

***NATIONAL WEATHER SERVICE INSTRUCTION 10-1001  
JULY 13, 2021***

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

***CLIMATE OUTLOOKS***

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**NOTICE:** This publication is available at: <https://www.weather.gov/directives/>

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**OPR:** W/AFS23 (S. Baxter)

**Certified by:** W/AFS23 (M. Timofeyeva)

**Type of Issuance:** Routine - Admin Update

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***SUMMARY OF REVISIONS:*** This directive supersedes National Weather Service Instruction 10-1001, “Climate Outlooks,” dated July 13, 2021. This is an administrative update made only to fix broken links in sections Cover Page, 1, 2.1, 2.3.1, 3.3.3, 4.1, 5.1, 6.1, 6.3, 6.3.1, 8.1, 8.3.2, 9.1, 9.3.1, 11.3.1, 12.3.1, 13.3.1, 14.3.1, 17.3.2, 17.3.3, 21.1 ,21.3. No content changes were made with this update, and the effective date was not affected.

June 29, 2021

Allison Allen  
Director,  
Analyze, Forecast and Support Office

Date

## Climate Outlooks

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1. Introduction. This instructional directive describes the narrative and graphical climate outlook products issued by the National Weather Service’s (NWS) Climate Prediction Center (CPC). CPC is also responsible for verification of the outlooks. Details on verification are at



[Instruction 10-1601 \(Verification Procedures\)](#). World Meteorological Organization (WMO) product headings and Advanced Weather Interactive Processing System (AWIPS) identifiers are listed for products transmitted on NWS dissemination systems. All products are posted on <http://www.cpc.ncep.noaa.gov>

2. Three-Month Outlooks (Contiguous U.S. and Alaska). Lead time is indicated by the number in the WMO heading and last letter in the AWIPS ID. (i.e. 01 and A have a lead time of 0.5 month, 02 and B have a lead time of 1.5 months, etc.)

Temperature		Precipitation	
WMO Heading	AWIPS ID	WMO Heading	AWIPS ID
PTIW(01-13) KWBC	RBGLT(A-M)	PEIW(01-13) KWBC	RBGLE(A-M)

2.1 Mission Connection. CPC issues a series of thirteen three-month temperature and precipitation outlooks to provide information to decision makers in weather and climate activities sensitive to seasonal and inter-annual climate variation. Since these outlooks pertain to the average temperature and total precipitation for the entire valid period and **not** to the variability within it, they will **not** help people planning events for specific dates or sub-periods. The outlooks will be of most use for economic and business planning, particularly when used with Base Period Means ([see Instruction 10-1004](#)).

2.2 Issuance Guidelines.

2.2.1 Creation Software. CPC uses the General Meteorological Package (GEMPAK) software, coupled with the National Center Advanced Weather Interactive Processing System (NAWIPS).

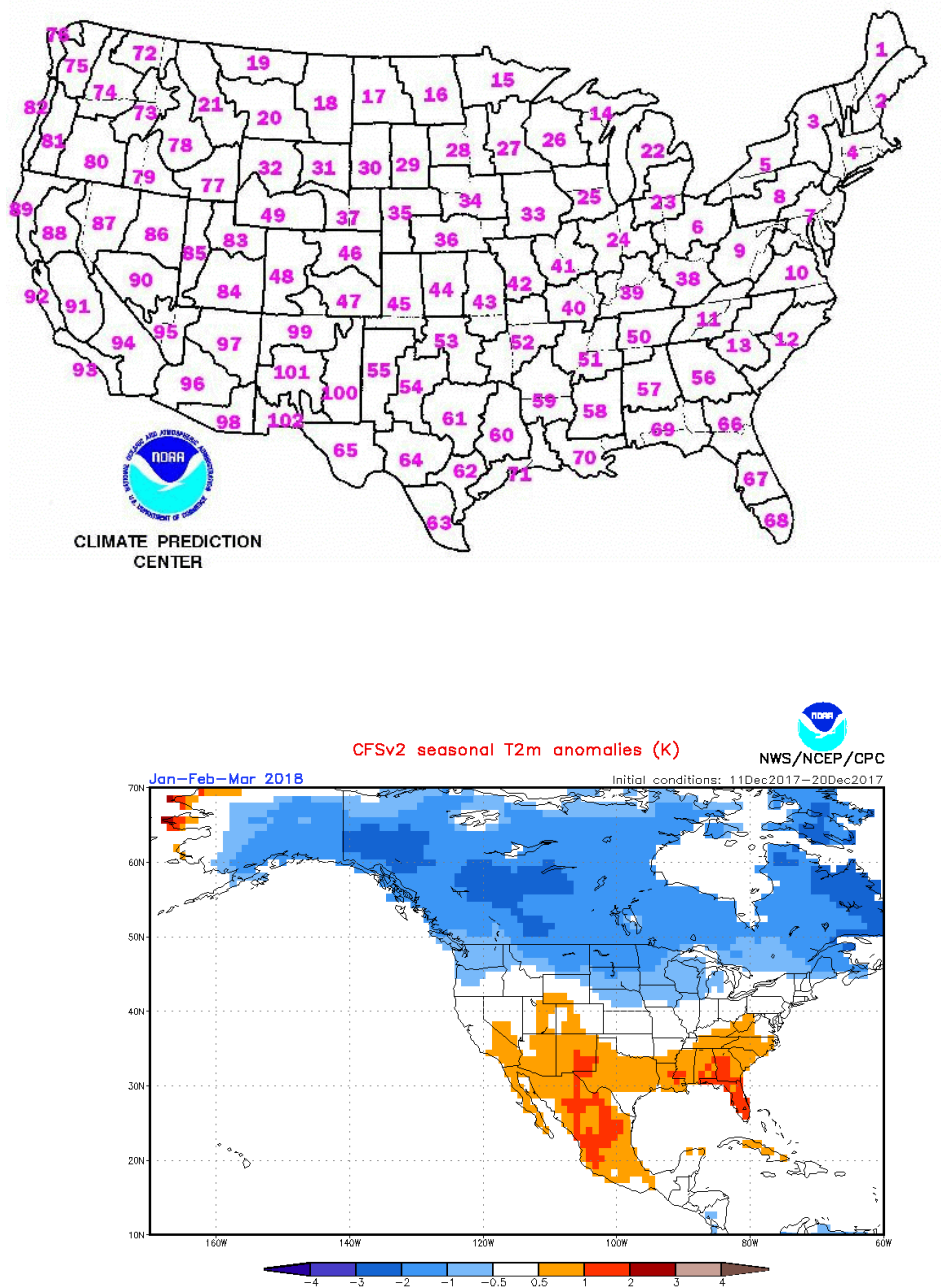
2.2.2 Issuance Criteria. These are scheduled products.

2.2.3 Issuance Time. CPC issues these 13 outlooks simultaneously once a month on the third Thursday of the month at around 8:30 a.m. Eastern local time.

2.2.4 Valid Time. CPC will issue the 13 outlooks with lead times from 0.5 months to 12.5 months. For example, in mid-January, CPC will issue Three-Month Outlooks for February through April, March through May, April through June, and so on to February through April of the following year.

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

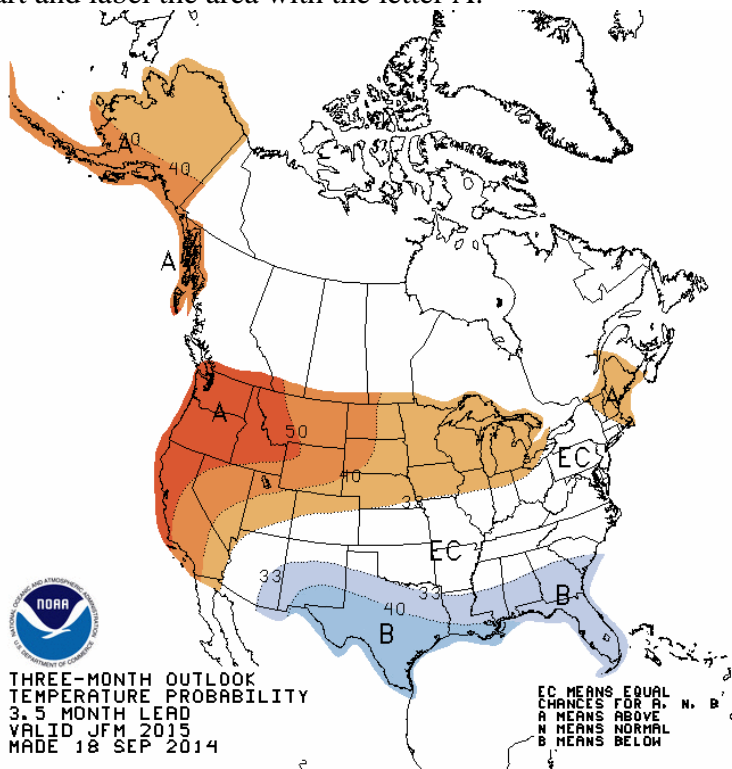
2.3 Technical Description. CPC will follow the format and content described in this section. CPC develops the outlooks using tools applied to each of 102 areal climate outlook divisions (Figure 1) in the contiguous United States and 24 site specific cities in Alaska as well a host of gridded products, primarily short term climate forecast models. Each areal outlook division is composed of one (or more) National Centers for Environmental Information (NCEI) climate data division(s).



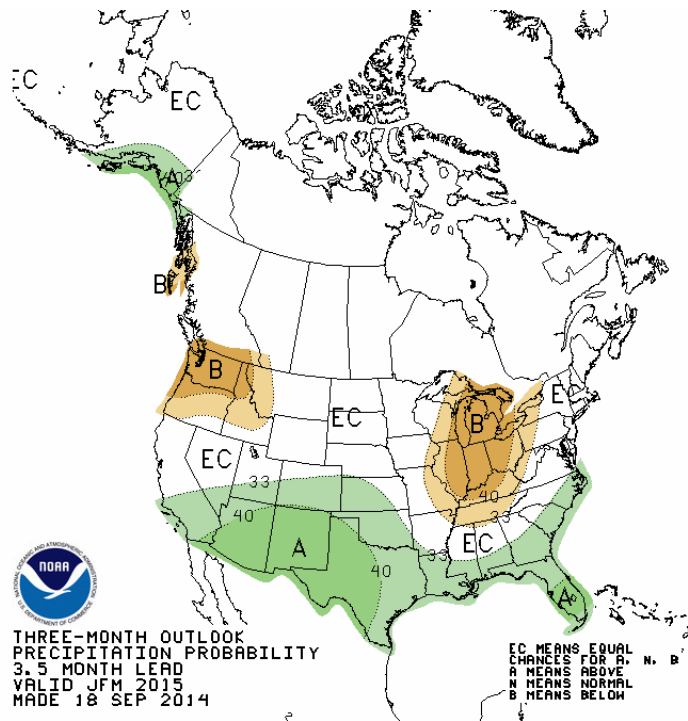
**Figure 1.** CPC climate outlook divisions in contiguous U.S and example gridded forecast from the climate forecast system (CFS).

2.3.1 **Content.** CPC will express the outlooks in a 3-category probabilistic format as the chance the mean temperature or total precipitation for the period will fall into the most likely of three classes: above, below, or near normal. For each outlook divisional area and Alaskan city, CPC defines the classes as climatologically equally likely: the top 10 cases of a thirty year record define the above category (A); the middle 10 cases define the normal category (N), and the bottom 10 cases define the below category (B). For areas where a favored class cannot be determined, CPC will indicate those areas with a "EC." EC means equal chances for each of the three climatological classes for the outlook's valid period. For each of the thirteen three-month outlook periods (January through March, February through April, etc.), CPC uses the 30-year mean temperature and 30-year median total precipitation for the climatology and class limits. CPC updates this information on climatology and its reference period once per decade. See [Instruction 10-1004](#) for details.

2.3.2 **Format.** CPC will indicate the total probability for the most likely class with solid contour lines. They will label the centers of maximum probability with the letters A, N, or B to denote the most likely class. For areas where a favored class cannot be determined, CPC will indicate those areas with an "EC" and not have contours. For example, if the probability for the above normal temperature class exceeds 40 percent for a given area and is the most likely class, then CPC will encircle the area by a probability contour of 40 percent on the temperature outlook chart and label the area with the letter A.



**Figure 2.** Three-month temperature outlook (Jan –Mar 2015, 3.5 mo. lead time from Sep 2014)



**Figure 3.** Three-month precipitation outlook (Jan –Mar 2015, 3.5 mo. lead time from Sep 2014)

2.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

### 3. Three-Month Outlooks Discussion (Contiguous U.S. and Alaska)

WMO heading - FXUS05 KWBC      AWIPS ID - PMD90D

3.1 Mission Connection. This discussion provides technical insight to further assist decision making for weather and climate sensitive activities.

#### 3.2 Issuance Guidelines.

3.2.1 Creation Software. CPC uses a web-based form.

3.2.2 Issuance Criteria. These are scheduled products.

3.2.3 Issuance Time. CPC issues these products once a month on the third Thursday of the month at around 8:30 a.m. Eastern local time.

3.2.4 Valid Time. The discussion is valid from 0.5 months to 15.5 months after issuance.

3.2.5 Product Expiration Time. The discussion expires with the issuance of the next discussion one month later (i.e. the third Thursday of the following month).

3.3 Technical Description. CPC will follow the format and content described in this section.

3.3.1 Mass News Disseminator Header.

PROGNOSTIC DISCUSSION FOR LONG-LEAD SEASONAL OUTLOOKS  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

3.3.2 Content. CPC will give the meteorological and climatological basis for the outlooks. CPC may include analyses of statistical and numerical models, a coupled atmospheric/ocean numerical model, meteorological and sea-surface temperature patterns, trends and past analogs, and confidence factors.

