This documentation describes the record format for the divisional files on /pub/data/cirs/climdiv that have the filenames:

climdiv-cddcdv-vx.y.z-YYYYMMDD
climdiv-hddcdv-vx.y.z-YYYYMMDD
climdiv-pcpndv-vx.y.z-YYYYMMDD
climdiv-pdsidv-vx.y.z-YYYYMMDD
climdiv-phdidv-vx.y.z-YYYYMMDD
climdiv-pmdidv-vx.y.z-YYYYMMDD
climdiv-sp01dv-vx.y.z-YYYYMMDD
climdiv-sp02dv-vx.y.z-YYYYMMDD
climdiv-sp03dv-vx.y.z-YYYYMMDD
climdiv-sp06dv-vx.y.z-YYYYMMDD
climdiv-sp09dv-vx.y.z-YYYYMMDD
climdiv-sp12dv-vx.y.z-YYYYMMDD
climdiv-sp24dv-vx.y.z-YYYYMMDD
climdiv-tmaxdv-vx.y.z-YYYYMMDD
climdiv-tmindv-vx.y.z-YYYYMMDD
climdiv-tmpcdv-vx.y.z-YYYYMMDD
climdiv-zndxdv-vx.y.z-YYYYMMDD

For a map of all CONUS divisions, please see the following link:
http://www.ncdc.noaa.gov/monitoring-references/maps/images/us-climate-divisions-names.jpg

For maps of divisions in Alaska, see the following links:
http://www1.ncdc.noaa.gov/pub/data/cmb/images/us/2015/feb/alaska-clim-divs.png
http://www1.ncdc.noaa.gov/pub/data/cmb/images/us/2015/feb/alaska-clim-divs-with-cities.png

For maps of divisions in Hawaii, see the following links:
https://www.ncei.noaa.gov/monitoring-content/monitoring-references/dyk/images/hi_clim_div_map.jpg
https://www.ncei.noaa.gov/monitoring-content/monitoring-references/dyk/images/hi_stns_map.jpg

nClimDiv
DIVISIONAL
TEMPERATURE-PRECIPITATION-DROUGHT

JUNE 2014

The major parameters in this file are sequential climatic division monthly maximum, minimum and average temperature (deg. F. to 10ths, national temperature to 100ths), precipitation (inches to 100ths), Standardized Precipitation Index (SPI), and Palmer Drought Indices (PDSI, PHDI, PMDI, and ZNDX). Period of record is 1895 through latest month available, updated monthly.

Values from the most recent two calendar years will be updated on a monthly basis. Period of record updates will occur when the underlying data set undergoes a version change.

METHODOLOGY:

Divisional values in nClimDiv were derived from area-weighted averages of grid-point estimates interpolated from station data. A nominal grid resolution of 5 km was used to ensure that all divisions had sufficient spatial sampling (only four small divisions had less than 100 points) and because the impact of elevation on precipitation is minimal below 5 km. Station data were gridded via climatologically aided interpolation to minimize biases from topographic and network variability.

The Global Historical Climatology Network (GHCN) Daily dataset is the source of station data for nClimDiv. GHCN-Daily contains several major observing

networks in North America, five of which are used here. The primary network is the National Weather Service (NWS) Cooperative Observing (COOP) program, which consists of stations operated by volunteers as well as by agencies such as the Federal Aviation Administration. To improve coverage in western states and along international borders, nClimDiv also includes the National Interagency Fire Center (NIFC) Remote Automatic Weather Station (RAWS) network, the USDA Snow Telemetry (SNOTEL) network, the Environment Canada (EC) network (south of 52°N), and part of Mexicos Servicio Meteorologico Nacional (SMN) network (north of 24°N). Note that nClimDiv does not incorporate precipitation data from RAWS because that networks tipping-bucket gauges are unheated, leading to suspect cold-weather data.

All GHCN-Daily stations are routinely processed through a suite of logical, serial, and spatial quality assurance reviews to identify erroneous observations. For nClimDiv, all such data were set to missing before computing monthly values, which in turn were subjected to additional serial and spatial checks to eliminate residual outliers. Stations having at least 10 years of valid monthly data since 1950 were used in nClimDiv.

