Northern New England

SPRING/SUMMER 2019

Winter 2018/2019 Recap

This past winter can be characterized as one with many snowfall events without any blockbuster snowstorms. Another distinguishing trait of this past winter was the majority of precipitation events involved a transition from snow to mixed precipitation and sometimes to rain, which kept individual snowstorm totals generally in the single digits for areas south of the mountains. The overall winter pattern resembled one that could be expected in an El Niño winter with sea surface temperatures in the eastern tropical Pacific approach 1° C warmer than normal and an enhanced tropical jet stream extending from Hawaii into southern California shown in figure 1a and 1b, respectively. Figure 1b also shows the enhanced jet takes a northeastward turn towards New England where the greatest wind anomalies occur, likely from interaction with the polar jet stream. It is this jet stream configuration that likely led to the numerous precipitation events this past winter. Another important aspect of this winter is that before most precipitation events there was a well position area of high pressure across southern Canada which can be seen in figure 2. These high pressure systems helped lock in cold air and keep many of the low pressure systems from tracking too far to our west that would bring more rain than snow. It can be argued that these well placed high pressure systems led to great year for snow sports enthusiasts in the mountains and what helped southern areas finish the winter slightly above average in snowfall.

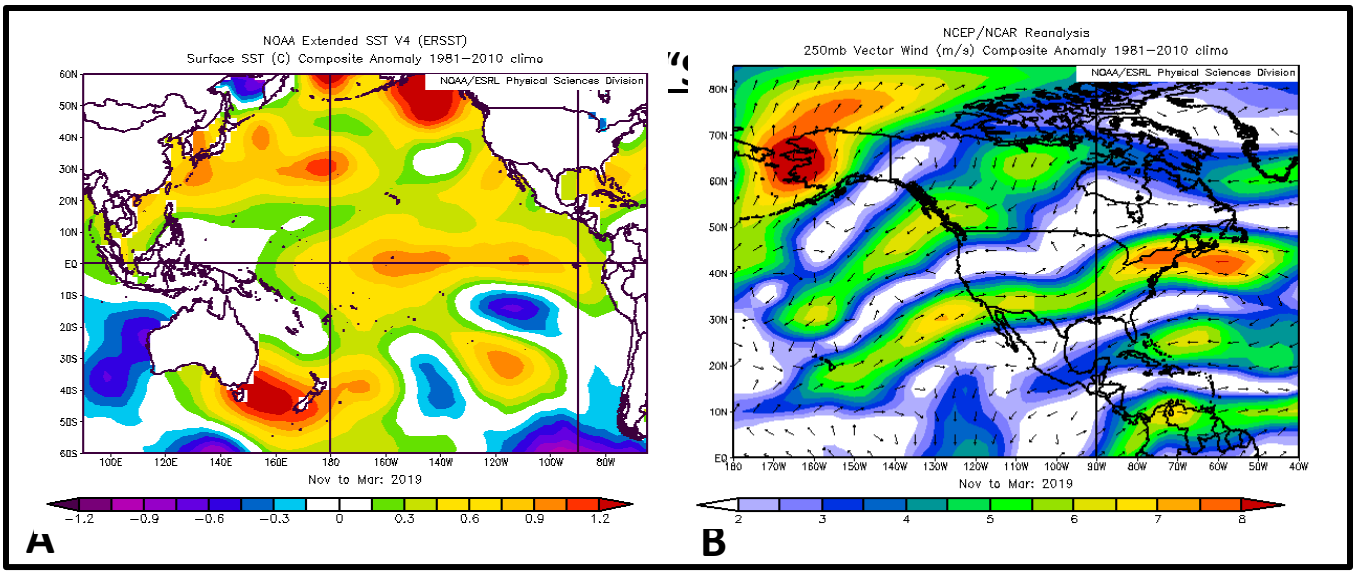


Figure 1. On the left is a map of sea surface temperature (SST) anomalies in the Pacific basin during the November to March period last winter. Warm colors indicate above normal SSTs and note the pocket of SST anomalies around +1° C along the equator south of Hawaii. On the right is a map of jet stream wind anomalies. Notice the ribbon of enhanced jet stream winds extending from Hawaii through the southern United States and then turn northeastward into New England.

