



Climate and Hydrology Monthly Report for Puerto Rico and the US Virgin Islands

Valid December 2023

Issued By: WFO San Juan, PR

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December Climate Summary for Primary Climate Sites

San Juan Area

Highest: **89 °F** on the 4th
Lowest: **72 °F** on the 29th
Average: 79.7 °F (+0.9; above normal)
Rain Total: 7.71" (+2.86; above normal)

Days with $T_{\max} \geq 90\text{F}$: 0
Nights with $T_{\min} \geq 80\text{F}$: 0
Days with Rain (≥ 0.01 "): 29

Rankings:

12th warmest
22nd wettest

Remarks:

Record Warm Minimum: 3

St. Thomas

Highest: **88 °F** on the 8, 9th
Lowest: **70 °F** on the 30th
Average: 80.0 °F (-0.1; below normal)
Rain Total: 3.96" (+1.03; above normal)

Days with $T_{\max} \geq 90\text{F}$: 0
Nights with $T_{\min} \geq 80\text{F}$: 0
Days with Rain (≥ 0.01 "): 16

Rankings:

41st warmest
15th wettest

Remarks:

Record Warm Minimum: 2

St. Croix

Highest: **90 °F** on the 9, 11th
Lowest: **69 °F** on the 25th
Average: 81.1 °F (+2.3; above normal)
Rain Total: 1.30" (-1.95; below normal)

Days with $T_{\max} \geq 90\text{F}$: 6
Nights with $T_{\min} \geq 80\text{F}$: 0
Days with Rain (≥ 0.01 "): 15

Rankings:

3rd warmest
8th driest

Remarks:

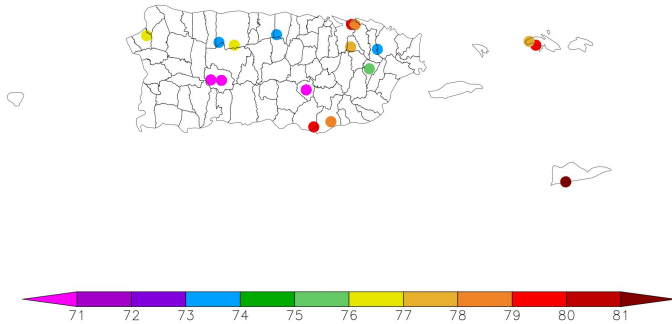
Daily Temperature Records: 8
Record Warm Minimum: 3



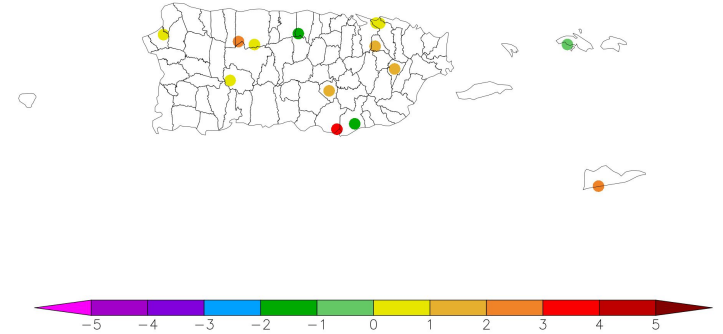
Observed Temperature

Link to generate the latest [ACIS Climate Maps](#)

Temperature (F)
12/1/2023 – 12/31/2023



Departure from Normal Temperature (F)
12/1/2023 – 12/31/2023



- Temperatures across the local sites have been mostly above normal. The highest 1- day maximum temperature reported across the local sites was:

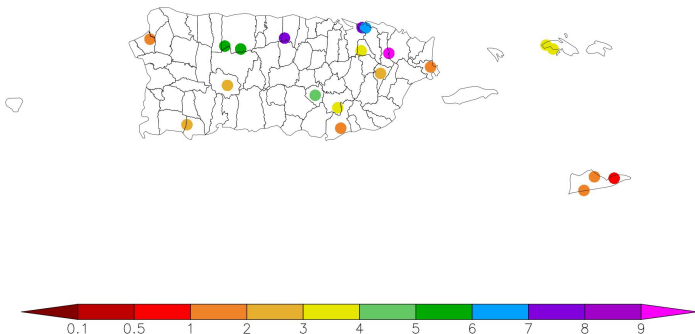
Image Captions:
Left - Observed Average Temperature for Puerto Rico and US Virgin Islands (COOP)
Right - Departure from normal temperature for Puerto Rico and US Virgin Islands (COOP)
Data Courtesy High Plains Regional Climate Center/NWS COOP Stations.



