TRANSCRIPT

NOAA January 2023 U.S./global media telecon

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NOAA monthly U.S., global climate report call: February 16

Amanda (operator):

Welcome and thank you for standing by. I would like to inform all participants that your lines have been placed on a listen only mode until the question and answer session of today's call. Today's call is being recorded. If anyone has any objections, you may disconnect at this time. I would now like to turn the call over to John Bateman. Thank you. You may begin.

John Bateman:

Good morning and thank you for joining this monthly climate update call, part of the suite of climate services that NOAA provides to government, business, academia, and the public to support informed decision making. I'm John Bateman with NOAA Communications and I'll be facilitating the call today. If you have any additional questions after the conclusion of today's call, my colleague John Leslie and I can both be reached by email at and I will spell it, N-E-S-D-I-S dot P-A @ N-O-A-A dot G-O-V. That's nesdis.pa@noaa.gov.

Today's update will feature three short presentations followed by an operator assisted question and answer session and a copy of the presentation our speakers will follow, can be downloaded from the link in the media advisory. And with that, I will introduce our speakers. The first presenter is Ahira Sanchez-Lugo, a climatologist at NOAA's National Centers for Environmental Information, who will provide a summary of the January 2023 US and Global Climate Report, as well as the latest drought monitor update.

Our second presenter is Brian Kawzenuk. An expert from the Center for Western Weather and Water Extremes at Scripps Institution of Oceanography, who will review the series of atmospheric rivers that impacted the West Coast from mid-December 2022 to January 2023.

And our third speaker is Dan Collins. A meteorologist at NOAA's Climate Prediction Center who will provide the latest El Nino, La Nina update, as well as the US temperature, precipitation and drought outlook for March, April, and May. Our first speaker will be Ahira from NOAA NCEI.

Ahira Sanchez-Lugo:

Thank you John, and thanks to everyone who joined in today. I'm going to go ahead and start on slide two to look at the global temperatures for the month. Before that, I wanted to also start off the presentation by mentioning that, with the release of the January 2022 Global Climate Report, NCIE switched to an updated version of the NOAA global surface

temperature data set, which is also known as NOAA global temp. And the two main updates for this data set was that, now we have complete global coverage including polar regions and the period of record now extends back to 1850, which includes 30 additional years at the start of the record. Within the report we have links to a web story and frequently asked questions document, in case you would like further additional information on this transition. But feel free to contact me if you want more information.

So looking now at the January global temperature, this month, the surface temperature for the globe as a whole was 1.57 degrees Fahrenheit or 0.87 degrees Celsius above the 20th century average. And this was the seventh-warmest January in NOAA's data record and now again extends back to 1850. So that's a total of 174 years of data. During the month, warmer than average conditions were observed across much of the global land and ocean surfaces. However, the most notable warm temperature anomalies were mainly present across parts of the Northern Hemisphere, specifically parts of North America, Europe, and the Arctic, as well as parts of Northern Africa. However, there were some significant warm temperature anomalies across Southern South America and parts of the southern oceans. Record warm January temperatures were present across parts of Southern South America, [inaudible 00:04:13] the southern oceans and small areas across parts of Europe and Asia.

Regionally, Europe had its warmest January on record surpassing the previous record that was set back in 2007. And North America had its fifth-warmest January on record and Africa had its sixth-warmest January. Temperatures were cooler than average across much of Oceania, Antarctica and Greenland, as well as parts of Southwestern Asia, Southwestern North America and Northern and Central South America. Record cold January temperatures were limited to parts of Antarctica. And Oceania averaged as a whole, even though it had a warmer than average January temperature, this value was the coldest in January since 2007. Moving now to slide number three. Here, I wanted to also depict that starting with the January 2023 report, we are also making available a smooth version of the blended land and oceans of this temperature anomalies map. If you're interested, it will always be available in the report starting with the January 2023 report.