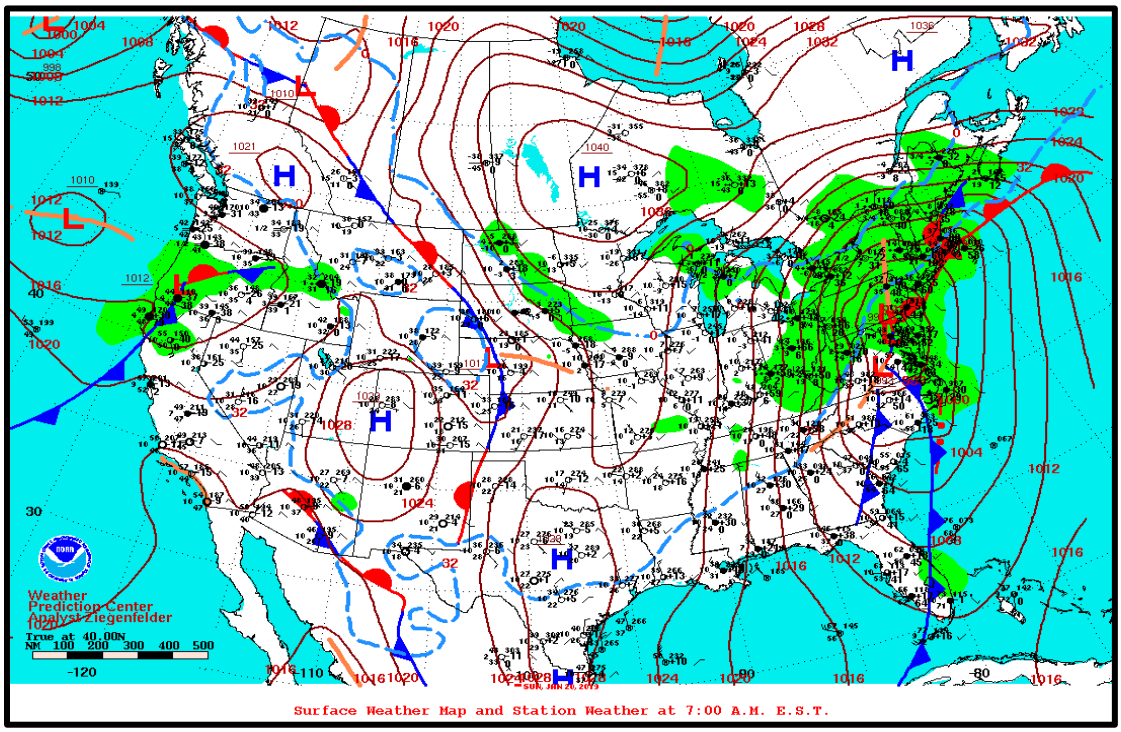


Figure 2. This is a surface weather map on the morning of Sunday January 20, 2019.

Figure 2 Continued. This was one of the more highly anticipated winter storms last winter and also helps show the dominant pattern we experienced. Notice the elongated area of high pressure over Canada stretching from north of Minnesota eastward over to Newfoundland and a large area of low pressure over the interior Mid-Atlantic. This pattern of an area low pressure tracking just inland running into a cold high pressure to our north was quite typical last winter.

Winter started off with a bang in November with two moderate snowfall events for the Portland area of 6.1" on 11/16/18 and 8.3" between 11/19/2019 and 11/20/19. These two snowfall events and a couple smaller events led to Portland receiving 15.9 inches in November, which is 14 inches above average. Portland also recorded its deepest snowpack for the season of 8 inches on 11/21/18. For northern areas around 2-4 feet of snow fell by the 1st of December making for an excellent start to the winter sports season. December was a much quieter month with only 5.5 inches of snow in Portland and much of the area experiencing bare ground around Christmas. The remaining winter months of January through April the Portland area received near normal snowfall amounts and ended the season with 66 inches which ended up being 4.1 inches above normal. The Concord area received 52.8 inches this past winter, which was 7.6 inches below average. Farther north in the Farmington, ME area total snowfall for the season was much above normal with this area receiving 120.8 inches, which was 32.9 inches above normal. Berlin was also well above normal with 114.9 inches, which was 36.6 inches above normal. Figure 3 shows the total seasonal snowfall with much of northern New England receiving upwards of 10 to 15 feet. Overall, temperatures averaged near normal with southern portions of our forecast area receiving just above to just below average snowfall with our northern and mountain areas receiving well above normal snowfall.