For temperature, bias adjustments were computed to account for historical changes in observation time, station location, temperature instrumentation, and siting conditions. Changes in observation time are only problematic for the COOP network whereas changes in station location and instrumentation occur in almost all surface networks. As in the U.S. Historical Climatology Network version 2.5, the method of Karl et al. (1986) was applied to remove the observation time bias from the COOP network, and the pairwise method of Menne and Williams (2009) was used to address changes in station location and instrumentation in all networks. Because the pairwise method also largely accounts for local, unrepresentative trends that arise from changes in siting conditions, nClimDiv contains no separate adjustment in that regard.

For additional information on how nClimDiv is constructed, please see:
http://journals.ametsoc.org/doi/abs/10.1175/JAMC-D-13-0248.1

Monthly heating and cooling degree day values are available for the period 1895 to present. The divisional degree day values are derived from the adjusted temperatures using a statistical algorithm. The heating and cooling degree day values available at this site are used for operational monitoring purposes and may be different from the heating and cooling degree day values published in official degree day publications. Population weights utilize the 1981-2020 Census data. As the population values are updated, changes may occur in the weighted state, region, and national historical values.

Hawaii divisional data was in 2025. More information about this dataset can be found here:
https://www.ncei.noaa.gov/access/monitoring/dyk/hi-climate-divisions

Historical drought data have been added to this file for the period 1895 to present. The file is updated monthly. All drought data are calibrated using the period 1931-1990 (cf. Karl, 1986; Journal of Climate and Applied Meteorology, Vol. 25, No. 1, January 1986). Drought data include:

1. Palmer Drought Severity Index (PDSI)

This is the monthly value (index) that is generated indicating the severity of a wet or dry spell. This index is based on the principles of a balance between moisture supply and demand. Man-made changes were not considered in this calculation. The index generally ranges from -6 to +6, with negative values denoting dry spells and positive values indicating wet spells. There are a few values in the magnitude of +7 or -7. PDSI values 0 to -.5 = normal; -0.5 to -1.0 = incipient drought; -1.0 to -2.0 = mild drought; -2.0 to -3.0 = moderate drought; -3.0 to -4.0 = severe drought; and greater than -4.0 = extreme drought. Similar adjectives are attached to positive values of wet spells. This is a meteorological drought index used to assess the severity of dry or wet spells of weather.

2. Palmer Hydrological Drought Index (PHDI)

This is the monthly value (index) generated monthly that indicates the severity of a wet or dry spell. This index is based on the principles of a balance between moisture supply and demand. Man-made changes such as increased irrigation, new reservoirs, and added industrial water use were not included in the computation of this index. The index generally ranges from -6 to +6, with negative values denoting dry spells, and positive values indicating wet spells. There are a few values in the magnitude of +7 or -7. PHDI values 0 to -0.5 = normal; -0.5 to -1.0 = incipient drought; -1.0 to -2.0 = mild drought; -2.0 to -3.0 = moderate drought; -3.0 to -4.0 = severe drought; and greater than -4.0 = extreme drought. Similar adjectives are attached to positive values of wet spells. This is a hydrological drought index used to assess long-term moisture supply.

3. Palmer "Z" Index (ZNDX)

This is the generated monthly Z values, and they can be expressed as the "Moisture Anomaly Index." Each monthly Z value is a measure of the departure from normal of the moisture climate for that month. This index can respond to a month of above-normal precipitation, even during periods of drought. Table 1 contains expected values of the Z index and other drought parameters. See Historical Climatology Series 3-6 through 3-9 for a detailed description of the drought indices.

4. Modified Palmer Drought Severity Index (PMDI)

This is a modification of the Palmer Drought Severity Index. The modification was made by the National Weather Service Climate Analysis Center for operational meteorological purposes. The Palmer drought program calculates three intermediate parallel index values each month. Only one value is selected as the PDSI drought index for the month. This selection is made internally by the program on the basis of probabilities. If the probability that a drought is over is 100%, then one index is used. If the probability that a wet spell is over is 100%, then another index is used. If the probability is between 0% and 100%, the third index is assigned to the PDSI. The modification (PMDI) incorporates a weighted average of the wet and dry index terms, using the probability as the weighting factor. (Thomas R. Heddinghause and Paul Sabol, 1991; "A Review of the Palmer Drought Severity Index and Where Do We Go From Here?," Proceedings of the Seventh Conference on Applied Climatology, pp. 242-246, American Meteorological Society, Boston, MA). The PMDI and PDSI will have the same value during an established drought or wet spell (i.e., when the probability is 100%), but they will have different values during transition periods.

