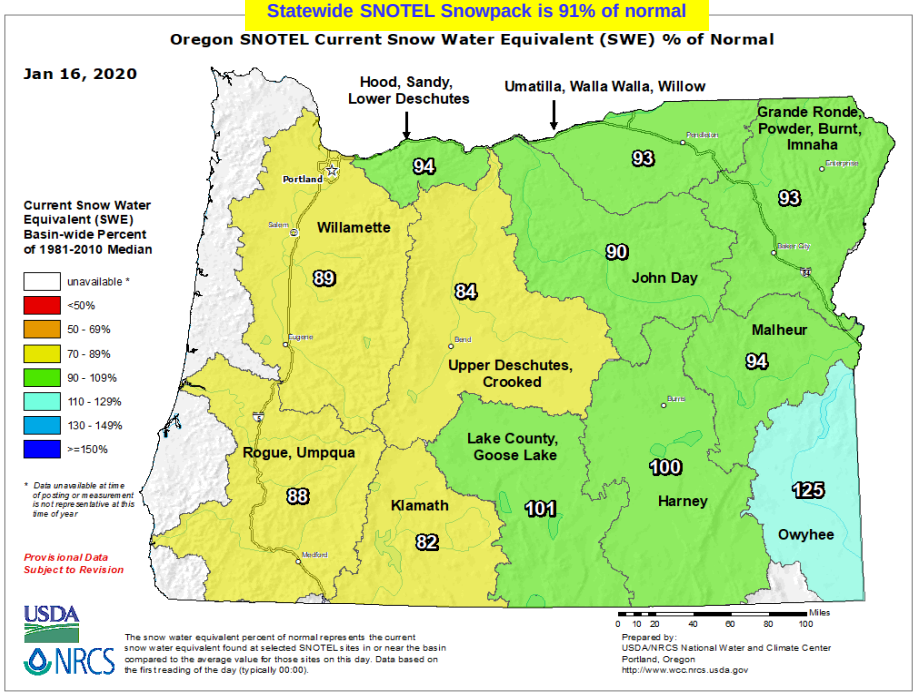
Oregon Water Supply Availability Committee
January 16, 2020

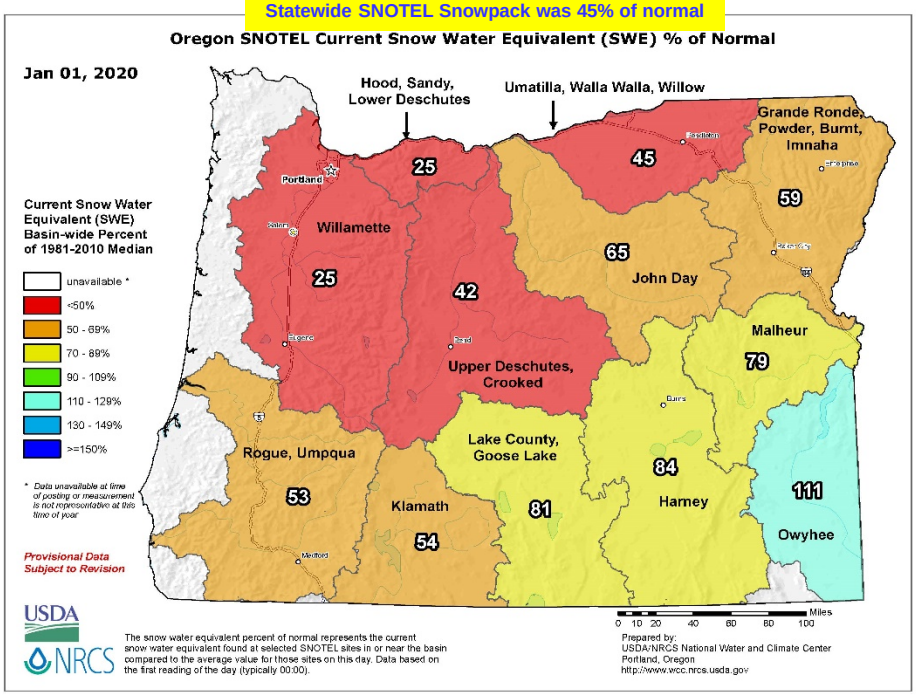
Ice formation on tree resin
Mt. Hood
January 14, 2020

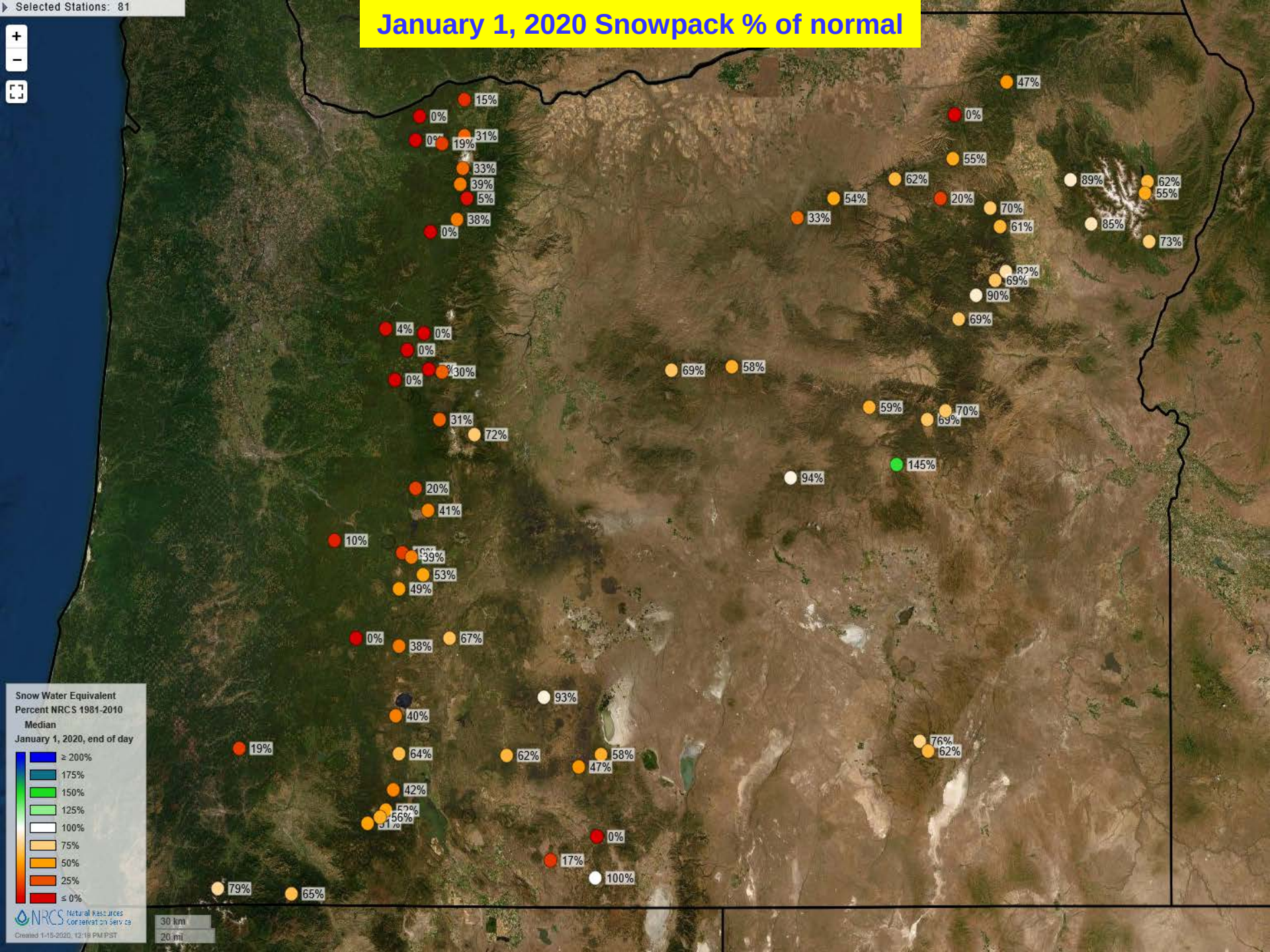
H. Scott Oviatt
USDA – Natural Resources Conservation Service
scott.oviatt@usda.gov
503-414-3271

Statewide SNOTEL Snowpack is 91% of normal

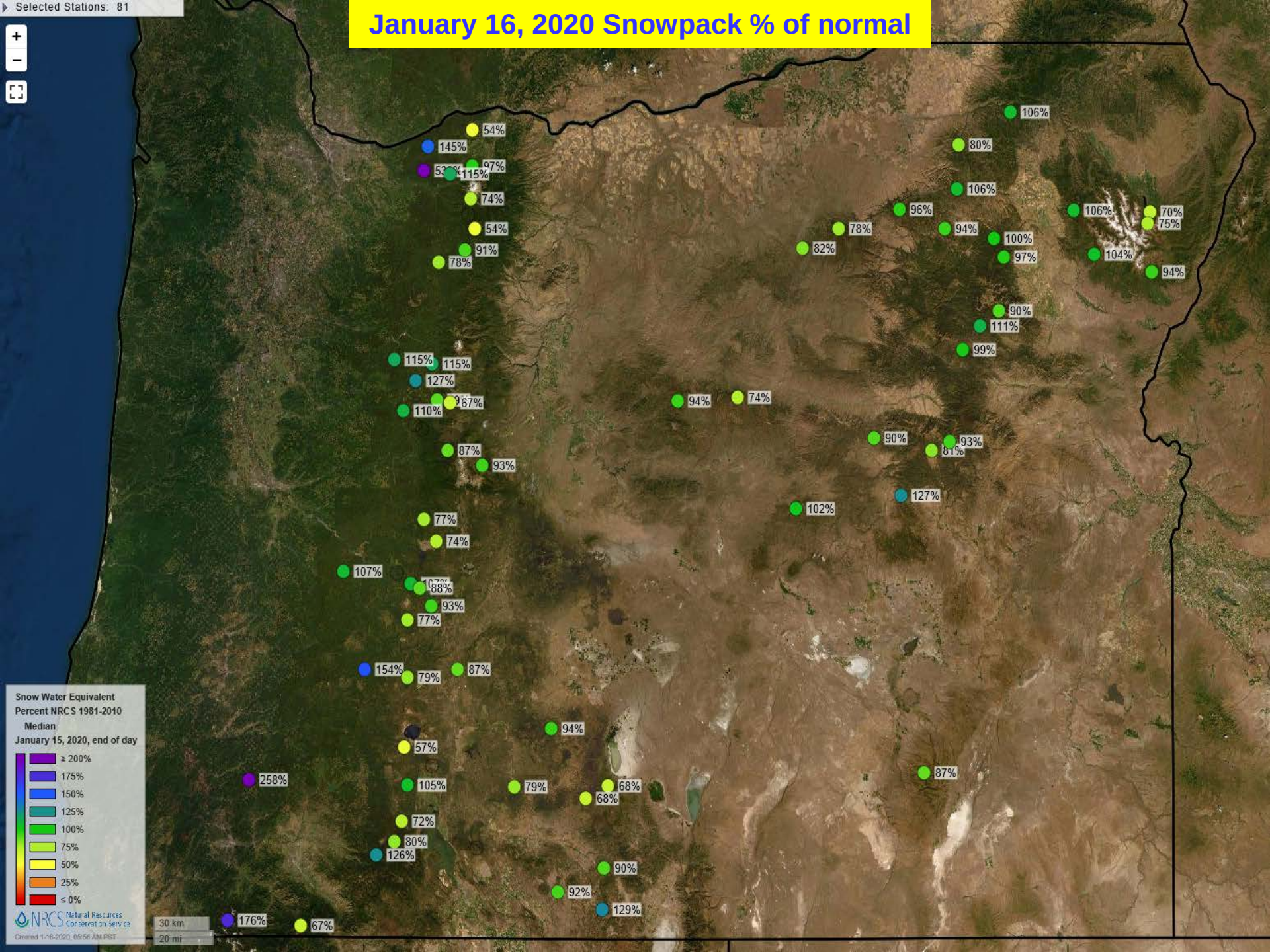


Statewide SNOTEL Snowpack was 45% of normal



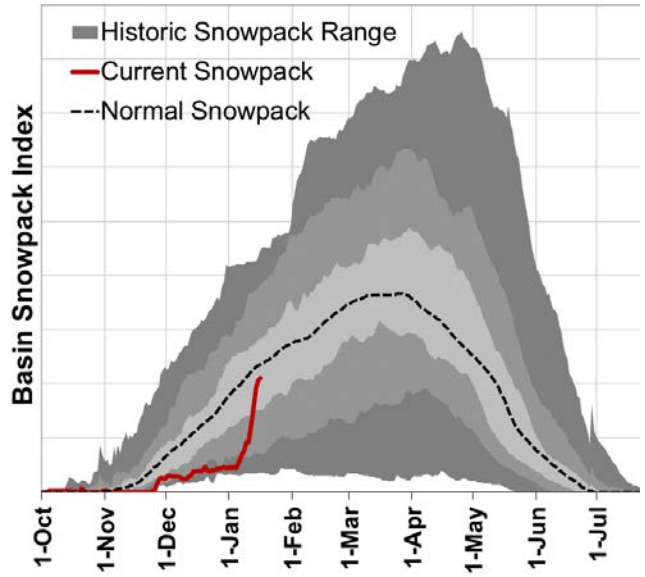

Selected Stations: 81
January 1, 2020 Snowpack % of normal
15%
0%
0%
19%
31%
33%
39%
5%
38%
0%
47%
0%
55%
62%
54%
20%
33%
70%
61%
89%
62%
55%
85%
73%
82%
69%
90%
69%
4%
0%
0%
0%
30%
69%
58%
59%
70%
69%
31%
72%
145%
94%
20%
41%
10%
39%
53%
49%
0%
38%
67%
93%
40%
19%
64%
62%
58%
47%
76%
62%
42%
56%
0%
17%
100%
79%
65%
Snow Water Equivalent
Percent NRCS 1981-2010
Median
January 1, 2020, end of day
≥ 200%
175%
150%
125%
100%
75%
50%
25%
≤ 0%
NRCS Natural Resources Conservation Service
Created 1-15-2020, 12:19 PM PST
30 km
20 mi

January 16, 2020 Snowpack % of normal

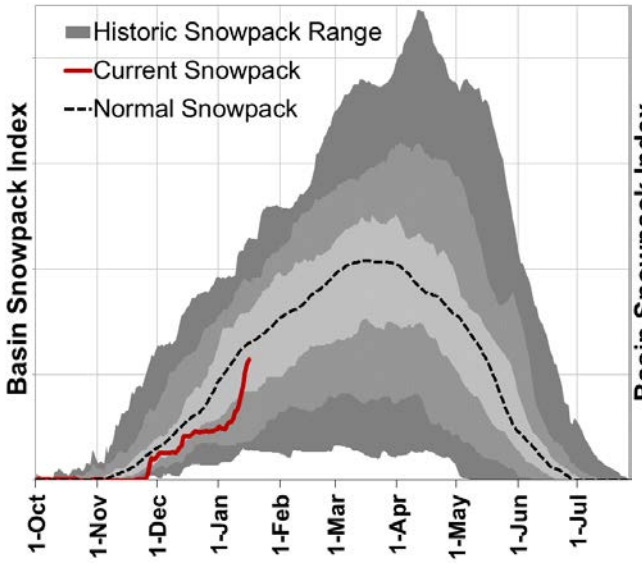


SNOWPACK GRAPHS – January 16, 2020

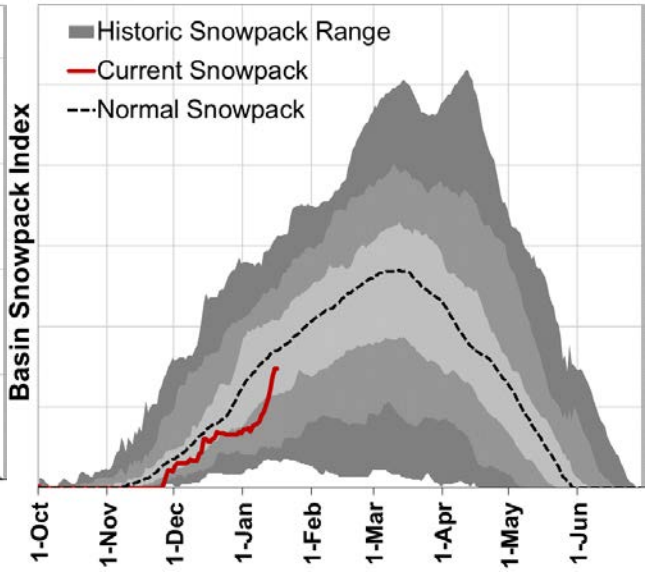
Willamette



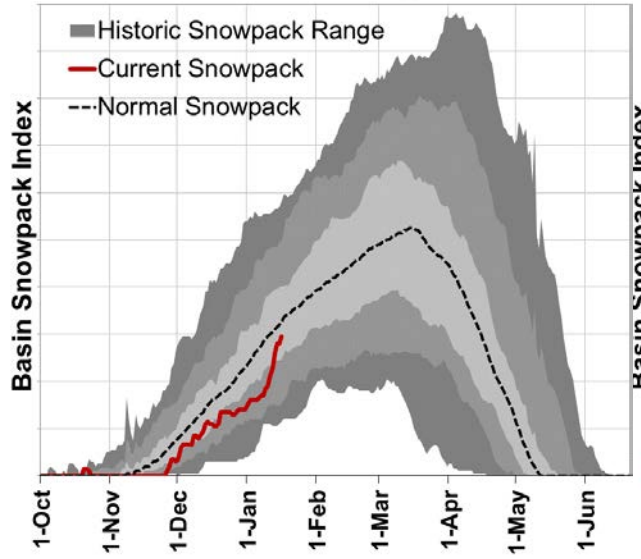
Rogue/Umpqua



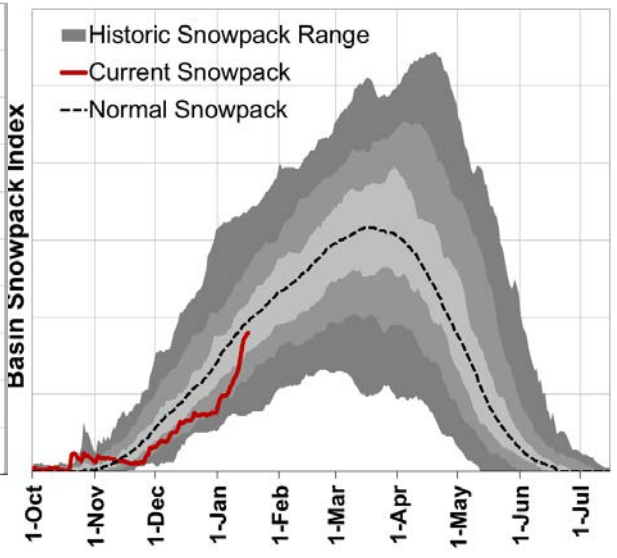
Klamath



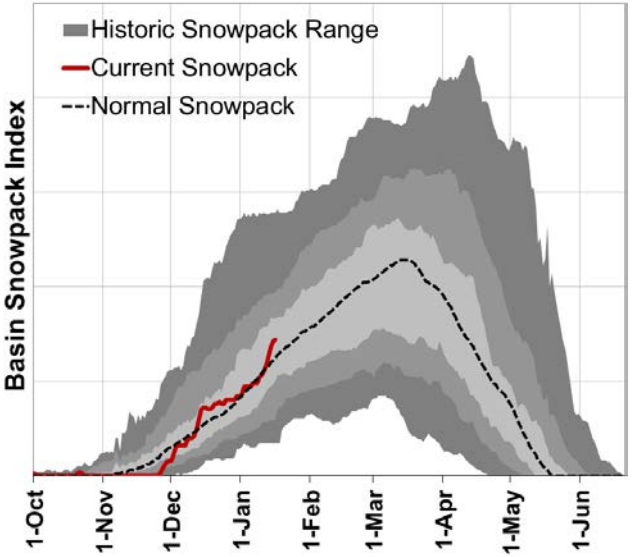
John Day



Grande Ronde/Powder/Burnt

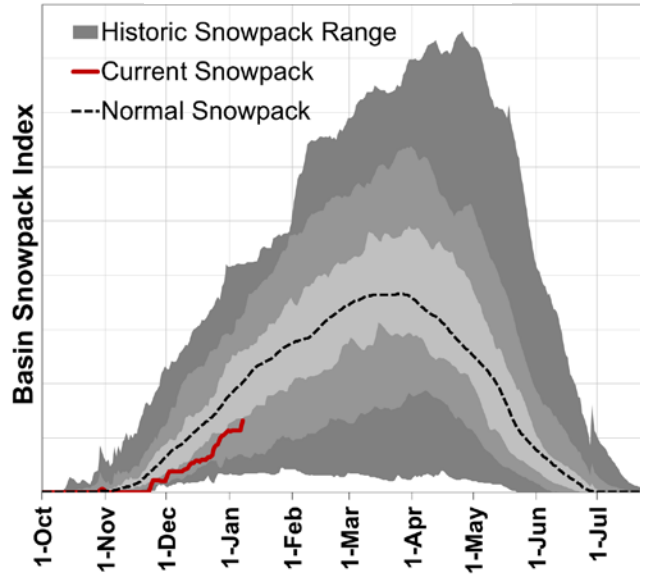


Owyhee/Malheur

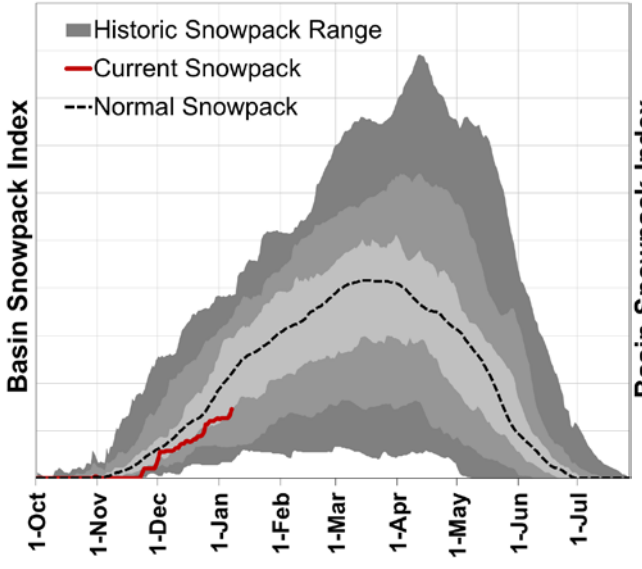


SNOWPACK GRAPHS – January 8, 2019

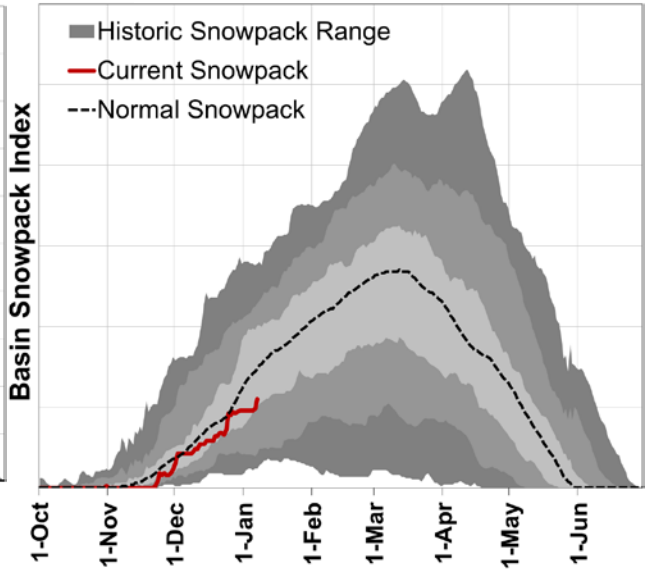
Willamette



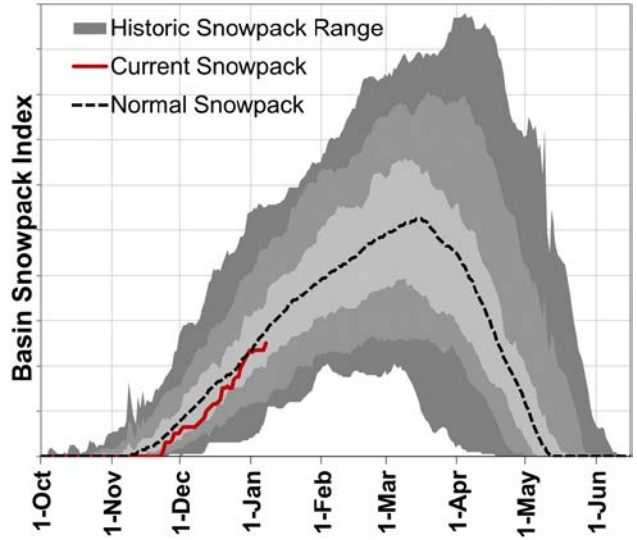
Rogue/Umpqua



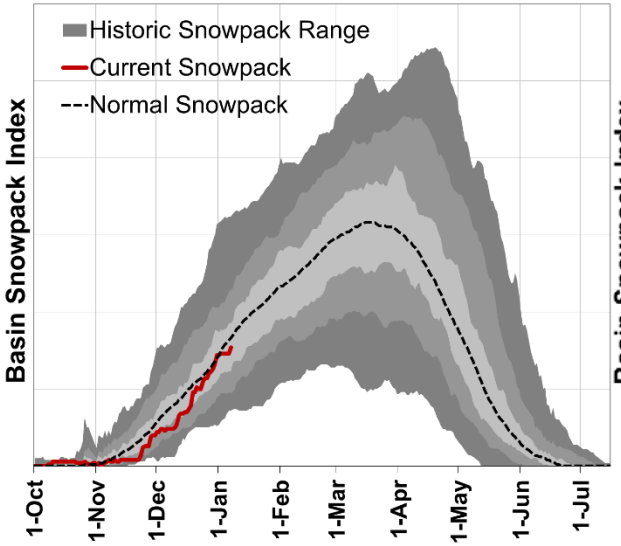
Klamath



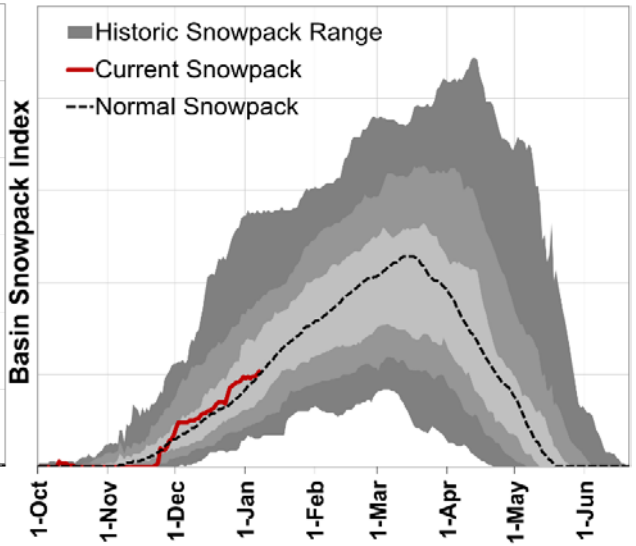
John Day



Grande Ronde/Powder/Burnt

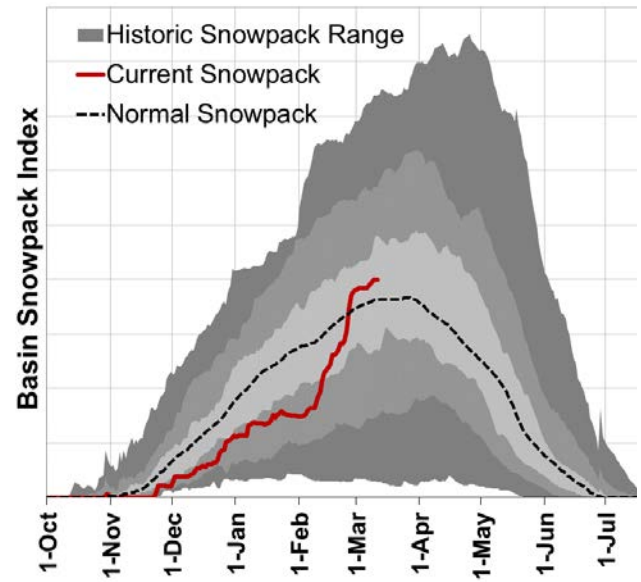


Owyhee/Malheur

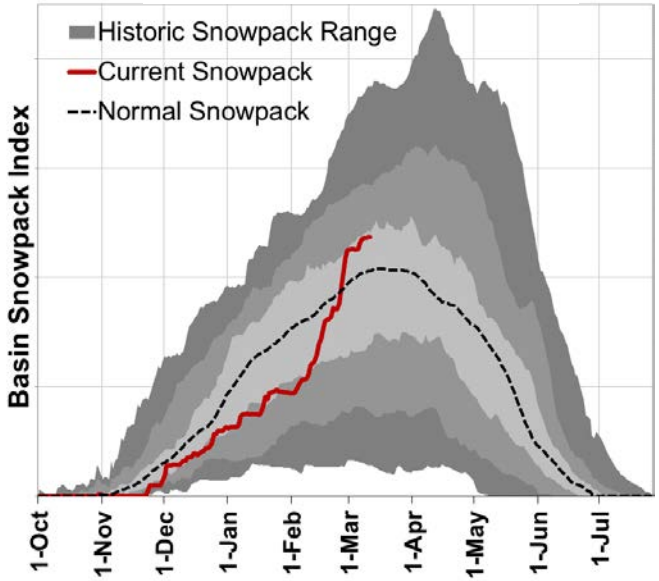


March 12, 2019

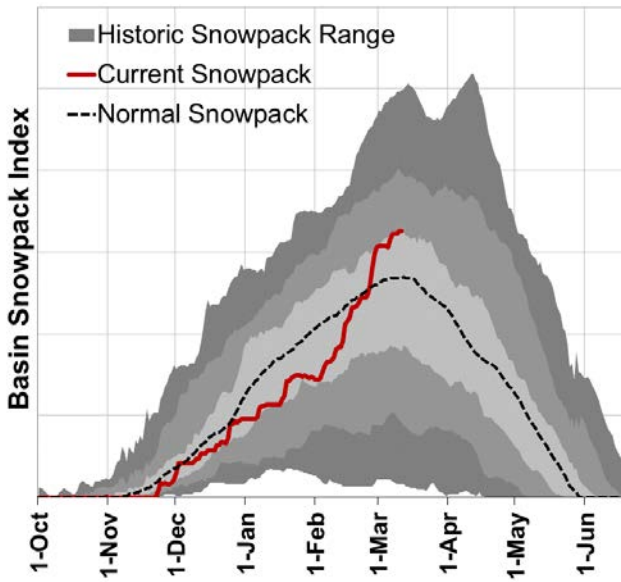
Willamette



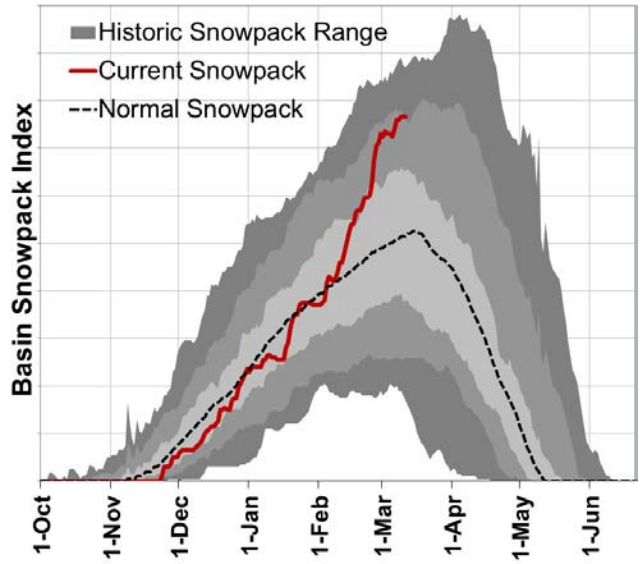
Rogue/Umpqua



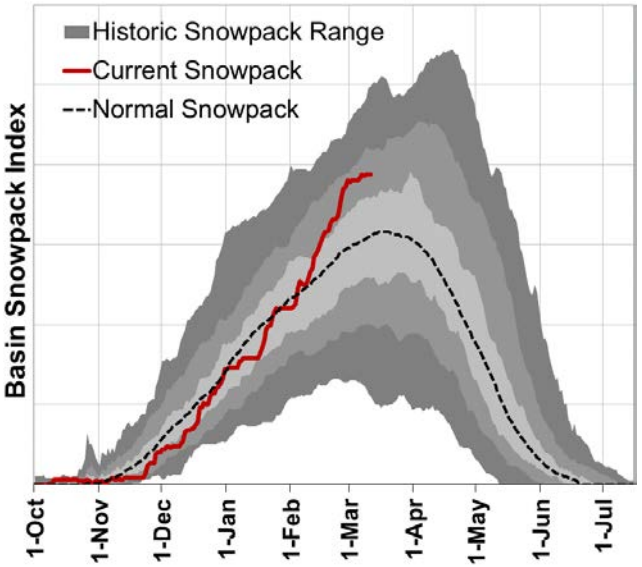
Klamath



John Day

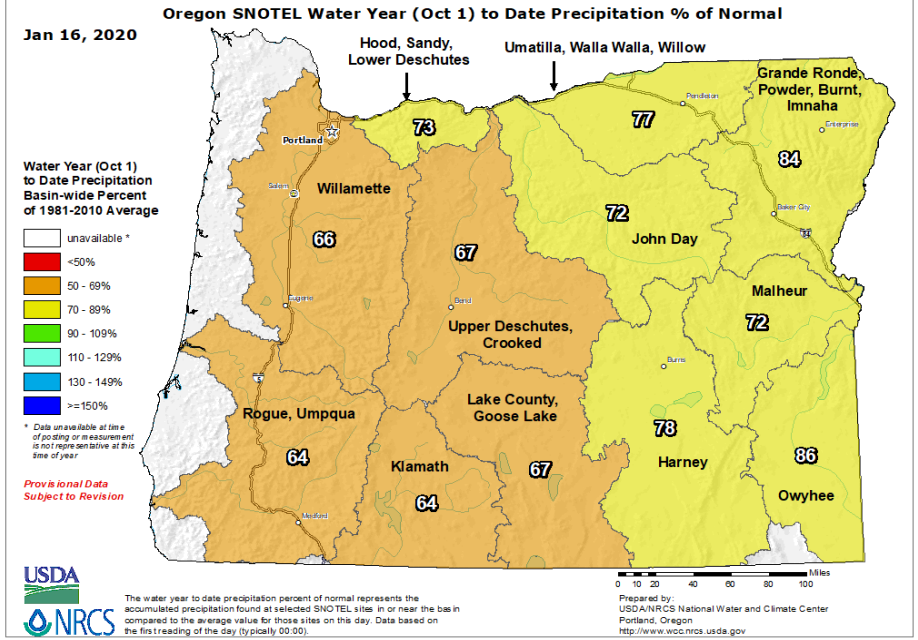


Grande Ronde/Powder/Burnt

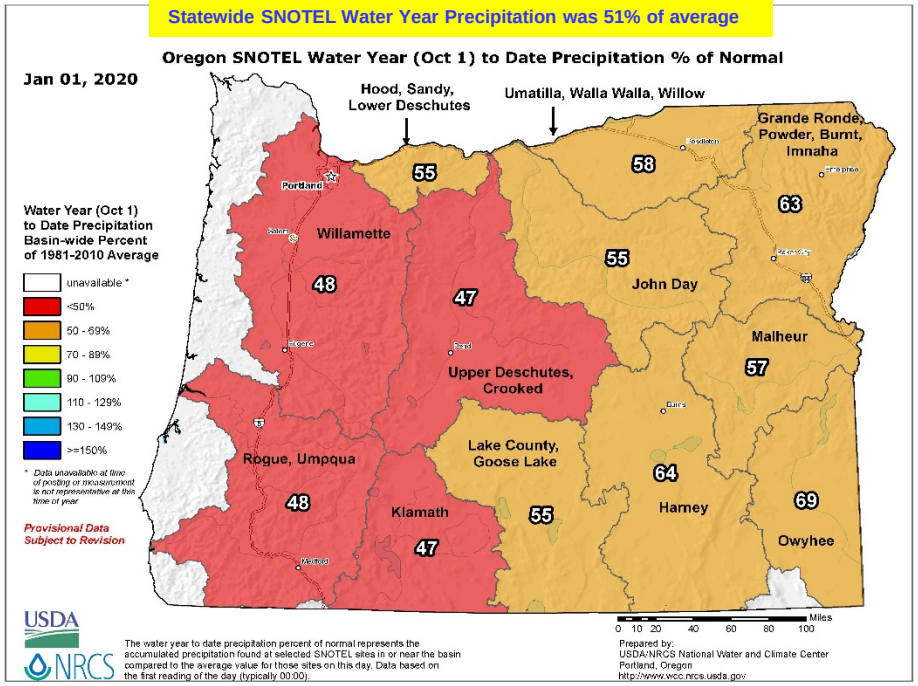


Owyhee/Malheur

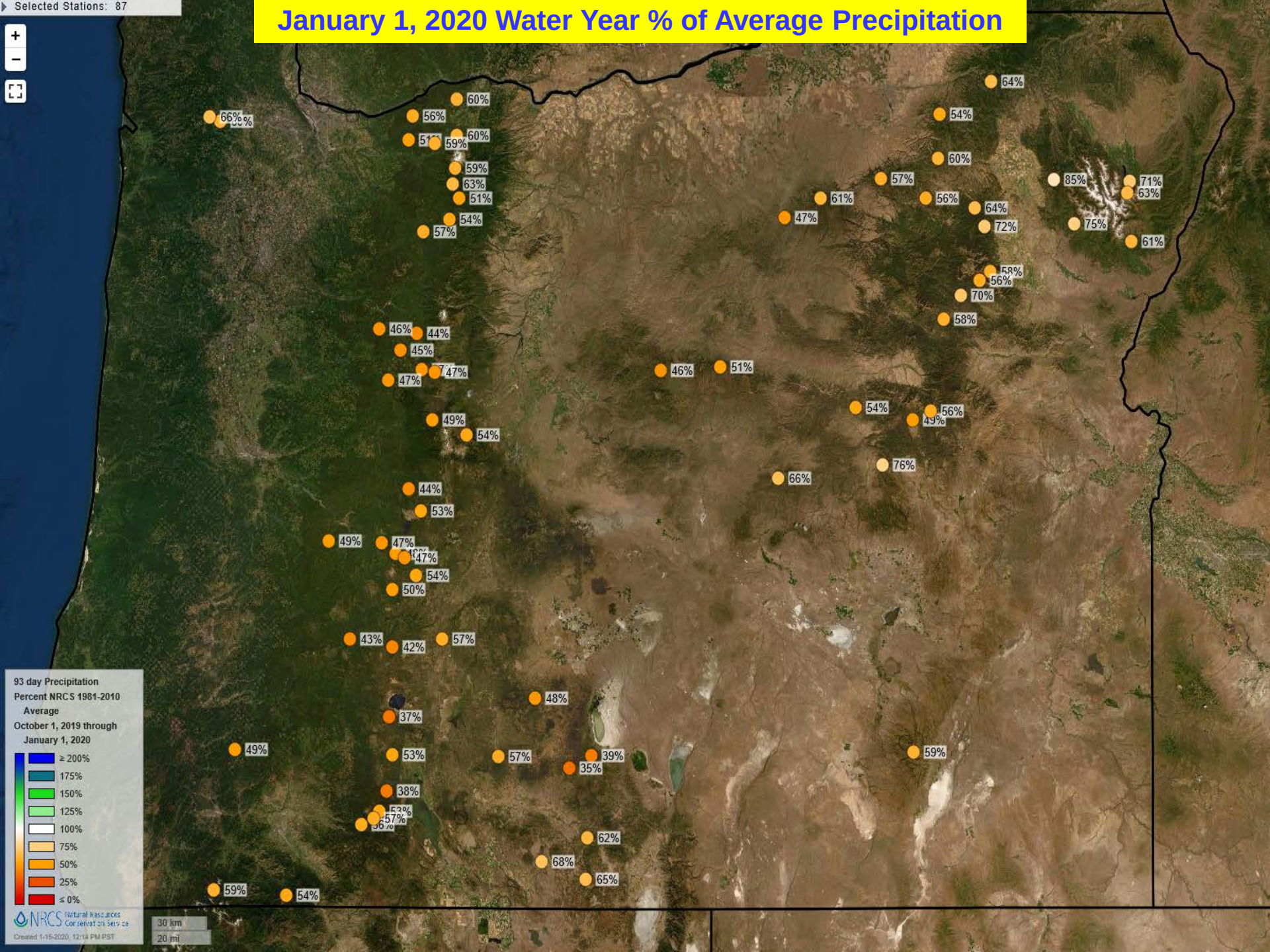
Statewide SNOTEL Water Year Precipitation is 69% of average

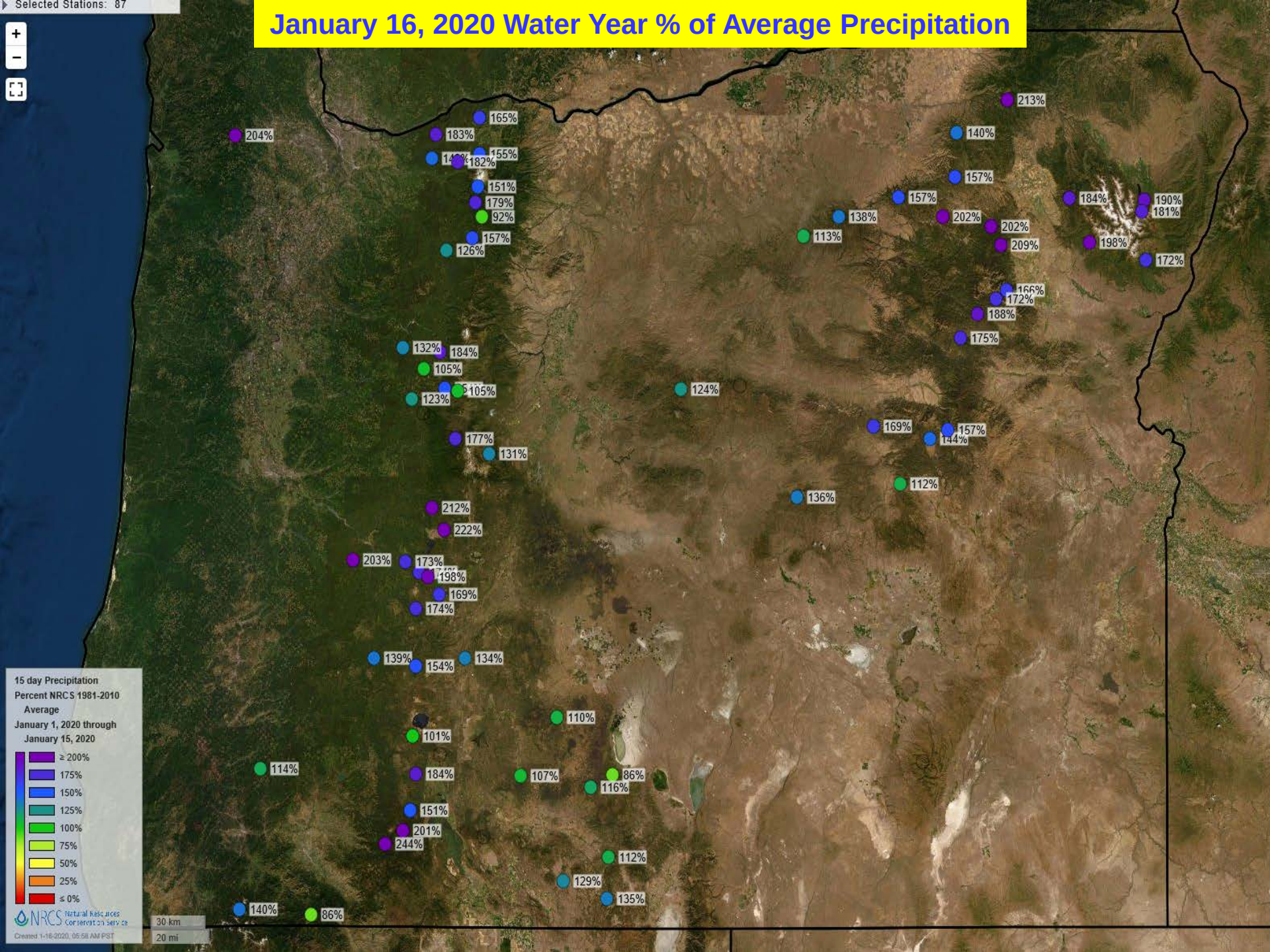


Statewide SNOTEL Water Year Precipitation was 51% of average

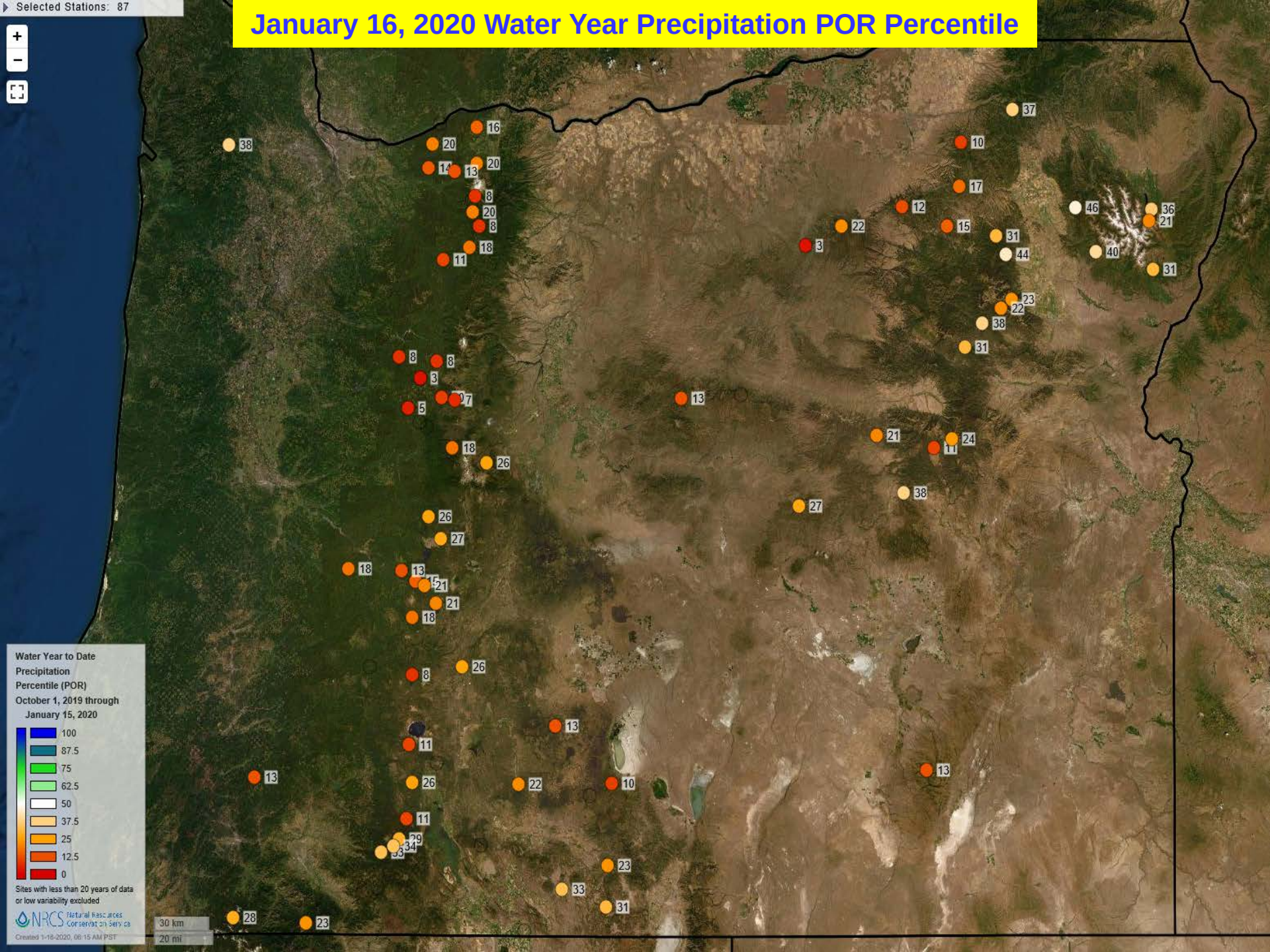


January 1, 2020 Water Year % of Average Precipitation




Selected Stations: 87
January 16, 2020 Water Year % of Average Precipitation
213%
165%
204%
183%
140%
155%
182%
157%
151%
157%
184%
190%
179%
138%
202%
181%
92%
202%
113%
157%
209%
198%
126%
172%
166%
172%
188%
175%
132%
184%
105%
105%
124%
123%
169%
157%
177%
144%
131%
112%
136%
212%
222%
203%
173%
198%
169%
174%
139%
154%
134%
110%
101%
114%
184%
107%
86%
116%
151%
201%
244%
112%
129%
135%
140%
86%
15 day Precipitation
Percent NRCS 1981-2010 Average
January 1, 2020 through January 15, 2020
≥ 200%
175%
150%
125%
100%
75%
50%
25%
≤ 0%
NRCS Natural Resources Conservation Service
Created 1-16-2020, 05:58 AM PST
30 km
20 mi

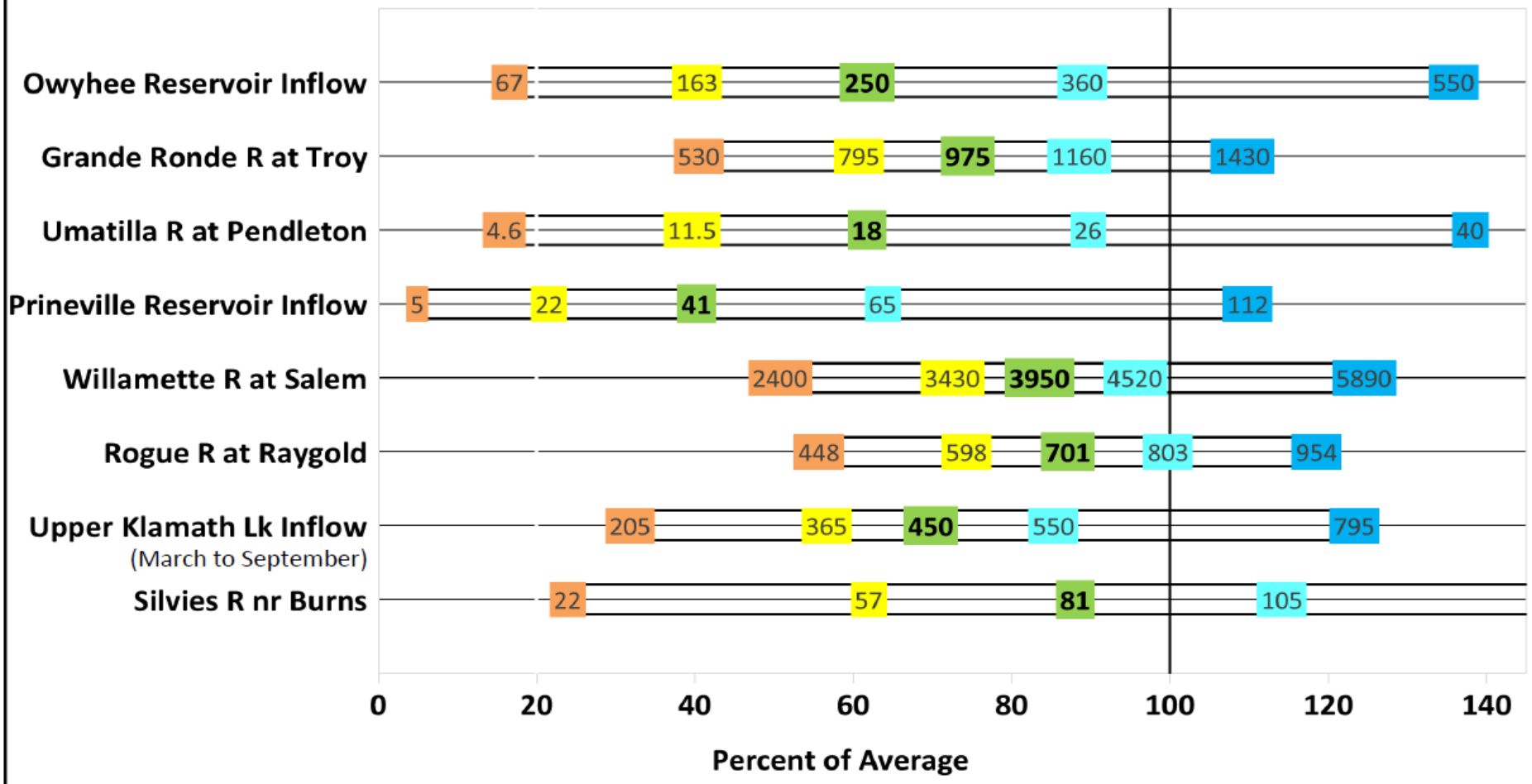
January 16, 2020 Water Year Precipitation POR Percentile



Summary of Streamflow Forecasts across Oregon

April through September Forecast Volumes at a Selection of Streamflow Points

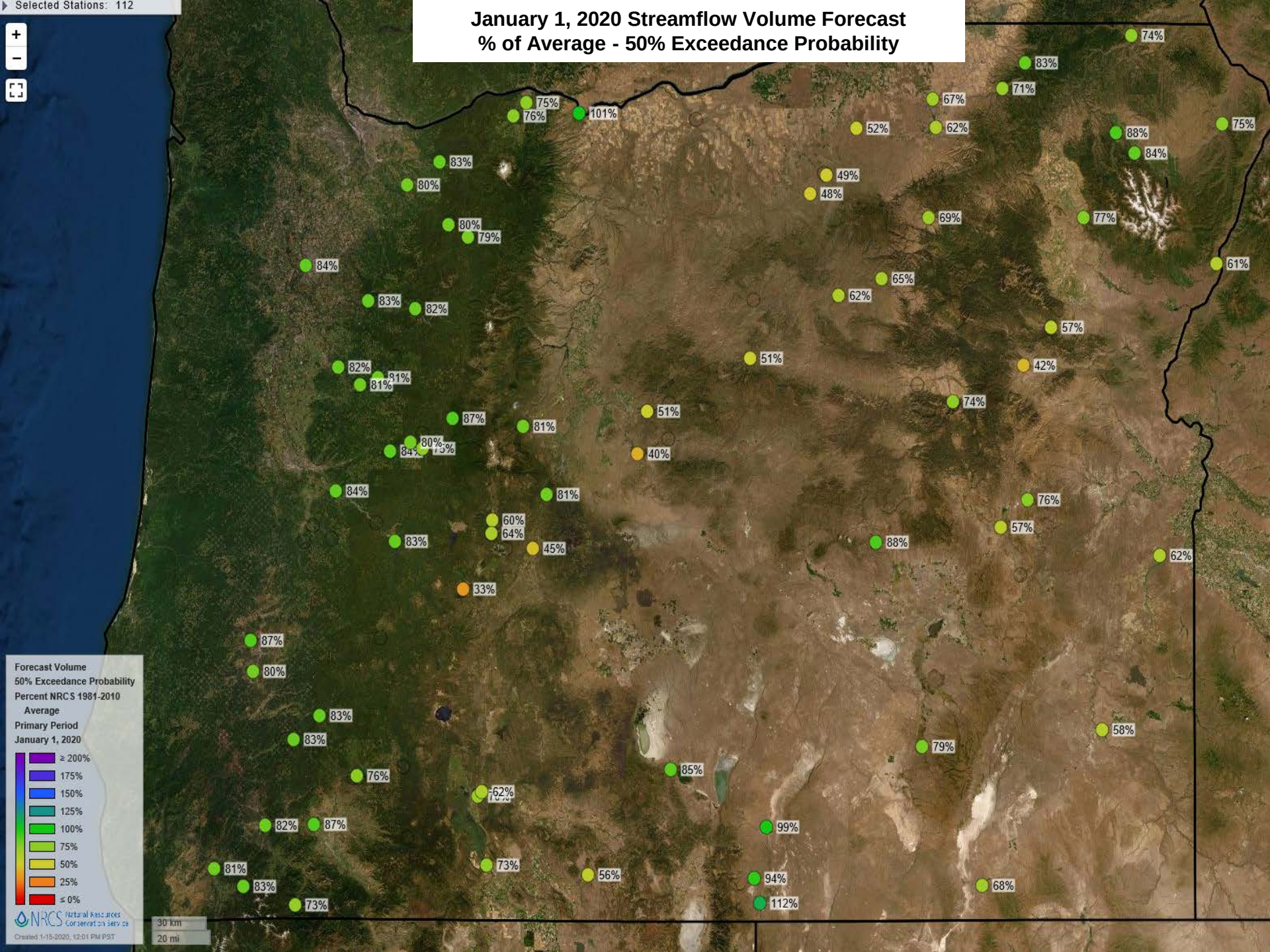
(Volumes listed in KAF)



Legend: ←----------Drier----------**Future Conditions**----------Wetter----------→

90% Exceedance Forecast (KAF)	70% Exceedance Forecast (KAF)	50% Exceedance Forecast (KAF)	30% Exceedance Forecast (KAF)	10% Exceedance Forecast (KAF)
There is a 90% chance that flows will exceed this volume.	There is a 70% chance that flows will exceed this volume.	There is a 50% chance that flows will exceed this volume.	There is a 30% chance that flows will exceed this volume.	There is a 10% chance that flows will exceed this volume.

