



U.S. DEPARTMENT OF  
**ENERGY**

OFFICE OF  
**ENVIRONMENTAL  
MANAGEMENT**



## Storm Water and Precipitation Update for 2019

September 24, 2019

Amanda White  
Manager, Surface Water Monitoring  
N3B Los Alamos

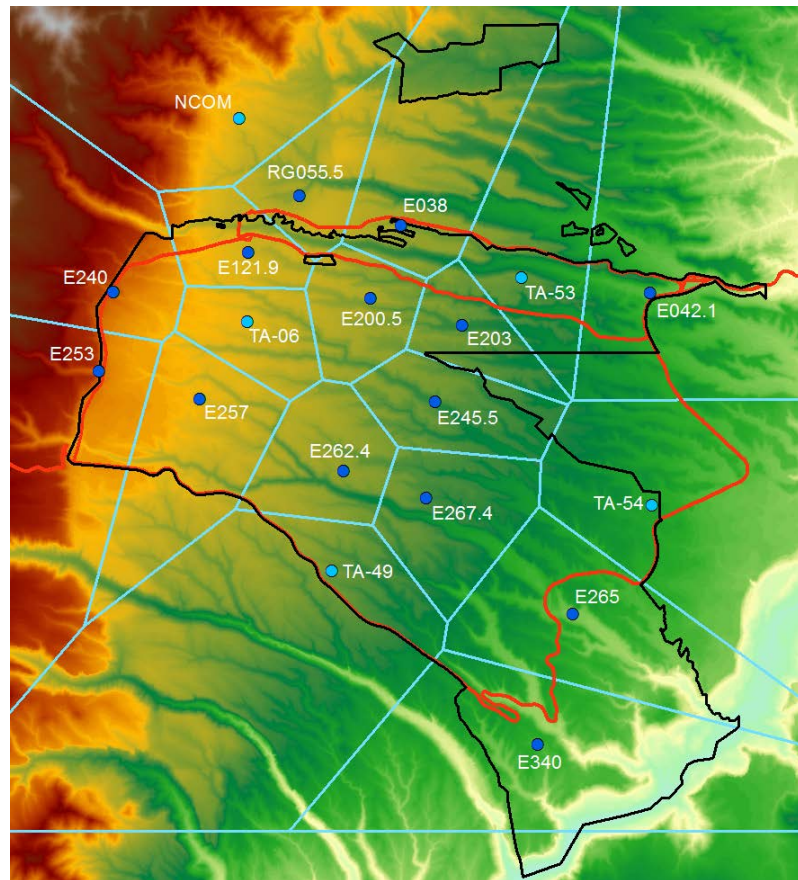
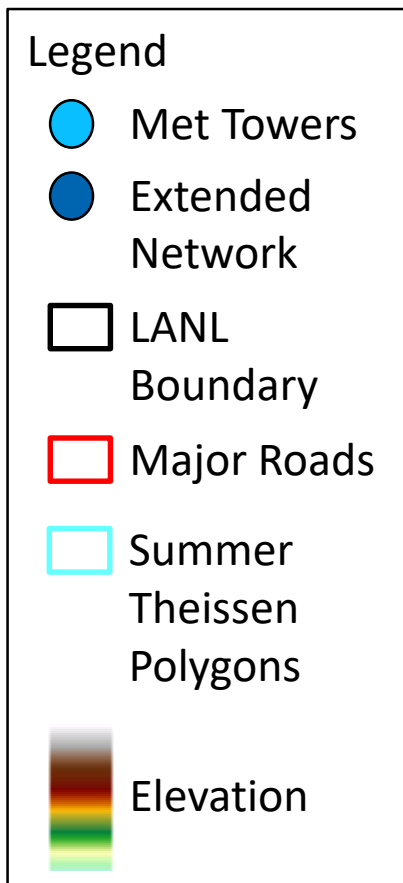


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# Summer Precipitation Network

