MIAMI-SOUTH FLORIDA
National Weather Service
Forecast Office
http://www.weather.gov/miami

Rainy Season 2024 Outlook

Equal Chances of above/below normal rainfall through July, trending towards above normal precipitation August-October

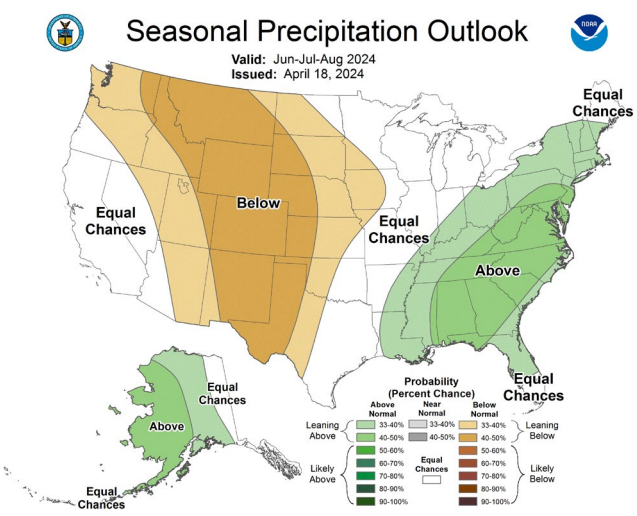
Likely Warmer than Normal Summer

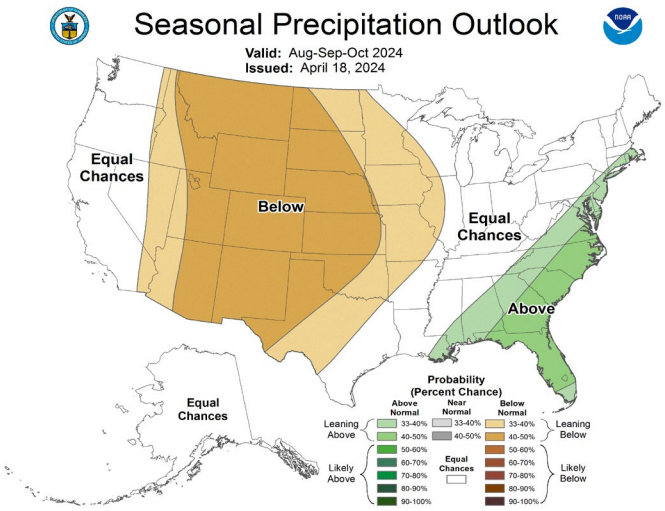
May 10, 2024: The National Weather Service outlook for the 2024 South Florida rainy season calls for equal chances of above or below normal precipitation through July, then trending towards above normal rainfall in the August-October time frame. For temperatures, the outlook calls for likely warmer than normal conditions through the season. This is consistent with the NOAA Climate Prediction Center's outlook (Figures 1-4), and based on a combination of several factors: long-range models, trends (observed conditions over the past 10 to 20 years), and analogs (past summers with similar atmospheric conditions to what is expected this summer).

The precipitation outlook has a **low to medium** level of confidence due to weak and/or mixed signals from the different factors. Rainfall during previous La Niña rainy seasons have ranged from above normal to below normal, leading to a weak correlation with wet season precipitation patterns. A consensus of long-range models is indicating similar conditions to the official outlook indicated above. Adding to the lower confidence is the fact that wet season precipitation outlooks can be strongly influenced by any tropical systems affecting Florida, which have virtually no *local* predictability more than 7-10 days in time.

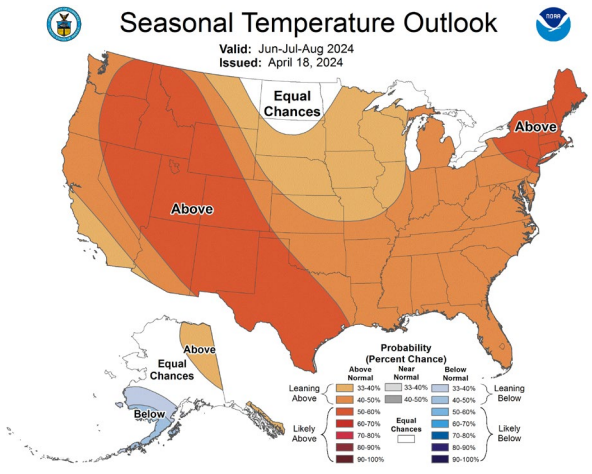
The flood risk for South Florida is average. Even in a near-normal precipitation regime, any showers and thunderstorms during the rainy season can produce flooding. Therefore, the flood risk is average (8-10 significant events per rainy season).