January 1, 2020 Streamflow Volume Forecast
% of Average - 50% Exceedance Probability



Thank you

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at How to File a Program Discrimination Complaint and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

Oregon Water Supply Availability Committee
January 16, 2020

Ice formation on tree resin
Mt. Hood
January 14, 2020

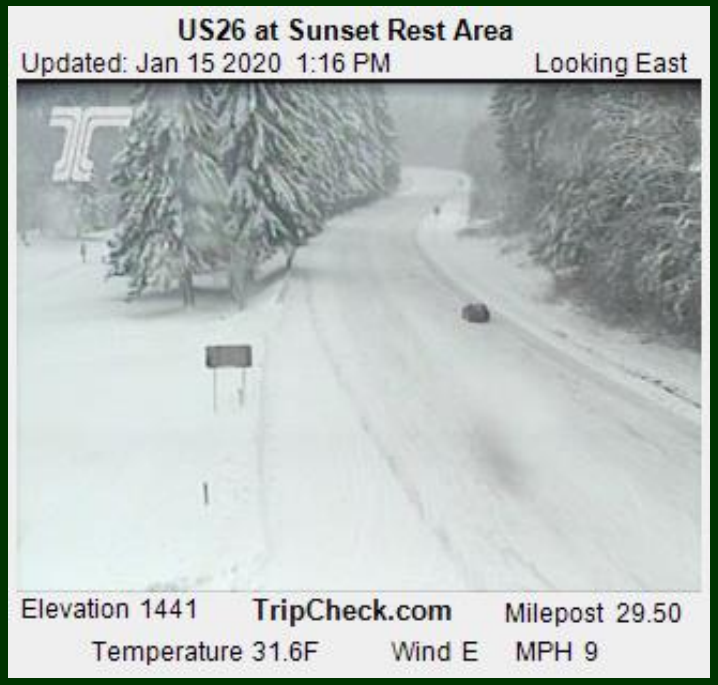
H. Scott Oviatt
USDA – Natural Resources Conservation Service
scott.oviatt@usda.gov
503-414-3271

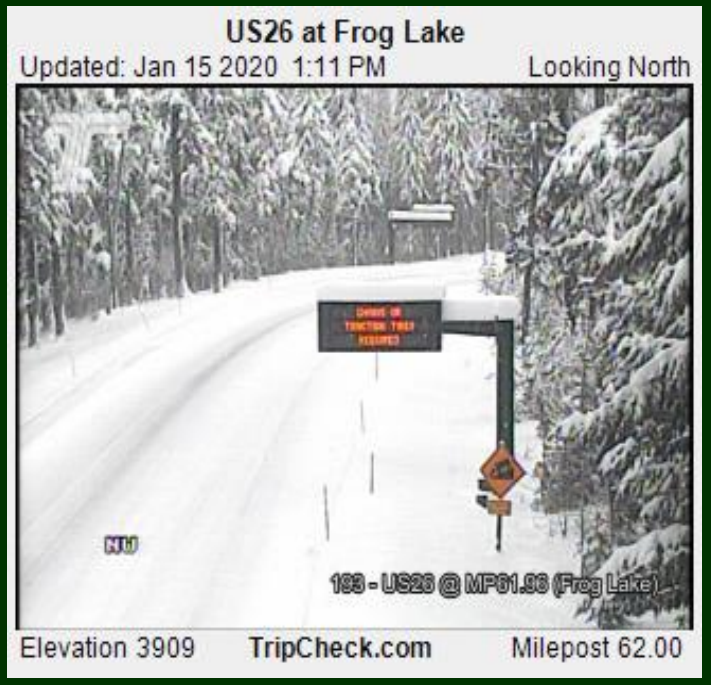
Oregon WSAC

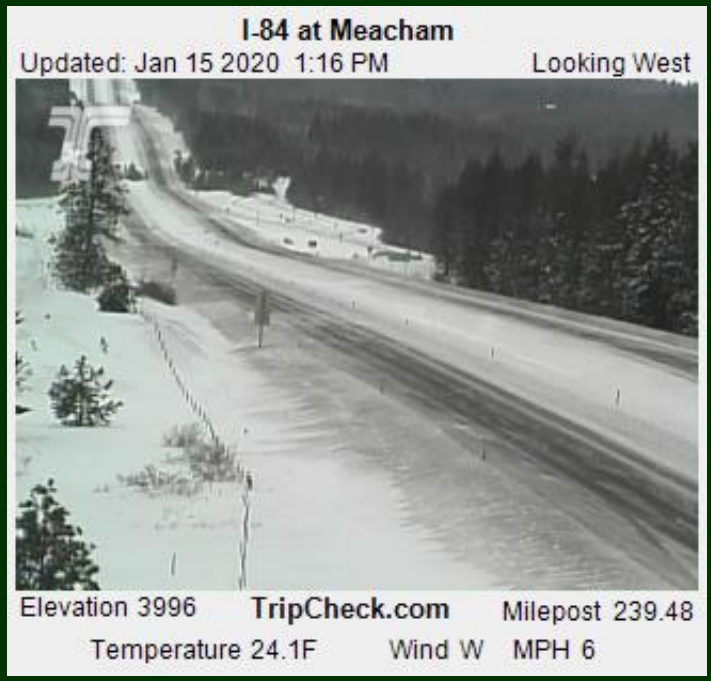
January 15, 2020
NWS Update

Andy Bryant
NOAA/NWS Portland
Weather Forecast Office

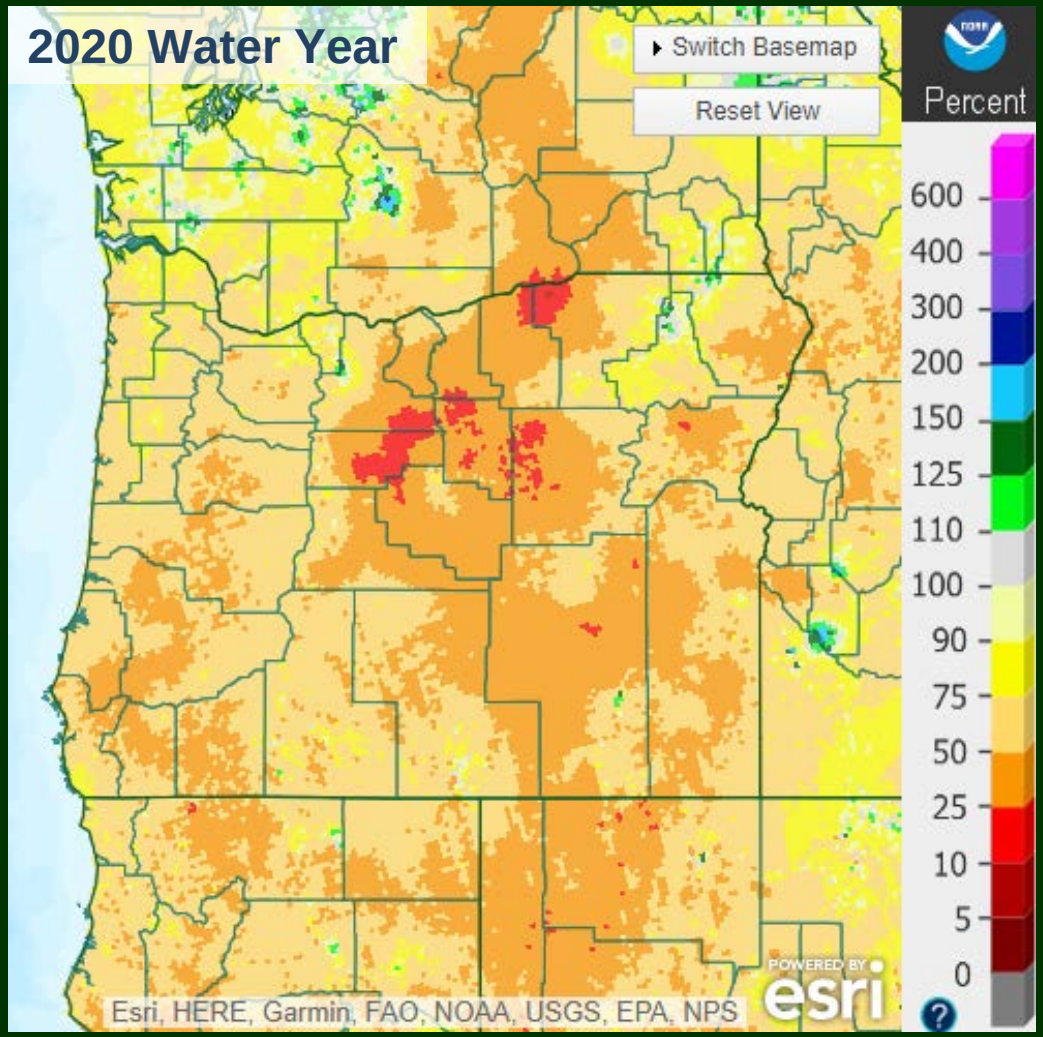
Amy Burke
NOAA/NWS/NWRFC

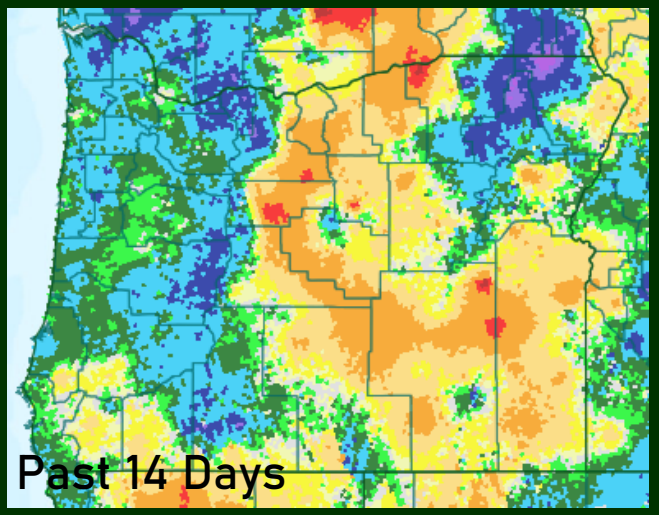


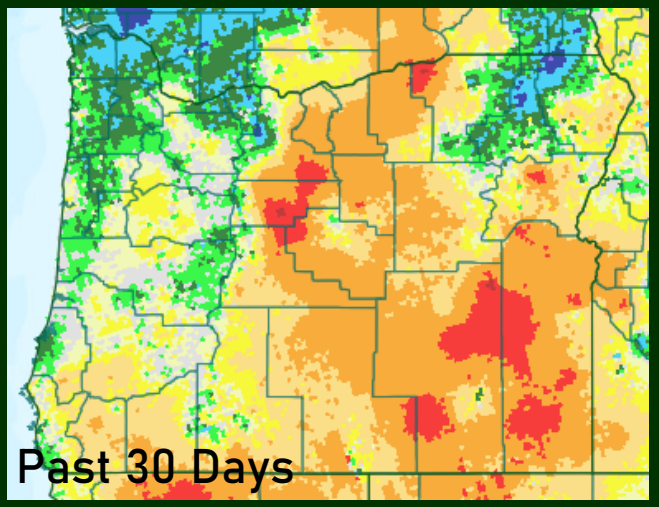




Precipitation % of Average





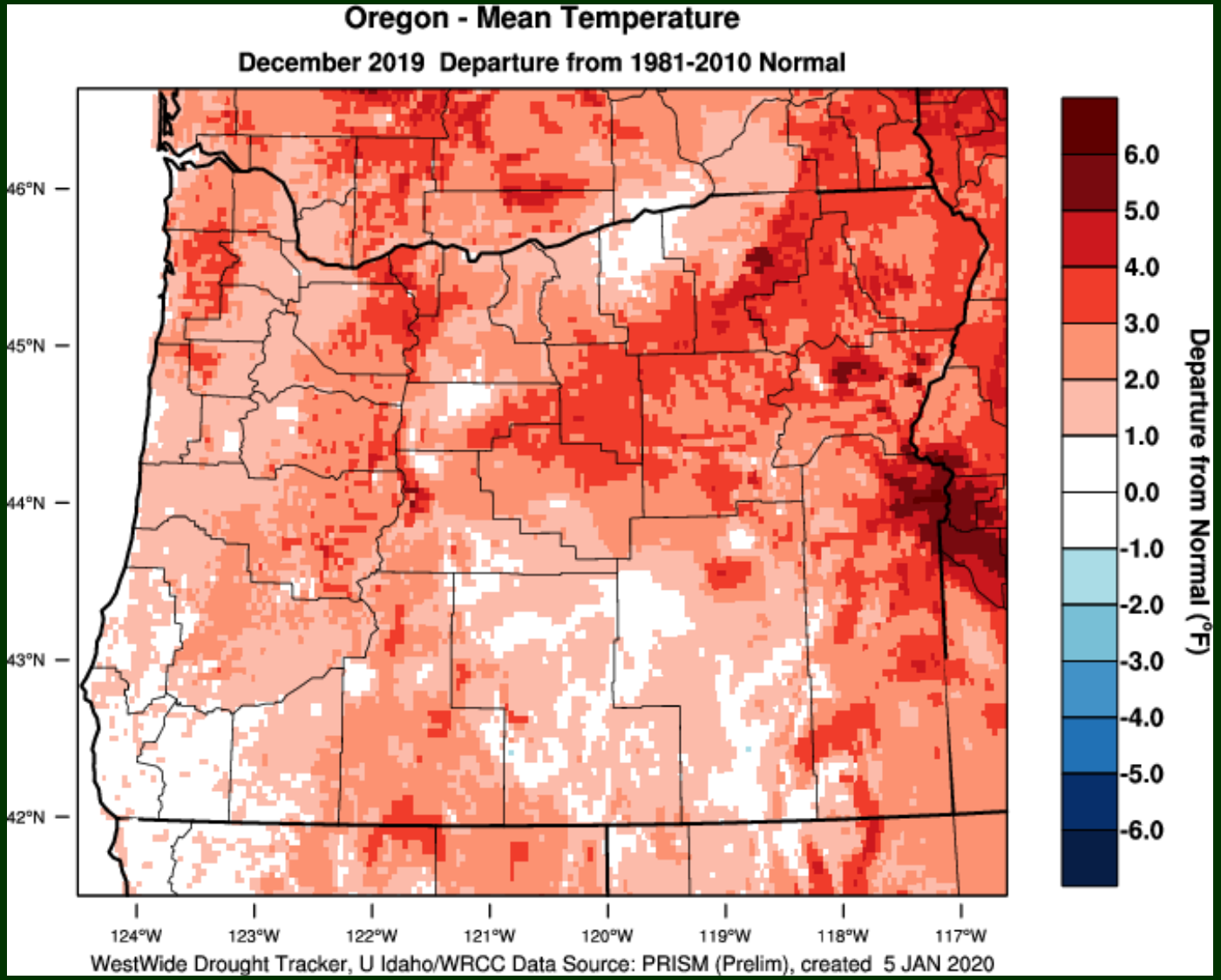


Precipitation Data as of Jan 15, 2020

Source: water.weather.gov/precip/index.php?location_type=wfo&location_name=pqr

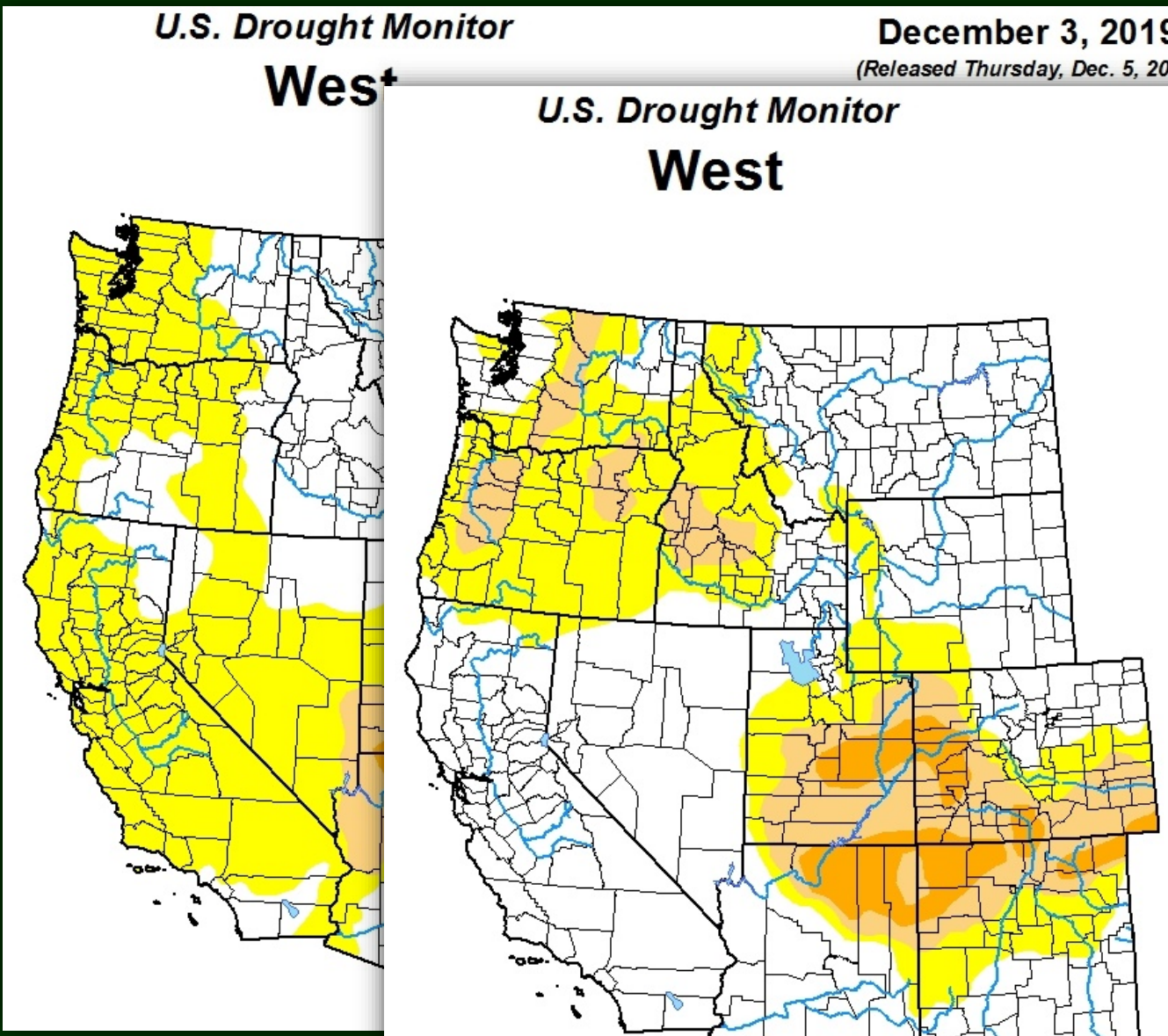
Recent Temperatures

December 2019

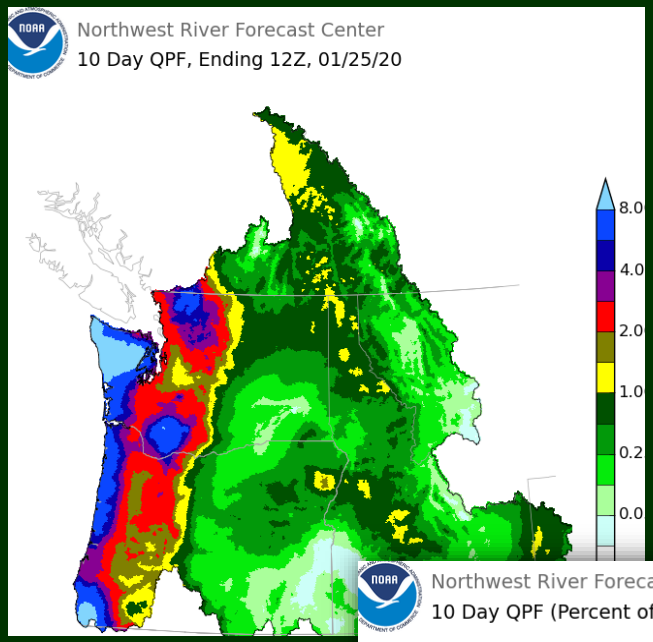


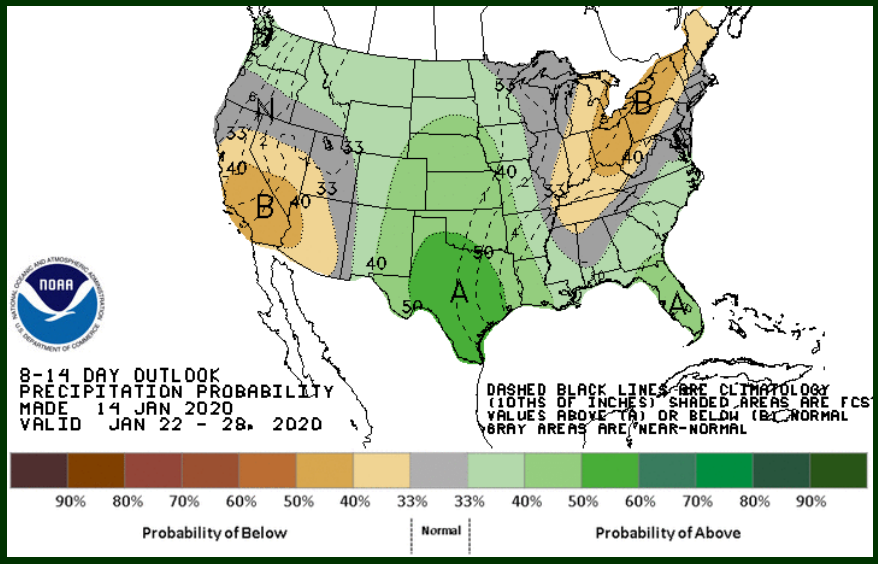
https://wrcc.dri.edu/wwdt/current.php?folder=mdn1

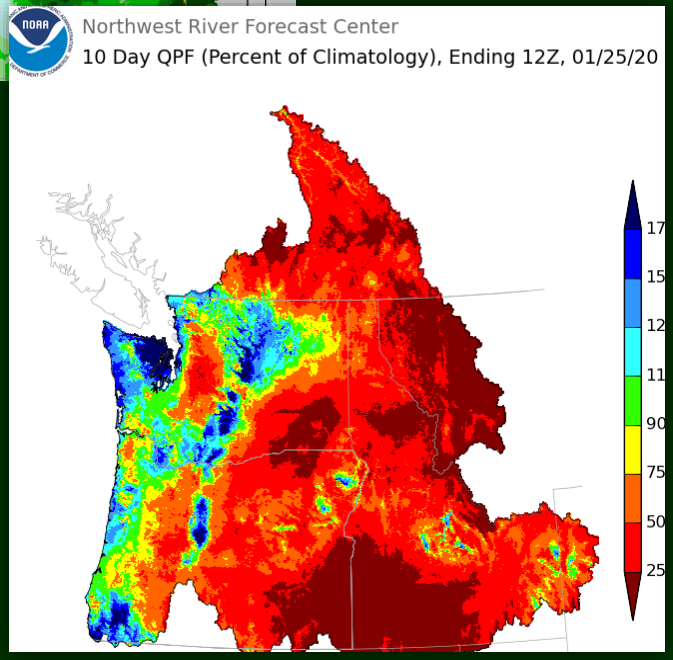
Drought Monitor

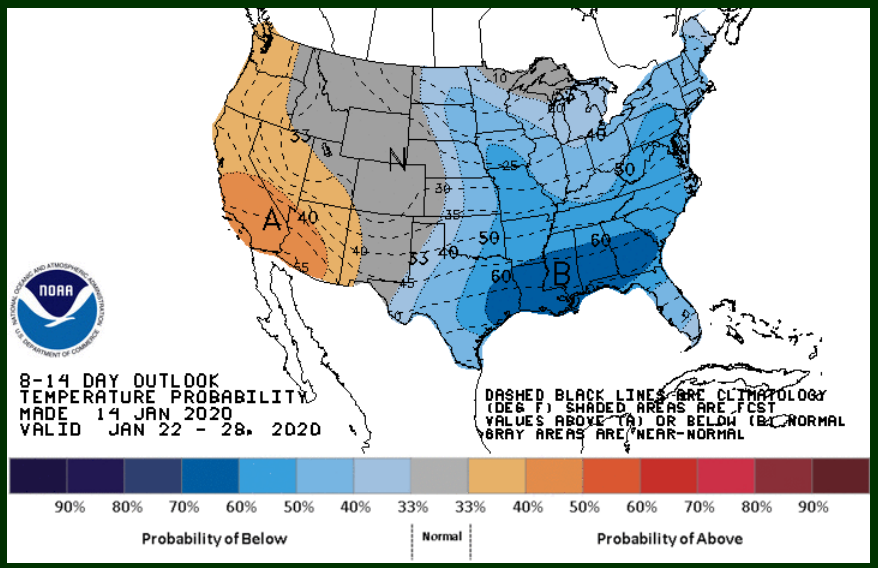


Mid/Late January Outlook





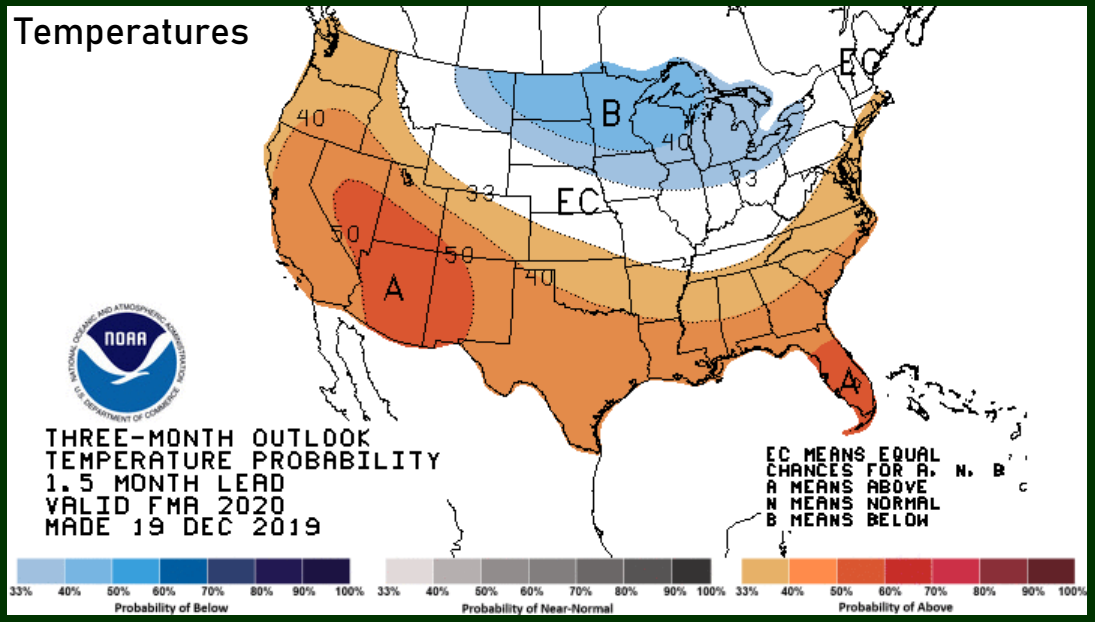


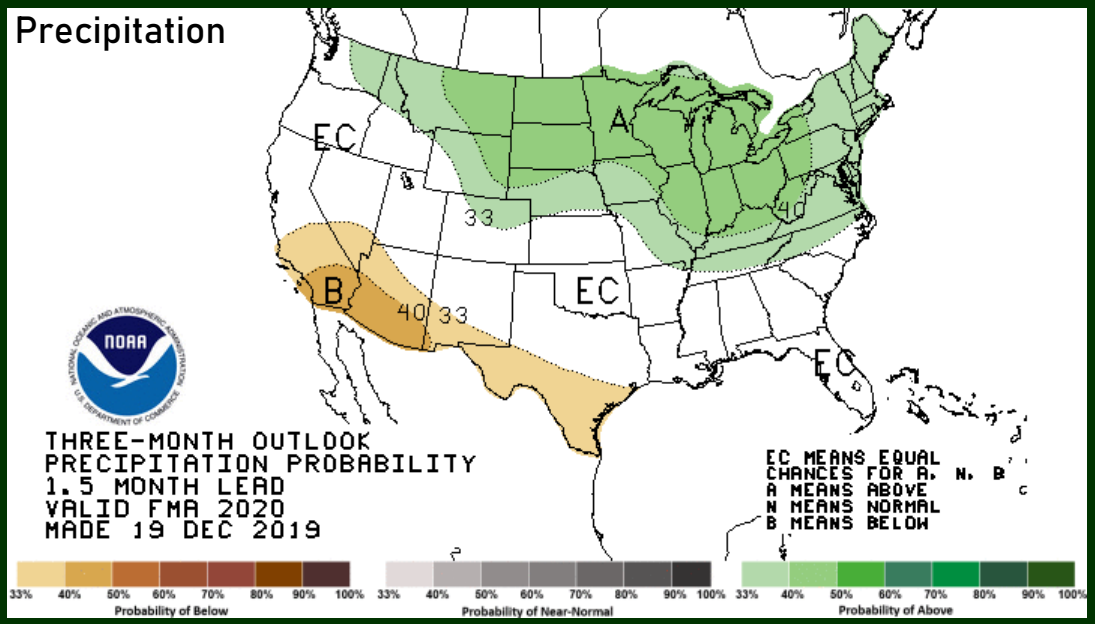


https://www.nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php?t

https://www.cpc.ncep.noaa.gov/products/predictions/814day/

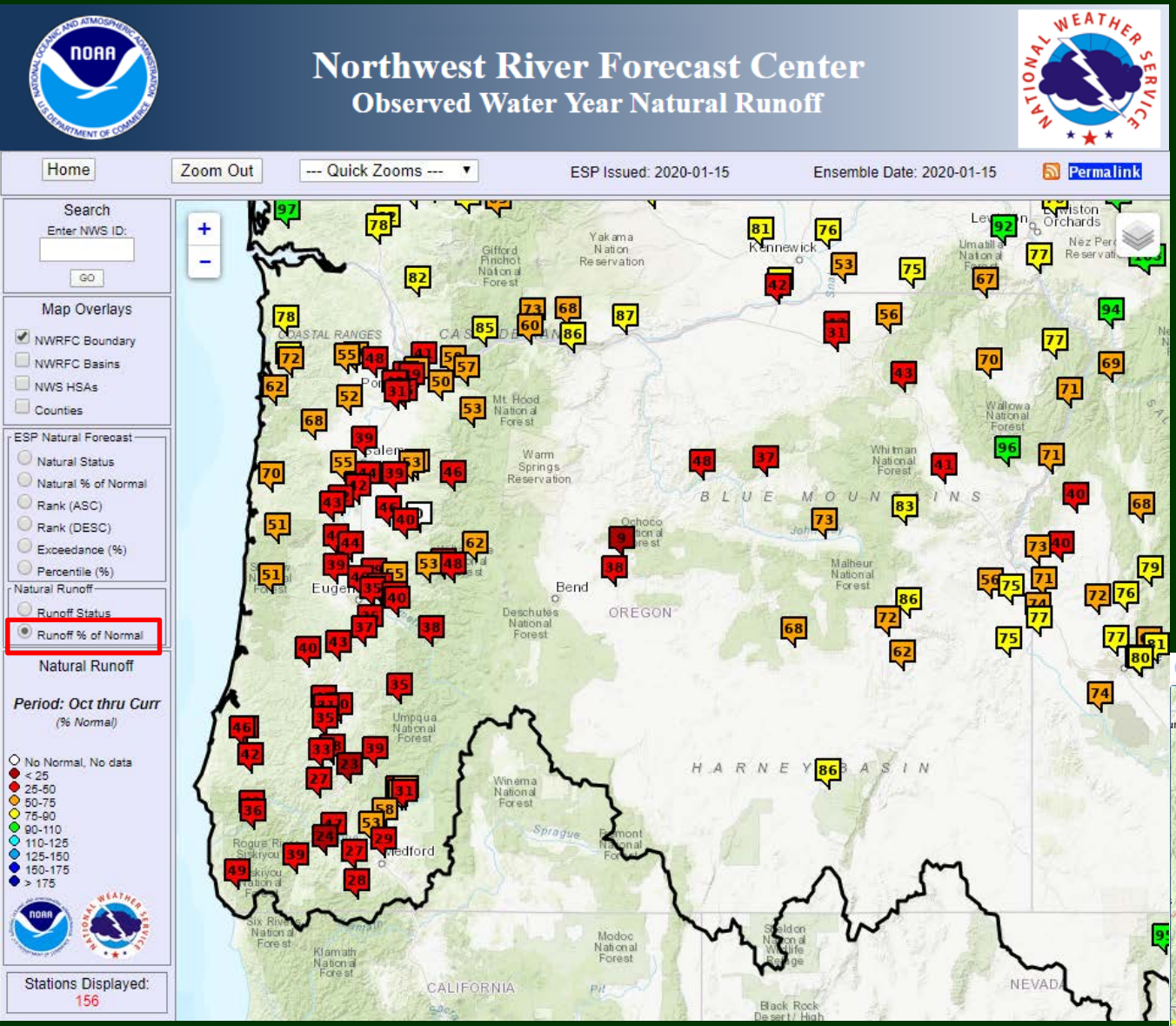
Climate Prediction Center Outlook Feb-Mar-Apr 2020

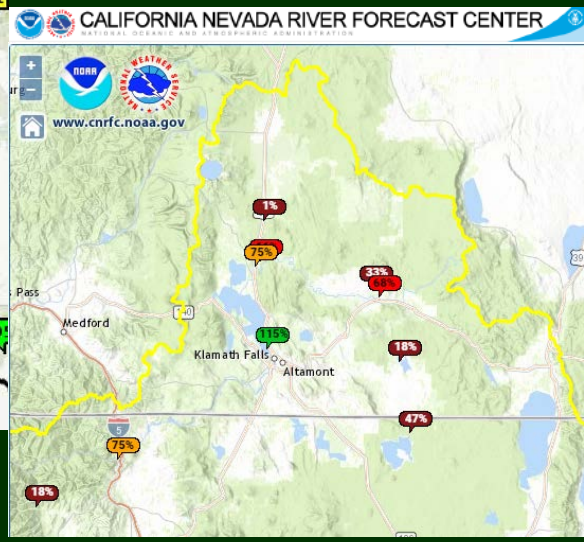




https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=2

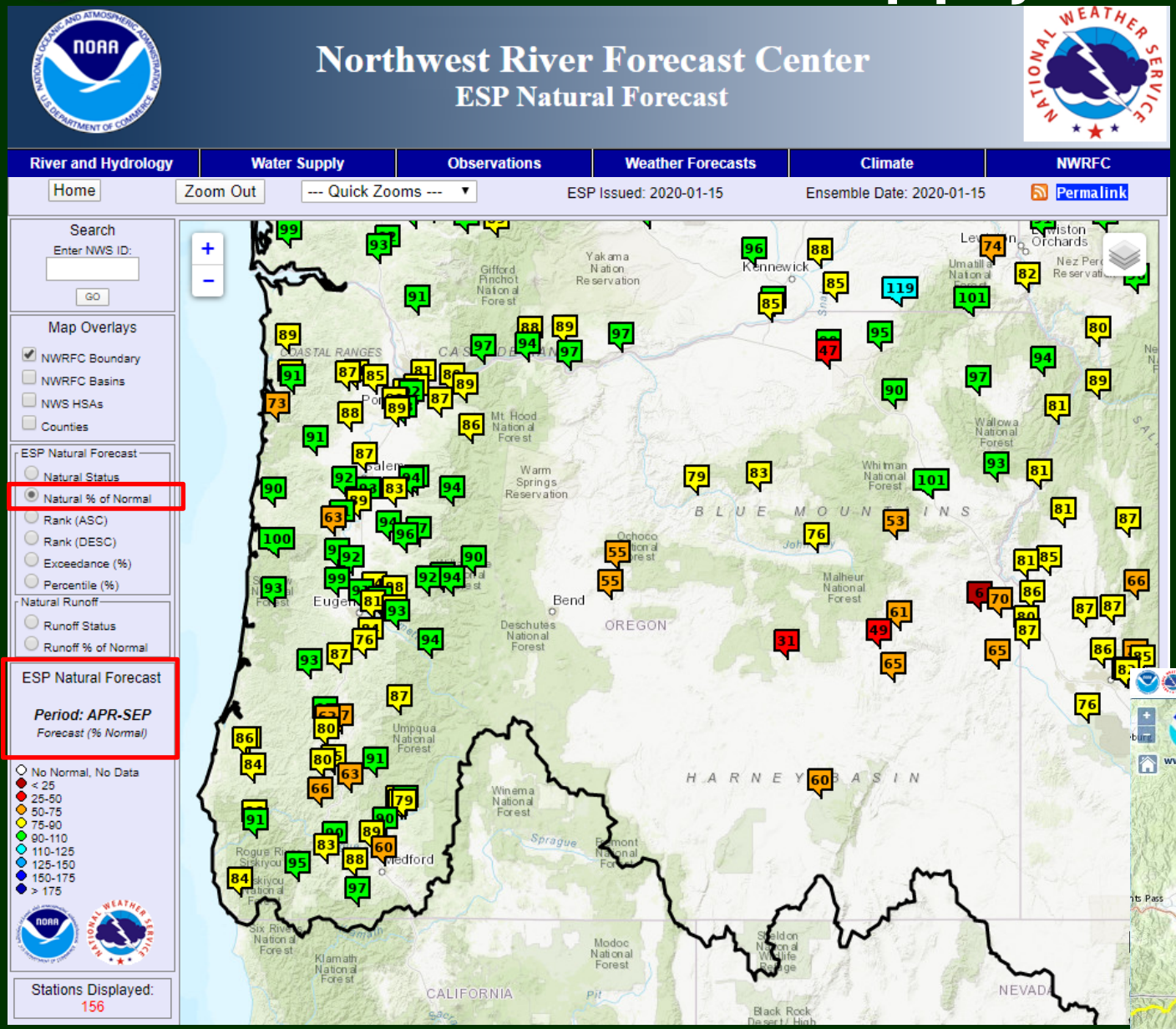
Observed Adjusted WY20 Runoff thus far



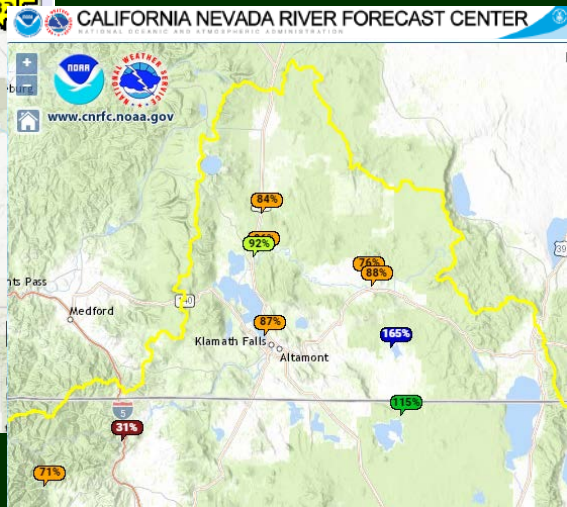


https://www.nwrfc.noaa.gov/natural/index.html?version=20181015v2
https://www.cnrfc.noaa.gov/ol.php?product=espWS

Seasonal Water Supply Forecasts

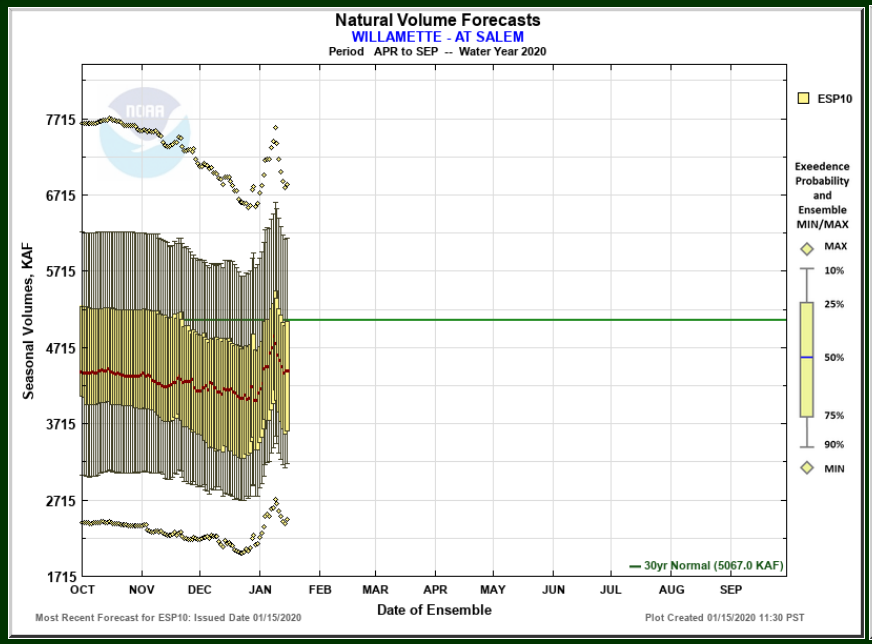


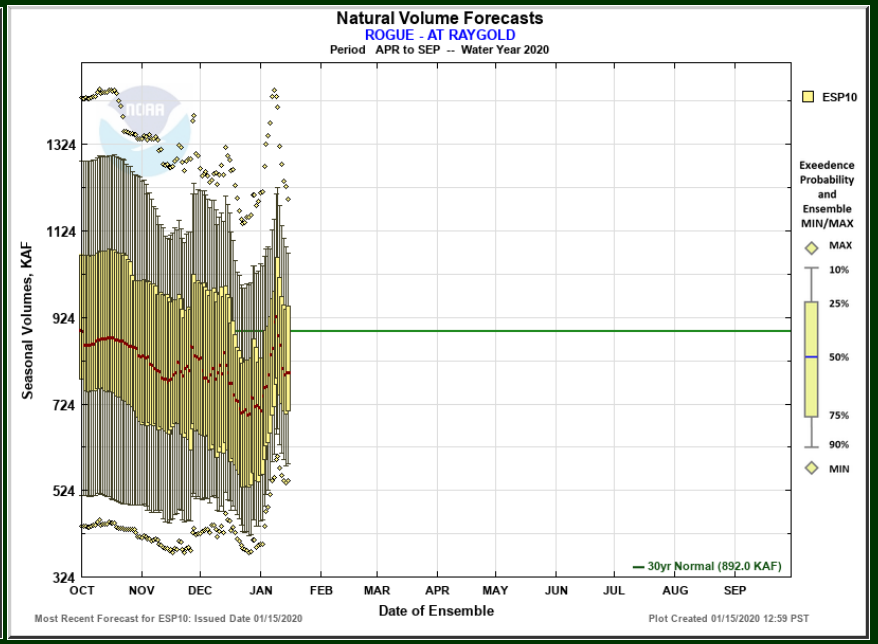
Forecast runoff volume for April – September 2020

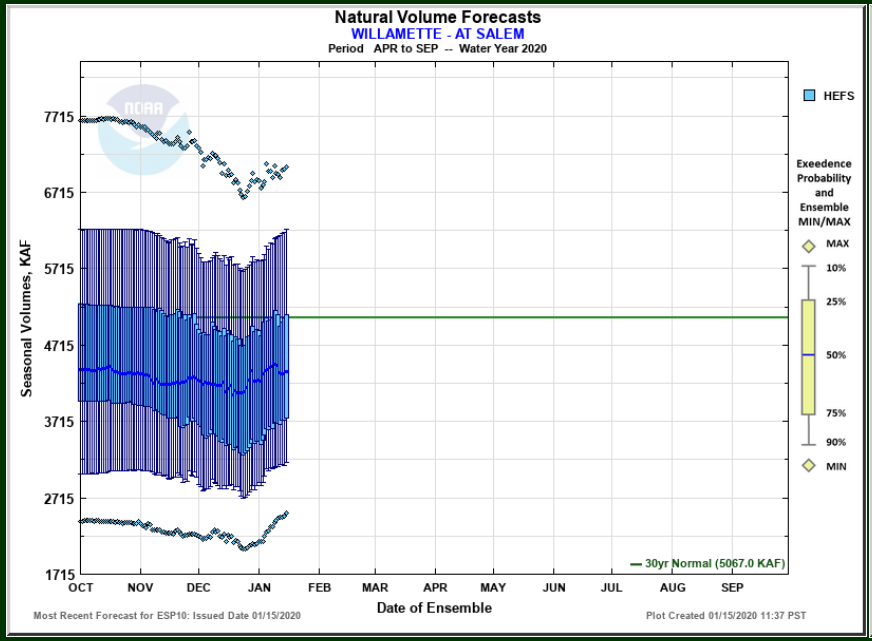


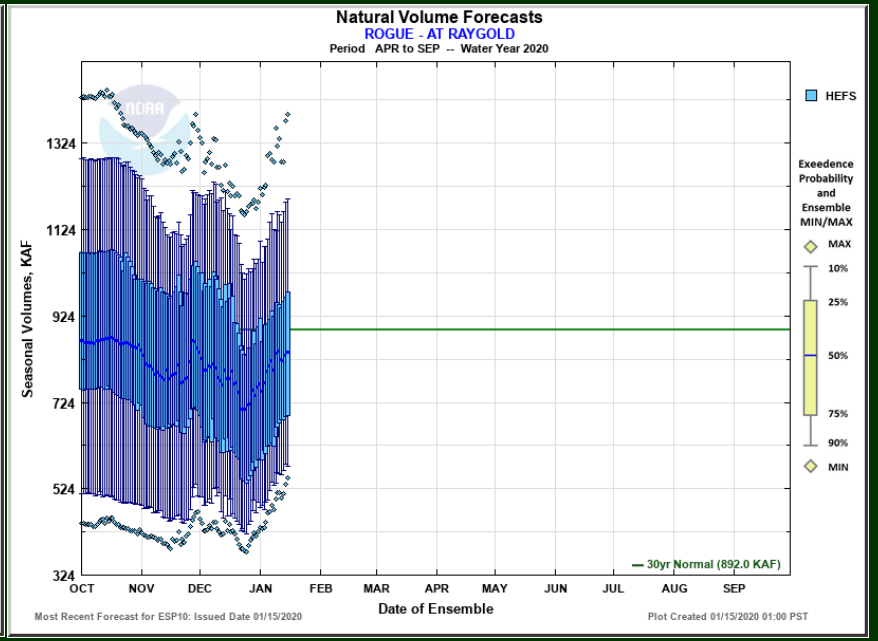
https://www.nwrfc.noaa.gov/natural/index.html?version=20181015v2
https://www.cnrfc.noaa.gov/ol.php?product=espWS

Natural Water Supply Forecasts (West)

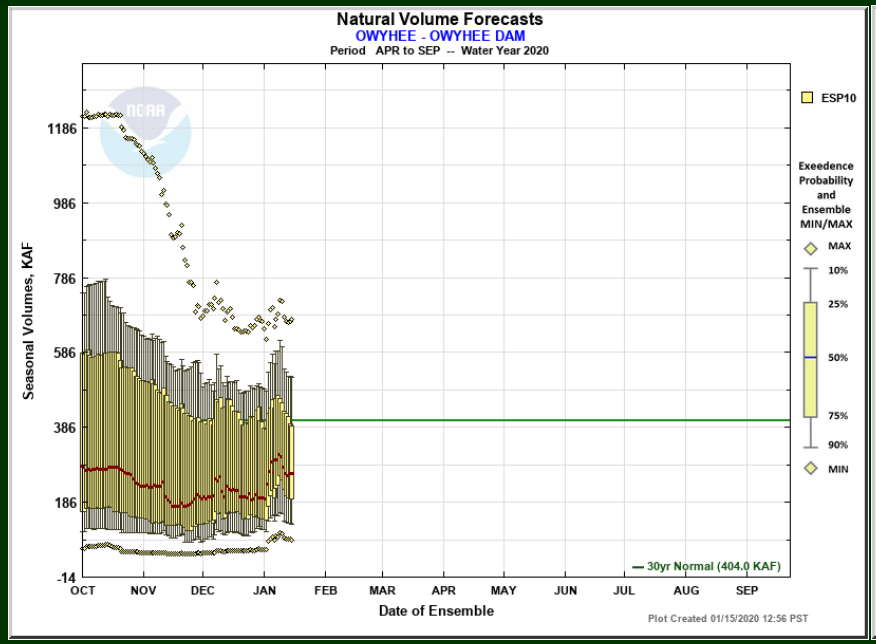


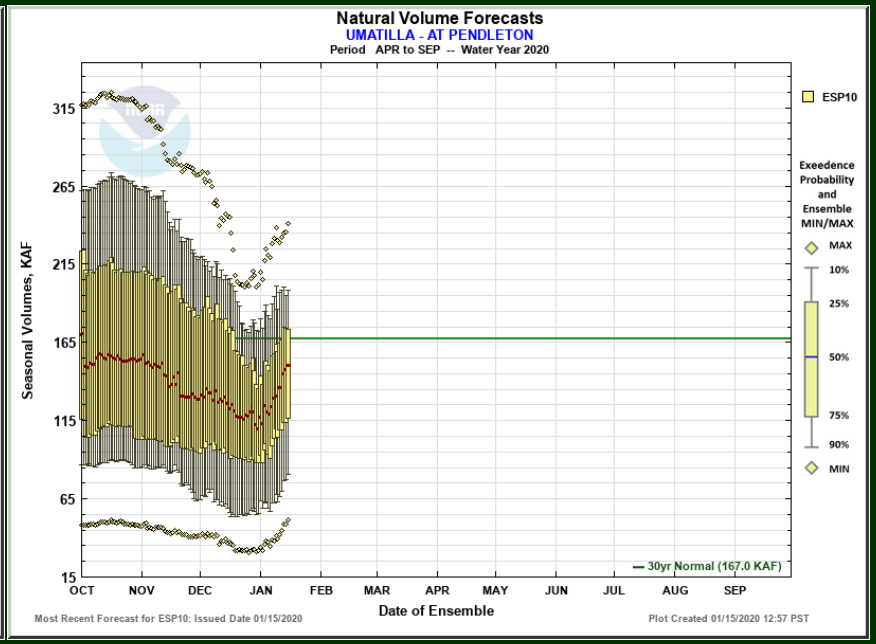


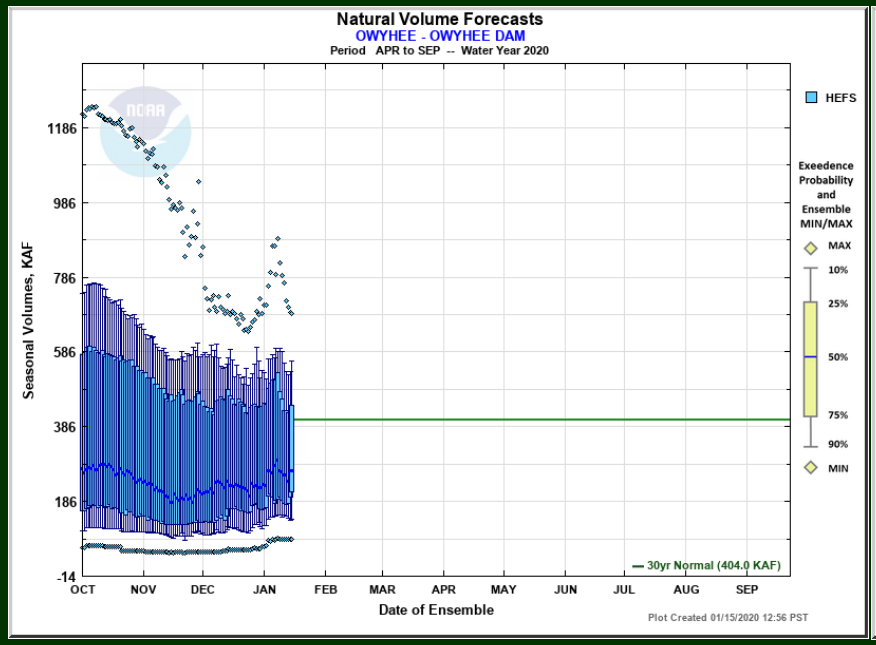


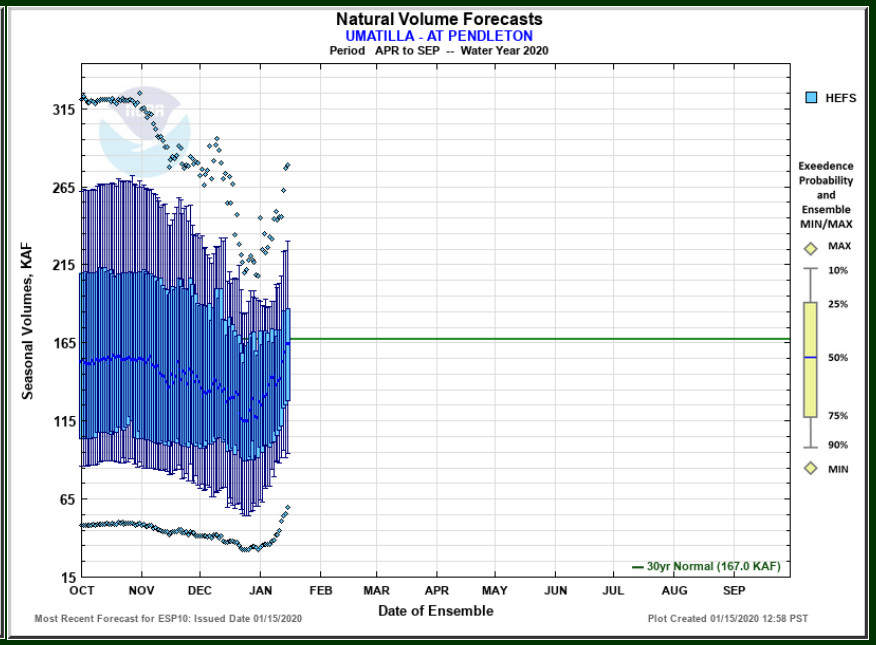


Natural Water Supply Forecasts (East)









Link to Northwest River Forecast Center ESP Natural Forecasts

https://www.nwrfc.noaa.gov/natural

Live Water Supply Briefings

First Thursday of each month January though late spring.

