WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
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Ref.: 19595/2023-L13 S/CMP

Our ref.: 19595/2023/S/CMP 21 September 2023

Annex: 1 (available in English only)

Subject: WMO publication of the Climatological Standard Normals for 1991–2020

Action required: Submission of updates at your earliest convenience, but preferably **not later than 29 February 2024**

Dear Sir/Madam,

I am pleased to inform you that the United States of America National Oceanographic and Atmospheric Administration (NOAA), through their National Centres for Environmental Information (NCEI), on behalf of the World Meteorological Organization (WMO) has published the Climatological Standard Normals (CLINO) for 1991–2020. In consolidating CLINO submissions of 140 Members, NCEI applied a global quality control process and applied minor corrections and noted issues in country-specific documents accordingly. The published CLINO data sets can be accessed here, and the WMO News on the CLINO publication has been issued. It is my pleasure to express my sincere appreciation to Members and NCEI for their tireless efforts and excellent collaboration on this important initiative.

WMO acknowledges the time and effort needed to calculate and submit CLINO. I have been informed by Members that homogenization of underpinning time series data is a complex process which requires time and resources, and which may delay the calculation of CLINO significantly. The WMO Secretariat is receiving updates to the national CLINO submissions already. I therefore wish to provide an opportunity for Members to submit updates of CLINO for 1991–2020 **by 29 February 2024**. I hope that this update process may also stimulate the submission of CLINO for 1991–2020 by those 53 Members, who have not yet had a chance to do so.

As outlined in my previous WMO call for submission of CLINO 1991–2020 (WMO letter of 2 August 2021, ref.: 16953/2021/S/CS/CMP/CLINO9120), it is requested that data be calculated, digitized and provided in either Excel or text format, following the guidance provided in the *WMO Guidelines on the Calculation of Climate Normals* (WMO-No. 1203) as well as in the attached Guidelines for the submission of WMO CLINO (see annex). Additional information including the Excel and text file templates are available online. Members are requested to always submit/re-submit the complete national CLINO data set, which should include the updated data.

To: Permanent Representatives of Members with WMO

cc: Hydrological Advisers
Presidents of Regional Associations
President of SERCOM
President of INFCOM
National Centres for Environmental Information (NCEI), Asheville, United States of America
WMO Regional Offices

To facilitate the publication of CLINO updates for the period of 1991–2020 and any other past CLINO periods, 1961–1990 in particular, I should be grateful if you could send your updates at your earliest convenience but preferably **not later than 29 February 2024**, to the WMO Secretariat at: wcdmp@wmo.int. Please use the following subject for your submission: "CLINO [name of country/territory]" (example: CLINO Germany).

Should you require any further clarification, please do not hesitate to contact Mr Peer Hechler, Scientific Officer, at the WMO Secretariat: wcdmp@wmo.int.

Yours faithfully,

Prof. Petteri Taalas
Secretary-General

Ref.: 19595/2023-L13 S/CMP

GUIDELINES FOR THE SUBMISSION OF WMO CLIMATOLOGICAL STANDARD NORMALS:

Collection for 1991–2020

This document, the Excel template with an example, the ASCII *.cvs with an example, and a copy of the *WMO Guidelines on the Calculation of Climate Normals* (WMO-No. 1203) are located at:

https://www.ncei.noaa.gov/pub/data/normals/WMO/

CONTENTS

Page

1. BACKGROUND

This document provides technical instructions for submitting Climatological Standard Normals for the most recent 30 year period ending in "0", 1991–2020. Brief background material for this activity is provided below, followed by uniform collection instructions.