And also, looking ahead to see how the year would end, we use a statistical analysis and historical data. And the year 2023, it is very likely to rank among the 10 warmest years on record and it has a little over 50% chance of ranking among the top five warmest years on record. Moving now to slide number four, to take a closer look to the conditions across the US. So during the month of January, much of the contiguous US had warmer to much warmer than average conditions. The national average temperature was 35.2 degrees Fahrenheit and this is 5.1 degrees Fahrenheit above the 20th century average and was also the sixth-warmest January since national records began in 1895 and that's a total of 129 years of data. Seven states across the northeast had their warmest January on record while New York, Pennsylvania and Indiana had their second-warmest January on record. There were also 17 additional states that had a January temperature that ranked among the tenth-warmest.

As seen in the temperature map, no state had a statewide average temperature that was below average. Not pictured here, but I wanted to briefly mention Alaska. Alaska had a warmer than average January temperature at 10.9 degrees Fahrenheit, which is 8.7 degrees Fahrenheit above average. And this was the 13th-warmest January for the state. Alaska's record extends back to 1925, so that's a total of 99 years of data. In terms of precipitation, the national precipitation for January was 2.85 inches or 0.54 inch above average and this value ranked in the wettest third of the nation's 129 year record. Above average precipitation was present across much of the continuous US as seen in the map. The states of Nebraska and Massachusetts had the third and fourth-wettest January on record respectively. And then there were five additional states that had a statewide average precipitation for the month, that ranked among the 10 wettest Januaries on record.

Below average conditions were observed across the Pacific Northwest, through the northern plain, state of Florida had below average conditions and also parts of the mid-Atlantic. However, no state had a statewide average precipitation that ranked in the top 10 driest for the month. I wanted to mention briefly some events that occurred during the month and there were several atmospheric rivers from the end of December through mid-January that got record amounts of

rains in mountain snow across parts of the Western US, which caused significant damage to the region and we'll hear a little bit more from our guest speaker on this. And then there were also several severe thunderstorms across the United States during the month and there were over 150 tornadoes that were confirmed by the National Weather Service. And this was only the third time since 1950 that January had over a hundred tornadoes for the month.

Moving now to slide number five, looking at drought across the contiguous US. As of today, about 41% of the contiguous US was in some type of drought. This is about three percentage points less than a month ago. As you can see from the map, much of the Western region high plains and the state of Oklahoma and Texas were in some type of drought. But also parts of the Midwest and Southeast had moderate to severe drought. When we compared today's map with the map that was released about four weeks ago, there were some improvements across parts of the west, the Midwest, south and the southeast, while some deterioration was observed mainly across Florida and parts of the Northwest and the southern contiguous US.

Outside of the contiguous US, there were some normally dry conditions across parts of Hawaii and some US affiliated Pacific Islands, but no drought at this time and Alaska also had no drought at this time. In the Caribbean region, Puerto Rico had some abnormally dry conditions across parts of the northwest and further regions, while moderate drought was present across parts of the US Virgin Islands. That is all that I have for today. I'll now turn it over to Brian Kawzenuk. Thank you.

Brian Kawzenuk:

Thank you. So I'll be discussing briefly the Atmospheric River (AR) events that occurred during December and January along the west coast and mainly focusing on California. So during December 26th through January 17th, nine atmospheric rivers made landfall over the US west coast. The arrows on the map on slide six illustrate the orientation and location of each AR at the time of its maximum intensity over land. The color of those arrows indicates the intensity based on an AR strength scale that was developed here at CW3E, which is based on integrated water vapor transport or IVT. So during this period, there was one exceptional strength AR, that was the first one that made landfall on December 27th, four strong ARs and four moderate strength ARs. So while the landfall location and orientation was different among many of these, all did impact California during their lifetime. Slide seven provides a look at each one of these ARs at their max intensity along the US west coast.

Each one of those maps shows IVT or integrated vapor transport magnitude in color fill and vectors as well as the sea level pressure in the contours there. So each AR was unique and different with its own different characteristics than the others, but there also was some similarities. Some of these ARs included a strong surface cyclone in close vicinity while others did not. The orientation differed among many of each one of these ARs, but again, all of them impacted California and produced significant precipitation. So I don't have time today to go through each one of these ARs in detail. There is quite a bit of work underway, that's summarizing each one of these events. And many case studies diving into more details on these will be coming out in the near future.

