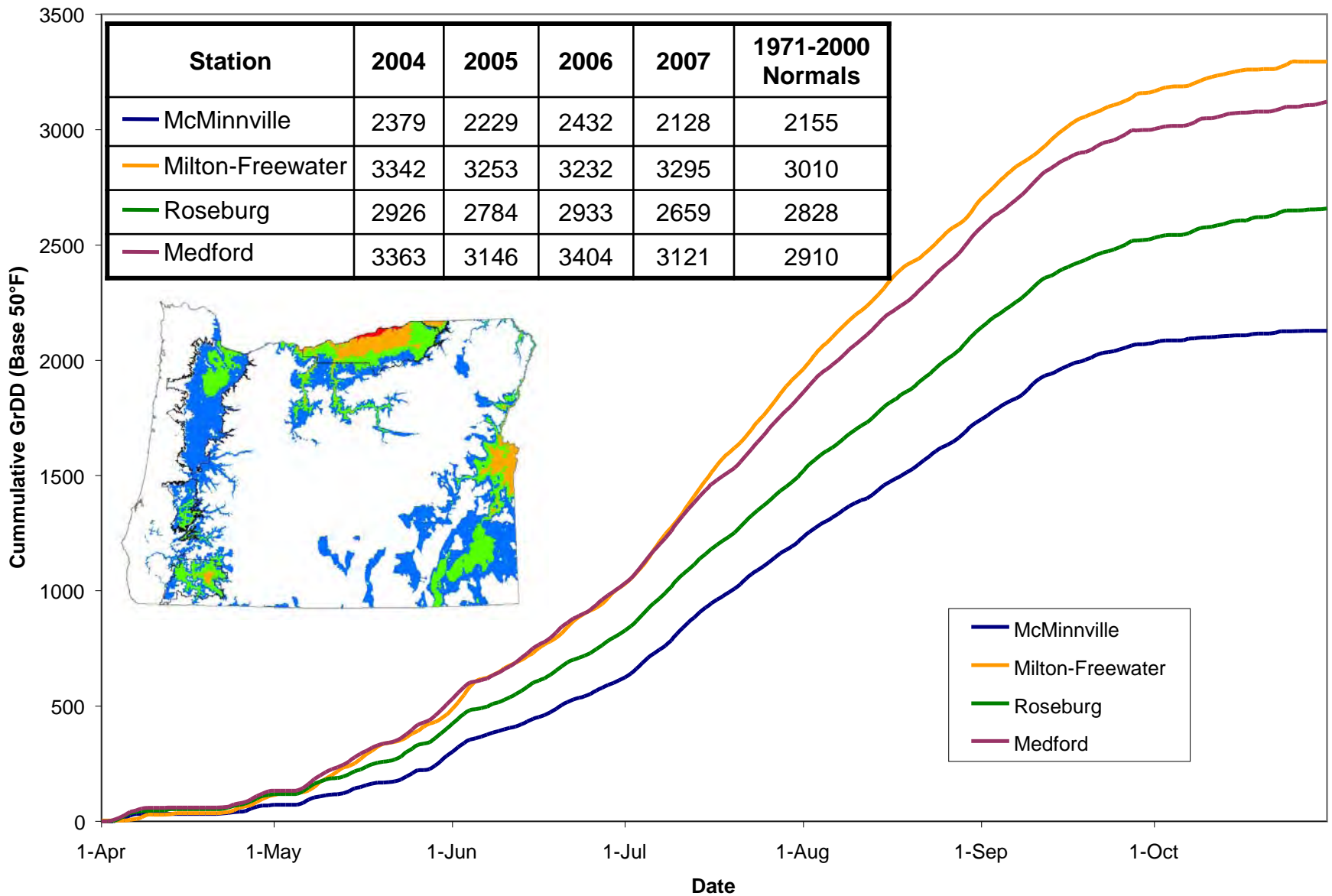


# Roseburg 2007 – Growing Degree-Days (Apr-Oct)



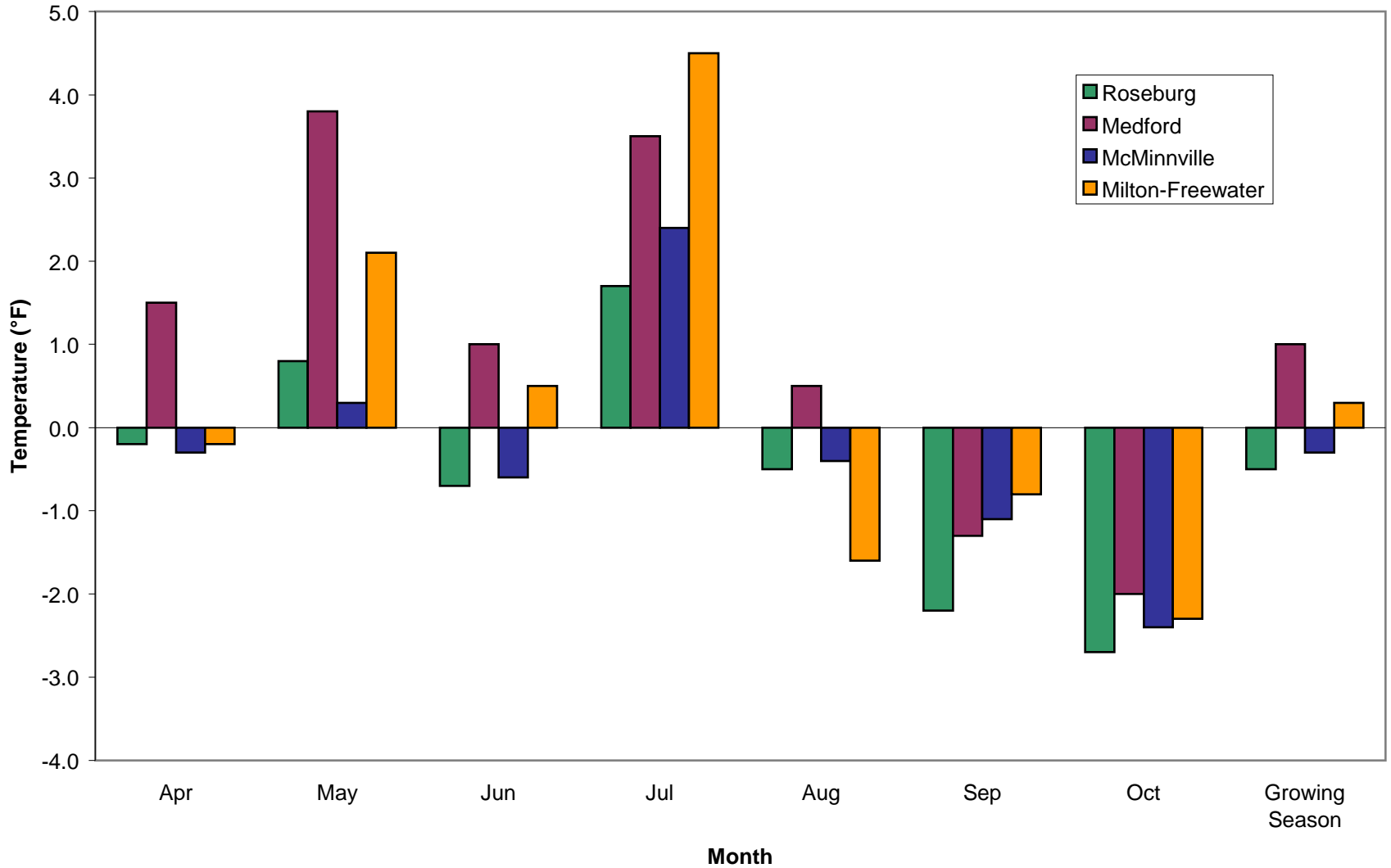
# Statewide Wine Region

## 2007 Growing Season Cumulative Degree-Days



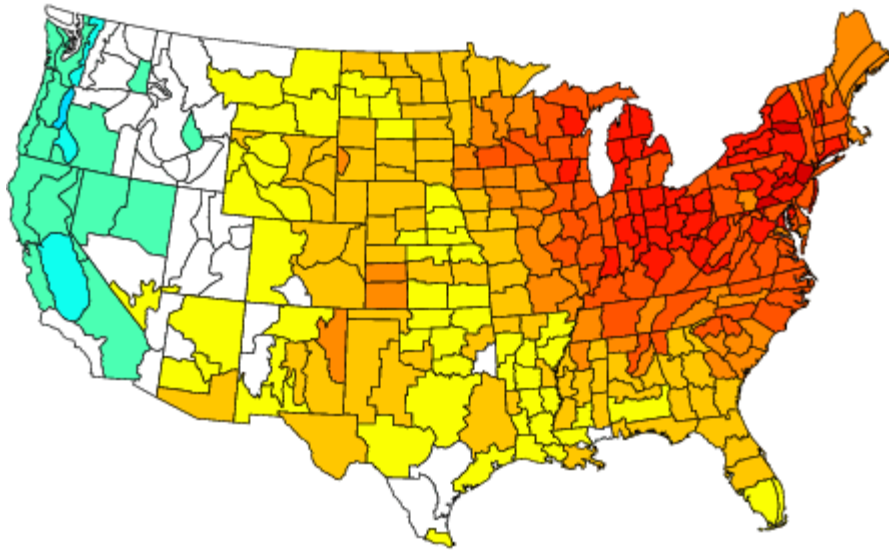
# Statewide Wine Region

## Monthly & Growing Season Temperature Departures from Normal



# US Temperature and Precipitation Anomalies for Vintage 2007

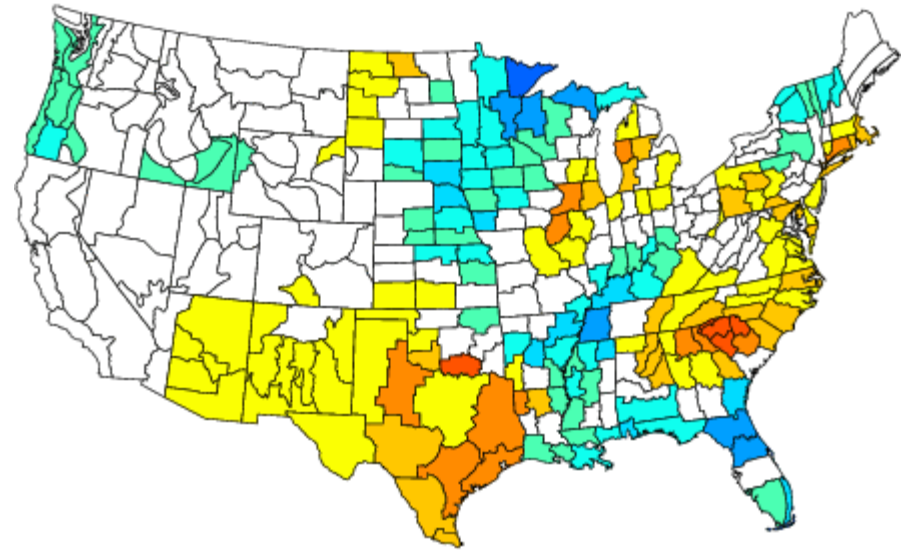
Temperature Anomalies (F)  
Sep to Oct 2007  
Versus 1971–2000 Longterm Average



NOAA/ESRL PSD and CIRES-CDC

-6.0 -4.0 -2.0 0.0 2.0 4.0 6.0

Precipitation Anomalies (inches)  
