Climate Outlook Survey (for CPC website)

Start of Block: Consent

Thank you for taking the time to complete a survey created by Dr. Melissa Kenney and Dr. Michael Gerst's research team at the University of Maryland. In this survey you will be asked several questions about temperature and precipitation forecasts, called climate outlooks, that are produced by NOAA's Climate Prediction Center (CPC). The goal is to understand how users interpret the outlooks and ultimately improve the effectiveness of outlook visuals. The data and results of this survey may be used for research reports, presentations, publications, educational materials, or future studies. The questionnaire will take about 15 minutes to complete.
Any identifying information collected during the study will be protected and there are no foreseeable risks or discomforts due to your participation. As an incentive, upon completion of the survey you may choose to enter your name in a drawing for $100 Amazon gift card.
You are welcome to contact Dr. Kenney at any time if you have questions about the survey at kenney@umd.edu. If you have any questions about your rights as a research participant, please contact the University of Maryland's Internal Review Board office at (301)-405-4212 or via email at irb@umd.edu. You can print this screen so that you have the contact information available.
By selecting "yes" below and then proceeding with the survey you are voluntarily consenting to participate in the survey and allowing your responses to be used for research purposes.

O Yes, I voluntarily agree to participate in this survey and allow my responses to be used for research purposes. I also confirm that I am at least 18 years of age.

O No, I do not wish to participate in this survey.

End of Block: Consent

Start of Block: Sector Affiliation

What sector best describes where you are employed?

- O Agriculture
- O Emergency Management
- O Water Resources
- O Energy
- O Other: _____

End of Block: Sector Affiliation

Start of Block: General Questions

Where is your organization located (City, State)?

_____

What is your title or provide a general description of your job (1 sentence or less)?

_____

Page Break

Which of the following Climate Prediction Center outlook products are you familiar with? In addition, which products do you use in decision making? Please check all that apply.

	Familar with	Unfamiliar with	Use in Decision-Making
6-10 Day Temperature	☐	☐	☐
8-14 Day Temperature	☐	☐	☐
3-4 Week Temperature	☐	☐	☐
1-Month Temperature	☐	☐	☐
3-Month Temperature	☐	☐	☐
6-10 Day Precipitation	☐	☐	☐
8-14 Day Precipitation	☐	☐	☐
3-4 Week Precipitation	☐	☐	☐
1-Month Precipitation	☐	☐	☐
3-Month Precipitation	☐	☐	☐

If you use the outlook products, how do you use them, especially in the context of making / informing decisions and planning?

_____

_____

_____

_____

_____

If used for decisions / planning, what was the impact to your organization when using this information?

_____

_____

_____

_____

_____

Do you use any similar products from other vendors, especially in the context of making / informing decisions and planning?

_____

_____

_____

_____

_____

End of Block: General Questions

Start of Block: Background Understanding for all CPC Outlooks

For the outlooks, how many years of data are used to establish the climate baseline, called “climatology”?

- O 1
- O 10
- O 30
- O 50
- O I don't know

Page Break

For 6-10 day, 8-14 day, monthly, and seasonal outlooks, climate baseline categories of below-, near-, and above-normal are defined in two steps. First historical data is ranked, coolest to hottest for temperature and driest to wettest for precipitation. Second, the ranked list is divided into three categories establishing the lower (below-), middle (near-) and upper (above-normal) ranges. What percentage of the ranked list is allotted to each category, respectively?

- O 33, 33, 33
- O 25, 50, 25
- O 16.5, 66, 16.5
- O I don't know

Page Break

Across the outlook map, expert forecasters use their judgment to assess the probability of each category occurring. Of the three categories assessed, below-, near-, and above-normal, the one shown on the outlook map is the category that exceeds which probability?

- O 33
- O 50
- O 66
- O I don't know

Page Break

For 3-4 week outlooks, climate baseline categories of below- and above-normal are defined in two steps. First historical data is ranked, coolest to hottest for temperature and driest to wettest for precipitation. Second, the ranked list is divided into two categories establishing the lower (below-) and upper (above-normal) ranges. What percentage of ranked list is allotted to each category, respectively?

