

NATIONAL WEATHER SERVICE INSTRUCTION 10-1003

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***Operations and Services
Climate Services, NWSPD 10-10***

CLIMATE DATA SERVICES

NOTICE: This publication is available at: <http://www.nws.noaa.gov/directives/>

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SUMMARY OF REVISIONS: This directive supersedes National Weather Services Instruction 10-1003, “Climate Data Services”, dated September 29, 2010.

This instruction has been updated for the following:

1. Updated URLs for web pages.
2. Removed reference to NWSI 10-1311 from section 1.1.
3. Added information in section 1.3 about the use of “Official” and “Unofficial” with reference to climate data.
4. Updated sample images.

(signed)

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date

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1. Introduction. This instruction describes how Weather Forecast Offices (WFO) should respond to requests for climate data for surface in-situ sites. Data definitions are as follows:

1.1 Climate Data Sources. Climate data sources are sites that have undergone both NWS and National Climatic Data Center (NCDC) (<http://www.ncdc.noaa.gov>) data quality control (QC) and have some portion of their observations archived by NCDC. They include:

- a. Automated Surface Observing System (ASOS) (<http://www.nws.noaa.gov/asos>) observing sites
 - i. Local Climatological Data (LCD) sites (Definition):
Observing locations for which the NCDC publishes a quality controlled monthly summary that includes daily temperature extremes, degree days, precipitation and winds (as available). LCDs also include the hourly precipitation and abbreviated 3-hourly weather observations. A list of LCD sites is found in NWS Instruction 10-1004 (Climate Records) (<http://www.weather.gov/directives/sym/pd01010004curr.pdf>).
 - ii. non-LCD sites (Definition):
All ASOS sites not included in “i” above.
- b. NWS Cooperative Observer Program (COOP) (<http://www.weather.gov/os/coop>) observing sites (Definition):
NCDC published data sites whose data collection are supervised by the NWS and meet the definition of a COOP found in NWS Manual 10-1315 - Cooperative Station Observations, (<http://www.weather.gov/directives/sym/pd01013015curr.pdf>). A list of currently active COOP sites is available at <ftp://ftp.ncdc.noaa.gov/pub/data/inventories/COOP-ACT.TXT>

Policy for data other than climate source data described above, is covered in NWS Instructions 1-1201 - Obtaining Environmental Data From External Parties (<http://www.nws.noaa.gov/directives/sym/pd00112001curr.pdf>), which describes policy for the NWS process for the acquisition, use, and transmission of such data sets.

1.2. Climate Data Types. See NWS Instruction 10-1004 (Climate Records) for a list of climate data elements for each type.

- a. Observational data (daily and monthly).
- b. Long term means, extremes, and other statistics (including normals).

1.3 Climate Data Assurance Categories

- a. Preliminary – data before final NCDC QC.
- b. Final – Data that has been through final NCDC QC procedures. NCDC has several QC steps. Data is final only after the final QC step is completed.

Please note: Do not use the terms “Official” or “Unofficial” when referring to climate data assurance categories. It is perceived by users of the data that anything made public from the NWS is official.

1.4. Climate Data Status.

- a. Certified
(<http://www.ncdc.noaa.gov/oa/about/ncdcordering.html#CERTIFICATION>)
(authenticated for legal use; e.g. litigation, etc.) – Certification is performed by NCDC. NCDC may certify final or preliminary data at their discretion. NCDC certification only attests that exact duplicates of climatic records on file at NCDC have been provided to those that request such data.
- b. Non-Certified (any data not authenticated by NCDC)

2. Public Availability of Climate Data from Weather Forecast Offices (WFO). WFOs may receive and respond to data requests from multiple sources (e.g. NWS Internet web sites [section 2.5], e-mail, facsimile, telephone, hard copy [by mail or user visit], etc.). Unless referral is warranted according to Section 3, WFO data availability is subject to the following conditions:

2.1 Preliminary versus Final Climate Data. WFOs will indicate their climate data are “preliminary” with the following disclaimer, which will be provided prominently with climate information supplied by direct contact from WFOs to users (i.e., at the top of any NWS web page; with hard copy, facsimile, or e-mail given to users; or stated orally on the telephone or in person to users)

“These data are preliminary and have not undergone final QC by NCDC. Therefore, these data are subject to revision. Final and certified climate data can be accessed at the [National Climatic Data Center \(NCDC\) - www.ncdc.noaa.gov](http://www.ncdc.noaa.gov).”