2020 Schedule for *Live* Water Supply Briefings					
Jan	Feb	Mar	Apr	May	June
9	*6*	*5*	*2*	*7*	*TBD*
All presentations held at 10:00am PDT/PST, unless noted otherwise					
Click here for Registration Information					

Online schedule: https://www.nwrfc.noaa.gov/water_supply/ws_schd.cgi

Oregon Water Supply Availability Meeting

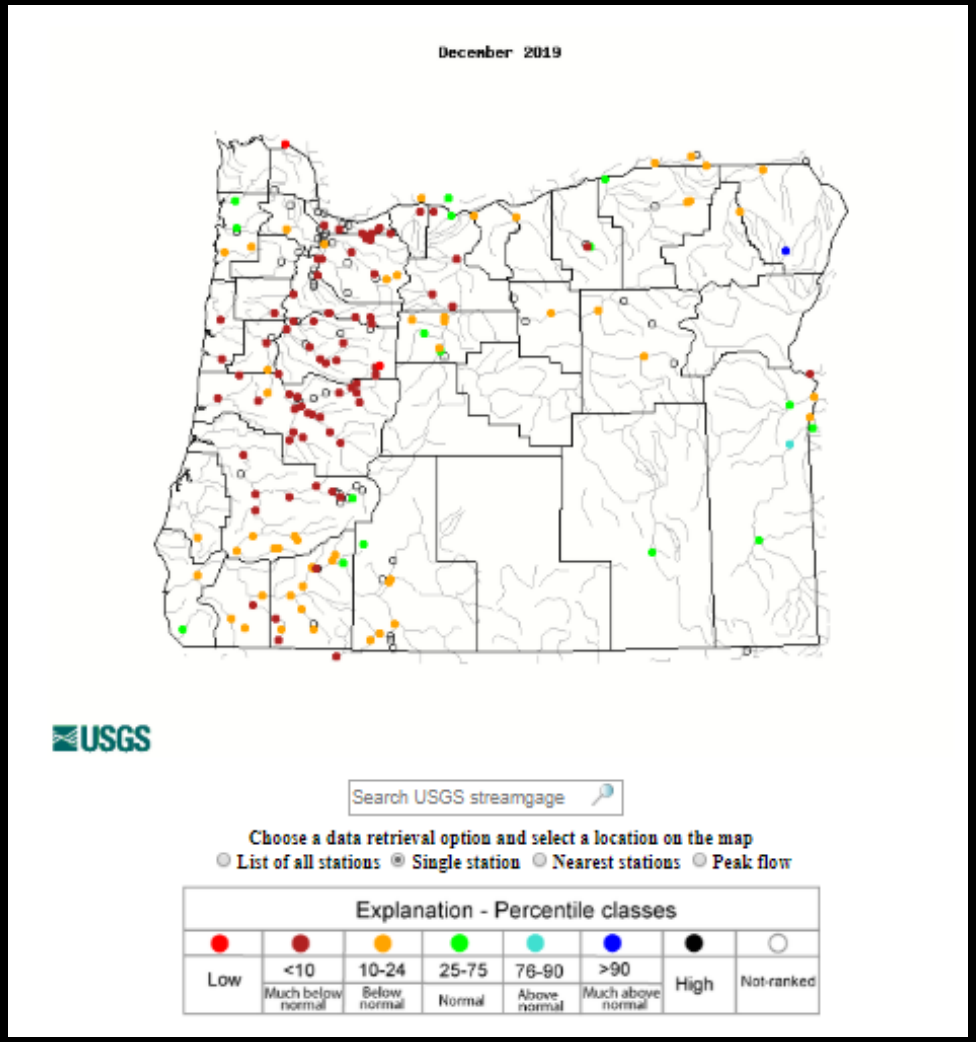
January 2020

U.S. Department of the Interior
U.S. Geological Survey

USGS Update on Surface Water Conditions

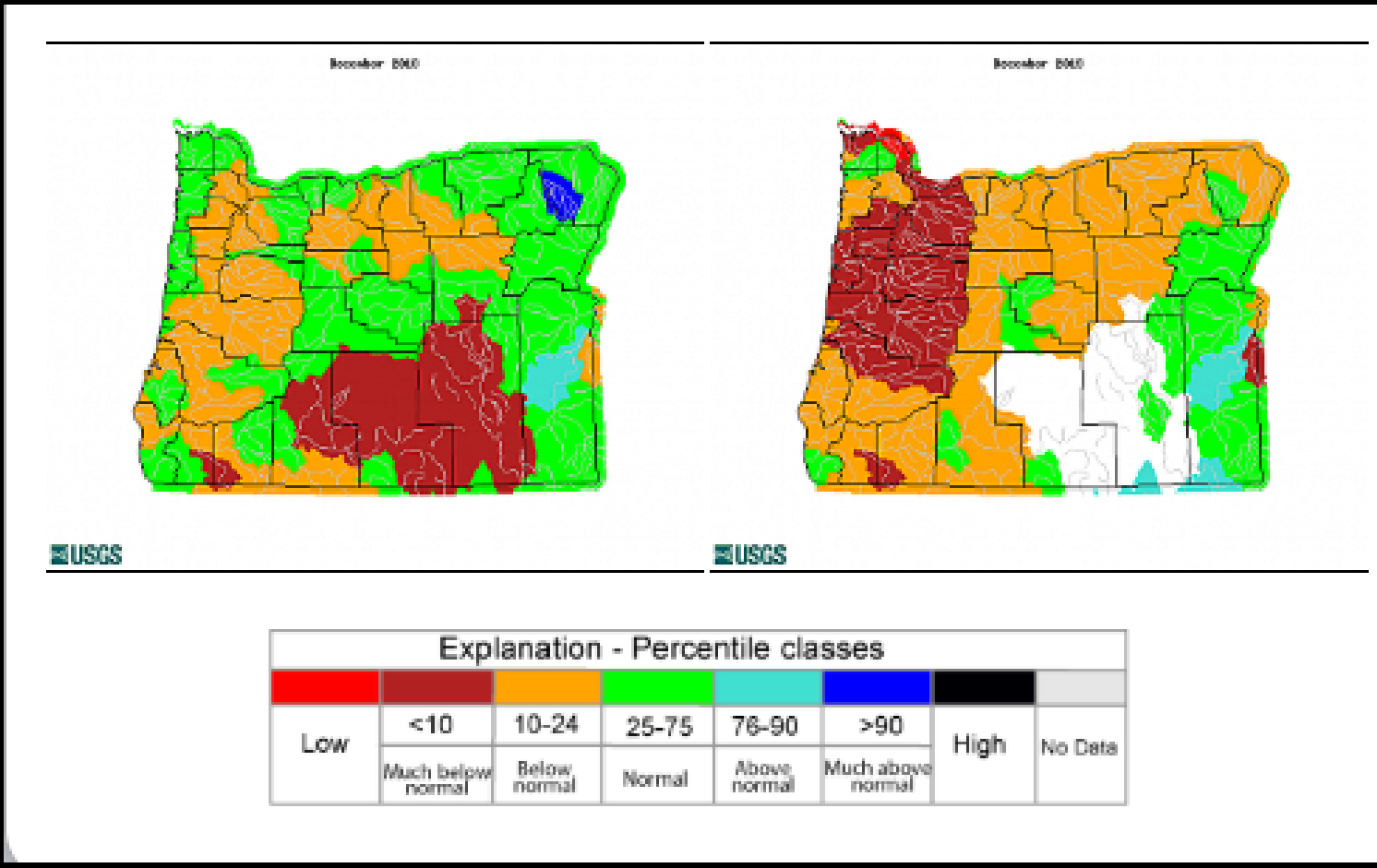
Carrie Boudreau & Marc Stewart
Oregon Water Science Center

December 2019 Month Mean Average as compared to Historical Record

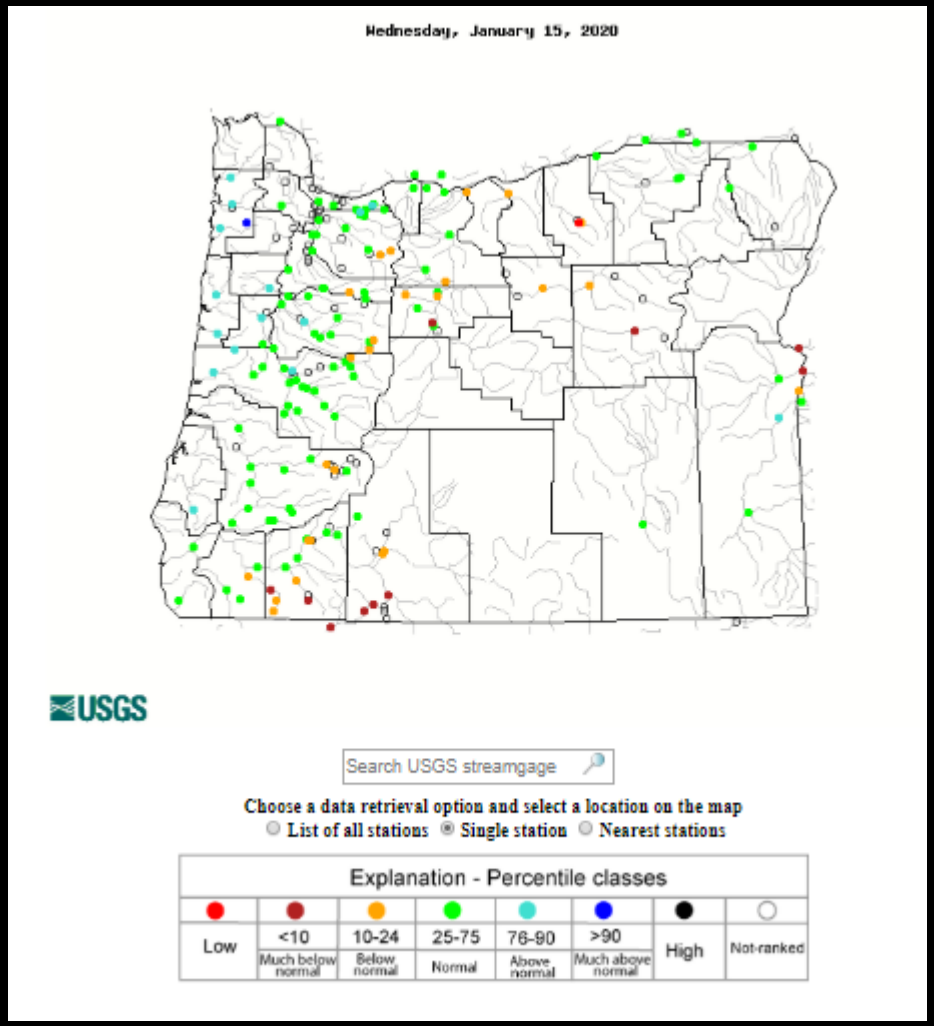


USGS

Comparison - Streamflow Maps Monthly Streamflow Dec. 2018 (Left) and Dec 2019



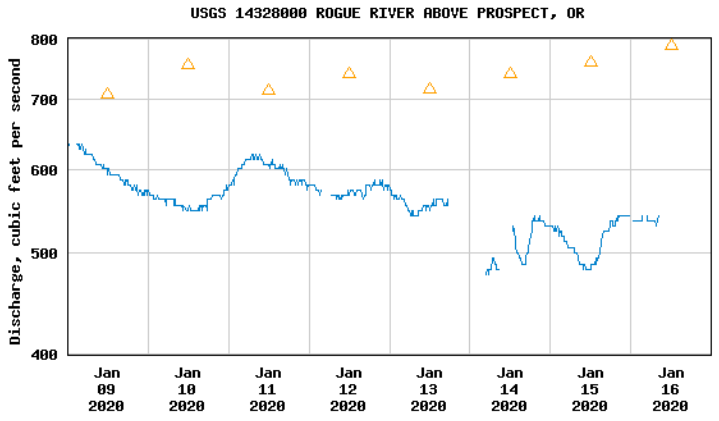
USGS



Map Current 7-day average streamflow compared to historical streamflow for the day of the year (Pacific Northwest)

USGS

Rogue River Below Prospect



Create presentation-quality / stand-alone graph. Subscribe to WaterAlert P00060 117546 A(0)

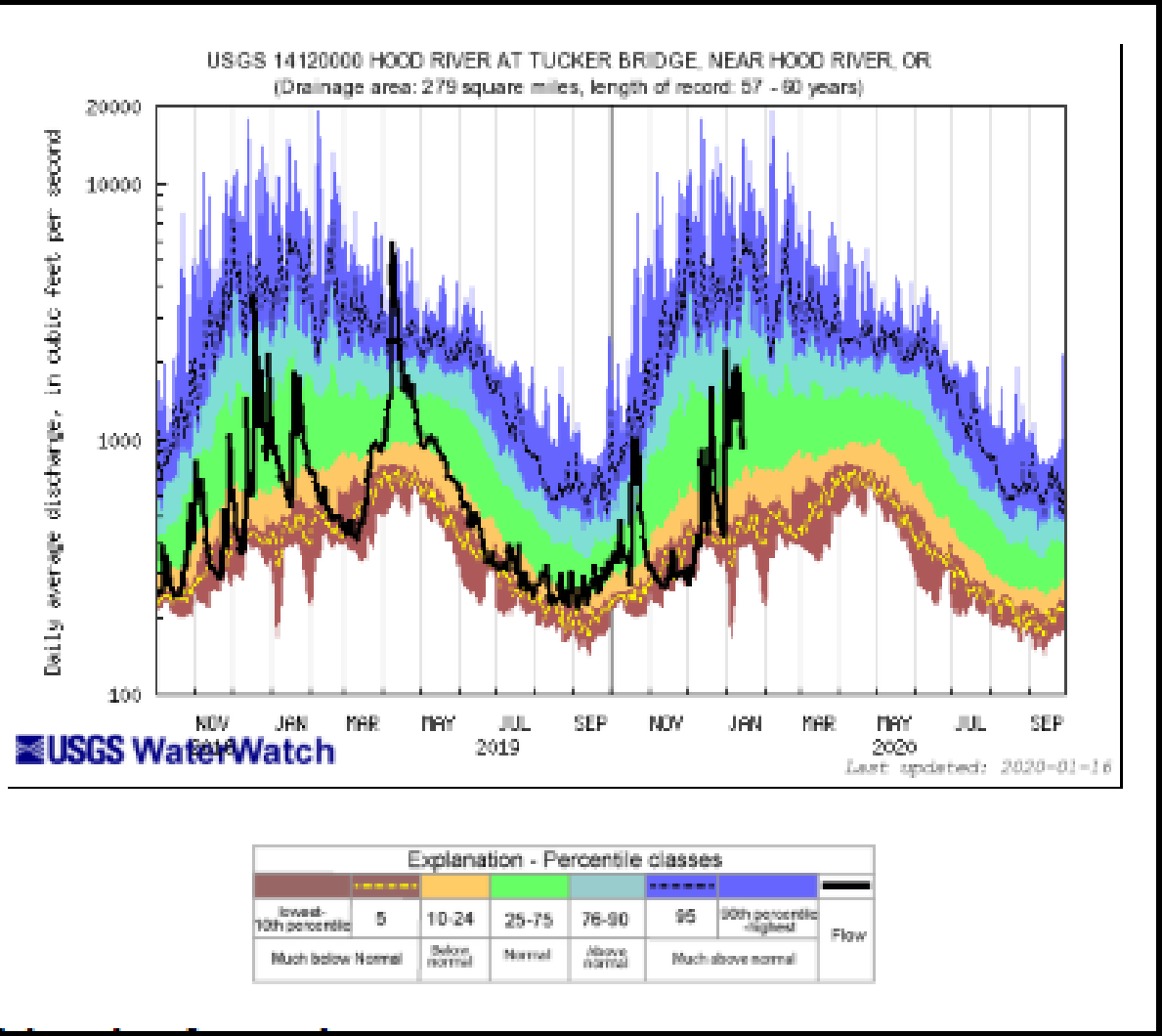
Share this graph |

Daily discharge, cubic feet per second -- statistics for Jan 16 based on 84 water years of record more

Min (1937)	25th percen-tile	Most Recent Instantaneous Value Jan 16	Median	Mean	75th percen-tile	Max (1974)
320	535	543	788	1060	1110	9330

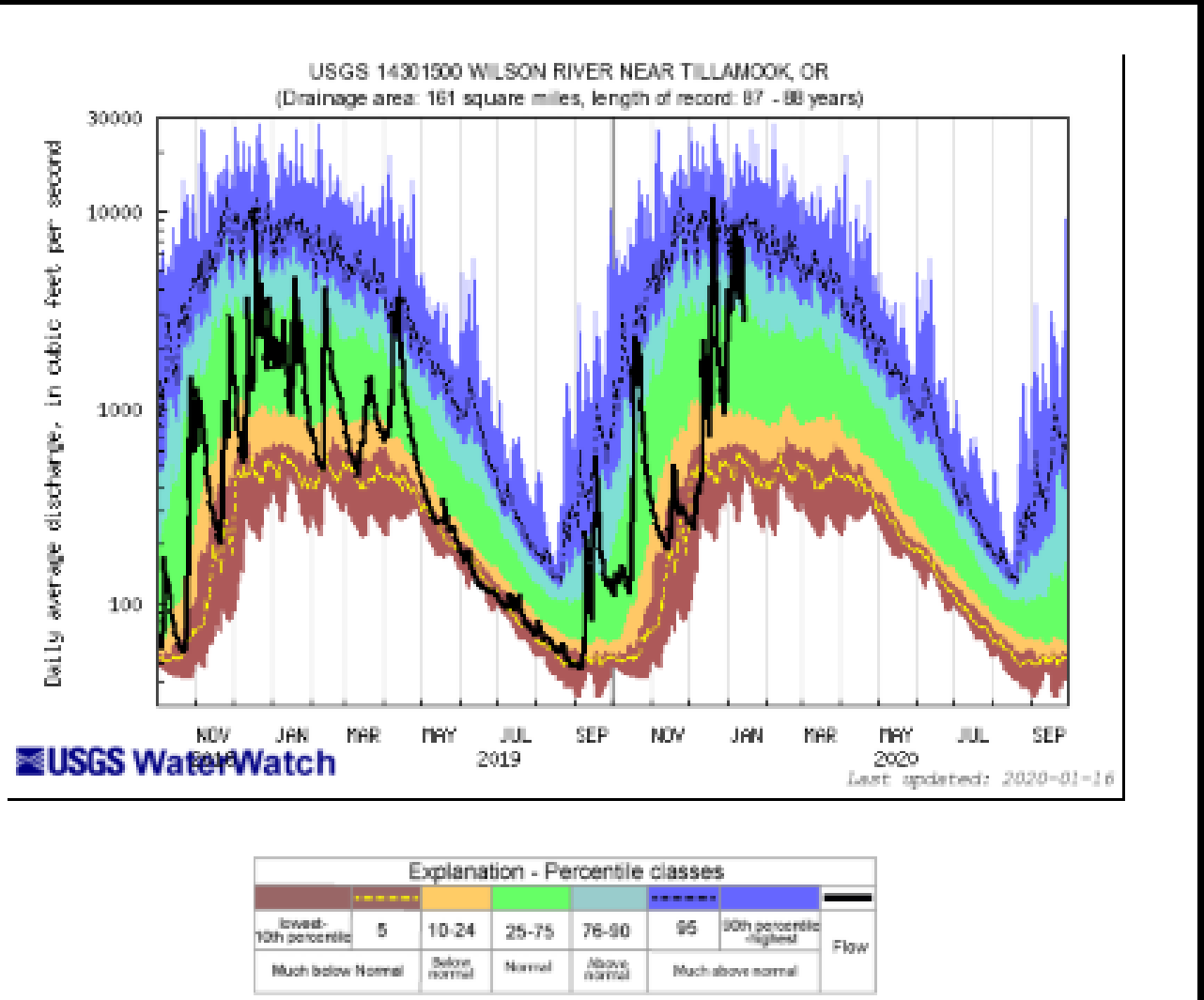
USGS

14120000 Hood R at Tucker Bridge



USGS

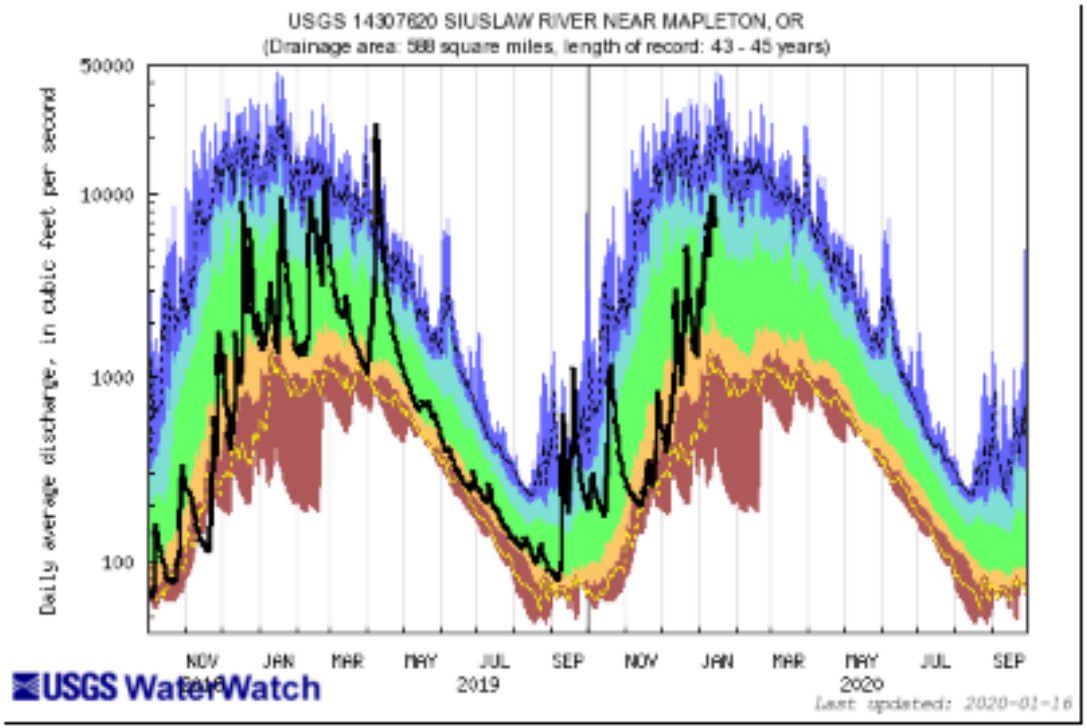
14301500 Wilson River nr Tillamook



USGS

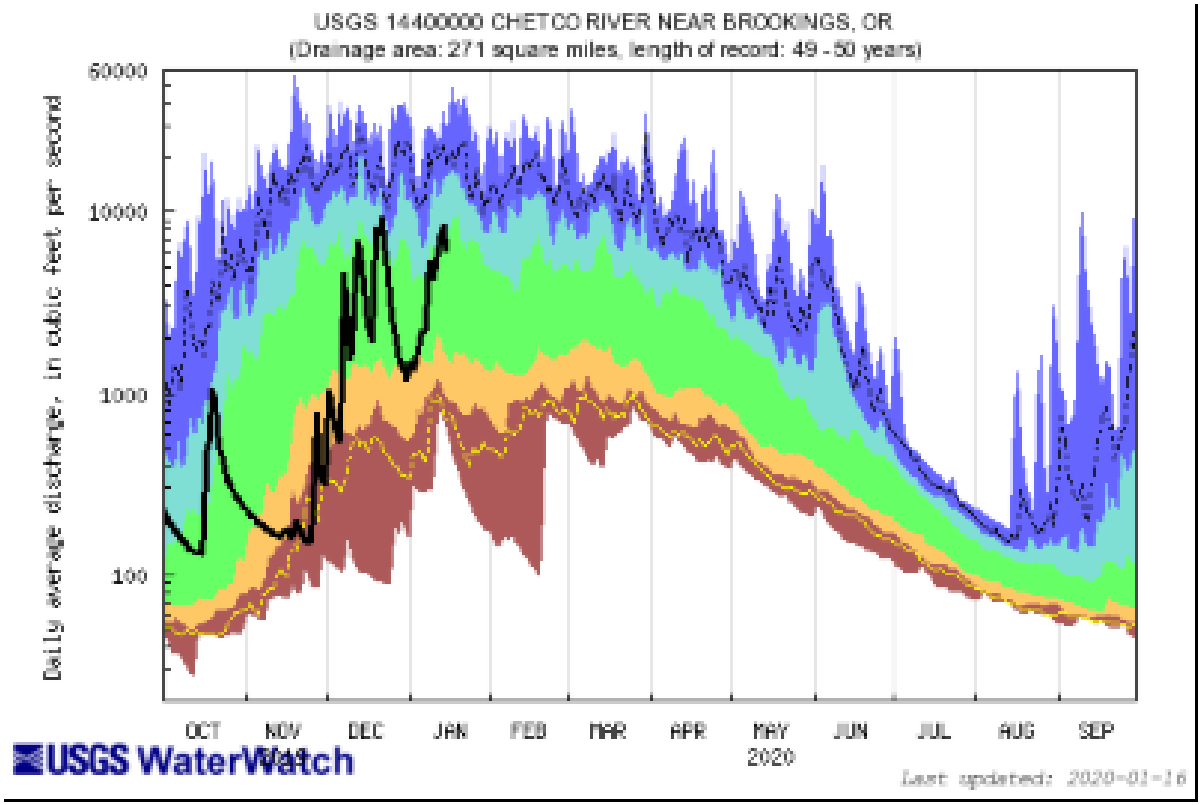
14307620 Siuslaw River nr Mapleton

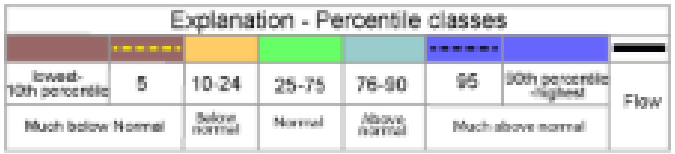
and unregulated flows; this can affect depictions of flow conditions.



USGS

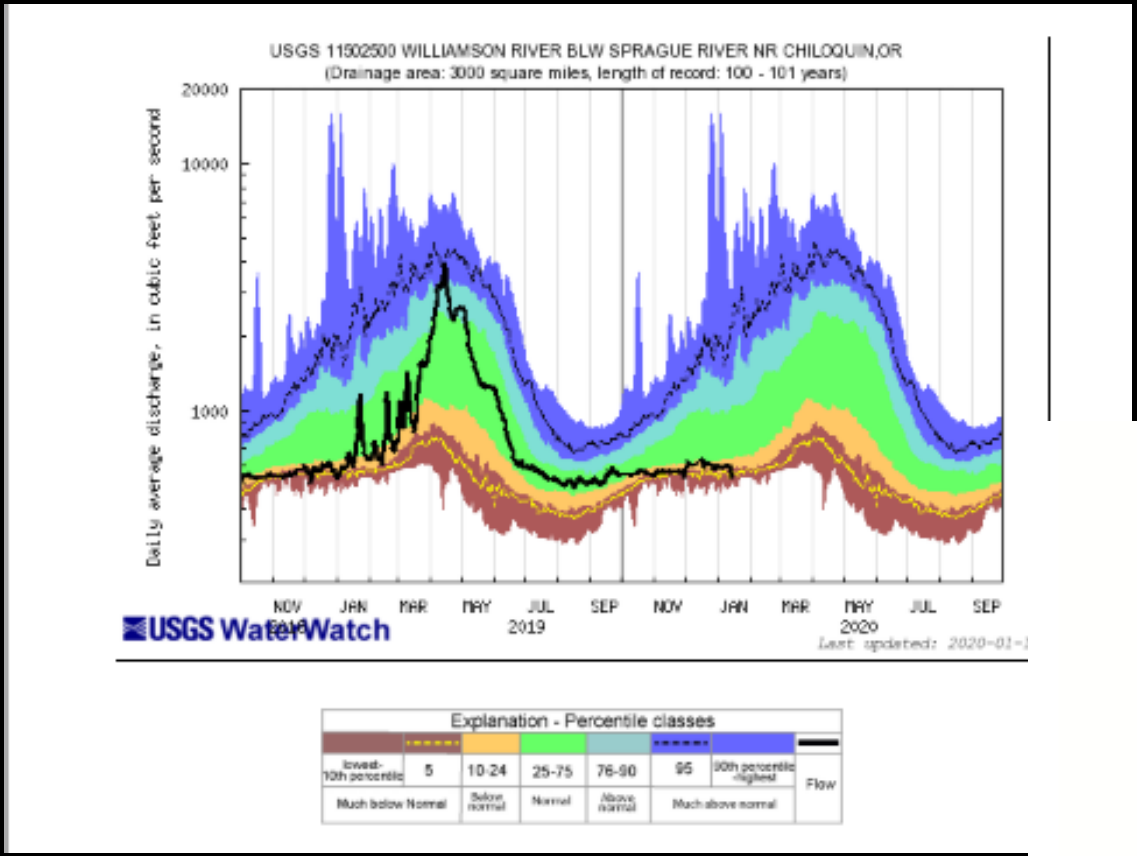
14400000 Chetco River nr Brookings

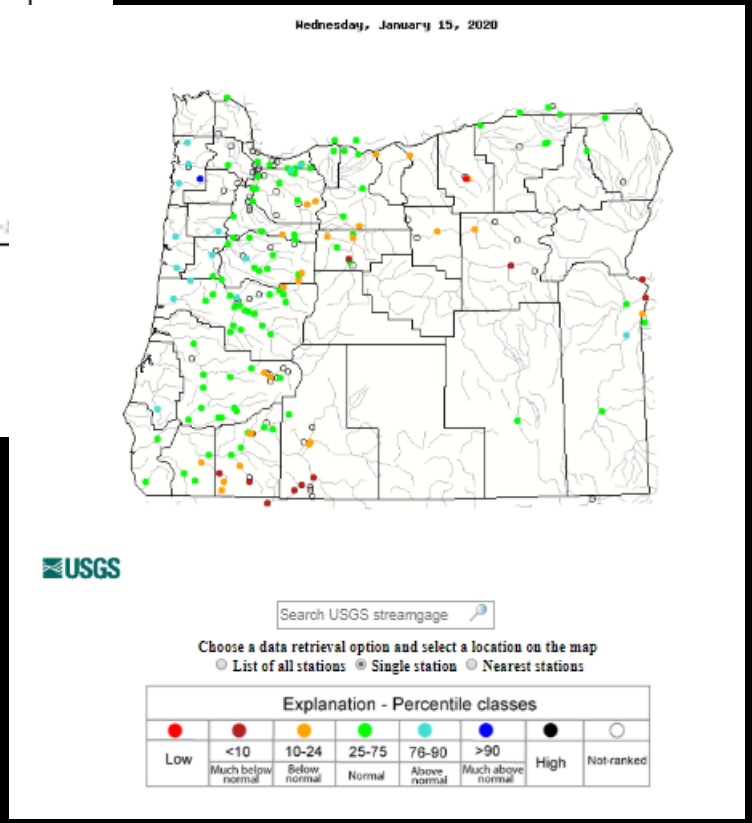




USGS

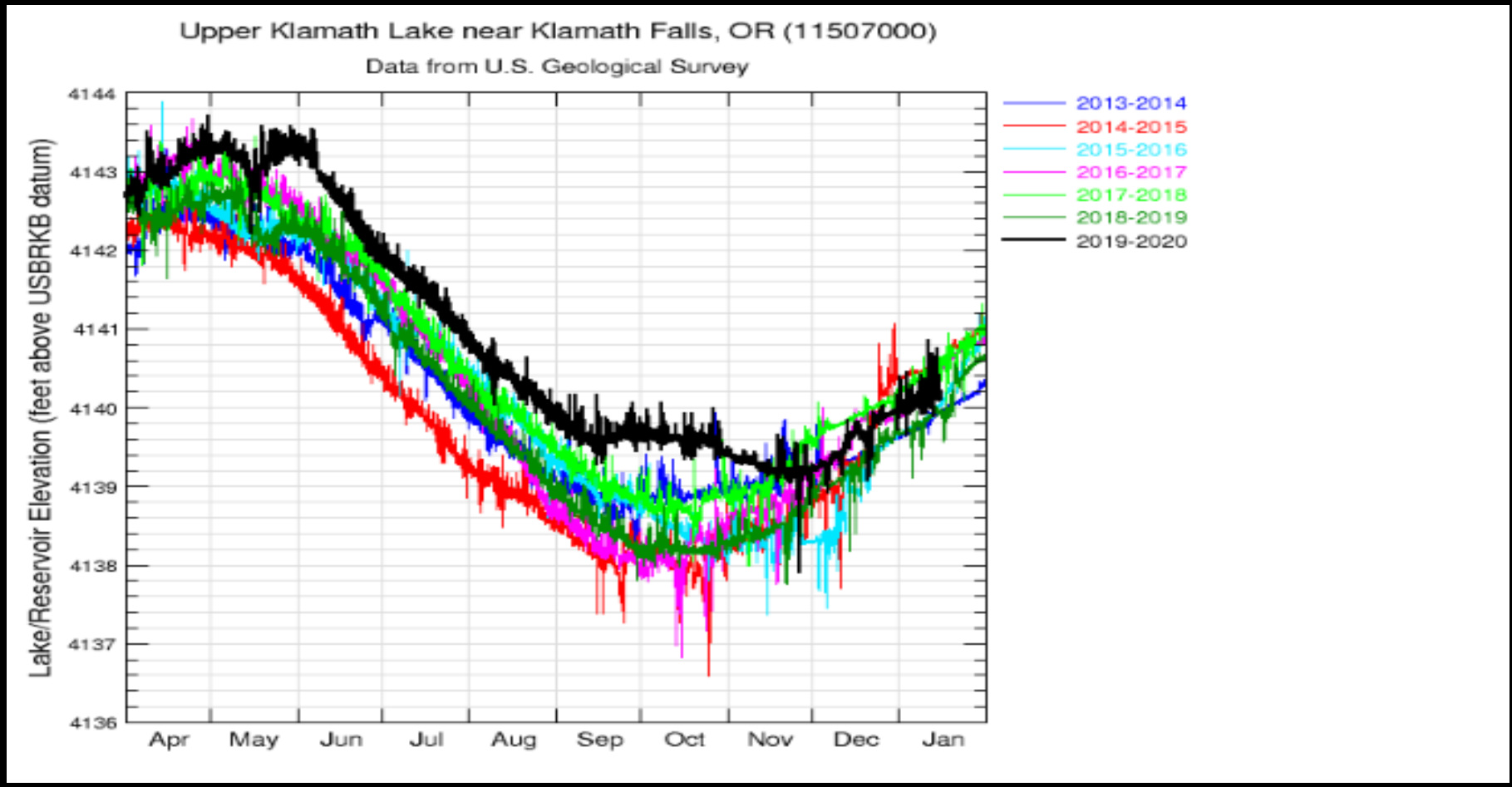
11502500 Williamson R blw Sprague R





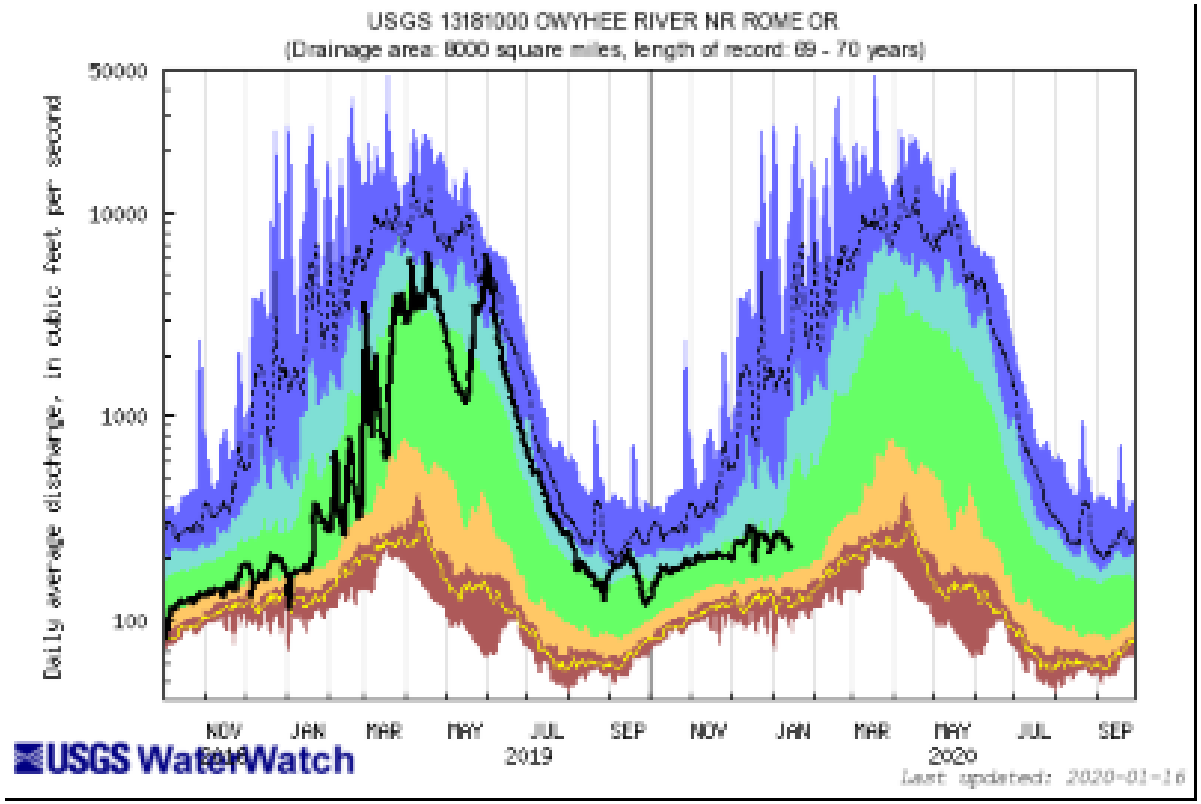
USGS

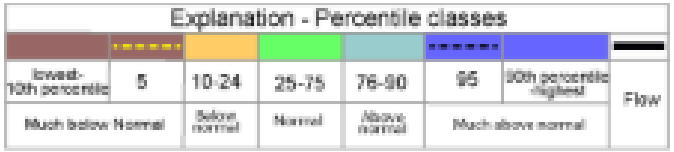
11507000 Upper Klamath Lake



USGS

13181000 Owyhee R nr Rome





USGS

US GEOLOGICAL SURVEY, OREGON WATER SCIENCE CENTER
WATER AVAILABILITY REPORT FOR DECEMBER 2019

Station	NRCS SWSI Basin	Monthly mean discharge: Cubic feet per second	Monthly mean discharge: Percent of average	Change in discharge from previous month (percent)	Accumulated Runoff For the Period Oct. to Dec.: Percent of average
Donner Und Blitzen nr Frenchglen	Harney	46	77	2	91
(*)Deep Creek above Adel	Lake County	32	42	52	56
(*)Chewaucan River near Paisley	Lake County	49	64	32	76
Williamson River near Chiloquin	Klamath	606	70	7	79
Owyhee River near Rome	Owyhee	245	69	21	86
(*)NF Malheur River near Beulah	Malheur	61	97	17	97
Grande Ronde R at Troy	Grande Ronde Powder/Burnt	835	53	4	70
Umatilla River nr Gibbon	Umatilla Lower John Day	93	47	58	58
John Day River at Service Crk	Upper John Day	422	38	9	57
(*)Little Deschutes River nr LaPine	Upper Deschutes	80	56	21	70
Hood River nr Hood River	Lower Deschutes Mt.Hood	554	45	87	49
Willamette River at Salem	Willamette	12,295	28	27	38
Wilson River near Tillamook	North Coast	1,865	75	658	56
Umpqua River near Elkton	Rogue/Umpqua	3,398	24	163	29
Rogue River near Agness	Rogue/Umpqua	2,977	31	63	43
SF Coquille River at Powers	South Coast	749	40	1,238	29
Chetco River near Brookings	South Coast	3,180	58	1,332	42

All data should be considered provisional and subject to revision.
Percent of average computed using 30-year base period, water years 1981-2010.
(*) provided by Oregon Water Resources Department

1/6/2020

Not my picture ☺

USGS

Water Supply Conditions Report

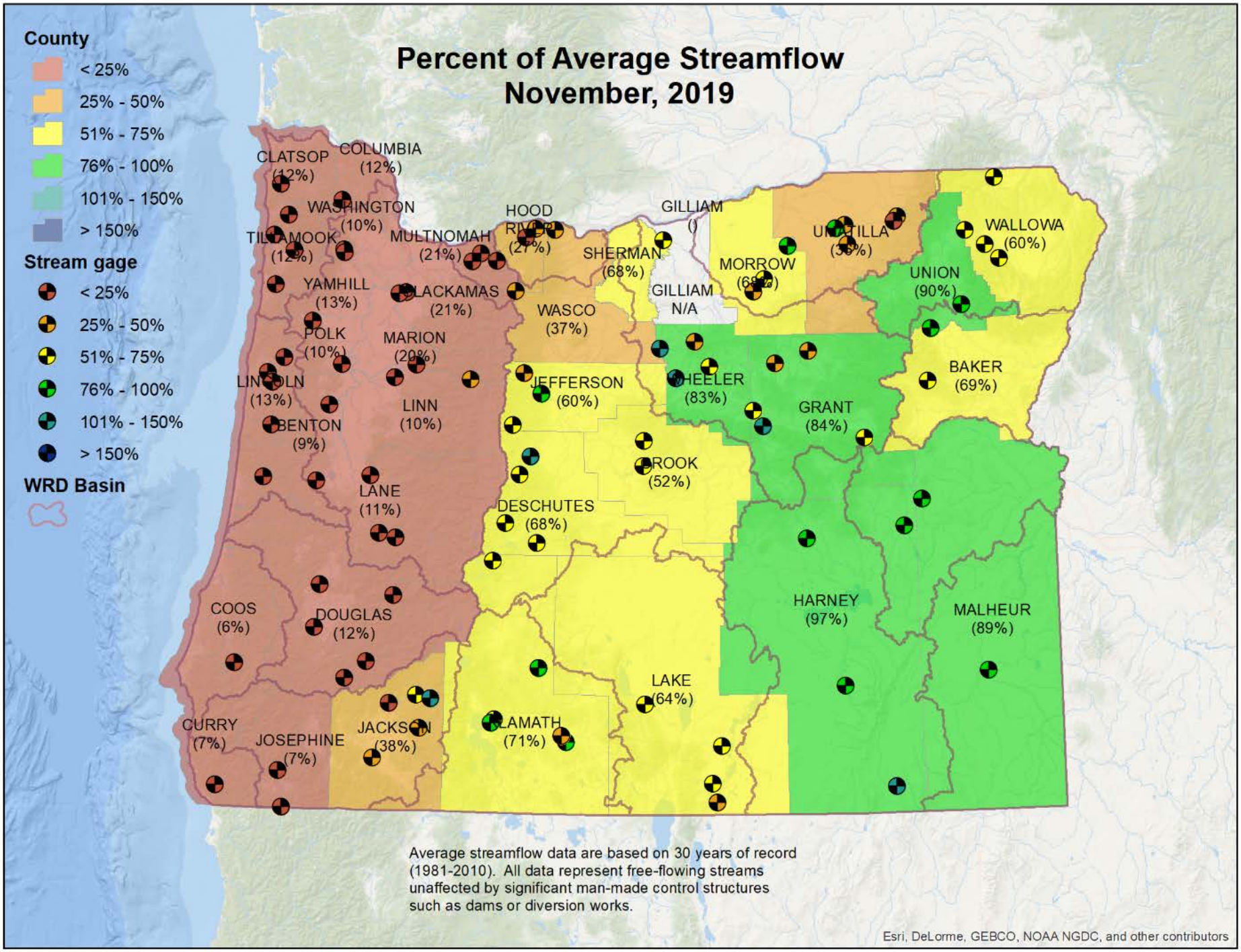
Water Supply Availability Committee

OREGON
WATER RESOURCES DEPARTMENT

Ken Stahr
Oregon Water Resources Department

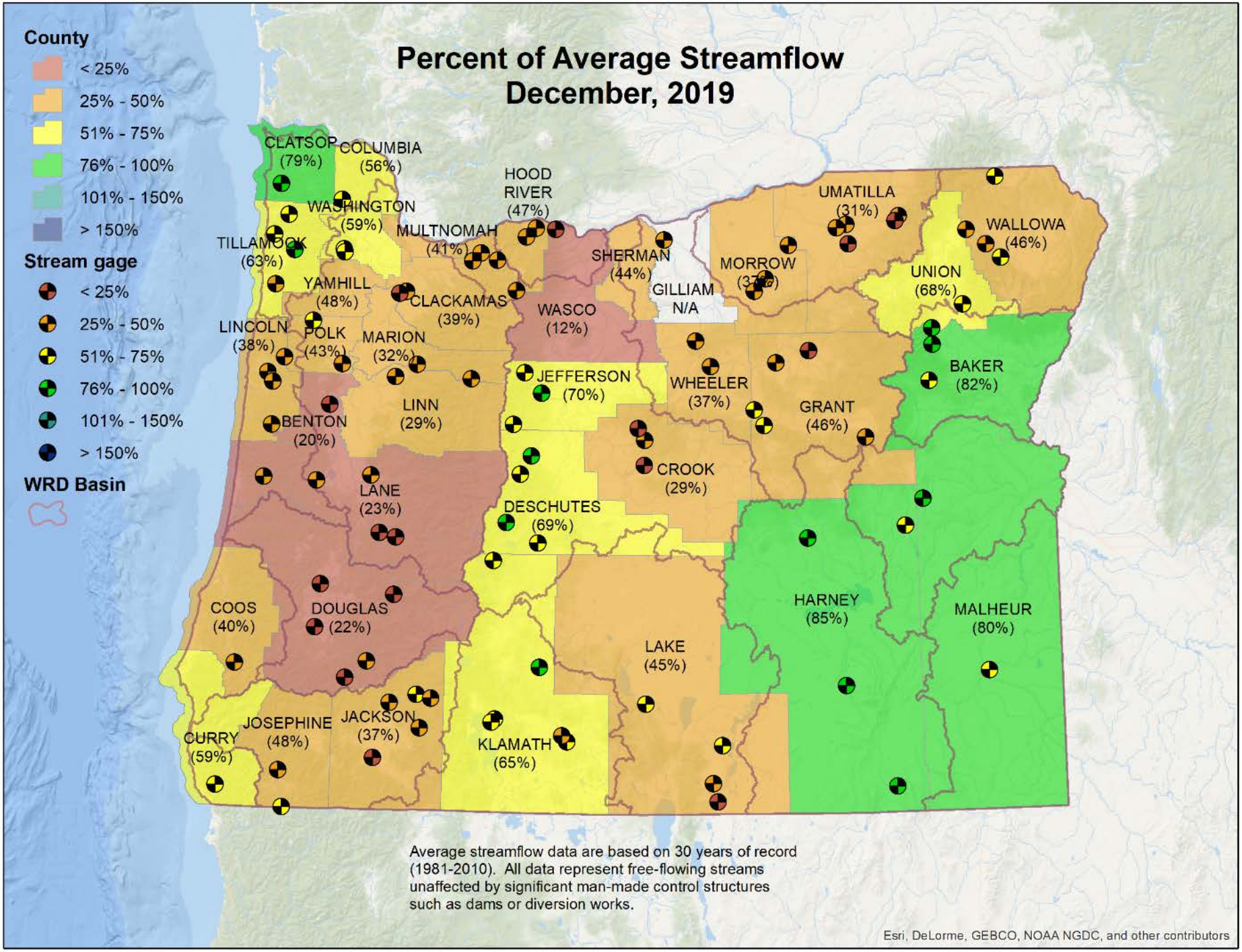
January 14, 2020

Percent of Average Streamflow
November, 2019



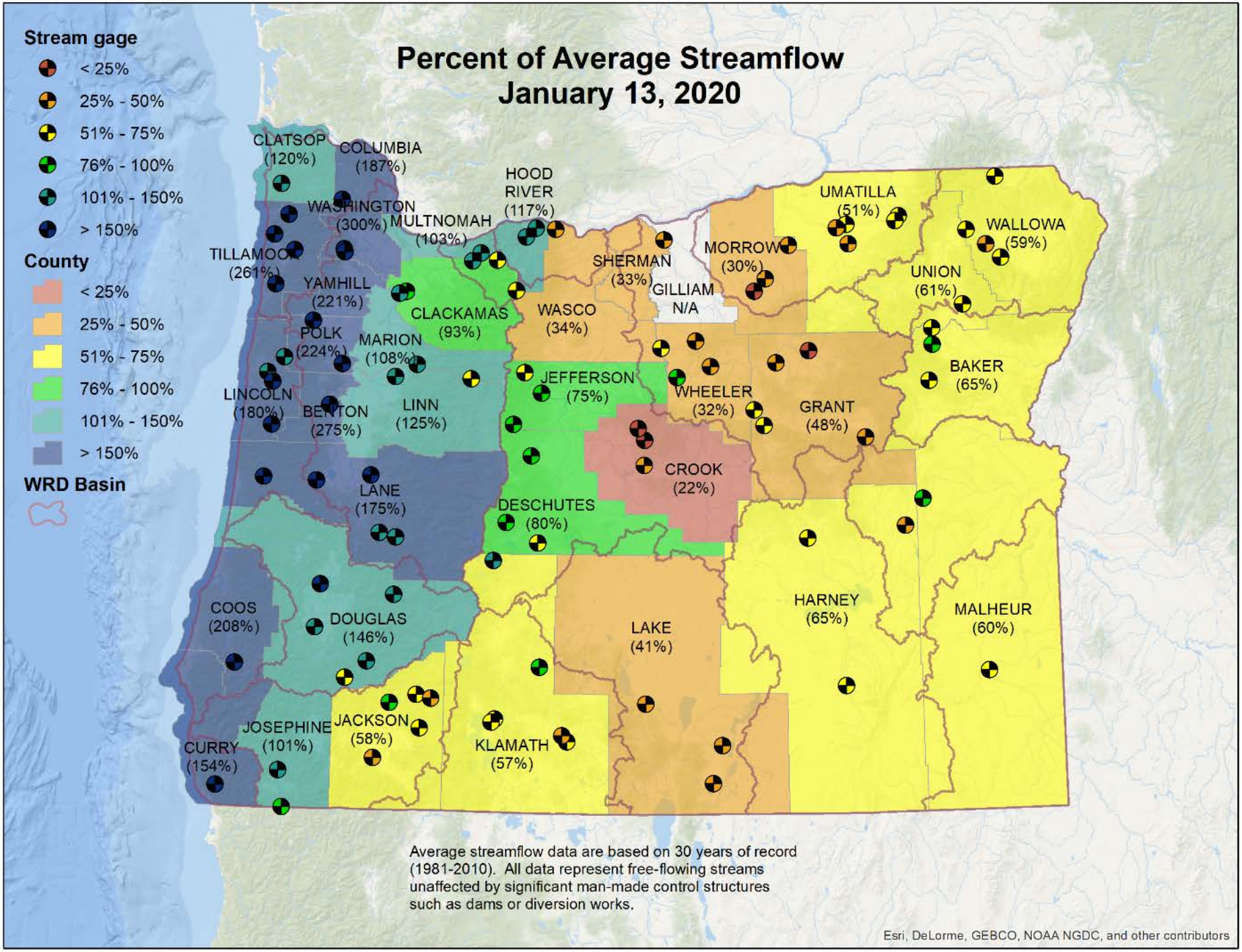
Average streamflow data are based on 30 years of record (1981-2010). All data represent free-flowing streams unaffected by significant man-made control structures such as dams or diversion works.