3.3.3 Format. The following is a generic format.

PROGNOSTIC DISCUSSION FOR 3-MONTH LONG-LEAD OUTLOOKS  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD  
300 PM E-T THU mo. ## 20--

SUMMARY OF THE OUTLOOK FOR NON-TECHNICAL USERS  
(text)

BASIS AND SUMMARY OF THE CURRENT LONG-LEAD OUTLOOK  
(text)

CURRENT ATMOSPHERIC AND OCEANIC CONDITIONS  
(text)

PROGNOSTIC DISCUSSION OF SEA SURFACE TEMPERATURE FORECASTS  
(text)

PROGNOSTIC TOOLS USED FOR U.S. TEMPERATURE AND PRECIPITATION  
OUTLOOK  
(text)

PROGNOSTIC DISCUSSION OF OUTLOOKS ... TO ...

TEMPERATURE:  
(text)

PRECIPITATION:  
(text)

FORECASTERS: name(s) – (optional)

FOR A DESCRIPTION OF THE STANDARD FORECAST TOOLS - THEIR SKILL - AND THE FORECAST FORMAT PLEASE SEE OUR WEB PAGE AT:

[http://www.cpc.ncep.noaa.gov/products/predictions/long\\_range/tools.html](http://www.cpc.ncep.noaa.gov/products/predictions/long_range/tools.html)

INFORMATION ON THE FORMULATION AND SKILL OF THE OUTLOOKS FROM CONSTRUCTED ANALOG FOR SOIL MOISTURE MAY BE FOUND AT:

<http://www.cpc.ncep.noaa.gov/products/people/wd51hd/soil/skill.html>

NOTES - THESE CLIMATE OUTLOOKS ARE INTENDED FOR USE PRIOR TO THE START OF THEIR VALID PERIODS. WITHIN ANY GIVEN VALID PERIOD OBSERVATIONS AND SHORT AND MEDIUM RANGE FORECASTS SHOULD BE CONSULTED.

THIS SET OF OUTLOOKS WILL BE SUPERSEDED BY THE ISSUANCE OF THE NEW SET NEXT MONTH ON THURSDAY mo. ## 20--.

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3.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

4. Three-month Probability of Exceedance Outlooks (Selected U.S cities and divisions). Lead time is indicated in the last letter in the AWIPS ID (i.e., A has a lead time of 0.5 month, B has a lead time of 1.5 months, etc.).

...Outlook Divisional Areas...

Temperature		Precipitation	
WMO Heading	AWIPS ID	WMO Heading	AWIPS ID
FXUS(01-13)KWNC	POELT(A-M)	FXUS(61-73) KWNC	POELP(A-M)

Heating Degree Days		Cooling Degree Days	
WMO Heading	AWIPS ID	WMO Heading	AWIPS ID
FXUS(28-40)KWNC	POELH(A-M)	FXUS(41-53) KWNC	POELC(A-M)

...Site Specific Cities...

Temperature  
WMO Heading      AWIPS ID  
FXUS(01-13)KWNC      POECT(A-M)

No Precipitation Outlooks

Heating Degree Days		Cooling Degree Days	
WMO Heading	AWIPS ID	WMO Heading	AWIPS ID
FXUS(28-40)KWNC	POECH(A-M)	FXUS(41-53) KWNC	POECC(A-M)

4.1 Mission Connection. CPC issues a series of thirteen three-month probabilities of exceedance outlooks for temperature, precipitation, and heating and cooling degree days for the contiguous U.S. and Alaska. This provides information to decision makers in weather and climate sensitive activities and for businesses sensitive to seasonal and intra annual climate variation. These outlooks pertain to the mean (or areal average mean) temperature, total (or areal average total) precipitation, and total (or areal average) heating or cooling degree days for an outlook's entire valid period and **not** to the variability within it. Therefore these outlooks will **not** help people planning events for specific dates or sub-periods. The Outlooks will be of most use for economic and business planning, particularly when used with climatic reference material ([see Instruction 10-1004](#)).

#### 4.2 Issuance Guidelines.

4.2.1 Creation Software. CPC uses a statistical post processing software program.

4.2.2 Issuance Criteria. These are scheduled products.

4.2.3 Issuance Time. CPC issues these outlooks simultaneously once a month on the third Thursday of the month around 8:30 a.m. Eastern local time.

4.2.4 Valid Time. CPC will issue the 13 three-month outlooks with lead times from 0.5 months to 12.5 months. For example, in mid-January, CPC will issue Three-Month Outlooks valid for February through April, March through May, April through June, and so on to February through April of the following year.

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

4.3. Technical Description. CPC will follow the format and content described in this section.

#### 4.3.1 Mass News Disseminator Header

(Parameter) PROB. OF EXCEEDENCE OUTLOOKS - (outlook divisions or cities)

## NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

4.3.2 Content. CPC provides mean (or areal average mean) temperatures, total (or areal average total) precipitation amounts, and total (or areal average total) heating or cooling degree days for various probabilities of exceedance for a given city or climate outlook divisional area and three-month valid time. There are the 102 climate outlook divisions in the contiguous U.S (as shown in Figure 1 in section 2.3) and over 60 selected outlook cities (in the following list). Additional locations may be included to the list. These outlooks are statistically consistent with the Three-Month Outlooks described in Section 2.

The outlook city locations are as follows:

<u>City</u>	<u>ID</u>	<u>City</u>	<u>ID</u>	<u>City</u>	<u>ID</u>
Albuquerque NM	ABQ	Atlanta GA	ATL	Austin TX	AUS
Birmingham AL	BHM	Bismarck ND	BIS	Boston MA	BOS
Buffalo NY	BUF	Charlotte NC	CLT	Chicago IL	MDW
Cincinnati OH	LUK	Cleveland OH	CLE	Columbus OH	CMH
Dallas TX	DAL	Dayton OH	DAY	Denver CO	DEN
Detroit MI	DET	El Paso TX	ELP	Fresno CA	FAT
Grand Rapids MI	GRR	Greensboro NC	GSO	Hartford CT	HFD
Houston TX	HOU	Indianapolis IN	IND	Jacksonville FL	JAX
Kansas City MO	MCI	Las Vegas NV	LAS	Los Angeles CA	LAX
Louisville KY	SDF	Memphis TN	MEM	Miami FL	MIA
Milwaukee WI	MKE	Minneapolis MN	MSP	Nashville TN	BNA
New Orleans LA	MSY	New York City NY	LGA	Norfolk VA	ORF
Oklahoma City OK	OKC	Omaha NE	OMA	Orlando FL	MCO
Phoenix AZ	PHX	Philadelphia PA	PHL	Pittsburgh PA	PIT
Portland OR	PDX	Providence RI	PVD	Raleigh NC	RDU
Rochester NY	ROC	Sacramento CA	SAC	Saint Louis MO	STL
Salt Lake City UT	SLC	San Antonio TX	SAT	San Diego CA	SAN
San Francisco CA	SFO	Seattle WA	SEA	Tampa FL	TPA
Washington DC	DCA	West Palm Beach FL	PBI	Anchorage AK	ANC
Annette AK	ANN	Utqiagvik AK	BRW	Cold Bay AK	CDB
Fairbanks AK	FAI	Juneau AK	JNU	Kotzebue AK	OTZ
Nome AK	OME	Yakutat AK	YAK		

4.3.3 Format. For each climate outlook divisional area or city, CPC provides mean temperatures (°F in tenths), total precipitation amounts (inches in hundredths), and total heating and cooling degree days (whole °F) having various probabilities of exceedance from 98 to 2 percent. CPC also provides the 50 percent climatological probability of exceedance values.

TEMPERATURE PROB. OF EXCEEDENCE OUTLOOKS - (outlook divisions or cities)  
 NWS CLIMATE PREDICTION CENTER CAMP SPRINGS MD  
 300 PM E-T THU mo. day 20--



```
VALID (three-month period)

...INCHES TIMES 100...

#.  DIVISION NAME          CLIM                                LINE1
98   95   90   80   70   60   50   40   30   20   10   5   2   LINE2
-----
1.  (name)                  xxxx
xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
2.  etc..
$$
```

- Lead time is indicated by the number in the WMO heading and last letter in the AWIPS ID (i.e., 01 and A have a lead time of 0.5 month, 02 and B have a lead time of 1.5 months, etc.).

## Precipitation

WMO Heading	AWIPS ID	WMO Heading	AWIPS ID
PTNV(01-13) KWNC	RBGCTA(A-M)	PENV(01-13) KWNC	RBGCP(A-M)

5.1 Mission Connection. CPC issues a series of thirteen three-month graphical outlooks for the 50 percent probability of exceedance (or center probability distribution) for temperature and precipitation outlooks across the contiguous U.S. This provides information to decision makers in weather and climate sensitive activities and for businesses sensitive to seasonal and inter-annual climate variation. These outlooks pertain to the areal average temperature and areal average total precipitation for an outlook's entire valid period and **not** to the variability within it. Therefore these outlooks will **not** help people planning events for specific dates or sub-periods. The outlooks will be of most use for economic and business planning, particularly when used with climatic reference material ([see Instruction 10-1004](#)).

## 5.2 Issuance Guidelines.

5.2.1 Creation Software. CPC will use GEMPAK software as an input into NAWIPS.

5.2.2 Issuance Criteria. These are scheduled products.

5.2.3 Issuance Time. CPC issues these outlooks simultaneously once a month on the third Thursday of the month around 8:30 a.m. Eastern local time.

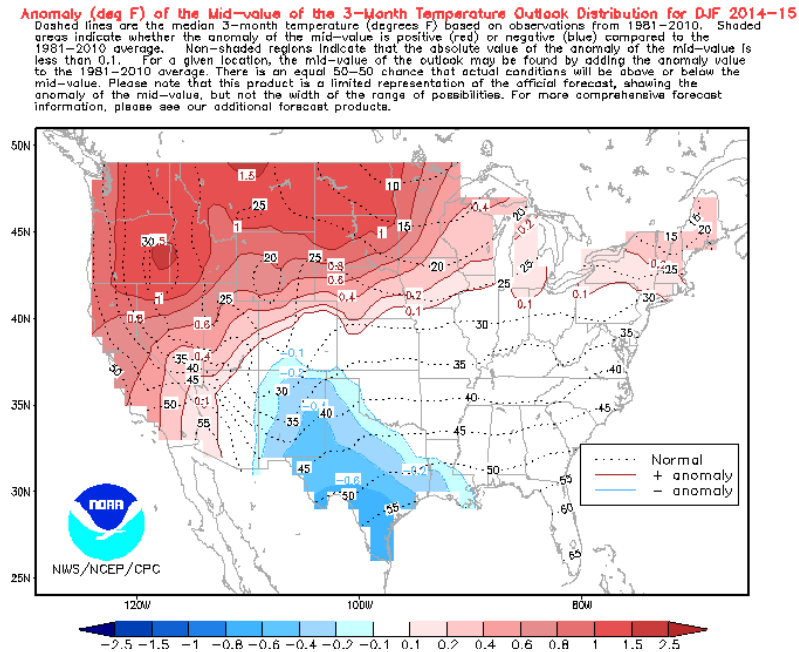
5.2.4 Valid Time. CPC will issue the 13 outlooks with lead times from 0.5 months to 12.5 months. For example, in mid-January, CPC will issue Three-Month Outlooks for February through April, March through May, April through June, and so on to February through April of the following year.

5.2.5 Product Expiration Time. The 0.5 month lead time outlook expires at the end of the valid time of that outlook. The other outlooks expire when the next set of outlooks are issued.

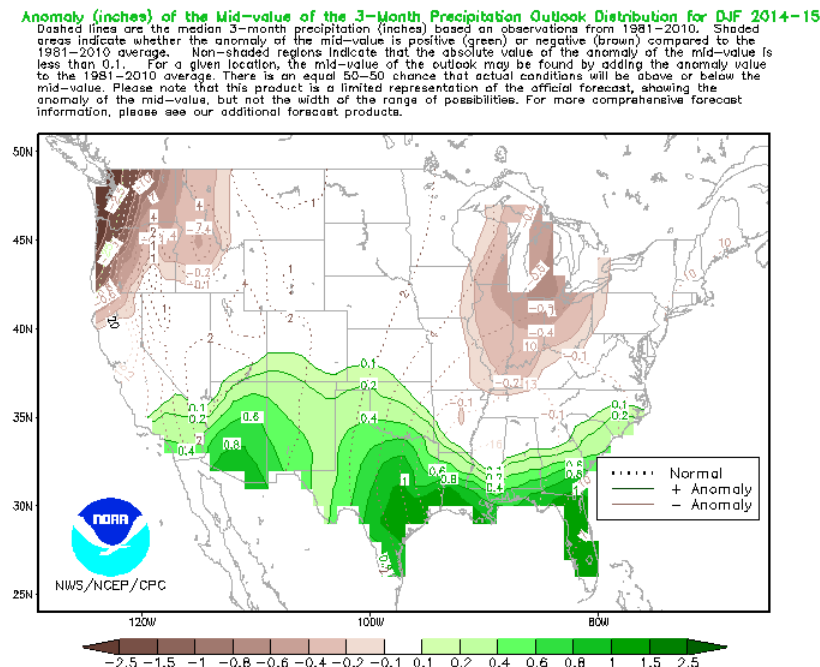
5.3. Technical Description. CPC will follow the format and content described in this section.

5.3.1 Content. CPC provides precipitation and mean temperatures with a 50 percent (or center) probability of exceedance for a three-month valid time. These outlooks are consistent with the Three-Month Outlooks described in Section 2.

5.3.2 Format. CPC plots solid contours of the temperature and precipitation anomaly values from climatology using the 102 climate outlook divisional values assigned to the central points within the divisions. CPC uses a contour interval in tenths of a degree Fahrenheit (or multiples thereof) and tenths of inches of precipitation (or multiples thereof). CPC also plots the climatological amounts for the center probability of exceedance using intervals of 5 degrees Fahrenheit (or multiples thereof) and one inch (or multiples thereof).