1.1 World Meteorological Organization Climate Normals

In 2015, the seventeenth World Meteorological Congress (Cg-17) approved a change in formal practice to calculate Climatological Standard Normals every ten years, rather than in non-overlapping 30 year periods (Resolution 16 (Cg-17) – Report of the sixteenth session of the Commission for Climatology). In 2017, WMO published *Guidelines on the Calculation of Climate Normals* (WMO-No. 1203) that provides updated methodological instructions for these calculations (WMO, 2017). The combination of these progressive steps provides an opportunity to collect globally Climatological Standard Normals for the period 1991–2020. These Normals will be gathered and housed for global access at the US National Oceanic and Atmospheric Administration (NOAA) as done during the mid-1990s, when the Climatological Standard Normals for the period 1961–1990 were collected for the WMO and are still available at the World Data Centre for Meteorology Asheville website:

https://www.ncei.noaa.gov/products/wmo-climate-normals

The current normals collection will be based on the guidance and definitions in the *Guidelines on the Calculation of Climate Normals* (WMO-No. 1203). For the definitions of climate elements and parameters and methods for their calculations, readers should refer to these *Guidelines* and its underlying source documents. This document will merely describe the submission process and format.

1.2 Submission channels

WMO Members should make submissions to the WMO Secretariat email account at wcdmp@wmo.int. Each WMO Member has an option to submit station files in Excel format or Comma Separated Values (*.csv ASCII text) format as attachments to electronic mail. Example files of each type can be seen in Attachment I and Attachment II.

2. METHODOLOGY FOR REPRESENTING THE CLIMATOLOGICAL STANDARD NORMALS FOR 1991–2020

2.1 Station header information

Each file submitted can contain Climatological Standard Normals for many different variables but should be limited to only one station per tab when providing data in the Excel format or one station per file when providing data in the ASCII *.csv format. The Excel file format is simple and compatible to most versions of Excel. Each tab or file header should contain the following information:

Station Header Record

Row 6: Country Name – Column B

Row 7: Station Name – Column B

Row 10: WMO Number – Column A formatted as five digit number

Latitude – Column B formatted as deg|min|sec|N or S

Longitude – Column C formatted as deg|min|sec|E or W

Station_Height – Column D formatted in whole meters (using "below sea level")

Row 13: The WMO Integrated Global Observing System (WIGOS) Station ID (if available) – Column A formatted as 12 digits

The Excel file template provides sufficiently wide columns for all input types with standard Excel Calibri 12-point font. Labels are provided for each field and row spaces separate fields (Attachment I). The same approach can be used in constructing a *.csv file (Attachment II).

2.2 Statistical descriptors

A parameter is a statistical descriptor of a climate element. Most observed elements are formed into means, sums, or counts for understanding the state of the element for a representative calendar month. The *Guidelines on the Calculation of Climate Normals* (WMO-No. 1203) describes the most fundamental parameter calculation methods, which are listed in Table 1 a.

Table 1 a. Calculation method names (abbreviated), codes, and parameter calculation method descriptions from the *Guidelines on the Calculation of Climate Normals* (WMO-No. 1203).

Calculation _Name	Calculation _Code	Parameter calculation method descriptions from WMO-No. 1203
Mean	1	Mean Parameter – mean of daily values during the month
Max	2	Extreme Parameter Maximum – highest value during month
Min	3	Extreme Parameter Minimum – lowest value during month
Sum	4	Sum Parameter – sum of daily values during month
Count	5	Count Parameter – Number of days (cf. section 2.3 below)
Q0	6	Quintile Parameter 0 – Lower bound of quintile 1 (Extreme Minimum)
Q1	7	Quintile Parameter 1 – Upper bound of quintile 1
Q2	8	Quintile Parameter 2 – Upper bound of quintile 2
Q3	9	Quintile Parameter 3 – Upper bound of quintile 3
Q4	10	Quintile Parameter 4 – Upper bound of quintile 4
Q5	11	Quintile Parameter 5 – Upper bound of quintile 5 (Extreme Maximum)

There are also some additional parameter calculation methods provided in Table 1b that are derived from the *CLINO for the period 1961–1990* (WMO-No. 847) collection effort. Some Members may also wish to use these statistics, especially the "Number of Years Used to Calculate Normal" statistic, NOY.

