

NATIONAL WEATHER SERVICE INSTRUCTION 10-1005

OCTOBER 20, 2015

***Operations and Services
Climate Services, NWSPD 10-1005***

LOCAL CLIMATE OUTLOOKS

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

OPR: W/AFS23 (M. Timofeyeva)

Certified by: W/AFS23 (F. Horsfall)

Type of Issuance: Routine

SUMMARY OF REVISIONS: This directive supersedes National Weather Service Instruction 10-1005, “Local Climate Outlooks,” dated April 20, 2011.

The revision includes:

- Introduction: changed “Weather Forecast Offices (WFO) will answer inquires, select locations, perform secondary quality control, add supplemental information...” to “Weather Forecast Offices (WFO) will answer inquires, select locations, add supplemental information...”
- Reference to current offices involved in the L3MTO production.
- Updated links to other directives referenced in this document
- Explicit specification for climatological reference period
- Updated images

(Signed)

10/6/2015

Andrew D. Stern
Director, of Analyze,
Forecast and Support Office

Date

Table of Contents:

	<u>Page</u>
1. Introduction.....	3
2. Local Three-Month Temperature Outlooks (L3MTO)	3
2.1 Mission Connection	3
2.2 Issuance Guidelines.....	3
2.2.1 Creation Software	3
2.2.2 Issuance Criteria.....	3
2.2.3 Issuance Time	4
2.2.4 Valid Time	4
2.2.5 Product Expiration Time.....	4
2.3 Technical Description	4
2.3.1 Content	4
2.3.2 Format	6
2.4 Updates, Amendments, and Corrections.....	10

NWS I 10-1005 OCTOBER 20, 2015

1. Introduction. The NWS Climate Prediction Center (CPC) will produce Local Climate Outlooks for specific locations in the United States using NOAA's National Centers for Environmental Information (NCEI) data at stations and climate divisions. The NCEP Shared Infrastructure Services Branch (SISB) web services will assist in dissemination and display of the outlooks. Weather Forecast Offices (WFO) will answer inquires, select locations, add supplemental information, and report production problems to CPC for outlooks in their area of responsibility. See Local 3-Month Temperature Outlook (L3MTO) Guidelines <http://www.weather.gov/os/csd/pds/PCU4/L3MTO/Guidelines.pdf> .

2. Local 3-Month Temperature Outlooks (L3MTO). A L3MTO is a probabilistic outlook for a specific location of the 3-month average daily temperature. The L3MTO available on the Internet (<http://www.weather.gov/climate/l3mto.php>) is based on:

- a. The 3-Month Outlook from CPC. For the contiguous U.S. (CONUS), this would be the CPC climate outlook for the CPC divisional area in which the site resides. See [NWS Instruction 10-1001](#) (Climate Outlooks) for details.
- b. CONUS sites only: A correlation between 3-month data from the appropriate climatological reference period for a local site and its respective CPC climate outlook division climatology, using a regression equation.
- c. Alaska and Hawaii sites: Computations of L3MTO Alaska and Hawaii sites follow NWS Instruction 10-1001 (Climate Outlooks) for 3-month temperature outlooks. The format of the display for L3MTO Alaska and Hawaii sites follows this instruction.

2.1 Mission Connection. L3MTO provides information to decision makers with responsibility for activities sensitive to three month and intra-annual climate variation. L3MTO enhances the level of detail and usability of CPC's 3-month climate outlooks. Therefore these outlooks will **not** help people planning events for specific dates or sub- periods, nor those seeking forecasts of monthly temperature extremes. L3MTO will be of most use for economic and risk planning, particularly when used together with climatic reference material (see [NWS Instruction 10-1004](#)).

2.2 Issuance Guidelines.

2.2.1 Creation Software. Monthly L3MTOs are produced using a C-Shell (Linux based command language interpreter) script via a Linux platform automation process (i.e.: "cronjob"). The shell software collects/archives all data and executes programming functions written in Perl (an open source software program) to process all data and format output into Extensible Markup Language (XML). XML files are parsed via Perl and graphics in the formats of Joint Photographic Experts Group (JPEG), Graphic Interchange Format (GIF), and Portable Network Graphics (PNG) are generated with ChartDirector and Imagemagic (both licensed software).