5. Standardized Precipitation Index (SPxx)

This is a transformation of the probability of observing a given amount of precipitation in xx months. A zero index value reflects the median of the distribution of precipitation, a -3 indicates a very extreme dry spell, and a +3 indicates a very extreme wet spell. The more the index value departs from zero, the drier or wetter an event lasting xx months is when compared to the long-term climatology of the location. The index allows for comparison of precipitation observations at different locations with markedly different climates; an index value at one location expresses the same relative departure from median conditions at one location as at another location. It is calculated for different time scales since it is possible to experience dry conditions over one time scale while simultaneously experiencing wet conditions over a different time scale.

Table 1 Classes for Wet and Dry Periods

Approximate Cumulative Frequency %	Range PHDI	Category	Range Z
> 96	> 4.00	Extreme wetness	> 3.50
90–95	3.00, 3.99	Severe wetness	2.50, 3.49
73–89	1.50, 2.99	Mild to moderate wetness	1.00, 2.49
28–72	-1.49, 1.49	Near normal	-1.24, 0.99
11–27	-1.50, -2.99	Mild to moderate drought	-1.25, -1.99
5–10	-3.00, -3.99	Severe drought	-2.00, -2.74
< 4	<-4.00	Extreme drought	<-2.75

STATE CODE TABLE:

Range of values of 01–91.

01 Alabama	28 New Jersey
02 Arizona	29 New Mexico
03 Arkansas	30 New York
04 California	31 North Carolina
05 Colorado	32 North Dakota
06 Connecticut	33 Ohio
07 Delaware	34 Oklahoma
08 Florida	35 Oregon
09 Georgia	36 Pennsylvania
10 Idaho	37 Rhode Island
11 Illinois	38 South Carolina
12 Indiana	39 South Dakota
13 Iowa	40 Tennessee
14 Kansas	41 Texas
15 Kentucky	42 Utah
16 Louisiana	43 Vermont
17 Maine	44 Virginia
18 Maryland	45 Washington
19 Massachusetts	46 West Virginia
20 Michigan	47 Wisconsin
21 Minnesota	48 Wyoming
22 Mississippi	49 Hawaii
23 Missouri	50 Alaska
24 Montana	
25 Nebraska	
26 Nevada	
27 New Hampshire	

FILE FORMAT:

Element Name	Record Position	Element Description
STATE-CODE	1–2	STATE-CODE as indicated in State Code Table as described in FILE 1. Range of values is 01–91.
DIVISION-NUMBER	3–4	DIVISION NUMBER – Assigned by NCDC. Range of values 01–10.

ELEMENT CODE	5-6	01 = Precipitation 02 = Average Temperature 05 = PDSI 06 = PHDI 07 = ZNDX 08 = PMDI 25 = Heating Degree Days 26 = Cooling Degree Days 27 = Maximum Temperature 28 = Minimum Temperature 71 = 1-month Standardized Precipitation Index 72 = 2-month Standardized Precipitation Index 73 = 3-month Standardized Precipitation Index 74 = 6-month Standardized Precipitation Index 75 = 9-month Standardized Precipitation Index 76 = 12-month Standardized Precipitation Index 77 = 24-month Standardized Precipitation Index
YEAR	7-10	This is the year of record. Range is 1895 to current year processed.

(all data values are right justified):

JAN-VALUE	11-17	Palmer Drought Index format (f7.2) Range of values -20.00 to 20.00. Decimal point retains a position in 7-character field. Missing values in the latest year are indicated by -99.99. Monthly Divisional Temperature format (f7.2) Range of values -50.00 to 140.00 degrees Fahrenheit. Decimals retain a position in the 7-character field. Missing values in the latest year are indicated by -99.90. Monthly Divisional Precipitation format (f7.2) Range of values 00.00 to 99.99. Decimal point retains a position in the 7-character field. Missing values in the latest year are indicated by -9.99. Monthly Divisional Degree Day format (f7.0) Range of values 0000. to 9999. Decimal point retains a position in the 7-character field. Missing values in the latest year are indicated by -9999.. Standardized Precipitation Index format (f7.2). Range of values -4.00 to 4.00. Decimal point retains a position in 7-character field. Missing values in the latest year are indicated by -99.99.
FEB-VALUE	18-24	
MAR-VALUE	25-31	
APR-VALUE	32-38	
MAY-VALUE	39-45	
JUNE-VALUE	46-52	
JULY-VALUE	53-59	

AUG-VALUE	60-66
SEPT-VALUE	67-73
OCT-VALUE	74-80
NOV-VALUE	81-87
DEC-VALUE	88-94