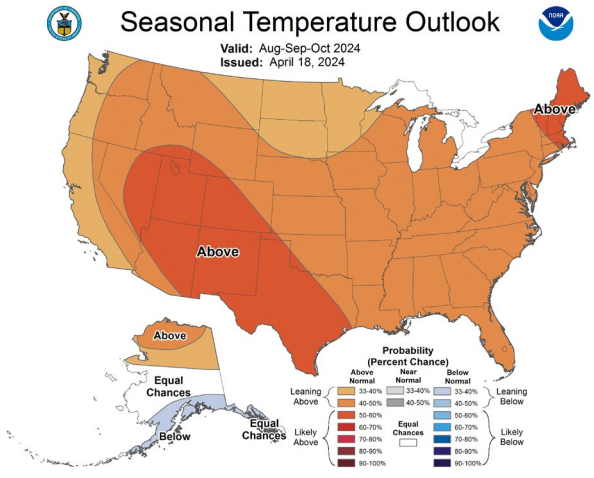
The temperature outlook has a **medium to high** level of confidence due to consistency between long-range model forecasts, warm ocean temperatures, and summer temperature trends over the past 10 to 20 years. The likely range of temperatures is in the 1-1.5F degree range per month above the 30-year normal, and should largely be reflected in higher than normal night and morning temperatures.





Figures 1 & 2: NOAA's Climate Prediction Center precipitation outlook for June-August (left) and August – October (right)





Figures 3 & 4: NOAA's Climate Prediction Center temperature outlook for June-August (left) and August – October (right)

Definition and Significance of the South Florida Wet Season

The South Florida wet season begins on May 15th and ends on October 15th, and is defined as the time of year when 60-70% of the average yearly rainfall occurs. Year-round groundwater conditions are largely determined by the amount of precipitation received during the season. For example, a drier and/or late-arriving wet season can lead to significant water shortages, while an early wet start and/or particularly wetter than normal season can result in concerns about too much groundwater. Often there is a transition period near the beginning and end of the rainy season which can last two weeks or more.

The South Florida wet season is characterized by consistently high moisture levels (almost daily surface dewpoints in the 70s), and coupled with high temperatures support near-daily development of showers and thunderstorms over the Florida peninsula and adjacent waters. The exact location of the daily rainfall depends on interactions between the larger scale wind flow in the lower levels of the atmosphere, and smaller-scale wind flows such as sea breezes and lake breezes.

The Atlantic subtropical ridge (a semi-permanent high-pressure area over the Atlantic Ocean that lies anywhere between about 25 and 35 degrees North Latitude in the summer) is the primary influence on the large-scale wind flow across Florida. The National Weather Service Tampa Bay Area office has created a website describing eight wind patterns or "flow regimes" that tend to favor thunderstorm development in certain parts of the Florida peninsula.

Wet Season Normal Precipitation and Phases

Average wet season rainfall ranges anywhere from 30 to 45 inches, highest within about 5-8 miles inland from both the Atlantic and Gulf coasts, and lowest near and along the immediate coastline of both coasts as well as around and just west of Lake Okeechobee. South Florida's daily wet season rainfall tends to be highly variable in nature, with nearby areas often observing large differences in rainfall amounts. Normally it takes at least one or two organized, large-scale weather systems (such as tropical waves, disturbances or tropical storms/hurricanes) to provide high rainfall amounts over a large area.

Below are wet season normal precipitation values (1991-2020) for select South Florida locations:

- **Main climate locations:**
  - Miami: 44.84”
  - Fort Lauderdale: 37.49”
  - West Palm Beach: 36.30”
  - Naples: 36.08”
- **Other locations:**
  - Hialeah: 48.19”
  - Juno Beach: 39.83”
  - West Kendall: 38.08”
  - Marco Island: 37.44”
  - Miami Beach: 35.55”
  - Pompano Beach: 33.40”
  - Moore Haven: 33.13”

The South Florida wet season usually has three fairly distinct phases:

- **Mid-May through early July** (“stormiest” part of the season). Severe weather impacts, including strong and damaging winds, tornadoes, excessive lightning, hail, and flooding are most likely to occur during this period

- **Early July through mid-August** (hottest with intermittent dry periods). This is the period when the subtropical high typically has greatest influence over Florida, and leads to episodes of Saharan dust which tend to dry and warm the atmosphere over South Florida