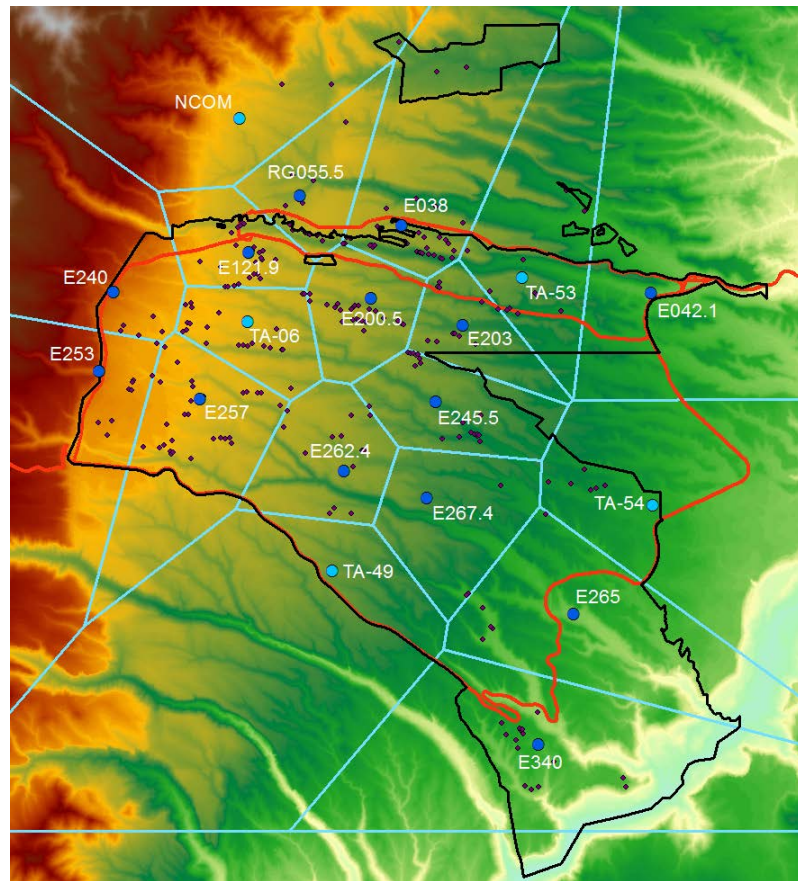




# Summer Precipitation Network

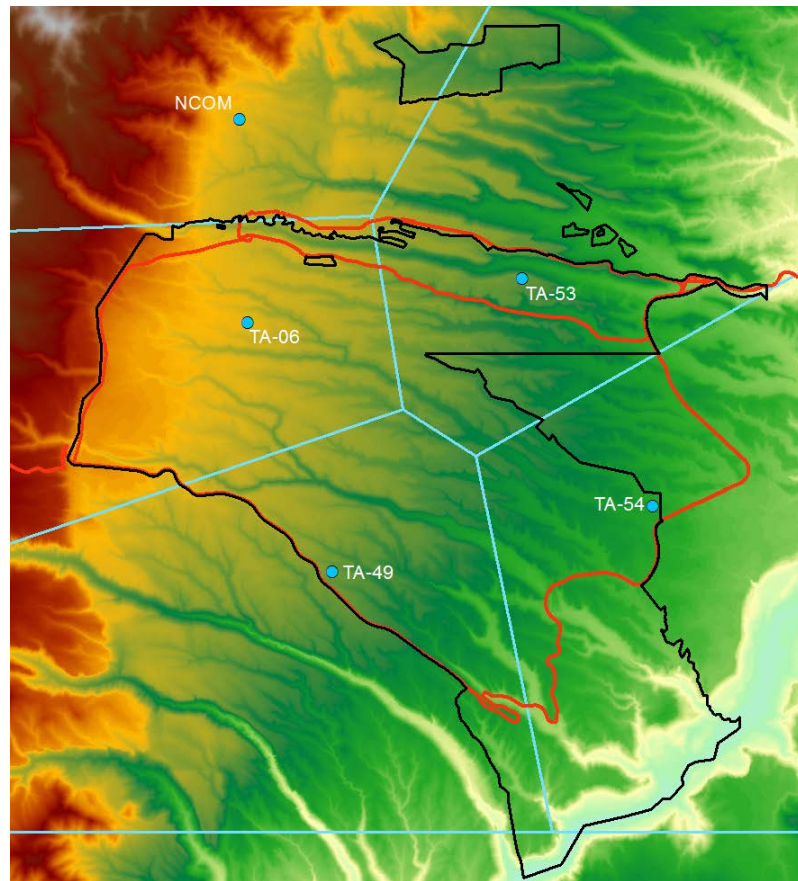
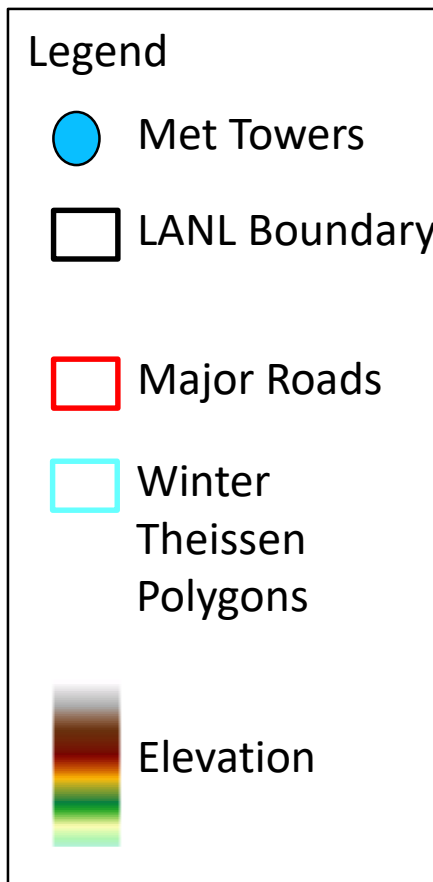
## Legend

-  Met Towers
-  Extended Network
-  LANL Boundary
-  Major Roads
-  Summer Theissen Polygons
-  Elevation
-  SMA Samplers



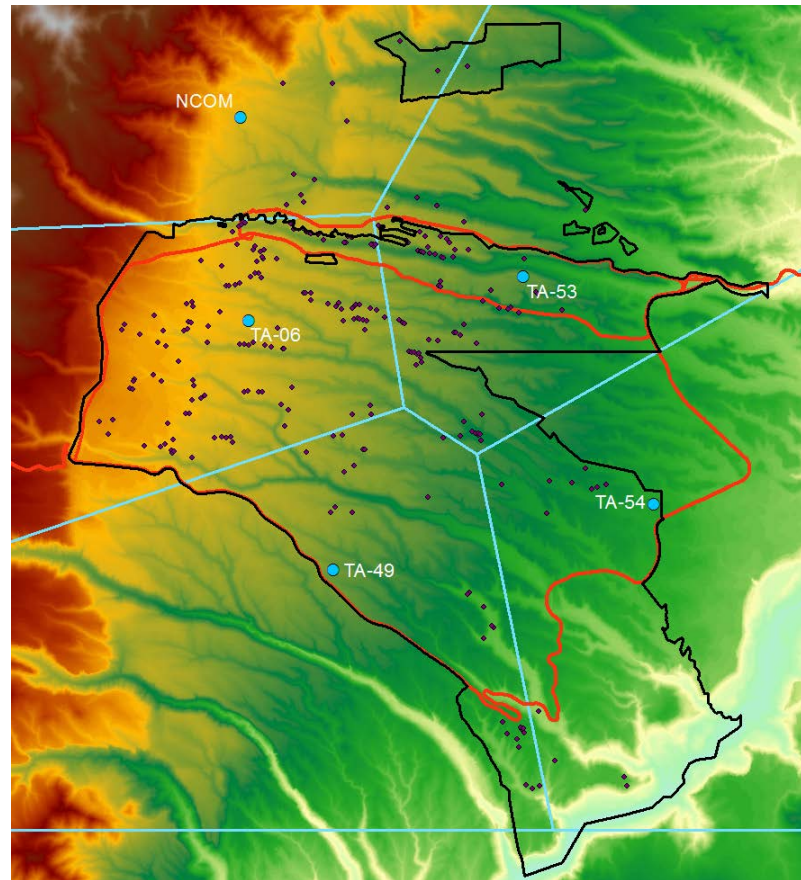


## Winter Precipitation Network





# Winter Precipitation Network





## Remote Telemetry Units (RTUs)





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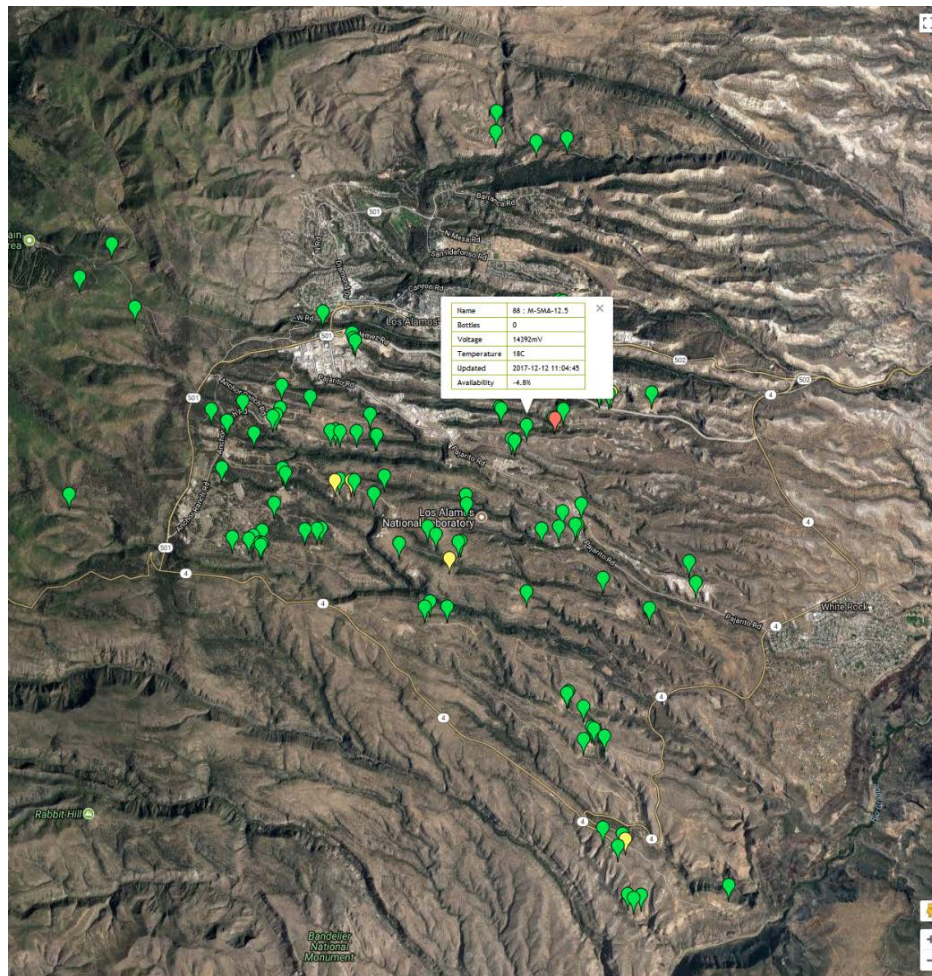


