January 10-14, 2020

# of Temperature Records Broken

<table>
<thead>
<tr>
<th>Date</th>
<th>HiMin</th>
<th>HiMax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 10</td>
<td>244</td>
<td>83</td>
</tr>
<tr>
<td>Jan. 11</td>
<td>241</td>
<td>206</td>
</tr>
<tr>
<td>Jan. 12</td>
<td>207</td>
<td>263</td>
</tr>
<tr>
<td>Jan. 13</td>
<td>87</td>
<td>56</td>
</tr>
<tr>
<td>Jan. 14</td>
<td>92</td>
<td>36</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>MeanD</th>
<th>MeanD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 10</td>
<td>+5F</td>
<td>+3F</td>
</tr>
<tr>
<td>Jan. 11</td>
<td>+5F</td>
<td>+4F</td>
</tr>
<tr>
<td>Jan. 12</td>
<td>+6F</td>
<td>+5F</td>
</tr>
<tr>
<td>Jan. 13</td>
<td>+3F</td>
<td>+4F</td>
</tr>
<tr>
<td>Jan. 14</td>
<td>+3F</td>
<td>+3F</td>
</tr>
</tbody>
</table>

Most Extreme Record Highs:
Marietta OH 77F 1/11/20 +19F
Pulaski VA 79F 1/12/20 +17F
### Temperature Records Broken

<table>
<thead>
<tr>
<th>Date</th>
<th>Hi</th>
<th>Min</th>
<th>HiMax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 10</td>
<td>244</td>
<td>83</td>
<td></td>
</tr>
<tr>
<td>Jan. 11</td>
<td>241</td>
<td>206</td>
<td></td>
</tr>
<tr>
<td><strong>Jan. 12</strong></td>
<td><strong>207</strong></td>
<td><strong>263</strong></td>
<td></td>
</tr>
<tr>
<td>Jan. 13</td>
<td>87</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Jan. 14</td>
<td>92</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

**Mean Departure**

<table>
<thead>
<tr>
<th>Date</th>
<th>MeanD</th>
<th>MeanD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 10</td>
<td>+5F</td>
<td>+3F</td>
</tr>
<tr>
<td>Jan. 11</td>
<td>+5F</td>
<td>+4F</td>
</tr>
<tr>
<td><strong>Jan. 12</strong></td>
<td><strong>+6F</strong></td>
<td><strong>+5F</strong></td>
</tr>
<tr>
<td>Jan. 13</td>
<td>+3F</td>
<td>+4F</td>
</tr>
<tr>
<td>Jan. 14</td>
<td>+3F</td>
<td>+3F</td>
</tr>
</tbody>
</table>

**Most Extreme Record Highs:**
- Marietta OH 77F 1/11/20 +19F
- Pulaski VA 79F 1/12/20 +17F
Where’s Winter?


Gridded 24-hour snowfall (NetCDF) available at: https://www.nohrsc.noaa.gov/snowfall_v2/data/
Analysis and mapping @GCarbin
While the CONUS had its 4th warmest winter on record, Alaska had its coldest winter in 21 years and one of the coldest Febuaries on record. The January high in Fairbanks averaged 4 degree F, the lowest average daily high for January on record. Heavy snow in McGrath pushed the seasonal snowpack to more than twice the normal depth.
February Flip-Flop (Driest Day to A Wet Month*)

Driest February 2020 Day on the 22nd (1060 inches)  Wettest February 2020 Day on the 7th (125k inches!)

*In some areas.
#WeekendDataMining Poll: For the driest 20 days based on CONUS daily mean precipitation since 2005, which month has the greatest number of driest days?

January
February
October
November

Driest February 2020 Day on the 22nd (1060 inches)

*In some areas.
February Flip-Flop (Driest Day to A Wet Month*)

#WeekendDataMining Poll: For the driest 20 days based on CONUS daily mean precipitation since 2005, which month has the greatest number of driest days?

- January: 34.6%
- February: 21.2%
- October: 38.5%
- November: 5.8%

Driest February 2020 Day on the 22nd (1060 inches)

*In some areas.
#DryDayTrivia #WeekendDataMining. The month of November shows up most often in list of 20 driest days since 2005. Here's the ranked frequency based on CONUS daily mean precip:

November: 7 days
January: 5 days
February: 3 days
March/October: only 2 days each!
December: 1 day

#WeekendDataMining Poll: For the driest 20 days based on CONUS daily mean precipitation since 2005, which month has the greatest number of driest days?