Percent of Average Streamflow
December, 2019



Average streamflow data are based on 30 years of record (1981-2010). All data represent free-flowing streams unaffected by significant man-made control structures such as dams or diversion works.

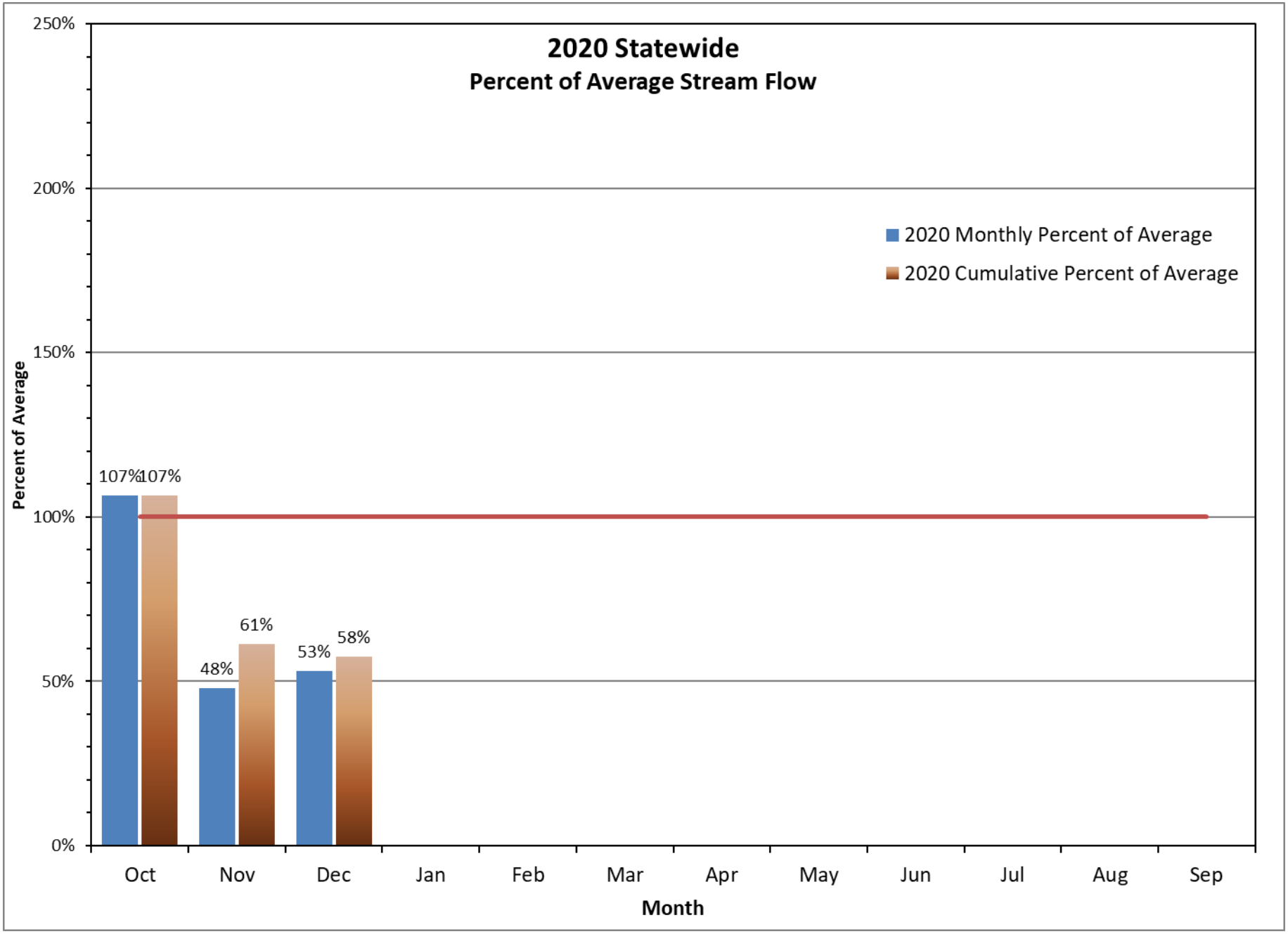
Percent of Average Streamflow
January 13, 2020

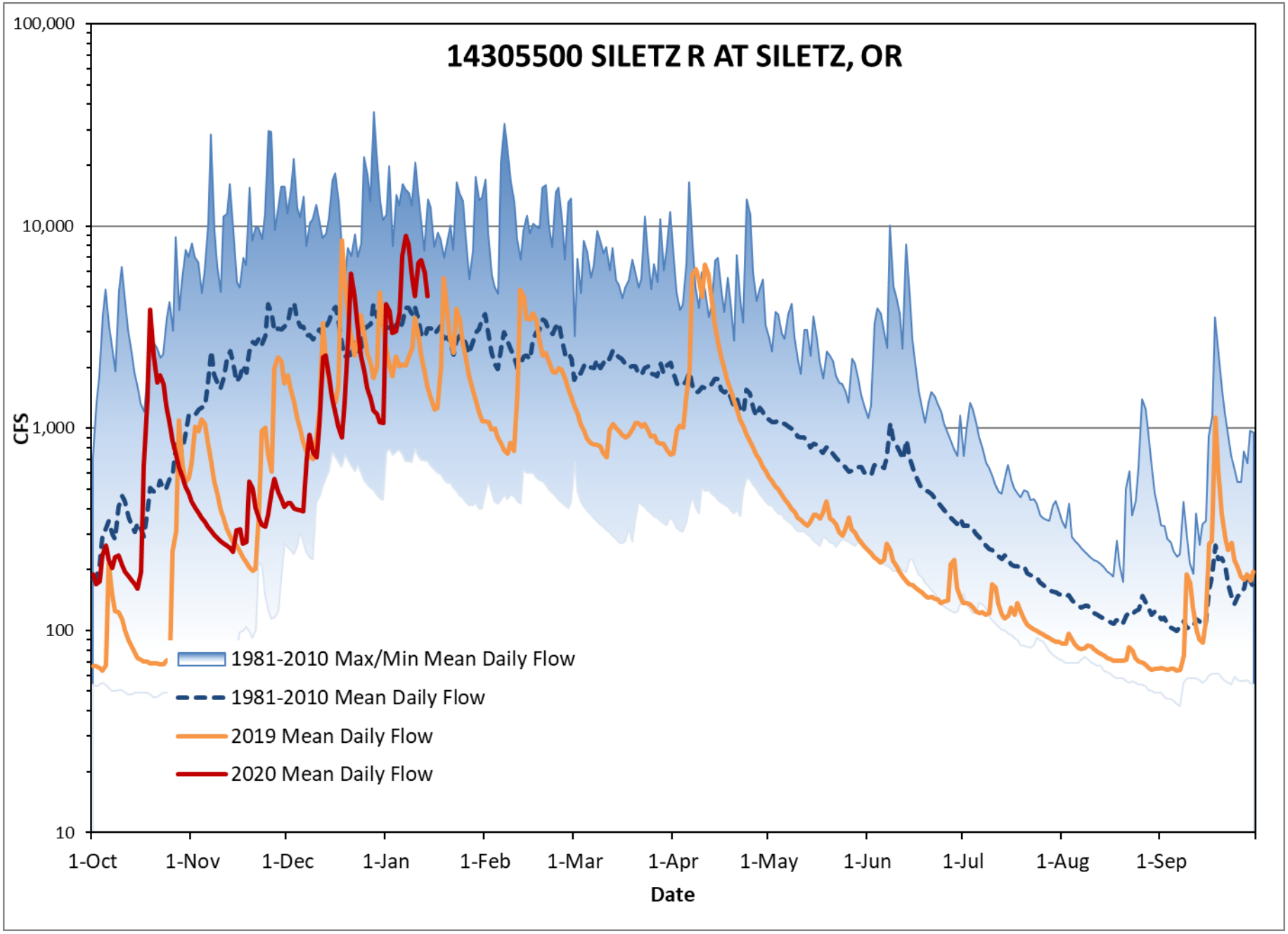


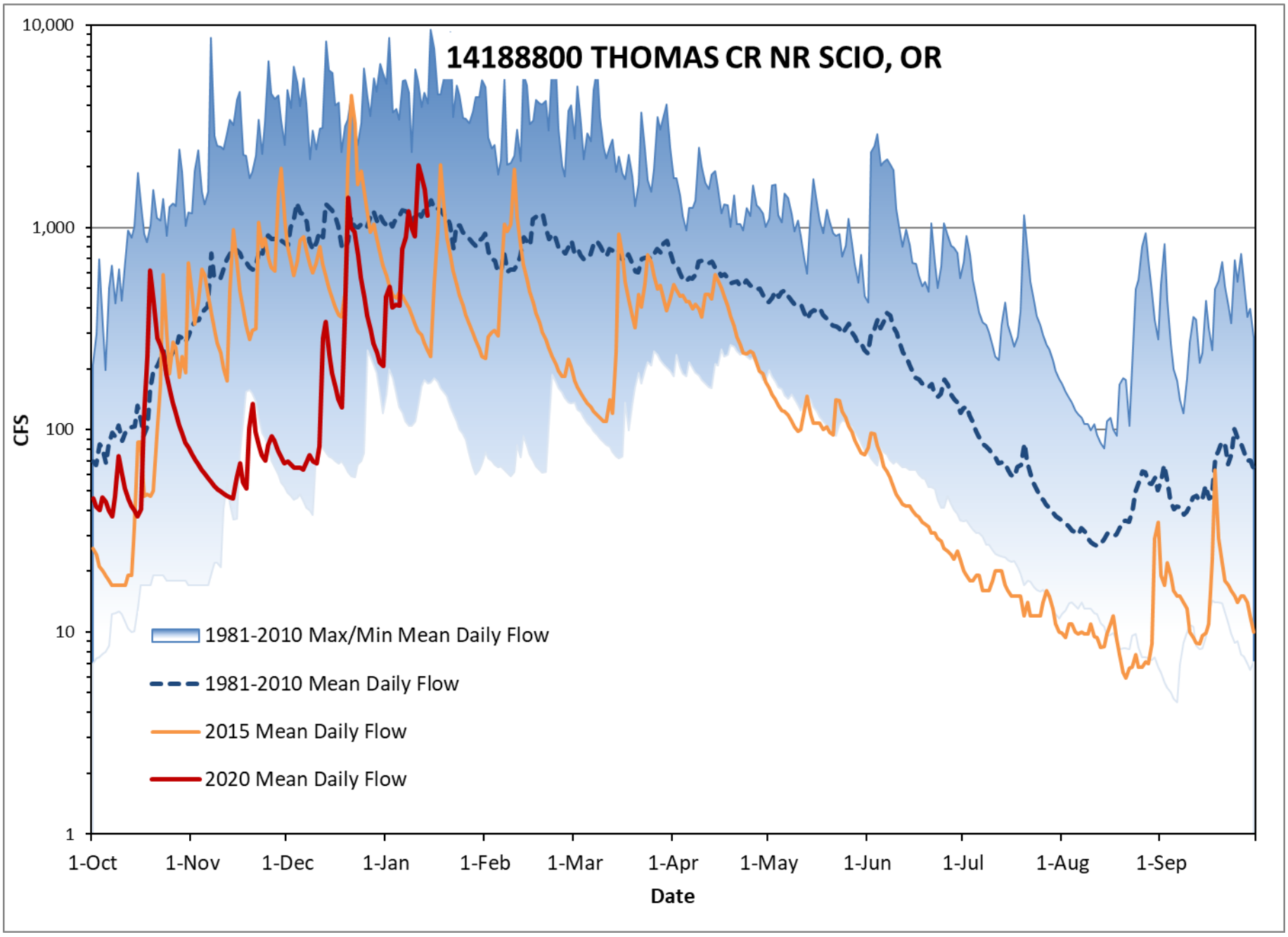
Average streamflow data are based on 30 years of record (1981-2010). All data represent free-flowing streams unaffected by significant man-made control structures such as dams or diversion works.

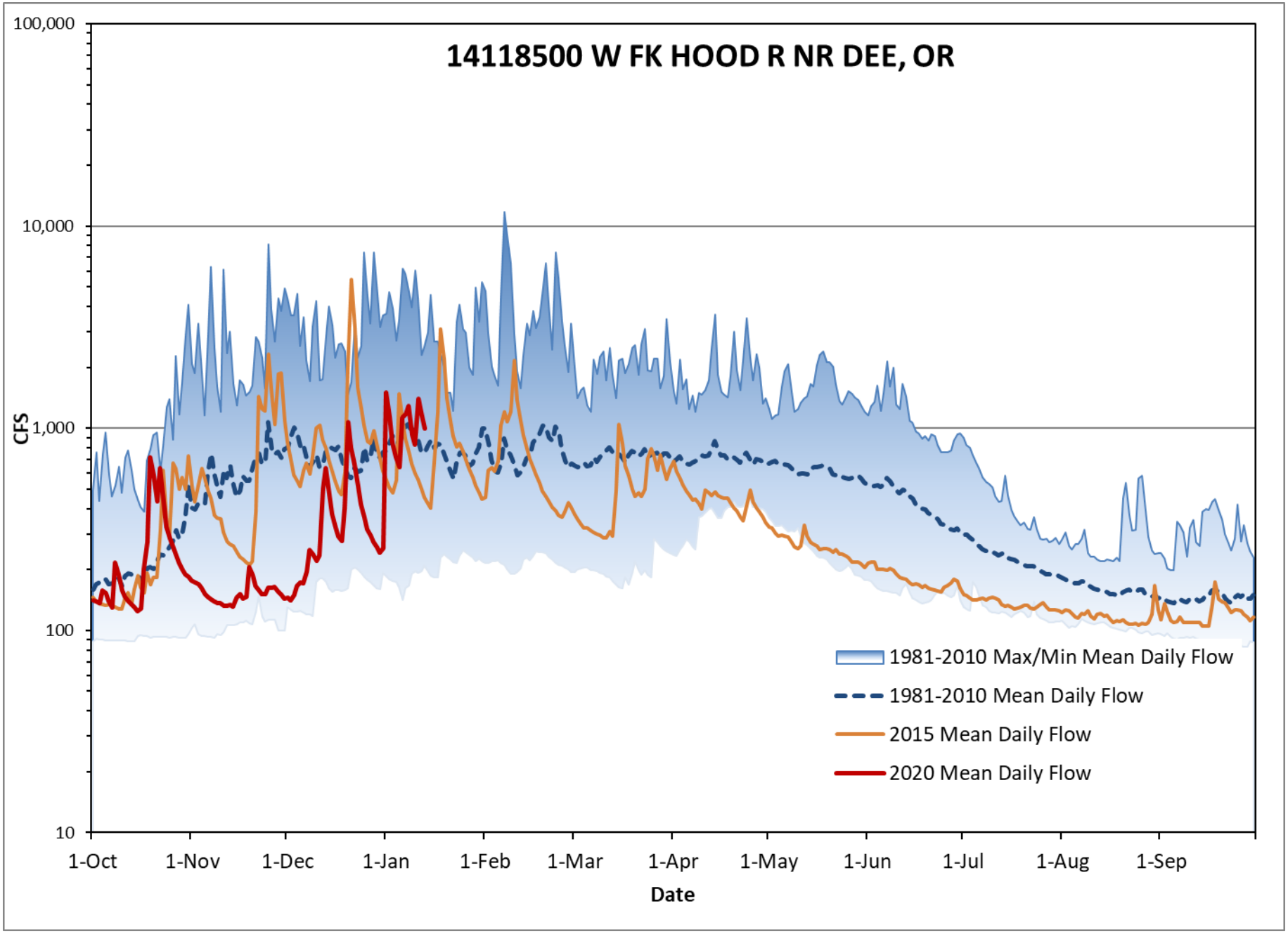
OREGON
WATER RESOURCES DEPARTMENT

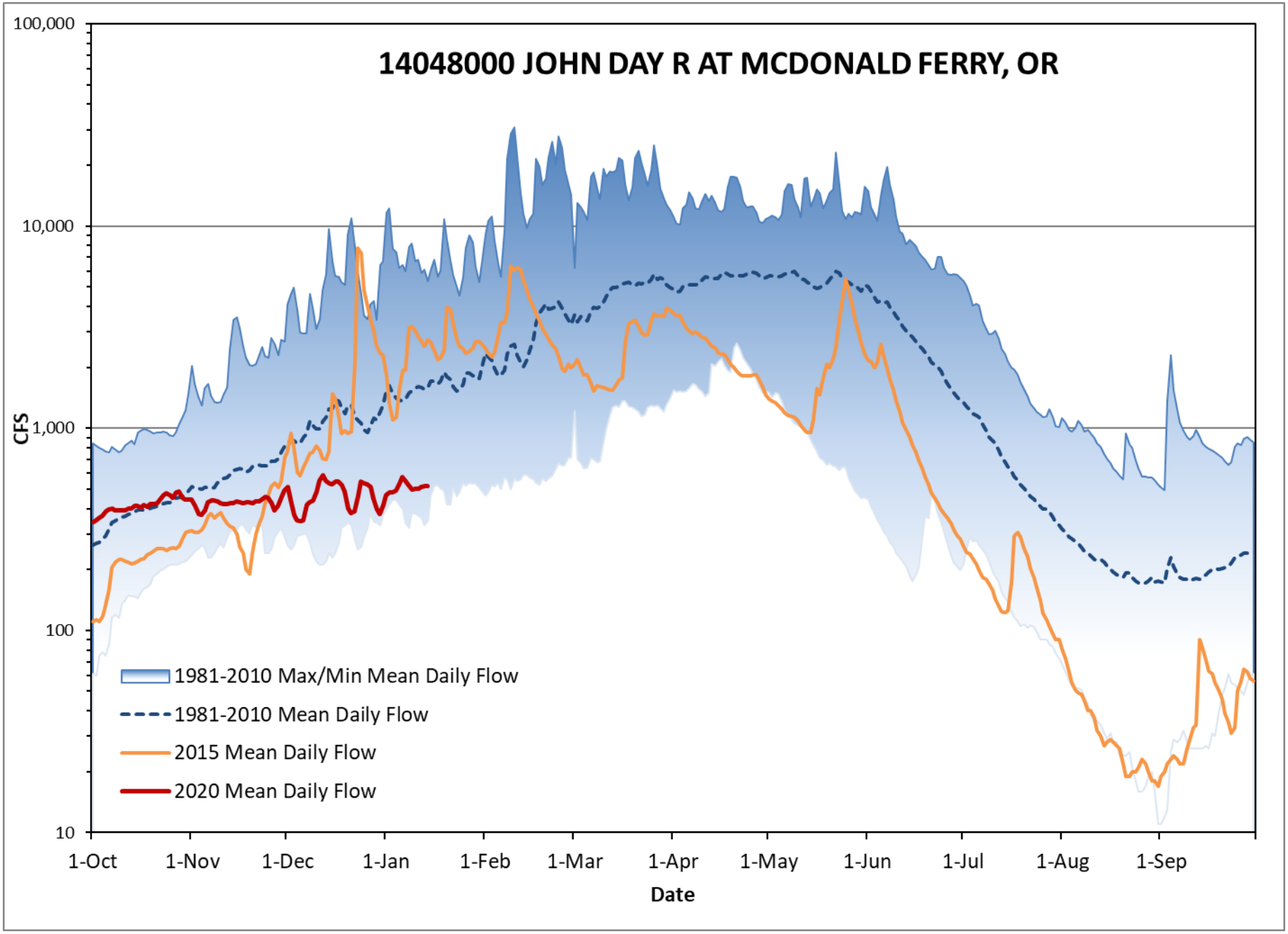
Basin	Water Year % of average through December, 2018	% of average for December	% of average for 01/13/2020	# of data points
West Side	38%	42%	155%	44
East Side	70%	60%	59%	48
State	58%	53%	96%	92


2020 Statewide
Percent of Average Stream Flow
2020 Monthly Percent of Average
2020 Cumulative Percent of Average
Percent of Average
250%
200%
150%
100%
50%
0%
107%
107%
48%
61%
53%
58%
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Month


14305500 SILETZ R AT SILETZ, OR
100,000
10,000
1,000
100
10
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2019 Mean Daily Flow
2020 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date


14188800 THOMAS CR NR SCIO, OR
10,000
1,000
100
10
1
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2015 Mean Daily Flow
2020 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date


14118500 W FK HOOD R NR DEE, OR
100,000
10,000
1,000
100
10
CFS
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2015 Mean Daily Flow
2020 Mean Daily Flow


14048000 JOHN DAY R AT MCDONALD FERRY, OR
100,000
10,000
1,000
100
10
CFS
1981-2010 Max/Min Mean Daily Flow
1981-2010 Mean Daily Flow
2015 Mean Daily Flow
2020 Mean Daily Flow
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Date

OREGON
WATER RESOURCES
DEPARTMENT

Thank you

ODF Seasonal Climate Forecast Method & Update
January 16, 2020

Water Supply Availability Committee
and
Drought Readiness Council

Pete Parsons, ODF Meteorologist
503-945-7448 or peter.gj.parsons@oregon.gov

Photo source: http://image.oregonlive.com/home/olive-media/width620/img/oregonian/photo/2015/03/26/17365259-standard.jpg

WEEKLY WORLD
NEWS®
September 12, 2000 $1.59 U.S. $1.99 CANADA

COLDEST WINTER SINCE '78!

U.S. WEATHER FORECASTERS PREDICT . . .

TWENTY-TWO YEARS AGO, AMERICANS SUFFERED THROUGH ONE OF THE WORST WINTERS IN HISTORY . . . PREPARE FOR ANOTHER RECORD BREAKER, WARN EXPERTS!

Your National Weather Forecast for November, December, January, February & March

37>
0 71049 18259 0

ODA Weather Page

Weather

- About Natural Resources
- Confined Animal Feeding Operations (CAFO)
- Bovine Manure Tax Credit
- Manure Spreading Advisory
- Agricultural Water Quality
- Shellfish Plat Leasing
- Smoke and Field Burning
- Land Use and Right to Farm
- Soil and Water Conservation Districts
- Weather
- Complaints
- Meetings and Public Hearings
- Laws and Rules

Seasonal Climate Forecast

The Seasonal Climate Forecast is provided courtesy of Oregon Department of Forestry meteorologist Pete Parsons.

Seasonal Climate Forecast (PDF), issued March 21, 2019
Seasonal Climate Forecast (PowerPoint), issued March 21, 2019
See a video by Pete Parsons discussing his Seasonal Climate Forecast, issued March 21, 2019

Verification of Climate Forecast (PDF), issued March 7, 2019
Verification of Climate Forecast (PowerPoint), issued March 7, 2019
See a video by Pete Parsons discussing his forecast verification, issued March 7, 2019

Forecasting Methods (PDF), revised May 26, 2012
Forecasting Methods (PowerPoint), revised May 26, 2012

Sign up under "Email subscriptions" to get alerts when the Seasonal Climate Forecast and Verification of Climate Forecast are updated.

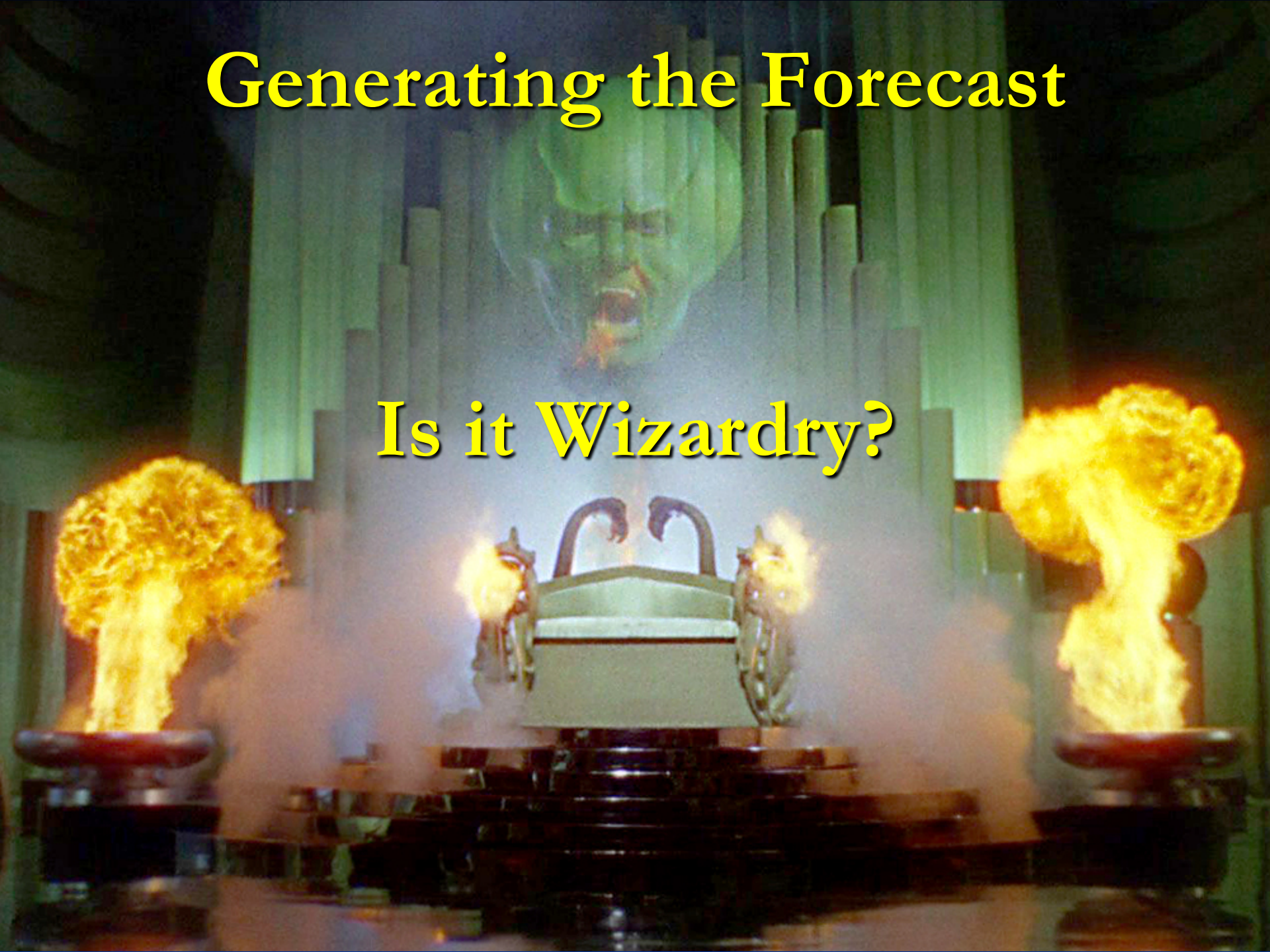
Email subscriptions

When you subscribe, you automatically will be notified by email when new information is available. Your email address will only be used to deliver the information you requested. You will receive a confirmation email to confirm you are on the list for any of the below subscriptions.

Seasonal Climate Forecast alerts

This subscription notifies users by email when the Seasonal Climate Forecast is updated.
Subscribe to the Seasonal Climate Forecast

Generating the Forecast



Is it Wizardry?

Behind the Curtain…

- Find Past Years With Similar Characteristics "Analog Years."
- Use Common Events or Trends During Those "Analog Years" to Predict Future Events and/or Trends.
- The Changing Climate Adds Error to the Forecast.

Behind the Curtain…

- Find Past Years With Similar Characteristics "Analog Years."
- Use Common Events or Trends During Those "Analog Years" to Predict Future Events and/or Trends.
- The Changing Climate Adds Error to the Forecast!

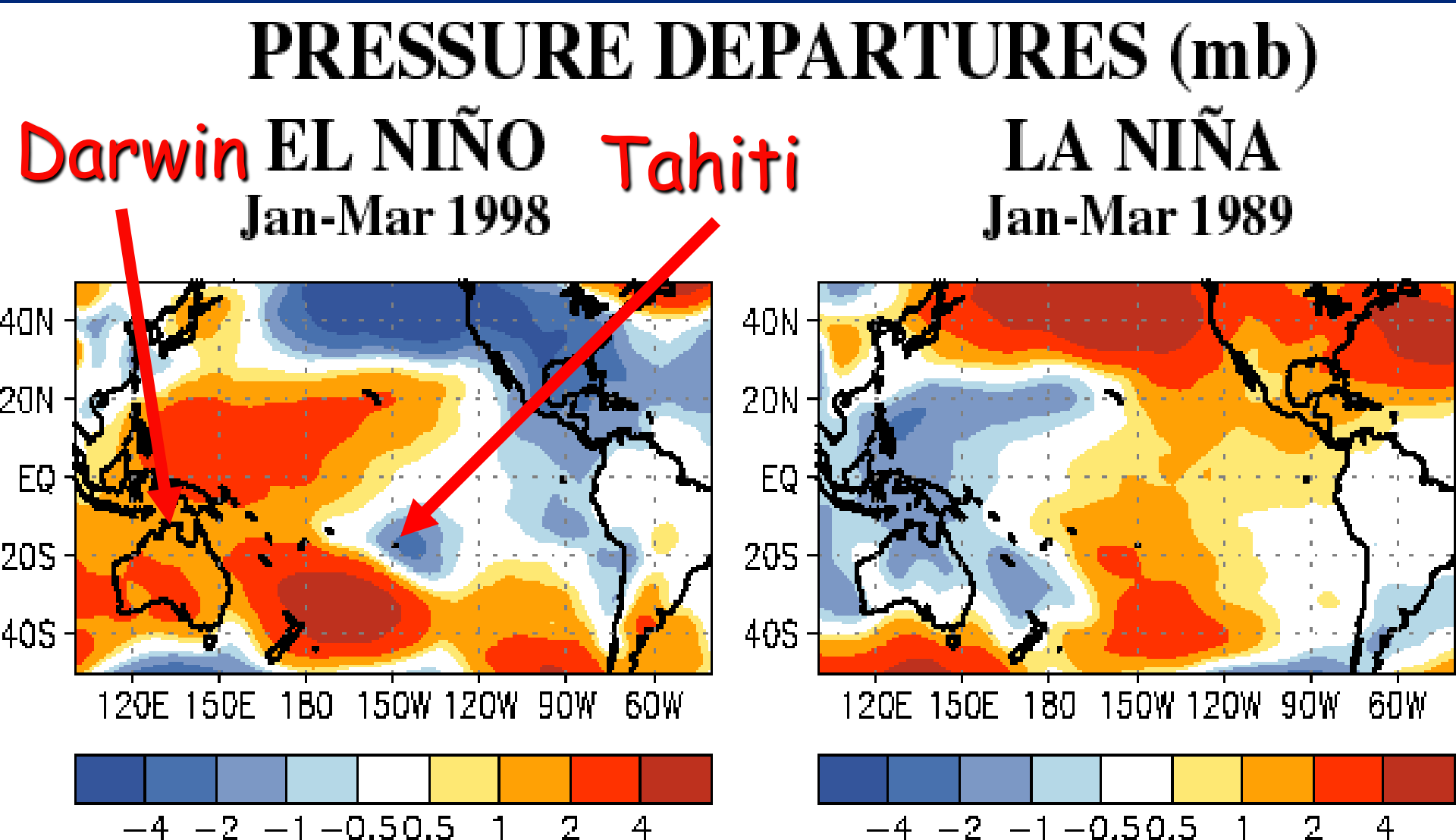
Selecting "Analog" Years

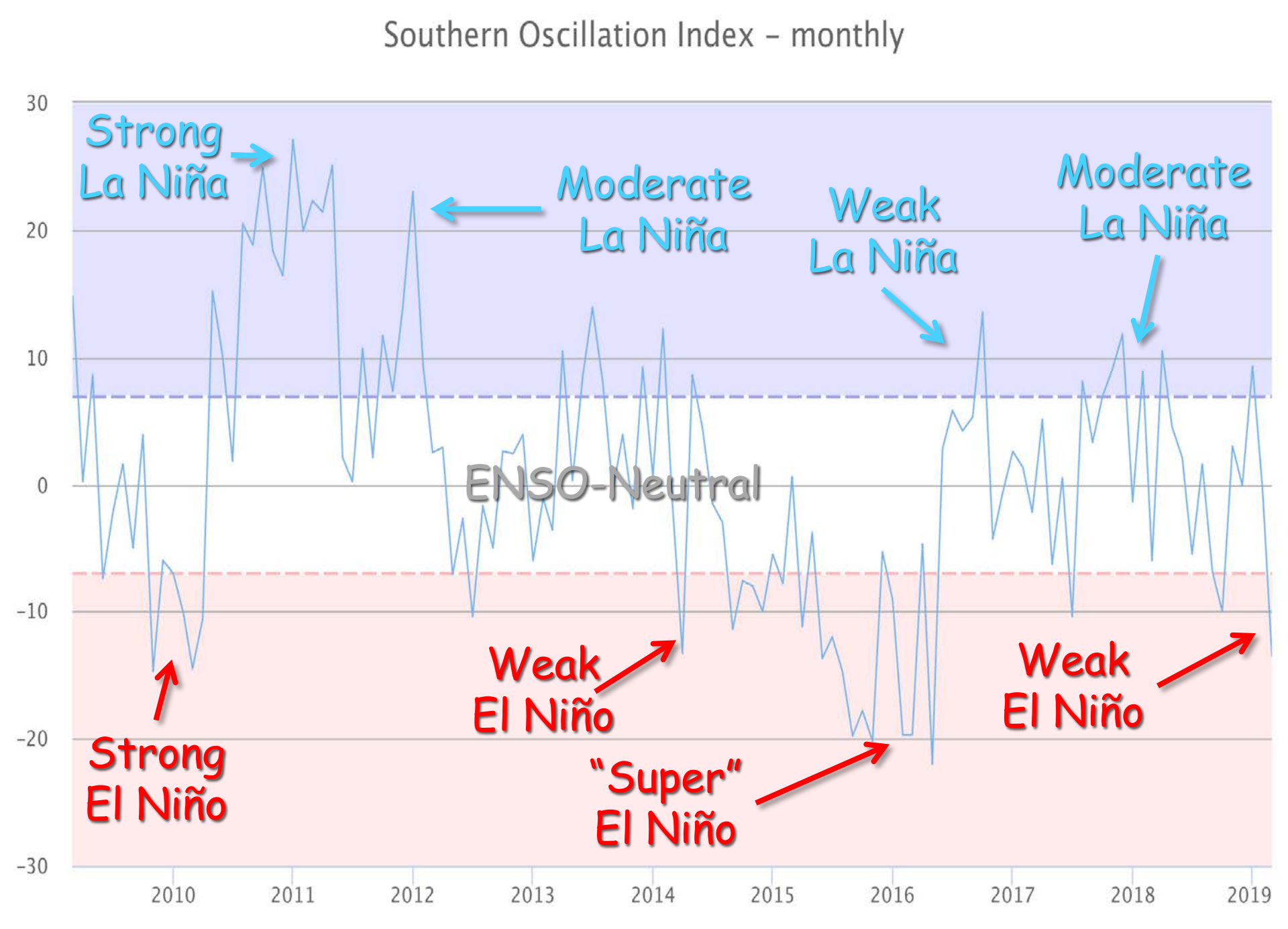
- Focus on the Tropical Pacific Ocean.
- Find past years with sea-surface temperature (SST) patterns comparable to the present year.
- Use of non-direct measures such as the Southern Oscillation Index (SOI) and the Oceanic Nino Index (ONI).
- There are many other indices…

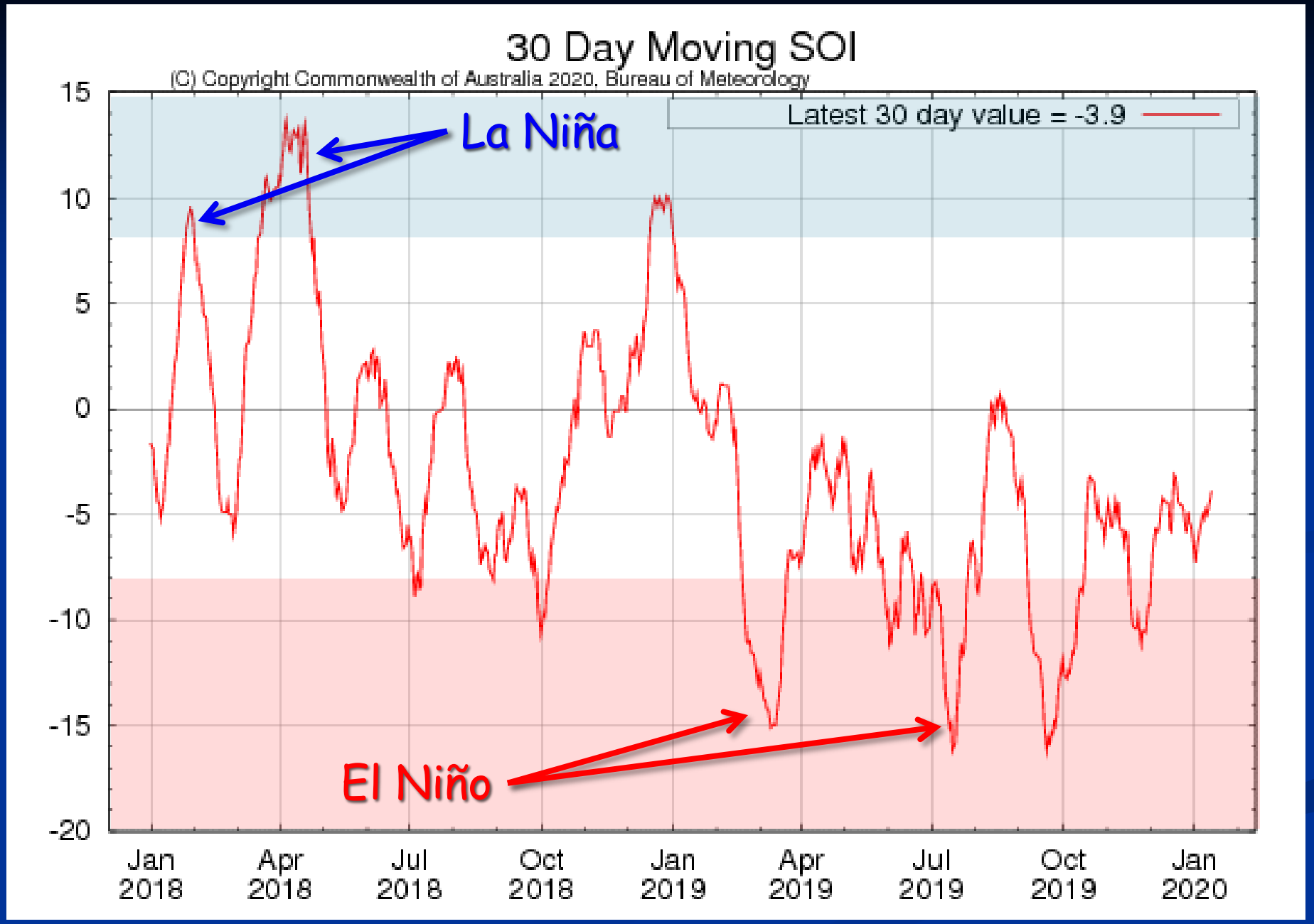
Southern Oscillation Index (SOI)

- Based on the differences in air pressure anomalies between Tahiti and Darwin, Australia.
- Long period of reliable records.
- Strongly related to temperature changes in the tropical Pacific Ocean; used to track ENSO events.

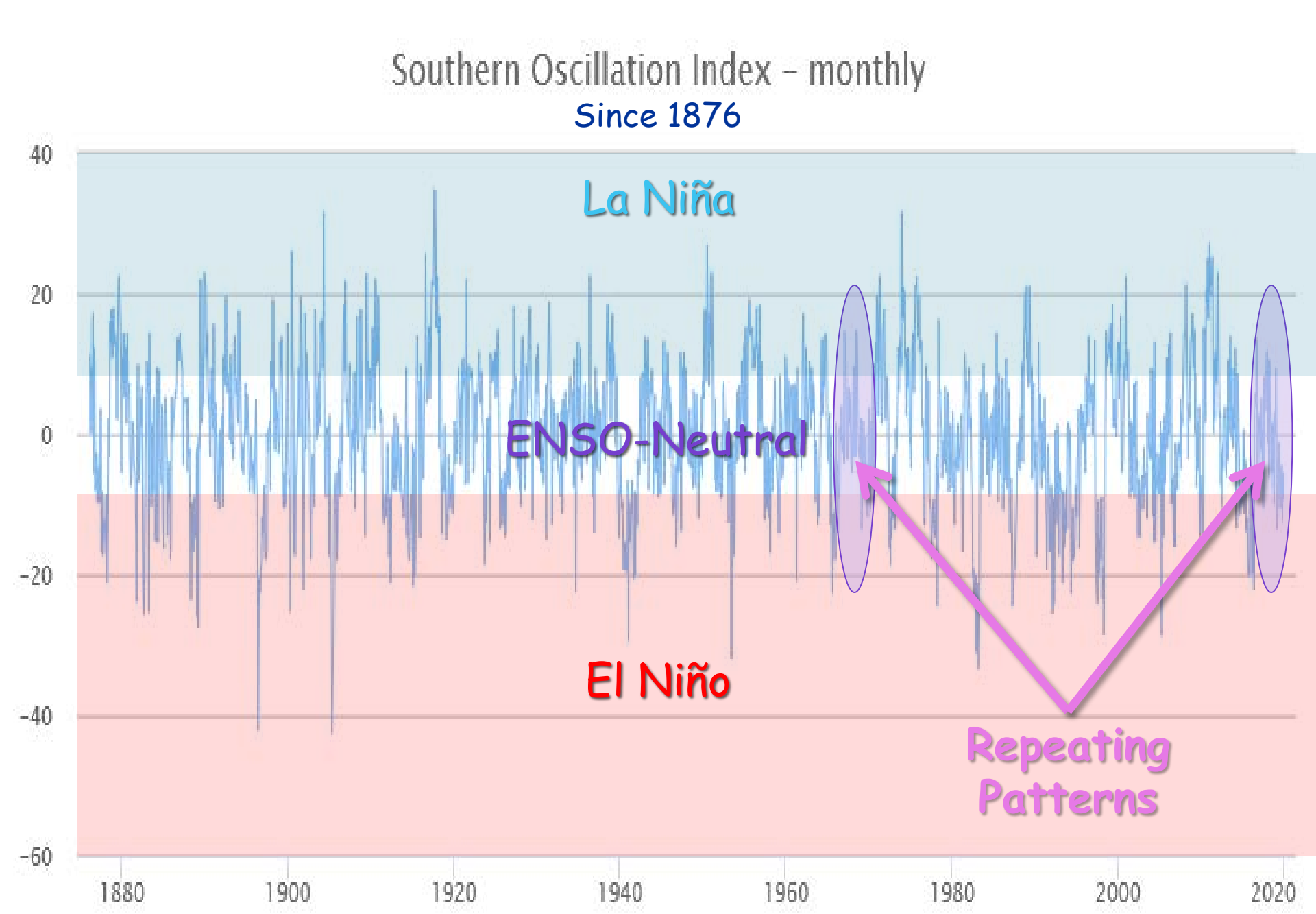
SOI Based On Pressure Anomalies of Two Sites







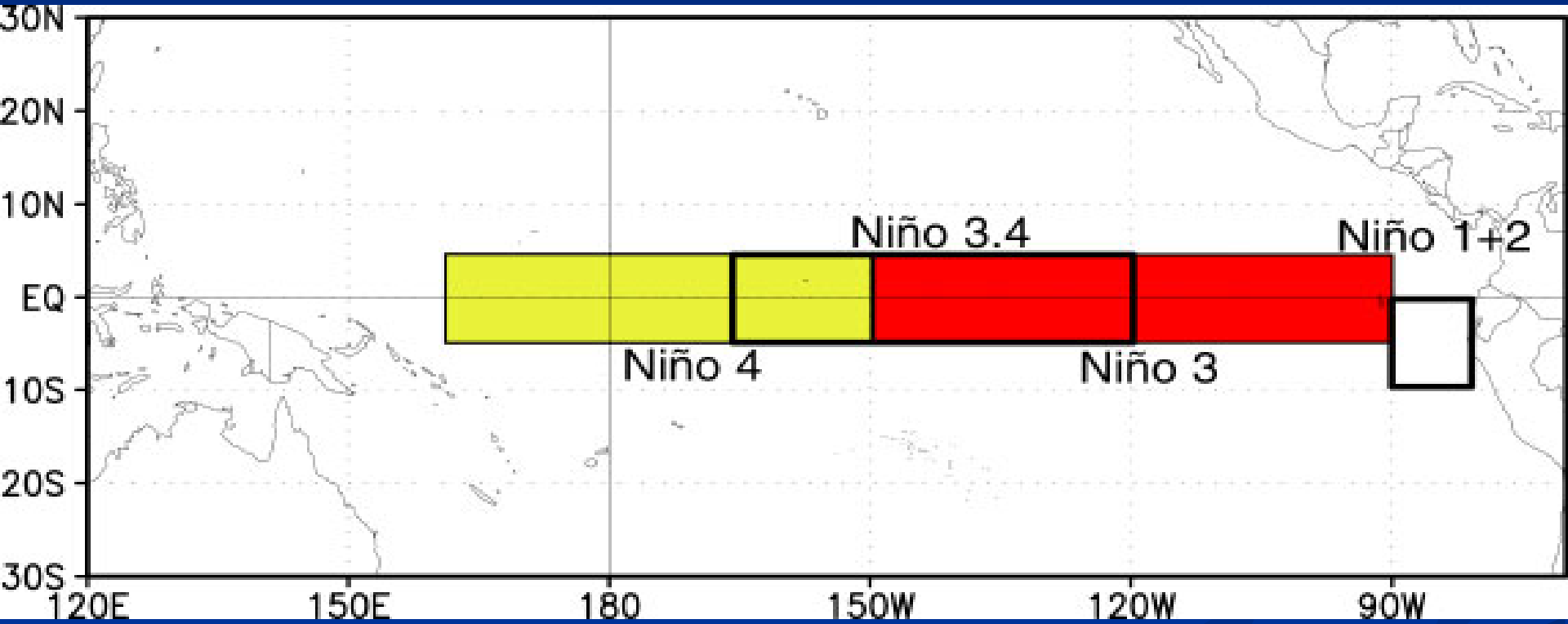
Courtesy: http://www.bom.gov.au/climate/enso/monitoring/soi30.png



Oceanic Niño Index (ONI)

- Based on SST departures from average in the Niño 3.4 region (three-month running-mean SST departure).

ONI Based on SST Departures in Niño 3.4

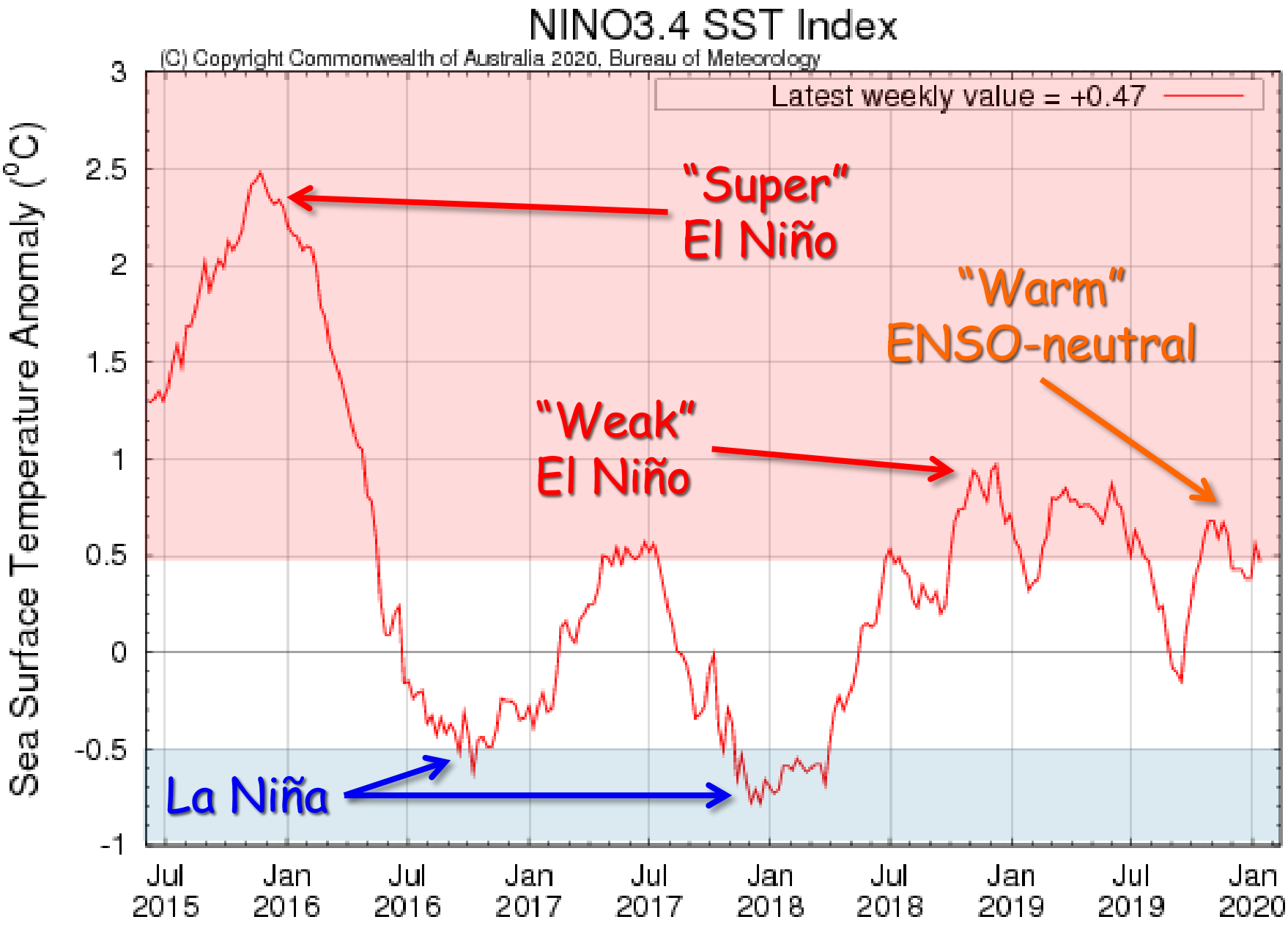


Oceanic Niño Index (ONI)

- Based on SST departures from average in the Niño 3.4 region (three-month running-mean SST departure).
- NOAA defines ENSO events by it.

