

Evapotranspiration Trend in South Florida

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South Florida Water Management District

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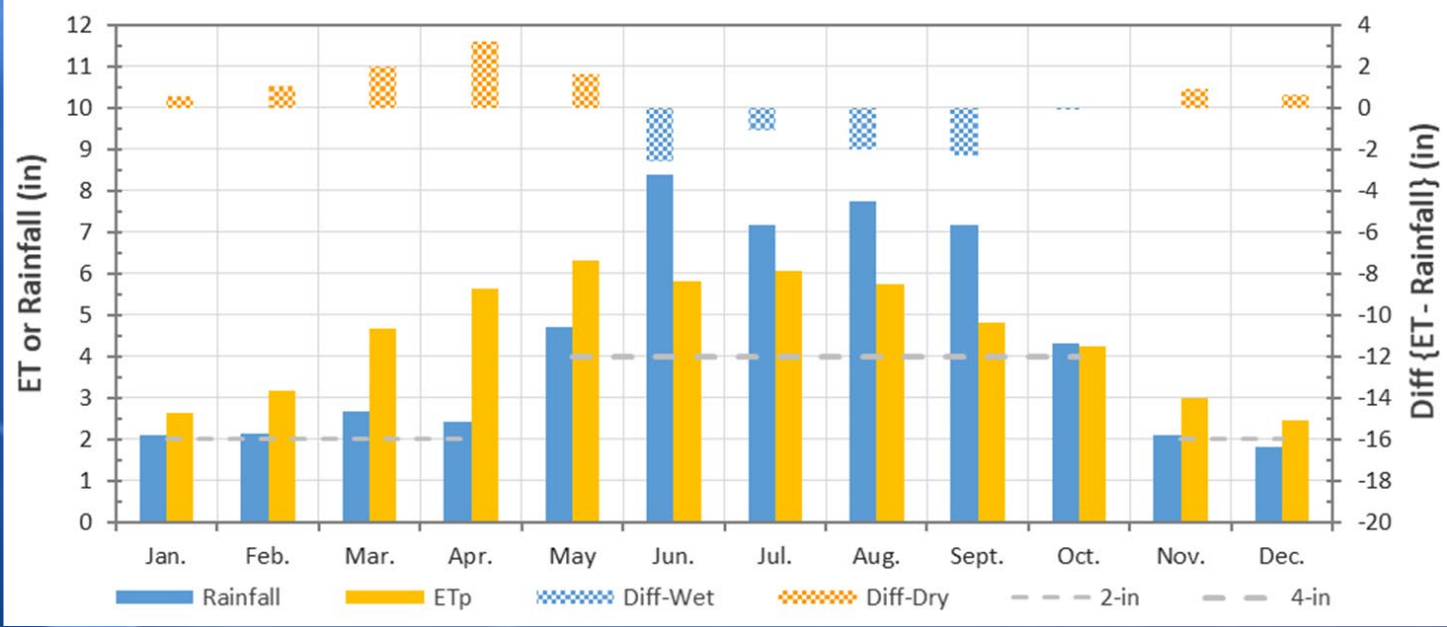
Presentation Outline

- Introduction & Background
- Datasets & Trend Analyses
- Correlation to Meteorological Variables
- Summary & Conclusions
- Q & A

Introduction & Background



Average Monthly ETp Rainfall & Differences At SFWMD



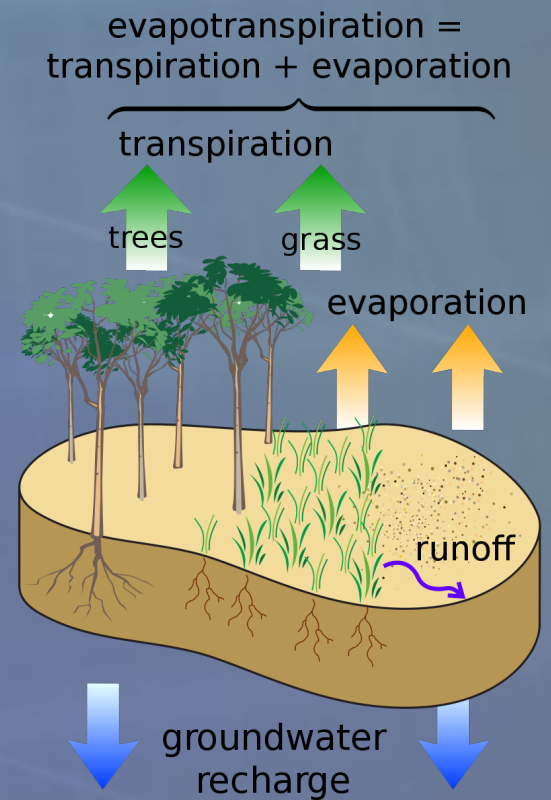
(Rainfall & ET: District-wide Average over the Past 25 Years)



Pan Evaporation (popular most)

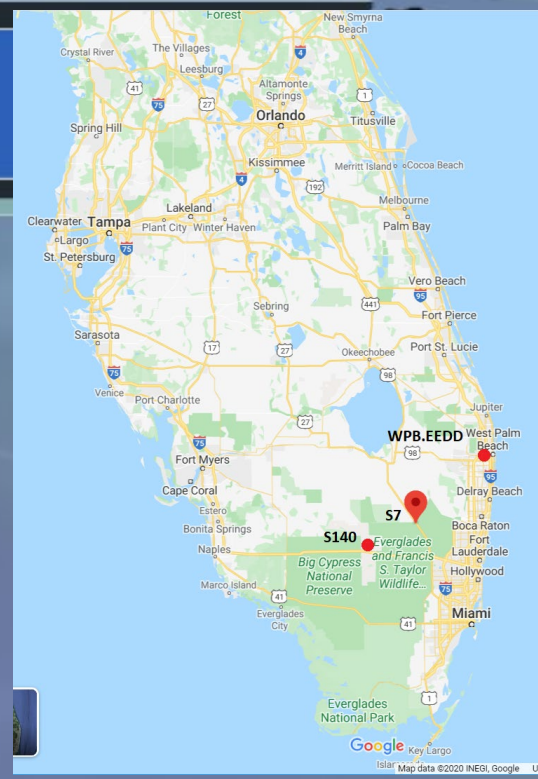


Lysimeter (direct measure of ETp)