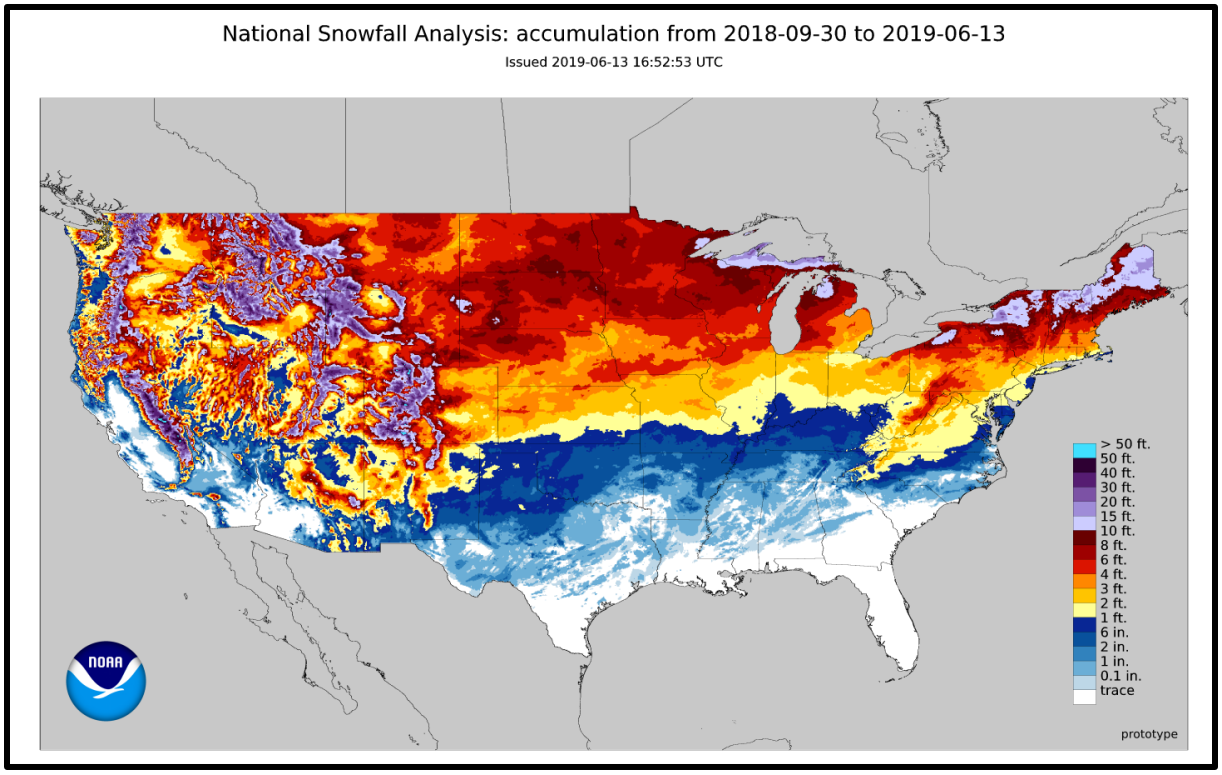


Figure 3. This map shows the seasonal snowfall accumulation for this past winter. Much of northern New England received upwards of 10 to 15 feet with southern portions of the forecast area receiving 4 to 6 feet.

A Quick Note on "Spring" 2019

Raise your hand if you think spring 2019 was terrible? This seems to be the consensus amongst us here at WFO Gray, because it was both generally cool and wet for much of March through May. I will not delve too much into the "cool" part except to say that it was indeed cooler than normal. But what can some numbers tell us about how "wet" it actually was?

