TRANSCRIPT

NOAA March 2023 U.S./Global Climate Media Telecon

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The Operator:

Good morning. Welcome everyone to today's conference call. At this time, your lines have been placed on Listen only for today's conference until the question and answer portion of our call, at which time you will be prompted to press *1 on your touch tone phone. Please ensure that your line is unmuted and please record your name when prompted so that I may introduce you to ask your question. Our conference is being recorded and if you have any objections, you may disconnect at this time. I will now turn conference over to our host, Mr. John Bateman. Sir, you may proceed.

John Bateman:

All right, thanks so much, Jill.

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 and 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 nesdis.pa@noaa.gov. And I will spell it N-E-S-D-I-S.P-A as in public affairs @N-O-A-A.gov.

Today's update will feature three short presentations followed by an operator assisted question and answer session. 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 Rocky Bilotta, a climatologist at NOAA's National Centers for Environmental Information, who will provide a summary of the March 2023 US and Global Climate Report, as well as the latest drought monitor update.

Our second presenter is Andrew Schwartz, an expert from the Central Sierra Snow Laboratory, who will review this season's western US snowfall, and its potential impact as we move into the warm season.

And our third speaker is Scott Handel, 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 May, June and July. Our first speaker will be Rocky from NOAA NCEI.

Rocky Bilotta:

Thank you John, and thanks everyone who joined the call today. I'm going to start with the global temperatures for the month of March. If you could please turn your attention to slide number 2 in the flat deck.

The March Landon Ocean surface temperature for the globe was 1.24 degrees Celsius, or 2.23 degrees Fahrenheit above the 20th century average. This was the 2nd warmest march in the 174-year record dating back to 1850. As you can see, from the temperature departure map on the left, temperatures were above average throughout most of Asia, Africa, South America and Antarctica. Parts of Eastern North America, Europe, the Arctic, and Oceania also experienced warmer than average temperatures this month. Sea surface temperatures were above average across much of the northern, western, and southwestern Pacific, the Central and Southern Atlantic and the Western and Southern Indian Ocean. Temperatures were near to cooler than average across much of the Western and Central North America, Iceland and across parts of Southeastern Greenland and Northern Europe, including Scandinavia. Sea surface temperatures were near to below average over parts of Eastern North Atlantic and in Southeastern and Central Tropical Pacific.

The map on the right-hand side of the slide shows how departure values on the left compared to the 170 years of record for each specific grid location. Record warm temperatures covered just 4% of the world's surface this month, while less than 1% of the world's surface had a record cold March. Regionally, Asia had its 2nd warmest March on record. South America and Africa each had their fourth warmest. While Europe had its 10th warmest March on record.

Moving onto slide number 3, here we see global temperature percentiles for the most recent year-to-date, that's January through March. On the left, we see a comparison of the current year-to-date global temperature anomaly compared to the 10 warmest years on record. The January to March global surface temperature for this period is 1.04 degrees Celsius, or 1.87 degrees Fahrenheit above average. This year-to-date period ranks as the 4th warmest on record.

Much warmer than average conditions were seen across much of South America, Europe, Africa, and the Arctic, as well as across parts of Southern, Eastern and Northwestern North America, Northern, Western, Southern, and Southeastern Asia, and Northern and Southwestern Oceania. Sea surface temperatures were warmer than average across much of northern and Western Pacific and the Atlantic. Meanwhile, near to cooler than average conditions were present across parts of Central and Western and far Northeastern North America, Southeastern Greenland, North Central Australia and Northeastern Asia. The Central and Eastern Tropical and Southeast Pacific, and parts of the Central Indian Ocean experienced near to cooler than average sea surface temperatures. According to the National Centers for Environmental Information statistical analysis, 2023 is very likely to rank among the 10 warmest years on record.

Turning our attention to slide number 4, at the contiguous US, we see that the March 2023 temperatures averaged 40.7 degrees Fahrenheit, which was 0.8 degrees Fahrenheit below average. This ranked in the middle third of the 129-year record.