2.2 NCDC publications. WFOs will **not** provide NCDC data publications or products for which NCDC charges a fee for cost recovery. WFOs will refer inquiries for these publications to NCDC. NCDC indicates which publications/products are free and which have a charge at the following web page: <http://www.ncdc.noaa.gov/oa/mpp/freedata.html>

2.3 Astronomical Data. WFOs will indicate, when appropriate, that astronomical data are computed by The U.S. Naval Observatory (USNO) with the following disclaimer, which will be provided prominently where this information is provided by direct contact from WFOs to users (i.e., on any NWS web page providing the information; with hard copy, facsimile, or e-mail given to users; or stated orally on the telephone or in person to users)

“The U.S. Naval Observatory (USNO) computes astronomical data. Therefore, the NWS does not record, certify, or authenticate astronomical data. Computed times of sunrise, sunset, moonrise, moonset; and twilight, moon phases and other astronomical data are available from USNO's Astronomical Applications Department (<http://www.usno.navy.mil/USNO/astronomical-applications>). See <http://www.usno.navy.mil/USNO/astronomical-applications/astronomical-information-center/litigation> for information on using these data for legal purposes.”

2.4 Database use. The Regional Climate Centers' (RCCs) (<http://www.ncdc.noaa.gov/oa/climate/regionalclimatecenters.html>) Applied Climate Information System (ACIS) (<http://www.rcc-acis.org>) (see Appendix A) provides data to the NWS through an interface, called xmACIS, to satisfy NWS needs for supplying climate information to the public. WFOs should use xmACIS in lieu of datasets from other systems when responding to data user requests. The xmACIS is automatically updated and synchronized between NCDC and the RCCs with the most recent data available (including near real-time preliminary data and archived final data). Therefore, xmACIS includes the most complete and up-to-date data available to all of NOAA. The xmACIS is nationally maintained and has replaced locally developed, uncoordinated, and inconsistent datasets.

Use of datasets from other systems perpetuates the inconsistencies of the past. WFOs should work with NCDC and the RCCs to ensure the xmACIS database is the best, most up-to-date, consistent dataset available. WFO should correct historical data errors found in xmACIS through Datzilla (<http://datzilla.srcc.lsu.edu/datzilla>) submissions.

2.5 Internet Climate Data Provision – <http://www.weather.gov/climate> WFOs will provide data by using the standard NWS climate web page formats:

2.5.1 NWS Climate home page. Users may access any WFO’s climate web pages using links on the map at the NWS national climate home page (Figure 1) or alternatively at any selected WFO’s home page (<http://www.weather.gov/organization.php>) by clicking on the “Climate/Local” link found in the menu on the left-hand side of the WFO’s home page.

The screenshot shows the NWS National Weather Service Climate Services Web Page. At the top, there is a NOAA logo and the text "National Oceanic and Atmospheric Administration's National Weather Service". Below this is a navigation bar with "Site Map", "News", "Organization", and "Search" fields. A left sidebar contains a "Local forecast by 'City, St'" section with a "City, St" input field and a "Go" button. Below this are links for "Sign-up for Email Alerts", "XML RSS Feeds", "Warnings", "Current", "By State/County...", "UV Alerts", "Observations", "Radar", "Satellite", "Snow Cover", "Surface Weather...", "Observed Precip", "Forecasts", "Local", "Graphical", "Aviation", "Marine", "Hurricanes", "Severe Weather", "Space Weather", "Fire Weather", "Text Bulletins", "By State", "By Message Type", "National", "Forecast Models", "Numerical Models", "Statistical Models...", "MOS Prod", "GFS-LAMP Prod", "Climate", "Past Weather", "Predictions", "Weather Safety", "Weather Radio", "Hazard Assmt...", "StormReady /", "TsunamiReady", "Skywarn™", and "Education/Outreach".

The main content area features a "Climate Services" banner with the text "Visit the National Weather Service Climate Services Web Page for the latest information about what Climate Services is doing for you!" and "Click on the map below to obtain local climate information." Below this is a "Select Recent Observations" dropdown menu and a "Select Climate Outlook" dropdown menu, both with "Go" buttons. The central part of the page is a map of the United States showing "Highest and Lowest Temperature for the 24 Hours ending at 7 AM EST Sat Jul 21 2012". The map is populated with numerous numerical data points in red and blue, representing high and low temperatures across the country. Below the map, it says "Prepared by NOAA National Centers for Environmental Prediction, Hydrometeorological Prediction Center" and "American Samoa · Guam · Puerto Rico". At the bottom, there is a "Text Only Temperatures" link and a disclaimer: "Please note this information is preliminary and subject to revision. Official and certified climatic data can be accessed at the National Climatic Data Center (NCDC) (<http://www.ncdc.noaa.gov/oa/ncdc.html>).