**Figure 4.** 50% temperature probability of exceedance for January through March 2014 (3.5 month lead time from September 2014).



**Figure 5.** 50% precipitation probability of exceedance for January through March 2015 (3.5 month lead time from September 2014).

5.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

6. One-Month Outlook (Contiguous U.S. and Alaska).

Temperature		Precipitation	
WMO Heading	AWIPS ID	WMO Heading	AWIPS ID
PTIV98 KWNC	RBG9MT	PEIV98 KWNC	RBG9ME

6.1 Mission Connection. CPC issues one-month temperature and precipitation outlooks to provide information to decision makers in weather and climate sensitive activities and for businesses sensitive to intra-seasonal climate variation. Since these outlooks pertain to the average temperature and total precipitation for an outlook's entire valid period and **not** to the variability within it, they will **not** help people planning events for specific dates or sub-periods. The outlooks will be of most use for economic and business planning, particularly when used with Base Period Means ([see Instruction 10-1004](#)).

6.2 Issuance Guidelines.

6.2.1 Creation Software. CPC will use GEMPAK software coupled with the NAWIPS.

6.2.2 Issuance Criteria. These are scheduled products.

6.2.3 Issuance Time. CPC will issue the One-Month Outlook twice a month; at around 8:30 a.m. Eastern local time on the third Thursday of the month (0.5 month lead time) and 3:00 p.m. Eastern local time on the last day of the month (“zero lead” time).

6.2.4 Valid Time. The Outlook is valid for the following month. For example, on the third Thursday in January and January 31, CPC will issue a One-Month Outlook for February.

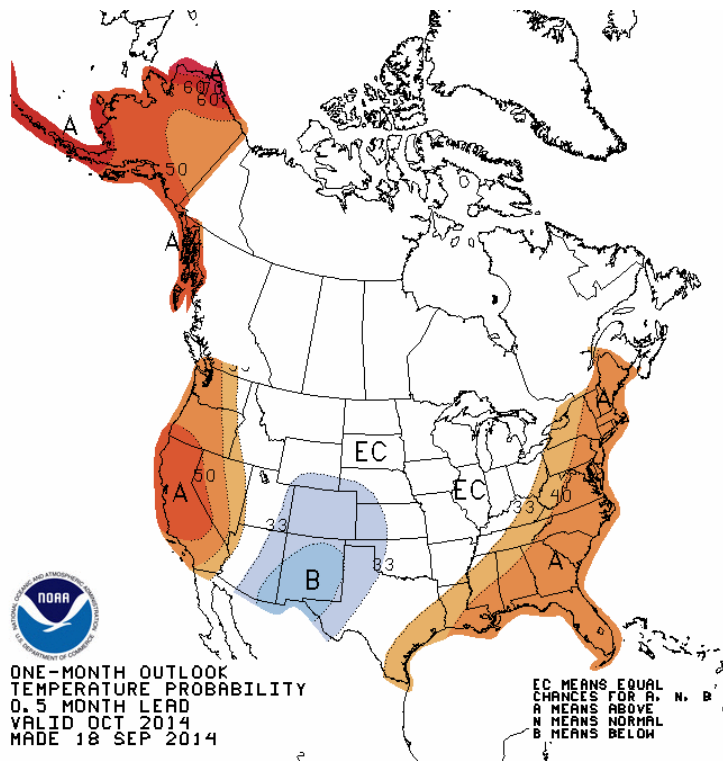
6.2.5 Product Expiration Time. The outlook issued on the third Thursday expires on the last day of the month. The “zero lead” outlook expires at the end of the outlook period.

6.3 Technical Description. CPC will follow the format and content described in this section. CPC develops the outlooks using tools applied to each of 102 areal climate outlook divisions in the contiguous United States (as shown in Figure 1 in Section 2.3) and 24 site specific cities in Alaska as well as a host of gridded forecast products, primarily from short term climate model forecasts. Each areal outlook division is composed of one or more [NCEI](#) climate data division(s).

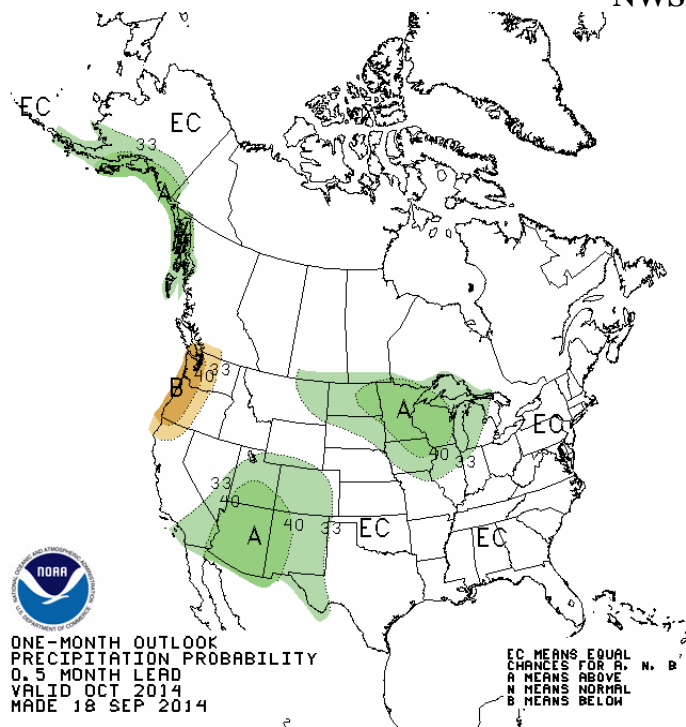
6.3.1 Content. CPC will express the outlook in a 3-category probabilistic format as chances the mean temperature or total precipitation for the period will fall into the most likely of three classes: above, below, or near normal. For each outlook divisional area and Alaskan city, CPC defines the classes as climatologically equally likely: the top 10 cases of a thirty year record

define the above category (A); the middle 10 cases define the normal category (N), and the bottom 10 cases defining the below category (B). For areas where a favored class cannot be determined, CPC will indicate those areas with a "EC." EC means equal chances for each of the three climatological classes for the outlook's valid period. For each of the twelve months, CPC uses the 30-year mean temperature and 30-year mean total precipitation for climatology and class limits. CPC updates this information once per decade. See [Instruction 10-1004](#) for details.

6.3.2 Format. CPC will indicate the total probability for the most likely class with solid contour lines. They will label the centers of maximum probability with the letters A, N, or B to denote the most likely class. For areas where a favored class cannot be determined, CPC will indicate those areas with an "EC" and not have contours. For example, if the probability for the above normal temperature class exceeds 40 percent for a given area and is the most likely class, then CPC will encircle the area by a probability contour of 40 percent on the temperature outlook chart and label the area with the letter A.



**Figure 6.** One month temperature outlook for October 2014 (0.5 month lead time).



**Figure 7.** One-month precipitation outlook for October 2014 (0.5 month lead time)

6.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments to the 0.5 month lead or zero lead outlooks. CPC will issue corrections as needed.

7. One-Month Outlook Discussion (Contiguous U.S. and Alaska).  
WMO Heading - FXUS07 KWBC AWIPS ID - PMD30D

7.1 Mission Connection. CPC provides technical insight to further assist decision making for weather and climate sensitive activities.

7.2 Issuance Guidelines.

7.2.1 Creation Software. CPC uses a web-based form.

7.2.2 Issuance Criteria. These are scheduled products.

7.2.3 Issuance Time. CPC issues the discussions twice a month; 8:30 a.m. Eastern local time on the third Thursday of the month and 3:00 p.m. Eastern local time on the last day of the month.

7.2.4 Valid Time. The discussion is valid for the next month.

7.2.5 Product Expiration Time. The discussion on the third Thursday expires on the last day of the month. The discussion issued on the last day of the month expires 16 days after issuance.

7.3 Technical Description. CPC will follow the format and content described in this section.

7.3.1 Mass News Disseminator Header.

PROGNOSTIC DISCUSSION FOR MONTHLY OUTLOOK  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

7.3.2 Content. CPC will give the meteorological and climatological basis for the outlooks. CPC may include analyses of statistical models, a coupled atmosphere/ocean numerical model, meteorological and sea-surface temperature patterns and trends and past analogs, and confidence factors.

7.3.3 Format. The following is a generic format.

PROGNOSTIC DISCUSSION FOR MONTHLY OUTLOOK  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD  
300 PM E-T THU mo. # 20--

ONE-MONTH OUTLOOK DISCUSSION FOR mo. # 20--...

(text)

FORECASTER: (name) - optional

THE CLIMATIC NORMALS ARE BASED ON CONDITIONS BETWEEN 1981 AND 2010, FOLLOWING THE WORLD METEOROLOGICAL ORGANIZATION CONVENTION OF USING THE MOST RECENT 3 COMPLETE DECADES AS THE CLIMATE REFERENCE PERIOD. THE PROBABILITY ANOMALIES FOR TEMPERATURE AND PRECIPITATION BASED ON THESE NEW NORMALS BETTER REPRESENT SHORTER TERM CLIMATIC ANOMALIES THAN THE FORECASTS BASED ON OLDER NORMALS.

THE NEXT MONTHLY OUTLOOK...FOR mo. ... WILL BE ISSUED ON THU JAN 18 2018

THESE OUTLOOKS ARE BASED ON DEPARTURES FROM THE YYYY-YYYY BASE PERIOD.

\$\$

\$\$

7.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

8. Hawaiian One-Month and Three-Month Outlooks and Discussion.  
WMO heading - FXHW40 KWBC AWIPS ID - PMDHCO

8.1 Mission Connection. CPC issues a one-month and a series of thirteen three-month temperature and precipitation outlooks to provide information to decision makers in weather and climate sensitive activities and for businesses sensitive to inter annual and seasonal climate variation. Since these outlooks pertain to the average temperature and total precipitation for an outlook's entire valid period and **not** to the variability within it, they will **not** help people planning events for specific dates or sub periods. The outlooks will be of most use for economic and business planning, particularly when used with climatic reference material ([see Instruction 10-1004](#)).

8.2 Issuance Guidelines.

8.2.1 Creation Software. CPC uses a web-based form.

8.2.2 Issuance Criteria. These are scheduled products.

8.2.3 Issuance Time. CPC issues the Hawaiian outlooks once a month on the third Thursday of the month at around 8:30 a.m. Eastern local time.

8.2.4 Valid Time. CPC will issue thirteen Three-Month Hawaiian outlooks simultaneously with lead times from 0.5 months to 12.5 months. For example, in mid-January, CPC will issue Three-Month Outlooks for February through April, March through May, April through June, and so on to February through April of the next year. CPC will issue the One-Month Hawaiian Outlook for the next month with a lead time of 0.5 months. For example, in mid-January, CPC will issue a One-Month Outlook valid for February.

The discussion for the Three-Month outlooks is valid from 0.5 to 15.5 months after issuance. The discussion for the 30-Day outlook is valid for the following month.

8.2.5 Product Expiration Time. The One-Month Outlook, One-Month Outlook Discussion, and 0.5 month lead time Three-Month Outlook expire at the end of the valid time (i.e. beginning of the month after issuance). The other Three-Month Outlooks and the Three-Month Outlook discussion (for all 13 Three-Month outlooks) expire when the next set of Three-Month Outlooks are issued (i.e. the third Thursday of the following month).

8.3 Technical Description. CPC will follow the format and content described in this section. CPC develops outlooks for several site specific cities using guidance tools applied to those cities.

8.3.1 Mass News Disseminator Header.

## PROGNOSTIC DISCUSSION FOR LONG-LEAD HAWAIIAN OUTLOOKS NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

8.3.2 Content. For the discussions, CPC will give the meteorological and climatological basis for the Outlooks. CPC may include analyses of statistical models, a coupled atmosphere/ocean



numerical model, meteorological and sea-surface temperature patterns and trends and past analogs, and confidence factors.

CPC will express outlooks for specific Hawaiian cities (Hilo, Honolulu, Lihue, and Kahului), using a 3-category probabilistic format as chances the mean temperature or total precipitation for the period will fall into the most likely of three classes: above, below, or near normal. For each city, CPC defines the classes as climatologically equally likely: the top 10 cases of a thirty year record define the above category (A); the middle 10 cases define the normal category (N), and the bottom 10 cases defining the below category (B). For areas where a favored class cannot be determined, CPC will indicate those cities with a "EC." EC means equal chances for each of the three climatological classes for the outlook's valid period. For each of the twelve months and each of the thirteen three-month outlook periods (January through March, February through April, etc.), CPC uses the 30-year mean temperature and 30-year mean total precipitation for the climatology and class limits. CPC updates this information once per decade. See [Instruction 10-1004](#) for details.

8.3.3 Format. The following is a generic format.

PROGNOSTIC DISCUSSION FOR LONG-LEAD HAWAIIAN OUTLOOKS  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD  
300 PM E-T THU mo. # 20--

MONTHLY OUTLOOK DISCUSSION VALID mo. 20--

(text)

	TEMPERATURE /F/		PRECIPITATION /IN/		
	OTLK AVE	LIM	OTLK	BLWMEDIAN	ABV
city	(ltr)(#) xx.x	x.x	(ltr)(#) xx.x	xx.x	xx.x
etc.					

SEASONAL OUTLOOK DISCUSSION FOR ..... TO ..... (13 outlooks)

(text)

City

	TEMPERATURE /F/		PRECIPITATION /IN/		
OTLK PD	OTLK AVE	LIM	OTLK	BLWMEDIAN	ABV
mmm 20--	(ltr)(#) xx.x	x.x	(ltr)(#) xx.x	xx.x	xx.x
etc.					