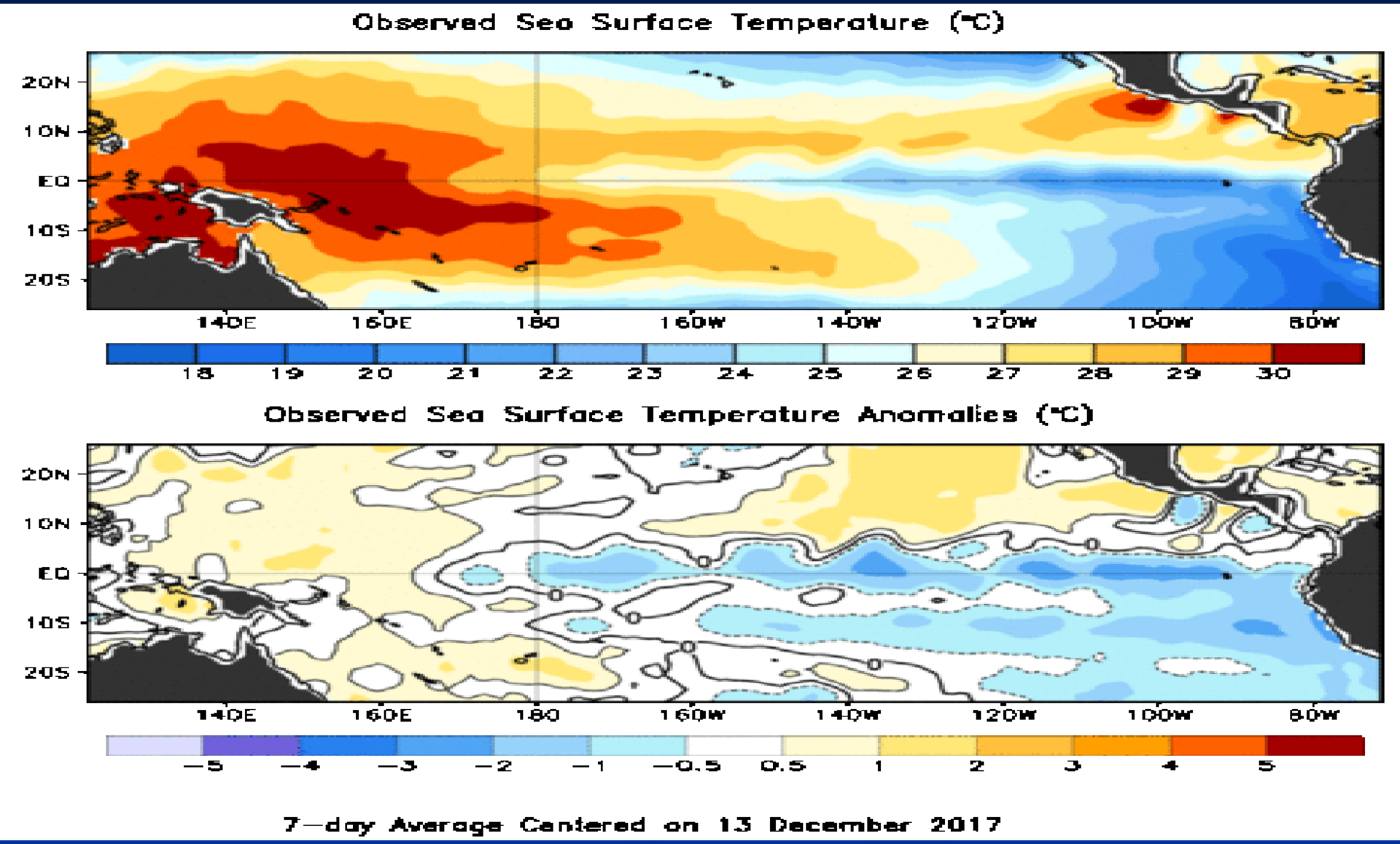
NOAA Operational Definitions for El Niño and La Niña

- El Niño: characterized by a *positive* ONI greater than or equal to +0.5°C.
- La Niña: characterized by a *negative* ONI less than or equal to -0.5°C.
- To be classified as a full-fledged El Niño or La Niña episode these thresholds must be exceeded for a period of at least 5 consecutive overlapping 3-month seasons.
- *CPC considers El Niño or La Niña conditions to occur when the monthly Niño3.4 SST departures meet or exceed +/- 0.5°C along with consistent atmospheric features.*



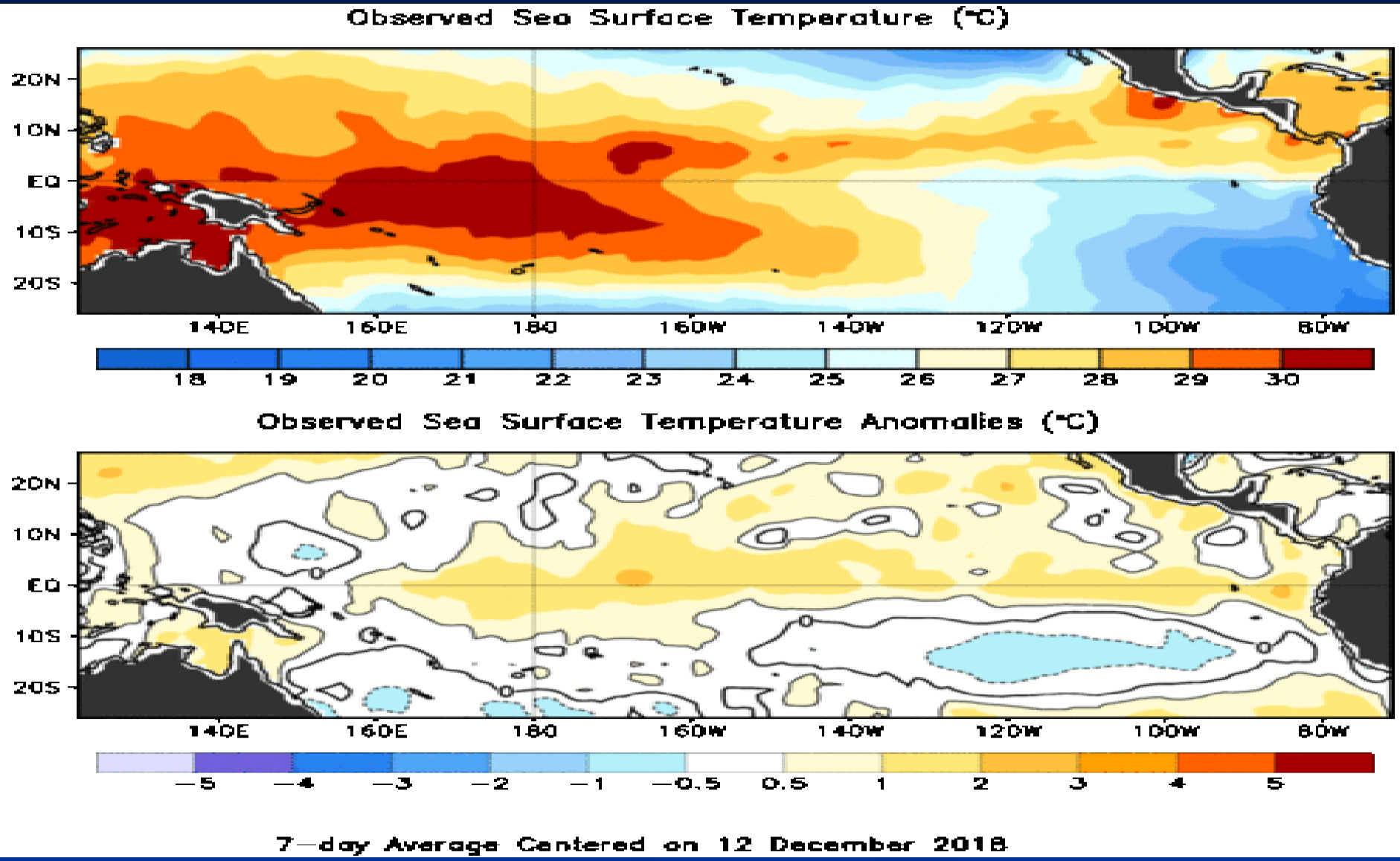
Courtesy: http://www.bom.gov.au/climate/enso/indices.shtml

La Niña Mid-December 2017



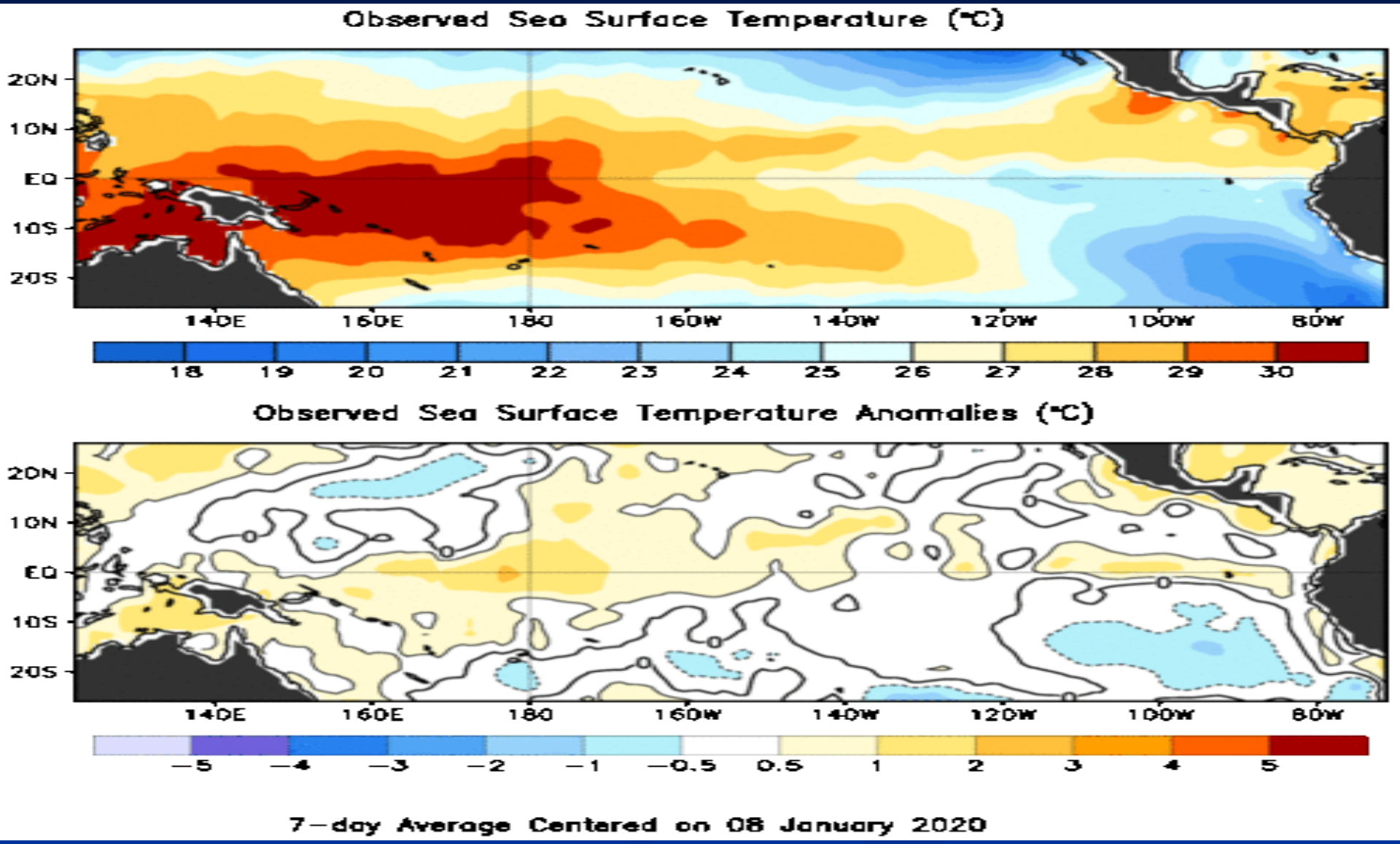
Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/sstweek_c.gif

El Niño Mid-December 2018



Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/sstweek_c.gif

El Niño / ENSO-neutral January 2020



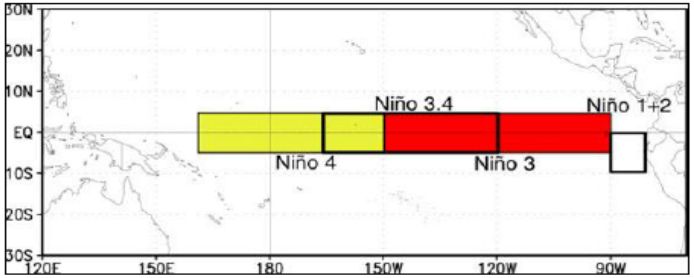
Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/sstweek_c.gif

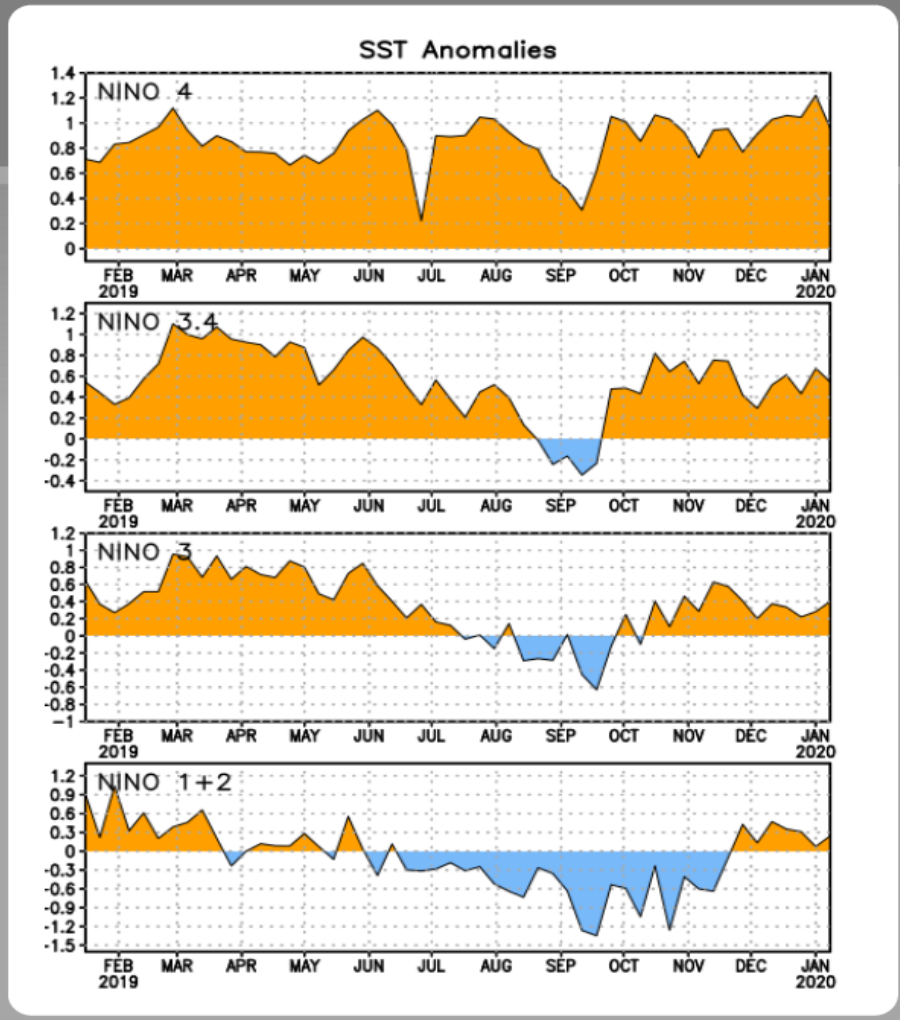
More Ways to Track El Niño

Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	1.0°C
Niño 3.4	0.5°C
Niño 3	0.4°C
Niño 1+2	0.2°C



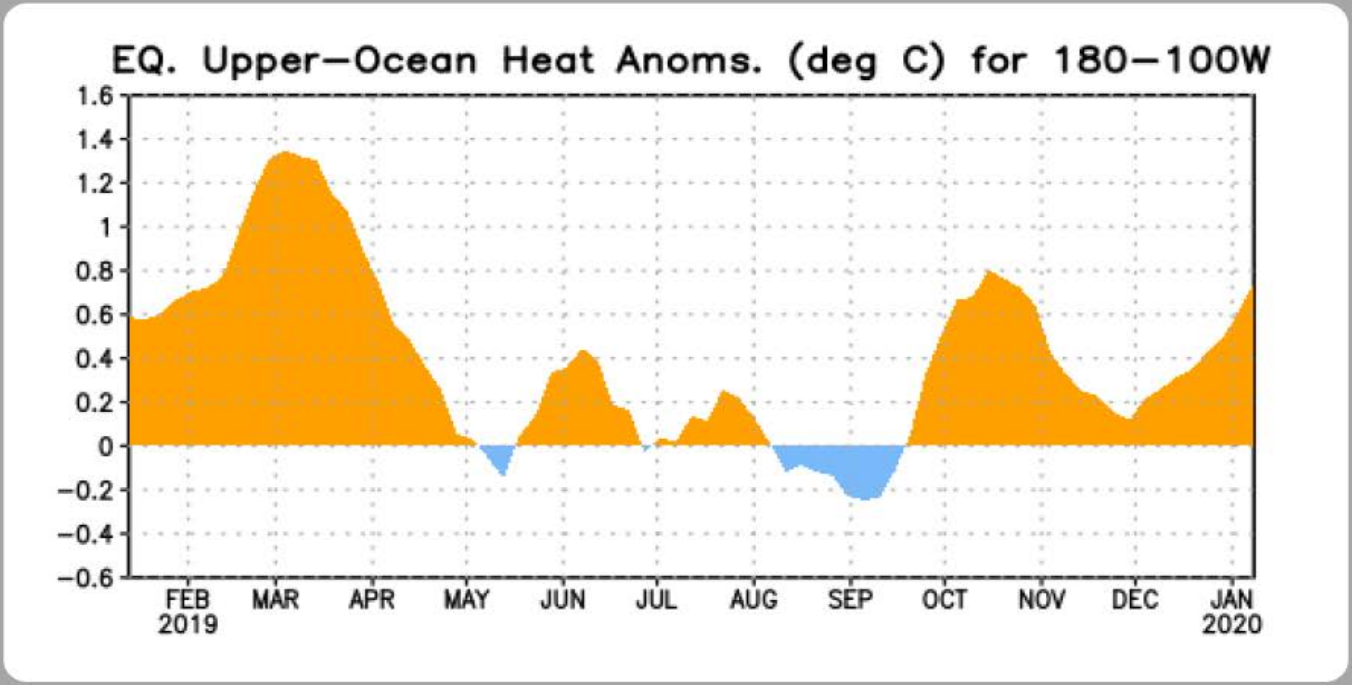


Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

More Ways to Track El Niño

Central and Eastern Pacific Upper-Ocean (0-300 m) Weekly Average Temperature Anomalies

Subsurface temperature anomalies decreased to near zero in late April. Weak anomalies were then present through mid-September, before increasing through mid-October. During mid-October through November, positive anomalies decreased. Since early December, positive anomalies have increased.

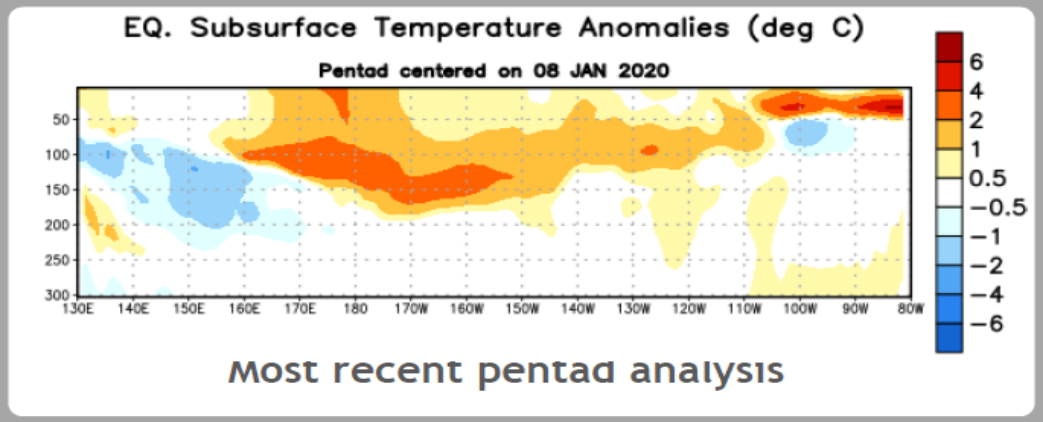


Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

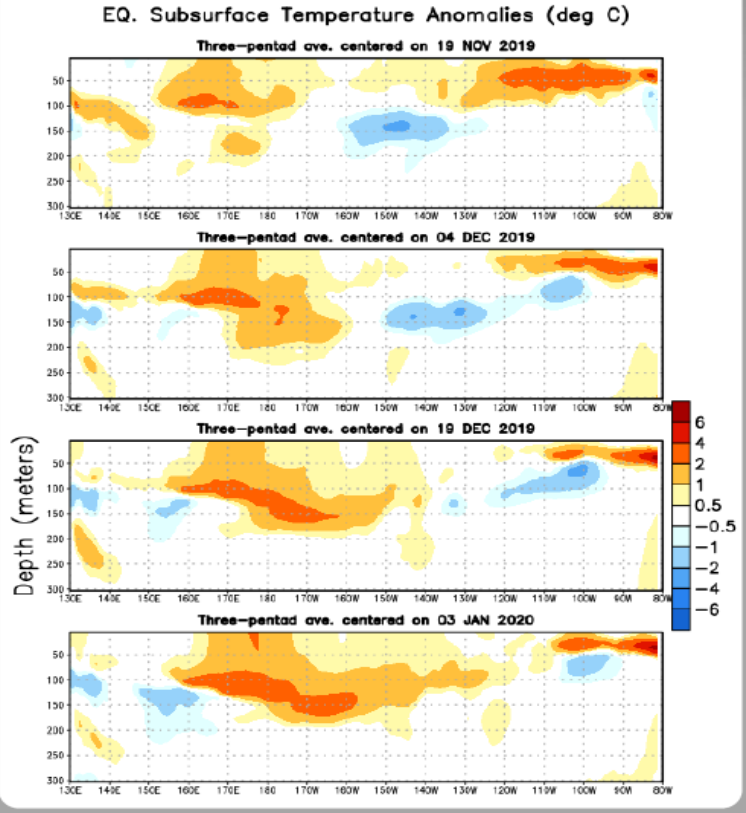
More Ways to Track El Niño

Sub-Surface Temperature Departures in the Equatorial Pacific

In the last two months, positive subsurface temperature anomalies have shifted to the eastern Pacific in association with a downwelling Kelvin wave.



Most recent pentad analysis



Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

Model Forecasts for Niño 3.4 Region

IRI/CPC Pacific Niño 3.4 SST Model Outlook

A majority of models favor ENSO-neutral through the Northern Hemisphere summer 2020.

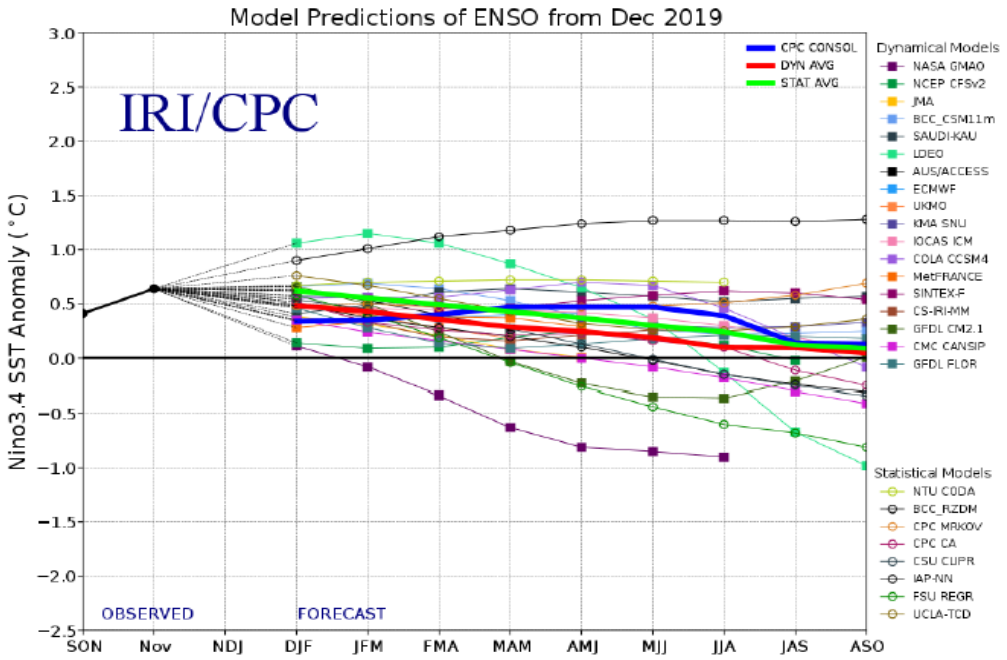


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 19 December 2019).

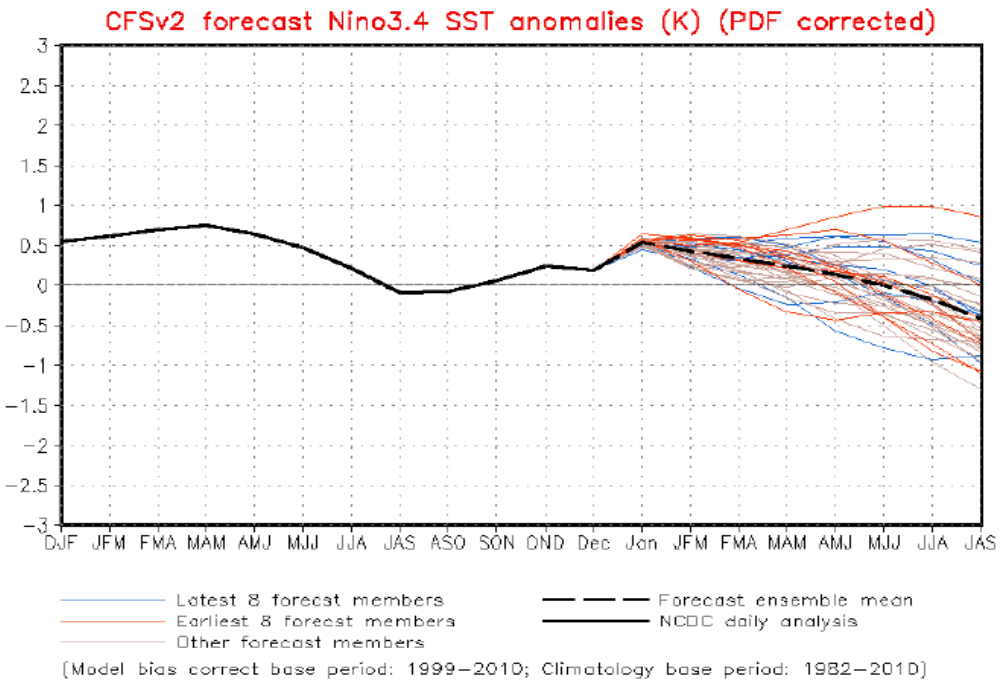
Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

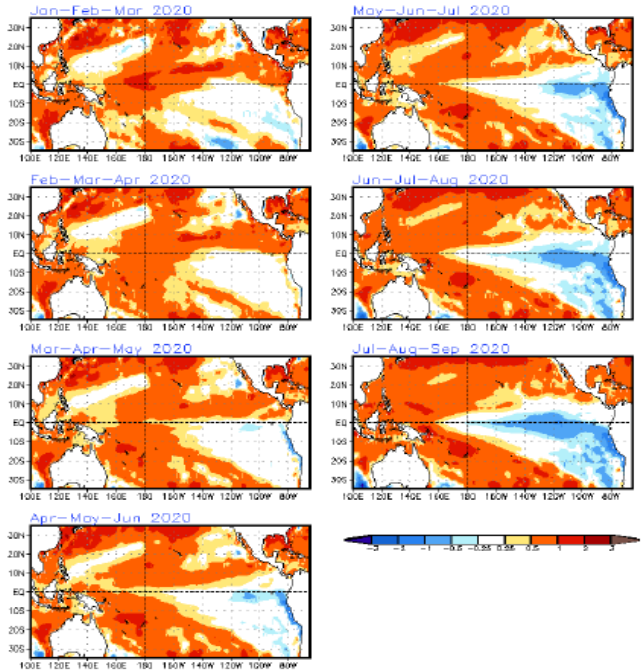
Model Forecasts for Niño 3.4 Region

SST Outlook: NCEP CFS.v2 Forecast (PDF corrected)

Issued: 6 January 2020

The CFS.v2 ensemble mean (black dashed line) predicts ENSO-neutral to continue into summer 2020.



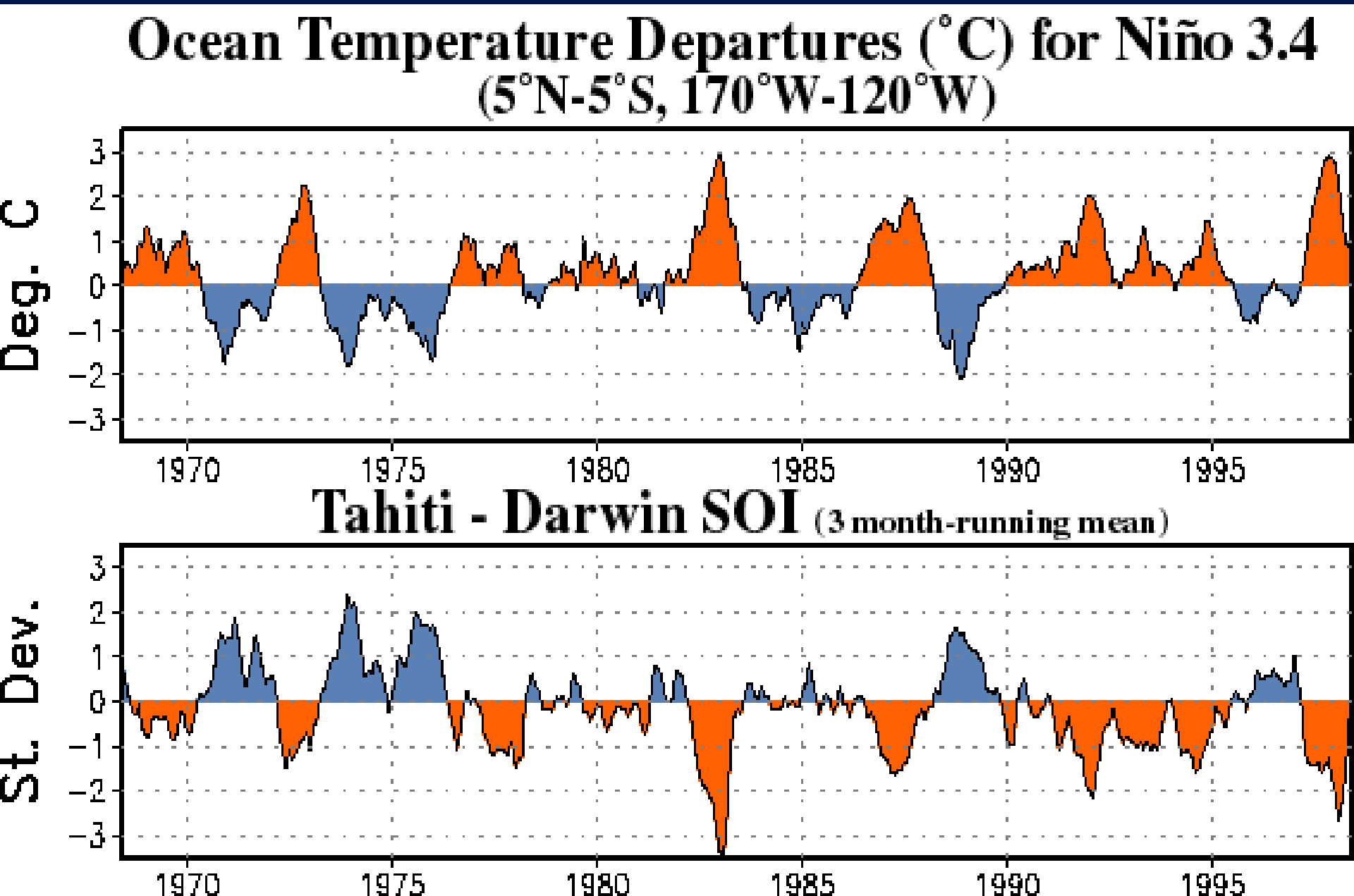


Courtesy: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

Oceanic Niño Index (ONI)

- Based on SST departures from average in the Niño 3.4 region (three-month running-mean SST departure).
- NOAA defines ENSO events by it.
- Closely linked to the SOI & PDO.

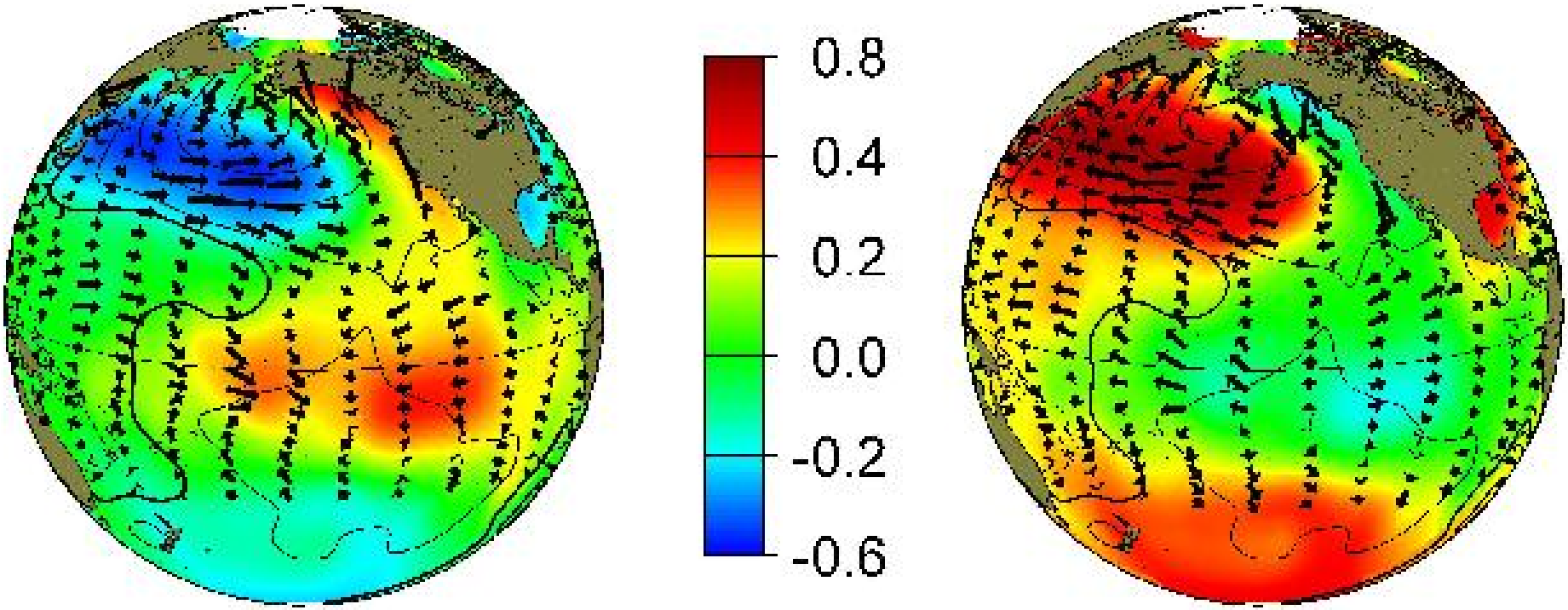
The Link Between ONI and SOI



The Pacific Decadal Oscillation (PDO)

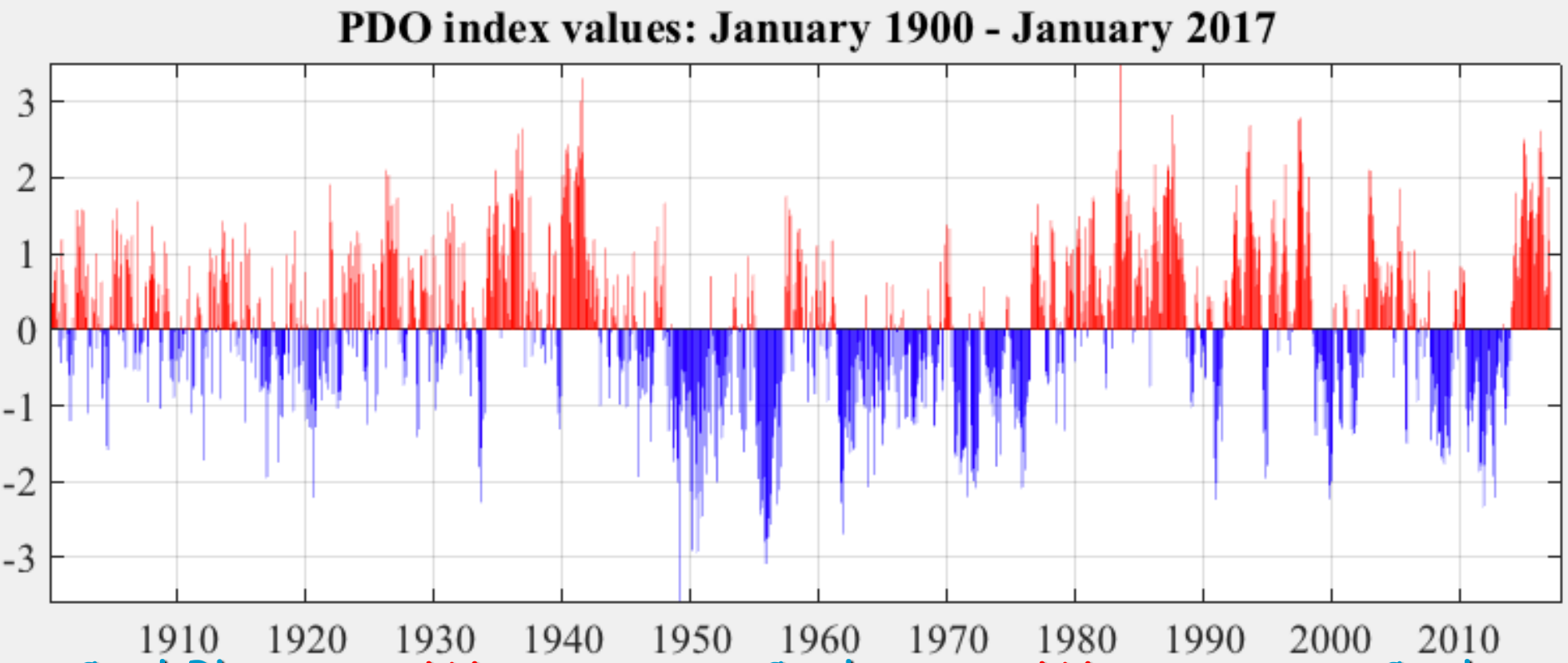
Warm Phase

Cool Phase



Courtesy: http://research.jisao.washington.edu/pdo/img/pdo_warm_cool.jpg

The Pacific Decadal Oscillation (PDO)



Cool Phase (1890-1924) Warm (1925-1946) Cool (1947-1976) Warm (1977-1998) Cool (1998-2013)

Courtesy: http://research.jisao.washington.edu/pdo/pdo_tsplot_jan2017.png

Behind the Curtain…

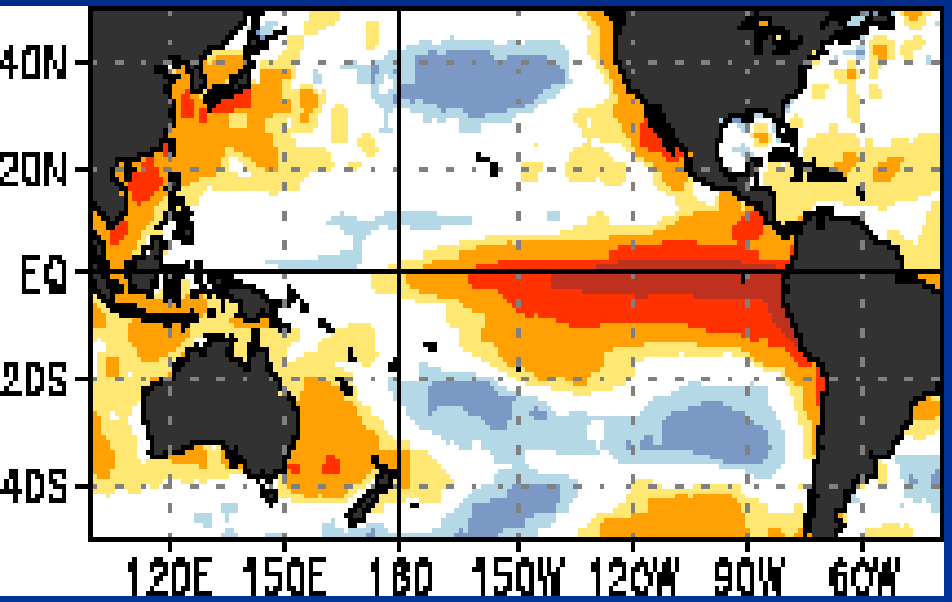
- Find Past Years With Similar Characteristics "Analog Years."
- Use Common Events or Trends During Those "Analog Years" to Predict Future Events and/or Trends.
- The Changing Climate Adds Error to the Forecast!

Behind the Curtain…

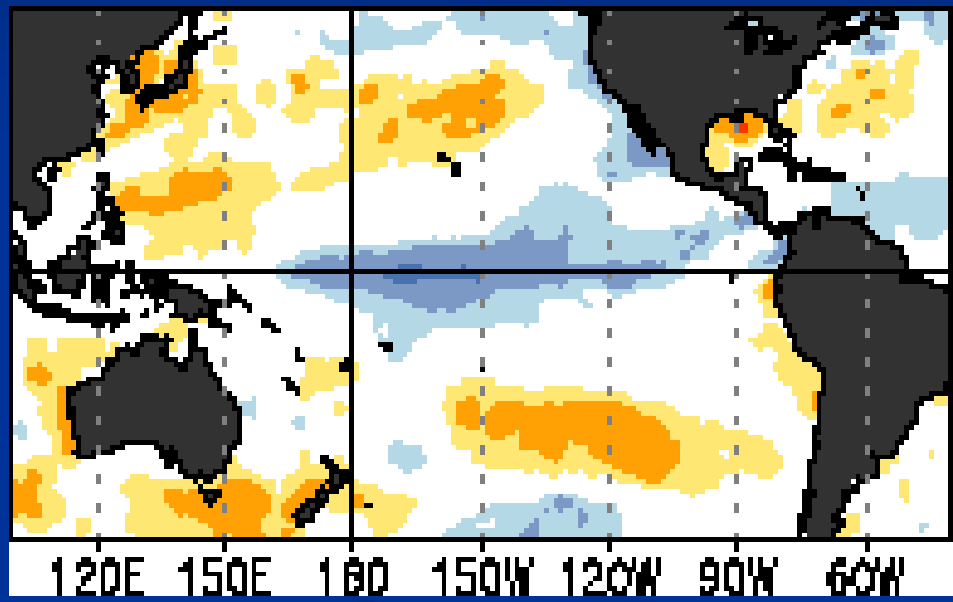
- Find Past Years With Similar Characteristics "Analog Years."
- Use Common Events or Trends During Those "Analog Years" to Predict Future Events and/or Trends.
- The Changing Climate Adds Error to the Forecast!

ENSO SST Patterns

El Niño

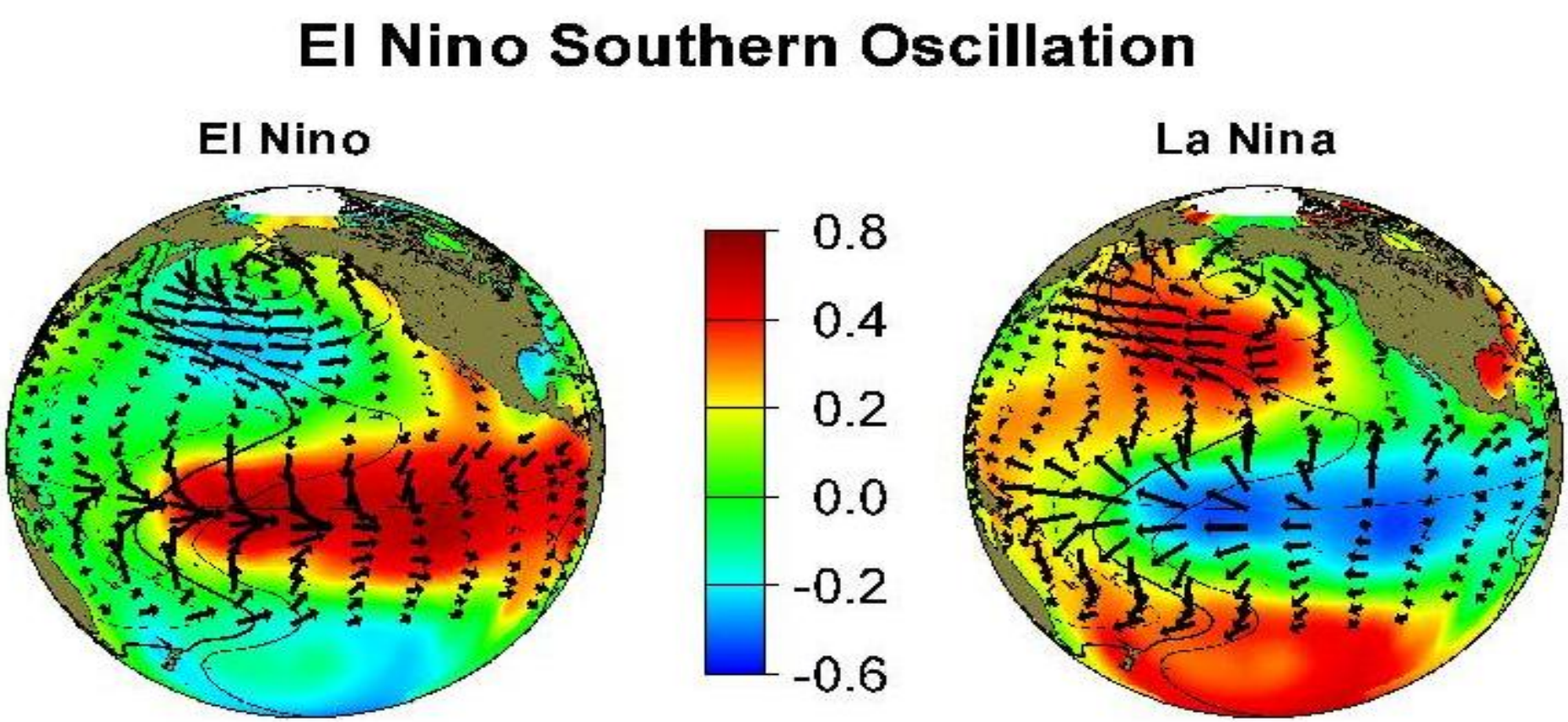


La Niña



Courtesy:
https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensocycle/enso_cycle.shtml

ENSO Surface Wind Patterns

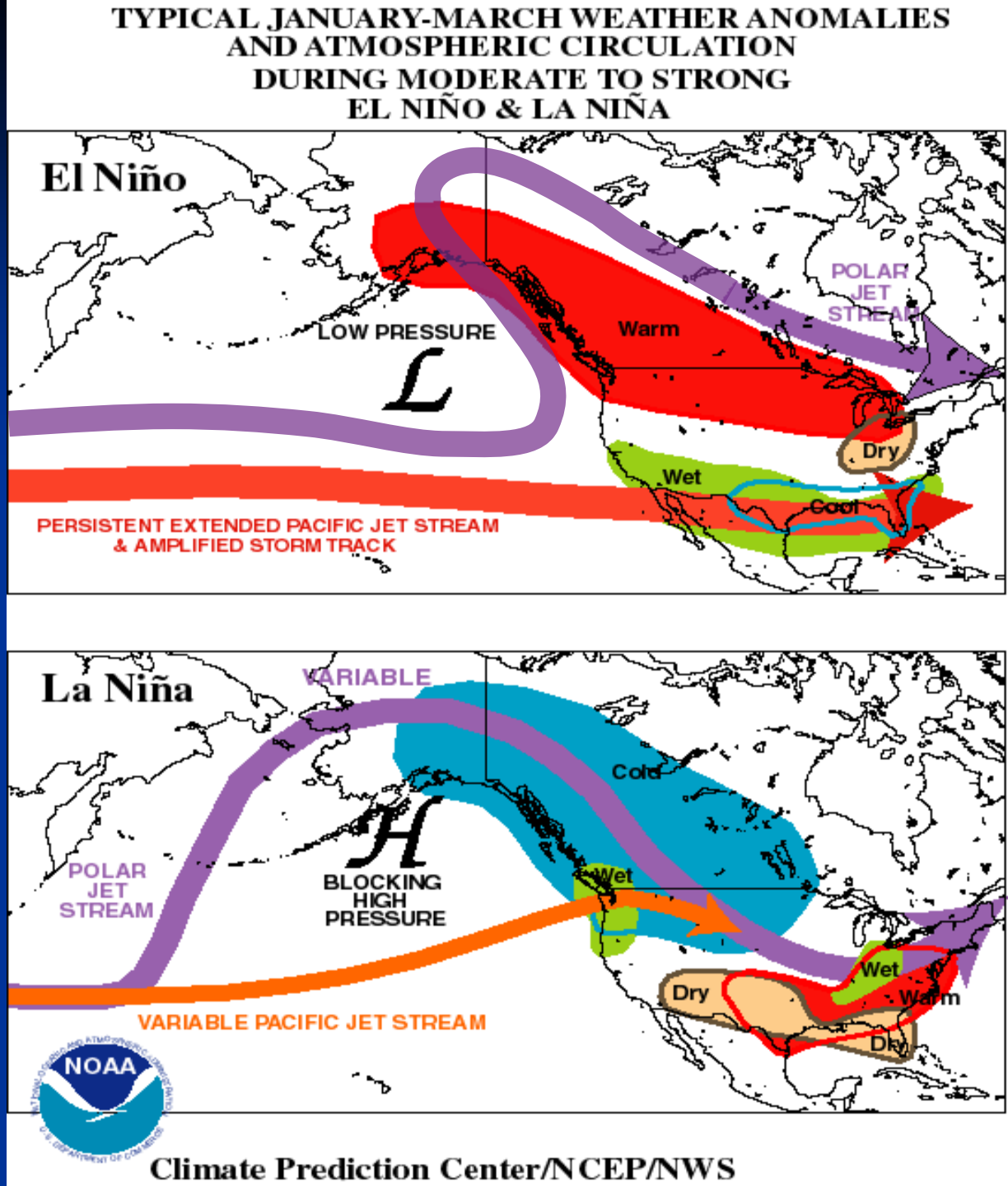


Courtesy: http://research.jisao.washington.edu/pdo/img/enso_warm_cool2.jpg

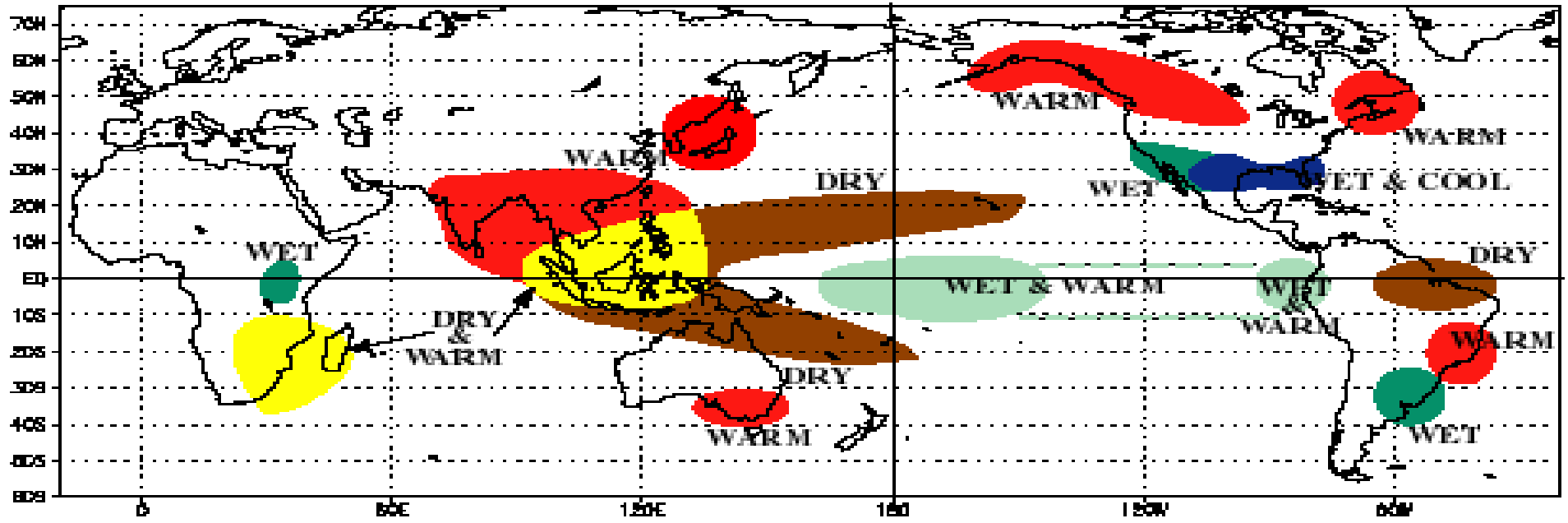
Jet Stream Changes…

El Niño

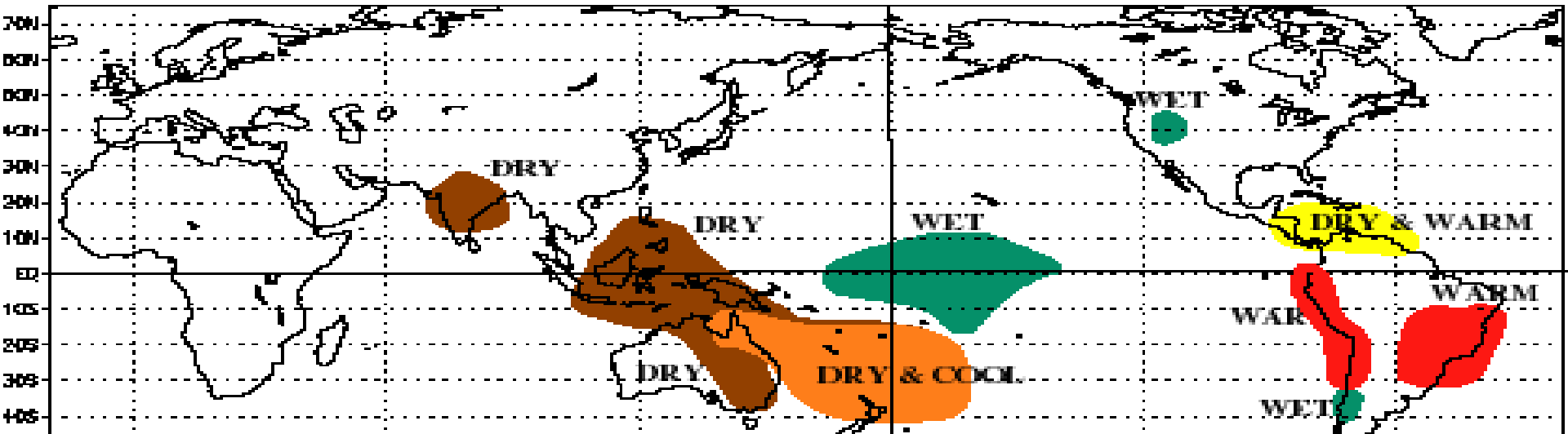
La Niña



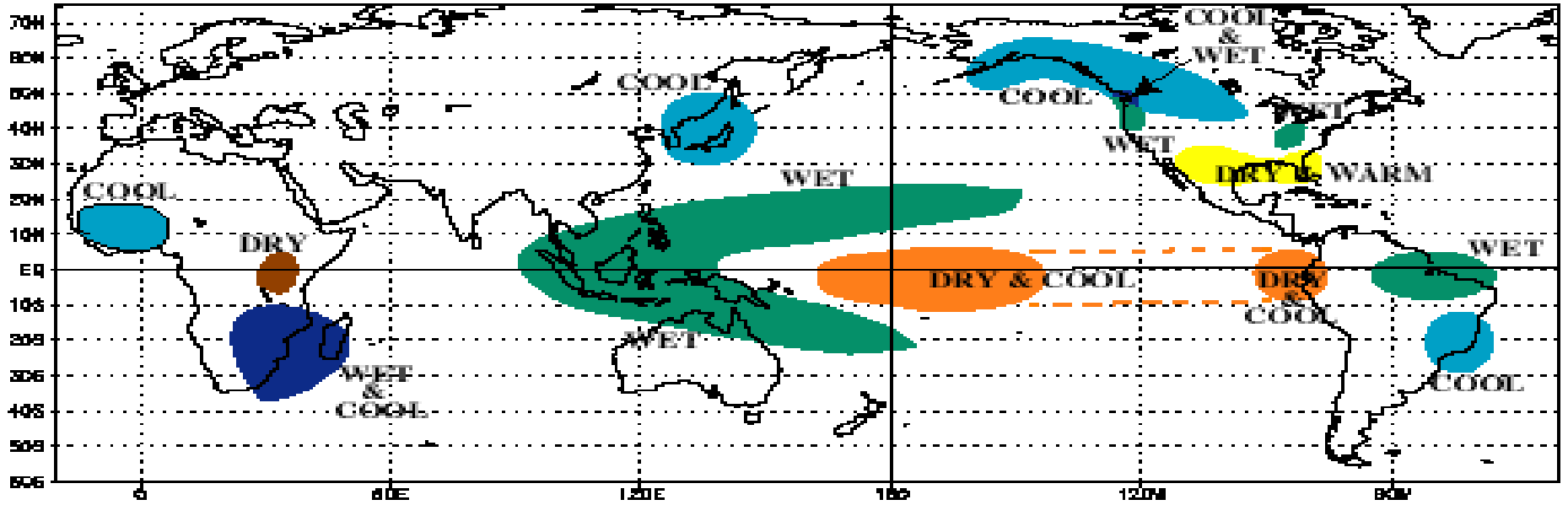
WARM EPISODE RELATIONSHIPS DECEMBER - FEBRUARY



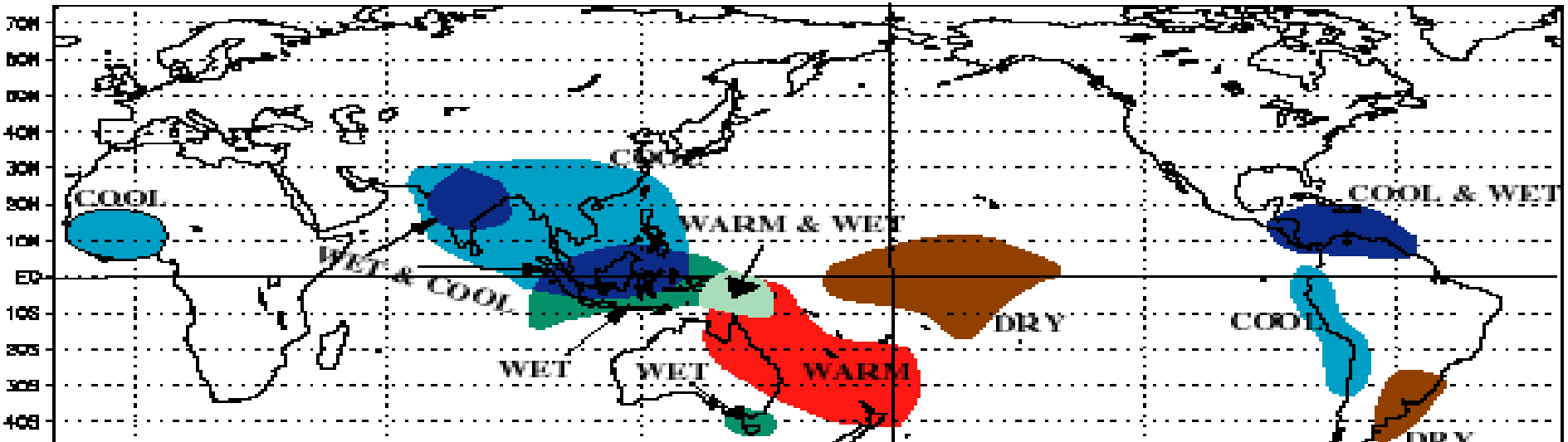
WARM EPISODE RELATIONSHIPS JUNE - AUGUST



COLD EPISODE RELATIONSHIPS DECEMBER - FEBRUARY



COLD EPISODE RELATIONSHIPS JUNE - AUGUST



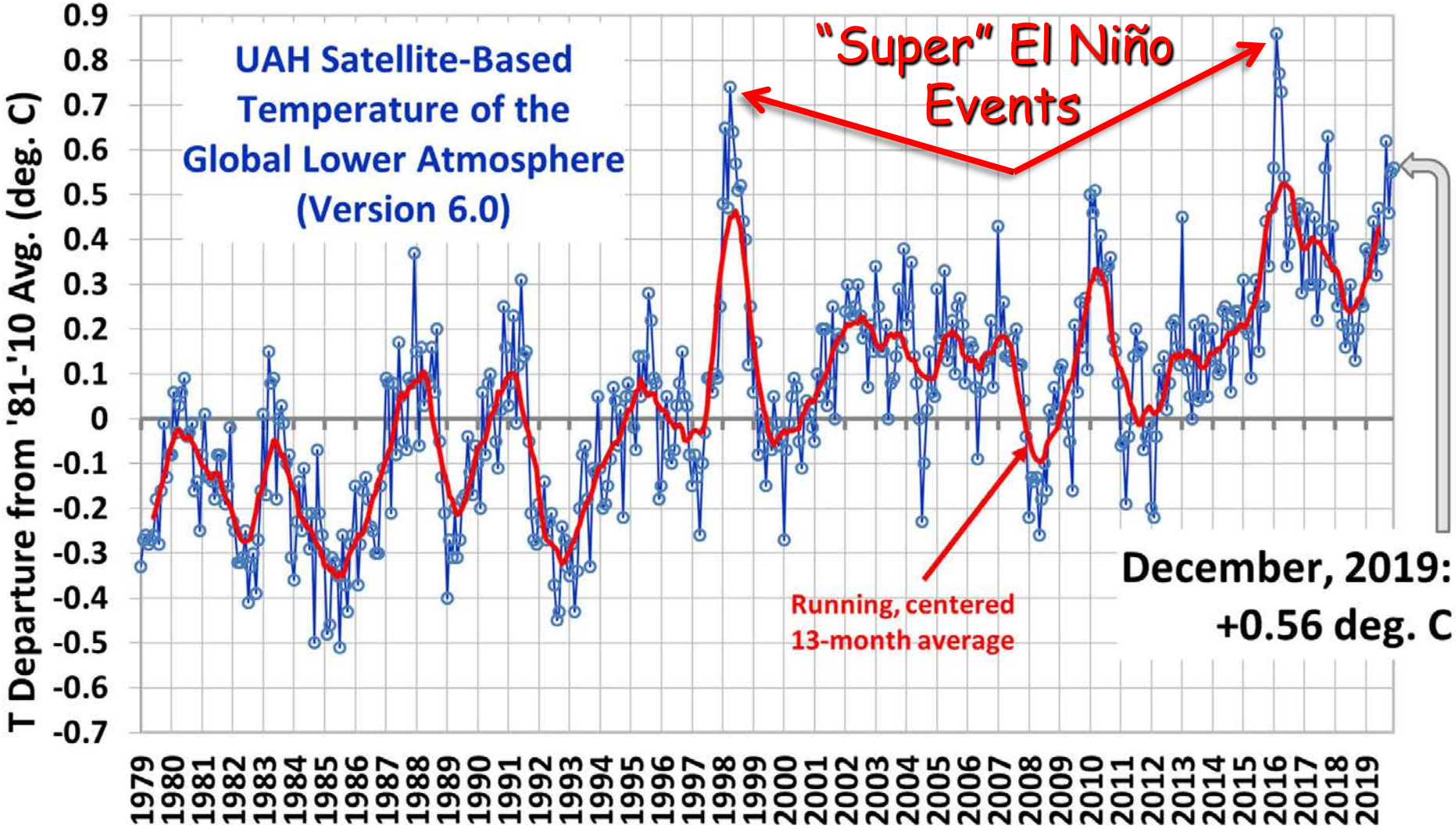
Behind the Curtain…

- Find Past Years With Similar Characteristics "Analog Years."
- Use Common Events or Trends During Those "Analog Years" to Predict Future Events and/or Trends.
- Changes in the Climate Adds Error to the Forecast!