Observed Rainfall

[Link to generate the latest ACIS Climate Maps](#)

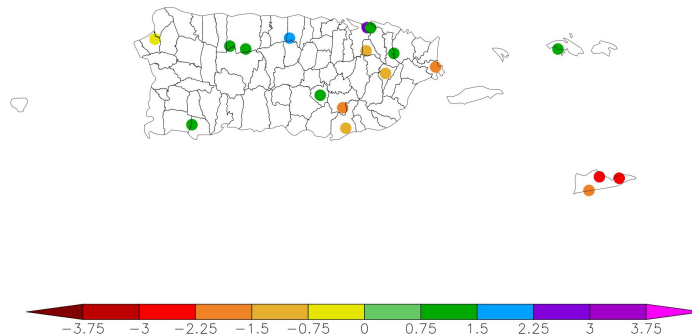
Precipitation (in)
12/1/2023 - 12/31/2023



Generated 1/2/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Precipitation (in)
12/1/2023 - 12/31/2023



Generated 1/2/2024 at HPRCC using provisional data.

NOAA Regional Climate Centers

● Rainfall patterns during the last month have been mostly below normal for southeast PR and St. Croix, and above normal along northern PR and St. Thomas. The site that received the most rain was:

Image Captions:
Left - Observed Precipitation for Puerto Rico and US Virgin Islands (COOP)
Right - Departure from normal Precipitation for Puerto Rico and US Virgin Islands (COOP)
Data Courtesy High Plains Regional Climate Center/NWS COOP Stations.



Estimated Rainfall

Estimated Rainfall was obtained from [AHPS](#) (Puerto Rico); and COOP and [CoCoRaHS](#) stations (U.S. Virgin Islands)

- Between 8 to 15 inches were observed in the Vicinity of El Yunque.
- Around 4 to 10 inches were observed for northeast PR, including the San Juan metro area.
- A lot less rain fell in the south and west, with amounts mainly below two inches.
- The island of St. Croix received 1 to 2 inches of precipitation across the board, with the greatest amounts on the extreme southwest.
- St. Thomas collected 2 to 4 inches, while around 3 inches of rain were observed in eastern St. John.

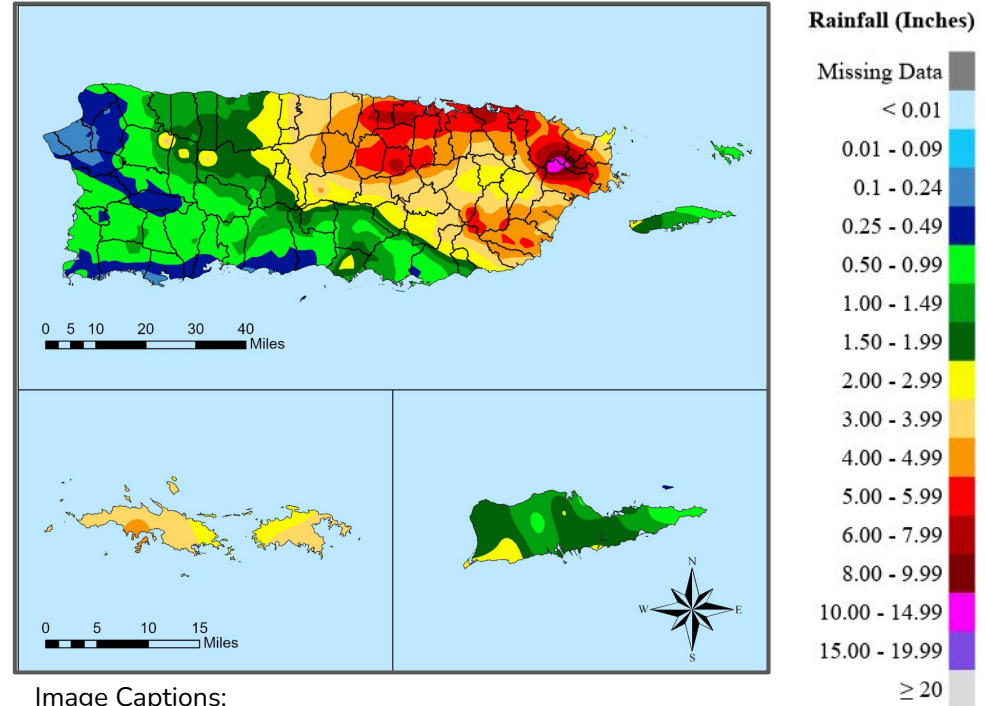


Image Captions:
Estimated Rainfall for the month of December. This map is courtesy of the NWS SJU GIS Team.



Departure from Normal Rainfall

Estimated Departure from normal was obtained from [AHPS](#)

- Most of Puerto Rico ended below normal, with deficits of 2 inches or less in the south, west and interior. The deficit was greater in the northwest, with 3 to 5 inches below normal, and even greater near El Yunque, ranging 5 to 8 inches.
- Above normal precipitation was observed for a few spots of the island, including the municipality of Mayagüez, Vega Baja and some portions of the southeastern Puerto Rico and western Vieques.
- At the Virgin Islands, St. Croix also ended below normal (12th driest December on record), while St. Thomas was the only primary climate site reporting above normal amounts.