City (etc)

FORECASTER: (name) – optional

ANOMALIES BASED ON 19xx-20xx MEANS (TEMPERATURE) / MEDIANS  
(PRECIPITATION)

CLARIFICATION: EC INDICATES EQUAL CHANCES THAT THE CLIMATE WILL FALL INTO ANY ONE OF THE THREE RANGES OR CATEGORIES WHOSE BOUNDARIES ARE SPECIFIED IN THE TABLES ABOVE. A FORECAST SPECIFICATION OF EC MEANS THERE IS NO PARTICULAR TILT OF THE ODDS TOWARD ABOVE - NORMAL - OR BELOW NORMAL CONDITIONS IN THE OUTLOOK. FOR EXAMPLE - A37 MEANS A 37% HIGHER THAN NORMAL CHANCE THAT TEMPERATURE OR PRECIPITATION WILL BE IN THE ABOVE CLASS - B36 MEANS A 36% HIGHER THAN NORMAL PROBABILITY THAT TEMPERATURE OR PRECIPITATION WILL BE IN THE BELOW CLASS - AND N35 MEANS A 35% HIGHER THAN NORMAL PROBABILITY THAT TEMPERATURE OR PRECIPITATION WILL BE IN THE NEAR NORMAL CLASS. WHEN EC IS SPECIFIED THE PROBABILITY OF THE MOST LIKELY CATEGORY CANNOT BE PREDICTED.

NOTE - THESE OUTLOOKS ARE INTENDED FOR USE PRIOR TO THE START OF THEIR VALID PERIODS. WITHIN ANY VALID PERIOD OBSERVATIONS AND SHORTER RANGE FORECASTS SHOULD BE CONSULTED. ALSO - THE SET OF THREE MONTH OUTLOOKS WILL BE SUPERSEDED BY THE ISSUANCE OF THE NEW SET NEXT MONTH ON THURSDAY mo. # 20-. THE ONE-MONTH OUTLOOK WILL BE UPDATED ON THURSDAY mo. # 20-.

\$\$

8.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

9. 6- to 10-Day and 8- to 14-Day Outlooks (Contiguous U.S. and Alaska).

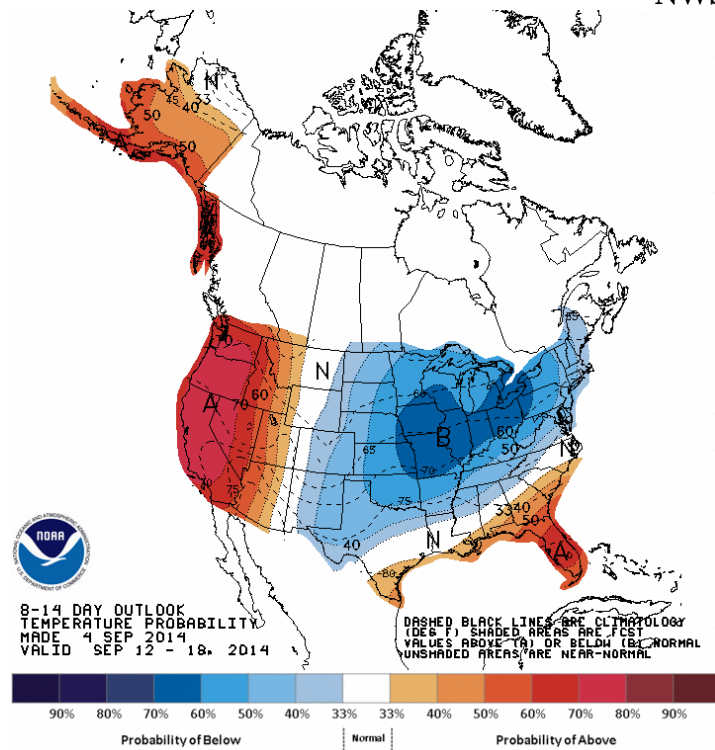
Period	Temperature		Precipitation	
	WMO Heading	AWIPS ID	WMO Heading	AWIPS ID
6- to 10-Day	PNNT51 KWBC	RBG96T	PEIY47 KWBC	RBG96E
8- to 14-Day	PTTU98 KWNC	RBG98T	PETT00 KWNC	RBG98E

9.1 Mission Connection. CPC issues 6- to 10-Day and 8- to 14-Day outlooks for the Contiguous U.S. and Alaska to provide information to decision makers in weather and climate sensitive activities and for businesses sensitive to intra monthly climate variation. Since these outlooks pertain to the average temperature and total precipitation for an outlook's entire valid period and **not** to the variability within it, they will **not** help people planning events for specific dates or sub-periods. The Outlooks will be of most use for economic and business planning, particularly when used with Base Period Means ([see Instruction 10-1004](#)).

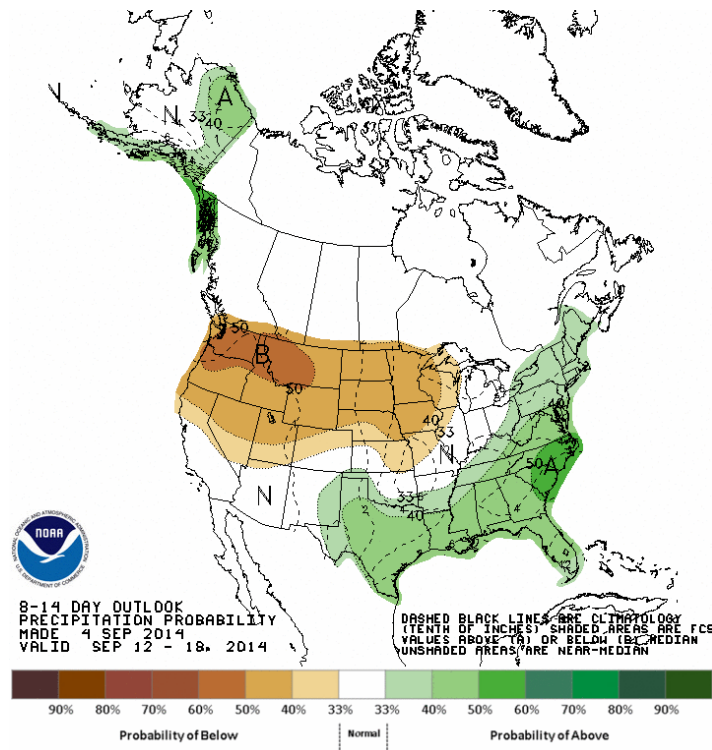
9.2 Issuance Guidelines.

- 9.2.1 Creation Software. CPC uses GEMPAK software coupled with the NAWIPS.
- 9.2.2 Issuance Criteria. These are scheduled products.
- 9.2.3 Issuance Time. CPC issues the products daily at around 3:00 p.m. Eastern local time.
- 9.2.4 Valid Time. The valid time is the 6- to 10-day or 8- to 14-day period after issuance.
- 9.2.5 Product Expiration Time. The outlook expires 24 hours later with issuance of the next 6- to 10-Day or 8- to 14-Day Outlook.
- 9.3 Technical Description. CPC will follow the format and content described in this section.
- 9.3.1 Content. CPC will express the outlook in a 3-category probabilistic format as chances the mean temperature or total precipitation for the period will fall into the most likely of three classes: above, below, or near normal. CPC defines the classes as climatologically equally likely: the top 10 cases of a thirty year record define the above category (A); the middle 10 cases define the normal category (N), and the bottom 10 cases defining the below category (B). For the valid period, CPC uses the 30-year mean temperatures and 30-year mean total precipitation for the climatology and class limits. CPC smooths the temperature climatologies using a harmonic analysis with three harmonics retained. CPC smooths the precipitation climatologies using 11 and 15-point running means for the 6- to 10-day and 8- to 14-day outlooks, respectively. CPC updates this information once per decade. See [Instruction 10-1004](#) for details.
- 9.3.2 Format. CPC will indicate the probabilities for the most likely class with solid contour lines. They will label the centers of maximum probability with the letters A, N, or B to denote the most likely class. For example, if the probability for the above normal temperature class exceeds 50 percent for a given area and is the most likely class, then CPC will encircle the area by a probability contour of 50 percent on the temperature outlook chart and label the area with the letter A. Contours are generally not drawn in regions designated as near normal. This is because that category has been shown to be unpredictable with any skill on a consistent basis.
- CPC will use dashed isotherms of the 30-year mean temperatures for the outlook period on the temperature outlook chart and dashed isohyets of 30-year mean total precipitation for the outlook period on the precipitation outlook chart.
- CPC makes available a more interactive display of the 6-10 day and 8-14 day outlooks that allow the user to see more clearly the probabilities of all three tercile categories for both temperature and precipitation. Climatological values are also provided in absolute terms. Product web links are provided below. This display is updated at the same time as the original outlook maps.

<http://www.cpc.ncep.noaa.gov/products/predictions/610day/interactive/index.php>  
<http://www.cpc.ncep.noaa.gov/products/predictions/814day/interactive/index.php>



**Figure 8.** 8-14 Day temperature outlook from September 4, 2014



**Figure 9.** 8-14 Day precipitation outlook from September 19, 2014.

9.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

10. 6- to 10-Day and 8- to 14-Day Outlook Discussion (Contiguous U.S. and Alaska).  
WMO heading - FXUS06 KWBC      AWIPS ID - PMDMRD

10.1 Mission Connection. CPC provides a textual analysis (for contiguous U.S. and Alaska) with technical insight to assist decision making for weather and climate sensitive activities.

10.2 Issuance Guidelines.

10.2.1 Creation Software. CPC uses a text editor.

10.2.2 Issuance Criteria. These are scheduled products.

10.2.3 Issuance Time. CPC issues the product daily around 3:00 p.m. Eastern local time.

10.2.4 Valid Time. The discussion is valid for the outlook periods.

10.2.5 Product Expiration Time. The discussion expires 24 hours after issuance.

10.3 Technical Description. CPC will follow the format and content described in this section.

10.3.1 Mass News Disseminator Header.

PROGNOSTIC DISCUSSION FOR 6 TO 10 AND 8 TO 14 DAY OUTLOOKS  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

10.3.2 Content. CPC includes a textual analysis section on weekdays only. In the analysis, CPC gives the meteorological and climatological basis for the outlooks. CPC may include analyses of numerical and statistical models, meteorological circulation patterns and trends, and confidence factors. CPC usually refers to the manually produced 6- to 10-day and 8- to 14-day Northern Hemisphere prognoses for mean 500 millibar heights and 500 millibar height anomalies (Section 11).

CPC transmits a coded state-by-state outlook table daily (including weekends).

10.3.3 Format. The following is a generic format.

PROGNOSTIC DISCUSSION FOR 6 TO 10 AND 8 TO 14 DAY OUTLOOKS  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

300 PM E-T day mon # 20–

(beginning of weekday analysis section)

6- TO 10-DAY OUTLOOK FOR ---

(weekday text)

8- TO 14-DAY OUTLOOK VALID FOR ---

(weekday text)

FORECASTER: (name for weekday outlooks) – (optional)

NOTES: (weekday)

AUTOMATED FORECASTS ARE ISSUED ON SATURDAY AND SUNDAY. OTHERWISE  
- FORECASTS INCORPORATE FORECASTER INPUT. THE NOTATION FOR THE  
CATEGORICAL FORECAST INDICATED ON THE MAPS IS THE SAME AS  
THAT IN THE TABLES: A-ABOVE N-NEAR NORMAL B-BELOW  
IN THE SOUTHWEST AND OTHER CLIMATOLOGICALLY DRY REGIONS - THERE  
WILL BE A GREATER THAN 33.3% CHANCE OF NO PRECIPITATION AND  
OCCASIONALLY EVEN A NORMAL (I.E. MEDIAN) VALUE OF ZERO - ESPECIALLY  
DURING THE DRY SEASONS. IN SUCH CASES A FORECAST OF NEAR NORMAL IS  
EFFECTIVELY A FORECAST OF LITTLE OR NO PRECIPITATION.

GLOSSARY AND DEFINITIONS:-----

(weekday text)

THE NEXT MONTHLY AND SEASONAL OUTLOOKS WILL BE RELEASED ON ...

(end of weekday analysis section)

#### 6 TO 10 DAY OUTLOOK TABLE

STATE TEMP PCPN	STATE TEMP PCPN	STATE TEMP PCPN
ss ltr ltr	ss ltr ltr	ss ltr ltr
etc.		

#### 8 TO 14 DAY OUTLOOK TABLE

STATE TEMP PCPN	STATE TEMP PCPN	STATE TEMP PCPN
ss ltr ltr	ss ltr ltr	ss ltr ltr
etc.		

#### LEGEND

TEMPS WITH RESPECT TO NORMAL	PCPN WITH RESPECT TO MEDIAN
A - ABOVE N - NEAR NORMAL	A - ABOVE N - NEAR MEDIAN
B - BELOW	B - BELOW

THE FORECAST CLASSES REPRESENT AVERAGES FOR EACH STATE. NORMAL  
VALUES - WHICH MAY VARY WIDELY ACROSS SOME STATES - ARE  
AVAILABLE FROM YOUR LOCAL WEATHER SERVICE FORECAST OFFICE.

\$\$

10.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

11. 6- to 10-Day and 8- to 14-Day Mean North American 500 millibar Outlook.

Period	Height		Height anomaly	
	WMO Heading	AWIPS ID	WMO Heading	AWIPS ID
6- to 10-Day	PHBV50 KWBC	RBG96H	PHNT50 KWNC	RBG96C
8- to 14-Day	PHTT50 KWNC	RBG98H	PHTT51 KWNC	RBG98C

11.1 Mission connection. CPC provides insight into the 6- to 10-day and 8- to 14-day temperature and precipitation outlooks by indicating mean circulation patterns. This product assists users in providing value added information to the outlooks.