Sep to Oct 2007  
Versus 1971–2000 Longterm Average



NOAA/ESRL PSD and CIRES-CDC

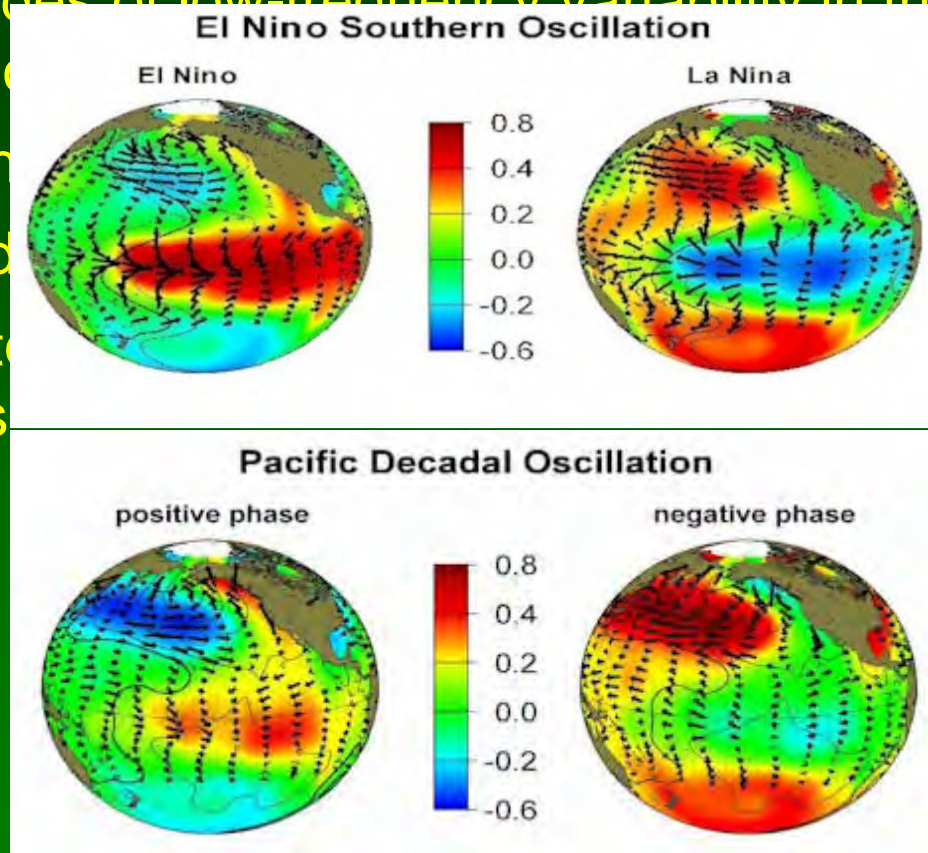
-6.0 -4.0 -2.0 0.0 2.0 4.0 6.0



# Pacific Ocean/North America Climate Variability Mechanisms

➤ Preferred modes of low-frequency variability in the atmosphere (and ocean temperatures)

- El Niño/Southern Oscillation (ENSO)
  - Pacific Decadal Oscillation (PDO)
    - Cold water in central Pacific supports trough there
    - Sea surface temperature is cold to normal to warm periods
    - Warm water along West Coast supports ridge there.
    - PNW = warmer and drier