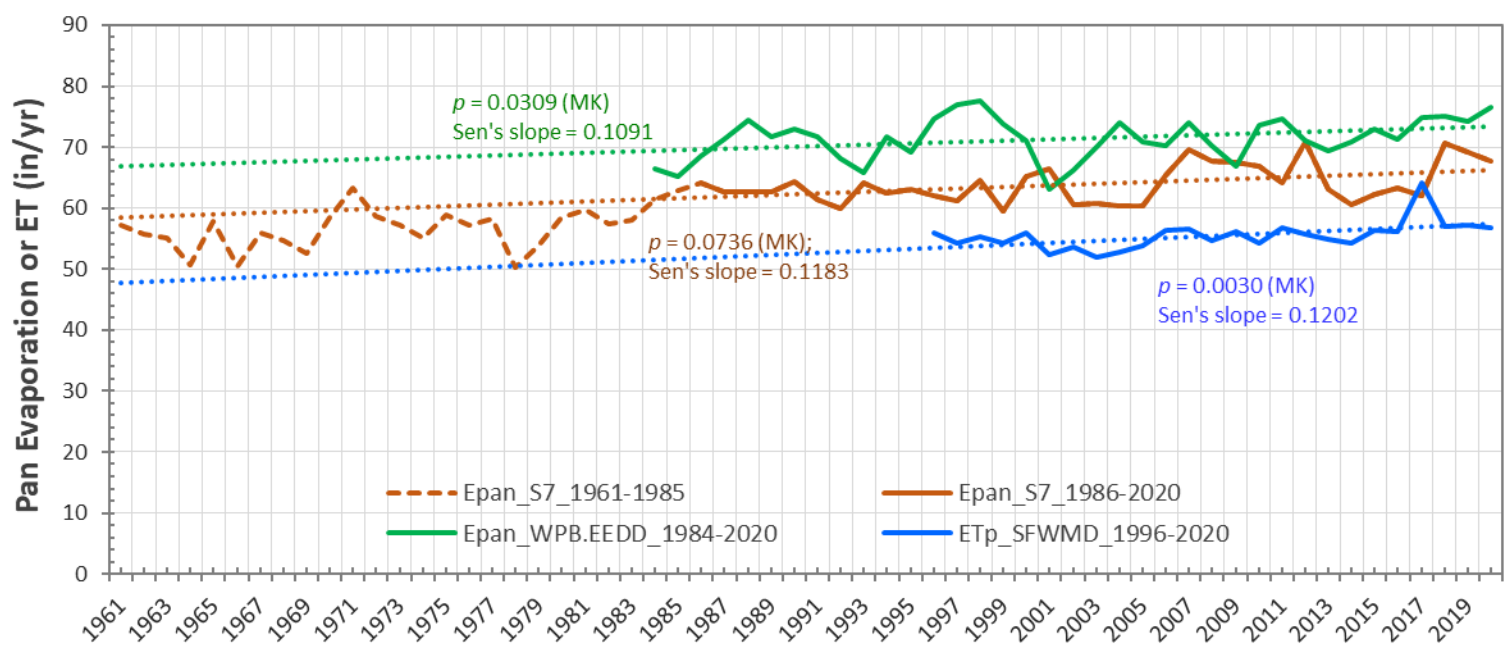


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Datasets & Trend Analyses



Trends Of Annual Epan & ETp At SFWMD (1961-2020)



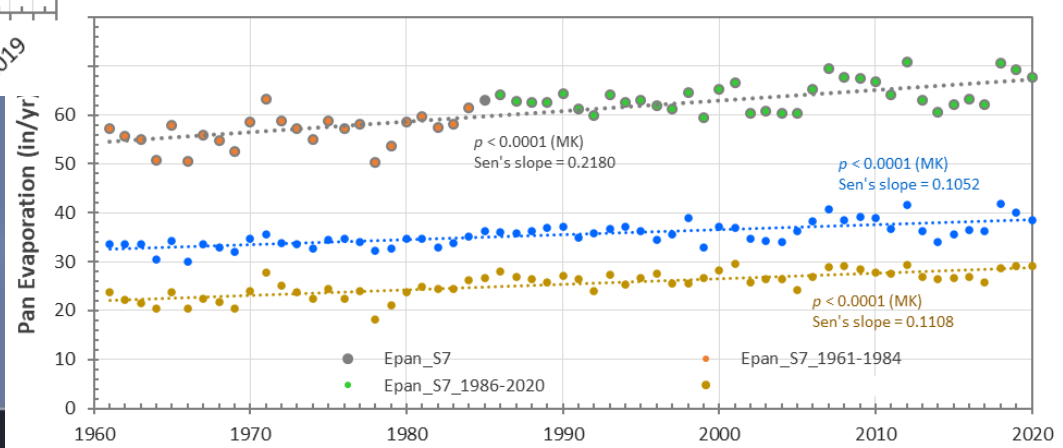
Selection Criteria:

1. Period of Records \geq 25 Years;
2. Still in Operation (for future trend watch).

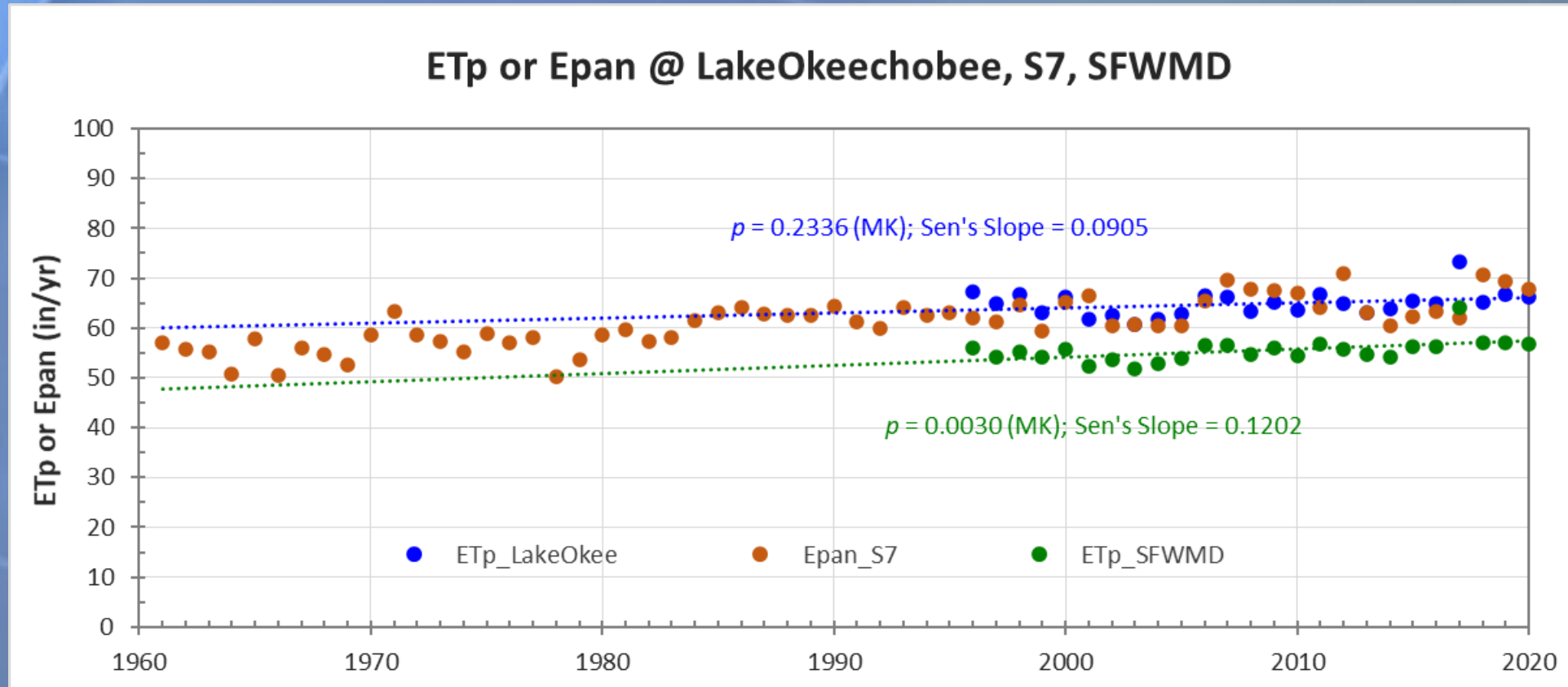
Three Selected Stations/Sets:

EVAP (2): **S7** (SFWMD), **WPB.EEEDD** (City of WPB)
 ET (1): **District** (USGS or Univ. of Alabama)

Trends Of Annual & Seasonal Epan At S7 (1961-2020)



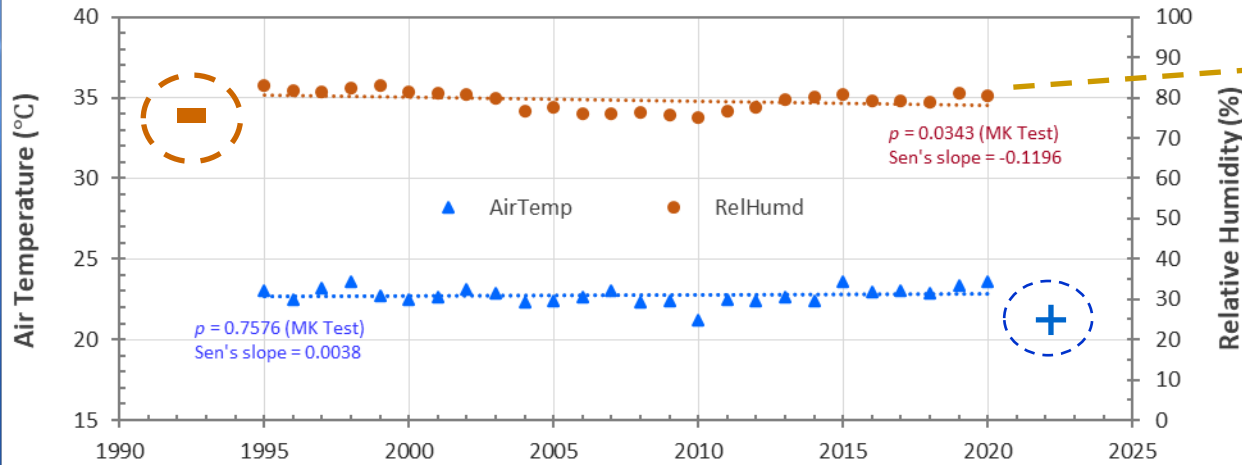
Lake Okeechobee (ETp) vs. S7 (Epan)