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- Mesh self-healing network
- Approximately 110 locations with monitoring alarms
- Currently relying on a hybrid of RTU monitoring alarms, field worker knowledge, and precipitation for sample collection



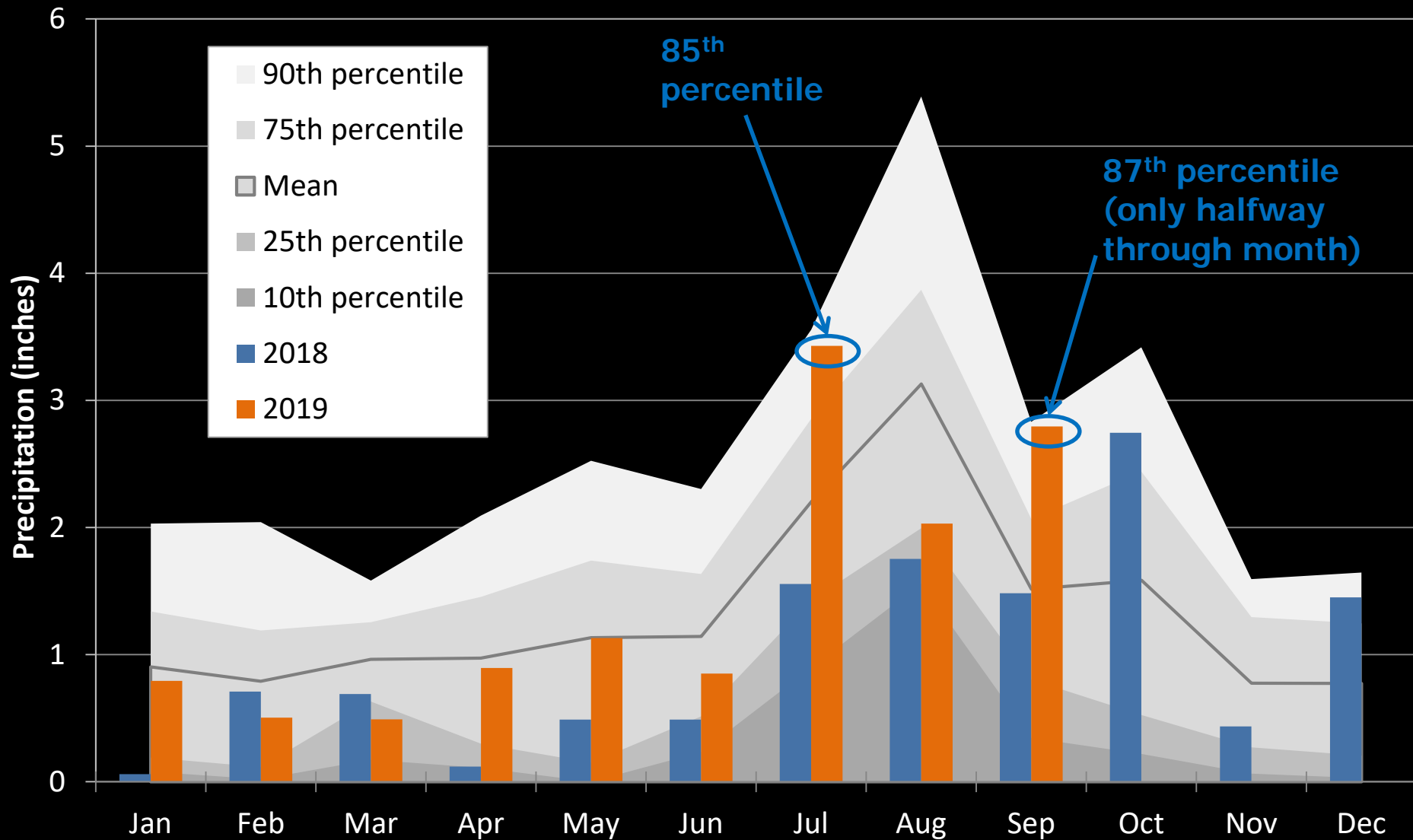
ID	Name	Bottles	Location
4		0	Latitude: 0 Longitude: 0
6		0	Latitude: 0 Longitude: 0
12		0	Latitude: 0 Longitude: 0
30		0	Latitude: 0 Longitude: 0
31		0	Latitude: 0 Longitude: 0
32	CDV-SMA-3	0	Latitude: 35.847766 Longitude: -106.320665
33	PJ-SMA-14.4	0	Latitude: 35.83970826 Longitude: -106.2650134
34	CDV-SMA-4	0	Latitude: 35.847971 Longitude: -106.319726
35		0	Latitude: 0 Longitude: 0
36	LA-SMA-6.31	0	Latitude: 35.874771 Longitude: -106.277958
37		0	Latitude: 0 Longitude: 0
38		0	Latitude: 0 Longitude: 0
39		0	Latitude: 0 Longitude: 0
40		0	Latitude: 0 Longitude: 0
41		0	Latitude: 0 Longitude: 0
42	PJ-SMA-14	0	Latitude: 35.843467 Longitude: -106.264164
43		0	Latitude: 0 Longitude: 0
44		0	Latitude: 0 Longitude: 0