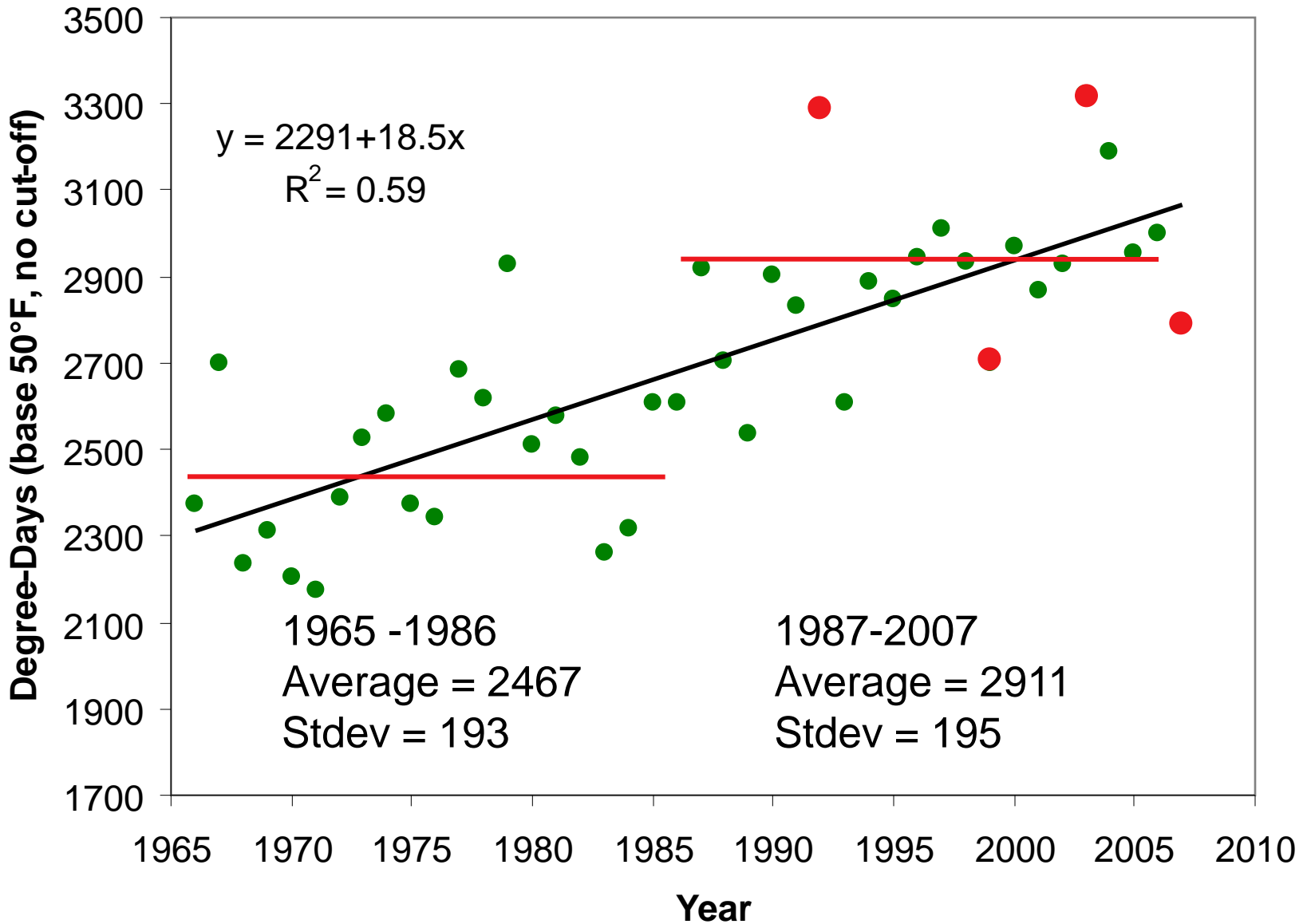
(and ocean temperatures)

- Warm water in central Pacific supports ridge there and strong jet stream.
- Cold to normal to warm periods
- Cool water along West Coast supports trough there.
- PNW = colder and wetter

Climate  
Variability is  
induced by  
circulation  
regimes over  
the Pacific  
and North  
America