Trends of Meteorological Variables



Trends Of Air Temperature & Relative Humidity At SFWMD



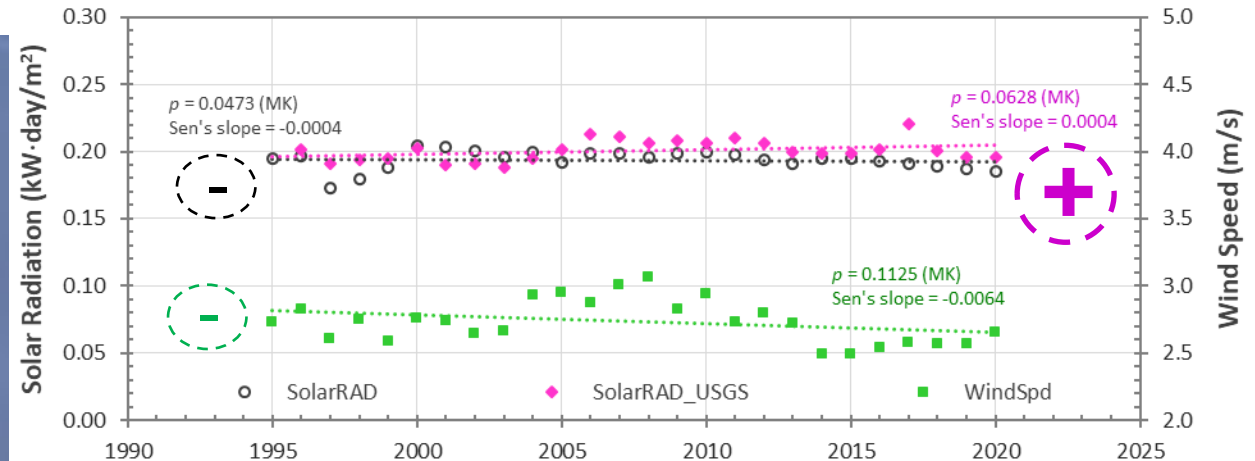
Relative Humidity ↓ = Vapor Pressure Deficit ↑

Period of Records: 1995 - 2020

Driving Factors:

1. Solar Radiation
2. Relative Humidity (or Vapor Pressure Deficit)
3. Air Temperature
4. Wind Speed

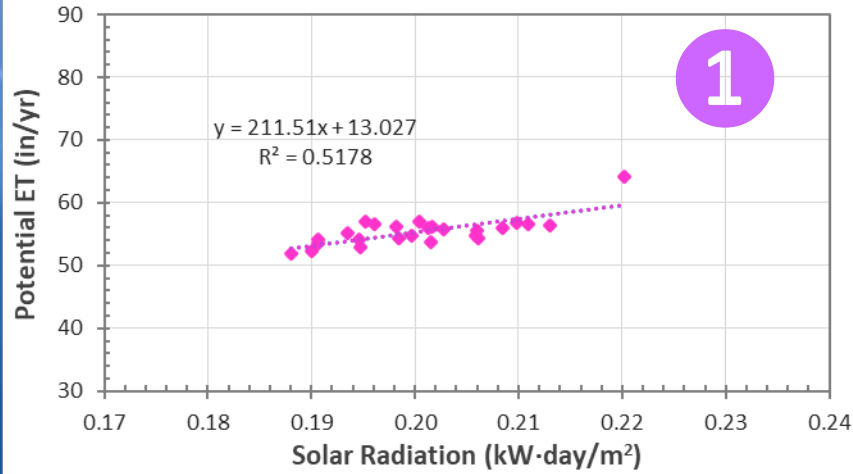
Trends Of Solar Radiation & Wind Speed At SFWMD