Another way to diagnose the number of ARS is by looking at a time series of integrated vapor transport at an individual point. So slide eight is showing a time series of IVT for a location just south of the San Francisco Bay for December 26th through January 17th. The color filled behind the lines represents the atmospheric river scale developed here at CW3E. The AR scale runs from one to five and is based on AR duration and intensity measured by IVT at a given location. The matrix for how that scale is calculated, is shown on the bottom right there of slide eight. So at this location, there was one AR 4, the first one on December 27th, three AR 3s, two AR 2s and two AR 1s. So the scale and magnitude of IVT differed at different locations along the west coast, then throughout California. But this point is pretty well representative of northern and central California to give a nice summary of the different ARs that made landfall along California.

So, as many of you are already aware, I'm sure there was significant and impressive precipitation from this series of ARs. Slide nine shows maps produced by the National Weather Service with precipitation on the left and snowfall on the right, from December 26th through January 17th. All of California received some amount of precipitation during this period, with large areas over the highest terrain receiving over 30 inches of precipitation, which is denoted by the pink areas on the left-hand map. Snowfall during this period was also quite impressive, with a large portion of the Sierra Nevada receiving over 15 feet of snow, denoted again by the pink areas on the right-hand map. So a common question that's come up with respect to this series of ARs is, how did it impact drought over California and the US west coast? And drought can be defined in multiple different ways and thus the change or improvement of drought can be as well.

So for a large scale look at drought, is shown on slide 10 using the US drought monitor. The left hand map on slide 10 is the drought monitor on December 27th before this series of ARs, the middle map is the drought monitor on January 24th or after these ARs and the right map is the difference. So, much of California did see improvement in the US drought monitor with the largest improvement of three classes in central California from exceptional to moderate drought. But it is important to note that even after these events, over 99% of the state was still at least extremely dry and over 93% was still in moderate drought or worse based on this monitor. So, another way to assess drought is through precipitation deficits or a percentage of normal precipitation. The map on the left-hand side of slide 11 shows January precipitation in a sort of a climatological context as a percentage of normal water year precipitation.

So those dark blue areas are indicating regions that received a full normal year's worth of precipitation during January alone. The four maps on the right show how the precipitation deficit that's accumulated over the last three drought years has changed as a result of January 2023. The top panel shows this deficit based on total precipitation amounts and the bottom maps show the deficit in context of normal annual precipitation. The left maps are as of January 1st and the right maps are February 1st. So the difference between these two maps is a result of January 2023 precipitation. The left-hand map is showing that there were deficits over nearly all of California and you compare those to the right-hand maps. We do see some improvement areas highlighted by whites in the bottom right-hand map and blues in the top right-hand map are showing that the precipitation deficits accumulated over the past three years were actually undone in many areas along coastal southern California, central California and along the California Nevada border.

And lastly, water supply can be used as an indication of drought. The plots on the left-hand side of slide 12 show that reservoir storage as of December 25th in many of the major reservoirs throughout was below the historical average at this time of year, indicated by the blue bars in each reservoir with the historical average shown by the green lines. The time series on the right-hand side shows the overall snow pack throughout California and it was slightly above normal, but only 43% of April 1 average or peak [inaudible 00:16:02]. The change in these values over the next month is visible on slide 13 and if you click back and forth between slides 12 and 13, you can see the change in the reservoir level and the snow pack. So by January 20th on slide 13, several or more of the reservoirs were at or above historical average and there was a large increase in storage from December through January.

And the snow pack also saw a large increase as well. As of January 20th, it was 251% of normal and 124% of April one normal. But again, these values indicate improvement in drought across the state, but there were still some reservoirs that were still below normal. So overall, this was an anomalous and impressive series of AR landfalls for California, that improved drought conditions across the state and in some measures alleviated it in some locations. But much of the state is still in a state of drought and water supply continues to be and likely always will be a major topic of concern for California. There's much more work to be done to better understand this series of ARs and more information on that will be forthcoming in the coming months. Thank you for your time and I'm happy to answer any questions later during this call or follow up with me afterwards. So now I turn it over to Dan Collins from the Climate Prediction Center. Dan.

