

Central Florida Prescribed Fire Council Annual Meeting
October 4, 2019

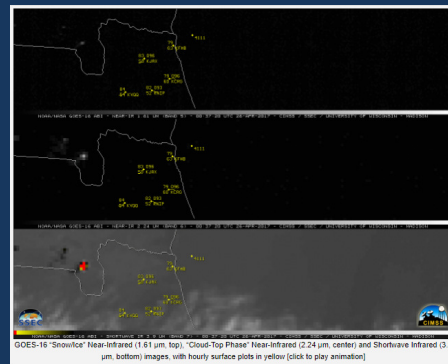
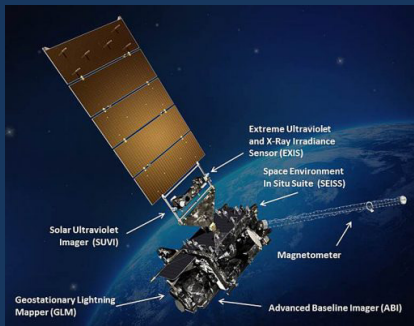
John Pendergrast
National Weather Service Melbourne, FL

Discussion on selected topics:

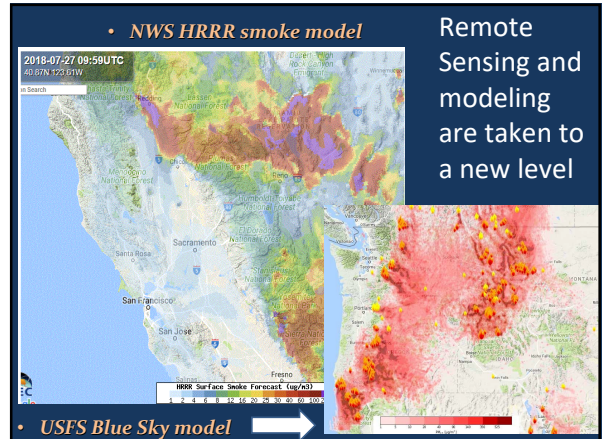
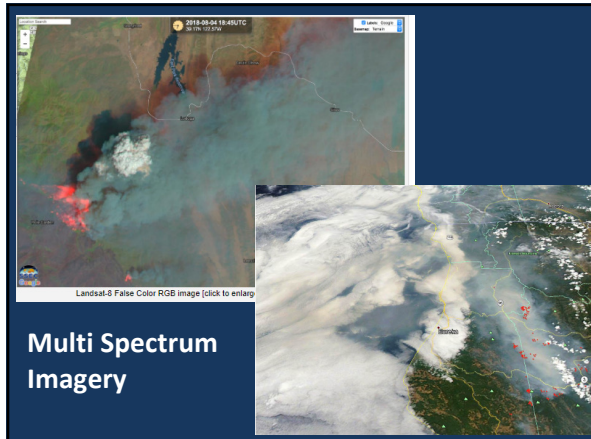
- Hot spot / smoke detection using GOES
- Improved modeling of smoke
- NOAA EDDI "Flash Drought" guidance and other sources
- Outlook for upcoming Dry season

Q&A...

• GOES ABI :



Imager channel sensitivity



• **USFS Blue Sky model**

Remote Sensing and modeling are taken to a new level

Links:

- **Satellite**
- [RAMMB/CIRA SLIDER: GOES-16 Satellite Imagery, Full Disk Sector, GeoColor \(CIRA\)](#)
- **Smoke**
- <https://hwyviz.gsd.esrl.noaa.gov/smoke/index.html>;
- <https://rapidrefresh.noaa.gov/hrrr/HRRRsmoke/>
- <https://tools.airfire.org/websky/v1/#status>

Discussion on selected topics:

- **Rainfall Deficit Monitoring NOAA EDDI**
- Evaporative Demand Drought Index**
- A drought precursor “Early Warning” tool to capture precursor signals to water stress using the “evaporative demand” of the atmosphere, or thirst of the atmosphere.

Evaporative Demand Background

What is evaporative demand (E_0)?