Table 1b. Additional parameter calculation methods from the *Climatological Standard Normals for the period 1961–1990* (WMO-No. 847)

Calculation_Name	Calculation_Code	Parameter calculation method descriptions from 1961–1990 normals
Median	12	Median Monthly Value
SDMean	13	Standard Deviation of Mean Monthly Value
SDMeanD	14	Standard Deviation of Mean Daily Value
MaxDate	15	Date (Year/Day) of Occurrence of Extreme Maximum Daily Value

Calculation_Name	Calculation_Code	Parameter calculation method descriptions from 1961–1990 normals
MinDate	16	Date (Year/Day) of Occurrence of Extreme Minimum Daily Value
MinMon	17	Minimum Monthly Value
dMinMon	18	Year of Occurrence of Minimum Monthly Value
MaxMon	19	Maximum Monthly Value
dMaxMon	20	Year of Occurrence of Maximum Monthly Value
NOY	98	Number of Years Used to Calculate Normal
Custom	99	Custom Parameter or Statistic Specified by Contributor

2.3 Principal climatological surface parameters and units

Climate parameters are defined as an aspect of climate that can be statistically described, such as mean air temperature, precipitation total, or mean sea level pressure. Subject to limitations on available data, there are eight principal climatological surface parameters (Table 2) that should always be reported in station climate normals submissions if possible. The Excel submission template contains these fields (as well as the secondary parameters). The suggested submission format includes the use of the parameter name in a header above a data table. In order to assure compatibility between the Excel and ASCII *.csv submissions, parameter name words are linked by underscores with no spaces, and units of temperature are spelled out in basic ASCII characters (Deg_C). Finally, it should be noted that additional climatological surface parameters derived for the same element but using a different calculation method (e.g. median precipitation total, extreme maximum daily maximum temperature, etc.), can be reported on additional spreadsheet rows in conjunction with each principal climatological surface parameter.

Table 2. Principal climatological surface parameters from the *Guidelines on the Calculation of Climate Normals* (WMO-No. 1203).

Parameter_Code	Parameter_Name	Units
1	Precipitation_Total	mm
2	Number_of_Days_with_Precipitation_≥_1 mm	count
3	Daily_Maximum_Temperature	Deg_C
4	Daily_Minimum_Temperature	Deg_C
5	Daily_Mean_Temperature	Deg_C
6	Mean_Sea_Level_Pressure	hPa
7	Mean_Vapour_Pressure	hPa
8	Total_Number_of_Hours_of_Sunshine	hours

While it is very important for Members submitting normals data to review all recommended calculation instructions in *Guidelines on the Calculation of Climate Normals*, the treatment of "count" variables is especially noteworthy and so will be reviewed here. Normals for counts should be calculated as follows (see Section 4.3 of the *Guidelines on the Calculation of Climate Normals* (WMO-No. 1203)):

(a) The count of values for each individual month should be calculated and converted to a percentage of days with available observations. (For example, if there were 25 days with observations in February 1991 and there were 22 days with temperatures ≥ 30 °C, the value for February 1991 is calculated as 88%);

(b) The average percentage count for each month with sufficient available data within the 1991–2020 period is calculated;

(c) This average is then reconverted to an average number of days for the month by multiplying the average percentage by the number of days in the month. February percentages should be multiplied by 28.25;

(d) The sum of the monthly normals as per above instructions constitutes the annual normal.

The purpose of this procedure is to prevent the underestimation of count variables as a result of missing data within a month.

2.4 Secondary and other climatological surface parameters and units

Secondary climatological surface parameters (Table 3) are generally well recognized from standard CLIMAT-messages and other common sources. Many are counts exceeding a threshold of temperature, precipitation, or wind. When parameter names with the term "threshold" are used, that word should be replaced with the numerical value representing the threshold being tested.