Behind the Curtain…

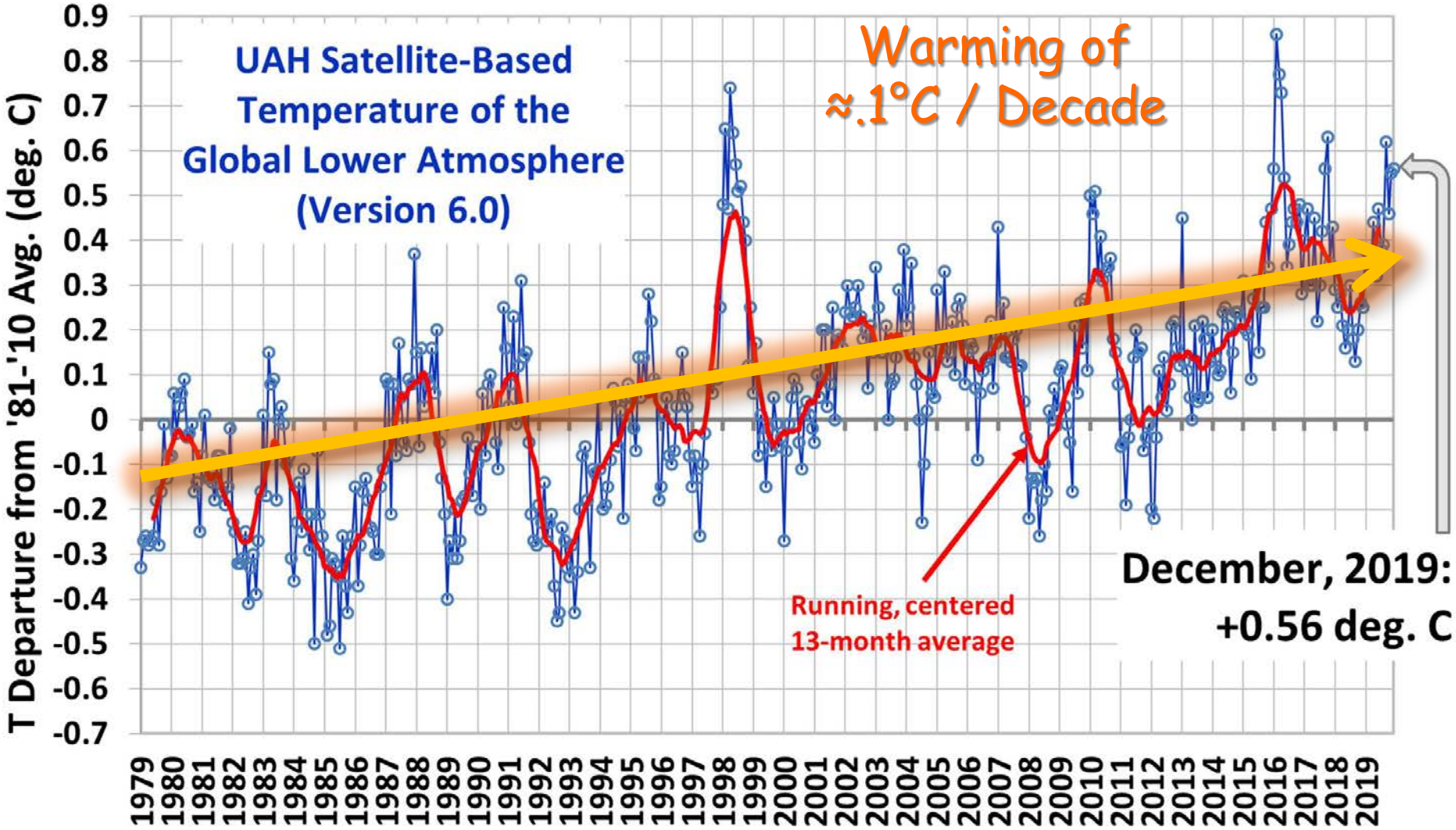
- Find Past Years With Similar Characteristics "Analog Years."
- Use Common Events or Trends During Those "Analog Years" to Predict Future Events and/or Trends.
- The Changing Climate Adds Error to the Forecast!

How Much Have Global Temperatures Warmed?



http://www.drroyspencer.com/wp-content/uploads/UAH_LT_1979_thru_February_2019_v6.jpg

How Much Have Global Temperatures Warmed?



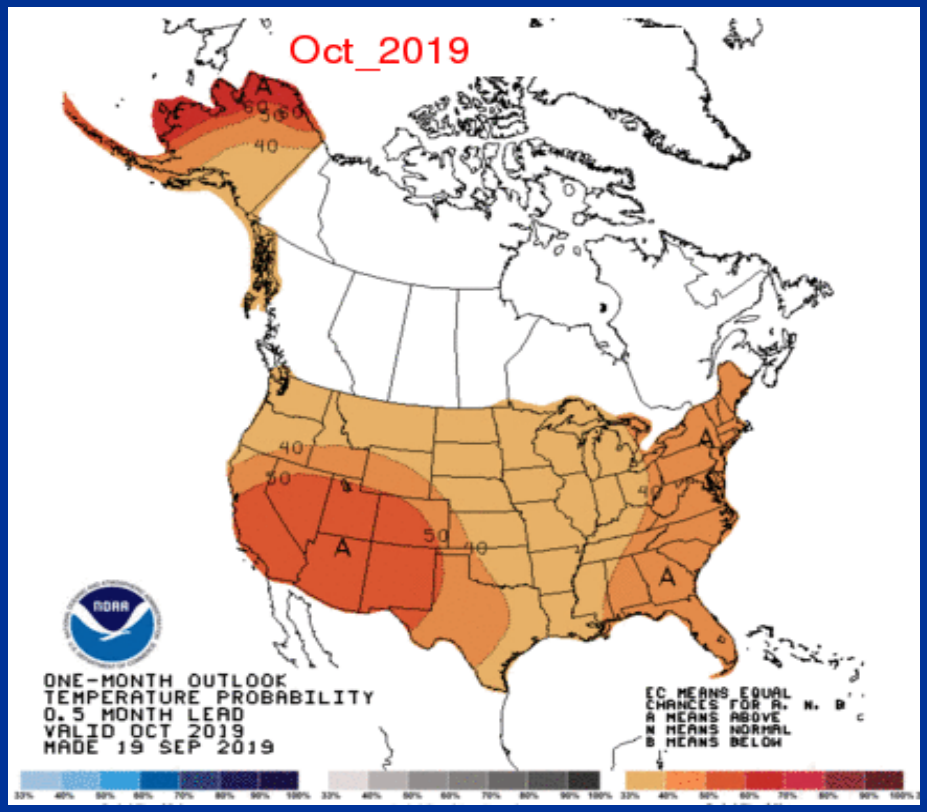
http://www.drroyspencer.com/wp-content/uploads/UAH_LT_1979_thru_February_2019_v6.jpg

Looking Back…

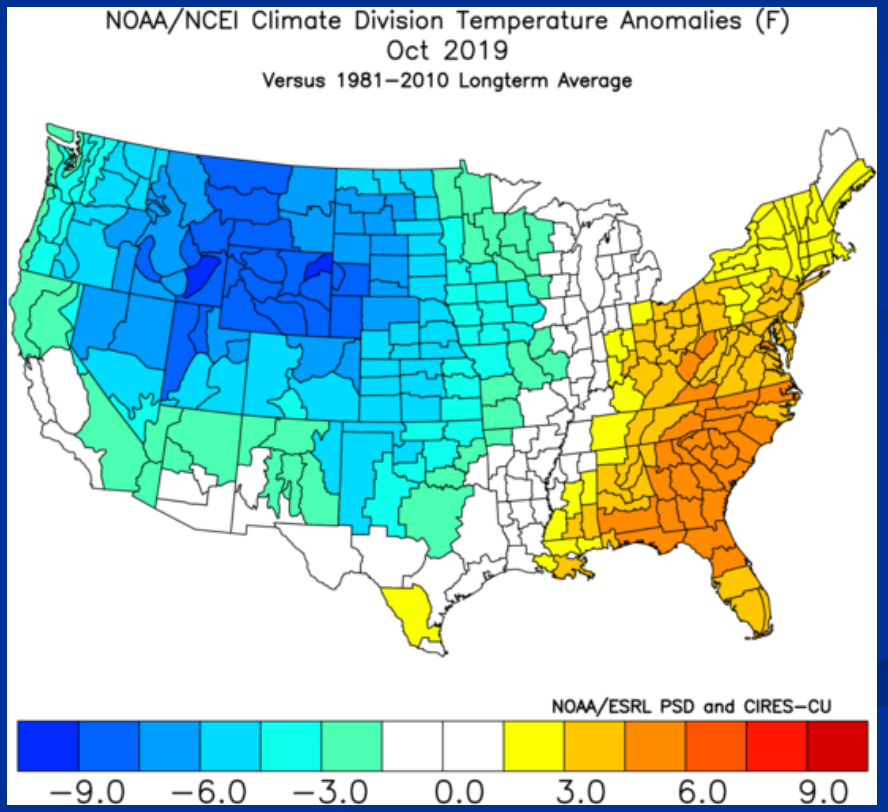
October 2019

(CPC Forecast Issued September 19, 2019)/(Actual)

Forecast Temperatures

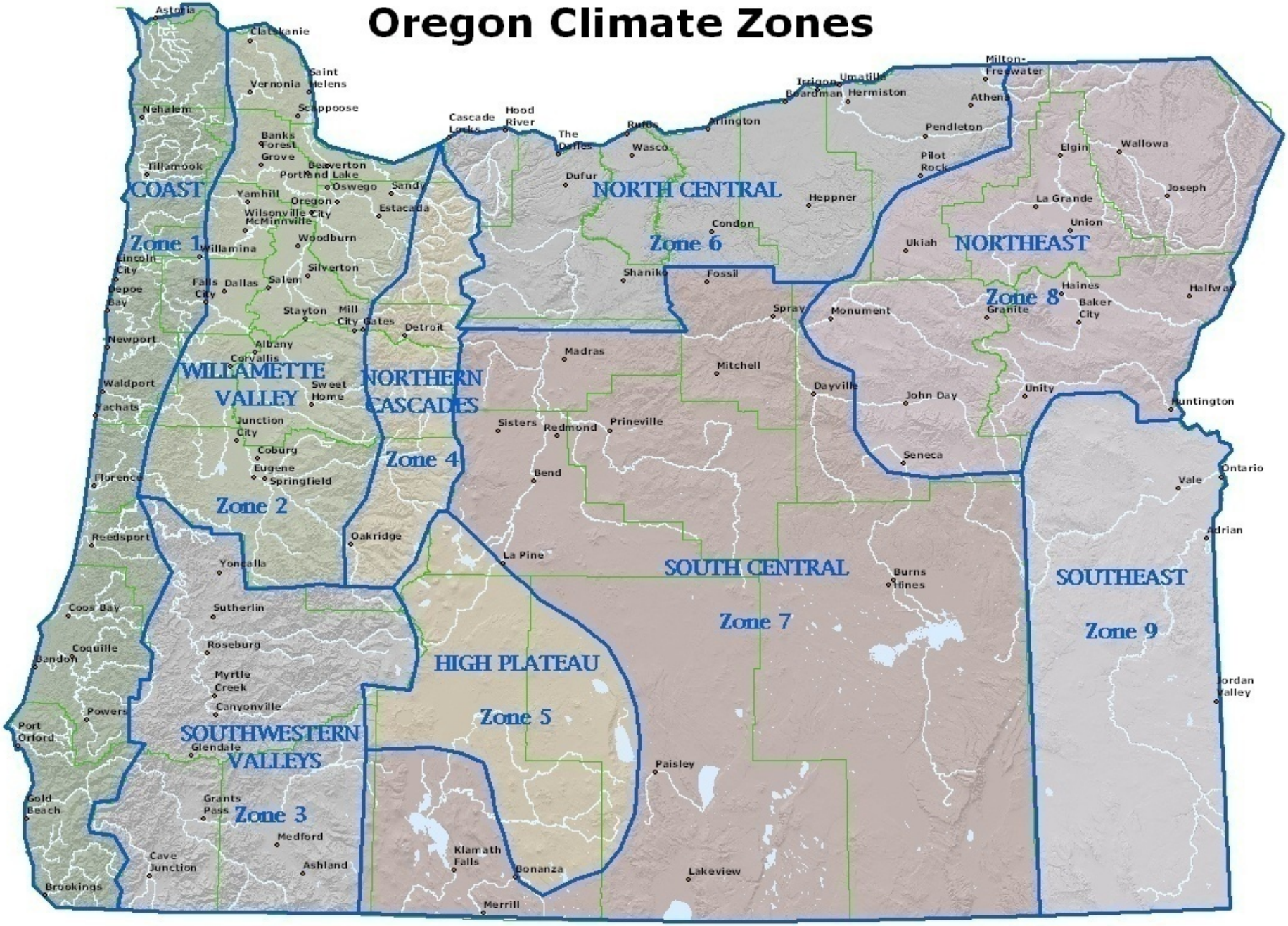


Actual Temperatures



Data courtesy of the National Centers for Environmental Information (NCEI)

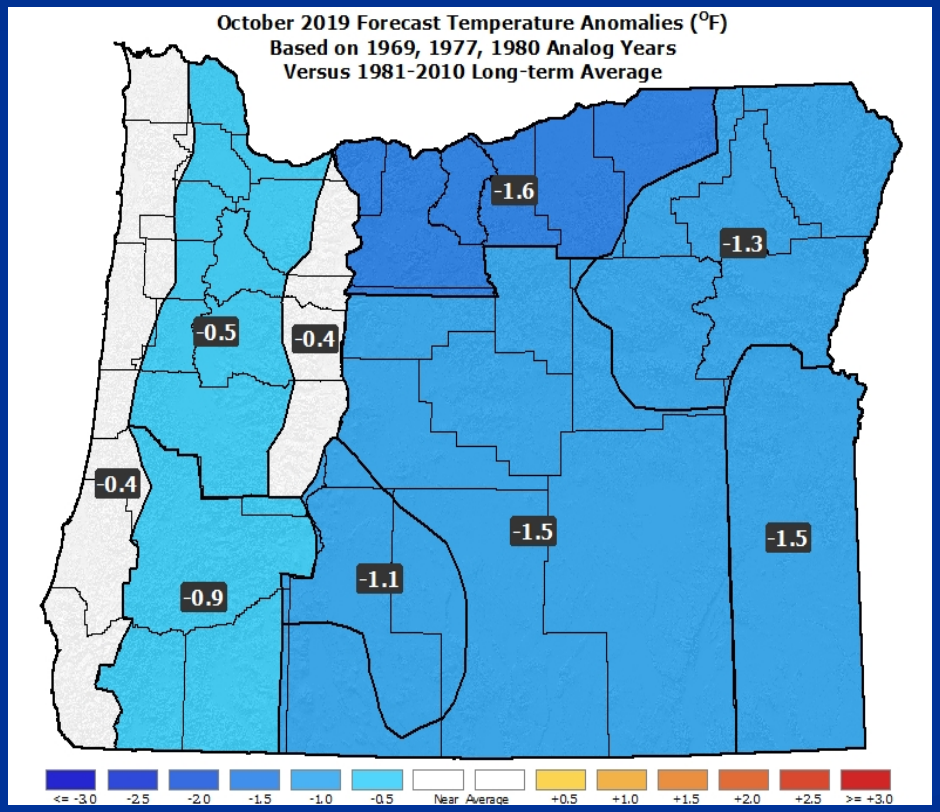
Oregon Climate Zones



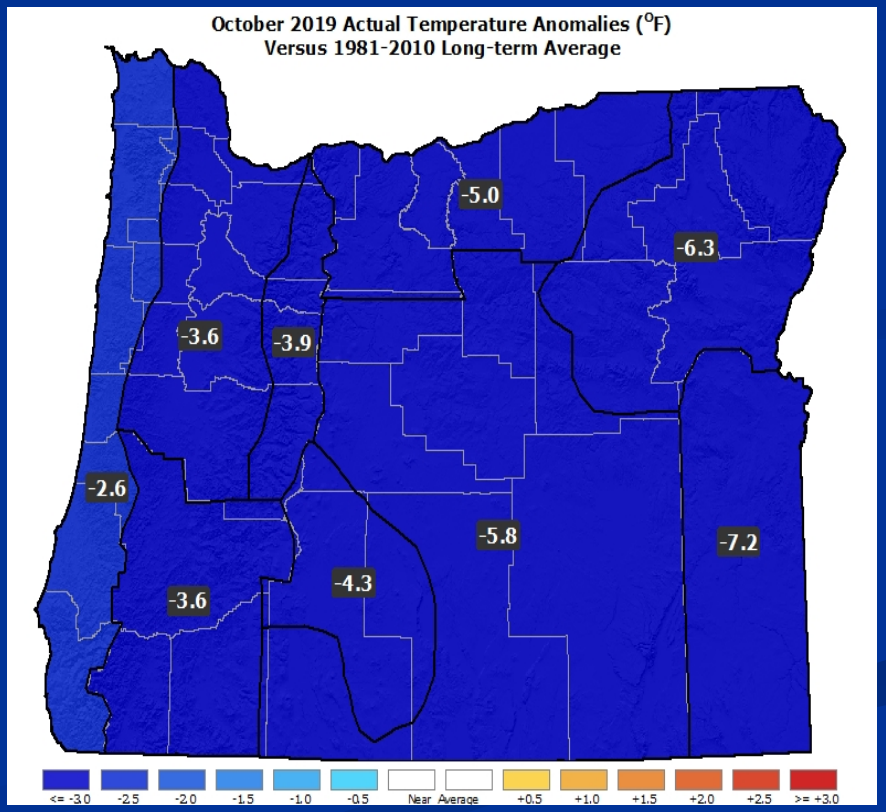
October 2019

(ODF Forecast Issued September 19, 2019)/(Actual)

Forecast Temperatures



Actual Temperatures

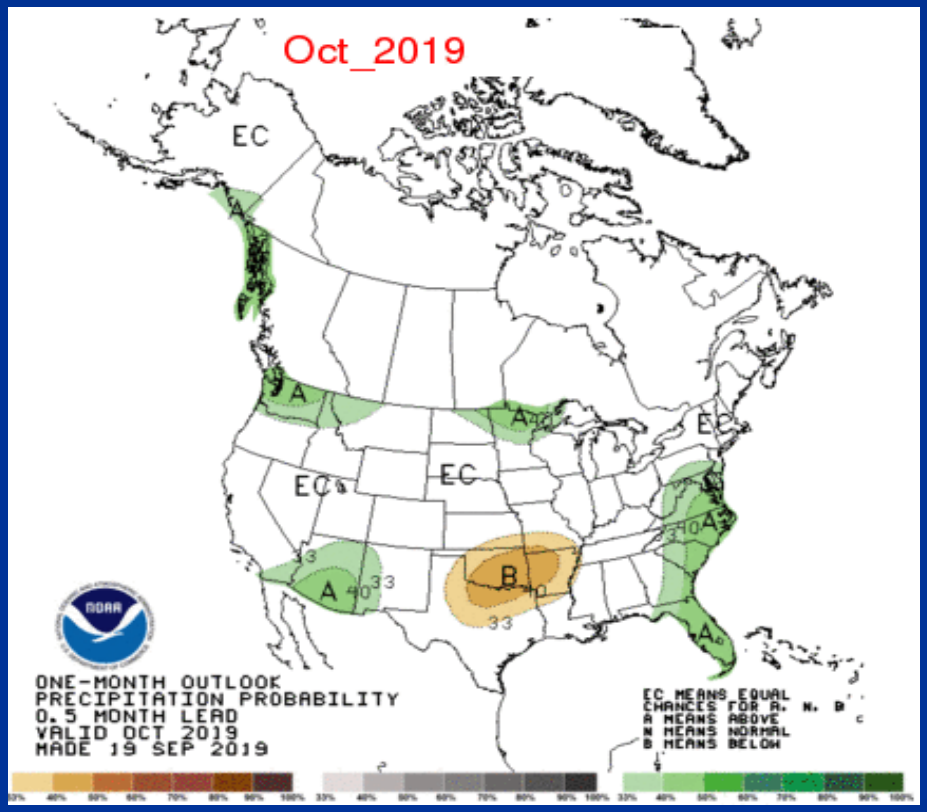


Data courtesy of the National Centers for Environmental Information (NCEI)

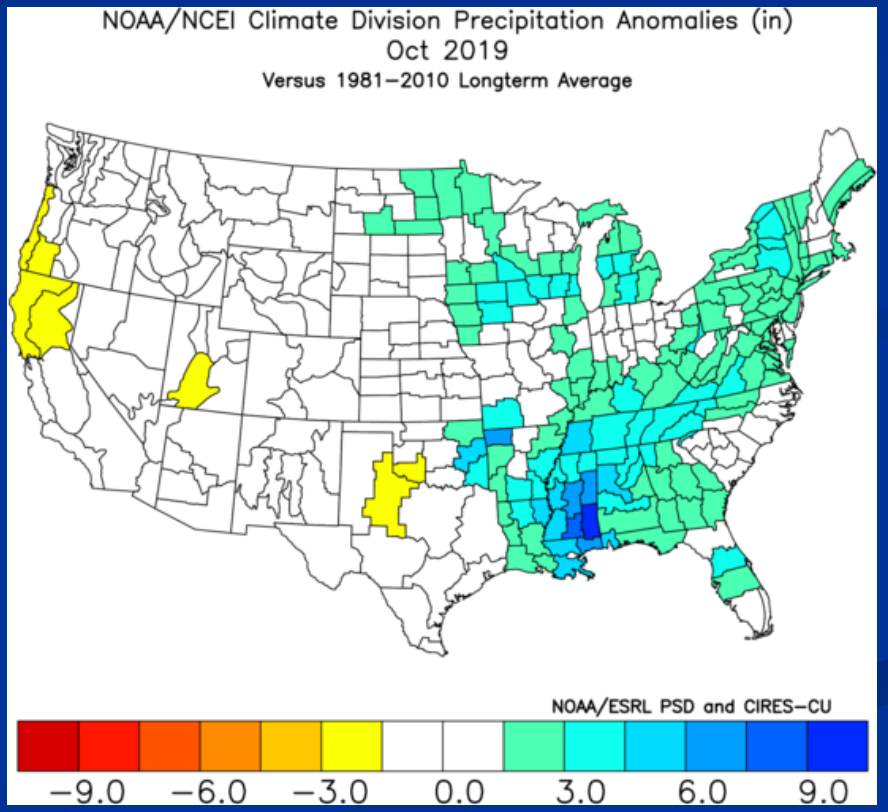
October 2019

(CPC Forecast Issued September 19, 2019)/(Actual)

Forecast Precipitation



Actual Precipitation

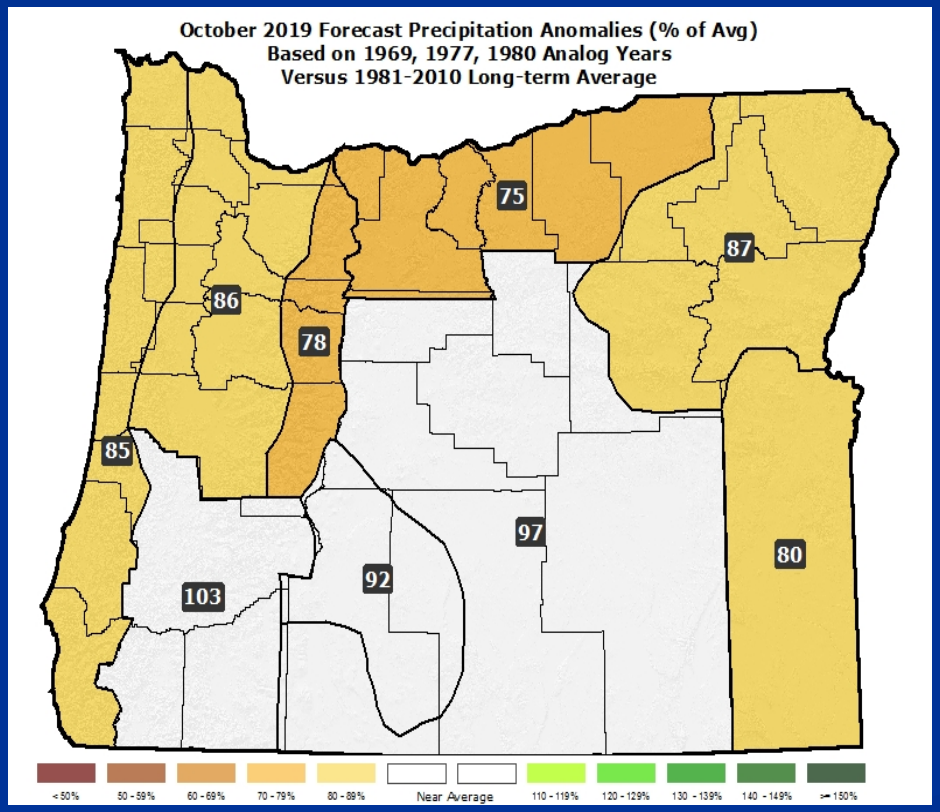


Data courtesy of the National Centers for Environmental Information (NCEI)

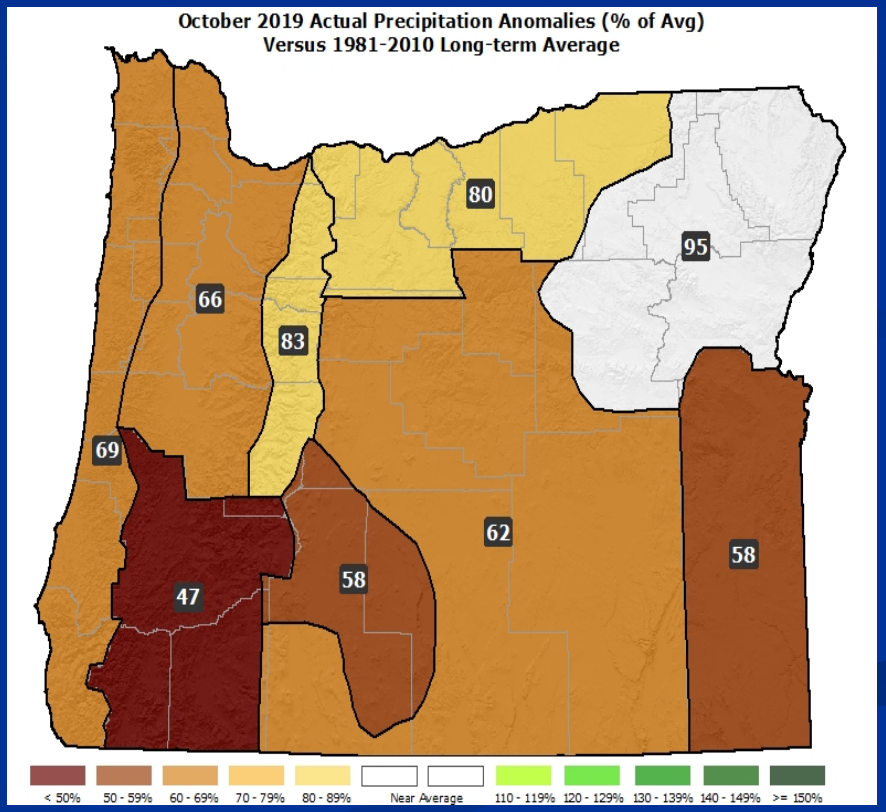
October 2019

(ODF Forecast Issued September 19, 2019)/(Actual)

Forecast Precipitation



Actual Precipitation

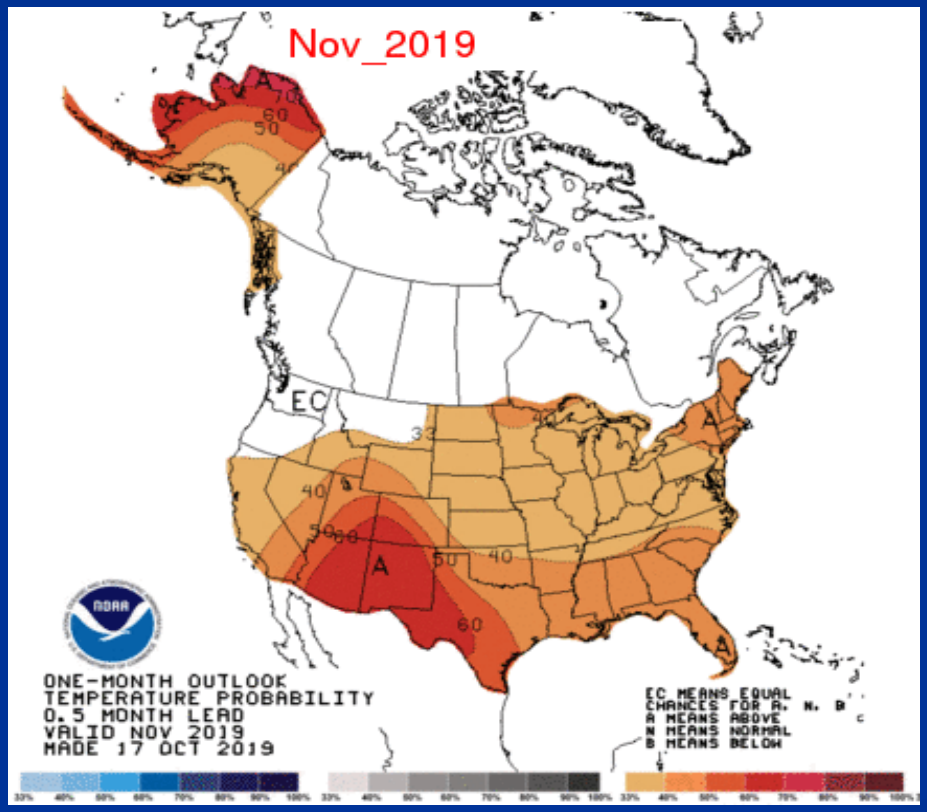


Data courtesy of the National Centers for Environmental Information (NCEI)

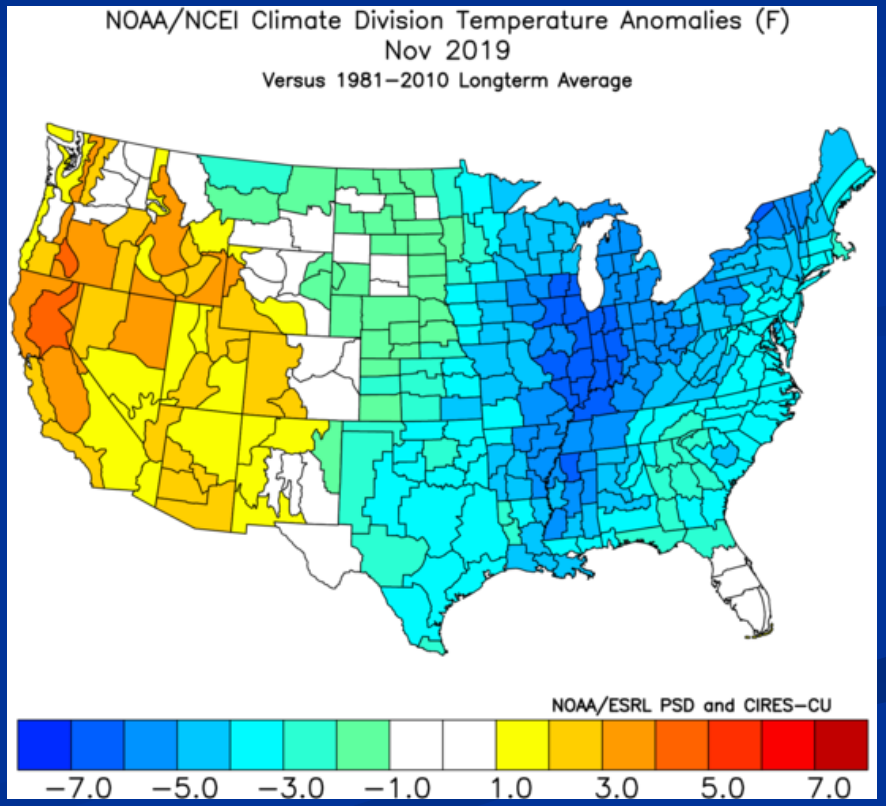
November 2019

(CPC Forecast Issued October 17, 2019)/(Actual)

Forecast Temperatures



Actual Temperatures

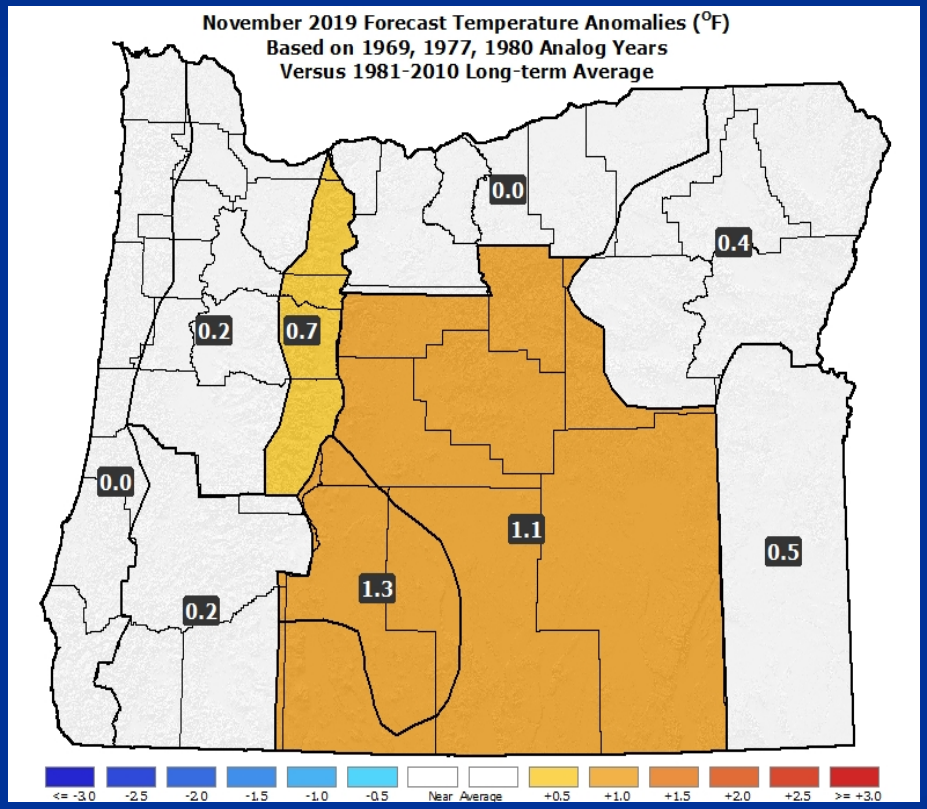


Data courtesy of the National Centers for Environmental Information (NCEI)

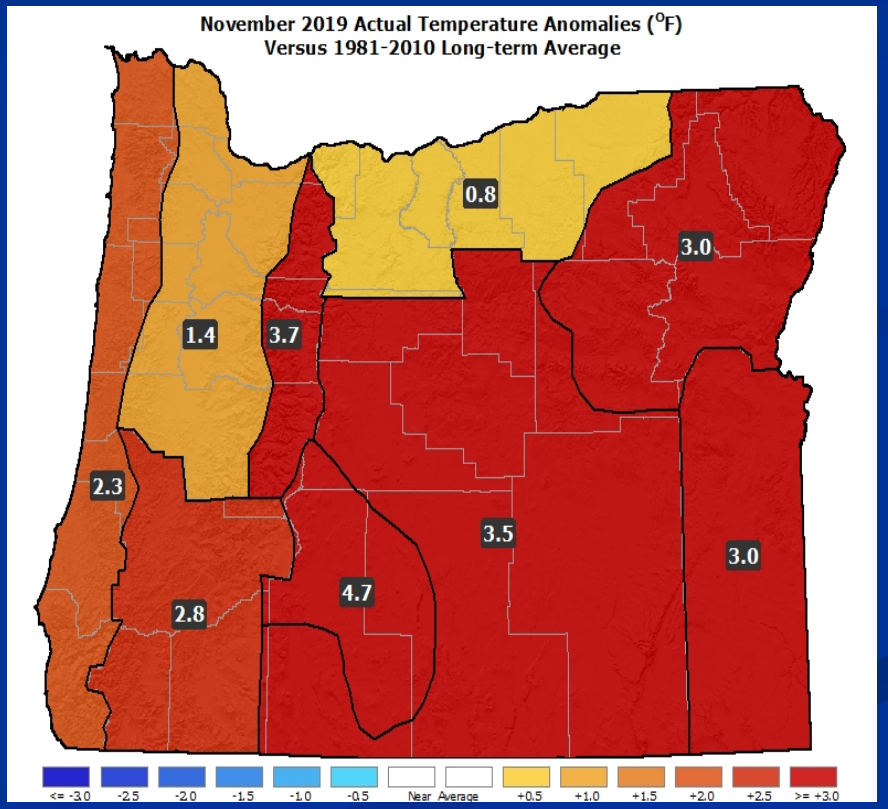
November 2019

(ODF Forecast Issued October 17, 2019)/(Actual)

Forecast Temperatures



Actual Temperatures

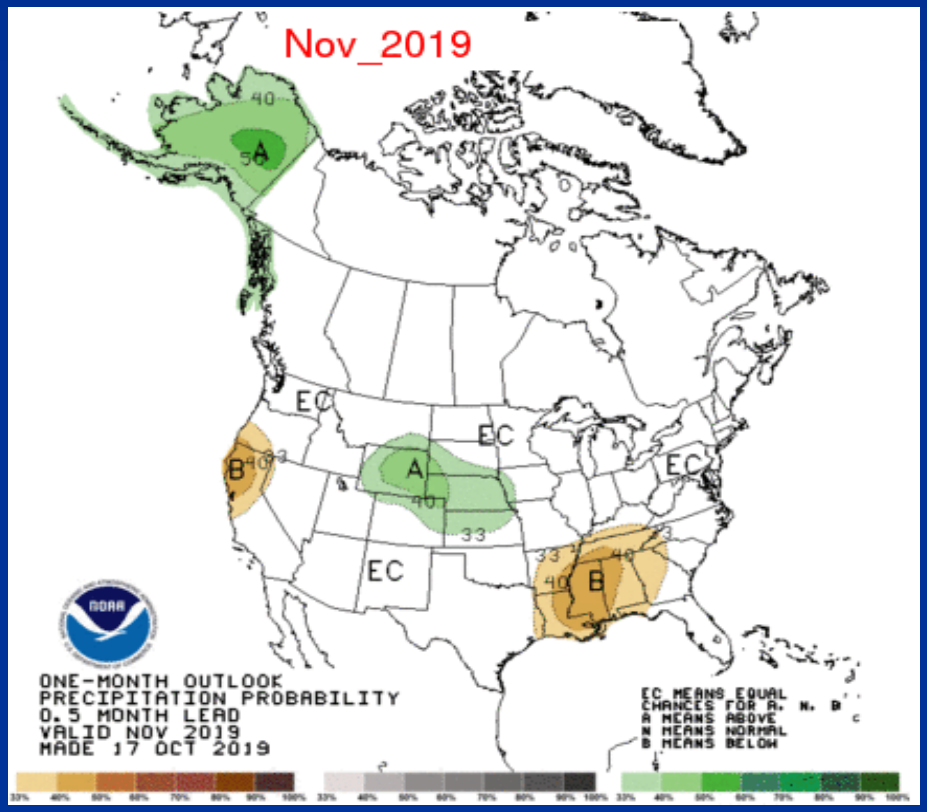


Data courtesy of the National Centers for Environmental Information (NCEI)

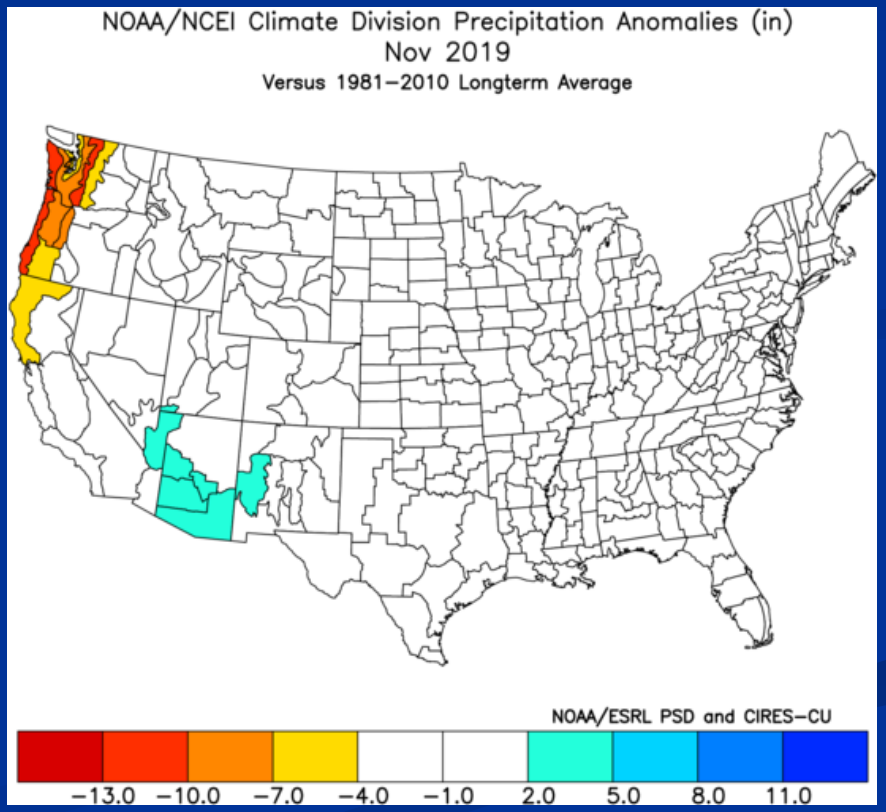
November 2019

(CPC Forecast Issued October 17, 2019)/(Actual)

Forecast Precipitation



Actual Precipitation

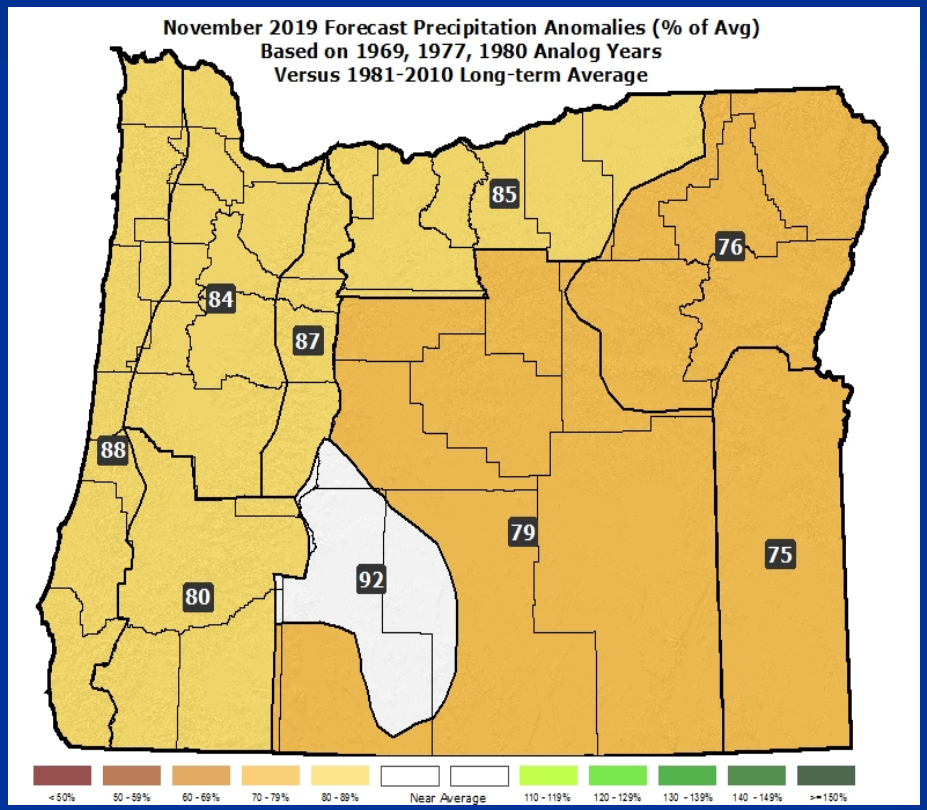


Data courtesy of the National Centers for Environmental Information (NCEI)

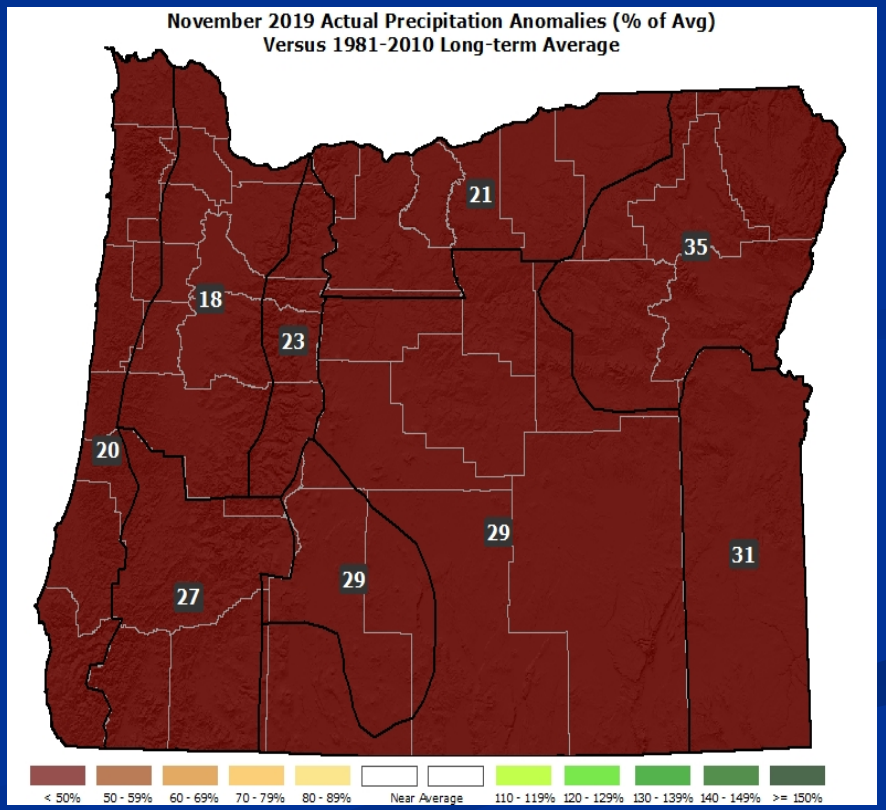
November 2019

(ODF Forecast Issued October 17, 2019)/(Actual)