2.2.2 Issuance Criteria. These are scheduled products.

2.2.3 Issuance Time. L3MTO is issued on the internet concurrently with CPC's three month climate products on the third Thursday of each month around 8:30 a.m. Eastern local time.

2.2.4 Valid Time. L3MTO is issued for the 13 three month outlook periods with lead times from 0.5 months to 12.5 months. For example, L3MTO issued in mid-March, will be valid for April through June, May through July, and so on to April through June of the following year.

2.2.5 Product Expiration Time. The 0.5 month lead time outlook expires at the beginning of the valid time of the first 3 month outlook. The other outlooks expire when the next set of outlooks are issued (i.e. the third Thursday of the following month).

2.3. Technical Description. The L3MTO will consist of a variety of graphs and corresponding tables and text. All L3MTO products for each location can be accessed using several web navigational tools embedded in the graphics of national and local web pages and through the four main tabs located on each L3MTO web page (top of Figure 1).

The "National Outlook" Tab (upper left of Figure 1) contains the CPC 3-Month Outlook in map format with links to other seasons available using a dropdown menu. The "Local Outlook" tab (to the right of the "National Outlook" tab) provides access to L3MTO information in the formats described in the following sections.

2.3.1 Content.

a. Three Category Outlook: CPC will express the outlook as forecasted probability (in percent) that the average 3-month temperature will fall into each of three categories: above, below, or near normal. CPC's reference to normal climatology comes from the 30-year mean 3-month temperature and category limits (See [NWS Instruction 10-1004](#) for details). CPC defines the categories as climatologically equally likely; e.g., the top 10 cases of a thirty year record define the above category, the middle 10 cases define the normal category, and the bottom 10 cases define the below category.

b. Range Outlook. CPC will express the expected range of the average 3-month temperature. Expected range outlooks are produced for five confidence intervals or levels of expected chance: 99%, 95%, 90%, 75%, and 50%.

c. Probability of Exceedence/non Exceedence (POE/PoNE) Outlooks. CPC will express the POE/PoNE outlooks as the expected chance of the average three month temperature exceeding or not exceeding a particular probability value. POE and PoNE are produced for 19 values: 99%, 98%, 97%, 96%, 95%, 90%, 80%, 70%, 60%, 50%, 40%, 30%, 20%, 10%, 5%, 4%, 3%, 2%, and 1%.