- Evapotranspiration rate that could occur given an unlimited water supply
- Potential evapotranspiration
- Atmospheric demand
- Reference evapotranspiration
- Often estimated using temperature alone, but a physically based model should be used

Physically-based E_0 contains valuable information related to drought dynamics and fire weather

Dominant Drivers of Evaporative Demand and EDDI

- Dominant drivers of E_0 during each month
- **Wind speed** is dominant driver in the Southwest during summer
- **Not temperature**

Legend:

- Yellow: T (Q in temperature)
- Red: U (Q in wind speed)
- Green: q (specific humidity)
- Blue: R_s (downward shortwave radiation)

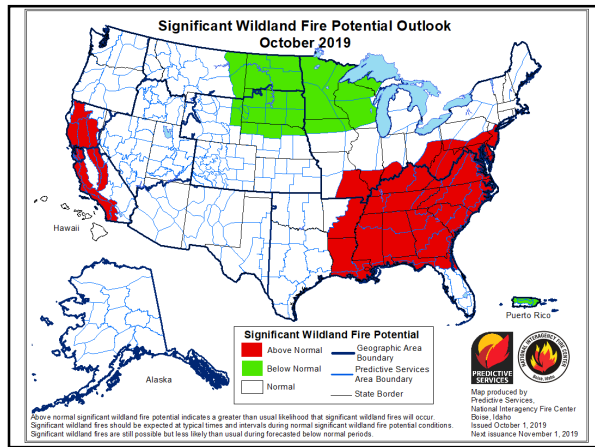
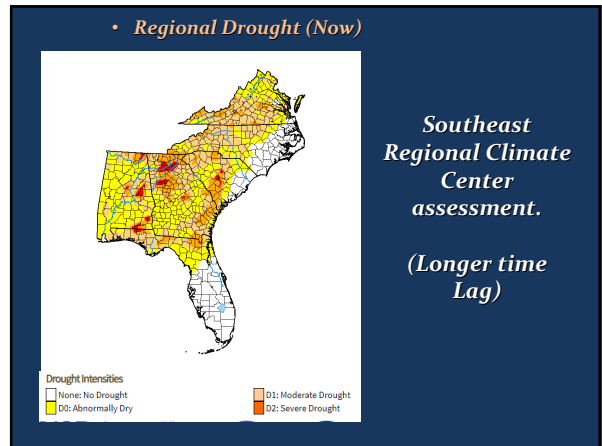
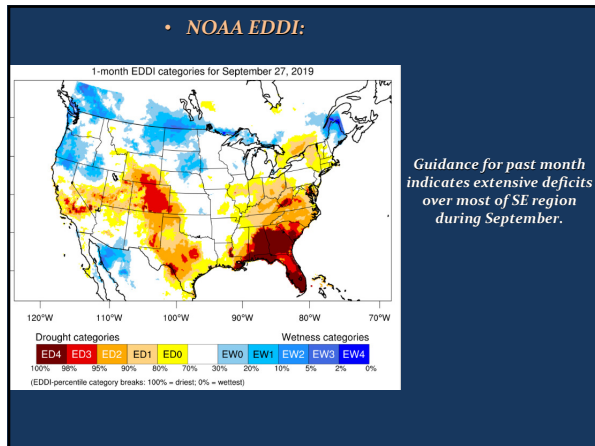
[Hobbins 2016]

• **NOAA EDDI:**

Early warning guidance tool. Allows for shorter term drought measurement.

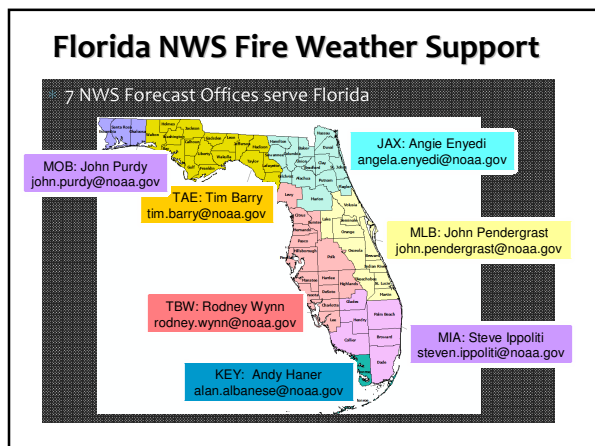
- Updated weekly
- Archive available back to 1980

<https://www.esrl.noaa.gov/psd/eddi/>



Discussion on selected topics:

• **Use of weather forecasts:**



Hourly Forecast Data – with no SPOT!