11.2 Issuance Guidelines. This is a scheduled product.

11.2.1 Creation Software. CPC will use GEMPAK software coupled with the NAWIPS.

11.2.2 Issuance Criteria. These are scheduled products.

11.2.3 Issuance Time. CPC issues these products daily at around 4:00 p.m. Eastern local time.

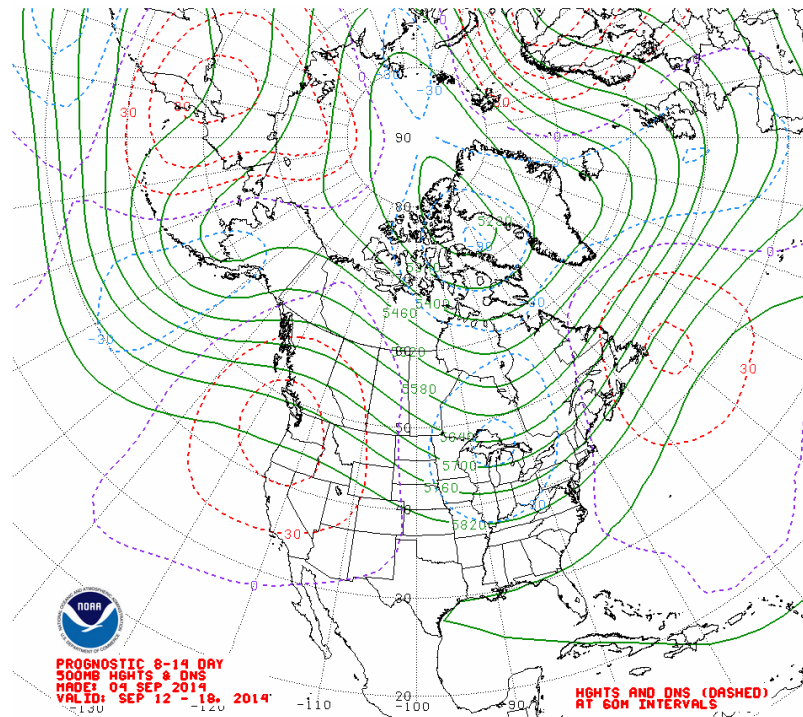
11.2.4 Valid Time. The valid time is for the 6- to 10-day or 8- to 14-day period after issuance.

11.2.5 Product Expiration Time. The outlook expires with the next issuance of the product.

11.3 Technical Description. CPC will follow the format and content described in this section.

11.3.1 Content. CPC will plot the predicted average 500 millibar contour heights and height anomaly for the valid period. CPC plots the anomaly with respect to 30-year mean heights for the outlook period. See [Instruction 10-1004](#) for details on 30-year mean heights.

11.3.2 Format. CPC will plot solid height contour lines and dashed height anomaly lines at 60-meter intervals.



**Figure 10.** 6- to 10-Day 500 millibar height and height anomaly outlook for September 12-18, 2014.

11.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

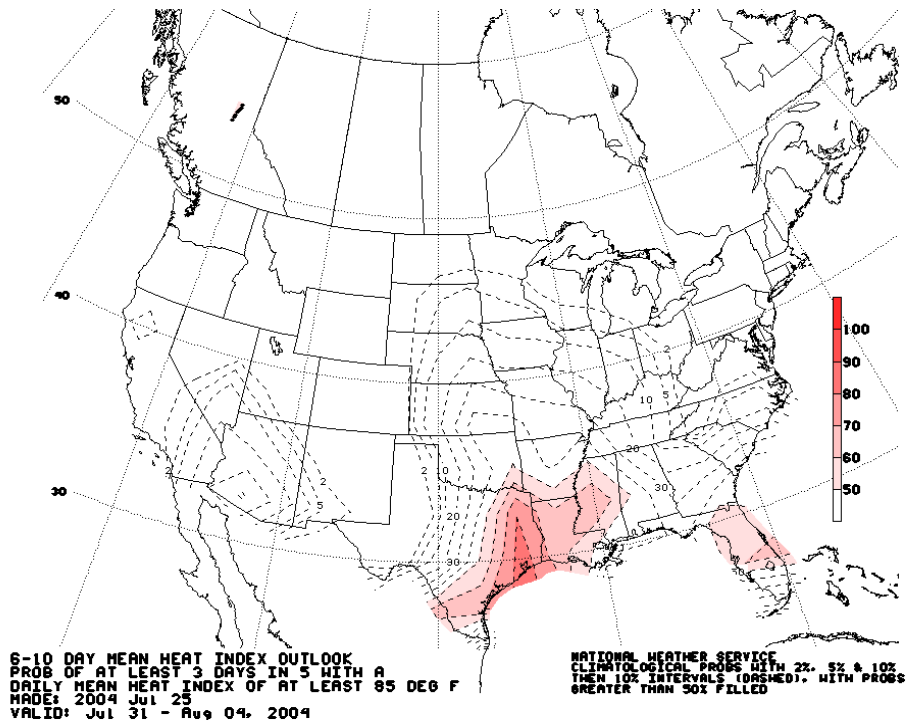
12. 6- to 10-Day and 8- to 14-day Excessive Heat Outlooks (Contiguous U.S.).

Average Daily	6- to 10- Day		8- to 14-Day	
<u>Heat Index threshold</u>	<u>WMO Heading</u>	<u>AWIPS ID</u>	<u>WMO Heading</u>	<u>AWIPS ID</u>
≥85°F for ≥3 days	PTAS90 KWNC	RBGHI4	PTAT90 KWNC	RBGHI7
≥90°F for ≥2 days	PTAS95 KWNC	RBGHI5	PTAT95 KWNC	RBGHI8
≥95°F for ≥1 day	PTAS00 KWNC	RBGHI6	PTAT00 KWNC	RBGHI9

12.1 Mission connection. This product for the contiguous U.S. is for use by health officials and local emergency managers to plan for potential cumulative heat exposure that could cause significant health risks, especially for a number of the most vulnerable cities.

12.2 Issuance Guidelines.





**Figure 11.** 6- to 10- Day Excessive Heat Outlook for July 31 to August 4, 2004 (chance of mean daily heat index  $\geq 85^{\circ}\text{F}$  for  $\geq 3$  days). The format is the same for the other thresholds and 8- to 14-day period.

12.2.1 Creation Software. CPC will use GEMPAK software coupled with the NAWIPS.

12.2.2 Issuance Criteria. These are scheduled products.

12.2.3 Issuance Time. CPC issues the products daily at around 3:00 p.m. Eastern local time from April 1 through September 30.

12.2.4 Valid Time. The valid times are for the 6- to 10-day period and 8- to 14-day period after issuance of the outlooks.

12.2.5 Product Expiration Time. The outlook expires with the next issuance of the product.

12.3 Technical Description. CPC will follow the format and content described in this section.

12.3.1 Content. CPC will issue outlooks of the probability (in percent) of the average calendar day heat index exceeding three different thresholds ( $\geq 85^{\circ}\text{F}$  for  $\geq 3$  days;  $\geq 90^{\circ}\text{F}$  for  $\geq 2$  days;  $\geq 95^{\circ}\text{F}$  for  $\geq 1$  day) during the valid period. The heat index formula is described in [Instruction 10-515 \(WFO Non-precipitation Weather Products Specification\)](#).

12.3.2 Format. CPC will plot dashed probability isoline contours. CPC will shade in probabilities that are greater than 50%.

12.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

13. 6- to 10-Day and 8- to 14-day Maximum Heat Index Prediction (Contiguous U.S.).

6- to 10-Day		8- to 14-Day	
<u>WMO Heading</u>	<u>AWIPS ID</u>	<u>WMO Heading</u>	<u>AWIPS ID</u>
PTNR98 KWNC	RBGHX6	PTNT98 KWNC	RBGHX8

13.1 Mission connection. This product for the contiguous U.S. indicates potential severity of heat events for health officials.

13.2 Issuance Guidelines.

13.2.1 Creation Software. CPC will use GEMPAK software coupled with the NAWIPS to create GIFs for the internet.

13.2.2 Issuance Criteria. These are scheduled products.

13.2.3 Issuance Time. CPC issues the products daily at around 3:00 p.m. Eastern local time from April 1 through September 30.

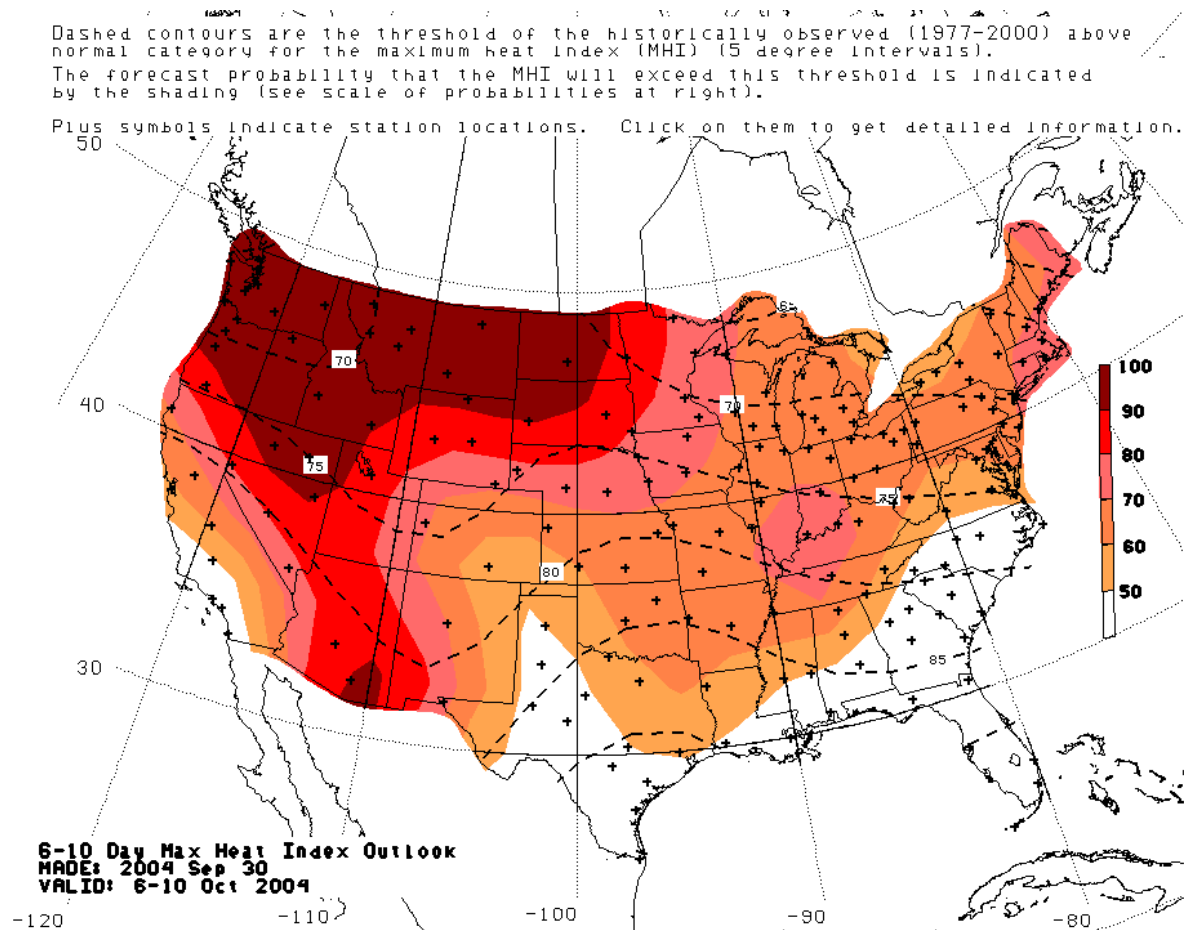
13.2.4 Valid Time. The valid times are for the 6- to 10-day period and 8- to 14-day period after issuance of the outlooks.

13.2.5 Product Expiration Time. The outlook expires with the next issuance of the product.

13.3 Technical Description. CPC will follow the format and content described in this section.

13.3.1 Content. CPC will issue predictions for the maximum heat index during the valid period for a number of cities in the contiguous U.S. The heat index formula is described in [Instruction 10-515 \(WFO Non-precipitation Weather Products Specification\)](#).

13.3.2 Format. CPC will plot the threshold of the above normal category for maximum heat index. CPC will plot the probability of this threshold value being exceeded. CPC will shade in the probabilities that are greater than 50%.



**Figure 12.** 6- to 10-Day maximum heat index outlook for October 6-10, 2004. The 8- to 14-day outlook has the same format.

13.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

14. 6- to 10-Day and 8- to 14-day Minimum Wind Chill Prediction (Contiguous U.S and Alaska).

6- to 10-day wind chill outlooks are located at:

[http://www.cpc.ncep.noaa.gov/products/predictions/short\\_range/cold/wc\\_610.php](http://www.cpc.ncep.noaa.gov/products/predictions/short_range/cold/wc_610.php)

8- to 14-day wind chill outlooks are located at:

[http://www.cpc.ncep.noaa.gov/products/predictions/short\\_range/cold/wc\\_814.php](http://www.cpc.ncep.noaa.gov/products/predictions/short_range/cold/wc_814.php)

14.1 Mission connection. This product for the contiguous U.S. and Alaska indicates potential severity of wind chill events for health officials.

14.2 Issuance Guidelines.

14.2.1 Creation Software. CPC will use GEMPAK software coupled with the NAWIPS to create GIFs for the internet.

14.2.2 Issuance Criteria. These are scheduled products.

14.2.3 Issuance Time. CPC issues the products daily at around 3:00 p.m. Eastern local time from October 1 through March 31.

14.2.4 Valid Time. The valid times are for the 6- to 10-day period and 8- to 14-day period after issuance of the outlooks.