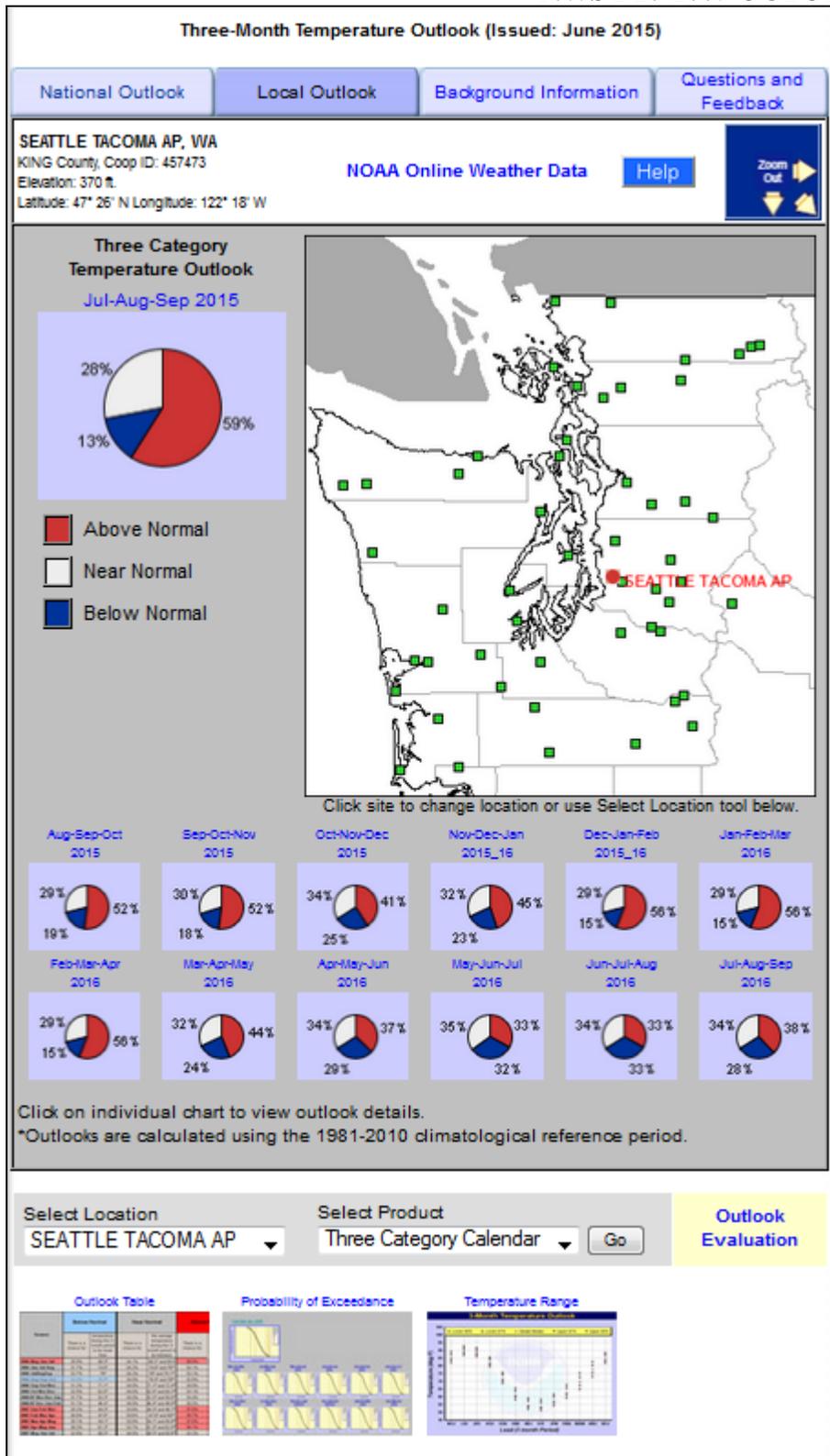


Figure 1. L3MTO web page example for Seattle Tacoma Airport, Washington

2.3.2 Format.

a. Three Category Outlook examples.