Here at the office this spring, we recorded 47 days with measurable precipitation, two more than the 45 days in 2000 that was our previous record. Our records here only go back to 1996, but it does confirm what you are probably thinking: that it rained on a lot of days this spring. Similarly, Portland and Concord had 43 and 42 days of measurable precipitation this spring, respectively, not record-setting in either case but more than normal. However, at all three of those sites, the total rainfall amounts for the spring were either near normal (our office) or below normal (Portland and Concord). So while you may have been getting weary

emptying your gauges so often this spring, in the end, total rainfall amounts were not significantly above normal.

	Spring 2019	Normal	Difference
WFO Gray	12.57	12.45	0.12
Portland	11.98	12.57	-0.59
Concord	9.87	10.34	-0.47

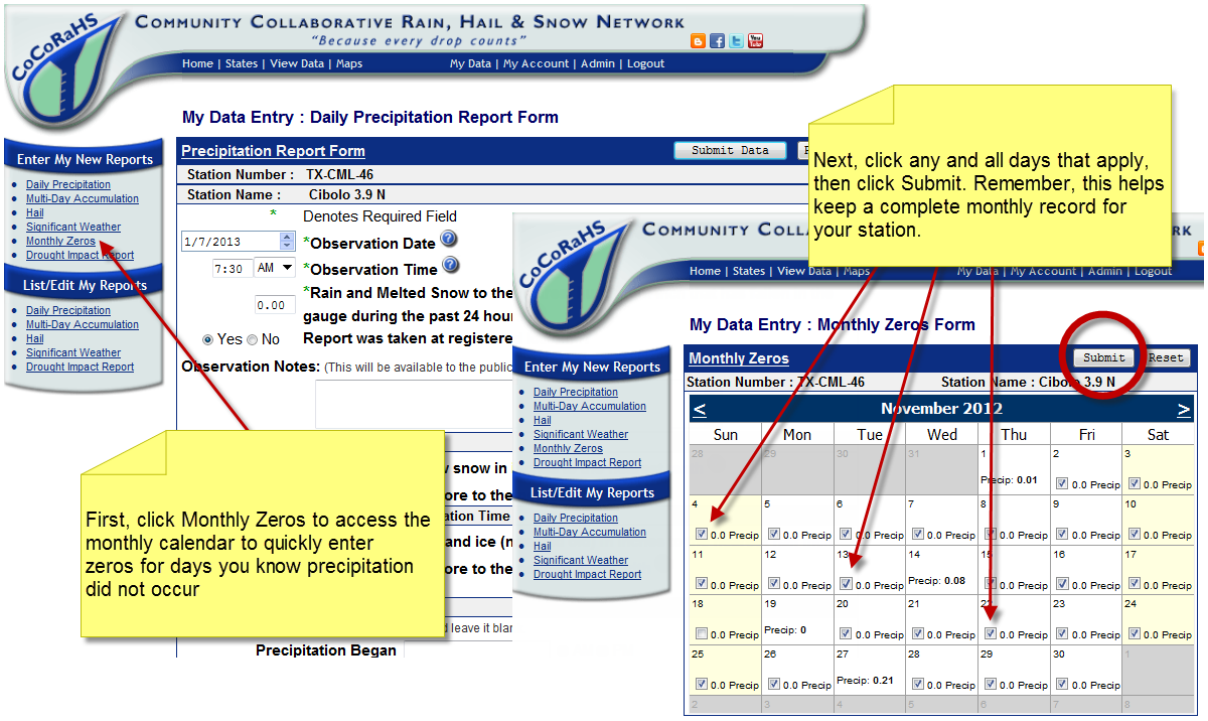
We would like to know: what was your experience this spring? Did you also find it to be cool and wet? Did you get tired of emptying your gauge daily? Did you enjoy the spring just like it was? Feel free to let me know by writing to me at w.watson@noaa.gov.

Reporting Tips and Reminders

As we enter our convective season and our precipitation generally becomes more showery and, therefore, more spotty in coverage, let's talk about entering zeros for precipitation.

It is just as important for us to know where it has not rained as much as where it has rained! Both pieces of information are not only critical for providing ground truth at locations with suboptimal radar coverage but also in providing information to help with forecasting river flooding and drought conditions. Remember, all of your data is archived and used for these and other related purposes and by various weather-related entities!

