The Month In Review

March 2022

National Weather Service
Pendleton, Oregon

Photo: Great Horned Owl resting in a tree on a spring day
March 2022, Climate Conditions Summary

March of 2022 was somewhat of a benign month as far as the weather goes. There were a couple significant weather events, but overall, the month was quieter than normal for typical climatology conditions for the month of March. There was a heavy snow event on the 9th of the month, which mostly affected the eastern and northeast mountains, especially the northern Blue Mountains. Then a few days later, there was a wind event, in which strong wind gusts were reported in the Foothills of the Northern Blue Mountains of Oregon. There was also a weak thunderstorm event later in the month, but none of the thunderstorms were strong or severe enough to warrant any warnings, significant weather statements, or LSRs. Mean temperatures were above normal at most locations, as will be shown in a few slides later in this presentation. The highest temperatures reported were in the lower to mid 70s, mainly in the Lower Columbia Basin, adjacent lower valleys, and the Blue Mountain Foothills. The coldest temperatures reported were mostly in the teens to near 20, except -10 at Meacham, OR, which occurred during a cold snap in the early to mid part of the month. Below, and on the next slide, are some images showing some of the weather conditions that occurred during the month.

Late season snowstorm in the Northern Blue Mountains of Oregon.

Sun shining over the snow covered Blue Mountains just before sunset.

Early spring thunderstorms off in the distance over the Southern Blue Mountains.
More Images Representing March 2022 Climate Conditions

AC Lenticular Clouds over Mt Adams

Heavy snow-covered trees in the Blue Mtns.

A soaking rain event in northeast Oregon

A Great Horned Owl sitting in spring tree buds
The departure from normal of the average temperatures were nearly all above normal, except for an area over the northeast Oregon mountains and in the Cascades in western Deschutes County in central Oregon. The warmest areas were in central and south-central Washington, portions of north central Oregon, and in east central Oregon. Departure from normal values ranged from about -2 degrees to +6 degrees.
Almost all of the forecast area had below normal precipitation as represented by the percent of normal precipitation in the above image. The exception was over the western OR Lower Columbia Basin and north central OR, which had above normal precipitation. Values ranged from as low as 25 percent of normal in the driest areas to as high as 150 percent of normal in the wettest areas.
The table above shows that every station listed had above normal temperatures for the mean maximum, mean minimum and mean average temperatures for the month. Values ranged 0.3 to 5.5 degrees for the mean maximums, 0.8 to 4.9 degrees for the mean minimums, and 0.3 to 5.4 degrees for the mean average temperatures. Precipitation amounts were all below normal for every station listed above, with values ranging from -0.94 inch at the La Grande Airport to -0.07 inch at Kennewick, WA (which happened to be in the wettest location of the forecast area).
The average 500 MB flow pattern for March was a combination of a subtle upper ridging pattern to a zonal westerly flow pattern. The upper ridging was likely the cause of the above normal temperatures and below normal precipitation, shown on the previous slide. However, the westerly zonal component was likely the cause of the couple of rainfall events and the wind event. As previously mentioned earlier, the month was rather benign for extreme weather, and this type of pattern fits that well.
During the period from late January through late February, a strong upper ridge persisted just off the Pacific Northwest coast, which resulted in lengthy period of a stable northwest flow over the forecast area. While this type of pattern would normally result in dry and stable conditions (which was the case for the mountains), the lower elevations had lengthy periods of moist fog and stratus. Then by March, the ridging pattern shifted eastward, and it had also weakened. This caused a continuation of the dry and warmer than normal conditions, but the fact that it was weaker allowed for more weather systems.
Most of the significant weather events were heavy snow, which occurred on the 9th of the month, which mainly impacted the northeast mountains. The other significant weather event was a wind event on the 13th of the month, which mainly impacted the Oregon Foothills of the Northern Blue Mountains.