Looking at the map on the left, you see that temperatures were above average from the Southern Plains to New England and in parts of the Great Lakes with below average temperatures from the Northern Plains to the West Coast, Florida had its 8th warmest March in the 129-year record. Conversely, Oregon ranked third coldest, while California, Nevada, and North Dakota each ranked fifth coldest. And Utah had its 7th coldest March on record. Looking at precipitation, we see that the average precipitation for the contiguous US was 2.81 inches, which is 0.3 inch above average. Ranking in the wettest third of the historical record.

Looking at the map on the right precipitation was above average across much of the West from Eastern Oklahoma to the Great Lakes and in parts of Northern Plains and Northeast. Utah ranked third wettest... Oh and sorry, and precipitation was below average in Eastern New Mexico to the Central Plains in the Mid-Atlantic and in parts of the Northwest Gulf Coast and Northeast. Utah ranked 3rd wettest while Nevada, California had their 6th and 7th wettest March on record respectively. On the dry side, Virginia ranked 8th, while Maryland and Delaware both experienced their 11th driest March in the 129-year record.

Looking at slide number 5 and our most recent year-to-date period, we see that temperatures from January to March averaged 37.4 degrees Fahrenheit, which is 2.3 degrees Fahrenheit above average. This ranked as the 20th warmest year-to-date period on record.

Looking at the map on the left temperatures were above average across much of the Eastern United States with near to below temperatures from the Northern Plains to the West Coast. Virginia, North Carolina, South Carolina, Georgia, and Florida each had their warmest January through March period on record. New Hampshire, Vermont, Massachusetts, Connecticut, Maryland, Delaware, Ohio, and Alabama each had their second warmest. While 16 additional states ranked among their warmest 10 year-to-date periods on record. Precipitation for this year-to-date period averaged 7.75 inches, which is 0.79 inch above average. This ranks in the wettest third on record.

Looking at the map on the right precipitation was above average from California to the Upper Midwest, and the Mississippi and Ohio River valleys, and in parts of the Southeast and Northeast. Precipitation was below average across portions in the Northwest, Northern and Southern Plains, Mid-Atlantic and Florida and in parts of the Northeast during the January through March period. Utah and Wisconsin, each ranked 3rd wettest. Nevada ranked 8th wettest. While California, Michigan, and Arkansas each ranked 10th wettest for this three-month period. Maryland and Delaware ranked 3rd and 5th driest on record respectively.

Looking at slide number 6, our current US drought monitor map that was updated this morning, we see that approximately 26% in the contiguous US is currently in drought. This is approximately 12.6% less drought coverage than what we saw at the beginning of March. During this period drought conditions lessened, or diminished across large parts of the West, in portions of the Northern Plains, and in parts of Michigan, and the Southeast. Drought conditions expanded, or intensified across much of the Mid-Atlantic, and Florida Peninsula, and portions of the Southern Plains and in parts of the Pacific Northwest and Central Plains. Outside of the contiguous US drought intensity, or coverage expanded in Hawaii, but lessened in Puerto Rico. While Alaska remained free of a normal dryness and drought during this time period.

With that, I will turn the presentation over to Andrew to talk about the Western US snow season. Thank you.

Andrew Schwartz:

Thank you Rocky. I'm going to start on slide 7 with some background on the Central Sierra Snow Lab.

The Snow Lab has been on Donner Pass, which is about 45 miles northwest of Lake Tahoe since 1946. And you can see that in the left image on slide 7. One of the fortunate things about this location is that it's had some of the longest measurements of snowfall and maximum snow depth in the world going all the way back to the winter of 1878/1879 when the Transcontinental Railroad began them in the region. You can see a plot of those measurements over the years on the top right. This really allows us to keep an eye on California and the trends in the snowpack out there. But also throughout the Western United States as we deal with a lot of water agencies in the region.

Moving on to what's happening this year, if you look at the bottom right on slide 7, you can see a plot of the total snowfall that has occurred this year at the Snow Lab. The red line is the accumulated snowfall. And the blue line below it is what we would expect for an average year. So far to this point in time, we've had 737 inches of snowfall, or a little bit more than 61 feet total. And on average we expect about 30 feet, so we're sitting at a little bit over double what we would normally expect for this time of year.