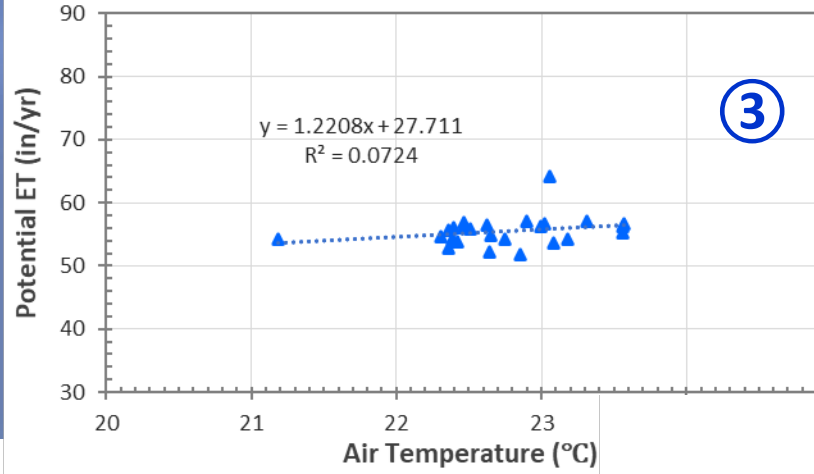
Correlation to Meteorological Variables



SolarRAD vs. ETp @ SFWMD

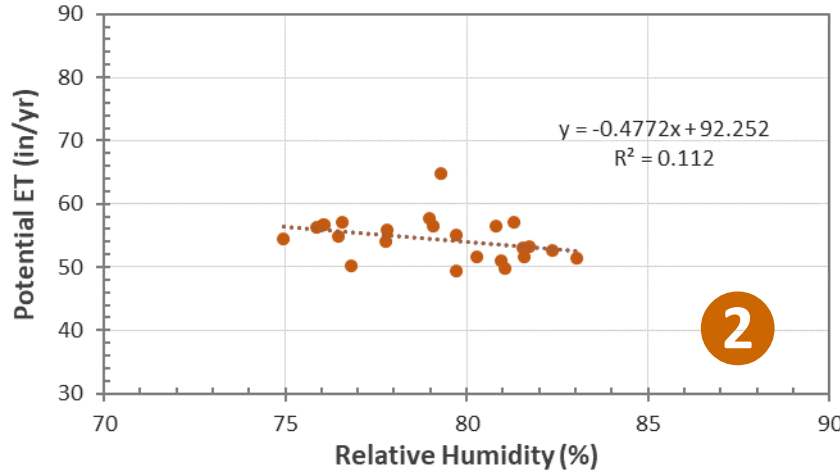


AirTemp vs. ETp @ SFWMD

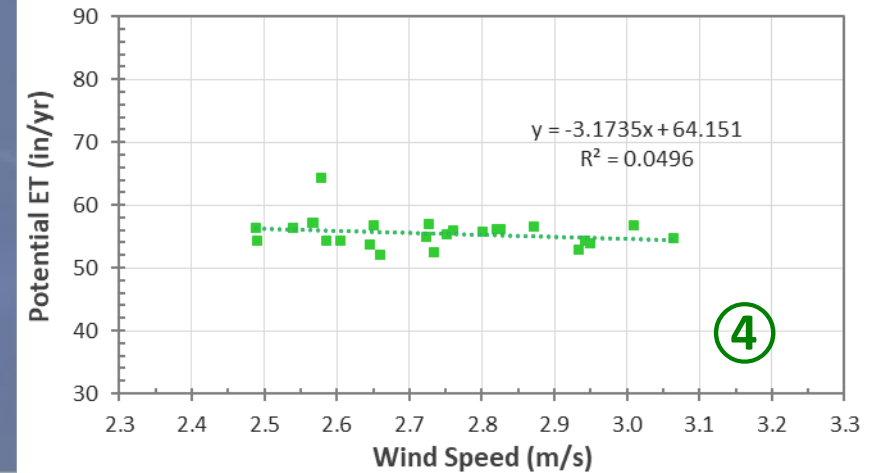


Period of Records:
1995 - 2020

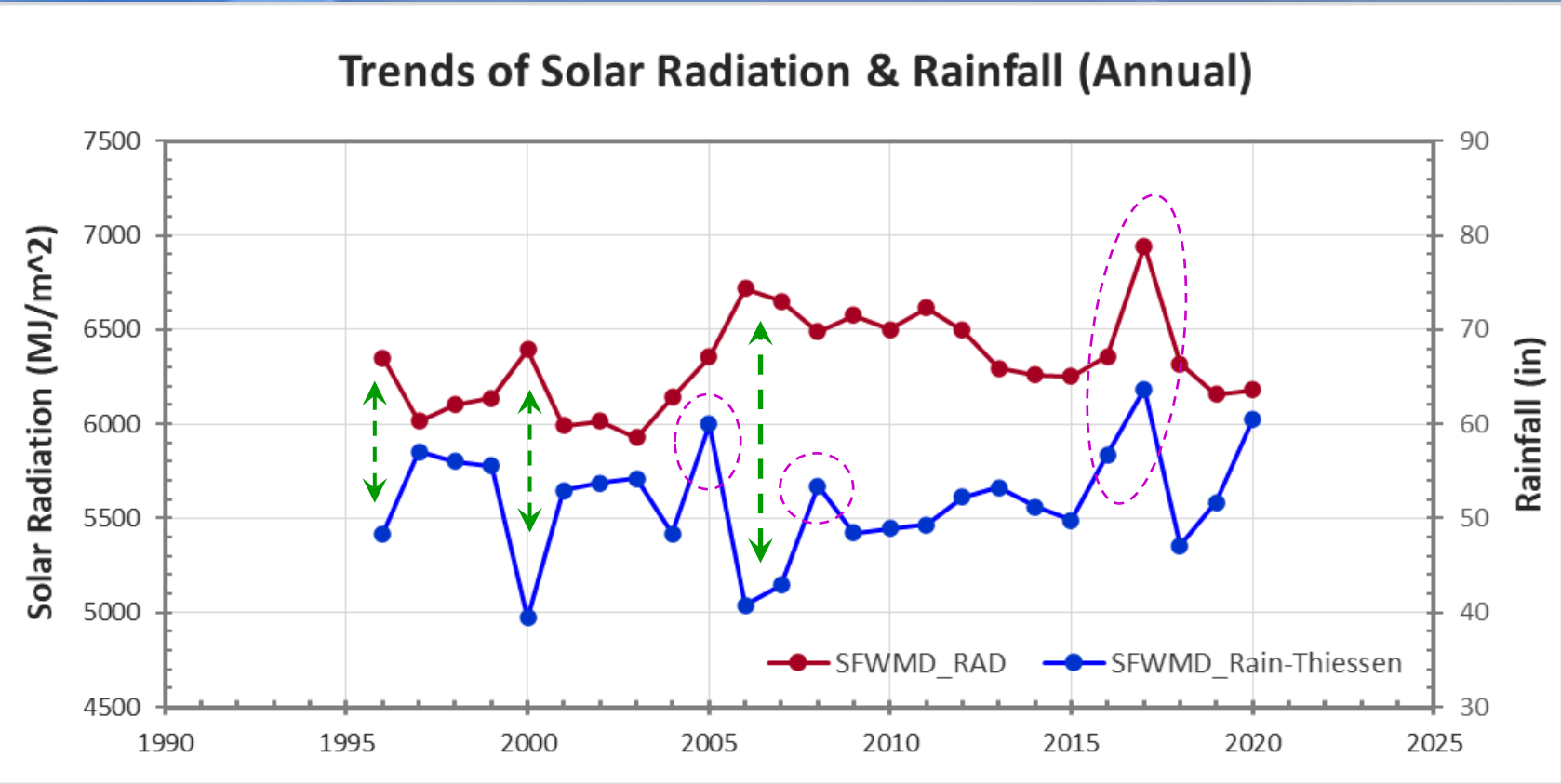
RelHumd vs. ETp @ SFWMD