- O 75, 25
- O 50, 50
- O 33, 33, 33
- O I don't know

Page Break

Across the 3-4 week outlook map, expert forecasters use their judgment to assess the probability of each category occurring. Of the two categories assessed, the one shown on the outlook map is the category that exceeds which threshold probability?

- O 33
- O 50
- O 66
- O I don't know

End of Block: Background Understanding for all CPC Outlooks

Start of Block: 6-10 Day Precipitation Outlook

Please examine the above 6-10 day precipitation outlook and answer the following questions.

Page Break

What does white shading in Canada mean?

- O no outlook available
- O normal precipitation
- O less than 33% chance of precipitation

Page Break

What does white shading in the US mean?

- O no outlook available
- O more than 33% probability of having near-normal precipitation
- O less than 33% chance of precipitation

Page Break

What do dashed lines represent?

- O the boundary between probability ranges
- O the climate baseline precipitation in tenths of inches
- O predicted mean precipitation

Page Break

Green shading means that an area

- O will have at least 33% more precipitation than normal
- O will have greater than 0.33 inches more precipitation than normal
- O has a greater than 33% probability of higher than normal precipitation

Page Break

Brown shading means that an area

- will have at least 33% less precipitation than normal
- will have normal amounts of precipitation
- has a greater than 33% probability of below-normal precipitation

Page Break

The state of Georgia

- O will have 33-40% more precipitation than normal
- O has a 33-40% probability of having more precipitation than normal
- O has a 33% probability of having more precipitation than normal
- O will have 33% more precipitation than normal

Page Break

The state of North Dakota

- O will have 40-50% less precipitation than normal
- O has a 40-50% probability of having less precipitation than normal
- O has a 40% probability of having less precipitation than normal
- O will have 40% less precipitation than normal

Page Break

The state of California

- has a 50% probability of having normal precipitation
- has a more than 33% probability of having near-normal precipitation
- will have a 33% chance of precipitation

Page Break

How would you rate the helpfulness of the following elements in visually communicating the outlook?

	Not helpful	Somewhat helpful	Adequately helpful	Extremely helpful
Representation of land and political boundaries	O	O	O	O
Shading	O	O	O	O
Dashed contour lines	O	O	O	O
Dotted contour lines	O	O	O	O
Text/descriptions/labels	O	O	O	O
Other	O	O	O	O

Display This Question:

If How would you rate the helpfulness of the following elements in visually communicating the outlook? = Not helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outlook? = Somewhat helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outlook? = Adequately helpful

If you did not find them extremely helpful, how might they be improved?

- O Representation of land and political boundaries _____
- O Shading _____
- O Dashed contour lines _____
- O Dotted contour lines _____
- O Text/descriptions/labels _____
- O ${Q103/ChoiceTextEntryValue/7} _____

Page Break

Which parts of the outlook were unclear or confusing? Check all that apply

- [ ] Meaning of normal or near-normal
- [ ] How uncertainty is represented
- [ ] Other _____

Display This Question:

If If Which parts of the outlook were unclear or confusing? Check all that apply q://QID27/SelectedChoicesCount Is Greater Than 0

If you thought parts of the outlook were confusing, why?

- O Meaning of normal or near-normal

_____

- O How uncertainty is represented

_____

- O ${Q27/ChoiceTextEntryValue/4}

_____

End of Block: 6-10 Day Precipitation Outlook

Start of Block: 3 month Precipitation Outlook

Please examine the above 3-month precipitation outlook and answer the following questions.

Page Break

What does white shading in Canada mean?

- O no outlook available
- O equal chance of having above-normal, below-normal, or near-normal precipitation
- O less than a 33% chance of precipitation

Page Break

What does white shading in the US mean?