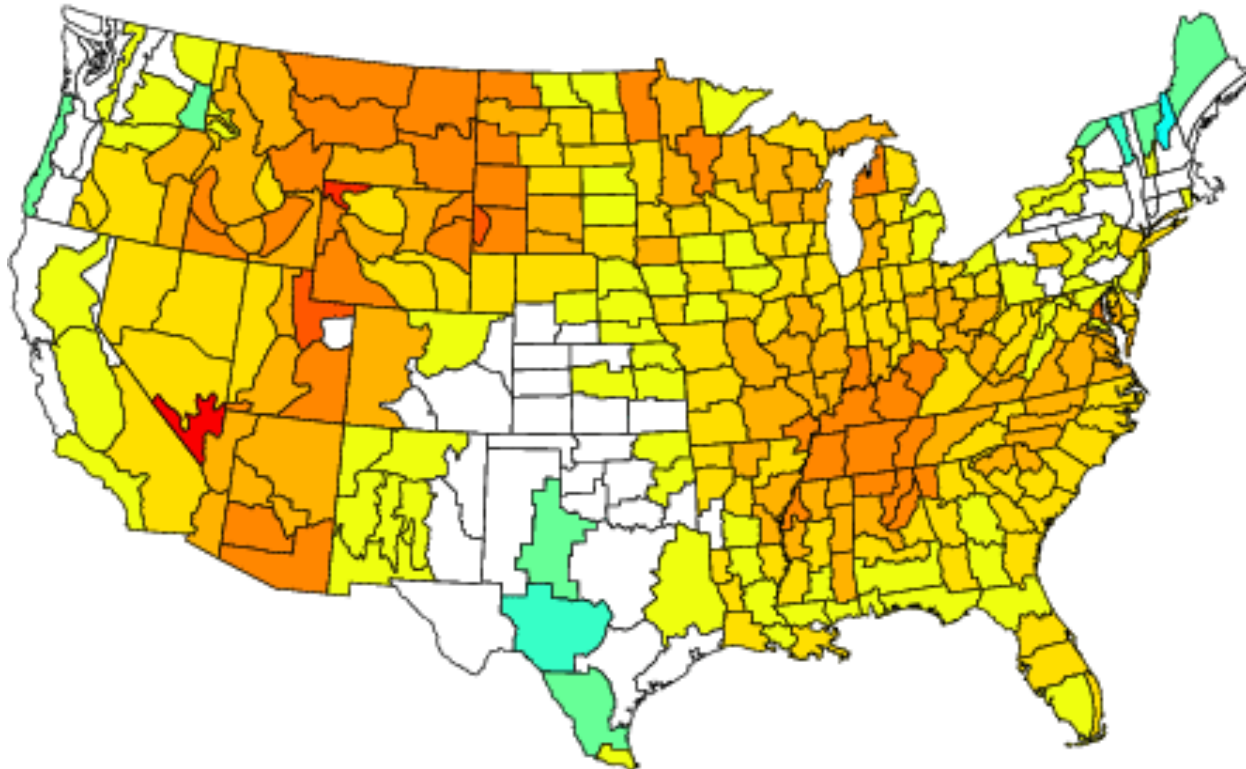


# Climate Trends, Averages, and Variability

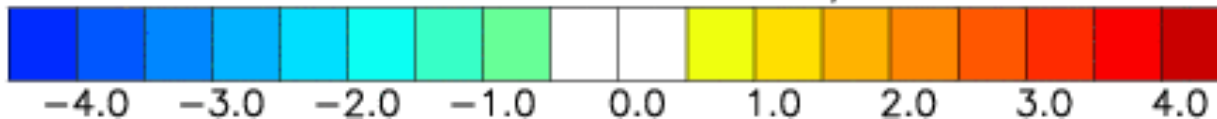


# US Temperature and Precipitation Anomalies for 2007

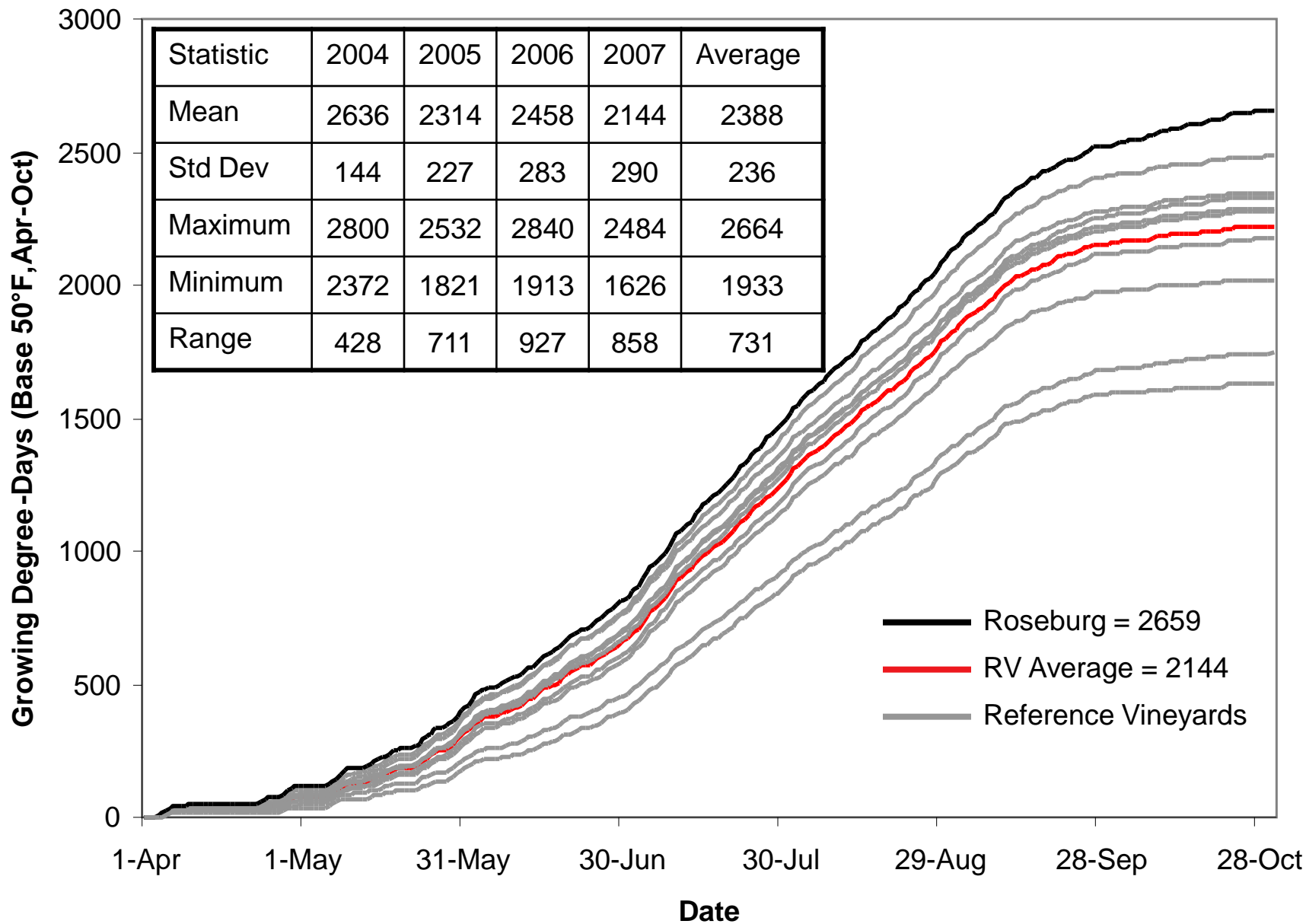
Temperature Anomalies (F)  
Jan to Dec 2007  
Versus 1950–2007 Longterm Average