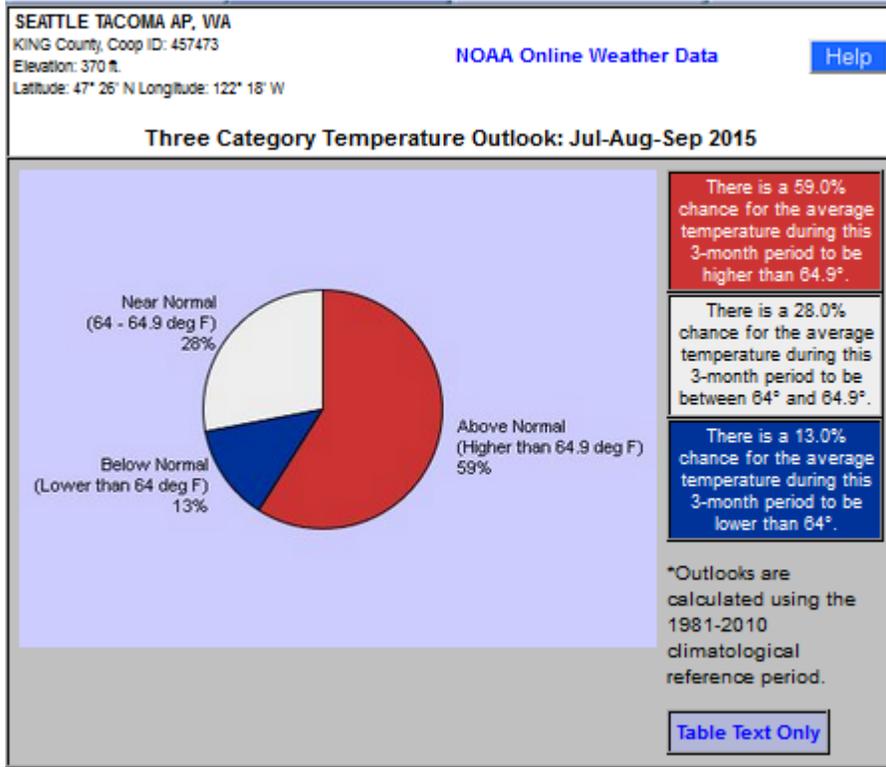
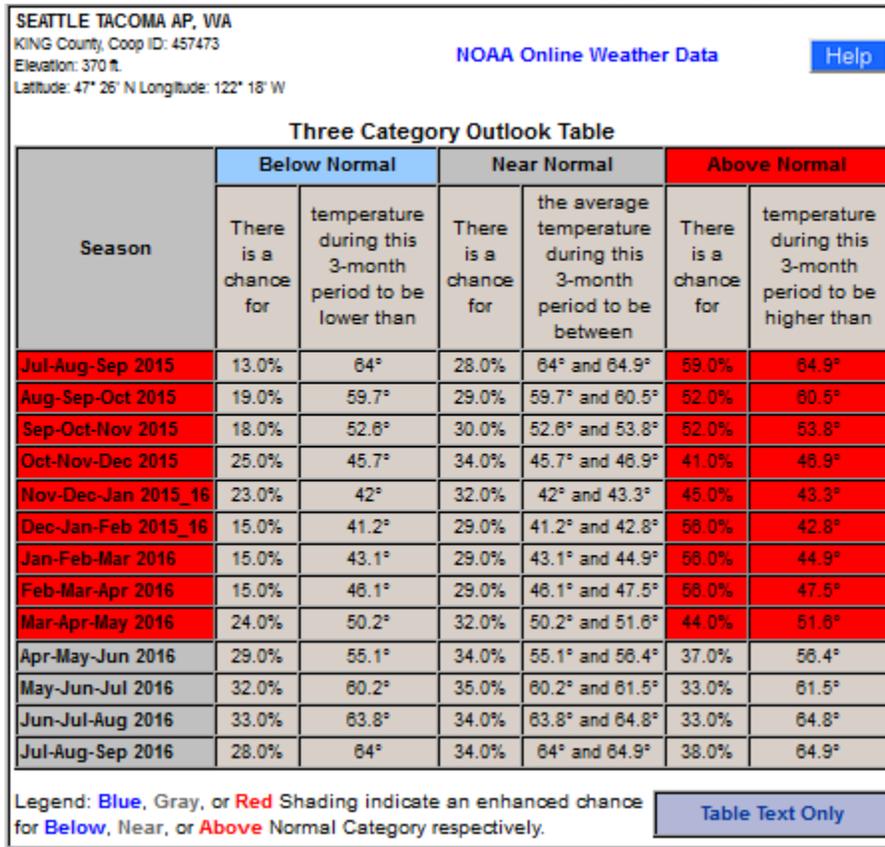


Figure 2. Example for L3MTO “Pie” Chart combining 2 formats: graph and text interpretation statement.



Legend: **Blue**, **Gray**, or **Red** Shadings indicate enhanced chances for **Below**, **Near**, or **Above** Normal Category respectively.

Figure 3. Example of L3MTO combining two formats: data table and text interpretation statements.

b. Range Outlook example.