There are two ways to enter zeros: just as you would enter actual precipitation on the Daily Precipitation or Multi-Day Accumulation report forms…or by entering all of your zeros in a month all at one time. The graphic below outlines the steps to enter your "monthly zeros" (on next page):

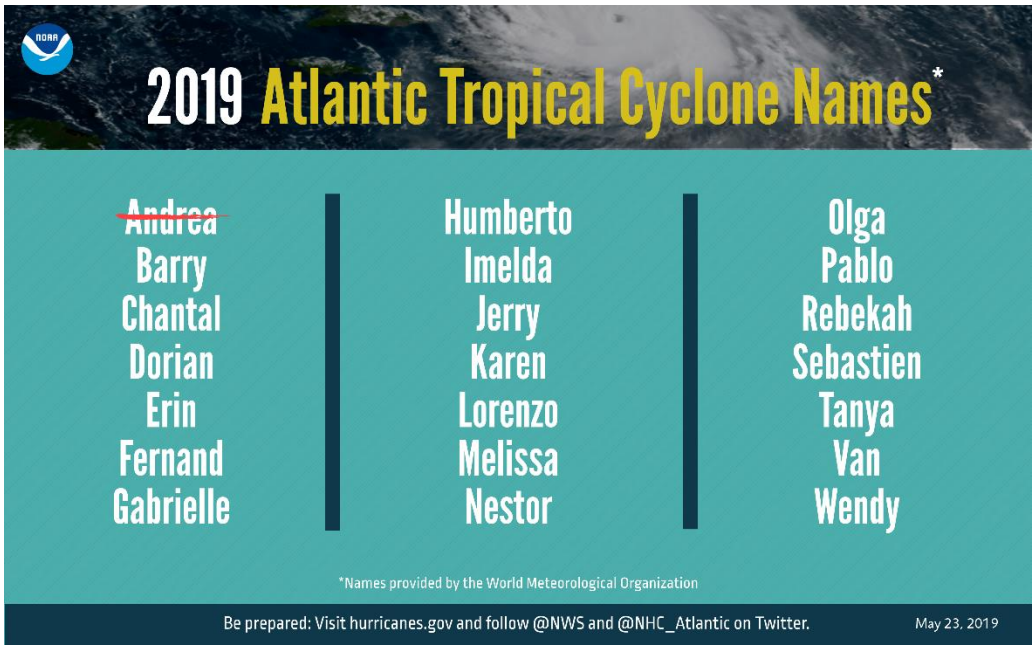


Finally, let's talk about what you should do if you go on vacation this summer and are not able to report every day. First, this is perfectly fine! Remember, you can always submit a Multi-Day Accumulation report when you are unable to check your gauge daily, and we encourage you to do this in those situations. Another helpful tip is to use the "Notes" box on the Multi-Day Accumulation report page to give a brief explanation: "Total for July 1-8", "Total since last Thursday", etc. Thank you!

2019 Atlantic Hurricane Season Outlook

On May 23, NOAA released their official forecast for the 2019 Atlantic hurricane season, which began on June 1 and will end November 30. As far as seasonal probabilities, NOAA expects a 40% chance of a near-normal season and matching 30% chances each for above-normal and below-normal seasons, making a near-normal season the most likely of the three to occur. More specifically, NOAA expects 9-15 named storms to develop this season, of which 4-8 become hurricanes and 2-4 become major hurricanes of category 3 or greater strength. While El Nino conditions are expected to continue, providing a mitigating factor for tropical development, forecast warmer than normal Atlantic and Caribbean sea-surface temperatures and an expected active West African monsoon typically

favor increased tropical activity in the Atlantic basin. We have already seen our first named storm, Andrea, in May. For more information, see [this link](#).



In northern New England, it has been some time since our region has been directly affected by a tropical system, landfalling or otherwise. While the remnants of the once-powerful Hurricane Florence brought substantial rainfall to extreme southern New Hampshire last September (as discussed in our last newsletter!), Hurricane Sandy (2012), Hurricane Irene (2011) and Hurricane Bob (1991) are probably the most recent systems to cause significant impacts here and nearby. Please remember…while we would like your observations if a tropical cyclone affects our region, do not put yourself in any danger to provide them!

Finally…a very big thanks to all of you for your contributions! Look for our next newsletter this fall!

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