Record weather events were mostly either record high temperatures or record low. The only other record report was of a high rainfall event on the 3rd. It is interesting to note that there was a record low and then a record high that were only 3 days apart from the 10th – 12th, which were both at Walla Walla, WA.
### March 2022, Observed Monthly Max & Min Temperatures

<table>
<thead>
<tr>
<th>Location</th>
<th>Highest Maximum</th>
<th>Lowest Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pendleton, OR</td>
<td>72</td>
<td>20</td>
</tr>
<tr>
<td>Redmond, OR</td>
<td>74</td>
<td>5</td>
</tr>
<tr>
<td>Pasco, WA</td>
<td>73</td>
<td>17</td>
</tr>
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<td>Yakima, WA</td>
<td>73</td>
<td>14</td>
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<td>Walla Walla, WA</td>
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<td>Bend, OR</td>
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</tr>
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<td>Ellensburg, WA</td>
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<td>18</td>
</tr>
<tr>
<td>Hermiston, OR</td>
<td>71</td>
<td>17</td>
</tr>
<tr>
<td>John Day, OR</td>
<td>75</td>
<td>13</td>
</tr>
<tr>
<td>La Grande, OR</td>
<td>70</td>
<td>11</td>
</tr>
<tr>
<td>The Dalles, OR</td>
<td>75</td>
<td>23</td>
</tr>
<tr>
<td>Meacham, OR</td>
<td>63</td>
<td>-10</td>
</tr>
<tr>
<td>MT Adams RS, WA</td>
<td>65</td>
<td>13</td>
</tr>
</tbody>
</table>

The highest maximum temperatures ranged from 63 degrees at Meacham, OR to 75 degrees at The Dalles, OR. The lowest minimum temperatures ranged from -10 degrees at Meacham, OR to 23 degrees above zero, again at The Dalles, OR. The cold lowest minimums were caused by an early month arctic outbreak.
Precipitation amounts ranged from a minimum of 0.11 inch at Yakima, WA to a maximum of 2.77 inches at Meacham, OR. However, most precipitation amounts were below an inch. The only available snow reports were a trace at Pendleton, OR and 0.5 inch at the Mt Adams Ranger Station.
There continued to be an “Exceptional” (D4) drought just east of the OR Cascades, with a patch of “Extreme” drought conditions (D3) extending to the southern WA Cascades. The rest of the forecast area had mostly “Severe” to “extreme” drought conditions. There was just a small patch of “Moderate” drought conditions (D1) over the Oregon Lower Columbia Basin and the Foothills of the Northern Blue Mountains of Oregon.
The temperature outlook for the next 3 months (April - June) is for a greater chance of mostly below normal temperatures for the Pacific Northwest. This is still consistent with the La Nina event that is continuing to taking place.
The precipitation outlook for the next 3 months (April - June) is for a greater chance of near to below normal precipitation over the Pacific Northwest. This is NOT consistent with the current La Nina event, but weather conditions can vary more as the current La Nina weakens.
Sea Surface Temperature (SST) Anomalies for March 2022

SST Departures (°C) in the Tropical Pacific During the Last Four Weeks

In the last four weeks, equatorial SSTs were below average across the east-central and central Pacific Ocean and were above average in the western Pacific Ocean and near South America.

SSTs were again mostly below average over the central and eastern equatorial Pacific from late February through late March, by as much as -1 to -2 degrees C. This is slightly warmer than in February, which is consistent with the weakening of the current La Nina event. There also continued to be small areas of warmer than normal SSTs just off the coasts of Mexico, Central and northern South America.
All Nino Regions continued to have SST anomalies less than zero degrees C. However, there continued to be some slight warming taking place during the month, overall. The greatest warming was in Nino Regions 1 + 2, and 3, and less warming in Nino Regions 3.4 and 4 during March. This warming is consistent with the weakening of the current La Nina event, especially in Nino Regions 3 and 3.4, which have the greatest ENSO affects on weather conditions over the Pacific Northwest.
Sea Surface Temperature (SST) NCEP CFS.v2 Ensemble Mean Outlook

SST Outlook: NCEP CFS.v2 Forecast (PDF corrected)
Issued: 28 March 2022

The SST CFS.v2 ensemble mean (black dashed line) predicts La Niña to continue through the end of the year.

The SST CFS.v2 ensemble mean outlook shows that SSTs are forecast to remain below the zero (neutral) line through the rest of 2022. This would result in the current La Niña event to persist throughout this time frame. The Graphics on the right show that the equatorial Pacific SSTs are to remain below normal for each of the 3-month periods through end of the year.
The current ENSO Alert System Status is still “La Niña Advisory”. La Nina conditions are now favored to continue through the summer, with a 53 percent chance from June – August 2022. Then there will be a 40-50 percent chance of a transition to ENSO-neutral conditions after August. The timing of the transition to ENSO neutral conditions has become even later than previously expected in late February.
Thank You!