Dan Collins:

Thank you, Brian. This is Dan Collins. I will now provide the latest update of La Nina and El Nino, as well as the temperature, precipitation and drought outlooks for the next month and season. I'll begin on slide 14, with the current

conditions in the tropical Pacific Ocean and the forecast of the El Nino Southern Oscillation or ENSO. Sea surface temperature anomalies averaged over the last four weeks are shown in the map on the left. Below normal sea surface temperatures continue in the central and eastern Pacific Ocean near the equator, but have warmed in recent weeks. Both oceanic and atmospheric conditions reflect that climate state known as La Nina, which accompanies cooler than normal Eastern tropical Pacific temperatures.

Easterly trade winds were stronger than average over the Western and central Pacific Ocean and precipitation over the central Pacific was less than normal. The figure on the right of slide 14 shows the probability of either La Nina in blue bars, El Nino or warmer than normal tropical Pacific Ocean temperatures in red bars or neutral conditions in gray bars. La Nina is expected to transition to a neutral ENSO state within the next couple of months, with probabilities of neutral conditions greater than 90% for the March, April, May season. El Nino conditions are expected to be at least as likely as neutral conditions by summer.

Now turn to slide 15, showing the temperature and precipitation outlooks for March, in the maps on the left and the right. In the map on the left, shades of orange and red are where above normal temperatures are more likely to occur and shades of blue are shown where below normal temperatures are more likely to occur than above normal temperatures. Above normal temperatures are more... US in March. A trough and low pressure in the upper atmosphere are predicted over the west by model forecast for the beginning of March.

In addition, an active Madden-Julian oscillation in the tropics and a predicted sudden stratospheric warming over the Arctic may impact the climate of March and increase the chances of below normal temperatures in some areas. These factors, Madden-Julian oscillation and sudden stratospheric warming, increase the uncertainty in the forecast for March. Current La Nina conditions in the tropical Pacific continue to be a main factor in the climate and temperature and precipitation patterns for the month of March. Below normal temperatures are more likely for the Pacific Northwest expanding across the Northern Rockies, into the northern Great Plains and the Western Great Lakes region, as well as over parts of northern New England. Below normal temperatures are also more likely for southeastern Alaska, including the Alaska panhandle.

In the map on the right, shades of brown show where below normal precipitation is more likely and shades of green indicate where above normal precipitation is more likely. Above normal precipitation is more likely to occur across much of the northern US in March from the Pacific Northwest across the northern Rockies into the northern plains, as well as extending into the central Mississippi Valley, the Midwest and the Great Lakes region. Above normal precipitation is also predicted to be more likely for Western Alaska. Below normal precipitation is more likely in areas of the Southeast, from South Texas along the Gulf Coast into Florida and parts of Georgia and South Carolina. Below normal precipitation is predicted for parts of the south coast of Alaska.

There is an equal chance of above normal, near normal or below normal precipitation in March in areas shown in white, where there're weak or conflicting climate signals. These precipitation patterns are largely the result of the current La Nina state, which is expected to transition in the March and April timeframe to a neutral state. Turning to slide 16, the temperature and precipitation outlooks for the three months of March, April, and May are shown in the maps on the left and the right

Below normal temperatures are most likely to occur for northern areas of the Pacific Northwest, the Northern Rockies and the northern plains, as well as southeastern Alaska, including the panhandle, shown in shades of blue. Excuse me one second. This pattern of temperature and above normal temperatures are more likely across much of the southern US than the Eastern US. Variability in temperature is expected early in the season contributes to the uncertainty in the forecast over the central and northeastern US. This pattern of temperature and precipitation is consistent with continued impacts of a weakening La Nina with the additional contribution of long-term temperature trends related to changes in climate over recent decades. Above normal temperatures are also likely for Western and northern Alaska, in part due to long-term temperature trends.