NOAA/ESRL PSD and CIRES-CDC

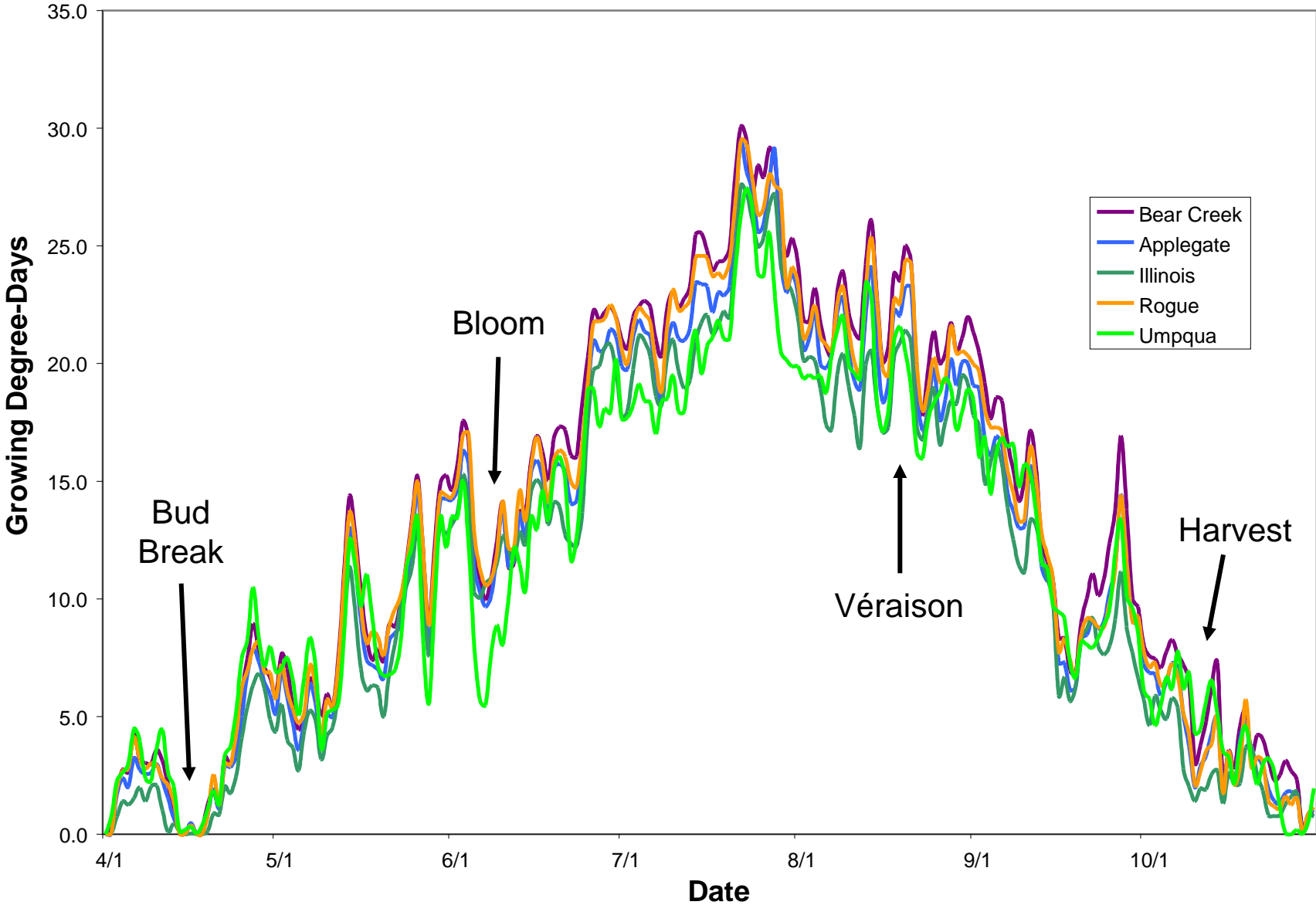


# Reference Vineyards 2007 – Growing Degree-Days (Apr-Oct)



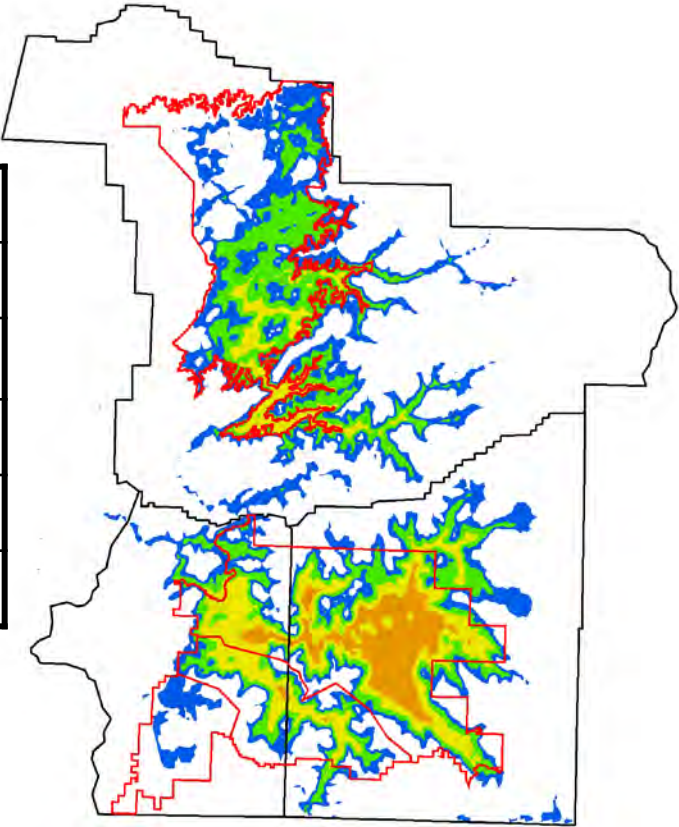
# Reference Vineyards 2003-07

## Average Growing Degree-Days (Apr-Oct)



# 2003-07 Growing Degree-Days (Apr-Oct)

<u>Region</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Average</u>
Bear Creek	3028	2913	2601	2913	2702	2831
Valley of the Rogue	2991	2783	2510	2739	2625	2638
Applegate	2914	2693	2437	2590	2427	2612
Illinois	2628	2440	2207	2424	2165	2373
Umpqua		2636	2302	2458	2144	2385



# 2007 Growing Season Temperature Characteristics and Extremes

Variable	Mean	Std. Dev.	Max	Min	Range
Average Temperature	59.5°F	1.5°F	61.2°F	56.8°F	4.4°F
Maximum Temperature	75.9°F	2.2°F	78.8°F	71.5°F	7.3°F
Minimum Temperature	46.6°F	0.6°F	47.7°F	45.8°F	1.9°F

## Extremes

Average Absolute Maximum = 103.7°F  
# of days > 95°F = 11  
(Max = 20, Min = 4)

Average Absolute Minimum = 28.5°F  
# of days < 32° = 2

Last Spring Frost – April 20<sup>th</sup>  
First Fall Frost – October 27<sup>th</sup>

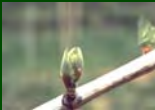





# 2007 Growing Season Temperature Characteristics and Extremes

## Comparison with Prior Years

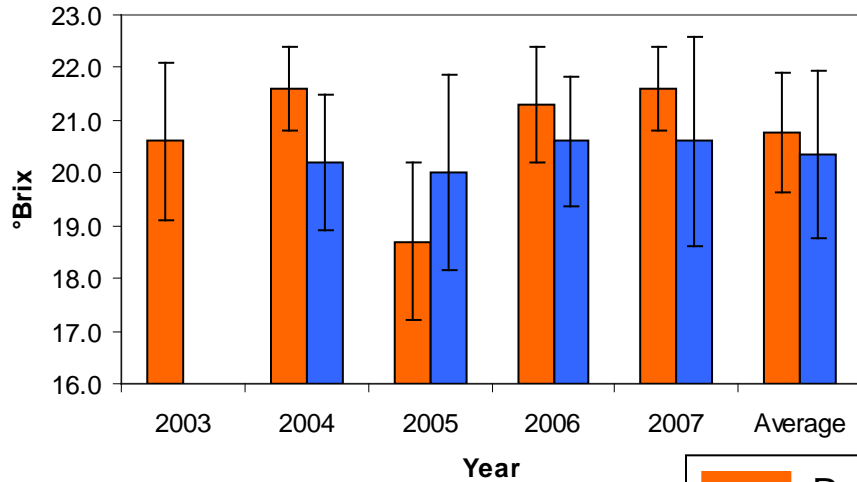
Variable	2004	2005	2006	2007	Average
GrDD	2636	2302	2458	2144	<b>2385</b>
Tmax	107.7	106.7	110.2	103.7	<b>107.1</b>
# of Days > 95°F	17	10	24	11	<b>16</b>
Tmin	33.9	30.1	23.3	28.5	<b>29.0</b>
# of Days < 32°F	0	2	4	2	<b>2</b>
Last Spring Frost	1-Apr	14-Apr	27-Mar	20-Apr	<b>7-Apr</b>
First Fall Frost	5-Nov	25-Sep	26-Oct	27-Oct	<b>21-Oct</b>