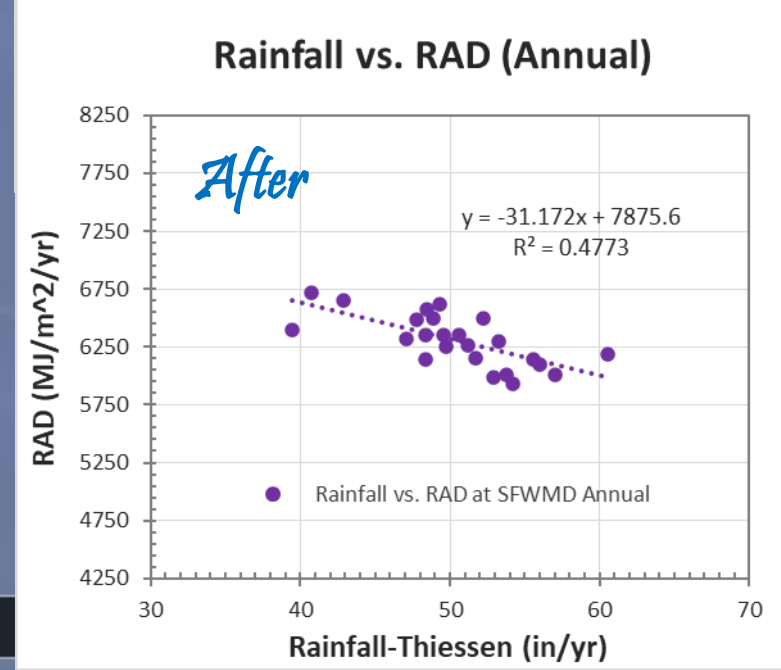
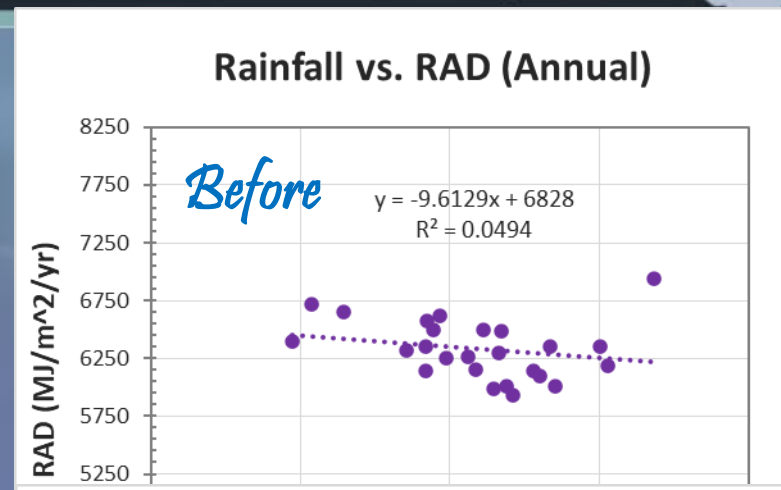
WindSpd vs. ETp @ SFWMD



Correlation to Rainfall (Annual)



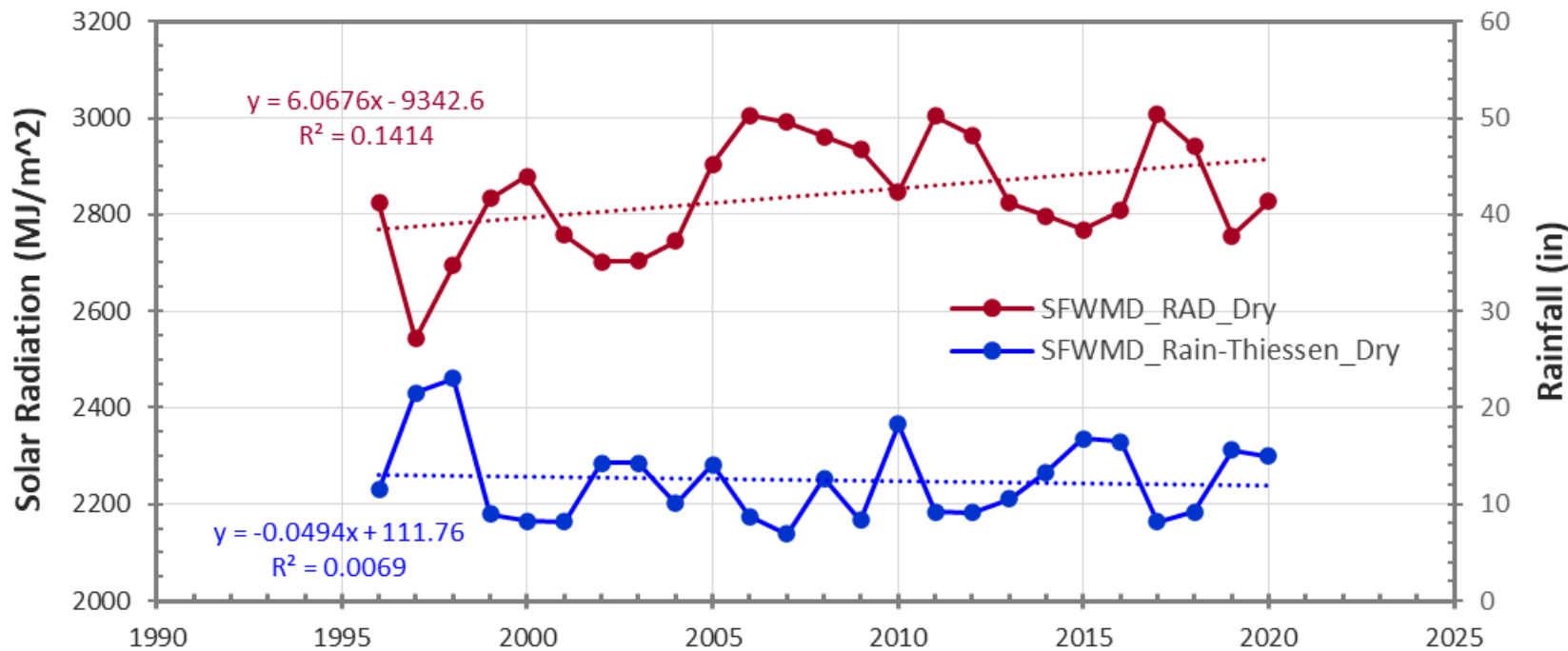
Hurricane, Tropical Storm, or Cold Front Contribute Disproportional or Excessive Rainfall over a Short Period of Time.