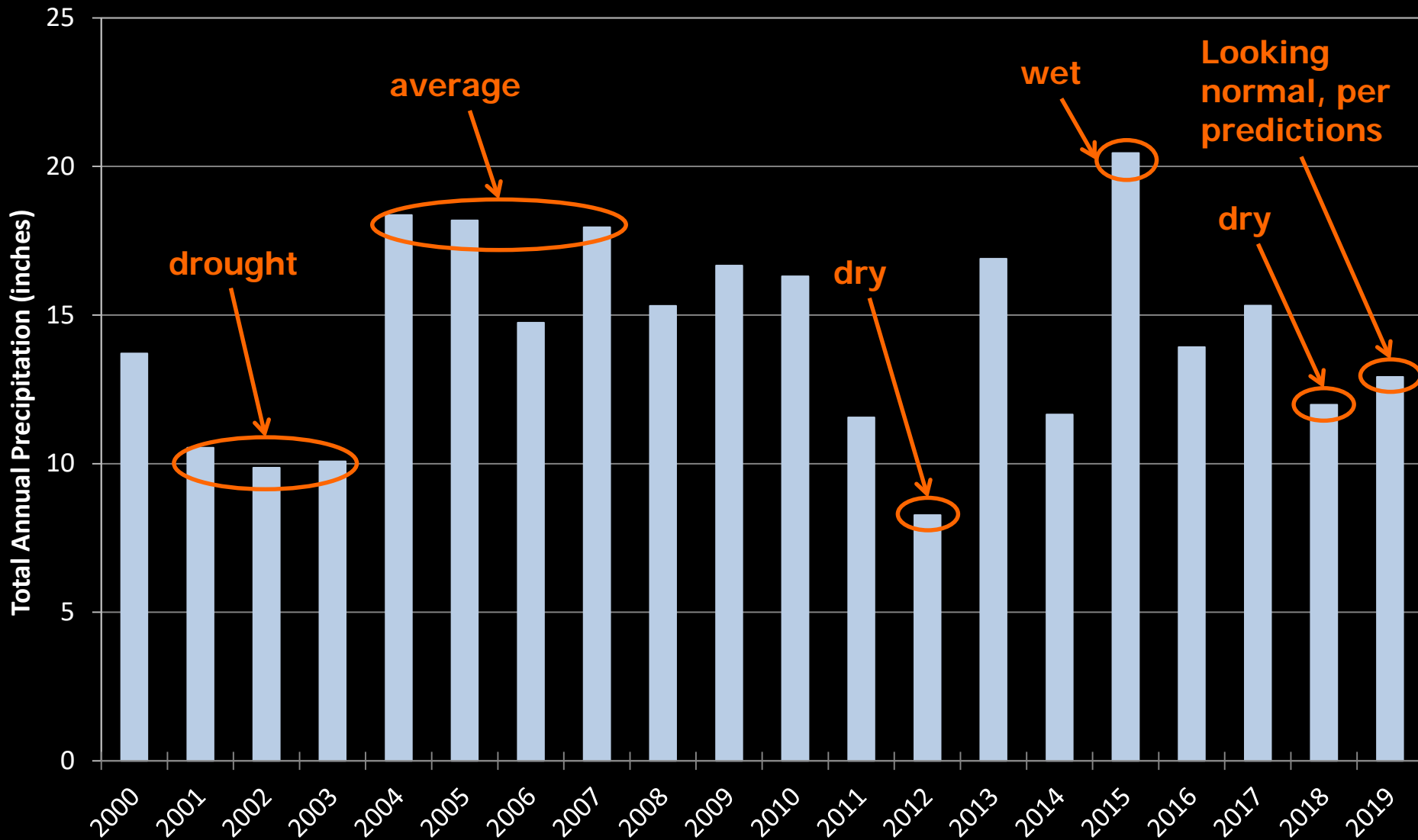


# 2019 Monitoring Year



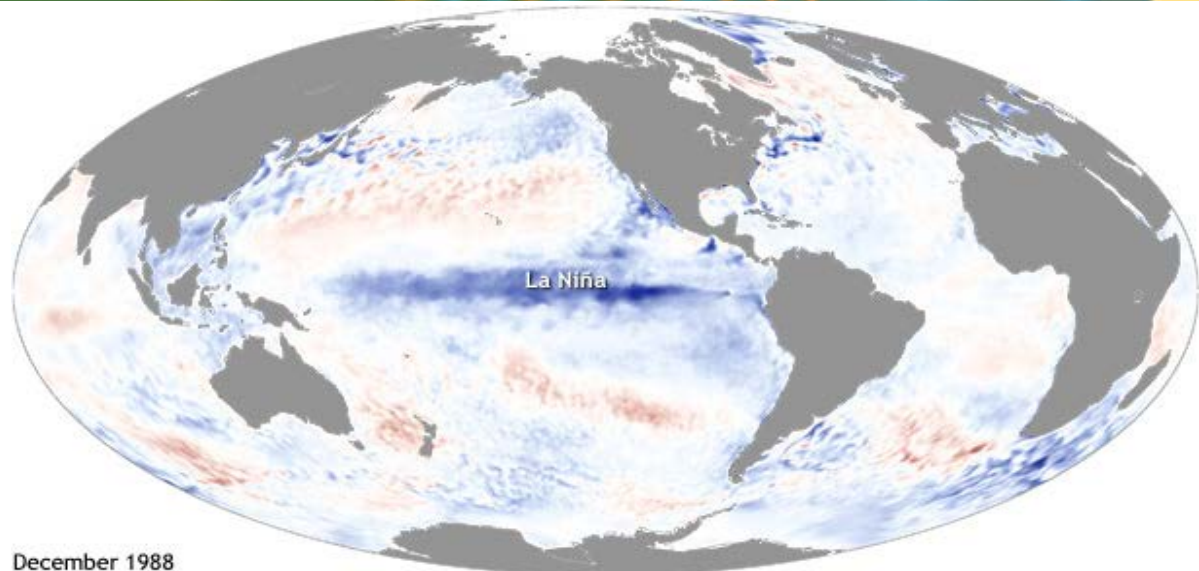


## 2019 Compared to Past Years

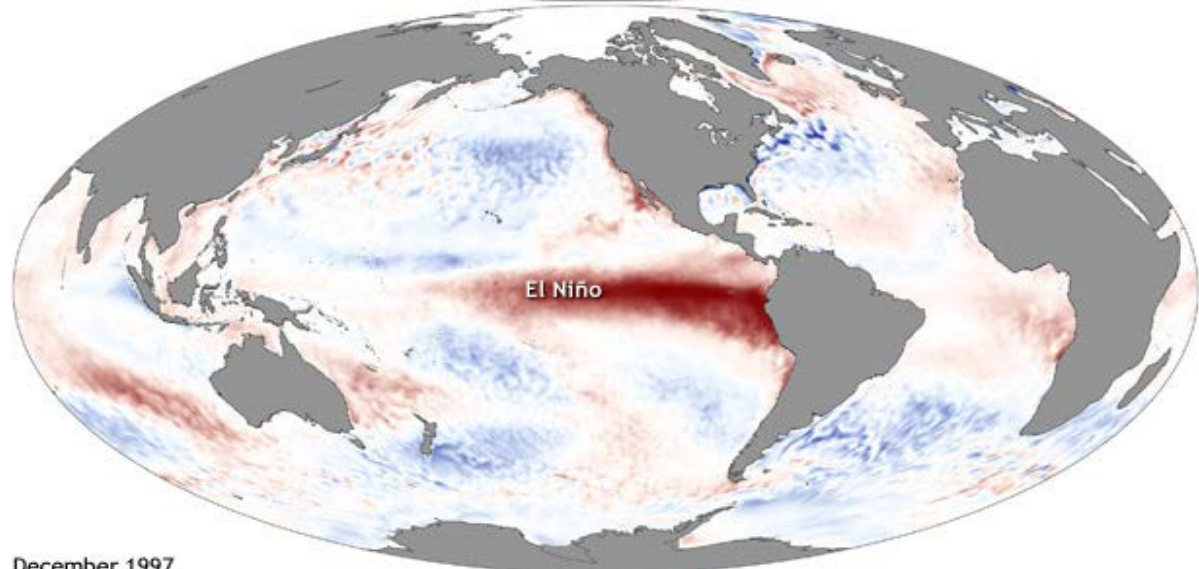




# El Niño Southern Oscillation (ENSO)

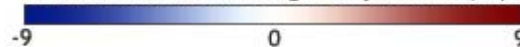


December 1988



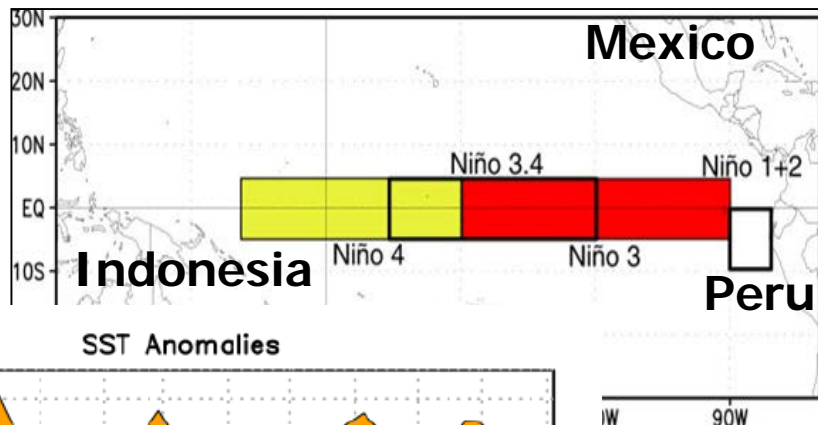
December 1997

Difference from average temperature (°F)