- **Late August through mid-October** (higher rainfall variability due to potential tropical systems and early-fall cold fronts)

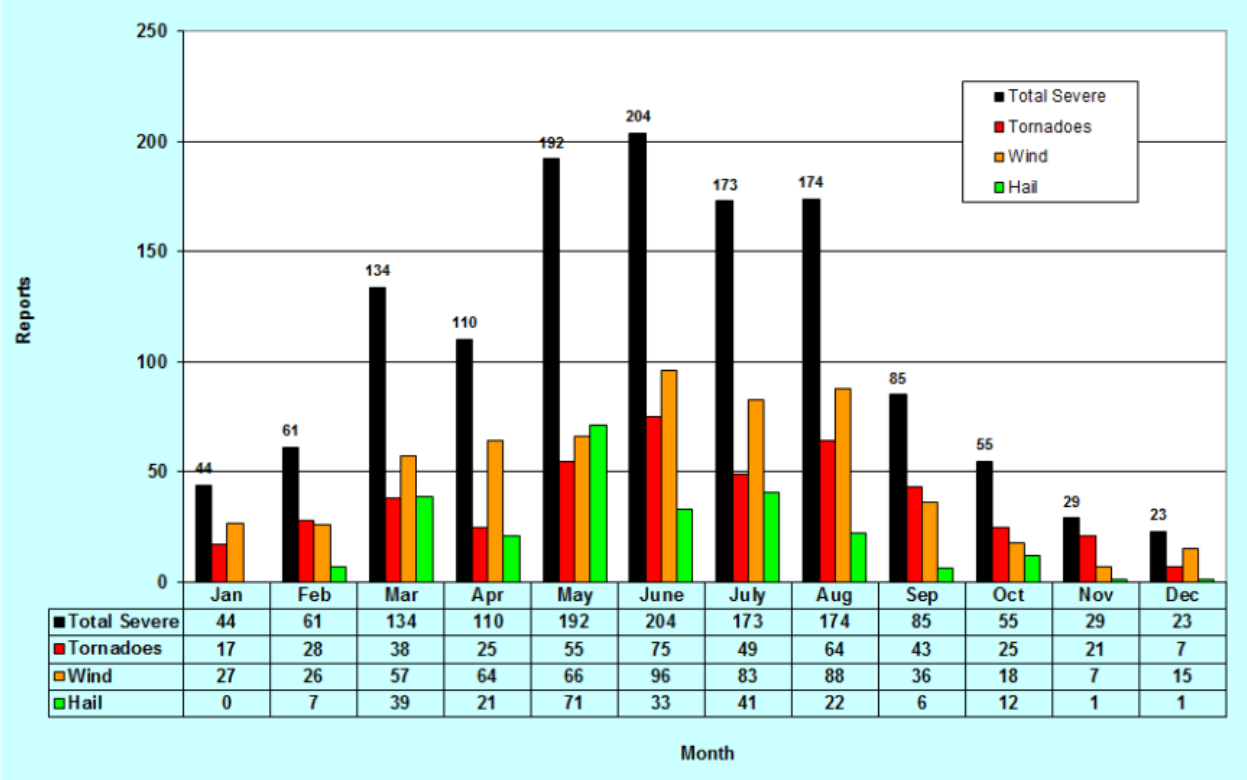
Weather Hazards and Potential Impacts

Weather hazards associated with the wet season include **lightning, damaging thunderstorm winds, flooding, hail, and tornadoes**. May to August is the period when most of South Florida's severe weather (flooding, large hail, tornadoes and strong winds) takes place (Figure 5).

Heat is a chronic hazard during South Florida's long summer. The hottest period is typically in July and August when the maximum daily heat index can frequently reach or exceed 100F. The risk of heat illness increases at heat index values of over 100F.

Rip currents are common due to occasionally- persistent onshore winds.

These hazards **do not include** potential significant impacts from any tropical systems that can affect South Florida, particularly during the peak months of August, September and October.



	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Total Severe	44	61	134	110	192	204	173	174	85	55	29	23
Tornadoes	17	28	38	25	55	75	49	64	43	25	21	7
Wind	27	26	57	64	66	96	83	88	36	18	7	15
Hail	0	7	39	21	71	33	41	22	6	12	1	1

Figure 5: Monthly Distribution of Severe Weather for southern Florida (1950-2012 Tornadoes & 1955-2012 Wind/Hail)

Please visit http://weather.gov/southflorida for daily forecasts, severe weather warnings and outlooks. For updated seasonal outlooks, please visit the Climate Prediction Center website.