# Grapevine Growth Event Dates and Intervals

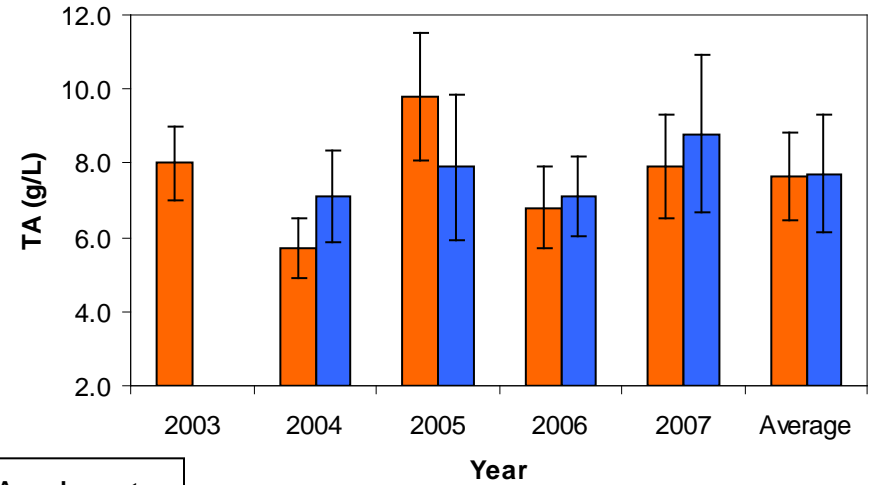
<i>Event or Interval</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>Average</i>
<b>Bud Break</b> 	4/1 7 days	4/2 11 days	4/22 4 days	Apr 9 7 days	<b>Apr 4</b> 7 days
<b>Flowering</b> 	6/5 5 days	6/13 7 days	6/14 5 days	June 9 7 days	<b>June 10</b> 6 days
<b>Véraison</b> 	8/13 7 days	8/14 10 days	8/14 9 days	Aug 12 9 days	<b>Aug 13</b> 9 days
<b>Harvest</b> 	10/5 9 days	10/10 12 days	10/8 9 days	Oct 7 10 days	<b>Oct 7</b> 10 days
<b>Bud Break-Flowering</b>	65 days 7 days	76 days 14 days	54 days 6 days	61 days 8 days	<b>64 days</b> 9 days
<b>Flowering-Véraison</b>	68 days 6 days	61 days 8 days	62 days 8 days	63 days 8 days	<b>64 days</b> 8 days
<b>Véraison-Harvest</b>	55 days 11 days	51 days 15 days	51 days 10 days	56 days 11 days	<b>53 days</b> 12 days
<b>Bud Break-Harvest</b>	185 days 13 days	194 days 13 days	168 days 8 days	175 days 13 days	<b>181 days</b> 12 days

# 2003-2007 Sample Composition (Sept 13-15)

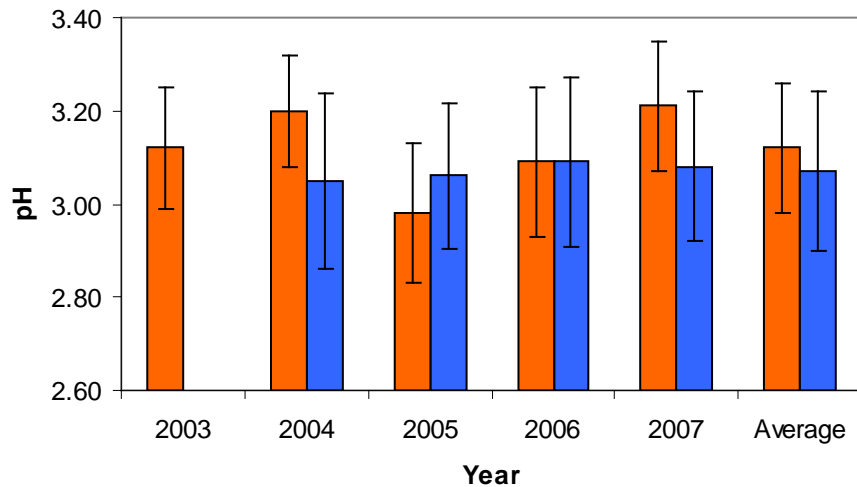
## °Brix



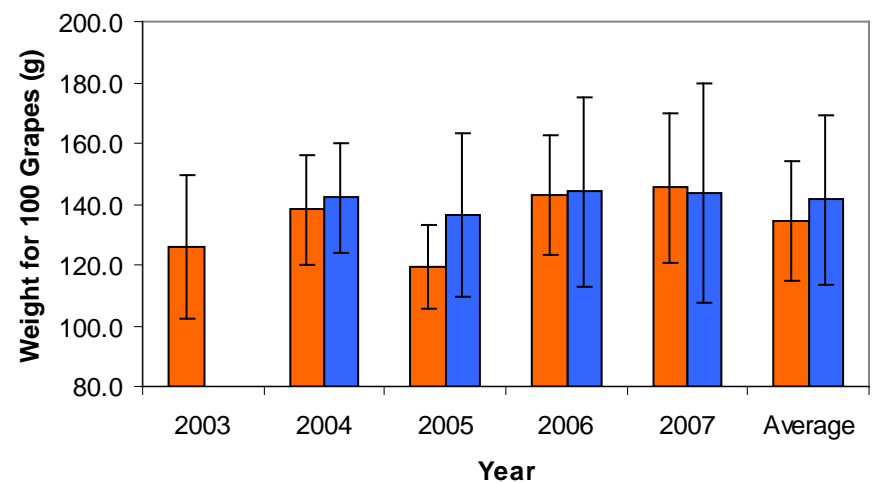
## Titrateable Acidity



## pH



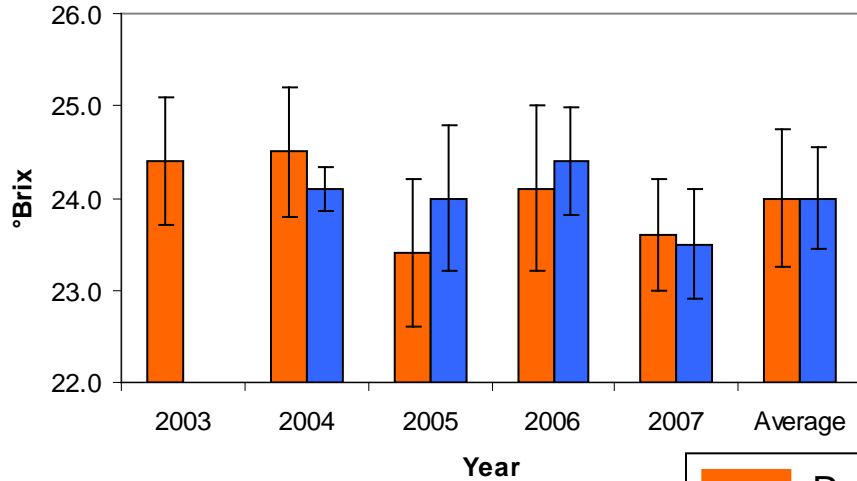
## Weight (100 Grapes)