Table 3. Secondary climatological surface parameters from the *Guidelines on the Calculation of Climate Normals* (WMO-No. 1203).

Parameter_Code	Parameter_Name	Units
10	Mean_Station-Level_Pressure	hPa
11	Boundaries_of_quintiles_of_monthly_precipitation	mm
12	Number_of_Days_with_Maximum_Temperature_≥_threshold*_Deg_C	count
13	Number_of_Days_with_Minimum_Temperature_≤_threshold*_Deg_C	count
14	Number_of_Days_with_Maximum_Temperature_<_0_Deg_C	count
15	Number_of_Days_with_Minimum_Temperature_<_0_Deg_C	count
16	Number_of_Days_with_Daily_Precipitation_≥_threshold*_mm	count
17	Number_of_Days_with_Snow_Depth_>_threshold*_cm	count
18	Number_of_Days_with_Wind_Speed_≥_threshold*_m/s	count
19	Number_of_Days_with_Visibility_<_threshold*_m	count
20	Highest_Value_of_Mean_Daily_Temperature	Deg_C
21	Lowest_Value_of_Mean_Daily_Temperature	Deg_C
22	Highest_Value_of_Daily_Maximum_Temperature	Deg_C
23	Lowest_Value_of_Daily_Minimum_Temperature	Deg_C
24	Highest_Value_of_Daily_Precipitation	mm
25	Highest_Wind_Gust	m/s
26	Mean_Number_of_Days_with_Thunder	count
27	Mean_Number_of_Days_with_Hail	count

** For parameters with the word "threshold" specify a numerical value or qualifier, repeat as needed.*

In the "other" category, climatological surface parameters mentioned in the *Guidelines on the Calculation of Climate Normals* (WMO-No. 1203) outside the principal and secondary lists are included in Table 4 a. Element-statistics combinations used to define parameters in some 1961–1990 normals submissions but not directly referenced in the *Guidelines* are listed in Table 4b, often with the option of adopting user-selected thresholds for count statistics. Note

that in Table 4b, the option for parameter code 99 is available if a Member wishes to submit a climatological surface parameter that is not described in the lists available.

Table 4 a. Other climatological surface parameters from the *Guidelines on the Calculation of Climate Normals* (WMO-No. 1203).

Parameter_Code	Parameter_Name	Units
30	Cloud_Amount	okta
31	Global_Solar_Radiation	MJ/m2
32	Direct_Solar_Radiation	MJ/m2
33	Diffuse_Solar_Radiation	MJ/m2
34	Wind_Speed	m/sec
35	Wind_Direction	degrees
36	Soil_Temperature	Deg_C
37	Snowfall	cm
38	Relative_Humidity	%
39	Dewpoint_Temperature	Deg_C

Table 4b. Other climatological surface parameters utilized in the *CLINO for the period 1961–1990* (WMO-No. 847). Some provide variations on a theme, others are somewhat unique to a given country.

Parameter_ Code	Parameter_Name	Units
40	Rainfall	mm
41	Bright_Sunshine	hours
42	Calm_Winds	hours
43	Number_of_Days_with_Sandstorm/Thick Dust/Haze	count
44	Number_of_Days_with_Measurable_Bright_Sunshine	count
45	Number_of_Days_with_Lightning	count
46	Number_of_Days_with_Rain_Showers	count
47	Number_of_Days_with_Snowfall	count
48	Number_of_Days_with_Fog/Ice_Fog	count
49	Number_of_Days_with_Fog_Sky_Obscured	count
50	Number_of_Days_with_Fog_Sky_Unobscured	count
51	Number_of_Days_with_Haze/Smoke	count
52	Number_of_Days_with_Dust	count
53	Number_of_Days_with_Blowing_Dust/Sand	count
54	Number_of_Days_with_Visibility_≤_Threshold*_km	count
55	Number_of_Days_with_No_Sunshine	count
56	Number_of_Days_with_Dew	count
57	Number_of_Days_with_Rime/Glaze_Ice	count
58	Number_of_Days_with_Air_Frost	count