- O no outlook available
- O equal chance of having above-normal, below-normal, or near-normal precipitation
- O less than a 33% chance of precipitation

Page Break

Grey shading means that an area

- O has a more than a 33% probability of near-normal precipitation
- O will have near-normal amounts of precipitation
- O equal chance of having above-normal, below-normal, or near-normal precipitation

Page Break

Green shading means that an area

- O will have at least 33% more precipitation than normal
- O will have near-normal amounts of precipitation
- O has more than a 33% probability of higher than normal precipitation

Page Break

Brown shading means that an area

- O will have at least 33% less precipitation than normal
- O will have near-normal amounts of precipitation
- O has more than a 33% probability of lower than normal precipitation

Page Break

The state of Indiana

- O will have 40-50% more precipitation than normal
- O has a 40-50% probability of having above-normal precipitation
- O has a 40% probability of having more precipitation than normal
- O will have 40% more precipitation than normal

Page Break

The state of Florida

- O will have 40-50% less precipitation than normal
- O has a 40-50% probability of having below-normal precipitation
- O has a 40% probability of having below-normal precipitation
- O will have 40% more precipitation than normal

Page Break

The state of Massachusetts

- O has a 50% probability of having normal precipitation
- O has equal chance of having above-normal, below-normal, or near-normal precipitation
- O will have less than 33% change in precipitation

Page Break

How would you rate the helpfulness of the following elements in visually communicating the outlook?

	Not helpful	Somewhat helpful	Adequately helpful	Extremely helpful
Representation of land and political boundaries	O	O	O	O
Shading	O	O	O	O
Dotted contour lines	O	O	O	O
Text/descriptions/labels	O	O	O	O
Other	O	O	O	O

Display This Question:

If How would you rate the helpfulness of the following elements in visually communicating the outl... = Not helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outl... = Somewhat helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outl... = Adequately helpful

If you did not find them extremely helpful, how might they be improved?

- O Representation of land and political boundaries _____
- O Shading _____
- O Dotted contour lines _____
- O Text/description/labels _____
- O ${Q115/ChoiceTextEntryValue/7} _____

Page Break

Which parts of the outlook were unclear or confusing? Check all that apply

- ☐ Meaning of normal or near-normal
- ☐ How uncertainty is represented
- ☐ Meaning of equal chances
- ☐ Other _____

Display This Question:

If If Which parts of the outlook were unclear or confusing? Check all that apply q://QID117/SelectedChoicesCount Is Greater Than 0

If you thought parts of the outlook were confusing, why?

- ○ Meaning of normal or near-normal _____
- ○ How uncertainty is represented _____
- ○ Meaning of equal chances _____
- ○ ${Q117/ChoiceTextEntryValue/4} _____

End of Block: 3 month Precipitation Outlook

Start of Block: 3-4 Week Precipitation Outlook

Please examine the above 3-4 week precipitation outlook and answer the following questions.

Page Break

What does white shading in Canada mean?

- O no outlook available
- O equal chance of having more or less precipitation
- O less than a 33% chance of precipitation

Page Break

What does white shading in the US mean?

- O no outlook available
- O equal chance of having more or less precipitation than normal
- O will have near-normal amounts of precipitation

Page Break

Green shading means that an area

- O will have at least 50% more precipitation than normal
- O is favored to see more precipitation than normal
- O will have near-normal amounts of precipitation

Page Break

Brown shading means that an area

- O will have 50% less precipitation than normal
- O will have near-normal amounts of precipitation
- O is favored to see less precipitation than normal

Page Break

The state of Missouri

- O will have at least 50% more precipitation than normal
- O has at least a 50% probability of having more precipitation than normal
- O has a 50% probability of having more precipitation than normal

Page Break

The state of Washington

- O will have at least 50% less precipitation than normal
- O has at least a 50% probability of having less precipitation than normal
- O has a 50% probability of having less precipitation than normal

Page Break

The state of California

- O has a 50% probability of having normal precipitation
- O has equal chance of having above- or below-normal precipitation
- O will have less than 33% change in precipitation

Page Break

X-

How would you rate the helpfulness of the following elements in visually communicating the outlook?