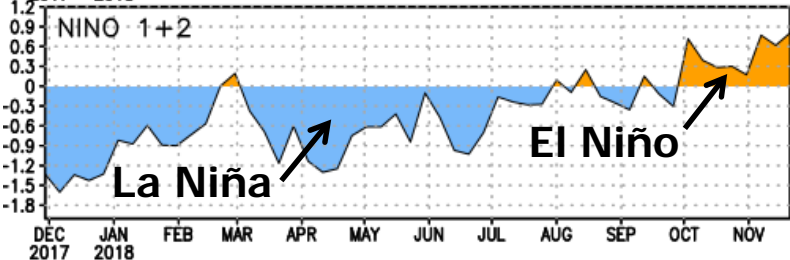
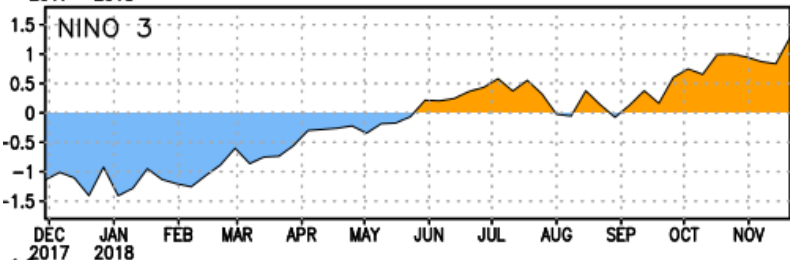
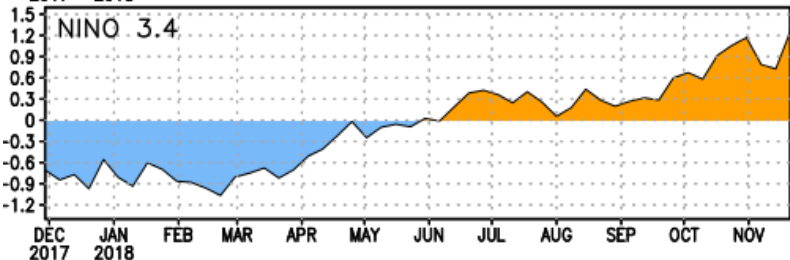
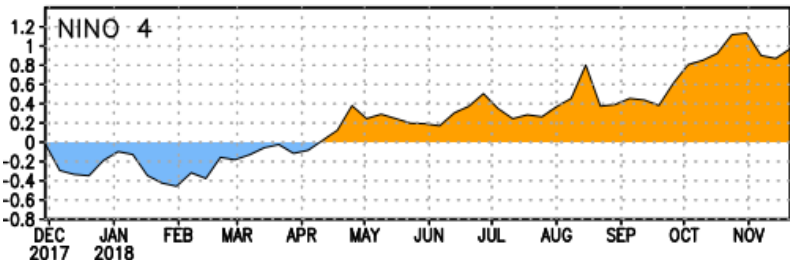




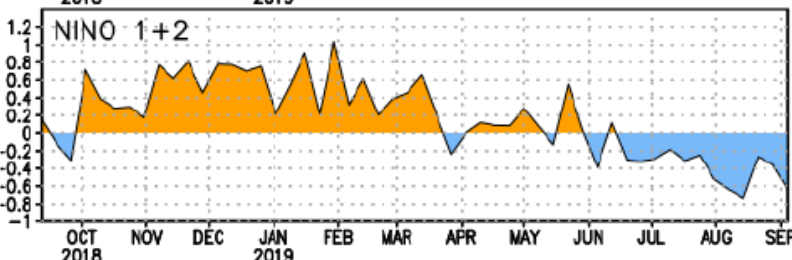
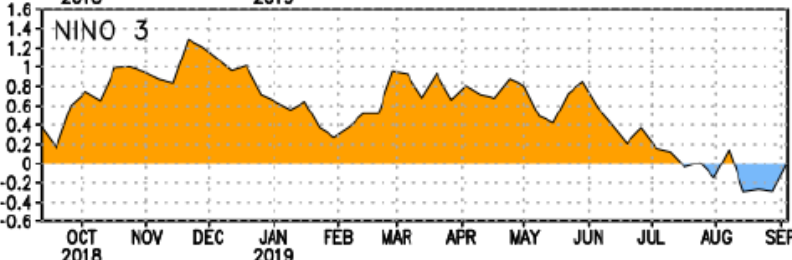
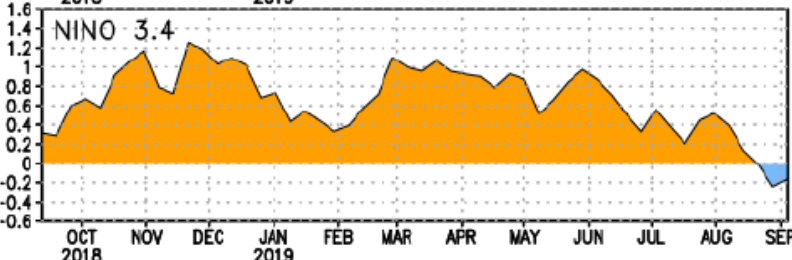
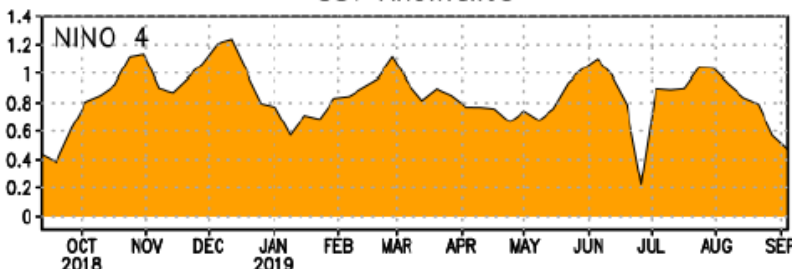
# 2019 ENSO Conditions



SST Anomalies



SST Anomalies



\* Anomalies are computed with respect to the 1981-2010 averages by NOAA Climate Prediction Center