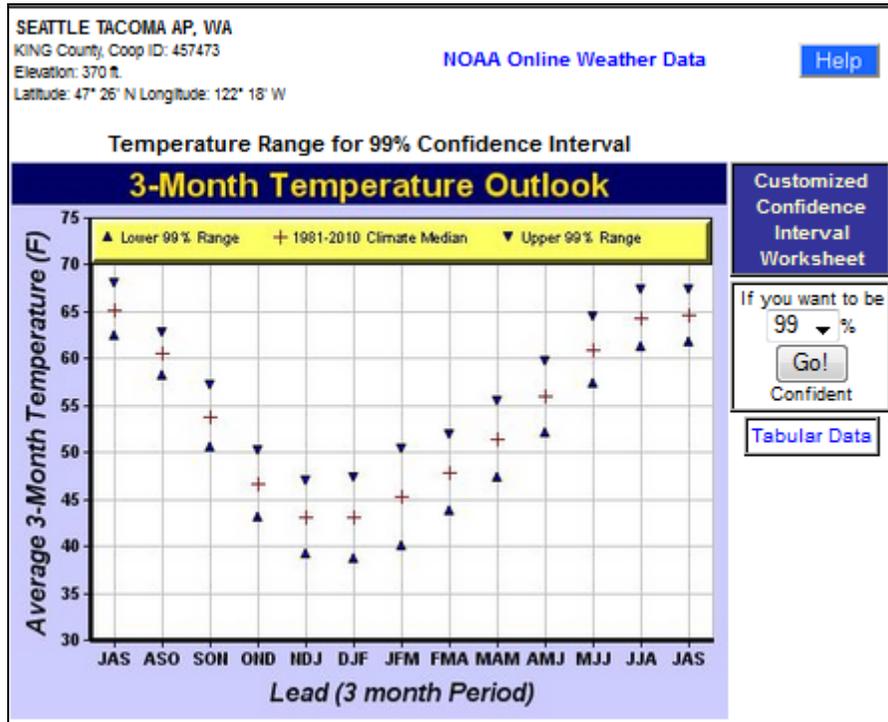


Figure 4. Example of L3MTO Temperature Range Plot uses graph, table and text interpretation formats

c. POE outlook example.

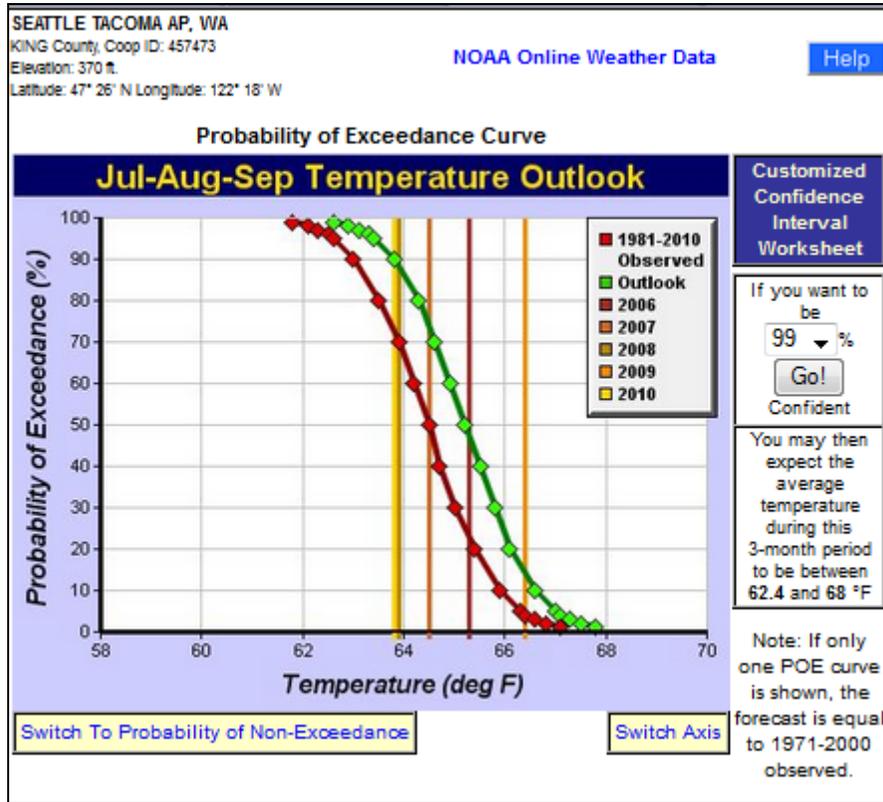


Figure 5. Example of L3MTO POE presented in graph format: x-y plot.