	Not helpful	Somewhat helpful	Adequately helpful	Extremely helpful	has a 50% probability of having normal precipitation	has equal chance of having above- or below-normal precipitation	will have less than 33% change in precipitation
Representation of land and political boundaries	O	O	O	O	O	O	O
Shading	O	O	O	O	O	O	O
Solid contour lines	O	O	O	O	O	O	O
Text/descriptions/ labels	O	O	O	O	O	O	O
Other	O	O	O	O	O	O	O

Display This Question:

If How would you rate the helpfulness of the following elements in visually communicating the outlook? = Not helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outlook? = Somewhat helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outlook? = Adequately helpful

If you did not find them extremely helpful, how might they be improved?

Representation of land and political boundaries

- O Representation of land and political boundaries _____
- O Shading _____
- O Solid contour lines _____
- O Text/descriptions/labels _____
- O ${Q104/ChoiceTextEntryValue/7} _____

Page Break

Which parts of the outlook were unclear or confusing?

- ☐ Meaning of normal or near-normal
- ☐ How uncertainty is represented
- ☐ Meaning of equal chances
- ☐ Other _____

Display This Question:

If If Which parts of the outlook were unclear or confusing? q://QID113/SelectedChoicesCount Is Greater Than 0

If you thought parts of the outlook were confusing, why?

Meaning of normal or near-normal

- O Meaning of normal or near-normal _____
- O How uncertainty is represented _____
- O Meaning of equal chances _____
- O ${Q107/ChoiceTextEntryValue/4} _____

End of Block: 3-4 Week Precipitation Outlook

Start of Block: 8-14 Day Temperature Outlook

Please examine the above 8-14 day temperature outlook and answer the following questions.

Page Break

What does white shading in Canada mean?

- O no outlook available
- O normal temperature
- O less than a 33% chance of above-normal temperature

Page Break

What does white shading in the US mean?

- O no outlook available
- O more than 33% probability of having near-normal temperature
- O less than a 33% chance of above-normal temperature

Page Break

What do dashed lines represent?

- O boundaries between probability ranges
- O the climate baseline temperature in degrees F
- O predicted mean temperature

Page Break

Orange to dark red shading means that an area

- O will have at least 33% higher than normal temperature
- O will have near-normal temperature
- O has at least a 33% probability of higher than normal temperature

Page Break

Blue shading means that an area

- O will have at least 33% lower than normal temperature
- O will have near-normal temperature
- O has at least a 33% probability of lower than normal temperature

Page Break

The state of Oregon

- O will have 50-60% higher than normal temperature
- O has a 50-60% probability of above-normal temperature
- O has a 50% probability of having higher than normal temperature
- O will have 50% higher than normal temperature

Page Break

The state of Illinois

- O will have 40-50% lower than normal temperature
- O has a 40-50% probability of having less than normal temperature
- O has a 40% probability of having less than normal temperature
- O will have 40% lower than normal temperature

Page Break

The state of West Virginia

- O has a 50% probability of having normal temperature
- O has a more than 33% probability of having near-normal temperature
- O will have less than a 33% chance of above-normal temperature

Page Break

X-

How would you rate the helpfulness of the following elements in visually communicating the outlook?

	Not helpful	Somewhat helpful	Adequately helpful	Extremely helpful
Representation of land and political boundaries	O	O	O	O
Shading	O	O	O	O
Dashed contour lines	O	O	O	O
Dotted contour lines	O	O	O	O
Text/descriptions/labels	O	O	O	O
Other	O	O	O	O

Display This Question:

If How would you rate the helpfulness of the following elements in visually communicating the outlook? = Not helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outlook? = Somewhat helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outlook? = Adequately helpful

If you did not find them extremely helpful, how might they be improved?

- O Representation of land and political boundaries _____
- O Shading _____
- O Dashed contour lines _____
- O Dotted contour lines _____
- O Text/descriptions/labels _____
- O ${Q86/ChoiceTextEntryValue/7} _____

Page Break

Which parts of the outlook were unclear or confusing? Check all that apply

- ☐ Meaning of normal or near-normal
- ☐ How uncertainty is represented
- ☐ Meaning of equal chances
- ☐ Other _____

Display This Question:

If If Which parts of the outlook were unclear or confusing? Check all that apply q://QID125/SelectedChoicesCount Is Greater Than 0

If you thought parts of the outlook were confusing, why?