Parameter_ Code	Parameter_Name	Units
59	Number_of_Days_with_Grass_Frost	count
60	Number_of_Days_with_Gale_Force_Winds	count
61	Number_of_Days_Maximum_Temperature_≤_threshold*_Deg_ C	count
62	Number_of_Days_Minimum_Temperature_≥_threshold*_Deg_C	count
63	Number_of_Days_with_Dust/Haze/Mist	count
64	Number_of_Days_Maximum_Temperature_>_threshold*_Deg_ C	count
65	Number_of_Days_Maximum_Temperature_<_threshold*_Deg_ C	count
66	Number_of_Days_Minimum_Temperature_>_threshold*_Deg_C	count
67	Number_of_Days_Minimum_Temperature_<_threshold*_Deg_C	count
68	Number_of_Days_with_Snowfall_≥_threshold*_cm	count
69	Number_of_Days_with_Freezing_Rain/Drizzle	count
70	Number_of_Days_with_Blowing_Snow	count
71	Number_of_Days_with_Rain/Drizzle	count
72	Number_of_Days_with_Snow/Hail	count
73	Number_of_Days_with_Fog/Mist	count
74	Number_of_Days_with_Ice_Storm	count
75	Number_of_Days_with_Thick_Haze	count
76	Number_of_Days_with_Rising_Sand	count
77	Number_of_Days_with_Mist	count
78	Number_of_Days_with_Squalls	count
79	Number_of_Days_with_Duststorm/Sandstorm	count
80	Number_of_Days_with_Sleet/Snow	count
81	Number_of_Days_with_Fog	count
82	Number_of_Days_with_Daily_Max_Wind_Speed_≥_threshold*_m/ s	count
99	Custom_Element_Specified_by_Contributor	custo m

** For parameters with the word "threshold" specify a numerical value or qualifier, repeat as needed.*

3. EXCEL SUBMISSION FOR EACH STATION RECORD

The Excel approach for the collection of Climatological Standard Normals is designed to be very simple to use and is compatible to most versions of Excel (Attachment I). Each climatological surface parameter is available in the Parameter tab of the template workbook. The template has the headers pre-defined for the principal climatological surface parameters and secondary parameters, but for other parameters the three fields in the Parameter tab (Parameter_Code, Parameter_Name, and Units) can be copied and pasted into blank header sections to be included in the submission. When including data in the section below the header, the station's

WMO_Number and the Parameter_Code are the first two items in a data row, followed by the Calculation_Name and Calculation_Code for the parameter that can be copied and pasted from the calculation method tab. The monthly and annual (if available) data values then populate the remainder of the row. An example tab shows a station submission with multiple parameters already entered.

As shown in Attachment I, each parameter included in a submission has an individual header and data table.

Header:

Column A: Parameter_Code

Column B: Parameter_Name

Column C: Units

Data:

Column A: WMO_Number

Column B: Parameter_Code

Column C: Calculation_Name

Column D: Calculation_Code

Columns E-P: January-December Normals Data

Column Q: Annual Normals Data

Further important notes including lessons learnt from 1981–2010 CLINO collection:

- If a value is missing, then leave the field blank;
- All values should be right justified;
- Decimal points are represented as dots "." (11.1, 1014.0, -14.2);
- If the temperature is negative, the first value of the field should be "–" (e.g. –13.0);
- If precipitation is zero, the field should be "0.0". Trace should be coded as "0.0";
- Using the Excel format, a country can submit files individually for each station, or using a single Excel file for all stations, placing each station in a separate spreadsheet tab;
- For single station files, construct file names as: StationName_Number.xls with no spaces or special characters (example: Asheville_72315.xlsx). The last five digits of WIGOS numbers or the WMO numbers are acceptable; if there is no station WMO or WIGOS number, inclusion of a local country station number is optional (maximum five digits). Leading with the station name will be best for listing files on access systems;
- For files with multiple stations, do not put multiple stations in a single table. Each station should have its own tab with the name of each tab constructed as: StationName_Number with no spaces or special characters (example: Asheville_72315.xlsx). WIGOS numbers (last five digits) or the WMO numbers are