Moving on to slide 8, if you look at the left-hand side, this is a graphic showing where this year compares to famously large other years in the region for the Snow Lab. We can see that it's falls in place in second only behind the winner of 1951/1952, which had 812 inches total of snowfall. So this has been a year that a lot of regions throughout the Western United States have gotten a lot of snow and have really bulked up their snowpack even compared to other large years.

If you look at the right side of slide 8, we're moving on to looking at the water content of the snow rather than the accumulation. This is, of course, what we're focused on for inflows, for reservoirs, our water resources. And this specific graphic compares the North, Central and South Sierra Nevada. And then, also has a state average on the bottom of it. Each individual line in this plot is going to be a different unique year. 2014/2015, which is light green, is the minimum over the period. And then 20... Or excuse me, 1982 to 1983 is the maximum. The thick blue line with the number next to it is going to be this year's number. And this is the amount of water that we can squeeze out of the snowpack as it melts. I should also mention that when we talk about these numbers, we talk in reference to the April 1st average, which is typically when we see the most water measured in our snowpack, and it's the deepest, so these are compared to numbers which are ordinarily the biggest for the season.

One thing that really stands out here is that when we look at the Southern Sierra Nevada, we have almost 300% of average for the amount of water on our snowpack. And we have had that actually above 300% of average a couple times this year. This is the area where we saw the least amount of snowfall last year compared to the Central and Northern Sierra. And that's really helping us with restoring a lot of the water that we had lost in the past. When we move into the central and Northern Sierra. And we don't have quite the same amount, but we're still in very good territory. As far as this record as a whole, this is now the most snow water equivalent that we've measured through this record, which goes back to the early '80s throughout the entire state of California, so we're sitting in a very good situation drought and water wise there.

If we move on to slide 9, we have comparisons of this year on the left to 2015, which is a notoriously dry year on the right. Each of these little polygons with a number in it is going to be a watershed, or a water basin where we have snowpack in it. And each of those numbers is the percentage, or the average for this date and time. So we can see throughout the Western US that things are looking very good. We can see in Southern California a large concentration of 300 and 400. Those are 3 to 4 times what we would expect for a snowpack at this point in time. We can also see that extend throughout Nevada, and into the mountain in Northern Arizona. So this is a very broadly beneficial snowpack throughout the entire Western United States, but it's also been focused on the Southwestern United States in terms of the largest numbers, which has been one of the regions where we've needed this moisture the most.

With that being said, we can see throughout the entire region that there are very few areas that are below even 90%. Only a few areas that are in the 70s and 80s in that left image. And that means that we have a very healthy snowpack throughout the entire Western US.

As I mentioned, 2015 was the driest year on record for many locations. And at this point in time we would've been expecting single digits for our snowpack. Many areas didn't actually have snowpack. And while that's an extreme example on the right-hand side on slide 9 it's hard to come back from those types of years. We have been chasing restored water flows after the last several years that has led to severe drought. And we are now starting to see a real benefit from this year's snowpack that we weren't necessarily expecting. So this is just the amount of water that's contained in the snowpack and ready for melt. And it's looking quite good as far as moving forward with our water resources.

Moving on to slide 10, we can see some of the benefits of this big snowpack in this big precipitation year. First, on the left, this is a plot of the reservoir storage in California. I'm not going to go into this in too much depth, but you can see the blue bars compared to the little green lines, the horizontal lines, those horizontal lines are where we would be at historically in terms of average for this time of year. And the blue bars are where we are currently. You can see many of the reservoirs in California are at, or above average storage for this point in time because of the precipitation that we've received, and the snowpack that's now starting to melt, leading us to plenty of water in our storage for the time being, and more to come in as the snowpack melts.