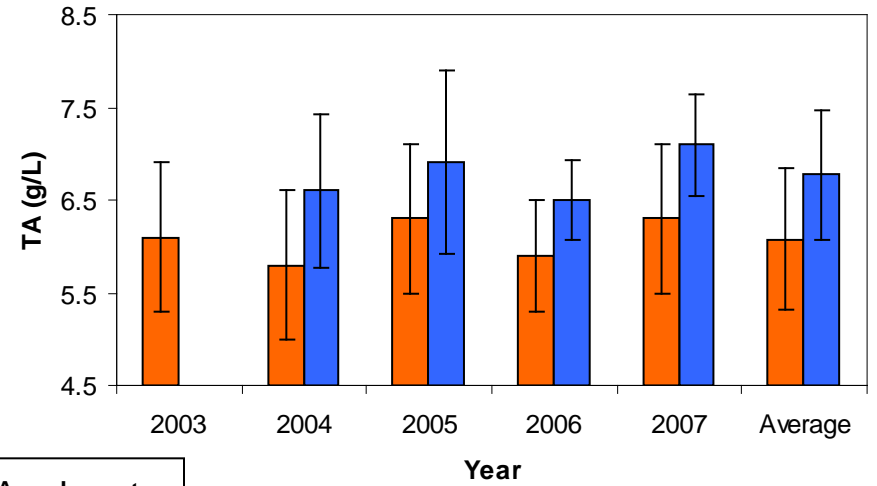
■ Rogue/Applegate  
■ Umpqua

# 2003-2007 Harvest Composition

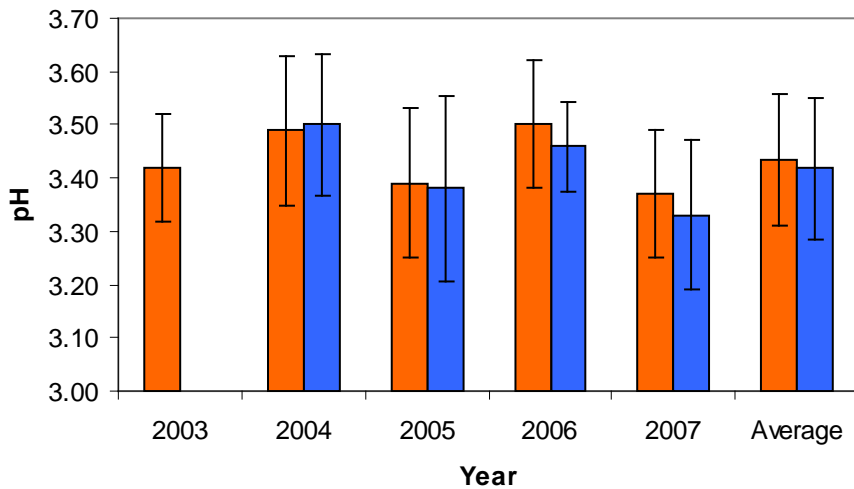
## °Brix



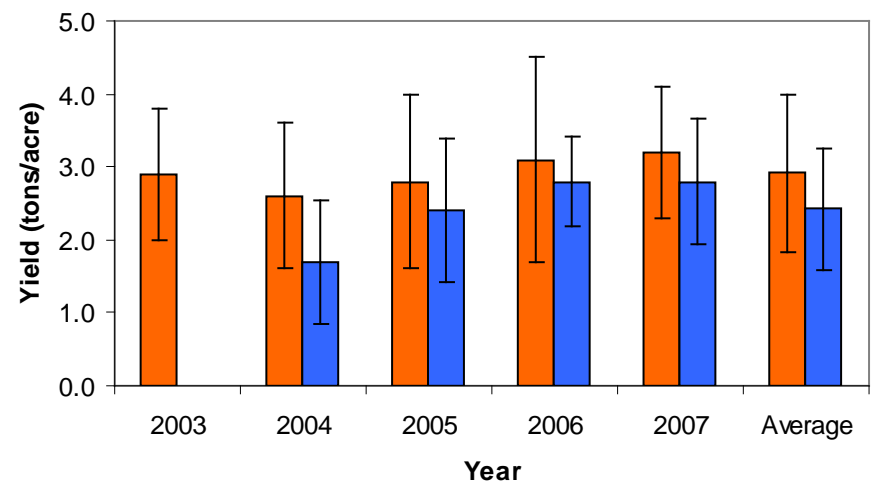
## Titrateable Acidity



## pH



## Yield



Rogue/Applegate  
Umpqua

# Vintage 2007 Summary

## Weather

- 2007 started off relatively warm with plenty of soil moisture storage
- Rainfall near normal during the growing season, some during bloom but more than normal during harvest following a rapid cool down in mid-September
- Growing season coolest in years and Umpqua the coolest across the state ... heat accumulation below average, ranging 800+ units across sites, along with 25-50% few days above 95°F, less heat stress

## Phenology

- All events near normal

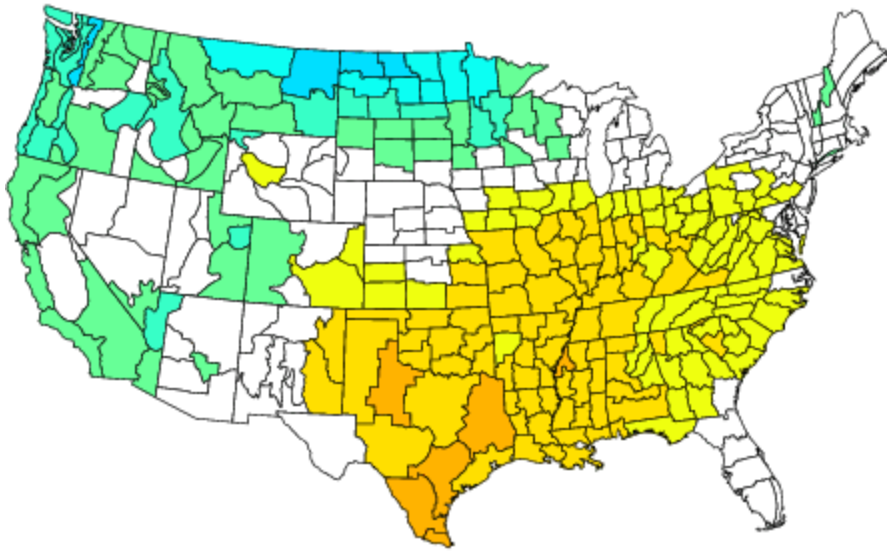
## Composition

- Mid-Sept sampling - °Brix —, TA ↑, pH —, Berry Weights —
- Harvest composition - °Brix ↓, TA ↑, pH ↓, Yields ↑

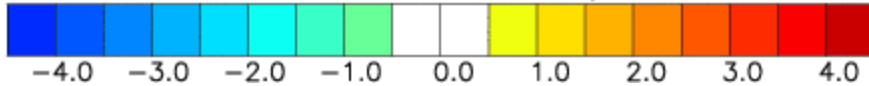
# US Temperature and Precipitation Anomalies for Nov-Mar Based on ENSO

Composite Temperature Anomalies (F)

Nov to Mar 1954-55, 1955-56, 1970-71, 1973-74, 1975-76, 1988-89, 1964-65, 1999-00  
Versus 1971-2000 Longterm Average

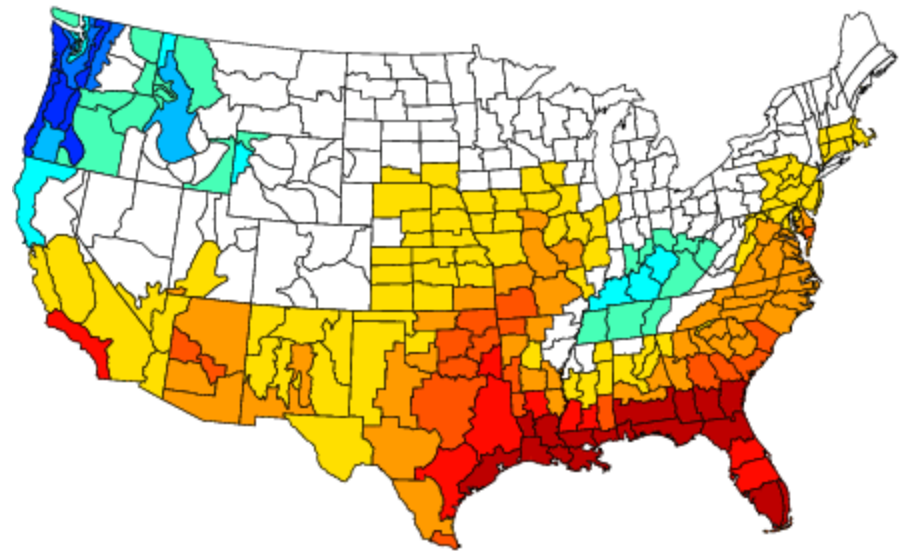


NOAA/ESRL PSD and CIRES-CDC

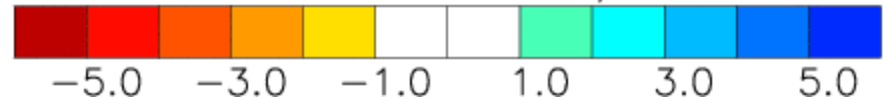


Composite Precipitation Anomalies (inches)