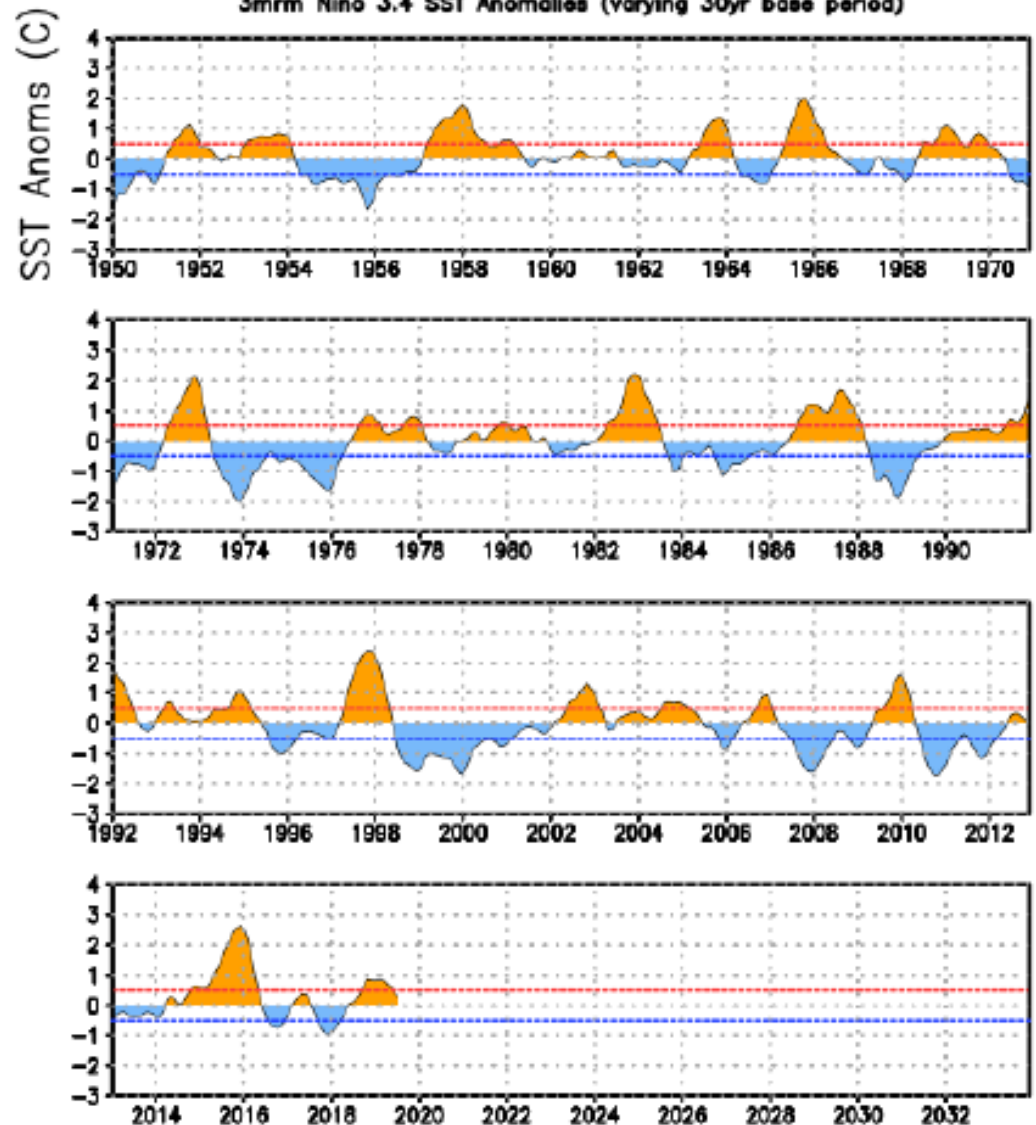


# Historic ENSO Conditions

El Niño ↑  
Neutral  
La Niña ↓

\*Anomalies are computed with respect to the 1981-2010 averages by NOAA Climate Prediction Center

Oceanic Niño Index (ERSST.v5 ONI)  
3mm Niño 3.4 SST Anomalies (varying 30yr base period)



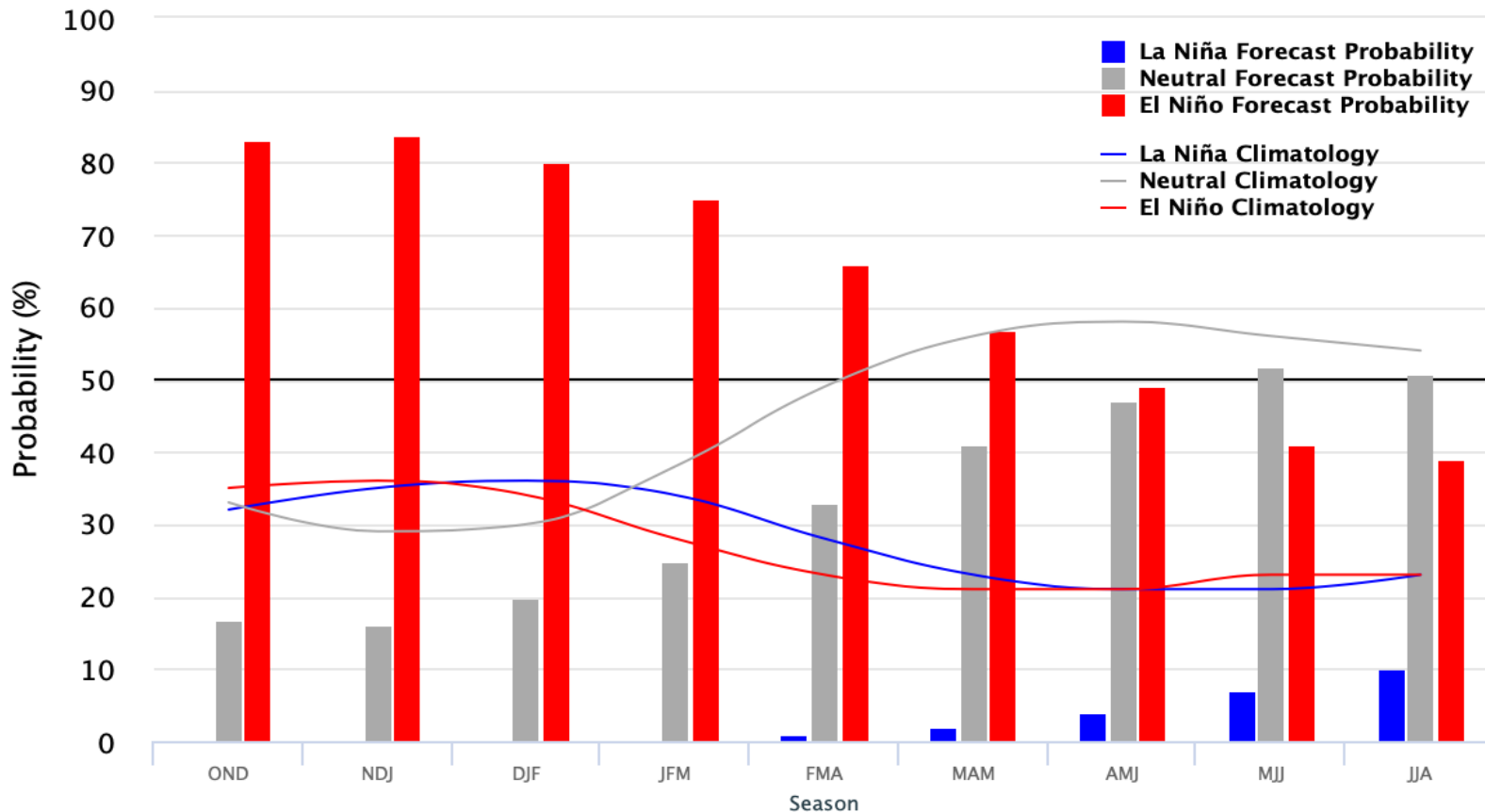


# ENSO Predictions Last Winter

El Niño is expected to form and continue through the Northern Hemisphere winter 2018-19 (~80% chance) and into spring 2019 (55-60% chance)