acceptable; if there is no station WMO or WIGOS number, local station numbers can be used (maximum five digits). The file should not be compressed if less than 10 MB. The file name should be CountryName_WMO_Normals_9120.xls with no spaces (example: United States_WMO_Normals_9120.xlsx);

- If a folder of files is transmitted in a compressed fashion, it should be compressed and zipped in a standard manner compatible with Windows. The file name should be CountryName_WMO_Normals_9120.zip with no spaces (example: UnitedStates_WMO_Normals_9120.zip).

4. ASCII SUBMISSION IN COMMA SEPARATED VALUES FORMAT (*.CSV)

In the previous Normals collection in the 1990s, ASCII submissions were allowed in a variety of formats using a number of delimiters (blanks, multiple blanks, tabs, etc.). The current collection will reduce these possibilities to one, the use of Comma Separated Values format (*.csv). One of the key attributes of this approach is that vertical alignment of data columns will not be required (as is needed in space and tab delimited files) as long as commas are separating both existing and missing values. Files constructed like the Attachment II example will easily import into Excel, so that the final formatted version made available for all Climatological Standard Normals will all be uniform. The same relative positional formatting will be followed as in the Excel case, except the values will be in an ASCII text file with comma separate values.

Further important notes including lessons learnt from 1981–2010 CLINO collection:

- Missing values are represented with blanks only, no numerical or alphabetical codes;
- Decimal points are represented as dots "." (11.1, 1014.0, -14.2);
- If the temperature is negative, the first value of the field should be "–" (e.g. –13.0);
- If precipitation is zero, the field should be "0.0". Trace should be coded as "0.0";
- Each *.csv station file should be for only one station;
- If a folder of files is transmitted in a compressed fashion, it should be compressed and zipped in a standard manner compatible with Windows. The file name should be CountryName_WMO_Normals_9120.zip with no spaces (example: UnitedStates_WMO_Normals_9120.zip);
- File names should be constructed as: StationName_Number.csv with no spaces or special characters (example: Asheville_72315.csv). WIGOS numbers (last five digits) or the WMO numbers are acceptable; if there is no station WMO or WIGOS number, inclusion of a local country station number is optional (maximum five digits). Leading with the place name will be best for listing files on access systems.

5. SUBMISSION OF EXPLANATORY NOTES

Explanatory notes are strongly encouraged to be provided with the data submission in open text format (Word document or text file; file name: CountryName_WMO_Normals_9120_Additional.doc), ideally using one of the WMO languages. Explanatory notes document information necessary to correctly interpret the Climatological Standard Normals submitted. Examples for explanatory notes include information on homogeneity of underlying time series, use of data estimation methods to fill data gaps in underlying time series, observing time constraints, implications of station automation, less than 30 years of observations, etc.

REFERENCES

World Meteorological Organization, 1996:
Climatological Normals (CLINO) for the Period 1961–1990 (WMO-No. 847)

World Meteorological Organization, 2015:
Seventeenth World Meteorological Congress *(Cg-17)* (WMO-No. 1157)

World Meteorological Organization, 2017:
WMO Guidelines on the Calculation of Climate Normals (WMO-No. 1203)

ATTACHMENT I

EXAMPLE EXCEL FILE (SINGLE STATION PER TAB)

This example table shows a subset of the Excel Climatological Standard Normals spreadsheet for a station. The complete header is included, followed by headers and data fields for three of the eight principal element parameter combinations. The table subset ends on the right to the column for March, but in the template there are columns not shown to the right completing the twelve months and also providing a column for an annual value. Note the use of vertical bar characters to separate the latitude and longitude degrees, minutes, seconds, and direction so they will stay together if exported from the Excel file. The Excel template is available at https://www.ncei.noaa.gov/pub/data/normals/WMO/.