On the right-hand side of slide 10, you can see a graph of Lake Powell's elevation at Glen Canyon Dam. And you can see on the left-hand side of this plot back in from May to July and in 2022 this big ramp up and that's associated with our

snow melt, and inflows into that after the snow comes down into the streams, and flows into the reservoir. You can see that we're already starting to do that on the right-hand side as well. We've seen a little bump in the amount of water that had come into the reservoir. And that we're starting to increase again as the snow melt's taking place. This is a normal process every spring, but given the additional snowpack that we're seeing in places throughout the West including the Western Rockies, we're expecting and hoping for some greater inflows this year and to start replenishing a little bit like Powell's Elevation, although likely not completely resolving it.

Moving on to slide 11, this year has not come without risk from the snowpack. Earlier in the year, we did have substantial avalanche issues throughout Utah including in Snowbird, Alta and Little Cottonwood Canyon. As we have not received much snow over the last couple weeks, we are now looking at these risks subsiding. But we are seeing increased flooding damage from this additional water on top of the mountains.

On the bottom left of slide 11, you can see Kaysville, Utah flood damage that has occurred recently. And Utah has actually declared a state of emergency to deal with the additional water coming down as their snowpack melts. Similarly, on the right side of slide 11, you can see Tularian Lake that has reappeared in California in San Joaquin County. That has only occurred two times in the last 40 years. The other times being in 1982/1983 and 1997. So we are moving forward. We're going to see more flooding likely from the snowpack. The severity is going to depend on the individual weather conditions in the region. We could see relatively continual flooding, but not necessarily severe if we have more so moderate temperatures. If we see increased periods of temperature that are prolonged, we could be looking at some more severe flooding. That's kind of the Western snowpack in a nutshell.

And with that, I will turn it over to Scott. Thank you.

Scott Handel:

Thank you Andrew, and good morning everybody. This is Scott Handel meteorologist from the National Weather Service Climate Prediction Center.

I'm going to start off by bringing your attention to slide 12 of the presentation with the current observations and forecast for the El Nino Southern oscillation. The figure on the left shows the average sea surface temperature anomalies in the Tropical Pacific for the last month. The blue shading represents areas where the sea surface temperature are below normal. And the orange and red areas correspond to areas where sea surface temperatures are above normal. The horizontal black line in the center of the plot represents the equator. And the vertical black line represents the international date line.

As you can see, there's a mix of light orange and blue near the center of the map indicating that on average sea surface temperature anomalies are weak and ocean temperatures are currently near to slightly above normal near the equator. Sea surface temperatures in what is called the Nino 3.4 region of the Tropical Pacific are roughly 1/ 10th of a degree Celsius above normal, which puts us firmly in the neutral territory, which means that we're currently not in either La Nina or El Nino.

Looking to the future a continuation of neutral conditions, this is the most likely scenario during spring. However, the chart in the right indicates that chances of El Nino increase substantially later this year with over a 60% chance of El Nino development sometime during the May, June, July season. Thereafter, chances increase even further with a greater than 80% chance of El Nino by the fall.

Now moving from the tropics to closer to home, I'd like to draw your attention to slide 13, which represents our monthly outlook for the month of May. These outlooks represent the probabilities of the mean temperature, or total precipitation for the month will be below, near, or above normal. The red and orange shading on the map of the left indicates areas where above normal temperatures are the most likely outcome. While the blue shading indicates areas where below normal temperature are most likely.

Looking at the map of the left there's a lot of red and orange along the east and Gulf coast indicating that these regions are favored to have warmer than normal temperatures in May. This is especially true for the Central and Eastern Gulf Coast, the Florida Peninsula and the Coastal Northeast where there's greater than a 50% chance of above normal temperatures. Above normal sea surface temperatures and adjacent waters may aid in promoting increased warmth for these regions.

On the flip side, below normal temperatures are favored in both parts of the southwestern United States and the Northern Plains, where above normal snowpack and/or soil moisture would help keep temperatures down. Further to the north, a warmer than normal May is favored for the north slope of Alaska due mainly to recent trends in reduced sea ice extend. There's a more modest tilt toward above normal temperatures in Southeast Alaska and parts of Pacific Northwest based primarily on model guidance.