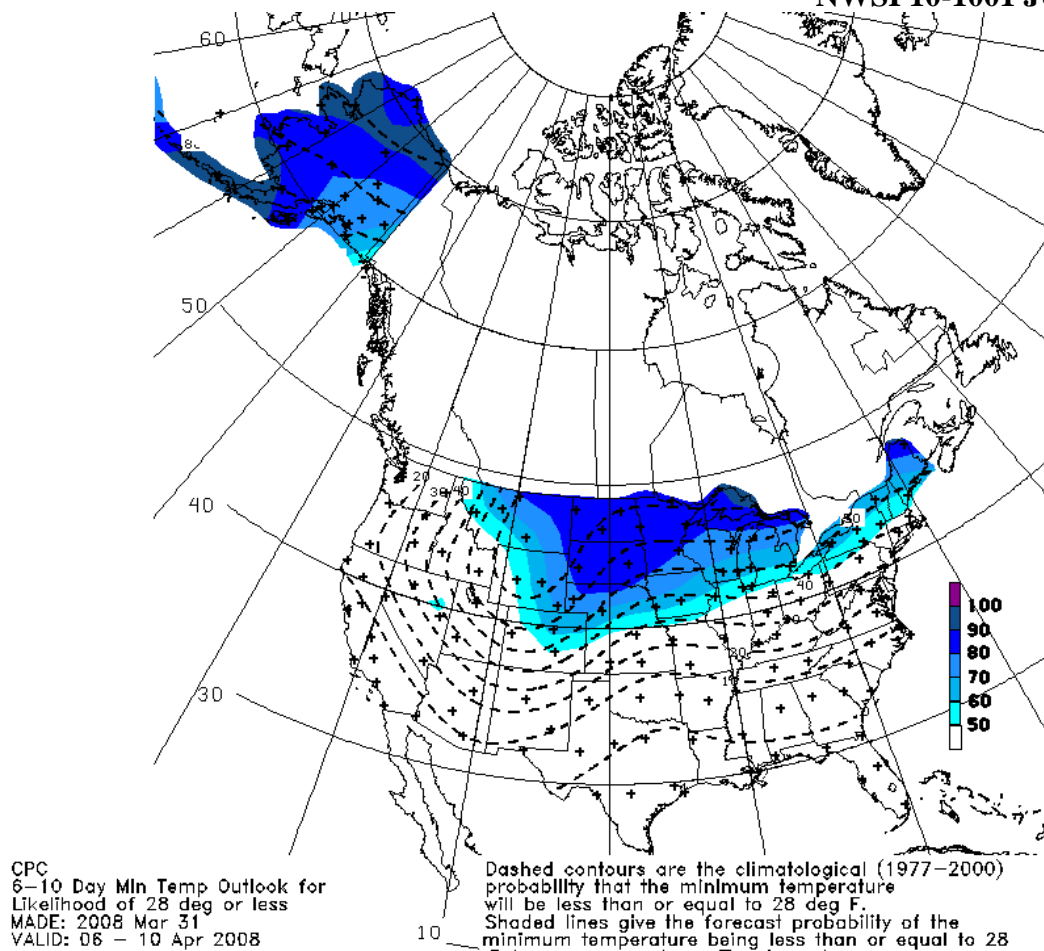
14.2.5 Product Expiration Time. The outlook expires with the next issuance of the product.

14.3 Technical Description. CPC will follow the format and content described in this section.

14.3.1 Content. CPC will issue predictions for the minimum wind chill index during the valid period for a number of cities in the contiguous U.S and Alaska. The wind chill index formula is described in [Instruction 10-513 \(WFO Winter Weather Products Specification\)](#).

14.3.2 Format. CPC will issue maps indicating the probability (in percent) that the minimum wind chill value will be in the below normal category and below seven specific thresholds: 32°F, 28°F, 20°F, 10°F, 0°F, -20°F, and -40°F. See example in Figure 13.

There will be a map for each of eight criteria listed above for both the 6- to 10-day and 8- to 14-day periods. Overall there will be a total of 16 maps. Forecast probabilities on the maps will be contoured at 10 percent intervals and those between 50 and 100 percent will be shaded in blue. In addition, CPC will indicate the climatological threshold for the below normal category, or the climatological probability of being below a certain threshold, in 10 percent intervals, using dashed black lines. The maps will also have tags as one moves over a city location, marked by a plus sign (+) on the maps. Clicking on these plus signs will give the user more information about the forecast.



**Figure 13.** Example of 6- to 10-Day Probability of the Wind Chill being less than 28°F

14.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

#### 15. 8- to 14-day Hazards Outlook (Contiguous U.S. and Alaska).

15.1 Mission connection. This product for the contiguous U.S. and Alaska provides weather-sensitive users such as emergency managers, utilities, the travel industry, and the general public advance notice of ongoing and future hazardous weather, water, and climate events. With this information, they can take precautionary steps and put plans in place to mitigate the impacts of potentially hazardous events.

#### 15.2 Issuance Guidelines.

15.2.1 Creation Software. CPC will use ArcGIS Desktop and Python to create images for the web.

15.2.2 Issuance Criteria. These are scheduled products.

15.2.3 Issuance Time. CPC issues the products Monday through Friday between 2:30 - 4:00 p.m. Eastern local time.

15.2.4 Valid Time. The valid time starts eight days after the date of release and ends 14 days after the release date.

15.2.5 Product Expiration Time. The outlook expires with the next issuance of the product.

15.3 Technical Description. CPC will follow the format and content described in this section.

15.3.1 Content. CPC will indicate areas of potentially hazardous weather and climate events related to temperature, wind and precipitation events and other hazardous conditions when necessary and appropriate.

The definitions of the hazards follow. Because prior conditions play a role in impacts of the hazards, the following definitions are only guidelines. See Table 1 for details.

Hazard	Nominal Threshold	Lower Threshold
Heavy Rain	CONUS and interior portions of Alaska - 1 inch in 24 hours Pacific Northwest and portions of Alaska with higher normal precipitation, totals, during the wet seasons – 2 inches in 24 hours For the Aleutians – 1.5 inches in 24 hours	Flooding Heavy Mountain Snow Saturated Soils
Heavy Snow	Most of CONUS – 4 inches in 24 hours. Mountainous regions (Rockies, Pacific Northwest, and Sierra Nevada) – 6 inches in 24 hours Southeast and Southwest Alaska – 12 inches Interior Alaska – 12 inches (less for North Slope)	Lake Enhanced Snowfall
Heavy Precipitation	At least a 40% chance of exceeding the 85 <sup>th</sup> percentile of the historical distribution as well as threshold values noted above	
Frozen Precipitation (sleet, freezing rain, etc.)	Areas of at least slight risk of heavy precipitation where the precipitation could be frozen/freezing	
Severe Weather	Coordinate postings with SPC	
Much Above-Normal Temperatures	Events that fall in the upper 15% of the historical distribution (primarily during the transition seasons)	Predicted temperatures are likely to cross a physically significant value*
Much Below-Normal Temperatures	Events that fall in the lower 15% of the historical distribution (transition and winter seasons)	Predicted temperatures are likely to cross a physically significant value*

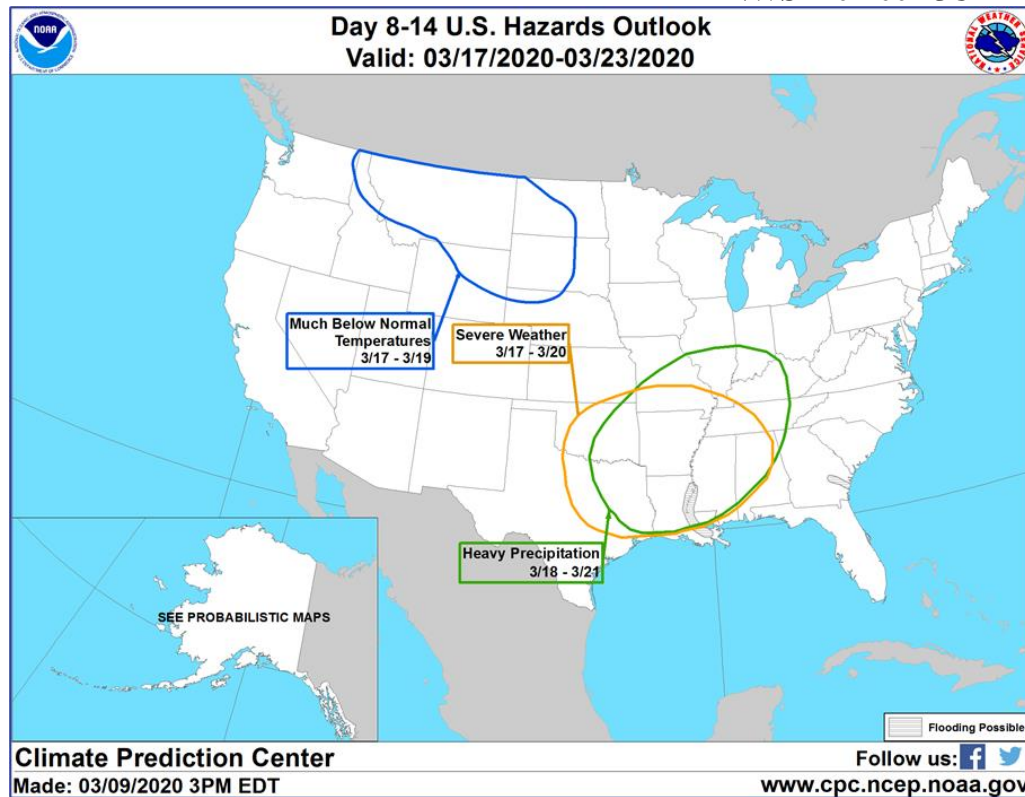
Excessive Heat	Heat Index values (summer season) > 100°F northern tier >105°F southern tier >115°F southwest	Predicted temperatures are likely to cross a physically significant value*  First heat wave of the warm season
High Winds	> 34 mph winds/gusts during noted period (Contiguous U.S.) > 58 mph winds/gusts during noted period (Alaska) > 72 mph wind/gusts during noted period (south mainland and Aleutian Islands Alaska)	
Flooding Possible	Subjective evaluation of antecedent conditions and threat of heavy precipitation, snowmelt, etc.	
Enhanced Fire Weather Conditions	Subjective evaluation of antecedent conditions and threat of high winds and low relative humidity	
Significant Waves	Significant wave heights greater than 20 feet  Subjective evaluation of the intensity and duration of sustained onshore flow, high winds, likelihood of coastal flooding / erosion	

\* Temperatures above freezing in Alaska, during the winter, can pose a hazard to travel on ice roads, and cause icing on highways. An early frost or freeze over agriculturally sensitive areas.

Table 1. Definitions and thresholds for hazards.

15.3.2 Format. CPC will issue a map for the 8-14 day period with hazards areas enclosed by a solid line.





**Figure 14.** An example of 8- to 14-day Hazard Outlooks

15.4 Updates, Amendments, and Corrections. CPC will issue updates, amendments, and corrections as needed.

16. 8- to 14-day Hazards Outlook Discussion (Contiguous U.S. and Alaska).

16.1 Mission connection. CPC provides a text discussion with (1) hazards listed in bullet format with confidence levels for the contiguous U.S. and Alaska, and (2) a short technical discussion to assist in assessing potentially hazardous conditions for decision makers.

16.2 Issuance Guidelines.

16.2.1 Creation Software. CPC will use a web-based form text editor.

16.2.2 Issuance Criteria. These are scheduled products.

16.2.3 Issuance Time. CPC issues the products Monday through Friday between 2:30 - 4:00 p.m. Eastern local time.

16.2.4 Valid Time. The valid time starts eight days after the date of release and ends 14 days after the release date.

16.2.5 Product Expiration Time. The discussion expires with the next issuance of the product.

16.3 Technical Description. CPC will follow the format and content described in this section.

16.3.1 Mass News Disseminator Header.

#### US HAZARDS OUTLOOK

NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

16.3.2 Content. CPC gives the meteorological, hydrological, and climatological basis for the outlook. CPC may include analyses of numerical and statistical models, meteorological circulation patterns and trends, and confidence factors. CPC integrates existing NWS official extended (6- to 10-day and 8- to 14-day) and hydrological analyses and forecasts from the River Forecast Centers, which use state-of-the-art science and technology in their formulation.

16.3.3 Format. The following is a generic format.

#### US HAZARDS OUTLOOK

NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

3 PM ET day month year

#### SYNOPSIS

(text)

#### HAZARDS

(text)

#### DETAILED SUMMARY

(text for days 8 through 14)

FOR MORE DETAILED HAZARDS INFORMATION PLEASE CONSULT YOUR LOCAL FORECAST HAZARDS AT [HTTP://WWW.WEATHER.GOV](http://www.weather.gov).

16.4 Updates, Amendments, and Corrections. CPC will issue updates and corrections as needed.

17. Tropical Pacific Mean Sea-Surface Temperature (SST) Outlook (Niño 3.4 area).  
(WMO heading - FXUS23 KWNC      AWIPS ID - PMDSST)

17.1 Mission Connection. CPC's climate outlook techniques rely significantly upon the slowly varying global SST field and do have usable accuracy at long lead times. These SST outlooks make tangible the results of research activities by many scientists over several decades on the subjects of El Niño, ocean-atmosphere interaction, and so forth.

17.2 Issuance Guidelines.

17.2.1 Creation Software. CPC uses FORTRAN and shell scripts.

17.2.2 Issuance Criteria. This is a scheduled product.

17.2.3 Issuance Time. CPC issues the product once a month on the Friday from the 9<sup>th</sup> to the 15<sup>th</sup> of the month at around 3:00 p.m. Eastern local time.

17.2.4 Valid Time. CPC issues 13 SST three-month outlooks with lead times from 0.5 months to 12.5 months. For example, in mid-January, CPC will issue three-month outlooks for February through April, March through May, April through June, and so on to February through April of the following year.