I'll now look at the map at the right showing the precipitation outlook for March, April and May. Below normal precipitation is most likely in much of the Southwest as well as the Florida Peninsula and the southeastern coast of Alaska. Above normal precipitation is most likely over the Midwest and mid-Atlantic regions, as well as the west coast of Alaska. Once again, these patterns of precipitation are consistent with the impacts of the current La Nina state, which is forecast to become a neutral tropical Pacific in the coming months. As well as longer term precipitation trends over recent decades, which are positive in areas forecast to be above normal precipitation in the March, April, May season.

Turning now to slide 17, the drought outlook for the end of February into the months of March, April and May is shown. This map indicates expected changes in drought conditions by the end of May, including the end of February, relative to the drought monitor shown earlier in the presentation. Areas of persistent drought, where it is already present, are indicated in brown areas, predicted drought development are indicated by yellow, expected drought improvement is shown in gray and areas of expected drought removal are shown in green.

Continuing drought or further drought development is predicted for large areas of the southwest extending into Western areas of the central and southern plains. Drought may also develop in some areas of Puerto Rico shown in yellow. Improvement or in some areas, removal of drought conditions are expected in much of the northwest, extending across the Northern Rockies into parts of the northern and central plains as well as in Michigan. These areas are generally forecast to experience near or above normal precipitation in the next season or in the end of February. That concludes our look at the climate outlooks portion of the call and I will turn the call back over to John Bateman.

John Bateman:

Thanks so much Dan. We will now take specific questions from the call participants. Please be sure to identify who you would like to answer the question if possible. And Amanda, could you please remind the call participants how they can ask a question and then please queue up the first question.

Amanda (operator):

Thank you. We will now begin our question and answer session. If you would like to ask a question, please press star one. Star two, if you would like to withdraw your question. Again, that's star one, if you would like to ask a question. Our first question comes from Craig Miller with PBS. Your line is open.

Craig Miller:

Thanks. Dan, could you just do a really quick refresher on Madden-Julian? Reiterate what it's doing now and how it throws a wrench into forecast?

Dan Collins:

Sure. Doesn't necessarily throw a wrench but well, how it throws wrench or creates uncertainty is that it's a shorter-term oscillation than say La Nina or El Nino pattern. So, it has a time scale of 30 to 60 days, where it goes through its entire cycle, passing around the globe. It is a pattern of convection and winds at the surface and aloft, which is similar in some respects to what happens during El Ninos and La Ninas. But in this case, what occurs is instead of the convection I refer to, which is enhanced precipitation over the tropics, it is moving through the southeastern Asia, where we expect convection over Indonesia and that parts of the world during a La Nina and it is passing into the Western Pacific.

And so, we have enhanced precipitation and convection in areas which wouldn't necessarily occur, [inaudible 00:27:17] the background La Nina state as the Madden-Julian oscillation progresses. So as such, over time in the coming weeks, we can expect an evolution of circulation over the United States, or at least the impact of the Madden-Julian oscillation would be to alter that circulation to some extent. However, the timing of those impacts is not very certain. So therefore

that means that we may have cooler temperatures in the west or in the east at different times during the month as a result. Thank you.

Craig Miller:

Okay, yeah.

Amanda (operator):

Thank you. And at this time, we have no further questions on the phone line.

John Bateman:

All right. Thanks so much, Amanda. If there are no further questions, then I will wrap up today's climate call. First of all, I'd like to thank all of the speakers for their time and everyone else for participating in the call. I will end by reminding you to mark your calendar for a couple of upcoming events. The release of the February 2023 US Climate Report is scheduled for March 8th. The release of the February 2023 Global Climate Report is scheduled for March 14th and in lieu of our monthly climate call in March, NOAA will host its US Spring Outlook Media webinar at 11:00 AM Eastern Time on March 16th. And I'll repeat that one more time. In lieu of our monthly climate call, NOAA will host its US Spring Outlook Media webinar. Again, that is at 11:00 AM Eastern Time on March 16th. Lastly, an audio file of this call will be posted on the noaa.gov media advisory site later today. And if you have any further informational needs, please feel free to email me, John Bateman. My contact information is available at the top of the media advisory. Thank you.

Amanda (operator):

That concludes today's conference. Thank you for participating. You may disconnect at this time.

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