Looking at precipitation, the areas in green on the map on the right indicate regions where the total precipitations favored to be above normal for May. And the brown areas represent regions where below normal precipitation is the most likely scenario. The largest area depicted is an area favored for above normal precipitation across the Southeast. This anticipated wetness is primarily due to model guidance, as well as above normal floor moisture currently observed in the lower Mississippi Valley, which will tend to promote more wetness for this region. Conversely, a tilt toward dryness is indicated for the Great Lakes region based primarily on model guidance. Drier than normal weather is also favored for the Pacific Northwest, and since consistent with a tilt toward warmth depicted for this region.

Conversely, a tilt toward above normal precipitation is indicated for Southwestern Alaska. In general, there's more uncertainty than usual in the precipitation outlook across much of the country as the El Nino Southern oscillation is currently in transition, and an uncertain Madden-Julian oscillation forecast, which is often utilized as a factor in the monthly time scale, contribute to a lower confidence forecast.

Looking further ahead to the three-month period for May, June and July, I'd like to bring your attention to slide 14. During this period model guidance and recent trends favor a large swath of above normal temperatures for much of the East and Southern United States. This is especially true for the Eastern Gulf Coast where above normal sea surface temperatures are anticipated for most and increased warmth. Above normal temperatures are also likely for the Southern High Plains, where below normal soil moisture will allow temperatures to arise.

In contrast, confidence of above normal temperatures is much reduced in the West as a result of an above normal snowpack and soil moisture. This should delay the spring warm up across many of these regions. Further to the North above normal temperature favor for the north slope and Southwestern Coastal areas of Alaska due mainly to observed below normal sea ice extent and above normal sea surface temperatures in adjacent regions. There's lower confidence in above normal temperatures for much of the remainder of mainland Alaska as an above normal snowpack will likely delay the spring warmup. A slight tilt toward above normal temperatures is also indicated for the Northwestern contiguous United States due primarily to recent trends that support for model guidance.

Turning your attention to the map on the right, the precipitation outlook shows increased chances for below normal precipitation for the Southwest Monsoon region. Reduced heating early in the season from an increased Western snowpack and soil moisture combined with below normal sea surface temperatures currently observed in the Gulf of California, and adjacent Pacific would tend to inhibit the onset of the monsoon season. The tilt toward dryness is also extended to the Southern High Plains due to low soil moisture. On the flip side, model guidance and recent trends favor above normal precipitation across Ohio and Tennessee valleys, the Southeast, Mid-Atlantic region, the Middle and Lower Mississippi Valley. The tilt toward below normal precipitation is indicated for the Northern Rockies, Pacific Northwest and parts of the Northern High Plains due to recent trends in el Nino Southern oscillation based statistical guidance. A tilt toward above normal precipitation is indicated for North and Western Alaska consistent with model guidance and sea ice considerations.

Wrapping things up with the drought outlook, I'd like to bring your attention to slide 15. Brown areas on the map indicate where drought is currently ongoing, and expected to continue. This includes much of the Southern and Central High Plains and pockets of the interior West. Additionally, with a dry pattern favor, drought expansion is likely for parts of the Southern Plains and interior Northwest represented by the yellow shade. This is also true for parts of Hawaii where drought development is favored for the island of Maui. On the flip side, drought improvement or removal is likely for parts of the Northern and Central Plains, the Florida Peninsula, parts of the Mid-Atlantic, and parts of Puerto Rico.

That's it from the Client Prediction Center. Back to you John.

John Bateman:

Thanks so much Scott. 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 Jill, could you please remind the call participants how they can ask a question and then queue up the first question?

Hi there, Jill, are you with us?

The Operator:

Yes, thank you. If you would like to ask a question, please press *1.

Our first question is from Seth Gornstein with Associated Press. You may go ahead.

Seth Gorenstein:

Yes, thank you for doing this. I think this one, or two is for Scott.

First off, is there any sense on the strength of the burgeoning... Of the embryonic El Nino? Is it likely to be a moderate strength, weak strength, or are we in line for another super strong one like a few years back?