Nov to Mar 1954-55, 1955-56, 1970-71, 1973-74, 1975-76, 1988-89, 1964-65, 1999-00  
Versus 1971-2000 Longterm Average

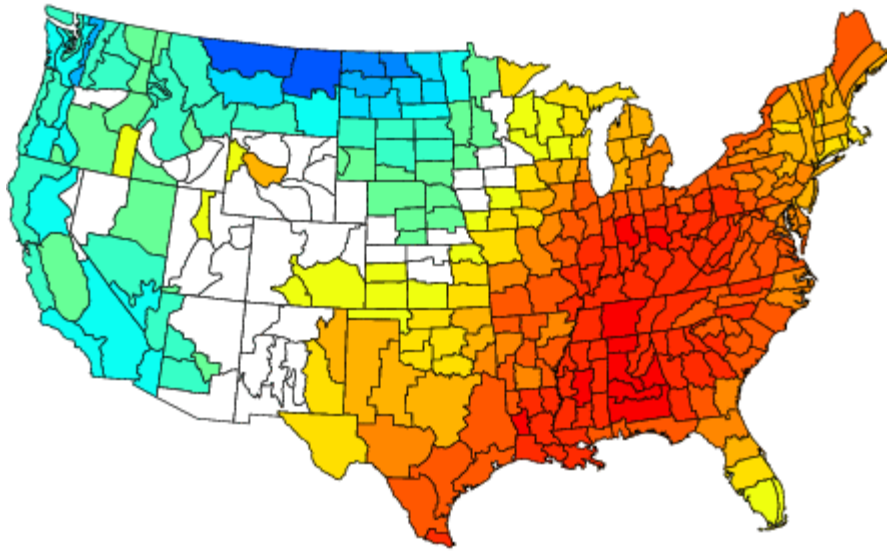


NOAA/ESRL PSD and CIRES-CDC

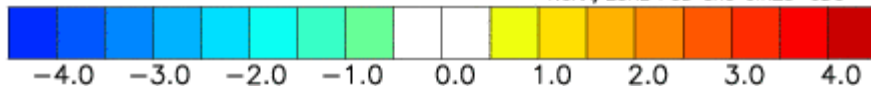


# US Temperature and Precipitation Anomalies for Apr-Sep Based on ENSO

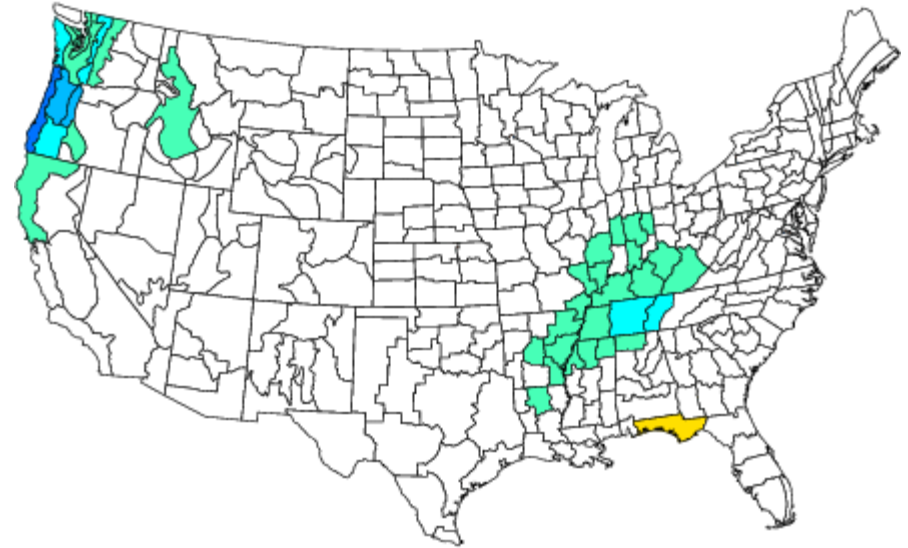
Composite Temperature Anomalies (F)  
Apr to Sep 1950,1955,1956,1964,1971,1974,1988,1998,1999  
Versus 1971–2000 Longterm Average



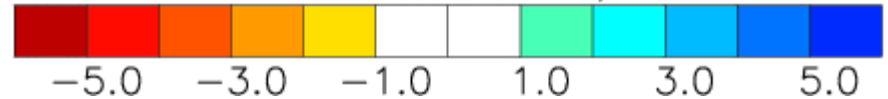
NOAA/ESRL PSD and CIRES-CDC



Composite Precipitation Anomalies (inches)  
Apr to Sep 1950,1955,1956,1964,1971,1974,1988,1998,1999  
Versus 1971–2000 Longterm Average



NOAA/ESRL PSD and CIRES-CDC



# Spring/Summer 2008 Forecast

## For Oregon in general:

- La Niña-Cold PDO continues into spring ... summer less clear
- Well below normal in western Oregon, near average central-east (Jan-Mar), with above average precipitation statewide.
- The late spring-early summer (Apr-Jun) is projected to see slightly above-average temperatures and slightly above-average precipitation statewide.

## For the Southwestern Valleys of Oregon:

### Temperatures

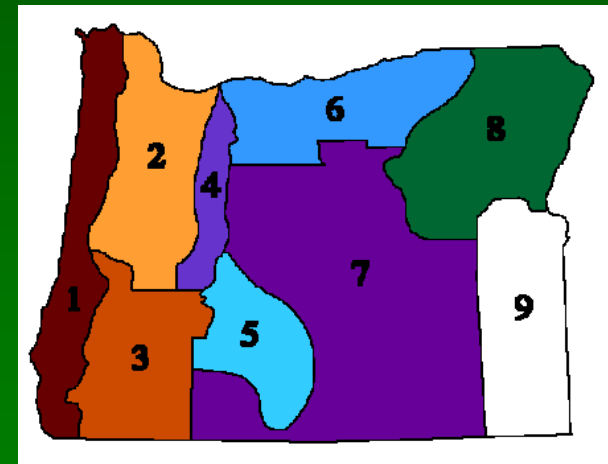
January-March: Below average

April-June: Near average

### Precipitation

January-March: Above average

April-June: Slightly above average



NOAA-CIRES Climate Diagnostics Center ([www.cdc.noaa.gov](http://www.cdc.noaa.gov))

Oregon Climate Service ([www.ocs.orst.edu](http://www.ocs.orst.edu))



# Future

- Project is funded by the OWB for the 2008 vintage
- Trial vines will be the focus of the observations in the next vintage

## Acknowledgements



- The Oregon Wine Board



- The Umpqua Valley Winegrowers Association
- All of the Participating Vineyards
- RoxyAnn Winery: Jack Day, James Epperson, Marika Belew, & Ali Mostue