- O Meaning of normal or near-normal

_____

- O How uncertainty is represented

_____

- O ${Q87/ChoiceTextEntryValue/4}

_____

End of Block: 8-14 Day Temperature Outlook

Start of Block: 3 month Temperature Outlook

Please examine the above 3-month temperature outlook and answer the following questions.

Page Break

What does white shading in Canada mean?

- O no outlook available
- O equal chance of having above, below, or normal temperature
- O less than a 33% chance of above-normal temperature

Page Break

What does white shading in the US mean?

- O no outlook available
- O equal chance of having above-, below-, or near-normal temperature
- O less than a 33% chance of above-normal temperature

Page Break

Grey shading means that an area

- O has a more than a 33% probability of near-normal temperature
- O will have near-normal temperature
- O equal chance of having above-normal, below-normal, or near-normal temperature

Page Break

Orange to red shading means that an area

- O will have at least 33% higher than normal temperature
- O will have near-normal temperature
- O has at least a 33% probability of higher than normal temperature

Page Break

Blue shading means that an area

- O will have at least 33% lower than normal temperature
- O will have near-normal temperature
- O has at least a 33% probability of lower than normal temperature

Page Break

The state of Maine

- O will have 33-40% higher than normal temperature
- O has a 33-40% probability of having higher than normal temperature
- O has a 33% probability of having higher than normal temperature
- O will have 33% higher than normal temperature

Page Break

The northern part of the state of North Dakota

- O will have 40-50% lower than normal temperature
- O has a 40-50% probability of having lower than normal temperature
- O has a 40% probability of having lower than normal temperature
- O will have 40% lower than normal temperature

Page Break

The state of Illinois

- O has a 50% probability of having normal temperature
- O has an equal chance of having above, below, or normal temperature
- O will have less than 33% change in temperature

Page Break

How would you rate the helpfulness of the following elements in visually communicating the outlook?

	Not helpful	Somewhat helpful	Adequately helpful	Extremely helpful
Representation of land and political boundaries	O	O	O	O
Shading	O	O	O	O
Dotted contour lines	O	O	O	O
Text/descriptions/labels	O	O	O	O
Other	O	O	O	O

Display This Question:

If How would you rate the helpfulness of the following elements in visually communicating the outlook? = Not helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outlook? = Somewhat helpful

And How would you rate the helpfulness of the following elements in visually communicating the outlook? = Adequately helpful

If you did not find them extremely helpful, how might they be improved?

- O Representation of land and political boundaries _____
- O Shading _____
- O Dotted contour lines _____
- O Text/descriptions/labels _____
- O ${Q127/ChoiceTextEntryValue/7} _____

Page Break

Which parts of the outlook were unclear or confusing? Check all that apply

- ☐ Meaning of normal or near-normal
- ☐ How uncertainty is represented
- ☐ Meaning of equal chances
- ☐ Other _____

Display This Question:

If If Which parts of the outlook were unclear or confusing? Check all that apply q://QID129/SelectedChoicesCount Is Greater Than 0

If you thought parts of the outlook were confusing, why?

- O Meaning of normal or near-normal

_____

- O How uncertainty is represented

_____

- O Meaning of equal chances _____
- O ${Q129/ChoiceTextEntryValue/4}

_____

End of Block: 3 month Temperature Outlook

Start of Block: 3-4 Week Temperature Outlook

Please examine the above 3-4 week temperature outlook and answer the following questions.

Page Break

What does white shading in Canada mean?

- O no outlook available
- O equal chance of having above- or below-normal temperature
- O less than 33% probability of above-normal temperature

Page Break

What does white shading in the US mean?