- Go to: weather.gov Local office
- Click on approximate burn location on this map in middle of page, then wait for new page to load.

Click a location below for detailed forecast.

Watches, Warnings & Advisories

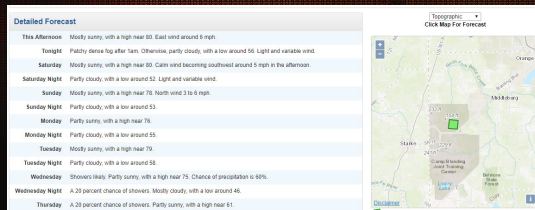
Hazardous Weather Outlook

Short Term Forecast

Last Map Update: Fri, Dec 1, 2017 at 12:19:19 pm EST

Hourly Forecast Data – with no SPOT!

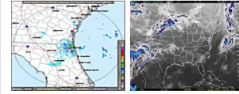
3. New page loads. Refine location further (lat/long) using this map.
4. Click on your burn location, and wait for page to load.



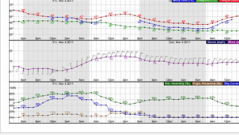
Hourly Forecast Data – with no SPOT!

Additional Resources

Radar & Satellite Image



Hourly Weather Forecast

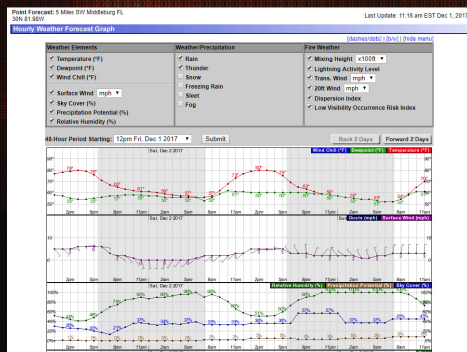


5. New page loads. To get hourly weather data, like SPOT, scroll down and look for Hourly Weather Forecast graph in bottom right of web page.

6. Click graph. This is hourly data for the location you chose (lat/long).

7. You can either look at the graph, or you can view Tabular Data.

Hourly Forecast Data – with no SPOT!



Discussion on selected topics:

• Current conditions for SA:

Ensure SA established with

- Observations
- Radar
- Designated observer
- Transmit at once hourly WX OB over radio
- Escape routes, safety zone access may change due to weather during burn.