Early–November 2018 CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly  
Neutral ENSO: -0.5 °C to 0.5 °C



\*Anomalies are computed with respect to the 1981-2010 averages by NOAA Climate Prediction Center

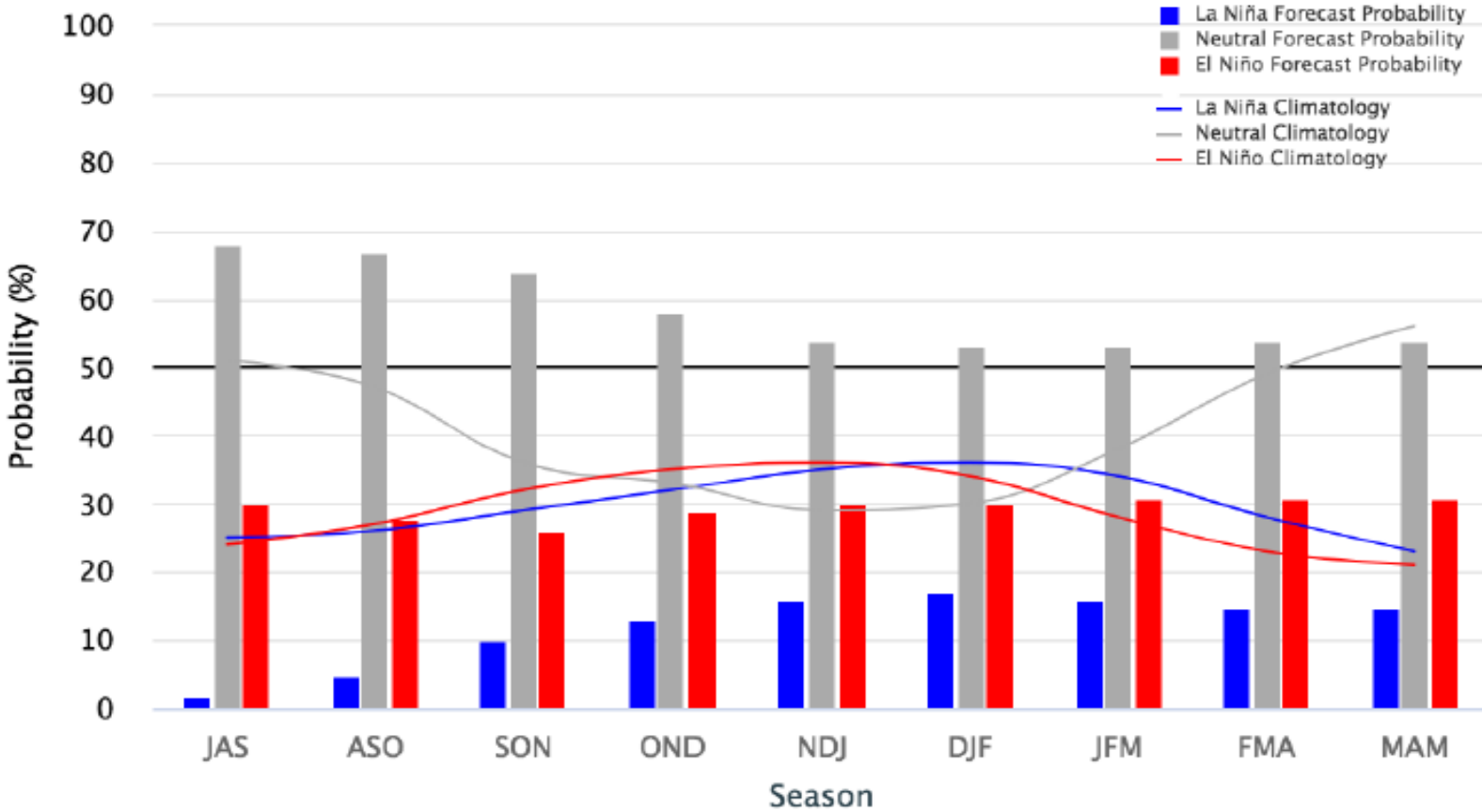


# Current ENSO Predictions

ENSO-Neutral is most likely to continue through the Northern Hemisphere winter 2019-20 (50-55% chance)

Early-August 2019 CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly  
Neutral ENSO: -0.5 °C to 0.5 °C

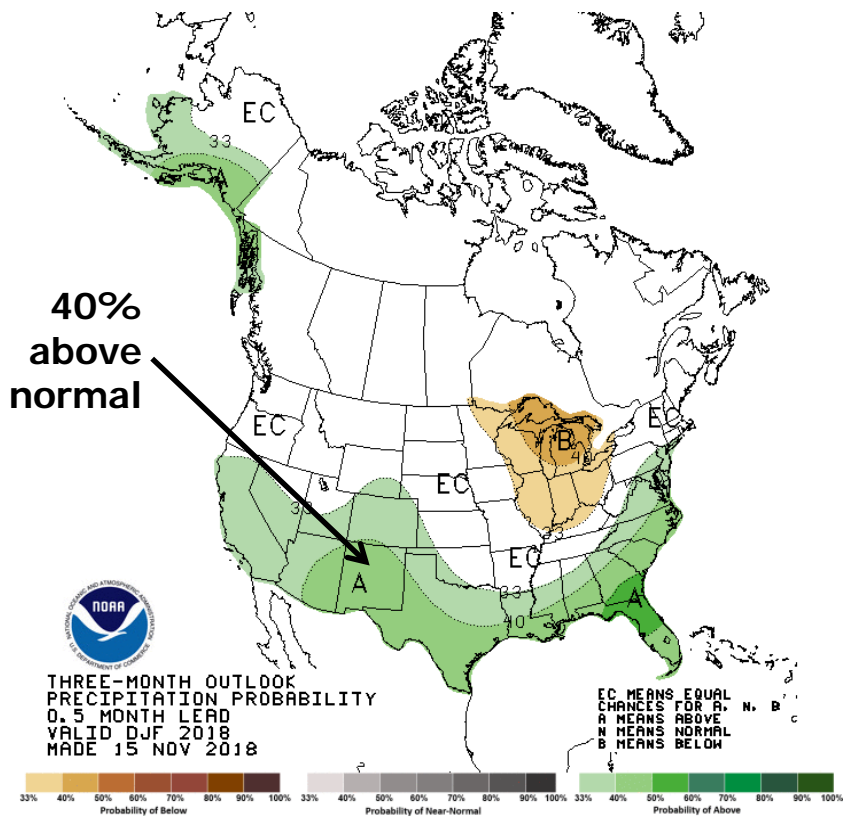


\*Anomalies are computed with respect to the 1981-2010 averages by NOAA Climate Prediction Center

