2021 Updated Winter Weather Outlook

January 21, 2021
by Hector Guerrero
Winter Outlook Topics

- La Nina Status
- Local Climatology
- Winter Outlook
- Winter Impacts
- Summary
- Monitor
La Nina/Southern Oscillation (ENSO)

Can impact Texas weather during the late fall, winter, and early spring season (A cooling of the waters along the equator)
SST Departures (°C) in the Tropical Pacific During the Last Four Weeks

Average SST Anomalies
20 DEC 2020 – 16 JAN 2021

The image shows a map of the Pacific Ocean with contour lines indicating average SST anomalies. The color scale ranges from -3 to 3 degrees Celsius, with different regions shaded to represent the magnitude and direction of the anomalies.
La Nina Weather Pattern

- Weak (-0.5-0.9c),
- Moderate (-1.0-1.4c)
- Strong (1.5 to 1.9c)
- Very Strong (> 2.0c)
West Central Texas
La Nina Status

• La Nina is still at moderate strength
• An intense wavy upper level jet stream that brought several storm systems into the area continues
• Much of West Central Texas has been blessed with above normal rainfall and snowfall from late December into January
• The drought has improved
West Central Texas
El Nino Status

- Temps were above normal in December and below normal January 1-20
- The Arctic Oscillation remains negative
- 22 La Ninas since 1950 and 11 were moderate to strong
2020 La Nina Winter Climatology

Photo courtesy of Sheriff Tim Sanders, Sterling County SO
December 2020
Average Snow, Rainfall and Temperatures

• Abilene Rain 1.82 in. (+0.59 in.)
• Abilene Snow 2.60 in.
• Abilene 48.3 deg or +3 degrees

• San Angelo 1.06 in. (+0.21 in.)
• San Angelo Snow 1.7 inches
• San Angelo 48.5 deg or +1.8 degrees
January 1-20, 2021
Average Snow, Rainfall and Temperatures

- Abilene Rain 1.12 in. (+0.52 in.) DJ 2.94 in.
- Abilene Snow 7.9 in. & 8.7 in. for season
- Abilene 43.4 deg or -1.0 degrees

- San Angelo 0.96 in. (+0.41 in.) DJ 2.02 in.
- San Angelo Snow 5.5 in. & 5.8 in. for season
- San Angelo 43.4 deg or -2.6 degrees
## La Nina Avg. DJF Temperature

<table>
<thead>
<tr>
<th>DJF AVG Temperature</th>
<th>Abilene (Deg)</th>
<th>San Angelo (Deg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Temp</td>
<td>46.3</td>
<td>47.8</td>
</tr>
<tr>
<td>22 La Ninas</td>
<td>46.9</td>
<td>48.8</td>
</tr>
<tr>
<td>11 Weak La Ninas</td>
<td>46.3</td>
<td>48.1</td>
</tr>
<tr>
<td>11 Moderate to Strong La Ninas</td>
<td>47.5</td>
<td>49.6</td>
</tr>
</tbody>
</table>

All La Ninas since 1950 and Normal Rainfall Period 1981-2010
## La Nina Avg. Dec-Feb (DJF) Rainfall

<table>
<thead>
<tr>
<th>AVG DJF Rainfall</th>
<th>Abilene (In.)</th>
<th>San Angelo (In.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Yr Normal Rainfall</td>
<td>3.61</td>
<td>3.13</td>
</tr>
<tr>
<td>22 La Ninas</td>
<td>2.56</td>
<td>2.08</td>
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<tr>
<td>11 Weak La Ninas</td>
<td>2.81</td>
<td>2.52</td>
</tr>
<tr>
<td>11 Moderate to Strong La Ninas</td>
<td>2.30</td>
<td>1.65</td>
</tr>
</tbody>
</table>

All La Ninas since 1950 and Normal Rainfall Period 1981-2010
# La Nina Avg. DJF Snow

<table>
<thead>
<tr>
<th>AVG DJF SNOW</th>
<th>Abilene (In.)</th>
<th>San Angelo (In.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Snow</td>
<td>3.4</td>
<td>1.8</td>
</tr>
<tr>
<td>22 La Ninas</td>
<td>2.8</td>
<td>1.1</td>
</tr>
<tr>
<td>11 Weak La Ninas</td>
<td>3.2</td>
<td>1.0</td>
</tr>
<tr>
<td>11 Moderate and Strong La Ninas</td>
<td>2.6</td>
<td>1.3</td>
</tr>
</tbody>
</table>

All La Ninas since 1950 and Normal Snowfall Period 1981-2010
La Nina Model Forecast of Sea Surface Temperatures
30 Day Temperature Outlook
(Feb)
30 Day Precipitation Outlook (Feb)
90 Day Temperature Outlook (Feb-April)
90 Day Precipitation Outlook (Feb-April)
Arctic Oscillation
The positive (warmer) or negative (colder) mode of the Arctic Oscillation changes the shape of the polar vortex, as shown by these examples from the winters of 1988 to 1989 (warmer) and 2009 to 2010 (colder). Note that the color coding for atmospheric pressure is not for high or low pressure, but for higher or lower pressure than average for a given region. Credit: NOAA Climate.gov, based on NCEP Reanalysis data provided by NOAA ESRL, Physical Sciences Division.
Arctic Oscillation (AO)

- Positive Phase means warmer
- Negative Phase means colder
- Most predictable in the fall, winter and early spring seasons about two weeks out
2020 Winter Impacts

Map showing locations such as Haskell, Abilene, Sweetwater, Brownwood, San Angelo, Brady, Ozona, and Junction.
Winter Impacts

Red Flag Warning

The NWS issues a Red Flag Warning, in conjunction with land management agencies, to alert people to an ongoing or expected critical fire weather pattern.

Critical fire weather conditions are either occurring now, or will shortly.

Be extremely careful with open flames.

weather.gov/safety/wildfire

Take action.
Summary

95% Moderate La Nina to continue through March 2021. 55% chance of going Neutral by April

Chances of precipitation to continue into February with intense wavy upper level jet stream tracking across our region.

Near normal precipitation along and north of I20. South of I20 could be slightly drier. Above normal temperatures through April.

In 2 out of 11 moderate to strong La Ninas Winters since 1950, above normal rain and snow have occurred in West Central Texas. We may go above normal this year.
Summary

Wildfire threat continues with the potential of occasional dry wind storms.

Have seen some improvement in the drought.

If the jet remains active in its current position, we may see a mixed bag of active weather in February.

Arctic Oscillation should remain negative through early February, which means cold outbreaks across portions of the U.S.

Photo Courtesy of Casey Moeller, Haskell VFD
How to Monitor

- www.weather.gov/sjt
- www.cpc.ncep.noaa.gov
Please Drive Slowly

Black Ice is difficult to see and makes roads very slippery, especially bridges and overpasses

weather.gov/winter

www.weather.gov  www.mobile.weather.gov
www.drivetexas.org  or call 1-800-452-9292
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