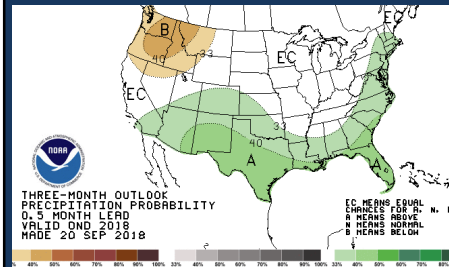
2019-2020 Winter/Spring Outlook

10/4/19

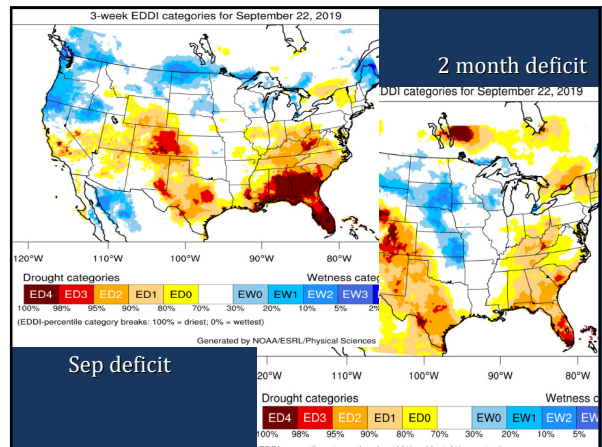
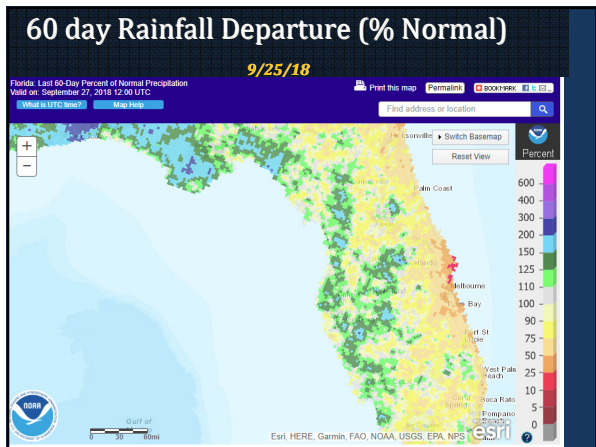
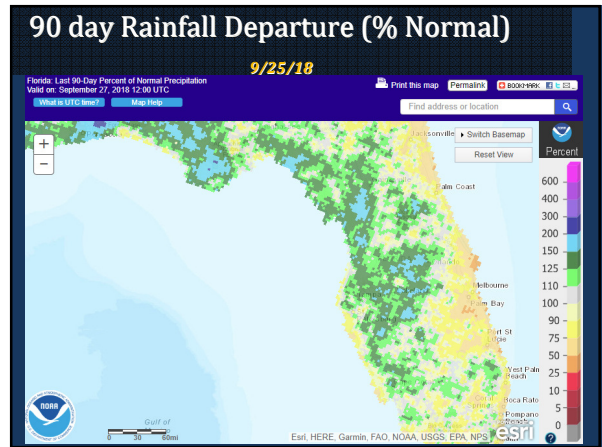
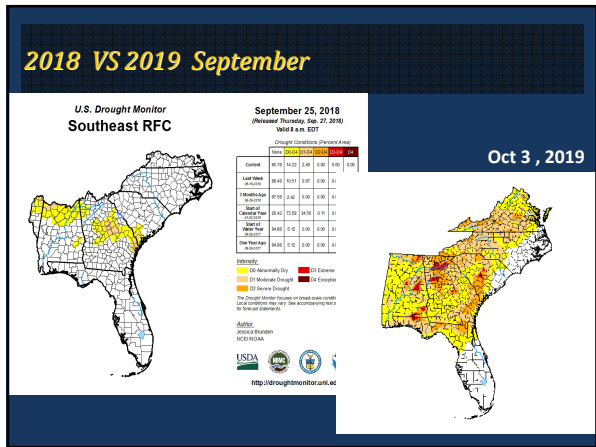
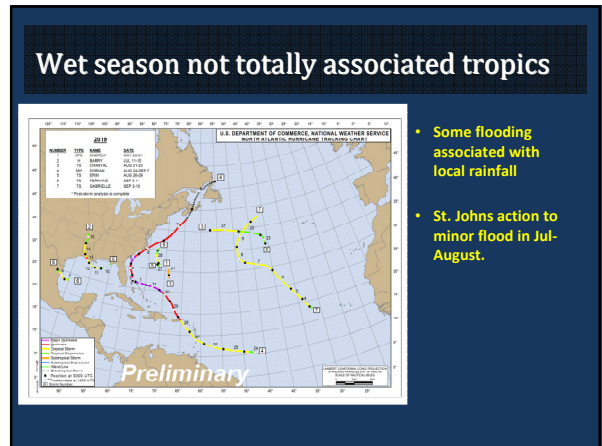
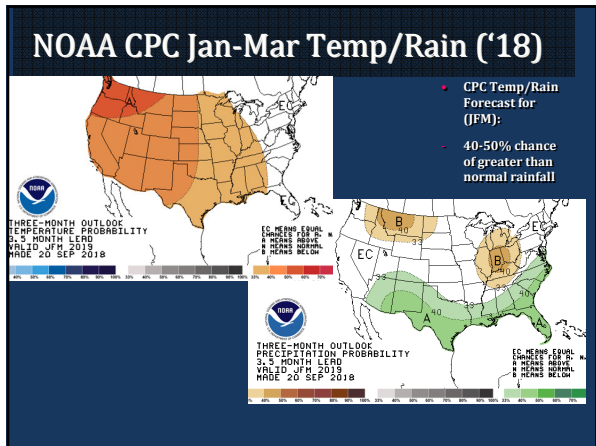
John Pendergrast
National Weather Service Melbourne