- O equal chance of having above- or below-normal temperature
- O no outlook available
- O less than 33% probability of above-normal temperature

Page Break

Orange-red shading means that an area

- O will have at least 50% higher temperature than normal
- O is favored to have higher temperature than normal
- O will have near-normal temperature

Page Break

Blue shading means that an area

- O will have at least 50% lower temperature
- O is favored to see lower temperature than normal
- O will have near-normal temperature

Page Break

The state of Washington

- O will have at least 60% higher temperature than normal
- O has at least a 60% probability of having higher temperature than normal
- O has a 60% probability of having higher temperature than normal

Page Break

The state of Tennessee

- O will have at least 50% lower temperature than normal
- O has at least a 50% probability of having lower temperature than normal
- O has a 50% probability of having lower temperature than normal

Page Break

The state of Pennsylvania

- O has a 50% probability of having normal temperature
- O has equal chance of having above- or below-normal temperature
- O will have less than 50% change in temperature

Page Break

How would you rate the helpfulness of the following elements in visually communicating the outlook?

	Not helpful	Somewhat helpful	Adequately helpful	Extremely helpful
Representation of land and political boundaries	O	O	O	O
Shading	O	O	O	O
Solid contour lines	O	O	O	O
Text/descriptions/labels	O	O	O	O
Other	O	O	O	O

Display This Question:

If How would you rate the helpfulness of the following elements in visually communicating the outlook? = Not helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outlook? = Somewhat helpful

Or How would you rate the helpfulness of the following elements in visually communicating the outlook? = Adequately helpful

If you did not find them extremely helpful, how might they be improved?

- O Representation of land and political boundaries _____
- O Shading _____
- O Solid contour lines _____
- O Text/descriptions/labels _____
- O ${Q93/ChoiceTextEntryValue/7} _____

Page Break

Which parts of the outlook were unclear or confusing? Check all that apply

- ☐ Meaning of normal or near-normal
- ☐ How uncertainty is represented
- ☐ Meaning of equal chances
- ☐ Other _____

Display This Question:

If If Which parts of the outlook were unclear or confusing? Check all that apply q://QID133/SelectedChoicesCount Is Greater Than 0

If you thought parts of the outlook were confusing, why?

- O Meaning of normal or near-normal

_____

- O How uncertainty is represented

_____

- O Meaning of equal chances _____
- O ${Q95/ChoiceTextEntryValue/4}

_____

End of Block: 3-4 Week Temperature Outlook

Start of Block: End of Survey Question

Based on your preferences, please rank (1-best to 3-worst) the three uncertainty representations shown below.

_____ **3 categories** *above-, near-, and below-normal (used in 6-10 day and 8-14 day outlooks)*

_____ **3 categories with equal chances** *above-, near- and below-normal, where equal chances means an equal probability for above-, near- and below-normal (used in 1- and 3-month outlooks)*

_____ **2 categories with equal chances** *above- and below-normal, where equal chances means an equal probability for above- and below-normal (used in the Week 3-4 outlooks)*

Please elaborate on the reasoning behind the ranking

_____

_____

_____

_____

_____

End of Block: End of Survey Question

Start of Block: Wrap up

If you would like more information about how to interpret the climate outlooks, please visit the following links:

Interpreting Extended-Range Forecasts: https://www.youtube.com/watch?v=pjZM48Czfxg&feature=youtu.be

Interpreting Long-Range Forecasts: https://www.youtube.com/watch?v=kuae14Wy5hA&feature=youtu.be

1. This information is being collected to support the NOAA National Weather Service Extended-Range Prediction Program, whose goal is to improve subseasonal predictions and their utility to stakeholders. 2. The information collected will be used to better understand how users interpret the Climate Prediction Center Outlooks and how the representation of the Outlooks can be improved to better inform stakeholder decisions. Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to cocoa.white@noaa.gov. The National Weather Service, its employees, agents, and partner statistical agencies, will use the information you provide for statistical purposes only and will hold the information in confidence to the full extent permitted by law. In accordance with the Confidential Information Protection and Statistical Efficiency Act of 2002 (Title 5 of Public Law 107-347) and other applicable Federal laws, your responses will not be disclosed in identifiable form without your informed consent. Per the Federal Cybersecurity Enhancement Act of 2015, Federal information systems are protected from malicious activities through cybersecurity screening of transmitted data. Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

End of Block: Wrap up