17.2.5 Product Expiration Time. The 0.5 month lead time outlook expires at the beginning of the valid time of that outlook. The other outlooks expire when the next set of outlooks are issued (i.e. the Friday from the 9<sup>th</sup> to the 15<sup>th</sup> of the following month).

17.3 Technical Description. CPC will follow the format and content described in this section.

17.3.1 Mass News Disseminator Header.

TROPICAL PACIFIC MEAN SEA SURFACE TEMPERATURE /SST/ OUTLOOK  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

17.3.2 Content. CPC issues 13 three-month mean SST outlooks for the Niño 3.4 area of the central Pacific (5°N to 5°S and 120°W to 170°W) for each valid time. CPC provides the outlooks in departure from the climatological normal SST in tenths of a degree Celsius. See [Instruction 10-1004](#) for details on SST normals. The official outlook is labeled “consolidated.” CPC considers the SST predictions from various guidance tools, which may be plotted and labeled, as well. The 68 and 95 percent confidence intervals for the official outlook are provided and define the range within which 68 and 95 percent of the possible outlook outcomes are expected to lie. A lesser interval generally means higher expected skill.

17.3.3 Format. The following is a generic format. The “S” is for the sign (+ or -) of the anomalies and “X” is for the numbers in this generic representation.

```
TROPICAL PACIFIC MEAN SEA SURFACE TEMPERATURE /SST/ OUTLOOK
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD
300 PM E-T FRI MO.# 20--
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MEAN TEMPERATURE ANOMALY SST OUTLOOKS ARE IN TENTHS OF A DEGREE
CELSIUS FOR THE NINO 3.4 AREA OF THE TROPICAL PACIFIC /5N-5S AND
120W-170W/. ANOMALIES ARE FROM *XXXX-XXXX NINO 3.4 MEAN CLIMATOLOGICAL
SST /CLM/.
```

THREE MONTH OUTLOOK PERIODS  
 EG. JFM IS JANUARY THROUGH MARCH - FMA FOR FEB. THROUGH APR. ETC  
 SEE NOTES BELOW ON TYPES OF OUTLOOKS

TYPE	MMM	MMM	MMM	MMM	MMM	MMM	MMM	MMM	MMM	MMM	MMM	MMM	MMM
CONS	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X
U68	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X
L68	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X
U95	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X
L95	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X
CCA	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X
CA	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X
NCEP	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X	SX.X
CLM	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X

NOTES:

CONS - OFFICIAL CONSOLIDATED OUTLOOK  
 U68 - THE UPPER LIMIT OF 68 PERCENT CONFIDENCE INTERVAL FOR CONS  
 L68 - THE LOWER LIMIT OF 68 PERCENT CONFIDENCE INTERVAL FOR CONS  
 U95 - THE UPPER LIMIT OF 95 PERCENT CONFIDENCE INTERVAL FOR CONS  
 L95 - THE LOWER LIMIT OF 95 PERCENT CONFIDENCE INTERVAL FOR CONS  
 CCA - CANONICAL CORRELATION ANALYSIS OUTLOOK  
 CA - CONSTRUCTED ANALOG OUTLOOK  
 NCEP - COUPLED OCEAN/ATMOSPHERIC DYNAMIC MODEL OUTLOOK

THIS PRODUCT IS AVAILABLE IN A GRAPHICAL FORMAT ON THE INTERNET AT  
[HTTP://WWW.CPC.NCEP.NOAA.GOV](http://www.cpc.ncep.noaa.gov) /LOWER CASE/

\$\$

\*Years of current climatological reference period per [NWS Instruction 10-1004](#)

17.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

18. Atlantic Hurricane Season Outlook.

WMO heading - FXNT20 KWNC

AWIPS ID - PMDAHU

18.1 Mission Connection. CPC issues the Hurricane Season Outlook for the Atlantic basin for residents and government agencies of coastal or near-coastal regions for resource and budget planning for hurricane preparedness efforts. No outlook, however, can give certainty as to whether or not a particular locality is impacted by a tropical storm or hurricane in any given year. CPC issues this outlook in cooperation with the NWS National Hurricane Center and NOAA's AOML Hurricane Research Division.

18.2 Issuance Guidelines.

18.2.1 Creation Software. CPC uses a text editor.

18.2.2 Issuance Criteria. This is a scheduled product.

18.2.3 Issuance Time. CPC issues this product twice a year on a weekday (during business hours) in May and August. The date of these releases vary from year to year due to several logistical factors and are not set. Please contact CPC or NOAA Public affairs for release dates.

18.2.4 Valid Time. The May outlook is valid from June 1 through November 30 and the August outlook is valid from the date of issuance to November 30.

18.2.5 Product Expiration Time. The May issuance expires when the August update is issued. The August outlook expires on November 30.

18.3 Technical Description. CPC will follow the format and content described in this section.

18.3.1 Mass News Disseminator Header.

20-- ATLANTIC HURRICANE SEASON OUTLOOK  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

18.3.2 Content. CPC provides probabilities of above normal, near normal, and below normal levels of tropical storm/hurricane activity. CPC uses a definition of "overall activity" reflecting a combination of frequency, intensity, and duration of tropical storms and hurricanes. These measures of overall activity are a much better indicator than the number of tropical storms or hurricanes alone. However, CPC also provides an estimate of the number of tropical storms and hurricanes within a range of numbers. CPC provides an accompanying prognostic discussion detailing the atmospheric, oceanic, and climatic conditions affecting the level of activity.

18.3.3 Format. The following is a generic example.

20-- ATLANTIC HURRICANE SEASON OUTLOOK  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD  
830 AM E-T day mo. # 20--

NOTE: FIGURES MENTIONED IN THE DISCUSSION ARE AVAILABLE ON THE INTERNET AT (url).

SUMMARY: (brief text summarizing the level of expected activity and major atmospheric, oceanic, and climatic conditions).

DISCUSSION: (detailed prognostic discussion of items in the summary)

CAUTIONARY NOTES

1) THIS OUTLOOK REPRESENTS OUR BEST ESTIMATE FOR THE EXPECTED OVERALL LEVEL OF ACTIVITY FOR THE ATLANTIC BASIN. NO OUTLOOK CAN GIVE CERTAINTY AS TO WHETHER OR NOT A PARTICULAR LOCALITY WILL BE

IMPACTED BY A HURRICANE IN ANY GIVEN YEAR. RESIDENTS AND GOVERNMENT AGENCIES OF COASTAL OR NEAR-COASTAL REGIONS SHOULD ALWAYS MAINTAIN HURRICANE PREPAREDNESS EFFORTS, REGARDLESS OF THE OVERALL OUTLOOK FOR A GIVEN YEAR.

2) FAR MORE DAMAGE CAN BE DONE BY ONE MAJOR HURRICANE HITTING A HEAVILY POPULATED AREA THAN BY SEVERAL HURRICANES HITTING SPARSELY POPULATED AREAS OR, OF COURSE, NOT MAKING LANDFALL AT ALL. BECAUSE OF THIS, HURRICANE-SPAWNED DISASTERS CAN OCCUR EVEN IN YEARS WITH NORMAL (OR BELOW-NORMAL) LEVELS OF ACTIVITY.

ACKNOWLEDGMENTS (names) - optional

FORECASTERS (names and contact information) - optional

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18.4 Updates, Amendments and Corrections. CPC issues the August update only. CPC does not issue any amendments. They will issue corrections as needed.

19. Eastern North Pacific Hurricane Season Outlook.  
WMO heading - FXP30 KWNC AWIPS ID -PMDEPH

19.1 Mission Connection. CPC issues a Hurricane Season Outlook for the eastern Pacific (east of 140° W) for residents and government agencies of coastal or near-coastal regions for resource and budget planning for hurricane preparedness efforts. No outlook, however, can give certainty as to whether or not a particular locality is impacted by a tropical storm or hurricane in any given year. CPC issues this outlook in cooperation with the National Hurricane Center and NOAA's Hurricane Research Division.

19.2 Issuance Guidelines.

19.2.1 Creation Software. CPC uses a text editor.

19.2.2 Issuance Criteria. This is a scheduled product.

19.2.3 Issuance Time. CPC issues this product once a year on a weekday (during business hours) in late Spring. The date of these releases vary from year to year due to several logistical factors and are not set. Please contact CPC or NOAA Public affairs for release dates.

19.2.4 Valid Time. The outlook is valid from the issuance date through November 30.

19.2.5 Product Expiration Time. The product expires on November 30.

19.3 Technical Description. CPC will follow the format and content described in this section.

19.3.1 Mass News Disseminator Header.

20—EASTERN NORTH PACIFIC HURRICANE OUTLOOK  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD

19.3.2 Content. CPC provides probabilities of above normal, near normal, and below normal levels of tropical storm/hurricane activity. CPC uses a definition of "overall activity" reflecting a combination of frequency, intensity, and duration of tropical storms and hurricanes. These measures of overall activity are a much better indicator than the number of tropical storms or hurricanes alone. However, CPC also provides an estimate of the number of tropical storms and hurricanes within a range of numbers. CPC provides an accompanying prognostic discussion detailing the atmospheric, oceanic, and climatic conditions affecting the level of activity.

19.3.3 Format. The following is a generic example.

20—EASTERN NORTH PACIFIC HURRICANE OUTLOOK  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD  
830 AM E-T day mo. # 20—

NOTE: FIGURES MENTIONED IN THE DISCUSSION ARE AVAILABLE ON THE INTERNET AT (url).

SUMMARY: (brief text summarizing the level of expected activity and major atmospheric, oceanic, and climatic conditions).

DISCUSSION: (detailed prognostic discussion of items in the summary)

#### CAUTIONARY NOTES

1) THIS OUTLOOK REPRESENTS OUR BEST ESTIMATE FOR THE EXPECTED OVERALL LEVEL OF ACTIVITY FOR THE EASTERN NORTH PACIFIC BASIN. NO OUTLOOK CAN GIVE CERTAINTY AS TO WHETHER OR NOT A PARTICULAR LOCALITY WILL BE IMPACTED BY A HURRICANE IN ANY GIVEN YEAR. RESIDENTS AND GOVERNMENT AGENCIES OF COASTAL OR NEAR-COASTAL REGIONS SHOULD ALWAYS MAINTAIN HURRICANE PREPAREDNESS EFFORTS, REGARDLESS OF THE OVERALL OUTLOOK FOR A GIVEN YEAR.

2) FAR MORE DAMAGE CAN BE DONE BY ONE MAJOR HURRICANE HITTING A HEAVILY POPULATED AREA THAN BY SEVERAL HURRICANES HITTING SPARSELY POPULATED AREAS OR, OF COURSE, NOT MAKING LANDFALL AT ALL. BECAUSE OF THIS, HURRICANE-SPAWNED DISASTERS CAN OCCUR EVEN IN YEARS WITH NORMAL (OR BELOW-NORMAL) LEVELS OF ACTIVITY.

ACKNOWLEDGMENTS (names) - optional

FORECASTERS (names and contact information) - optional

\$\$

19.4 Updates, Amendments and Corrections. CPC does not issue any amendments. Corrections are issued as needed.

20. Global Tropics Hazards and Benefits Outlook  
<http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ghazards/index.php>

20.1 Mission Connection. The product supports the NOAA mission in three primary ways: (1) assess and forecast the impact of tropical convection on the extra-tropical circulation across the U.S. and communicate this information to National Weather Service (NWS) forecasters, (2) provide advance notice of potential hazards related to climate, weather and hydrological events across the global tropics (including tropical cyclone risks for the U.S.), and (3) aid various sectors of the U.S. economy (finance, energy, agriculture, water resource management) with foreign interests.

The intended users are U.S. interests only, including NWS forecasters and staff at other U.S. government agencies, U.S. emergency managers and regional planners, and the public with interests across the global tropics.

20.2 Issuance Guidelines.

20.2.1 Creation Software. CPC uses ArcGIS Desktop to create the product. The product is presented on the CPC web site and includes outlook images (thumbnail and full versions) in addition to the complete product in PDF format.

20.2.2 Issuance Criteria. This is a scheduled product.

20.2.3 Issuance Time. CPC issues the product twice per week on Tuesday and Friday at 2 PM Eastern Local Time. Conditions are subject to change after issuance time and before the next outlook.