Figure 1: NWS national climate home page. (<http://www.weather.gov/climate>).

2.5.2 WFO climate web page. Figure 2 shows an example of a nationally standardized WFO climate web page. Data will be contained under the following tabs: “Observed Weather” (Figure 2 showing the selection of the “Observed Weather” tab), “NOWdata” (Figure 3), and Local Data/Records. The Astronomical Data tab will link to the USNO. The other tabs provide general information or climate predictions.



Figure 2. Example of a WFO climate web page with the “Observed Weather” tab selected. This tab provides ASOS preliminary data.

As a minimum, WFOs will post under the “Observed Weather” tab the top four products listed (CLI, CF6, RER, CLM - under the column labeled “Product”) for all ASOS LCD locations in their area of responsibility. In addition to these, the CLS, CLQ and CLA products will also be listed if these products are produced by the WFO. See NWS Instruction 10-1004 (Climate Records) for details on these products. WFOs may add additional locations for these products. The Regional Climate Services Program Managers (CSPMs) will, through consensus, determine the amount of archiving for any product. WFOs may also post any other information under “Local/Data Records.”

The screenshot shows the NOAA National Weather Service Forecast Office website for Baltimore/Washington. The page features a blue header with the NOAA logo and the text "National Weather Service Forecast Office Baltimore/Washington". Below the header is a navigation bar with links for "Home", "News", "Organization", and a search box. The "NOWData" tab is selected, displaying a form for selecting weather data. The form is divided into five sections: 1. Product (radio buttons for various data types), 2. Location (a dropdown menu with "Baltimore Area" selected), 3. Variable (radio buttons for temperature, precipitation, etc.), 4. Year (radio buttons for "Current year", "Last year", and "1981-2010"), and 5. View (a "Go" button). A "Product Description" box is visible, explaining that the data represents monthly averages/totals. The page also includes a sidebar with various weather-related links and a footer with the ACIS logo and a description of the Applied Climate Information System.

Figure 3: Example of a WFO web page with the “NOWdata” tab selected. This tab provides ASOS preliminary data and COOP preliminary data.

WFOs select the locations for the NOWData (see Appendix B) products. The amount of archiving for any NOWData product is determined by consensus of the CSPMs in coordination with the RCCs, who provide NOWData through xmACIS. WFOs are encouraged to include all COOPs that have 30-year climate averages computed and/or are sending data daily via phone or the web.

3. Referral of Requests.

a. WFOs will refer data requests to NCDC for the following situations:

- Any request requiring certification of data.
- Any request related to a requirement to fulfill a law, mandate, or ordinance for a federal, state, or local government.
- Any requirement for data to be used in litigation. The WFO will notify NOAA General Counsel (<http://www.gc.noaa.gov>), if the observer or any NWS employee is subpoenaed, and the Forensic Services Meteorologist (NWS/OCWWS/W/OS52, 301-713-0090 x 163) for proceedings arising from transportation accidents.
- Any request for copies of original (“raw”) observation forms
- Any international climate requests.

These requests will be made in accordance with the following instructions:

- 10-2003 (Records Retention)
(<http://www.nws.noaa.gov/directives/sym/pd01020003curr.pdf>)
- 10-2004 (Accident Notification and Response)
(<http://www.nws.noaa.gov/directives/sym/pd01020004curr.pdf>)
- 10-2005 (Handling and Releasing Accident-Related Weather Information)
(<http://www.nws.noaa.gov/directives/sym/pd01020005curr.pdf>)
- 10-2006 (The Accident Investigation/Litigation Process)
(<http://www.nws.noaa.gov/directives/sym/pd01020006curr.pdf>)

b. For requests other than item “a,” WFOs should refer requests for the following situations to NCDC, RCC, State Climatologists, or the NWS web link listing commercial weather vendors serving the U.S.(*) (<http://www.weather.gov/im/dirintro.htm>), as appropriate:

- The request requires data in a format different from what is available to the WFO.
- The request requires a WFO to expend more time and effort than is available to answer.