Forecast Precipitation



Actual Precipitation

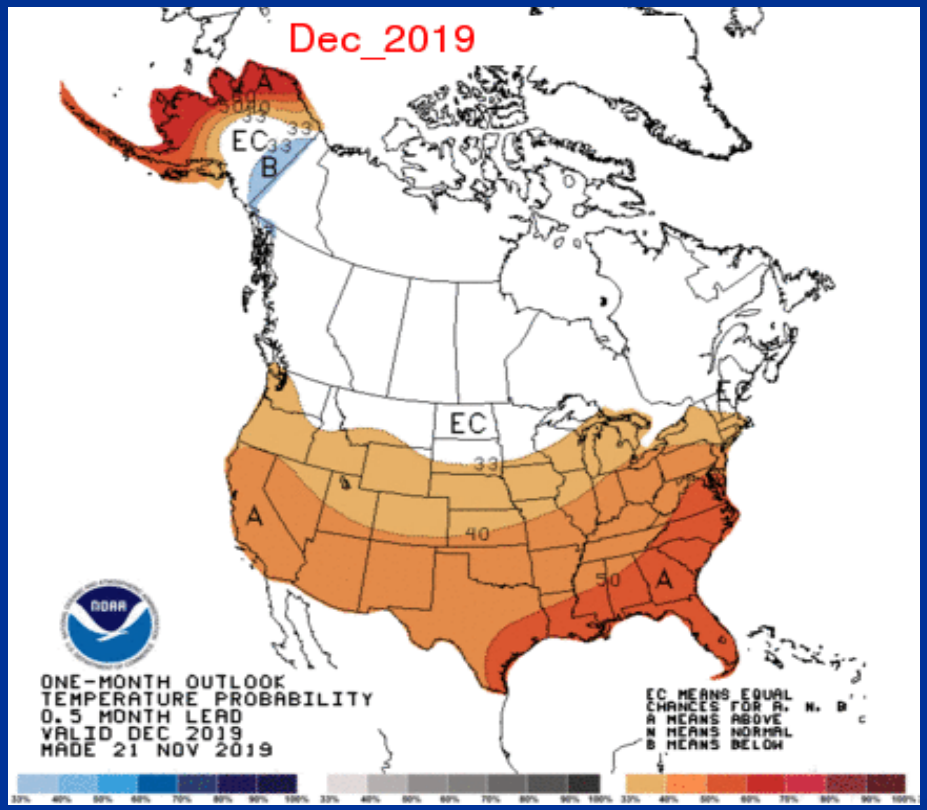


Data courtesy of the National Centers for Environmental Information (NCEI)

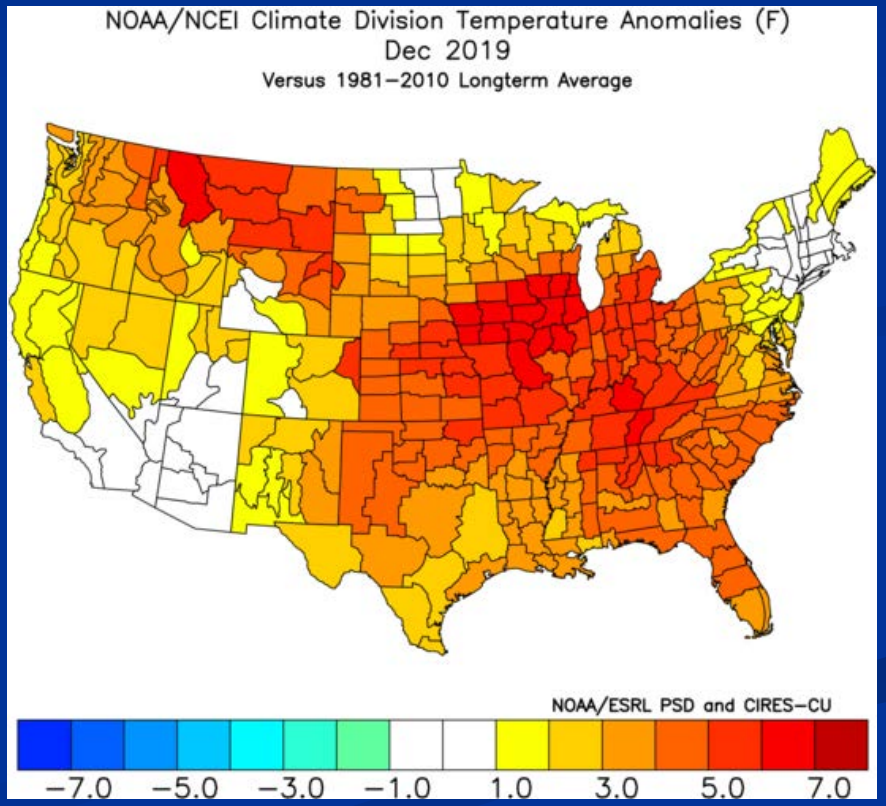
December 2019

(CPC Forecast Issued November 21, 2019)/(Actual)

Forecast Temperatures



Actual Temperatures

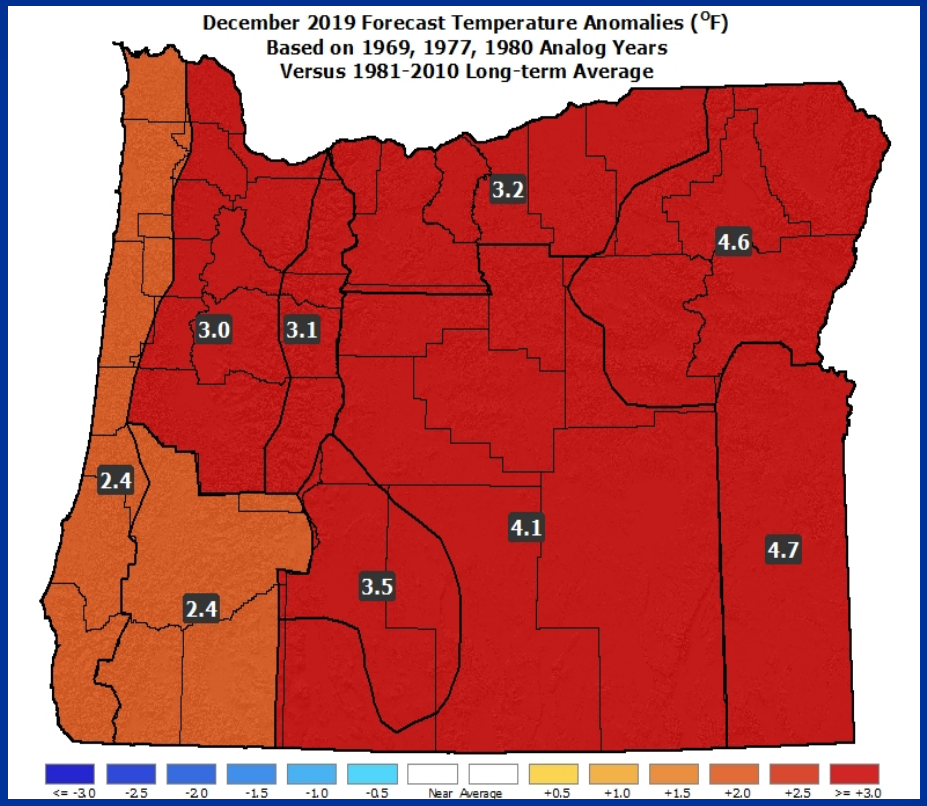


Data courtesy of the National Centers for Environmental Information (NCEI)

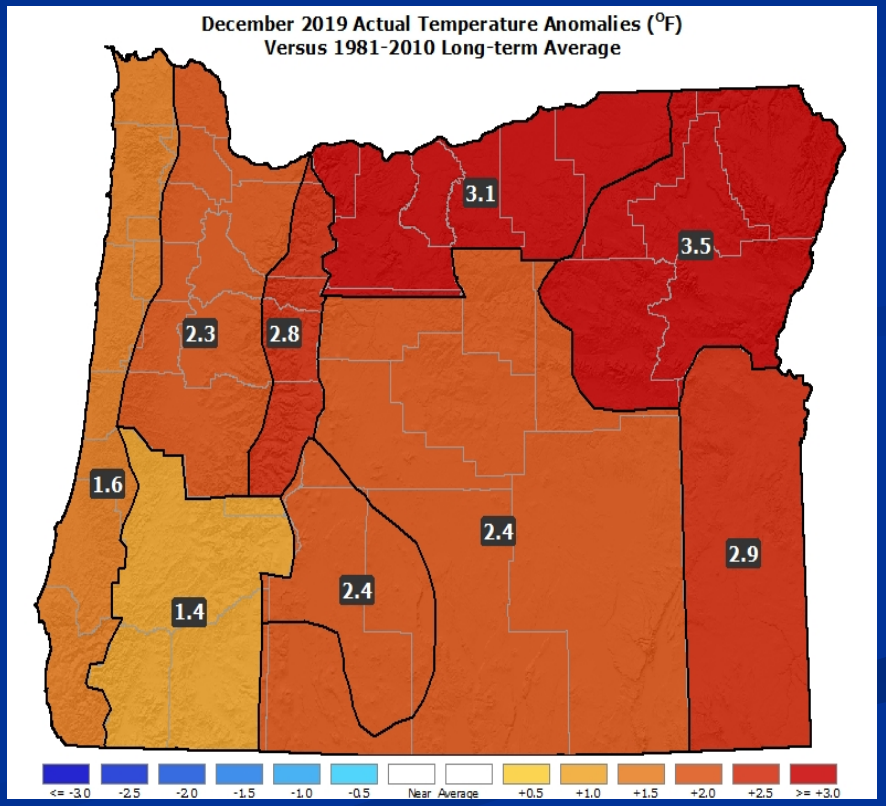
December 2019

(ODF Forecast Issued November 21, 2019)/(Actual)

Forecast Temperatures



Actual Temperatures

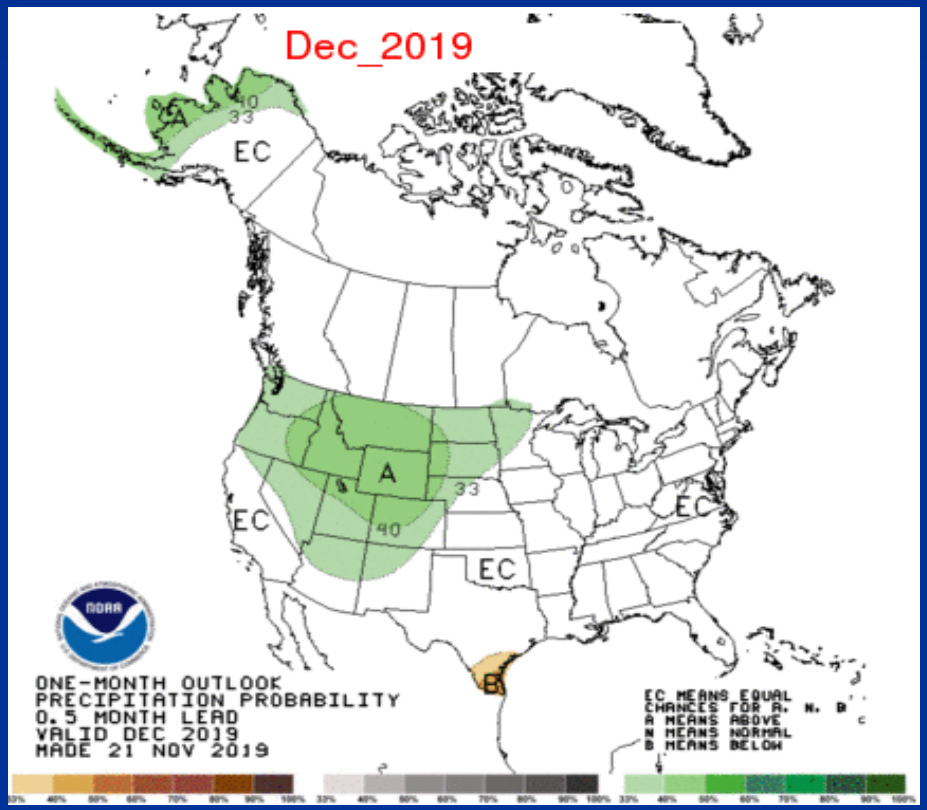


Data courtesy of the National Centers for Environmental Information (NCEI)

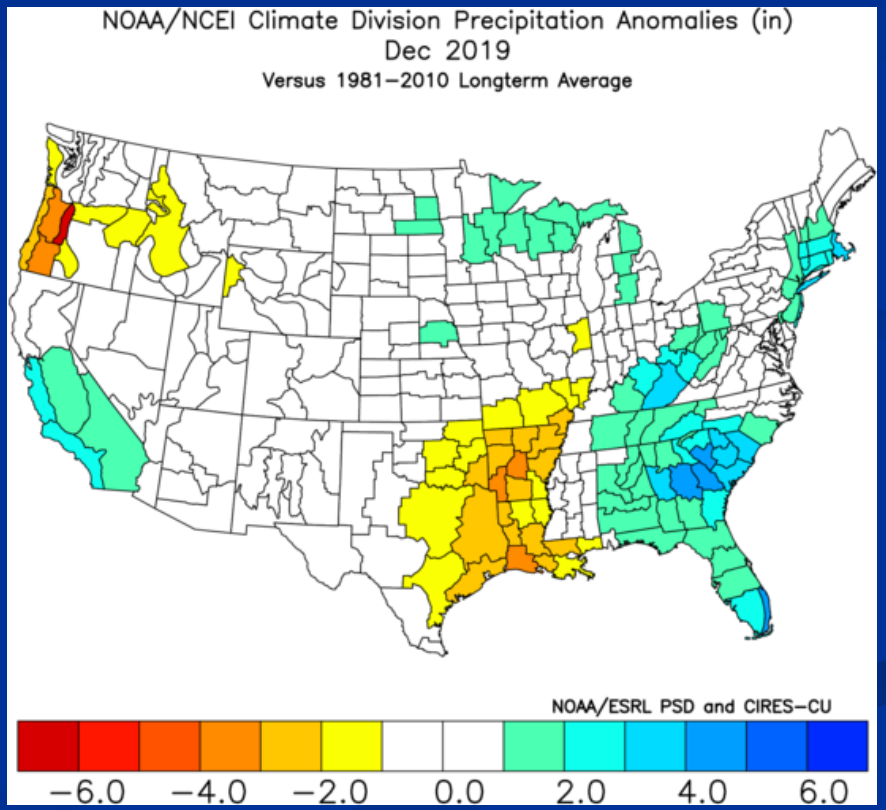
December 2019

(CPC Forecast Issued November 21, 2019)/(Actual)

Forecast Precipitation



Actual Precipitation

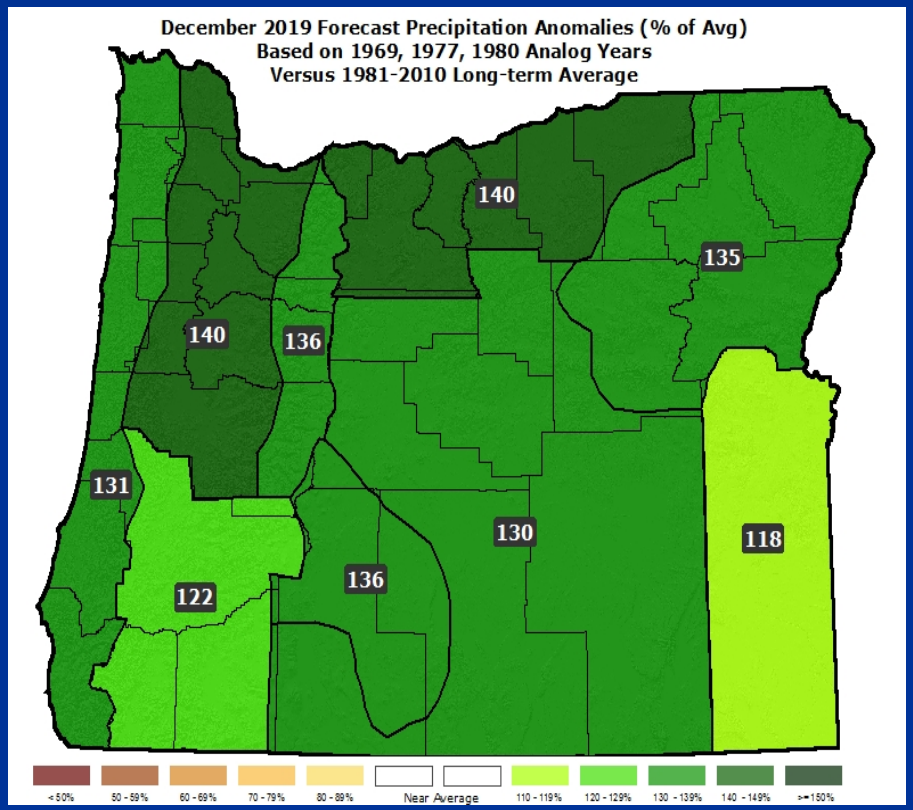


Data courtesy of the National Centers for Environmental Information (NCEI)

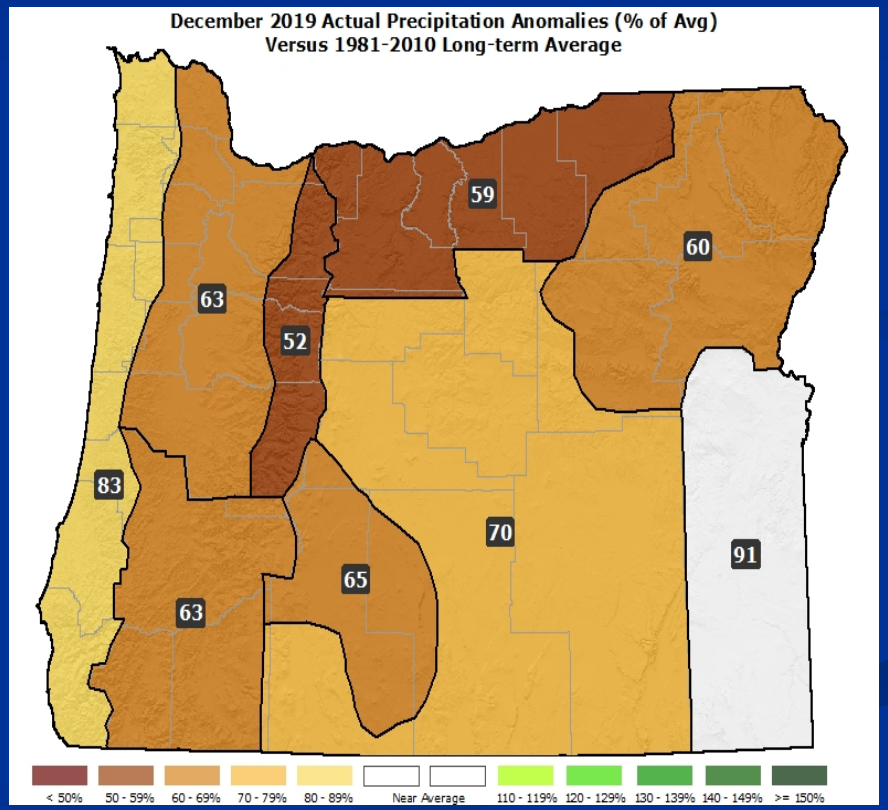
December 2019

(ODF Forecast Issued November 21, 2019)/(Actual)

Forecast Precipitation



Actual Precipitation

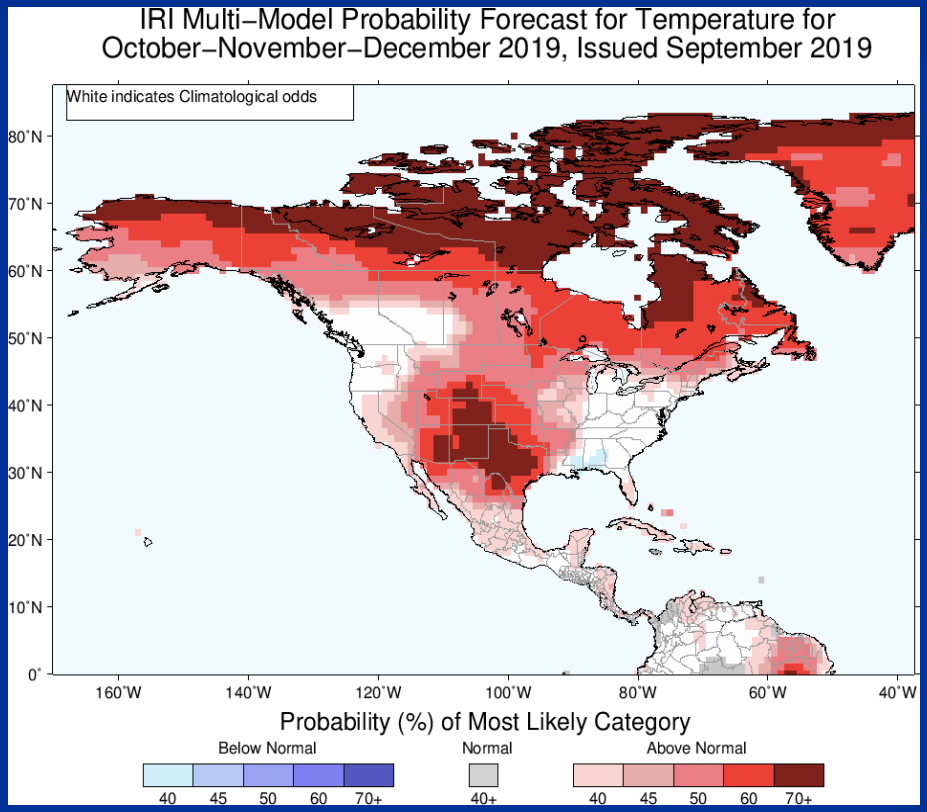


Data courtesy of the National Centers for Environmental Information (NCEI)

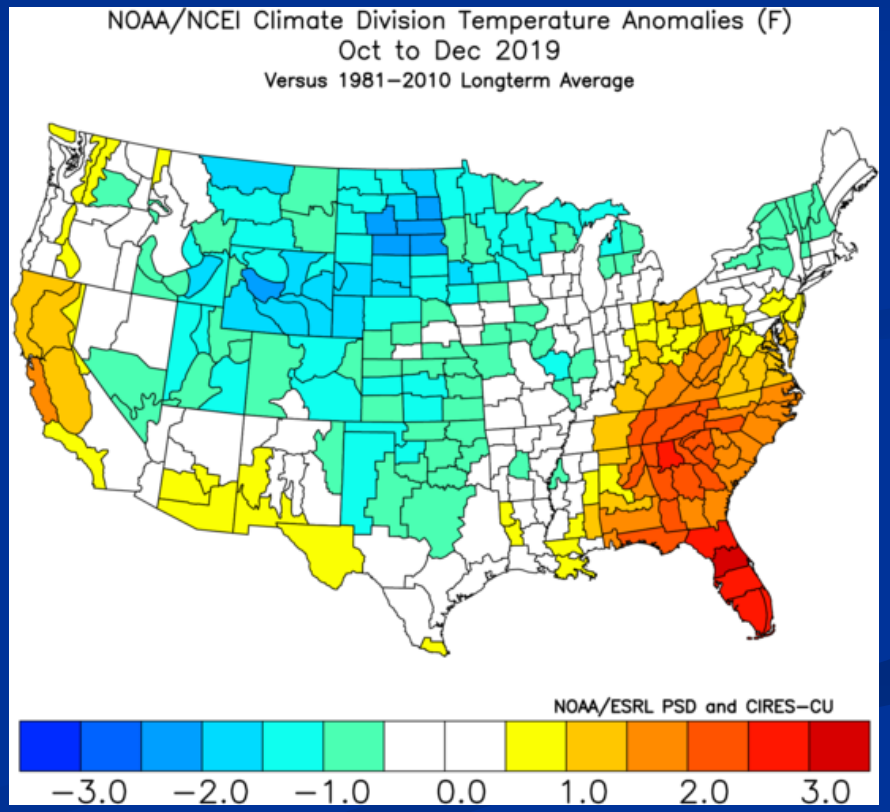
October – December 2019

(IRI Forecast Issued September, 2019)/(Actual)

Forecast Temperatures



Actual Temperatures

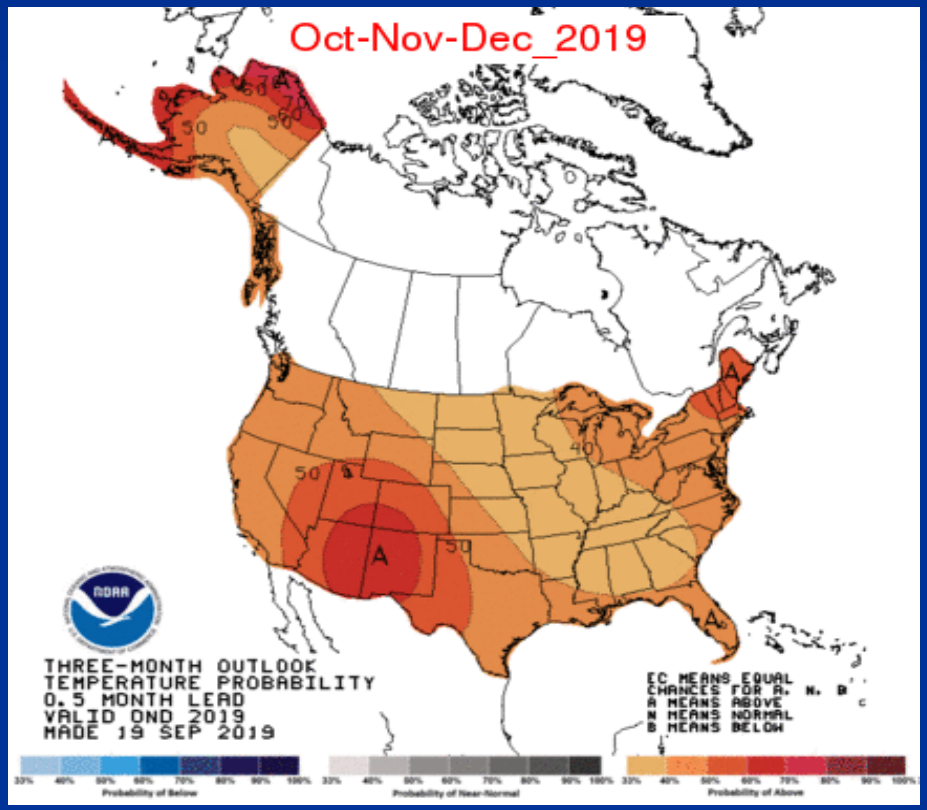


Data courtesy of the National Centers for Environmental Information (NCEI)

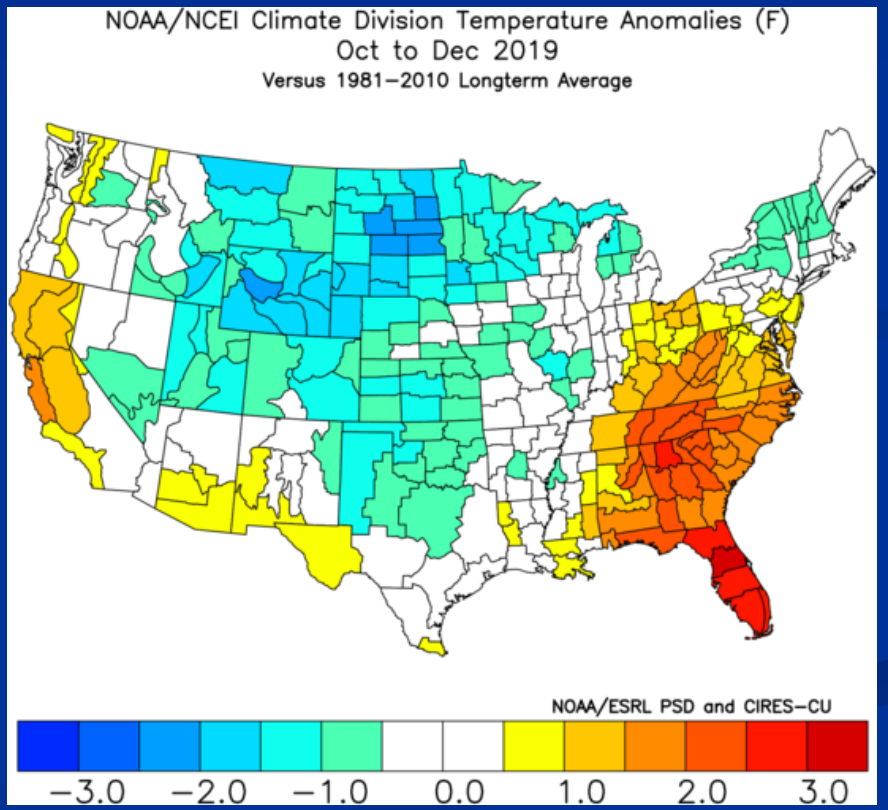
October – December 2019

(CPC Forecast Issued September 19, 2019)/(Actual)

Forecast Temperatures



Actual Temperatures

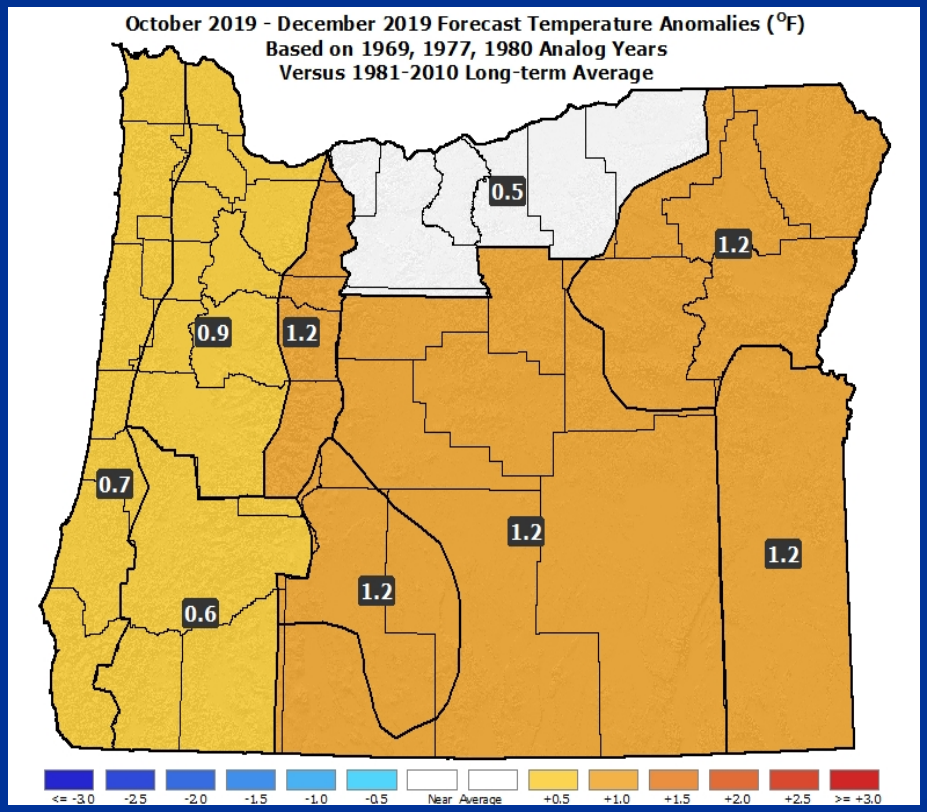


Data courtesy of the National Centers for Environmental Information (NCEI)

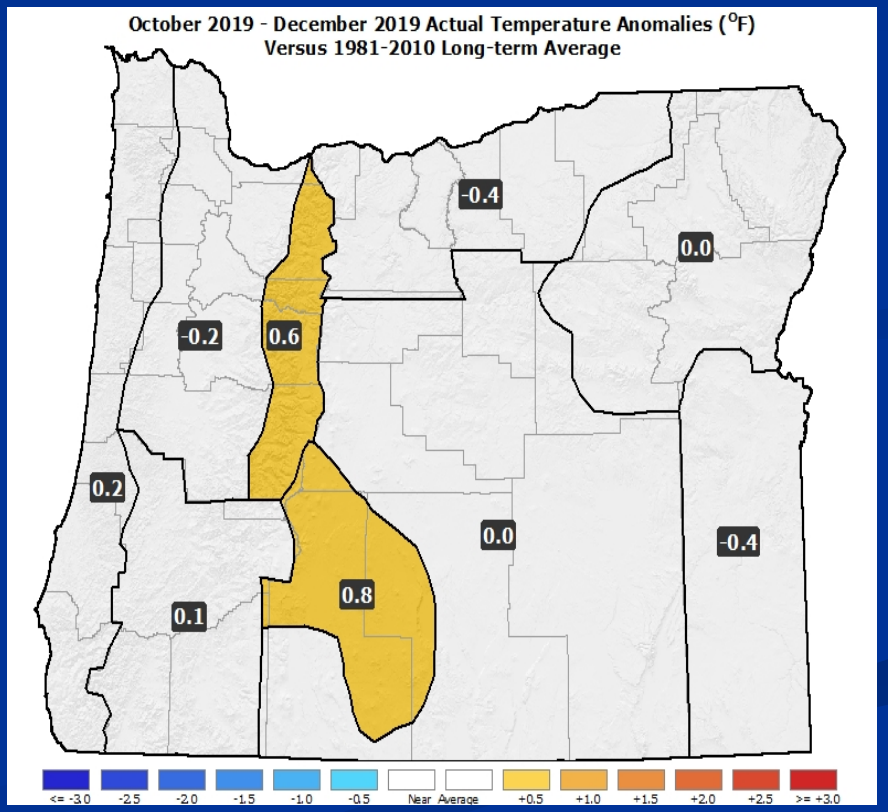
October – December 2019

(ODF Forecast Issued September 19, 2019)/(Actual)

Forecast Temperatures



Actual Temperatures

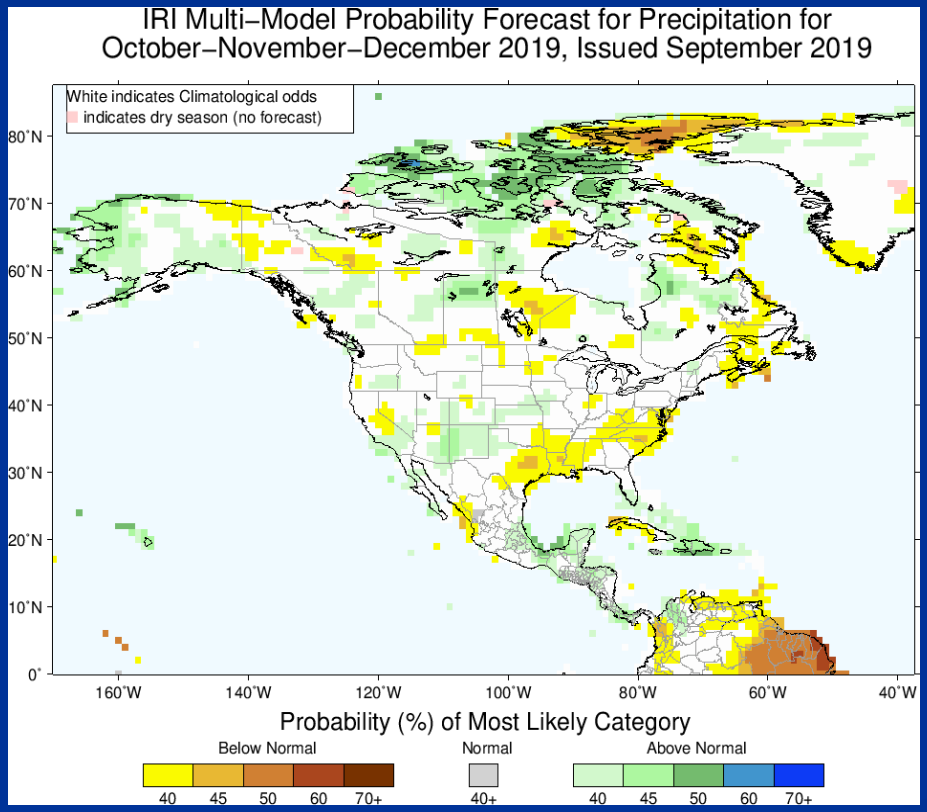


Data courtesy of the National Centers for Environmental Information (NCEI)

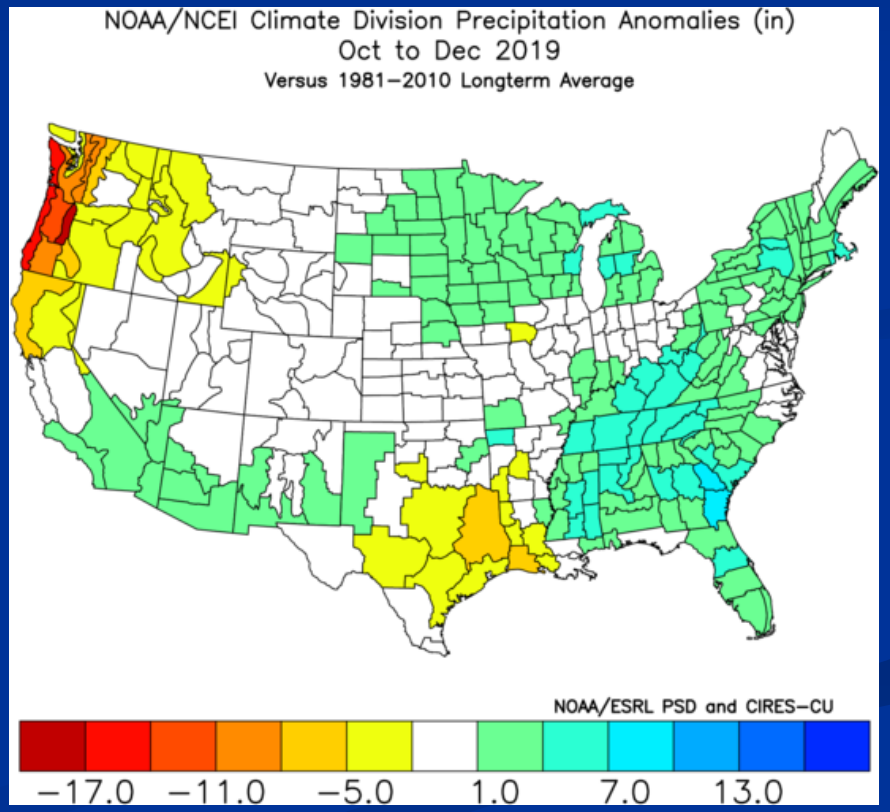
October – December 2019

(IRI Forecast Issued September, 2019)/(Actual)

Forecast Precipitation



Actual Precipitation

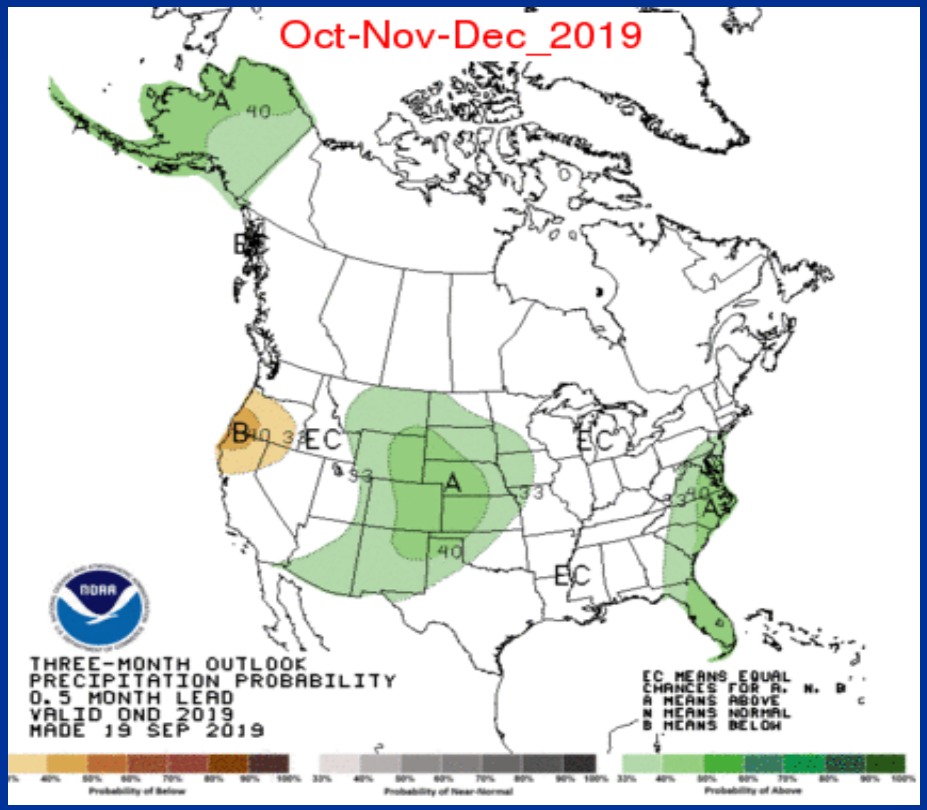


Data courtesy of the National Centers for Environmental Information (NCEI)

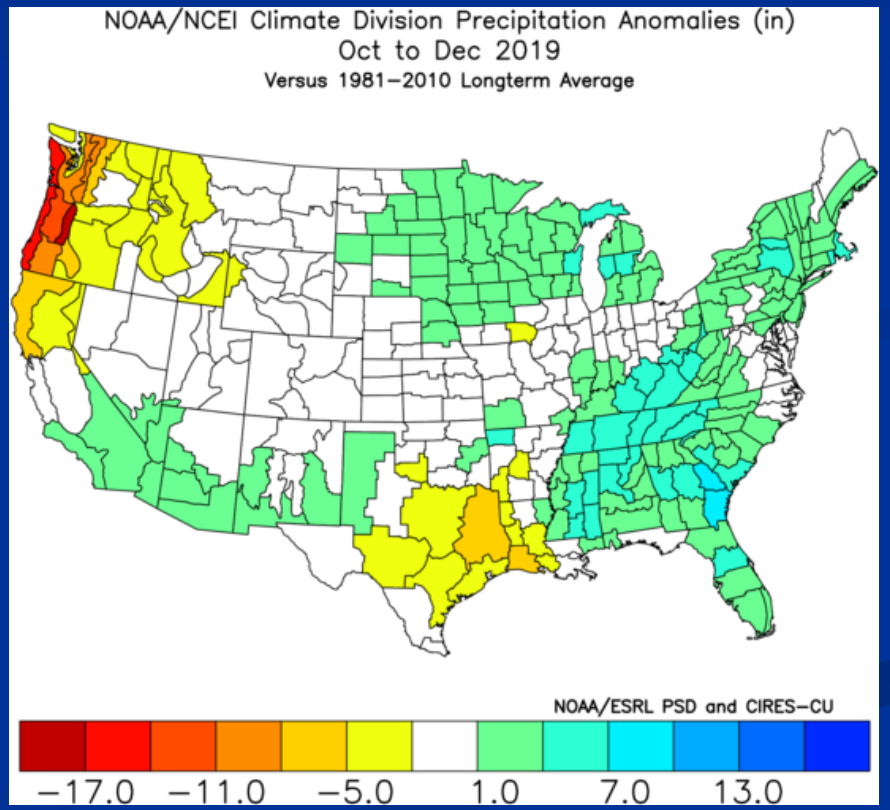
October – December 2019

(CPC Forecast Issued September 19, 2019) / (Actual)

Forecast Precipitation



Actual Precipitation

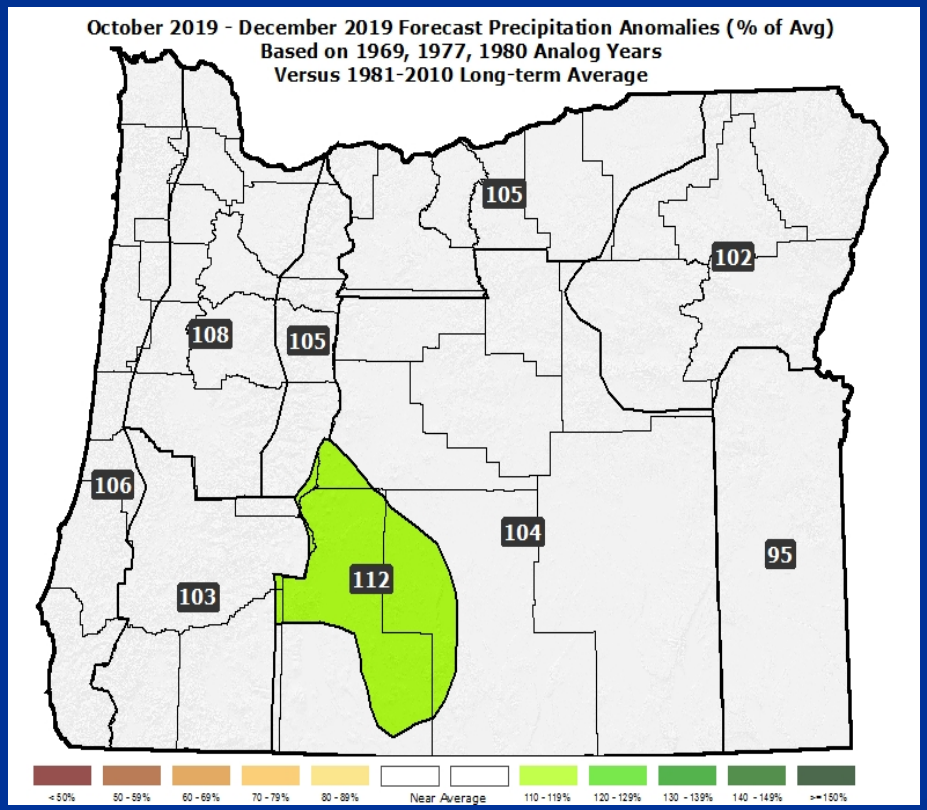


Data courtesy of the National Centers for Environmental Information (NCEI)

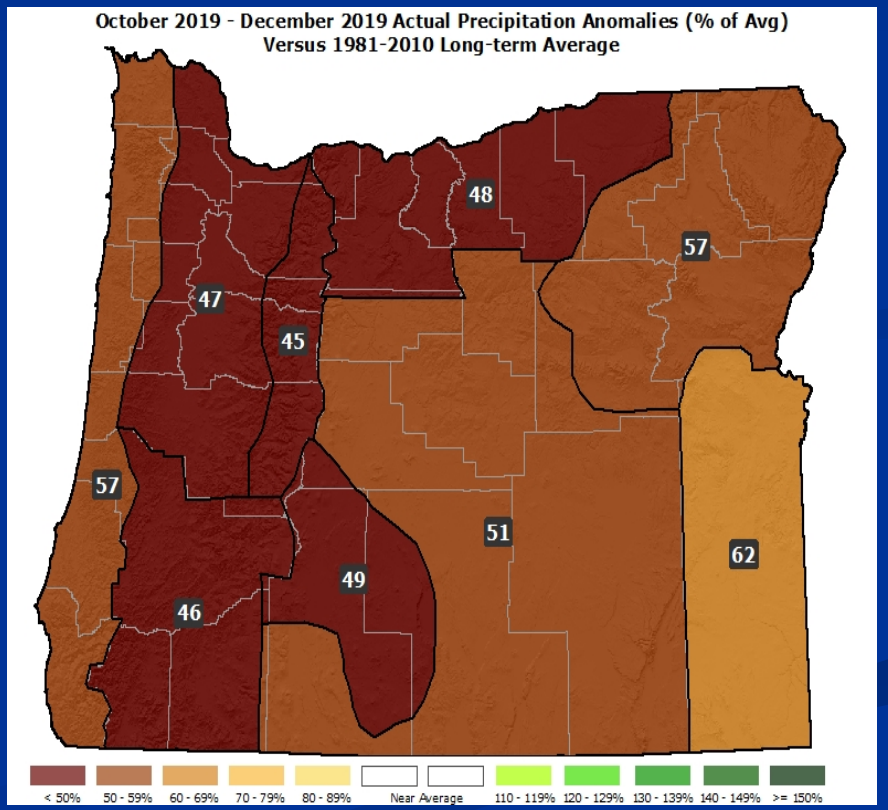
October – December 2019

(ODF Forecast Issued September 19, 2019)/(Actual)

Forecast Precipitation



Actual Precipitation

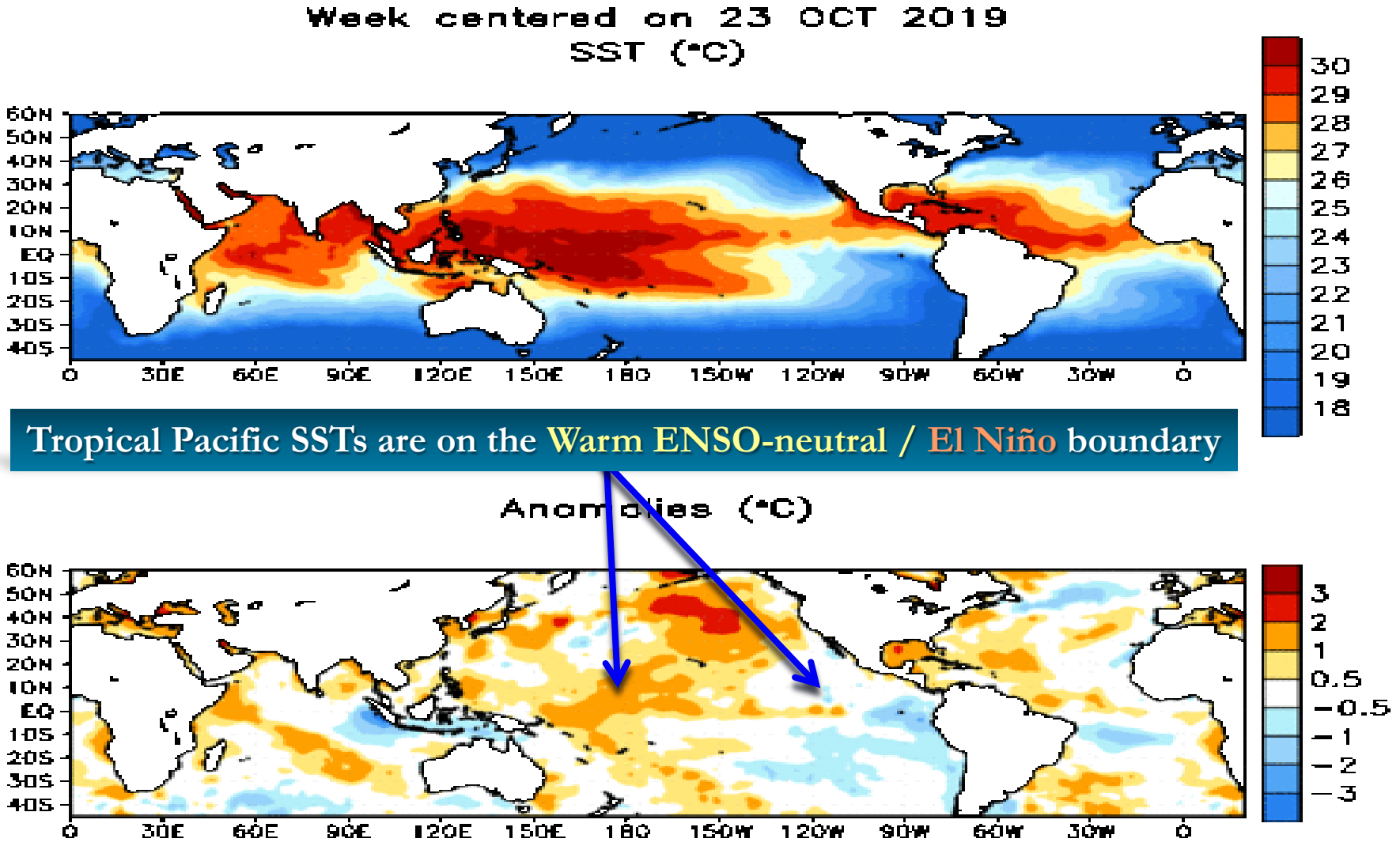


Data courtesy of the National Centers for Environmental Information (NCEI)

Gazing into the Future…

Pacific Ocean

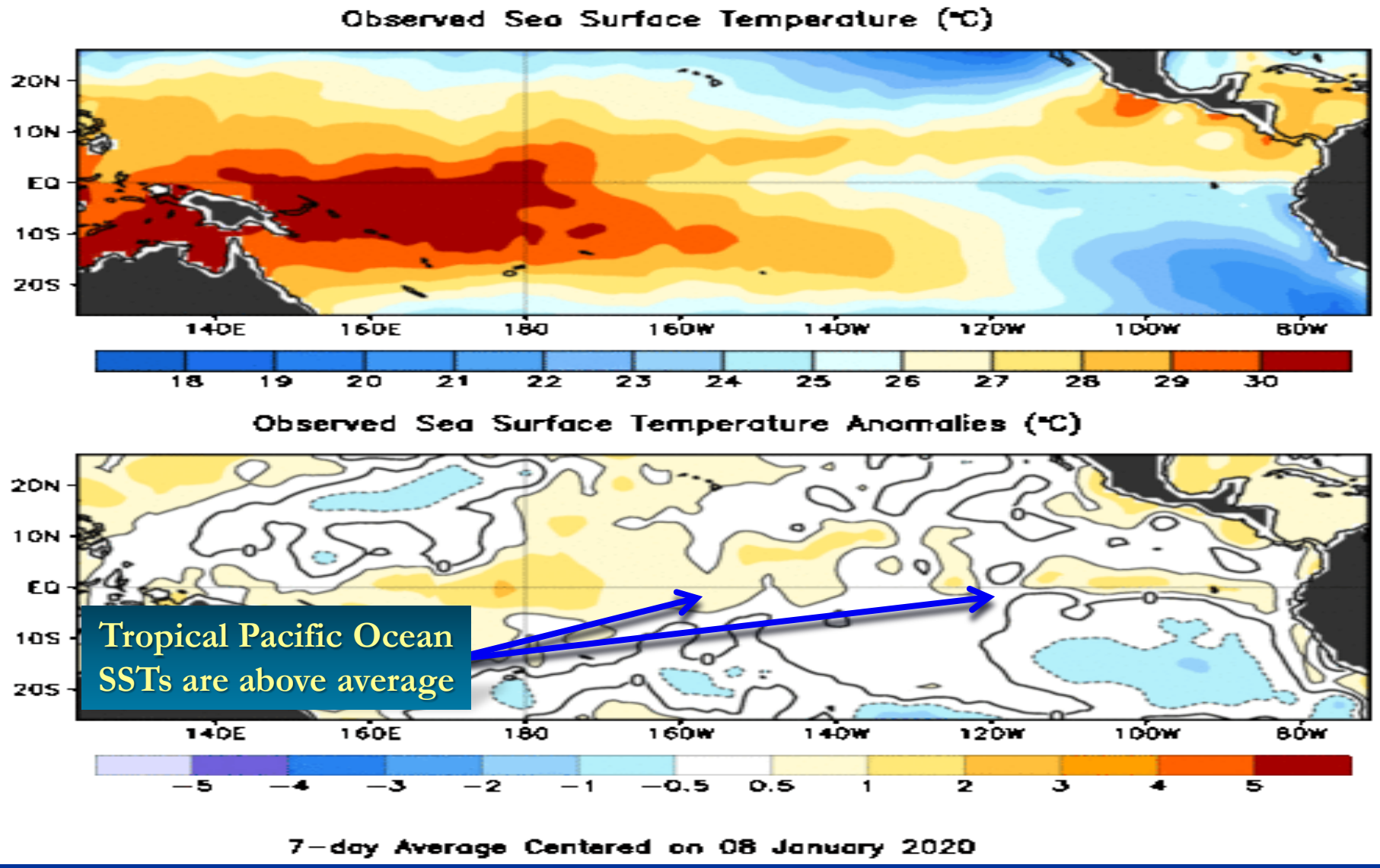
Animated (PowerPoint only) SSTs (top) / Anomalies (bottom)