And then, along that line, how long is it likely to last? Is it going to be likely to last through the winter? Which I guess is not as much of an issue as it is in the past for the West. But are we going to likely see the El Nino stick around through the winter?

And finally, just for a sense on the drought outlook, it's been a long time since the map has been this clear. Can someone give us a sense of context in terms of are we near the smallest amount of nation in drought right now? Or are we still not quite near that? Thank you.

Scott Handel:

Thank you for these questions. So I'll address these one by one. The first question was about how strong the El Nino is going to be later this year. So although, we have very high confidence of El Nino development by the fall, greater than an 80% chance, the confidence in the strength of this potential El Nino event is much less. And, in fact, while we have an 80% chance of El Nino by the fall, the probability of a strong El Nino event with SST is greater than 1.5 degrees Celsius above normal is roughly 40% chance. So it is substantially less than El Nino in general, but there is a 40% chance of a strong El Nino and an 80% chance of an El Nino in general.

Now how far it's going to last throughout the season? We're anticipating by the time we get to the July, August, September period, we're already above 80% chance. And that persists throughout the winter season. So once it develops later in the year, there is a strong likelihood that it would persist through the winter.

And the last question, I believe, was related to drought coverage. I did pull up comparison between the coverage this year and the coverage last year. And you could recall that the coverage last year we had coverage throughout almost the

entire Western United States of some degree of drought. And you could see the drought monitor map that was presented earlier today, how small that coverage is. As far as a historical perspective, I can't speak to that right now, but you do see a dramatic change between last year and this year.

Seth Gorenstein:

Thank you.

Rocky Bilotta:

This is Rocky Bilotta. Just to add to the historical perspective of the US drought monitor, it is getting low. And it's been one of the lowest it has been for quite some time, but we had previous drought coverage as low as 2.28% back in 2019. So looking at years in the previous 2019, 2017, 2010, we did have drought coverage at lower levels, but this has definitely been one of the lowest it's been for quite some time now.

Seth Gorenstein:

Thank you.

The Operator:

And I show no additional callers at this time. But again, if you would like to ask a question, please unmute your phone, press *1 and record your first and last name slowly, and clearly when prompted, and I will introduce you.

Please stand by for our next incoming question.

Our next caller is Raymond Zong with the New York Times. You may go ahead.

Raymond Zong:

Hi, thanks. I'm wondering if you could talk a little bit more about what we imagine the snow melt in the West might look like. It seems like if the three-month forecast for the area is about equal for above and below normal temperatures and May, it looks like in much of California is looking below normal, does that give you some optimism that the snow melt will not lead to a large amount of destructive flooding? Thanks.

Andrew Schwartz:

This is Andrew Schwartz and thank you for the question. Yeah, I think right now in terms of kind of keeping an eye on the flooding, clearly, we've already dealt with a little bit of it. But given the forecast moving forward, I think the picture is relatively optimistic compared to what it could be. We're not seeing any very warm periods that would cause concern just yet. And the hope is that when we do see those, or if we do see those, that they will be later in the season when the snowpack isn't quite as large so that we can kind of keep more of a lid on the amount of flooding that does occur. But given the current forecast and the temperatures moving forward, I would say, things are looking pretty optimistic in terms of keeping any type of flooding, and the severity of that flooding light.

Raymond Zong:

Thanks.

The Operator:

And again, I have no additional questions at this time. But again, *1 to ask a question.

And we have no more questions at this time.

John Bateman:

All right, thanks. If there are no further questions, then I will wrap up the call.

First, I'd like to thank all of our speakers for their time, and for everyone else for participating in this conference call. I will end by reminding you guys to mark your calendar for a few... For a couple, I should say, of upcoming events. The release of the April 2023 US Climate Report is scheduled for May 8th, 2023. The release of the April 2023 Global Climate Report is scheduled for May 12th, 2023. And NOAA will host its next monthly media climate call at 11:00 AM Eastern time on May 18th, 2023.

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 reach out to me, John Bateman. My contact information is available at the top of the media advisory. Thank you,

The Operator:

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

Speakers, please stand by.