- The data requested requires a response outside the scope of a WFO's expertise.
 - When data needed are historical or documentary in nature and preliminary WFO data is insufficient.
- c. WFOs will explain the data is considered preliminary and describe the process for requesting certified copies from NCDC.

(*) WFO will **not** recommend a specific commercial vender to a user.

In many cases, NCDC or the RCCs may be best able to handle larger scale analysis at the multi-state, regional, or national levels (e.g. for drought or other widespread trends).

Appendix A - xmACIS (Applied Climate Information System)

xmACIS is a web-based interface that provides interactive access to climatological summary products. The products are based on data from the Regional Climate Centers' constantly-updated climate database, Applied Climate Information System (ACIS). To access the system use the address: <http://xmacis.rcc-acis.org/>.

Using this address, the user will need to select the office identifier from a drop-down menu. To go directly to the web page incorporating the office's custom station list, use the above address followed by a slash (/) and the office identifier, in capital letters, used when the office's station list was created. For example, Boston would use the address: <http://xmacis.rcc-acis.org/BOX/>

The custom station lists in xmACIS can be modified upon request. Stations can be added to or removed from the station lists. Some offices may wish to delete stations from their list, for instance, if their list proves to be too long and unwieldy. Requests for changes should be sent to your regional CSPM and are usually incorporated into xmACIS near the beginning of each month. Note that stations with no data in the ACIS database will not appear on the xmACIS web page. Supplemental Aviation Weather Reporting Stations (SAWRS), for instance, which only have hourly observations (no daily data), are not available in xmACIS.

The xmACIS web page consists of two frames. The frame on the left is used to select program options. When the "Submit" button is selected, the results appear in the right frame. The enter key cannot be used to submit your request – use the "Submit" button. The browser's back arrow does not have any functionality in xmACIS and should not be used. A "Help" button in the options frame displays a page containing brief product descriptions. A more complete "xmACIS User's Guide" is available in PDF format via a link on the help page, or at http://xmacis.rcc-acis.org/static/xmACIS_Users_Guide.pdf

Questions regarding ACIS data availability should be routed through the regional CSPMs. The regions can filter these requests and work with the appropriate RCC for resolution. Data that has been key-entered at local offices can be added to the xmACIS database by contacting the Northeast RCC. Ideas for future enhancements to the xmACIS suite of products should also be routed through the regional headquarters.

Questions regarding xmACIS capabilities and problem reports can be sent to xmacis@nrcc.cornell.edu. This address is also available as a link on the xmACIS help page.

xmACIS is for National Weather Service internal use only. The URLs should **not** be given out to anyone outside of NWS. The RCCs have developed NOWData for general public access to the ACIS database.

Appendix B - NOWData (NOAA's Online Weather Data)

What is NOWData?

NOAA's Online Weather Data (NOWData) is a data query system providing basic climate statistics to the public, using the NOAA RCC Applied Climate Information System (ACIS). Through NOWData, climate statistics are available, on a preliminary basis, for over 3,800 surface observing stations from across the conterminous U.S., Alaska, Hawaii, Puerto Rico, the Virgin Islands, and Guam. Daily and monthly data for temperature, precipitation, snowfall, and heating/cooling/growing degree days are available for the current and previous years. Climate normals are available for the current 30-year normals period and extreme values are available for the full period of record for each station. Data from the 19th Century to yesterday can be found in NOWData.

How to access NOWData?

Click the area of interest on the map at <http://www.weather.gov/climate/> to access a local NWS WFO climate page, and then select the NOWData tab at the upper right.

NOWData may also be accessed directly from any local NWS WFO homepage by selecting "Local" under Climate from the list on the left and then the NOWData tab at the upper right of the local climate page.

At the NOWData interface, select a location and one of the nine products available. Then make additional selections from any menus that appear and select "Go." The product will be displayed in a separate screen.

Why NOWData?

The most common question asked of NWS personnel is "What was the weather like on...?" NOWData provides that answer and much more:

- Unprecedented, user-friendly access to climate information for the general public
- Convenient "one-stop" tool for everyone
- Supports NOAA's commitment to provide climate data to the public

Who is responsible for NOWData?

NOWData was developed by NOAA as a joint project between NWS, NCDC and the RCCs.

Where to get additional information?

NOWData information is considered preliminary and subject to revision. Final and certified climatic data can be accessed at NCDC (<http://www.ncdc.noaa.gov/oa/ncdc.html>). NOWData is designed to provide statistical climate information. Users interested in lengthy data histories for a station should contact NCDC or the RCCs.