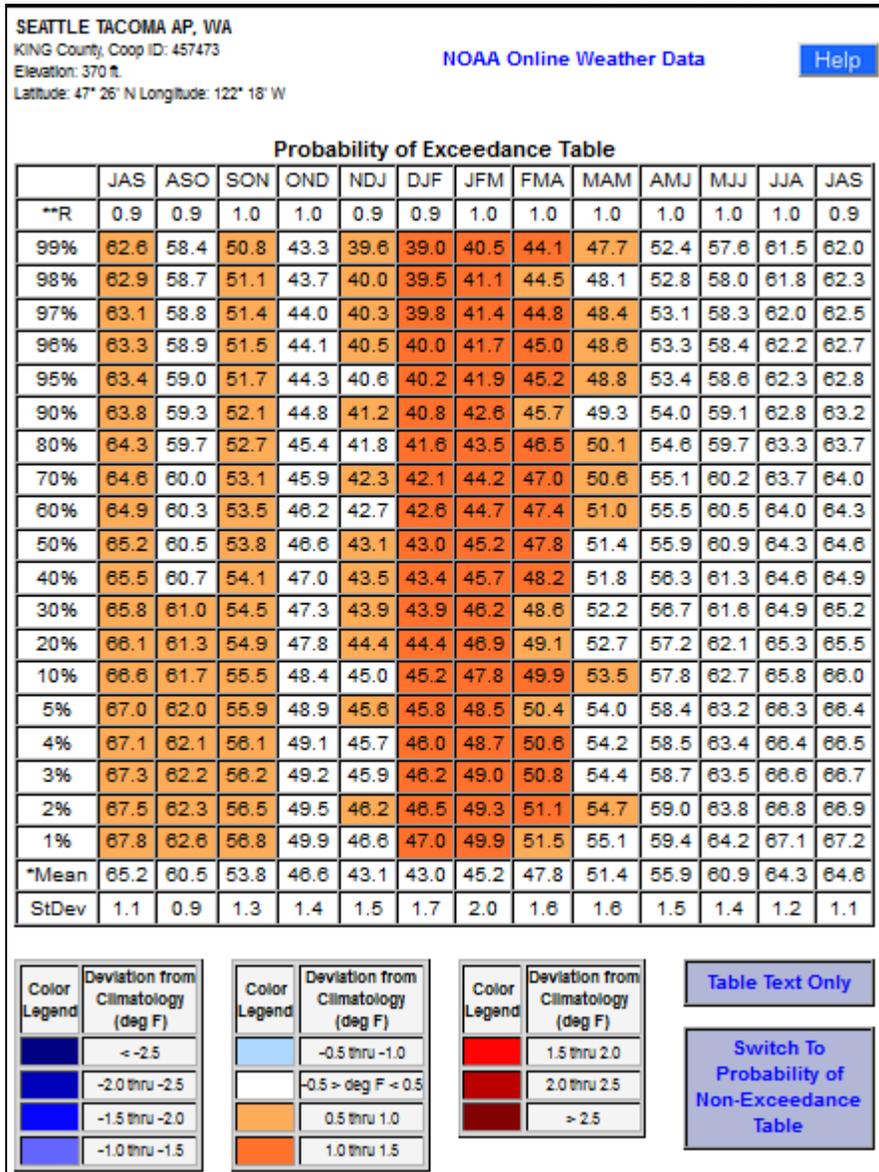


Figure 6. Example of L3MTO Temperature POE .

2.4 Updates, Amendments, and Corrections. CPC will not issue updates or amendments.