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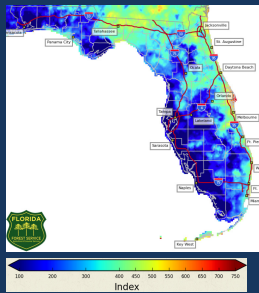
NOAA Forecast Oct-Dec Rainfall ('18)



- CPC Rainfall Forecast (OND):
- GT 40% chance of above normal precipitation (FL)
- Lesser chance of below normal precip (FL)



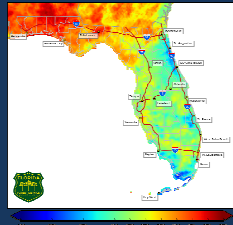
KBDI Values Sep 2018 / 2019



09/2018

Detailed KBDI
(4km Resolution)

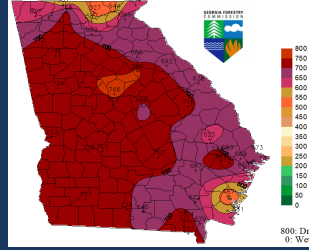
Tropical rainfall a large portion of peninsula rainfall late Summer



10/3/2019

Georgia KBDI Values 10/3/2019

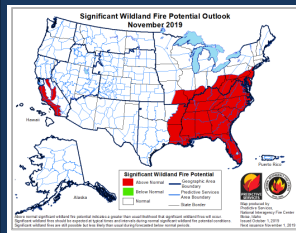
Map of KBDI
at October 3, 2019 1300 EST



Detailed KBDI
(4km Resolution)

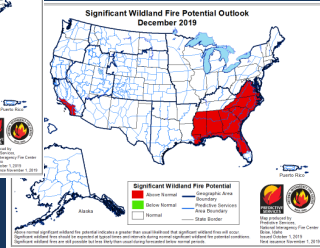
10/3/2019

Wildland Fire Outlook Nov/Dec 2019



Nov 2019

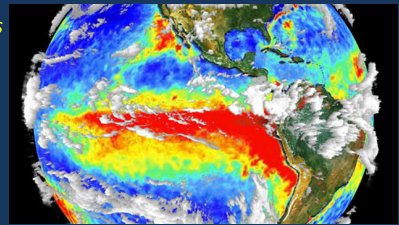
Wildland Fire Outlook



Dec 2019

ENSO pattern and Florida

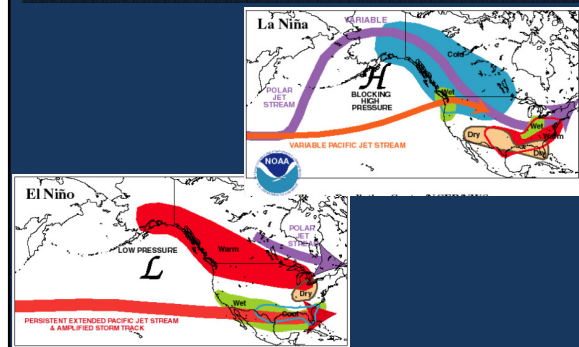
Several decades of observing ENSO has allowed for prediction skill especially during the Northern hemisphere Winter months.