- January: 34.6%
- February: 21.2%
- October: 38.5%
- November: 5.8%
February Flip-Flop (Driest Day to A Wet Month*)

Feb 2020 Precipitation Departure 2020, 2019, and 2018 Feb. 10-inch Isohyets

NOAA Weather Prediction Center using NWS data: http://water.weather.gov
PRISM data: Oregon State Univ.
http://prism.oregonstate.edu
BNA Parameter Changes
0000 to 0500 UTC 3/3/2020

Parm | 0000 | 0500
--- | --- | ---
500 wind | 30 | 65 (kt)
MLCAPE | 400 | 800 (J/Kg)
0-6km BS | 50 | 70 (kt)
SCP | 1 | 10
STP | 0 | 3
Per Gensini and Brooks (2018), this region of the CONUS has had an increase in tornado environments and reports in recent decades. Historically, TN has experienced more killer tornadoes at night than any other state.
4-2020

COVID Clears the Skies

Before

After
7-day moving average of total flights tracked by FlightRadar for 2016, 2017, 2018, 2019, 2020
Daily AQI, 1995-2020
Los Angeles/Long Beach, CA

NO2 Concentration, Mar-April

2019
2020

Unhealthy  Moderate  Good
COVID Clears the Skies

Aircraft-Based Observations
Monthly mean observations per day on WIS WMO Regional Totals

Left Axis: solid lines
Right Axis: dashed lines

Jan Feb Mar Apr May Jun

Courtesy Bill Moninger

ENSQPFBC/MMEQPFBC P24I>50-INCH F024 VALID AT 12 Z
OVER EAST 2/3 CONUS

OBSERVATION COUNTS:

MARCH APRIL MAY JUNE


33975 34228 45069 37931

Courtesy Keith Brill
Two August “I” Hurricanes

A rainfall comparison between two East Coast tropical cyclones: Isaias in 2020, and Irene in 2011. Irene still holds a top spot with its extreme daily rainfall amounts over the Eastern U.S. in late August 2011. The rainfall with Irene resulted in extreme and devastating flooding across parts of the Northeast.
5-2020

Tornado Reports Aug. 3-4

Courtesy Sheldon Kusselson

Hurricane Isaias
This long-lasting, severe wind thunderstorm complex (known as a derecho) produced hundreds of reports of damage along with likely a few tornadoes.

Damage swaths 5 days later
Aug. 10, 2020, 7 am to 2 pm CDT Loop 500mb and MLCAPE
Summer 2020 Max Temperature Rankings

Summer 2020 Total Precipitation Rankings
The 2020 Atlantic hurricane season was the most active and the seventh costliest Atlantic hurricane season on record. In addition, it was the fifth consecutive above average Atlantic hurricane season from 2016 onward. The season featured a total of 31 (sub)tropical cyclones, all but one of which became a named storm. Of the 30 named storms, 13 developed into hurricanes, and six further intensified into major hurricanes, with one, Hurricane Iota, attaining Category 5 strength on the Saffir–Simpson scale. It was the second season to use the Greek letter storm naming system, the first being 2005. Of the 30 named storms, 12 made landfall in the contiguous United States, breaking the record of nine set in 1916. The season was also the fifth consecutive season in which at least one Category 5 hurricane formed. During the season, 27 tropical storms established a new record for the earliest formation by storm number. This season also featured a record 10 tropical cyclones that underwent rapid intensification, tying it with 1995. This unprecedented activity was fueled by a La Niña that developed in the summer months of 2020.
Observed rainfall maps and landfall/intensity (top), NHC day 5 track forecasts (bottom)
A December Dendrite Dumping!

Analysis and Plotting by @GCarkin with NWS data: https://www.nohrsc.noaa.gov/snowfall

Max grid value: 43.89 inches
A December Dendrite Dumping!

Record-Setting Snowstorm in the Interior Northeast

Prelim 48-Hour Snowfall from NOHRSC
7 AM EST Wednesday (16 Dec 2020) to 7 AM EST Friday (18 Dec 2020)

1. Event Maximum: 44” near Newark Valley, NY and near Croydon, NH
   (Croydon report is only 5” shy of the 24-hr record for NH set on Mount Washington!)

2. Potential 24-Hour Pennsylvania State Record: 43.3” near Alba, PA
   (current 38”; requires validation from State Climate Extremes Committee)

3. Potential 24-Hour Vermont State Record: 42” near Landgrove, VT
   (current 42”; would tie; requires validation from State Climate Extremes Committee)

4. Two-day snowfall record (40.0”) at Binghamton, NY (69y p.o.r.). Snow depth was 39” breaking the record from the Blizzard of ‘93.

5. Two-day snowfall record (24.7”) at Williamsport, PA (125y p.o.r)

6. 8th largest snowstorm on record (22.9”) at Albany, NY. 4th largest in the month of December.
Top 10 2020 Meteorological Memories

1-2020 Where's Winter?
2-2020 February Flip-Flop (Driest Day to A Wet Month*)
3-2020 Tennessee Tornadoes, March 2-3, 2020
4-2020 COVID Clears the Skies

5-2020 Hurricane Isaias
6-2020 Iowa Derecho

7-2020 Hurricane Laura
8-2020 Western Heat, Fire & Smoke
9-2020 Sally, Beta, Delta, Zeta, & Eta
10-2020 A December Dendrite Dumping!

Greg Carbin @GCarbin
CoCoRAHS WxTalk Webinar