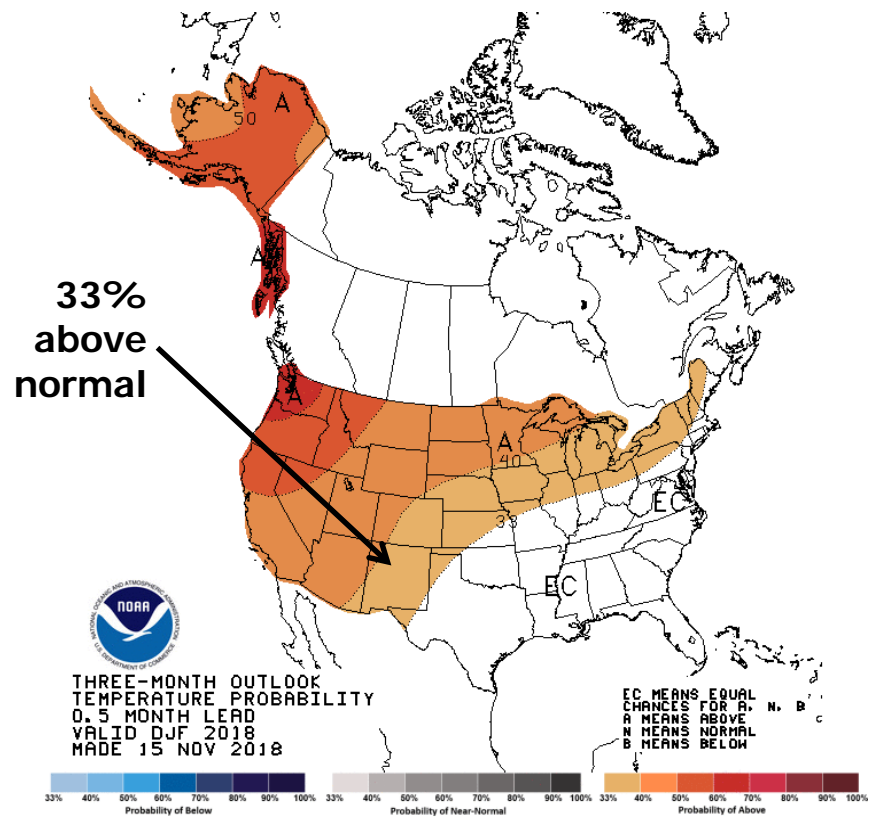


# U.S. Seasonal Outlook for Winter 2019

## Precipitation



## Temperature

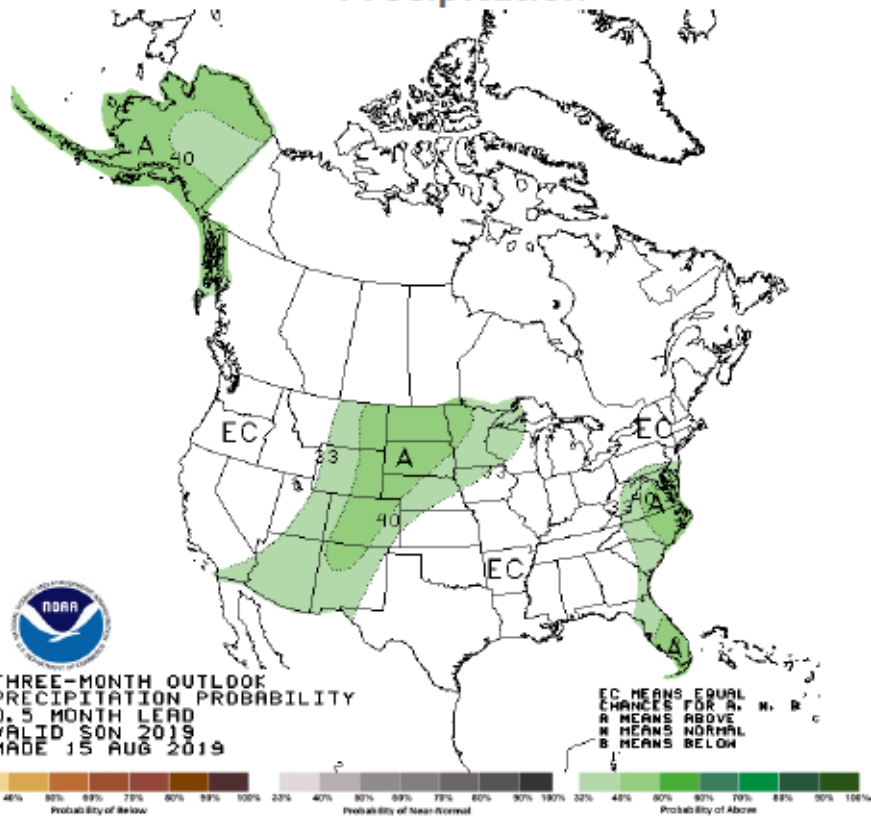




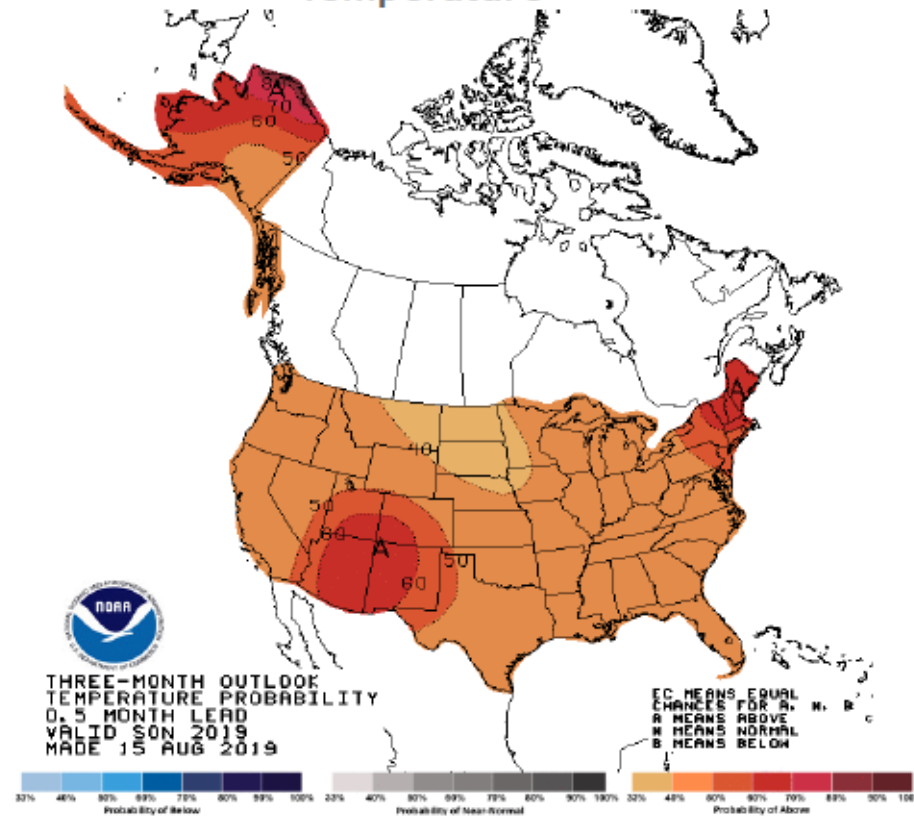


# U.S. Seasonal Outlook for Fall 2019

### Precipitation



### Temperature





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# Questions?



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Produced by Los Alamos Legacy Cleanup Contractor, N3B Los Alamos  
on behalf of DOE's Environmental Management Los Alamos Field Office