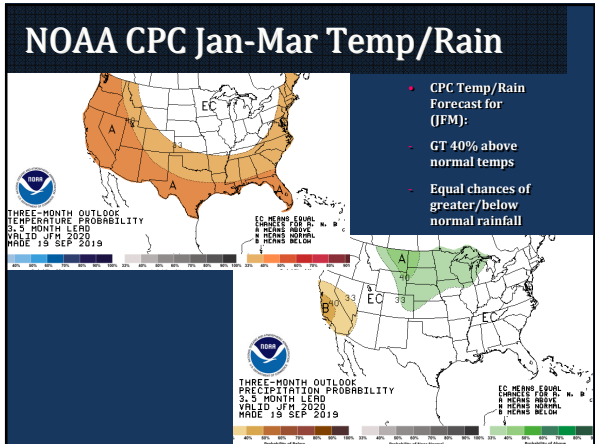
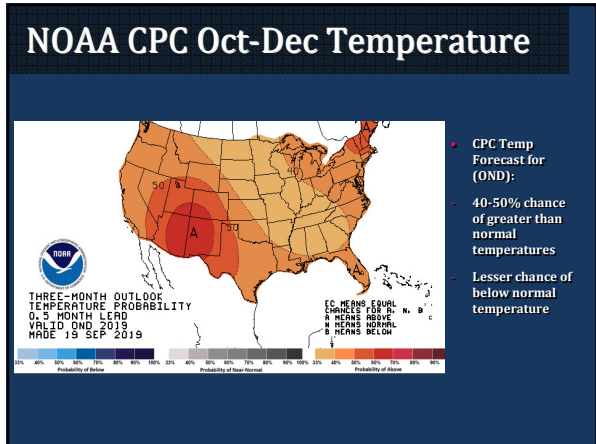
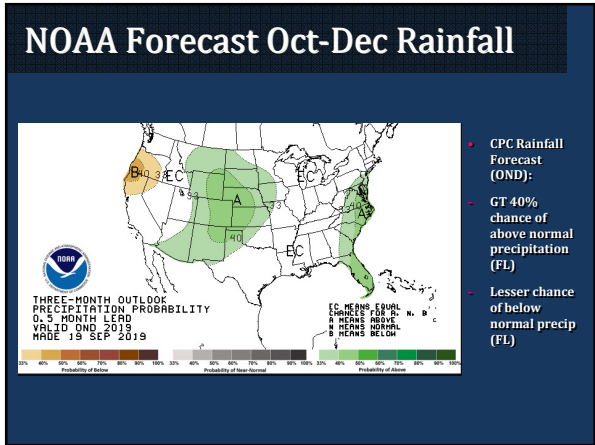
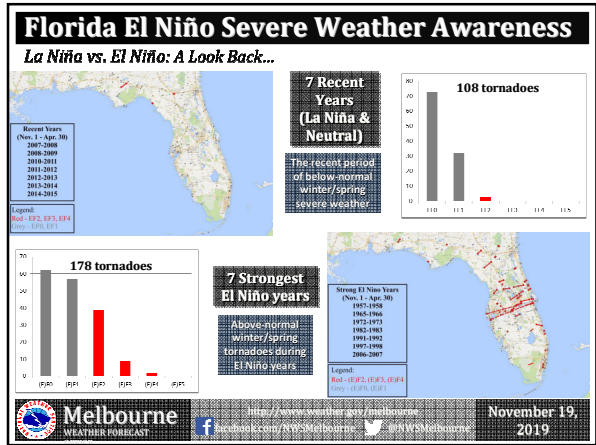
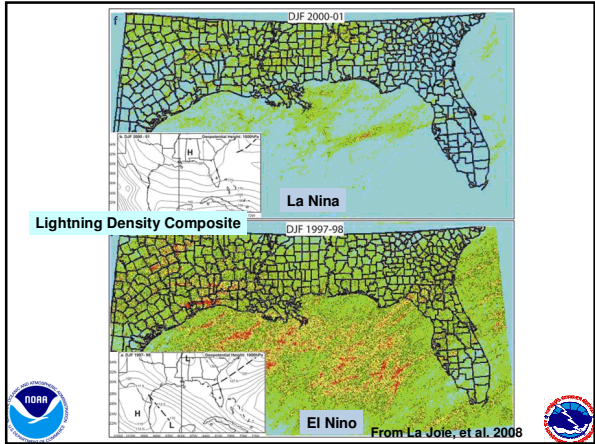
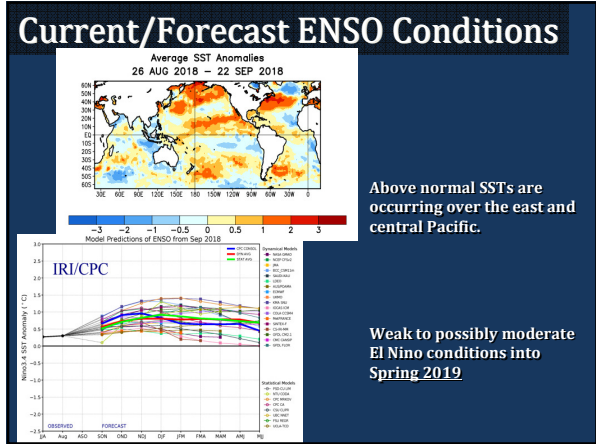