World Meteorological Organization Climate Normals for 1991-2020
Single Station Data Sheet For All Climatological Surface Parameters

Station Header Record

Country_Name	UNITED_STATES_OF_AMERICA
Station_Name	FAIRBANKS_INTL

WMO_Number	Latitude	Longitude	Station_Height
70261	64|49|00|N	147|52|00|W	133

WMO Integrated Global Observing System (WIGOS) Station Identifier (if available)
0-20000-0-70261

Principal Climatological Surface Parameters

Parameter_Code	Parameter_Name	Units
1	Precipitation_Total	mm

WMO_Number	Parameter_Code	Calculation_Name	Calculation_Code	January	February	March
70261	1	Sum	4	11.9	10.2	9.4
70261	1	NOY	98	30.0	30.0	30.0

Parameter_Code	Parameter_Name	Units
2	Number_of_Days_with_Precipitation_>=_1_mm	count

WMO_Number	Parameter_Code	Calculation_Name	Calculation_Code	January	February	March
70261	2	Count	5	3.8	2.8	3.0
70261	2	NOY	98	30.0	30.0	30.0

Parameter_Code	Parameter_Name	Units
3	Daily_Maximum_Temperature	Deg_C

WMO_Number	Parameter_Code	Calculation_Name	Calculation_Code	January	February	March
70261	3	Mean	1	-18.7	-13.8	-4.6
70261	3	NOY	98	30.0	30.0	30.0

ATTACHMENT II

EXAMPLE ASCII FILE IN *.CSV FORMAT (SINGLE STATION PER FILE)

This example table shows a subset of an ASCII *.csv format Climatological Standard Normals file for a station. The complete header is included, followed by headers and data fields for three of the eight principal climatological surface parameters. The table subset shows entire parameter records for all months and the annual value, but the month labels end on the right at March due to space limitations here; in the example file there are month labels to the right completing the twelve months and also providing a column for an annual value. Note the use of vertical bar characters to separate the latitude and longitude degrees, minutes, seconds, and direction so they will stay together if imported into an Excel spreadsheet. The csv template is available at https://www.ncei.noaa.gov/pub/data/normals/WMO/.

World Meteorological Organization Climate Normals for 1991-2020
Single Station Data Sheet For All Climatological Surface Parameters

Station Header Record

Country_Name,UNITED_STATES_OF_AMERICA
Station_Name,FAIRBANKS_INTL

WMO_Number,Latitude,Longitude,Station_Height
70261,64|49|00|N,147|52|00|W,133

WMO Integrated Global Observing System (WIGOS) Station Identifier (if available)
0-20000-0-70261

Principal Climatological Surface Parameters

Parameter_Code,Parameter_Name,Units
1,Precipitation_Total,mm

WMO_Number,Parameter_Code,Calculation_Name,Calculation_Code,January,February,March
70261,1,Sum,4,11.9,10.2,9.4
70261,1,NOY,98,30.0,30.0,30.0

Parameter_Code,Parameter_Name,Units
2,Number_of_Days_with_Precipitation_>=_1_mm,count

WMO_Number,Parameter_Code,Calculation_Name,Calculation_Code,January,February,March
70261,2,Count,5,3.8,2.8,3.0
70261,2,NOY,98,30.0,30.0,30.0

Parameter_Code,Parameter_Name,Units
3,Daily_Maximum_Temperature,Deg_C

WMO_Number,Parameter_Code,Calculation_Name,Calculation_Code,January,February,March
70261,3,Mean,1,-18.7,-13.8,-4.6
70261,3,NOY,98,30.0,30.0,30.0