20.2.4 Valid Time. The product is valid for two weeks after issuance.

20.2.5 Product Expiration Time. This product expires with the next issuance.

20.3 Technical Description.

20.3.1 Mass News Disseminator Header. Not applicable

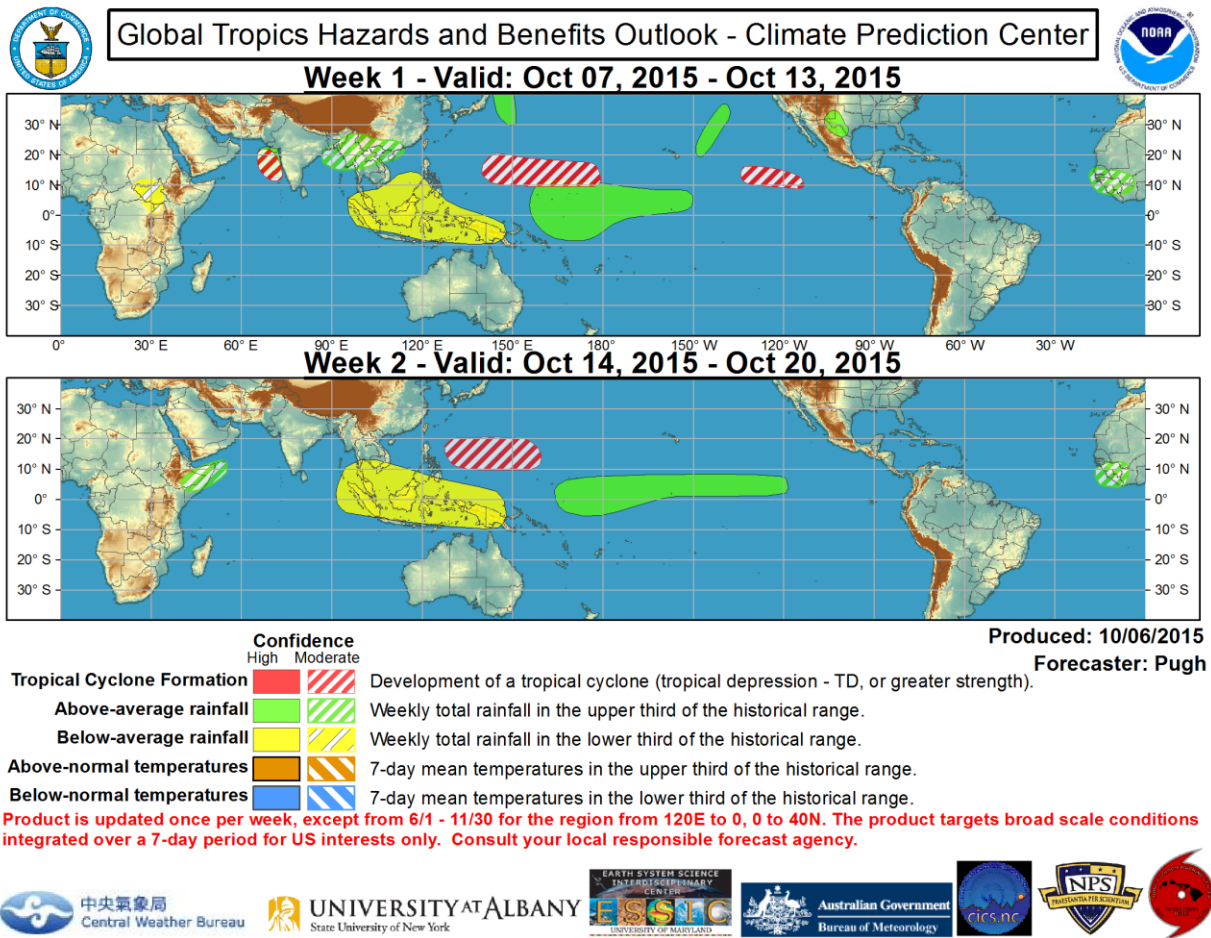


20.3.2 Content. The Global Tropics Hazards and Benefits Outlook, issued by CPC, provides a graphical outlook and associated Prognostic Map Discussion (PMD) for the upcoming Week-1 and Week-2 time periods for areas expecting extensive and persistent enhanced / suppressed rainfall and regions where conditions are especially favorable / unfavorable for tropical cyclogenesis. The assessment targets broad scale conditions integrated over 7-day periods. CPC assigns confidence estimates for the expected activity in each of these areas to provide additional information to users. Confidence estimates are subjective in nature and are not based on an objective scheme.

CPC notes (in the text portion only) the locations (latitude, longitude) and strength of active tropical low pressure centers (for depressions, storms, hurricanes, typhoons, cyclones) at the time of issuance and refers users to the appropriate operational meteorological “center” for updated information.

The Global Tropics Hazards and Benefits Outlook synthesizes information and expert analysis from a number of CPC assessment activities as well as other operational and routine monitoring products. The physical basis for the outlooks include the El Nino-Southern Oscillation (ENSO) cycle, the Madden-Julian Oscillation (MJO), other coherent subseasonal tropical variability, and interactions with the extratropical circulation. The product is generated with input from the National Hurricane Center (NHC), the Central Pacific Hurricane Center, the Joint Typhoon Warning Center, the Australia Bureau of Meteorology, the Weather Prediction Center (WPC), select NWS offices, and the academic community.

20.3.3 Format. Highlighted tropical hazards and benefits will appear on one image (Week-1 and Week-2 combined, see Fig. 15) along with a text PMD explaining the background conditions, nature and rationale for the highlighted regions.



**Figure 15.** Sample Global Tropics Hazards and Benefits Outlook.

20.4 Updates, Amendments, and Corrections. CPC issues an update on Friday at 1 PM Local Time during the east Pacific and Atlantic hurricane seasons (May 15 through November 30) for an area stretching from 120 E to the Prime Meridian. The Friday update outlook horizon is not extended in time and so the outlook only extends to 10 days in the updated product. The update intentionally targets improved service for the NWS Pacific, Western and Southern Regions during northern hemisphere tropical cyclone seasons.

## 21. Week 3-4 Temperature Outlook (Contiguous U.S., Alaska, and Hawaii).

21.1 Mission Connection. CPC issues week 3-4 temperature outlooks for the contiguous U.S., Alaska, and Hawaii to provide information to decision makers for weather and climate sensitive activities and for businesses sensitive to intra monthly climate variation. Since these outlooks pertain to the average temperature for an outlook's entire valid period and **not** to the variability within it, they will **not** help people planning events for specific dates or sub-periods. The outlooks will be of most use for economic and business planning, particularly when used with Base Period Means ([see Instruction 10-1004](#)).

21.2 Issuance Guidelines.

21.2.1 Creation Software. CPC uses GEMPAK software as an input into NAWIPS for the maps and a text editor for the message.

21.2.2 Issuance Criteria. These are scheduled products.

21.2.3 Issuance Time. CPC issues the product once per week on Friday at around 3:00 p.m. Eastern local time.

21.2.4 Valid Time. The valid time is the week 3-4 period after issuance.

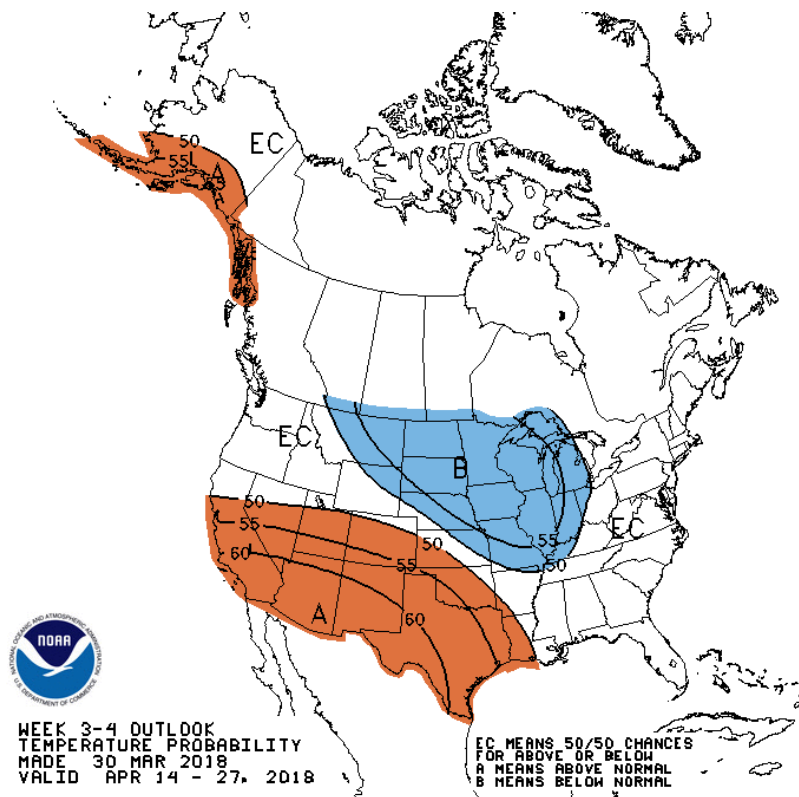
21.2.5 Product Expiration Time. The outlook expires one week later with issuance of the next week 3-4 Outlook.

21.3 Technical Description. CPC will follow the format and content described in this section.

21.3.1 Content. CPC will express the outlook in a 2-category probabilistic format as the chance that mean temperature for the period will be either above or below normal for the contiguous U. S. and Alaska and at site specific forecasts for Hawaii, which will be included in the discussion. For the valid period, CPC uses the 30-year mean temperatures for the climatology and class limits. CPC smooths the temperature climatologies using a harmonic analysis with three harmonics retained. CPC updates this information once per decade. See [Instruction 10-1004](#) for details.

21.3.2 Format. For the contiguous U. S. and Alaska, CPC will indicate the probabilities for the most likely class with solid contour lines and shading. They will label the centers of maximum probability with the letters A or B to denote the most likely class. For example, when the probability for the above normal temperature class exceeds 50 percent for a given area, then CPC will encircle the area by a probability contour of 50 percent on the temperature outlook chart and label the area with the letter A. For Hawaii, CPC will express outlooks for specific Hawaiian cities (Hilo, Honolulu, Lihue, and Kahului) using a 2-category probabilistic format as chances the mean temperature for the period will fall into the above or below normal category in a discussion that also includes the meteorological and climatological basis for the forecasts. CPC may include analyses of statistical models, coupled atmosphere/ocean numerical models, meteorological and sea-surface temperature patterns, and trends in the discussion.

For areas where a favored class cannot be determined, CPC will indicate those regions for Alaska, contiguous U. S., and Hawaiian cities with an "EC."



**Figure 16.** Week 3-4 temperature outlook and discussion from March 30, 2018

21.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.

22. Week 3-4 Temperature Outlook Discussion (Contiguous U.S., Alaska, and Hawaii)

22.1. Mission Connection. The discussion provides technical insight to further assist decision making for weather and climate sensitive activities.

22.2 Issuance Guidelines.

22.2.1 Creation Software. CPC uses GEMPAK software as an input into NAWIPS for the maps and a text editor for the message.

22.2.2 Issuance Criteria. These are scheduled products.

22.2.3 Issuance Time. CPC issues the product once per week on Friday at around 3:00 p.m. Eastern local time.

22.2.4 Valid Time. The valid time is the week 3-4 period after issuance.

22.2.5 Product Expiration Time. The discussion expires one week later with issuance of the next week 3-4 Outlook.

22.3 Technical Description. CPC will follow the format and content described in this section.

21.3.1 Content. CPC will give the meteorological and climatological basis for the outlooks. CPC may include analyses of statistical and numerical models, a coupled atmospheric/ocean numerical model, meteorological and sea-surface temperature patterns, trends and past analogs, and confidence factors.

21.3.2 Format. The following is the discussion sample format.

PROGNOSTIC DISCUSSION FOR WEEK 3-4 TEMPERATURE OUTLOOK  
NWS CLIMATE PREDICTION CENTER COLLEGE PARK MD  
300PM EDT Fri Mar 30 2018

Week 3-4 Forecast Discussion Valid Sat Apr 14 2018-Fri Apr 27 2018

This week's forecast is complicated by the dynamical models' inability to agree on the progression of the MJO, which is currently emerging over the West Pacific. The CFS forecasts the MJO to reach amplitude of nearly 3 sigma and then stall over Africa as it weakens substantially during the Week-2 period. The ECMWF model does not weaken the MJO nearly as dramatically and continues its propagation over the Indian Ocean during Week-2. Additionally, we also have to consider the impacts of the La Nina event; the SST 3.4 anomalies this week are about 0.8 degrees C below average. Today's Week 3/4 forecast is strongly based on the ECMWF model forecast because its MJO forecast seems much more physically reasonable than the CFS.

Our forecast calls for anomalous warmth over the southwestern CONUS during the Week 3-4 period. All of our dynamical guidance this week supports this forecast; the models are in good agreement of anomalous ridging centered off the south coast of California. This is further supported by CPC's statistical tools which suggest that warmth throughout the Southwest is consistent with the current combination of the state of the MJO, La Nina, and the long-term trend. Dynamical guidance is also in good agreement of anomalous cold throughout the Northern Plains, Mississippi and Ohio Valleys, especially during Week-3. The CFS and ECMWF models hint that anomalous troughing over the cold region will weaken during Week-4, so our confidence in this part of the forecast is lower than over the Southwest. Our statistical tools, CFS, and ECMWF also suggest a slightly enhanced probability of anomalous warmth over coastal Alaska during the forecast period.

The dynamical and statistical models are in especially good agreement regarding anomalously little precipitation over the southern CONUS and especially poor agreement just about everywhere else. Our forecast is a blend of the CFS, ECMWF and statistical ENSO tools, which all suggest anomalously dry conditions over the southern CONUS associated with the aforementioned enhanced ridging, which could be especially strong during Week-3. Precipitation elsewhere is difficult to forecast. On Tuesday of this week both the CFS and the ECMWF models suggested that the Mississippi and Ohio Valleys would be anomalously wet. The CFS has been much drier yesterday and today, though, and the ECMWF has shifted its forecast area of

enhanced precipitation to the northeast. Furthermore, our statistical model suggests that the current state of the MJO and ENSO should lead to anomalous dryness over this same area.

Dynamical model guidance indicates increased probabilities of above normal temperatures and above normal amounts of precipitation over Hawaii during the Week 3-4 period.

Temperature	Precipitation
FCST	FCST
Hilo A60	A60
Kahului	A60 A60
Honolulu	A60 A55
Lihue A60	A55

Forecaster: name(s) – optional

The next week 3-4 outlook will be issued on Friday, Apr 06, 2018

These outlooks are based on departures from the 1981-2010 base period.

These are two category outlooks and differ from official current three category outlooks currently used for the monthly and seasonal forecasts.

The shading on the temperature map depicts the most favored category, either above-normal (A) or below-normal (B) with the solid lines giving the probability ( >50%) of this more likely category (above or below).

The shading on the precipitation map depicts the most favored category, either above-median (A) or below-median (B) with the solid lines giving the probability ( >50%) of this more likely category (above or below).

In areas where the likelihoods of 2-week mean temperatures and accumulated precipitation amounts are similar to climatological probabilities, equal chances (EC) is indicated.

22.4 Updates, Amendments, and Corrections. CPC does not issue updates or amendments. CPC will issue corrections as needed.