Why ENSO and Florida Dry Season?

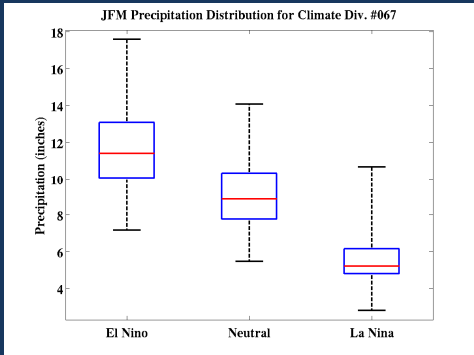
Projected ENSO conditions are a large component of the Florida seasonal rain and temperature forecasts.

ENSO Wintertime Patterns

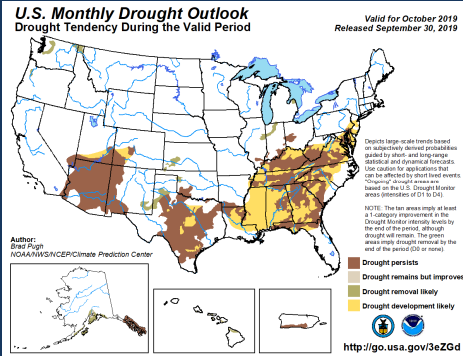




Jan-Mar Rainfall Norms (C.FL)



NOAA CPC Drought Outlook



NWS MLB Dry Season Forecast 2019 ???

National Weather Service Melbourne
DRY SEASON FORECAST | Oct 2017

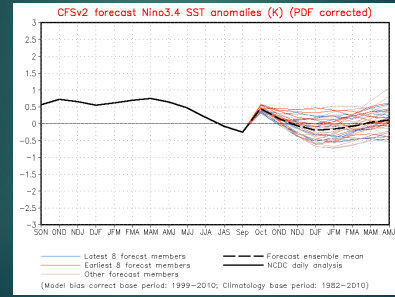
The Forecast	November - December - January			
	ENSO State	Temperature	Precipitation	Storminess
	WEAK LA NINA	ABOVE NORMAL	BELOW NORMAL	BELOW NORMAL

The Forecast	February - March - April			
	ENSO State	Temperature	Precipitation	Storminess
	WEAK LA NINA	ABOVE NORMAL	BELOW NORMAL	BELOW NORMAL

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

Issued: 30 September 2019

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



Summary

ENSO Alert System Status: Not Active

ENSO-neutral conditions are present.*

Equatorial sea surface temperatures (SSTs) are above average across the western and central Pacific Ocean and are below average in the eastern Pacific.

ENSO-neutral is favored during the Northern Hemisphere fall 2019 (~75% chance), continuing through spring 2020 (55-60% chance).*

* Note: These statements are updated once a month (2nd Thursday of each month) in association with the ENSO Diagnostics Discussion, which can be found by clicking [here](#).

Impact Information

Expectation...

- ENSO Neutral forecast to persist into early 2020.
- No signal either way of drought or deficits over the peninsula.
- Degree of ENSO has little influence on the start date of the Spring time wet season.

- *Smoke guide for Public Officials (2019 revision.)*



https://airnow.gov/index.cfm?action=topics.smoke_wildfires_guide_factsheets

Questions ??????????

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