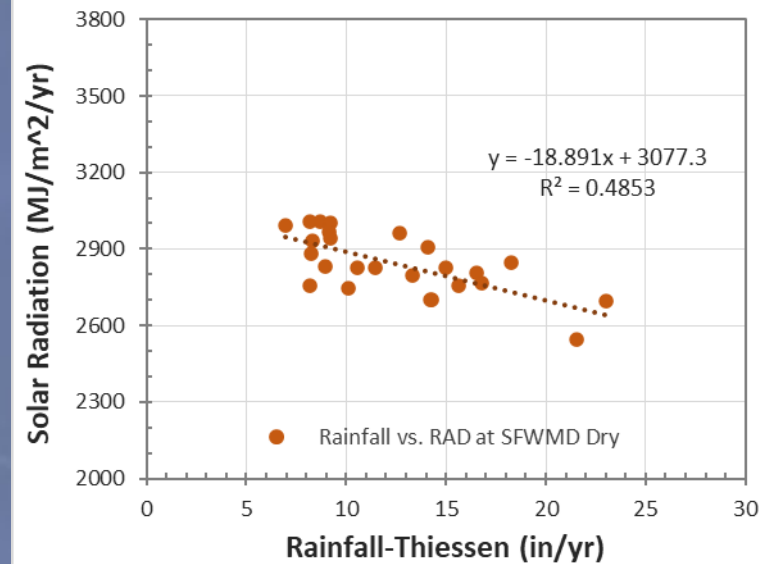
Correlation to Rainfall (Dry Season)



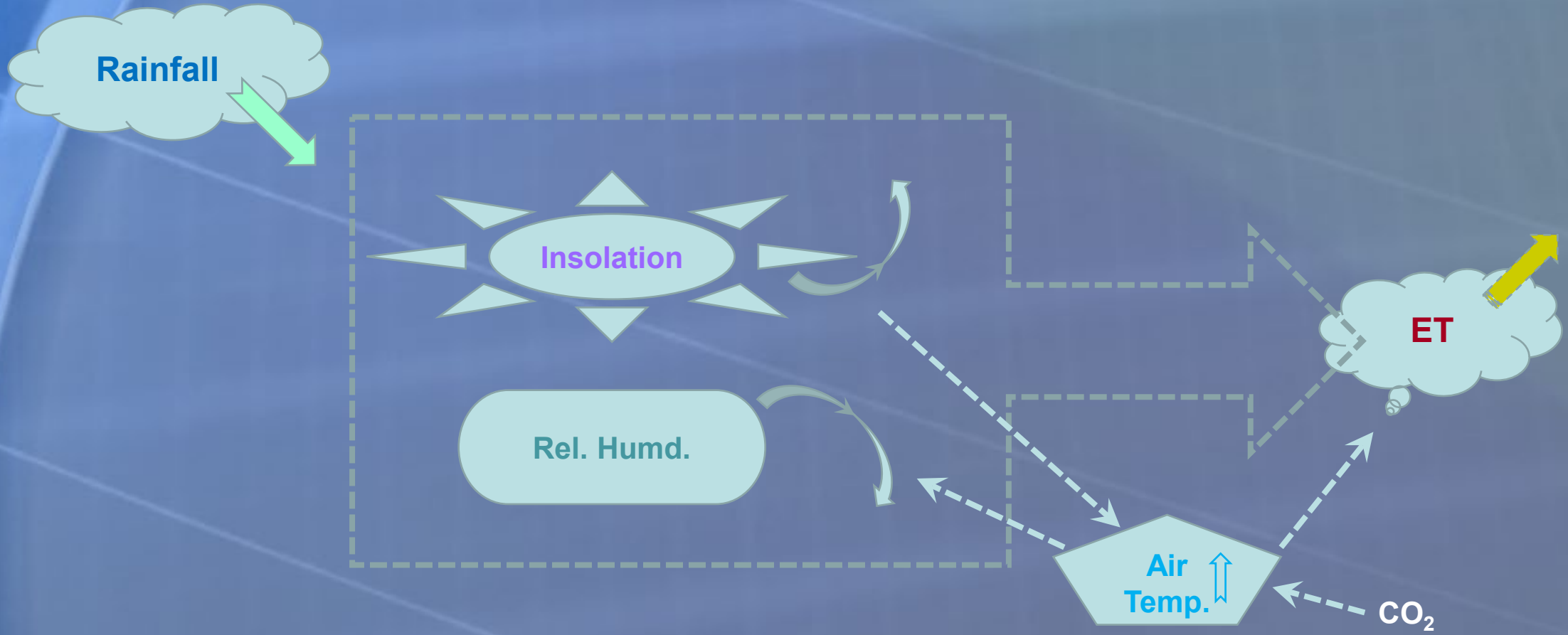
Trends of Solar Radiation & Rainfall (Dry SZN)