Courtesy: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/gsstanim.shtml

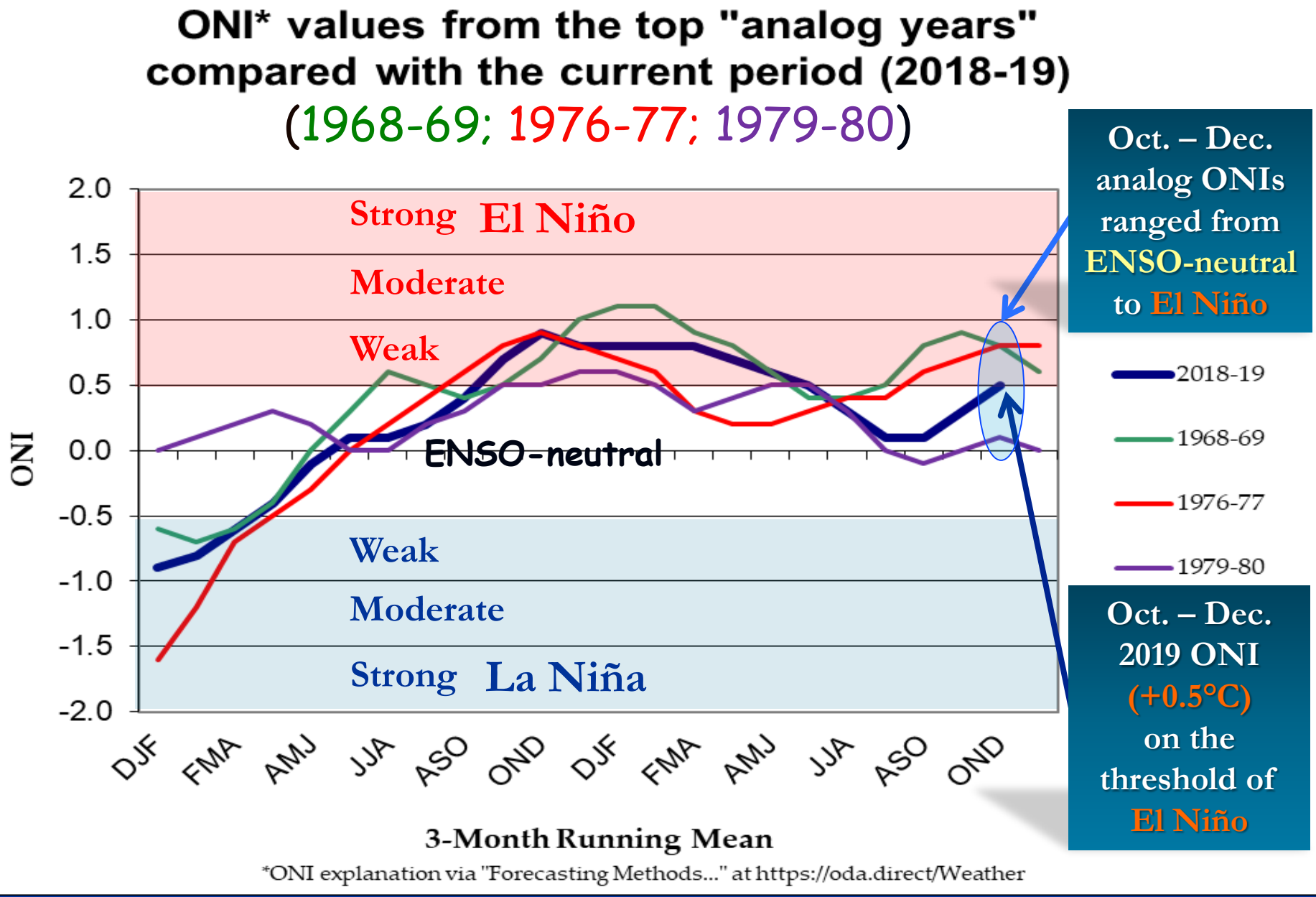
Tropical Pacific Ocean

Currently Bordering on Weak El Niño Conditions

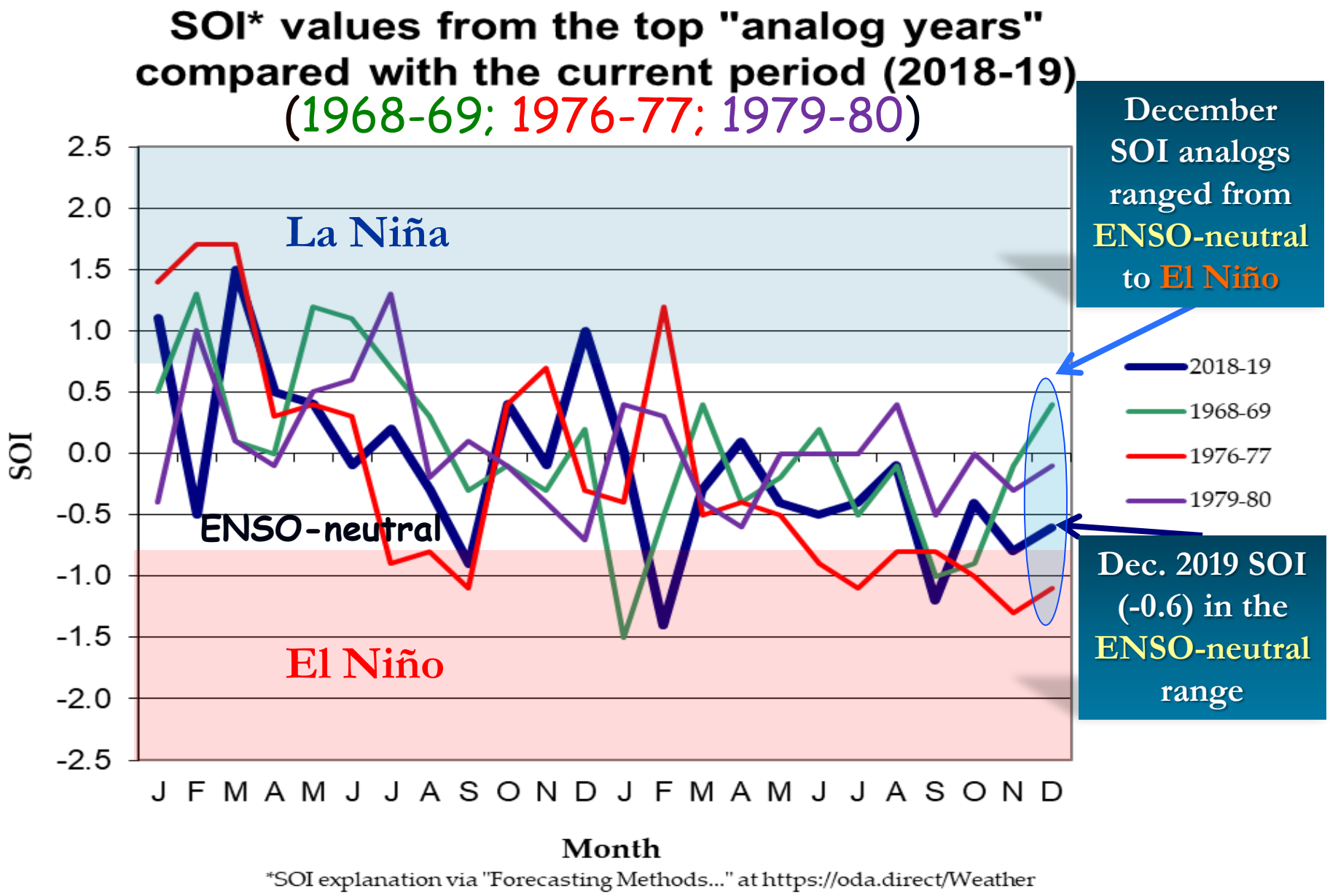


Courtesy: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_update/sstweek_c.gif

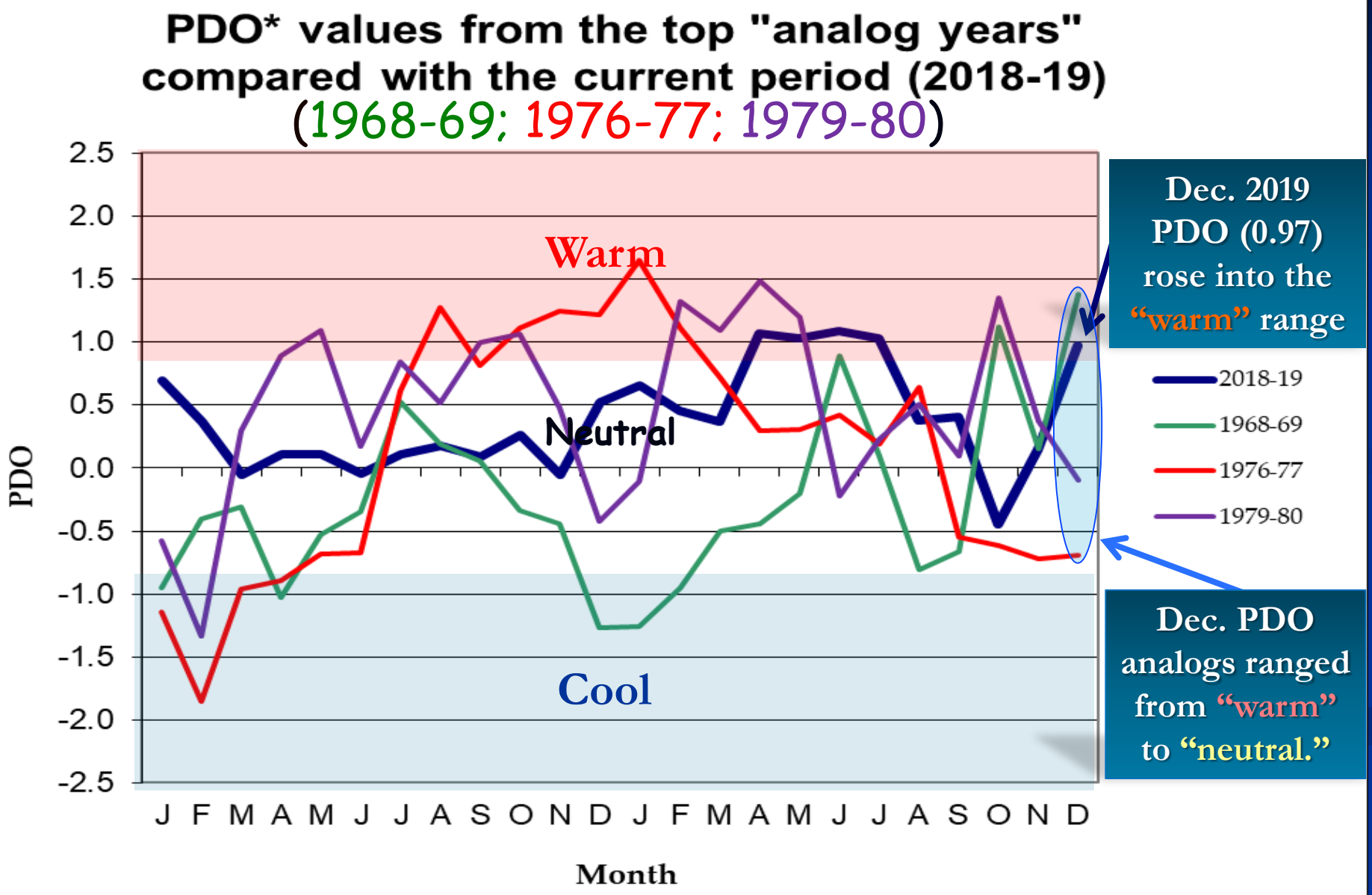
Tropical Pacific Ocean



Tropical Pacific Ocean



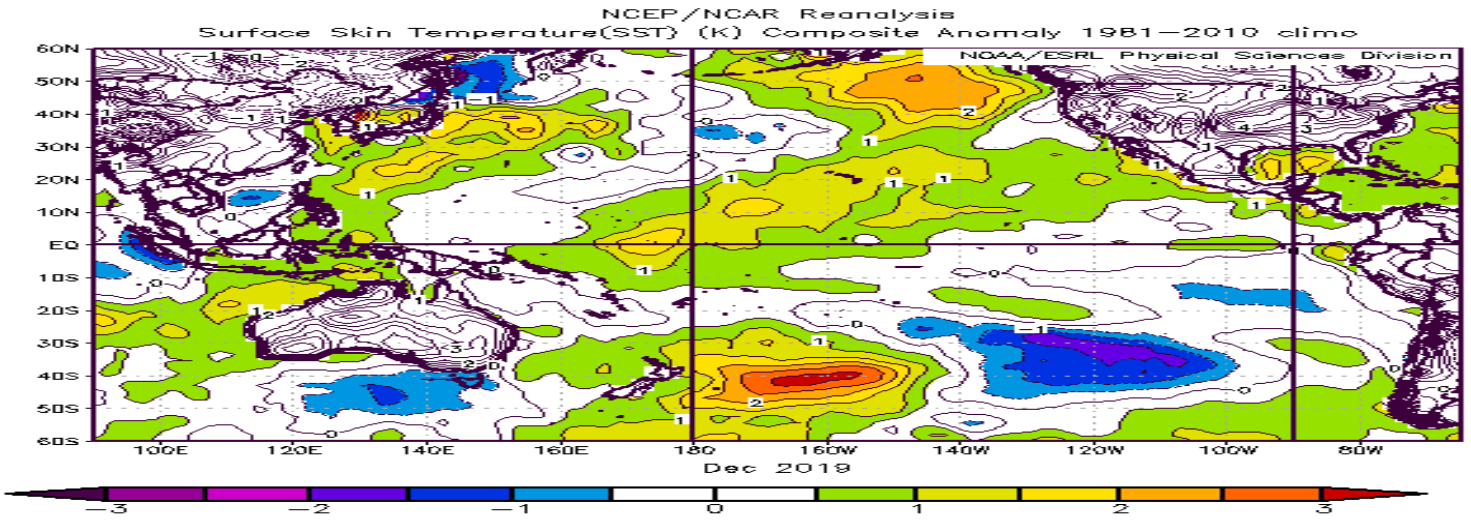
North Pacific Ocean

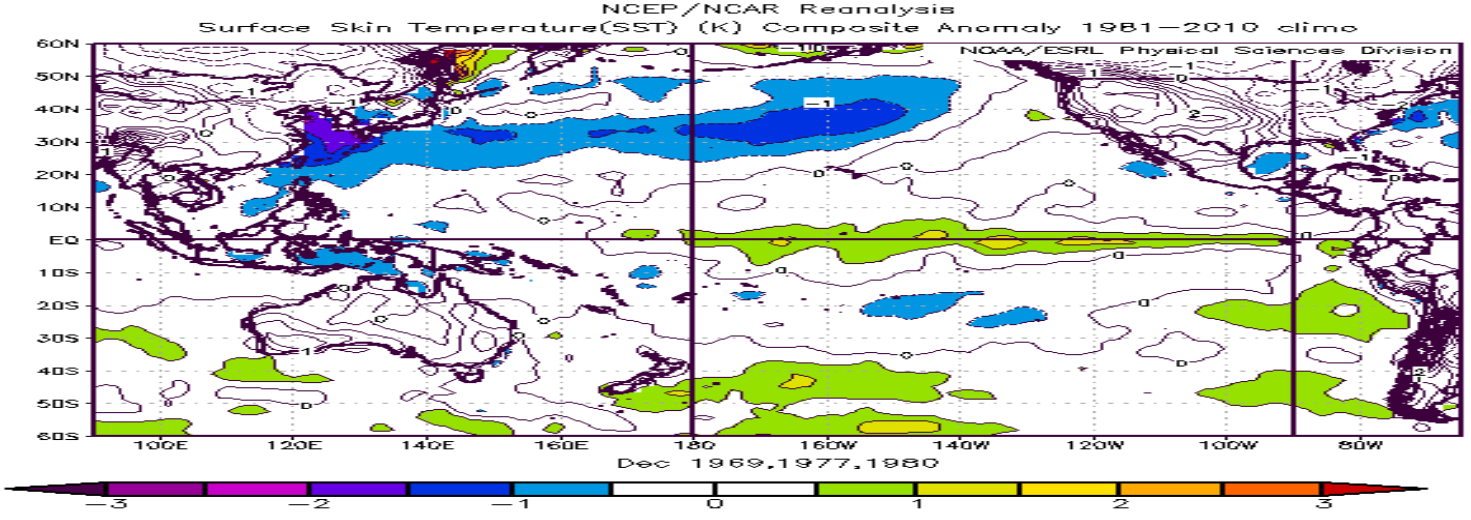


*To see PDO explanation, go to https://oda.direct/Weather and click on "Forecasting Methods."

Tropical Pacific Ocean

December 2019 (top) and Analog Comp (bottom) SST Anomalies

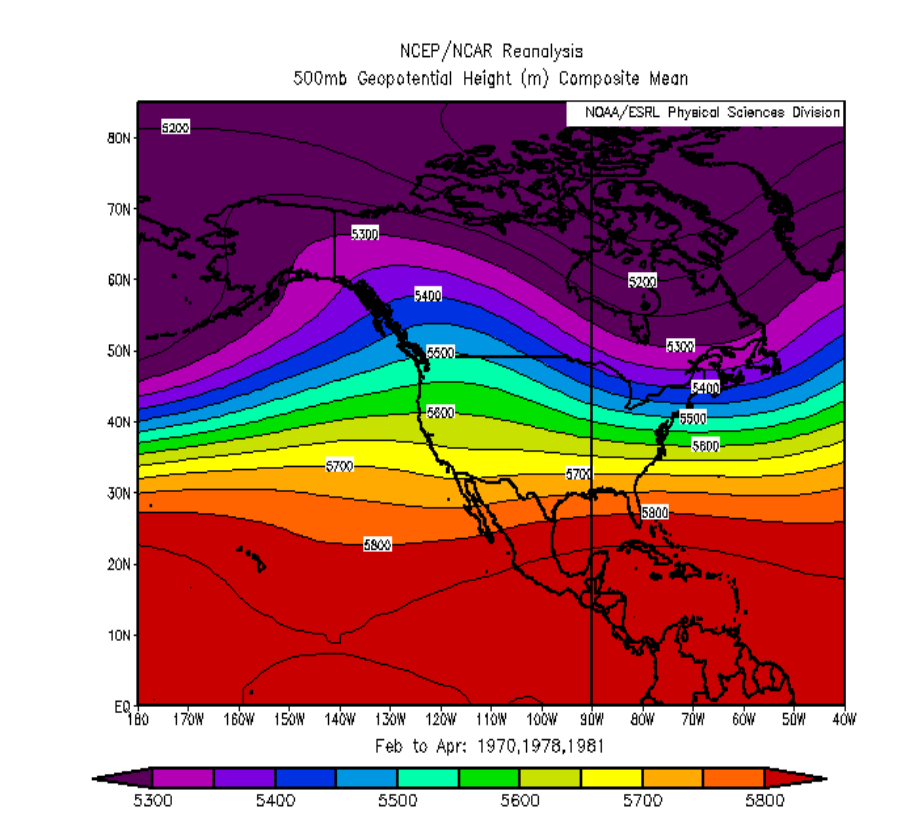




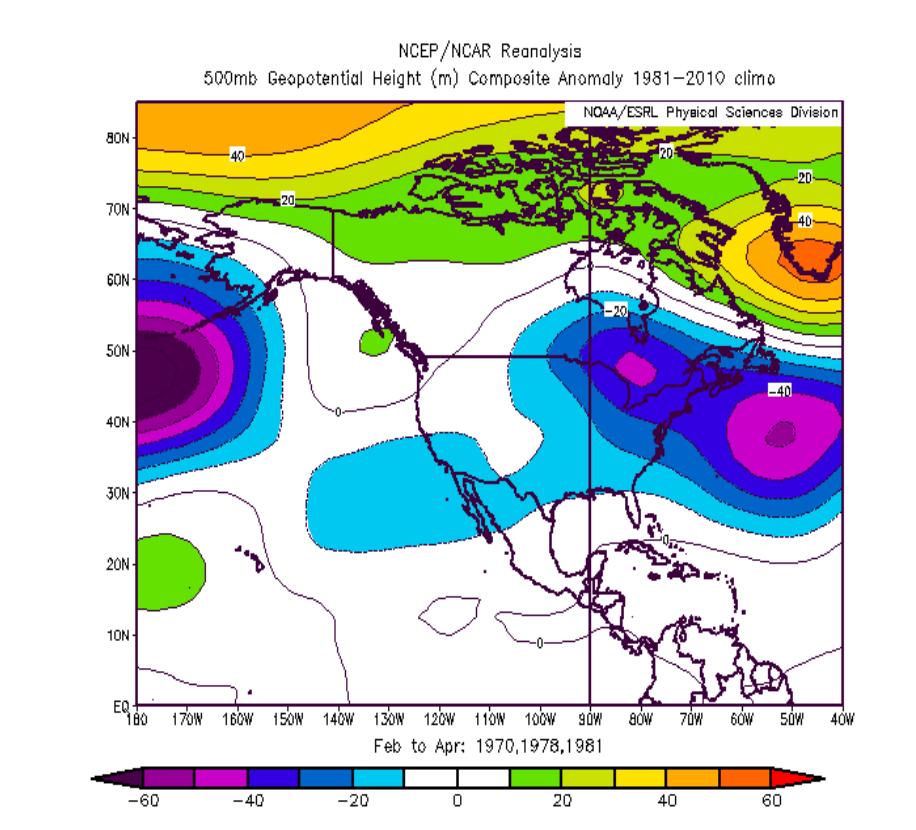
Courtesy: https://www.esrl.noaa.gov/psd/cgi-bin/data/composites/printpage.pl

February – April 2020 Forecast

Mean Upper-Air Pattern



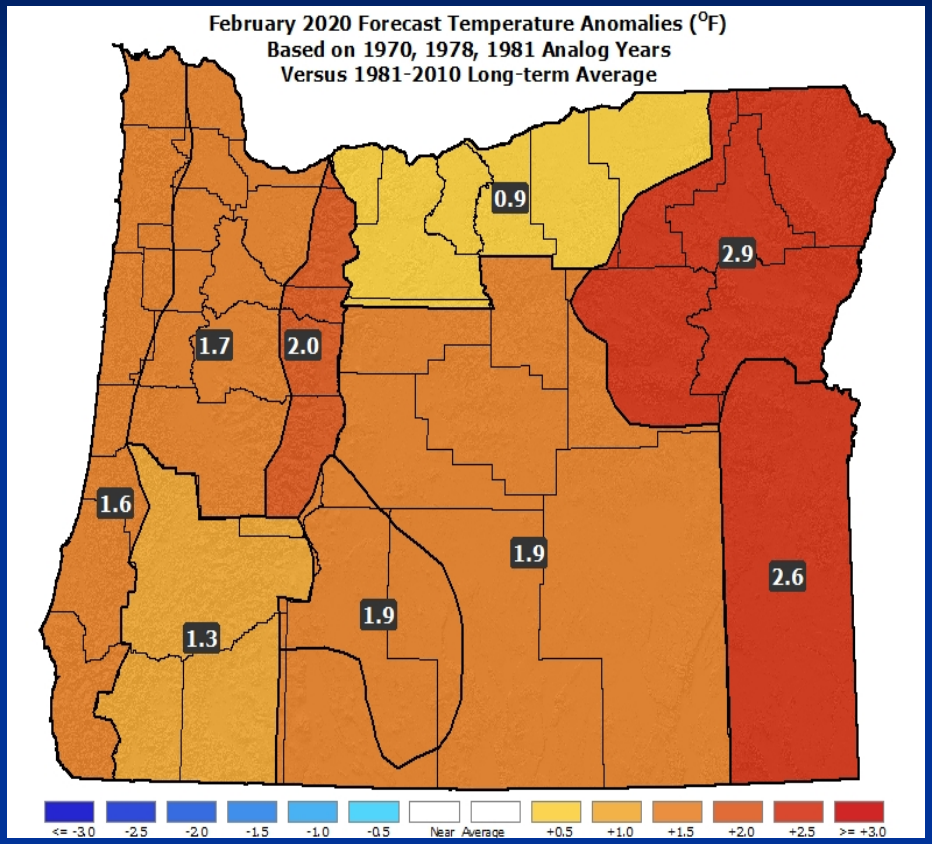
Upper-Air Anomalies



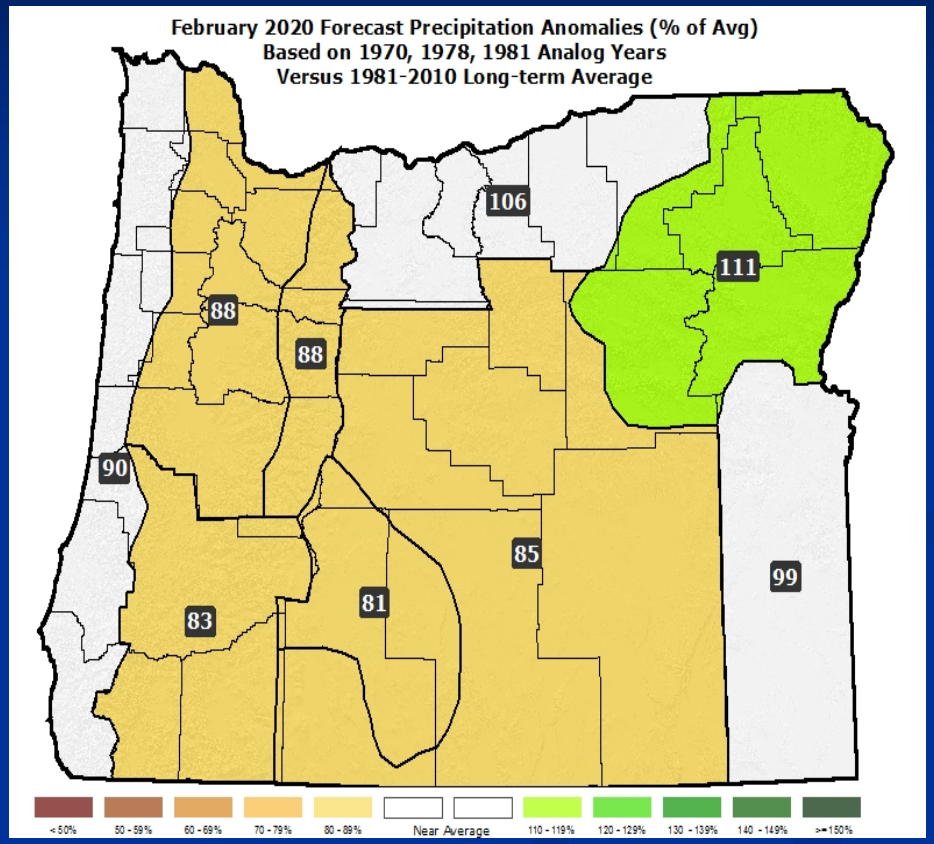
- Analogs favor weak anomalous upper-level ridging over the Pac NW.
- A "split-flow" jet stream pattern, typical of warm ENSO-neutral or weak El Niño conditions, is expected over the U.S. west coast.

February 2020 Forecast

Temperatures



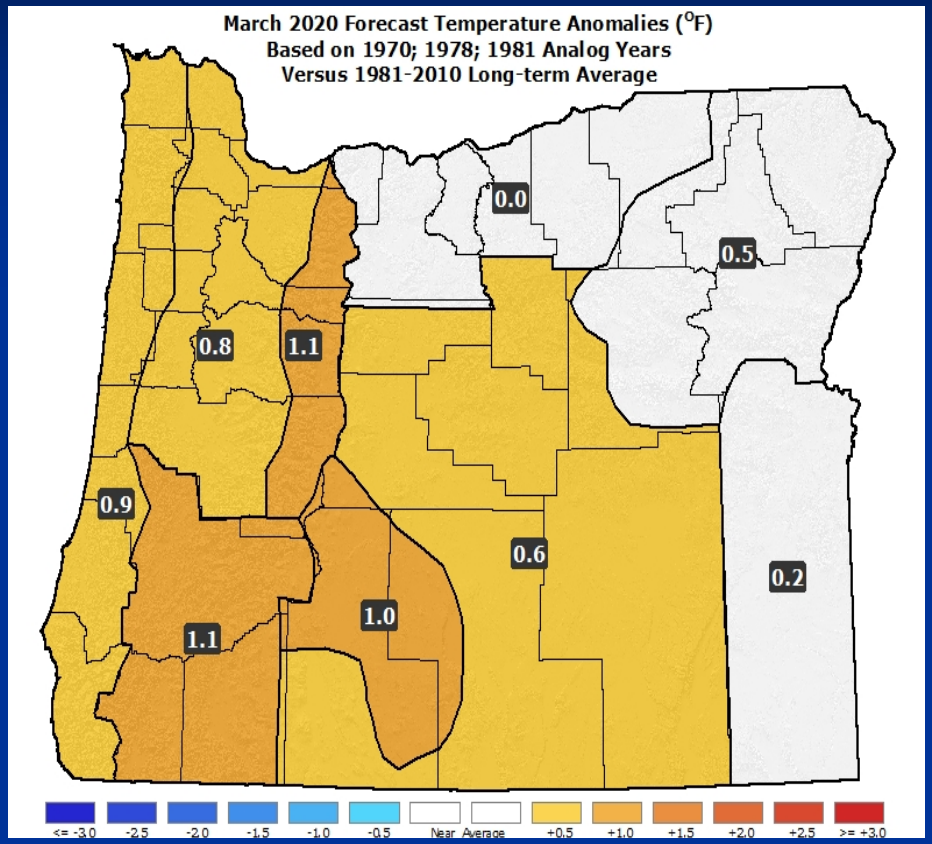
Precipitation



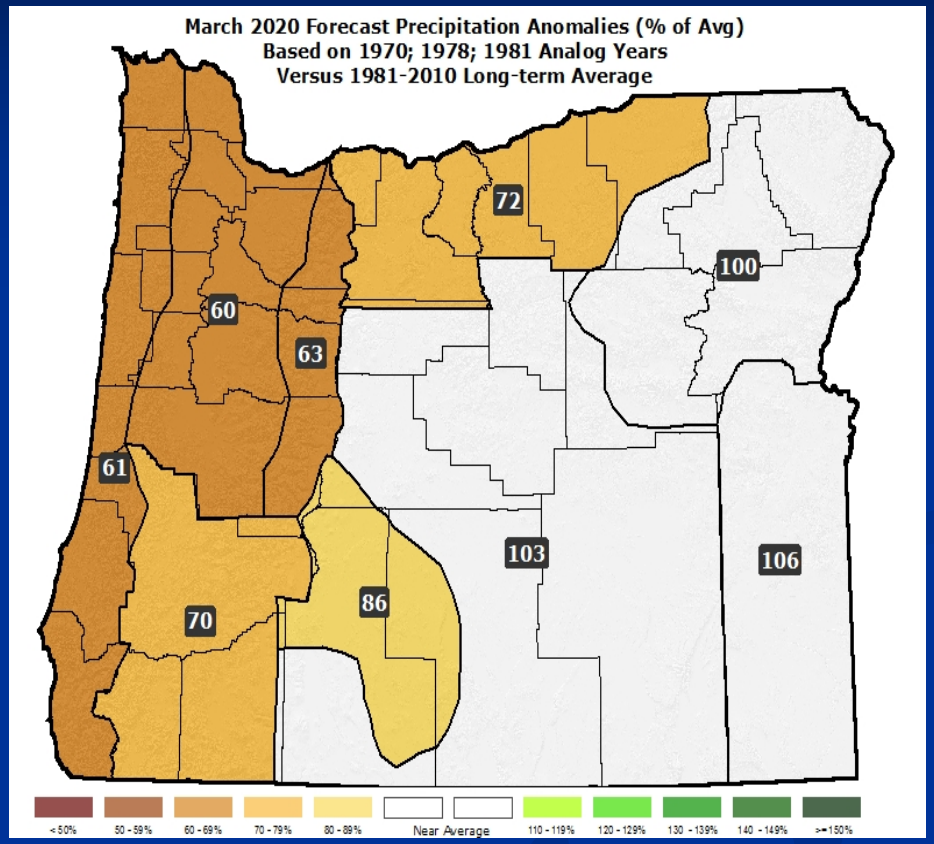
- Analog years were consistent and showing above-average temperatures and near or slightly below-average precipitation.
- Snowpacks should hold steady or decline, relative to average.

March 2020 Forecast

Temperatures



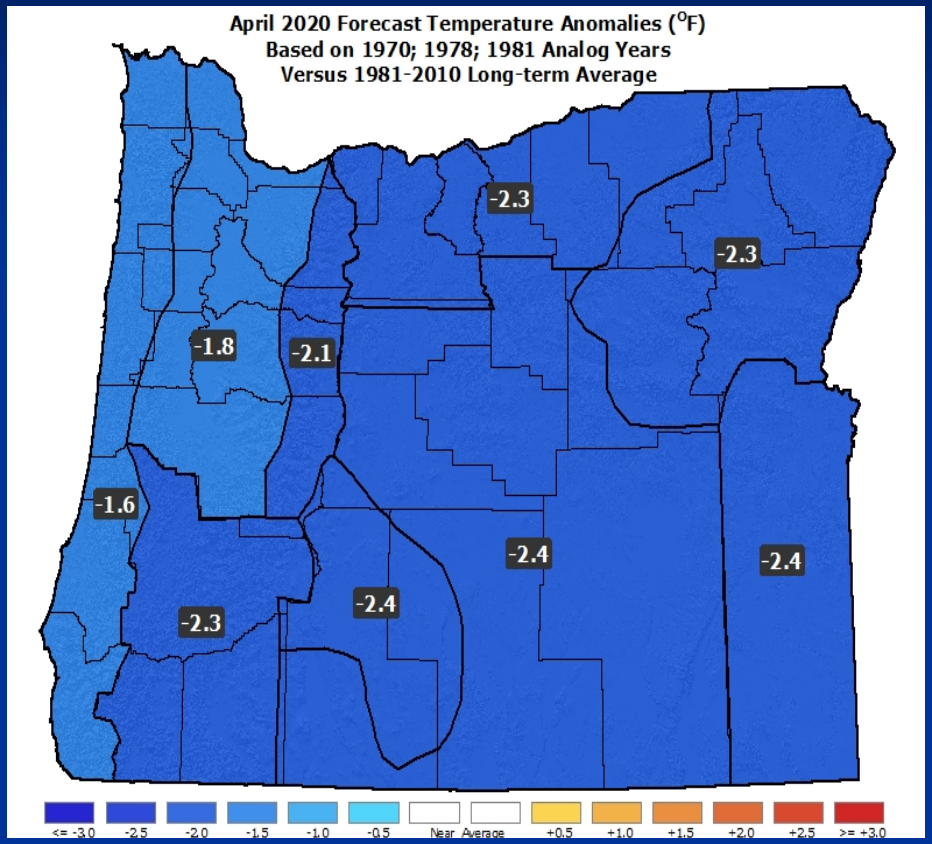
Precipitation



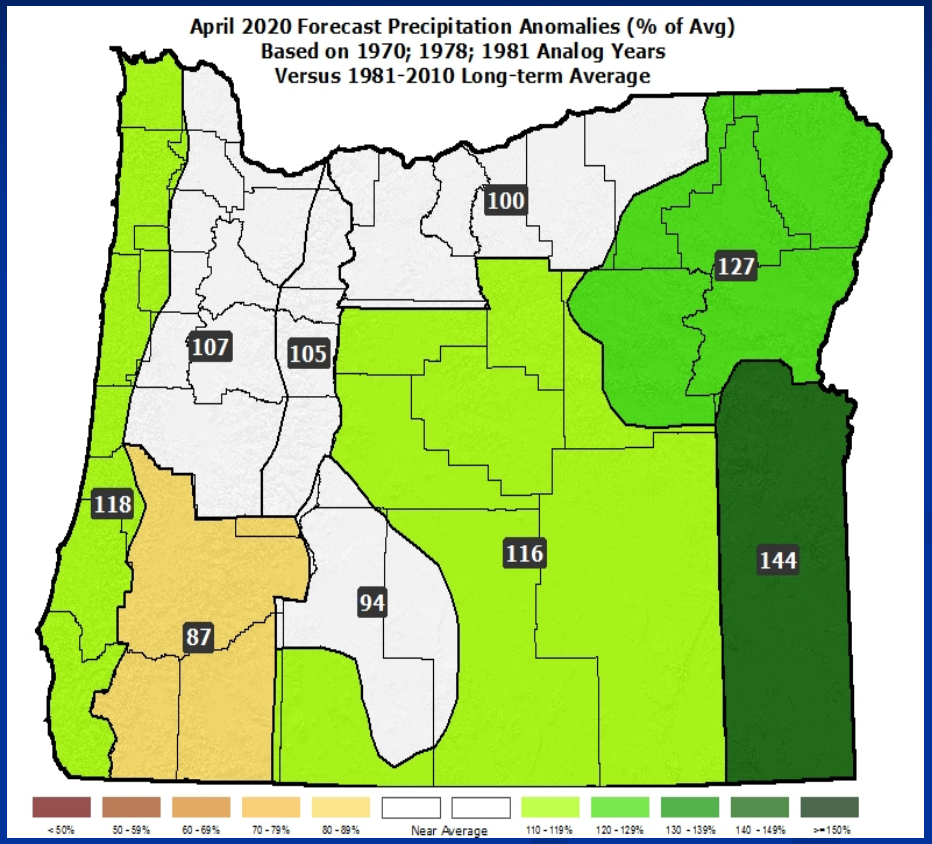
- Temperatures above average, especially west.
- Precipitation below average west; near average east.
- Some decrease in snowpacks, relative to average, mainly west.

April 2020 Forecast

Temperatures



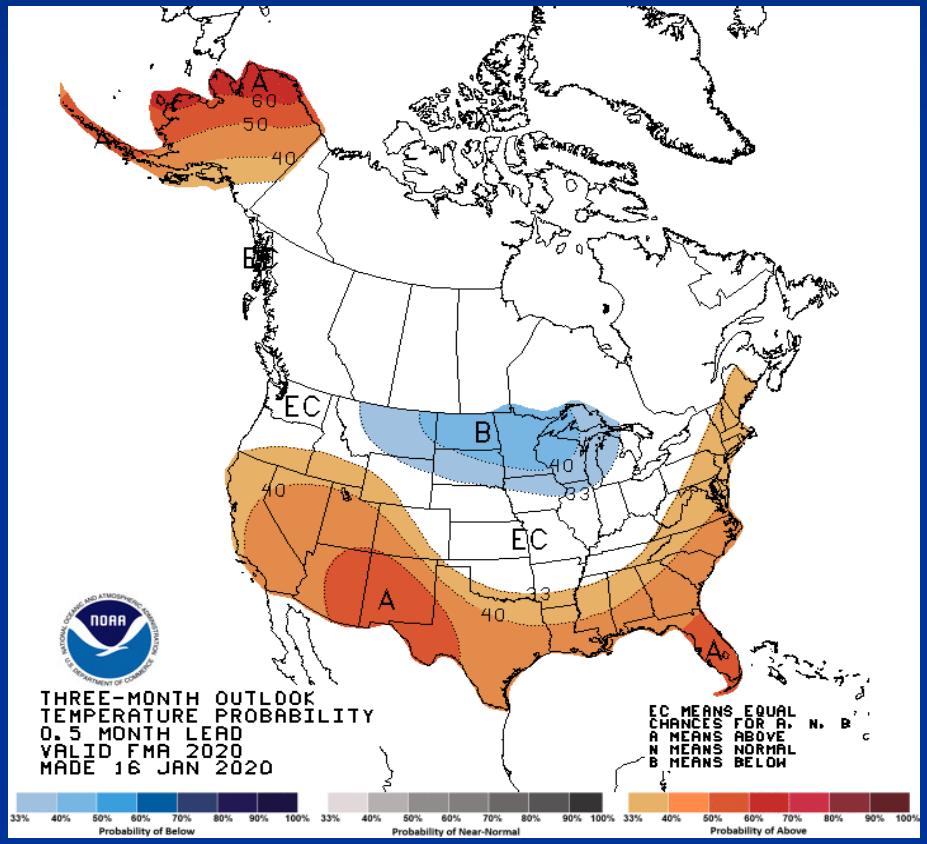
Precipitation



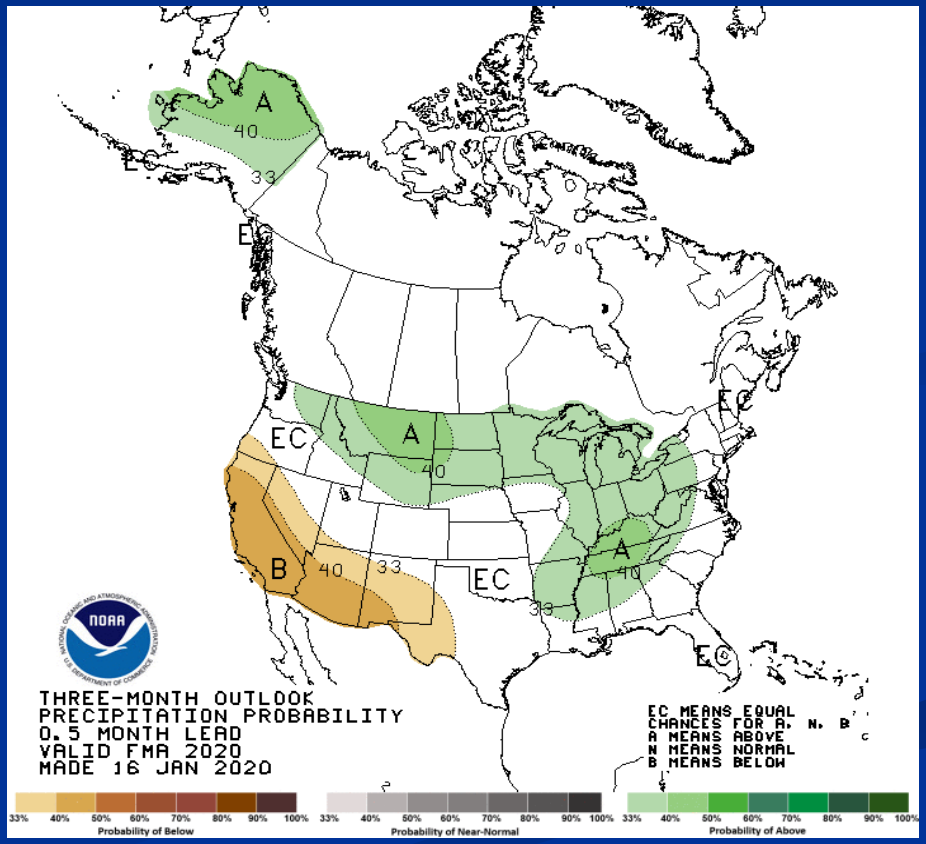
- A switch back to below-average temperatures statewide, which should help to slow the annual melt-off of mountain snowpacks.
- Precipitation near or above average.

February – April 2020
CPC Forecast

Temperatures



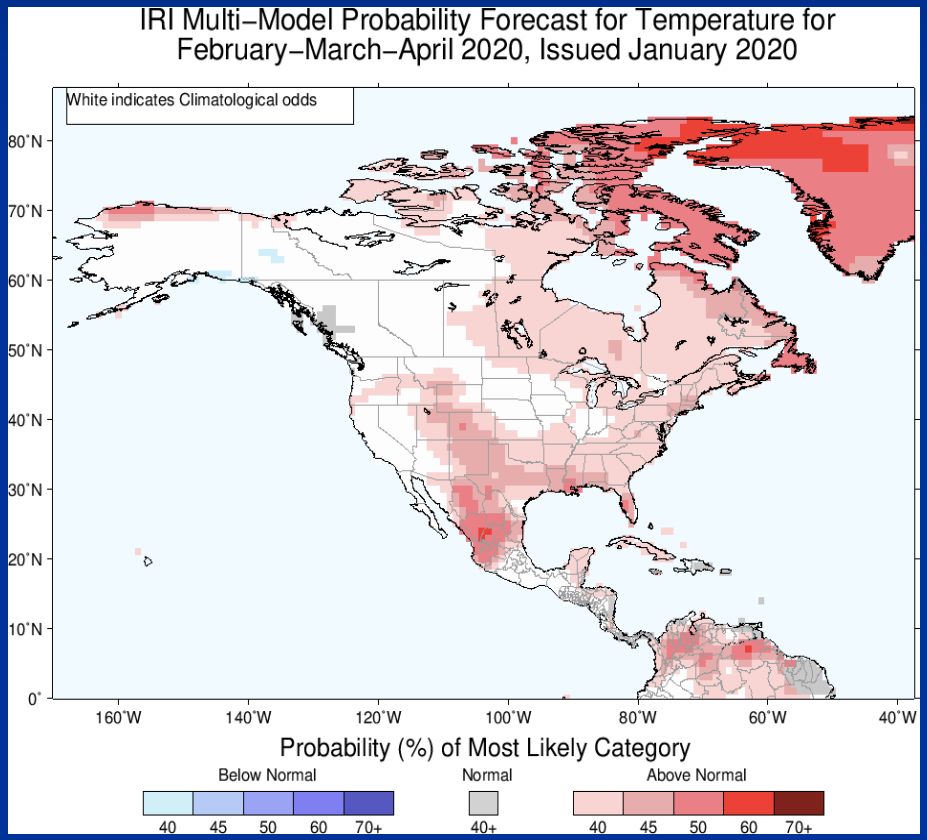
Precipitation



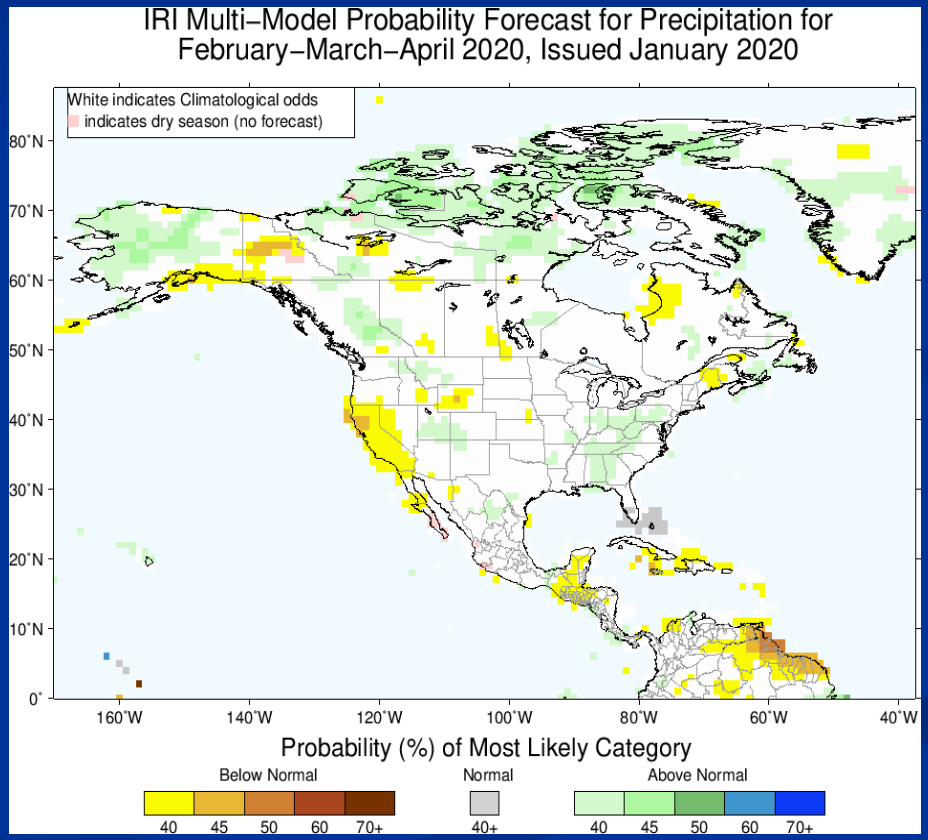
Courtesy:
https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=01

February – April 2020
IRI Forecast

Temperatures



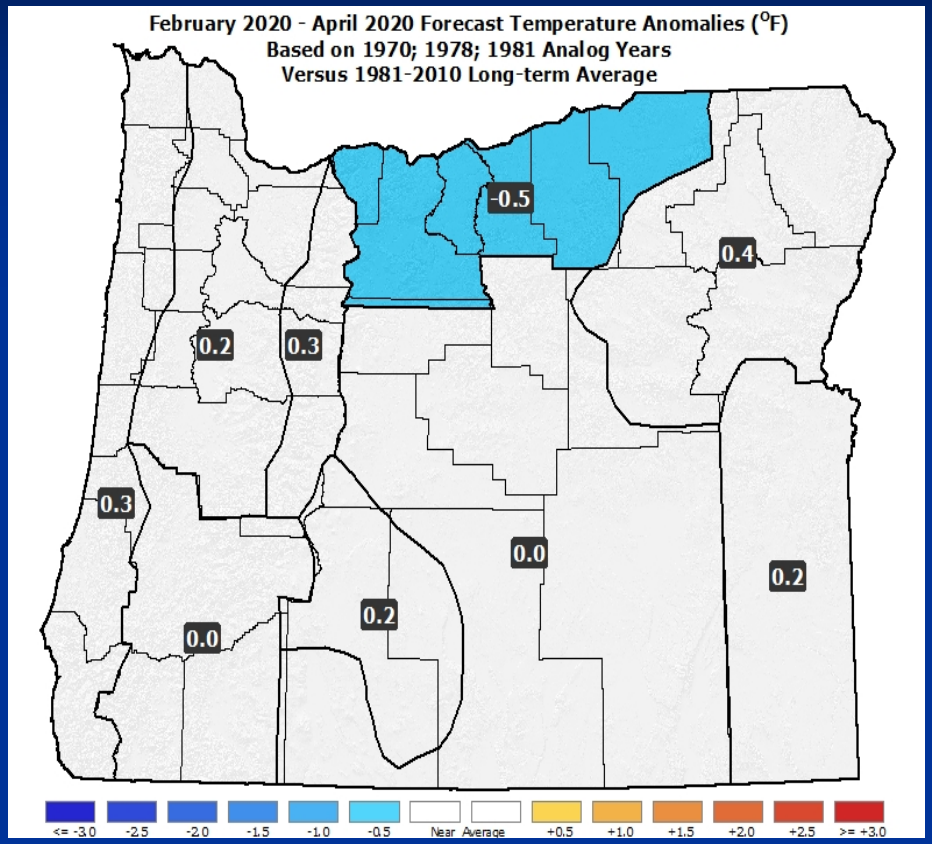
Precipitation



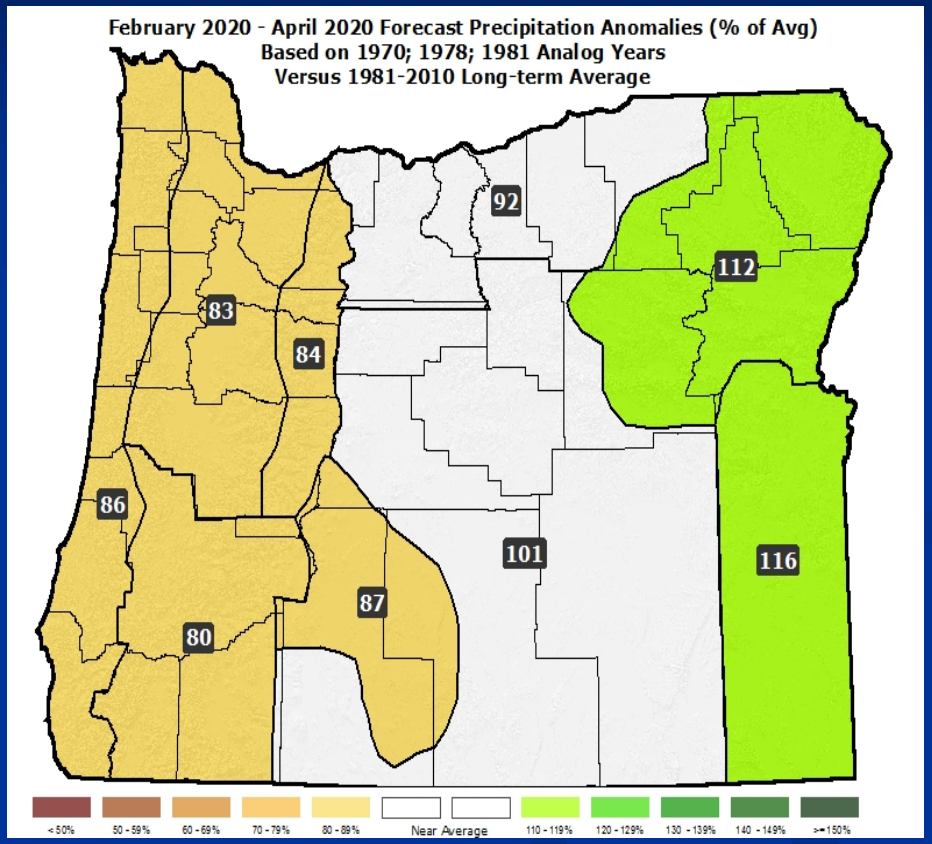
Courtesy:
https://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts/

February – April 2020 Forecast

Temperatures



Precipitation



- Above-average temperatures through the end of winter, with a transition to below-average temperatures in early spring.
- Progressively-drier conditions, relative to average, in February and March. A bounce-back to near or above-average precipitation in April.

Our Future Climate?

"I Feel Strongly Both Ways!"

Pete Parsons, ODF Meteorologist
503-945-7448 or peter.gj.parsons@oregon.gov