Talk Overview

• Antecedent Conditions

• Current Conditions

• WY2015 Outlook
<table>
<thead>
<tr>
<th>Region</th>
<th>WY2014 Value (inches)</th>
<th>% of Average</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sierra</td>
<td>20.76</td>
<td>53%</td>
<td>3</td>
</tr>
<tr>
<td>Northeast</td>
<td>15.21</td>
<td>63%</td>
<td>15</td>
</tr>
<tr>
<td>North Central</td>
<td>28.87</td>
<td>56%</td>
<td>6</td>
</tr>
<tr>
<td>Sacramento Delta</td>
<td>10.68</td>
<td>54%</td>
<td>8</td>
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<tr>
<td>San Joaquin Valley</td>
<td>4.81</td>
<td>38%</td>
<td>1</td>
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<tr>
<td>North Coast</td>
<td>33.48</td>
<td>51%</td>
<td>3</td>
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<tr>
<td>Central Coast</td>
<td>11.94</td>
<td>47%</td>
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<tr>
<td>South Coast</td>
<td>5.63</td>
<td>32%</td>
<td>1</td>
</tr>
<tr>
<td>South Interior</td>
<td>9.04</td>
<td>50%</td>
<td>5</td>
</tr>
<tr>
<td>Mojave</td>
<td>2.9</td>
<td>39%</td>
<td>2</td>
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<tr>
<td>Sonoran</td>
<td>2.41</td>
<td>54%</td>
<td>21</td>
</tr>
<tr>
<td>Statewide</td>
<td>12.08</td>
<td>52%</td>
<td>3</td>
</tr>
</tbody>
</table>
Statewide WY Precipitation/Min Temperature 1895-2014

Data from WRCC CA Climate Tracker
Current Conditions
Precipitation Rankings
October 2014

Western Regional Climate Center

Percentile Rankings
0 1 10 33 67 90 99 100

Record Dry Dry Below Average Average Above Average Wet Record Wet
During the last four weeks, equatorial SSTs were above-average across the Pacific and western Indian Ocean and below-average north of Australia (the Maritime Continent).
Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

- Niño 4: 0.8°C
- Niño 3.4: 0.6°C
- Niño 3: 0.9°C
- Niño 1+2: 0.6°C
Atmospheric anomalies over the North Pacific and North America During the Last 60 Days

During early September-late October, the pattern generally featured an anomalous ridge over the western N. America and an anomalous trough over the eastern N. America. This pattern often led to above-average temperatures in the West and below average temperatures in the East.
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Looking Ahead to 2015

Forecast of Weak El Nino
U.S. Monthly Drought Outlook
Drought Tendency During the Valid Period
Valid for November 2014
Released October 31, 2014

KEY:
- Drought persists or intensifies
- Drought remains but improves
- Drought removal likely
- Drought development likely

Authors: Adam Allgood & David Miskus, Climate Prediction Center, NOAA

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).
The seasonal outlooks combine the effects of long-term trends, soil moisture, and, when appropriate, ENSO.
The CFS.v2 ensemble mean (black dashed line) predicts warm-neutral conditions into early 2015.
MULTIVARIATE ENSO INDEX

NOAA/ESRL/Physical Science Division – University of Colorado at Boulder/CIRES
8 Station Index Water Year Totals

- **Drought Busting** (3): High precipitation levels indicating significant rainfall and potential drought relief.
- **Holding Steady/Some Improvement** (10): Moderate precipitation, showing maintenance of current conditions with slight improvement.
- **Drought Continuing** (9): Low precipitation levels, indicating persistent drought conditions.

Precipitation in inches is measured from Water Year (Oct 1 – Sep 30) with data points representing different El Nino conditions: Strong El Nino (diamonds), Moderate El Nino (purple triangles), Weak El Nino (green circles), El Nino Average (solid line), and Period of Record Average (dashed line).
International Multi-Model Ensemble
International Multi-Model Ensemble

MMA prate Anom [mm/day] IC=Oct2014 for DJF

Map showing precipitation anomalies with color bars indicating anomaly values from -1 to 1.
International Multi-Model Ensemble
North American Multi-Model Ensemble
North American Multi-Model Ensemble

NMME Forecast of Prate Anom (mm/day) IC=201410 for 2014DJF
North American Multi-Model Ensemble
8-Station Index

Oct 2014: 2.7 inches (90% of average)
5-Station Index

Oct 2014: 0.1 inches (5% of average)
Oroville Storage

Oct 31, 2014 Storage: 0.96 MAF

Storage (Million Acre-Ft, MAF)

- **1978**
- **1992**

Oct 1978 Storage: 1.2 MAF
Nov 1978 Storage: 1.1 MAF
Dec 1978 Storage: 1.0 MAF
Jan 1978 Storage: 0.9 MAF
Feb 1978 Storage: 0.8 MAF
Mar 1978 Storage: 0.7 MAF
Apr 1978 Storage: 0.6 MAF
May 1978 Storage: 0.5 MAF
Jun 1978 Storage: 0.4 MAF
Jul 1978 Storage: 0.3 MAF
Aug 1978 Storage: 0.2 MAF
Sep 1978 Storage: 0.1 MAF

Oct 1992 Storage: 1.4 MAF
Nov 1992 Storage: 1.3 MAF
Dec 1992 Storage: 1.2 MAF
Jan 1992 Storage: 1.1 MAF
Feb 1992 Storage: 1.0 MAF
Mar 1992 Storage: 0.9 MAF
Apr 1992 Storage: 0.8 MAF
May 1992 Storage: 0.7 MAF
Jun 1992 Storage: 0.6 MAF
Jul 1992 Storage: 0.5 MAF
Aug 1992 Storage: 0.4 MAF
Sep 1992 Storage: 0.3 MAF
Take Home Points

• El Nino years are the most variable of the ENSO groupings on water year outcomes

• Jet Stream’s development of zonal flow or a split flow and split flow location will help determine how the water year plays out
Questions?

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Michael.L.Anderson@water.ca.gov