Rainfall vs. RAD (Dry SZN)



Links / Hypothesis



Summary & Conclusions

Upward Trend (↑ ET)

Rate of Change: + 0.1 in/yr

Driving Variables: Solar RAD (↑), Rel Humd (↓), Air Temp (↑)

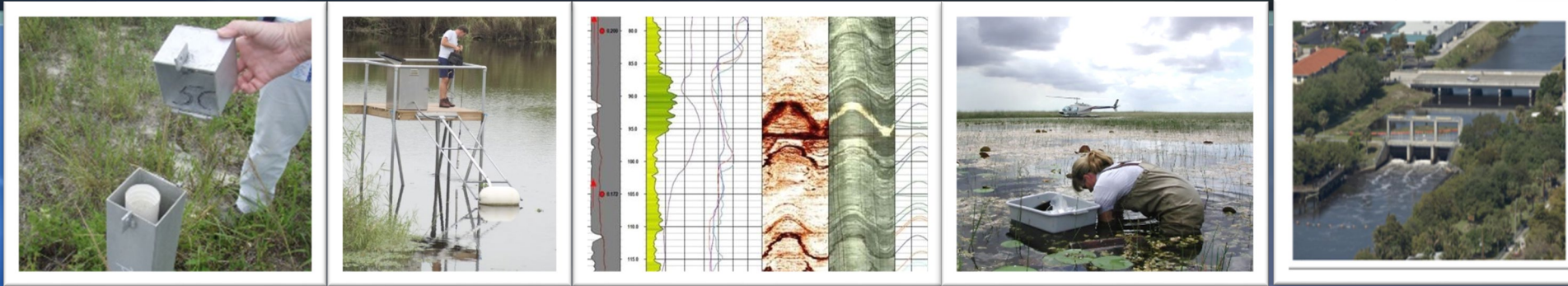
Climate Cycle: AMO (Atlantic Multidecadal Oscillation)

Q&A



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DBHYDRO Insights (Environmental Data)



DBHYDRO is the South Florida Water Management District's corporate environmental database that stores hydrologic, meteorologic, hydrogeologic, and water quality data. This database is the source of historical and up-to-date environmental data for the 16-county region covered by the District.

The DBHYDRO Browser allows you to search DBHYDRO, using one or more criteria, and to generate a summary of the data from the available period of record. You can then select data sets of interest and have the time series data dynamically displayed on your screen in tables or graphs. You can also download data to your computer for later use.

In 2021, SFWMD released a new tool called **DBHYDRO Insights** to make data more easily accessible to the public and stakeholders. New features to access data are under development and the District welcomes feedback and ideas on how to improve the user experience.

To access the database, DBHYDRO Browser training videos, and contacts page visit <https://www.sfwmd.gov/dbhydro>

If you wish to provide feedback on features, please contact
Lokendra Matoli, Chief Architect – IT, lmatoli@sfwmd.gov

Brian Turcotte, Enterprise Scientific Data Mgr., bturcott@sfwmd.gov

The South Florida Water Management District (SFWMD) is a regional governmental agency that oversees the water resources in 16 counties – from Orlando to the Florida Keys.

With a population of 9.0 million, this region covers 17,930 square miles (31 percent of the entire state) and includes vast areas of agricultural lands, water conservation areas, and urban development.

OUR MISSION

To SAFEGUARD and RESTORE South Florida's water resources and ecosystems, PROTECT our communities from flooding, and MEET the region's water needs while CONNECTING with the public and stakeholders

Subscribe for District Resiliency Updates

- Sign-up for our updates by visiting <https://www.sfwmd.gov/news-events> and following these simple steps:

- 1 - Click on the “Subscribe for Email” icon
- 2 - Enter your email address
- 3 - Select “District Resiliency” under Subscription Topics

Home >> News Events

NEWS & MEETINGS

News Releases
News Archive (Oct. 2009 - July 2020)
Fact Sheets
Calendar
Photo and Video Resources
Public Meetings and Forums

News and Meetings

Our large network of communication channels allows you to interact with the District, share opinions, participate in public meetings and engage with us in real-time. You can also use these channels to read statements and news releases, find information during an emergency, or learn about our mission and the work we do. The following is a directory of all of the District's communication channels.

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Welcome ncortez@sfwmd.gov

Quick Subscribe for ncortez@sfwmd.gov

South Florida Water Management District offers updates on the topics below. Subscribe by checking the boxes; unsubscribe by unchecking the boxes. Access your [subscriber preferences](#) to update your subscriptions or modify your password or email address without adding subscriptions.

Subscription Topics

News

- General Agency News
- Key Water Conditions
- 3 **District Resiliency**
- Spanish Language Media
- DBHydro Insights
- Weekly Did You Know

Public Notices

- Governing Board Meeting Notices

You may sign-in to update your current preferences if you're already signed-up.