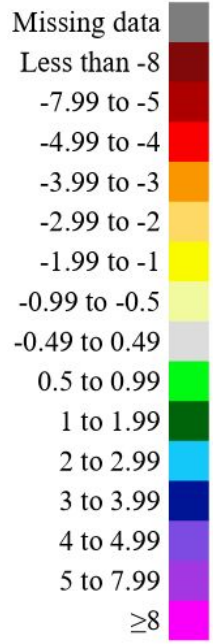
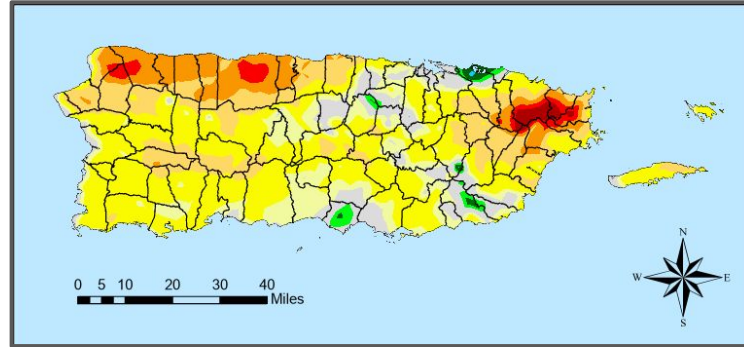


Image Captions:
Estimated Departure from Normal Rainfall for Puerto Rico during the month of December. This map is courtesy of the NWS SJU GIS Team.
*AHPS does not provide rainfall departure from normal for the USVI.



Hydrologic Conditions and Impacts

The latest soil monthly streamflow for Puerto Rico can be found on [WaterWatch](#)

- The 28-day average streamflow from the USGS river gauge network indicates most streamflows running near normal across central and eastern Puerto Rico. This is not the case across western areas of the island where streamflows are running below or well below normal. For Reservoir levels, click [here](#).

Non-Routine Hydrologic Products Issued	Products issued for the month
Hydrologic Outlooks (SJUESFSJU)	0
Flood Watches (SJUFFASJU)	0
Flood Warnings (SJUFLWSJU)	0
Flash Flood Warnings (SJUFFWSJU)	0
Flash Flood Statements (SJUFFSSJU)	0
Urban/Small Stream Flood Advisories (SJUFLSSJU)	5

Latest Monthly Average Streamflow from USGS

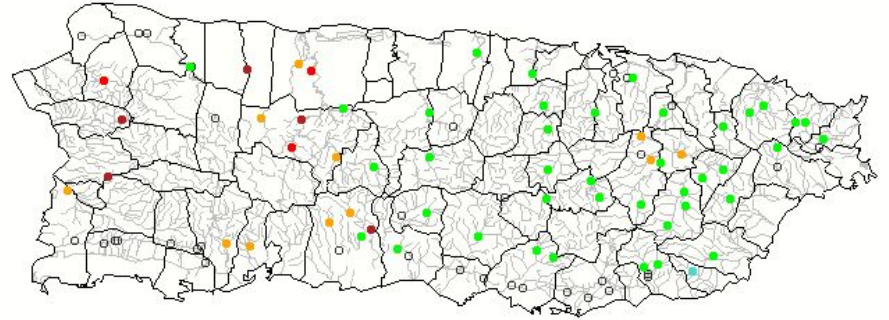


Image Caption: December 2023 compared to historical november streamflows for Puerto Rico.

Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked



Soil Saturation

The latest soil moisture information for Puerto Rico can be found on [PRAGWATER](#)

Latest data retrieved from PRAGWATER indicated high soil saturation across the western interior, east and southeast, while drier soils are observed in the southern and northwestern plains and across the vicinity of Caguas in the eastern interior. Therefore, a higher crop stress factor is observed from Cabo Rojo to Arroyo in the south, from Rincon to Arecibo in the northwest, and from Coamo to Juncos in the interior.

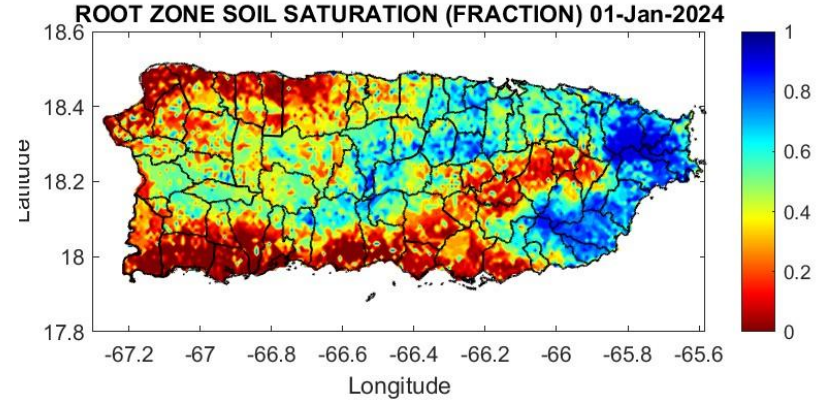
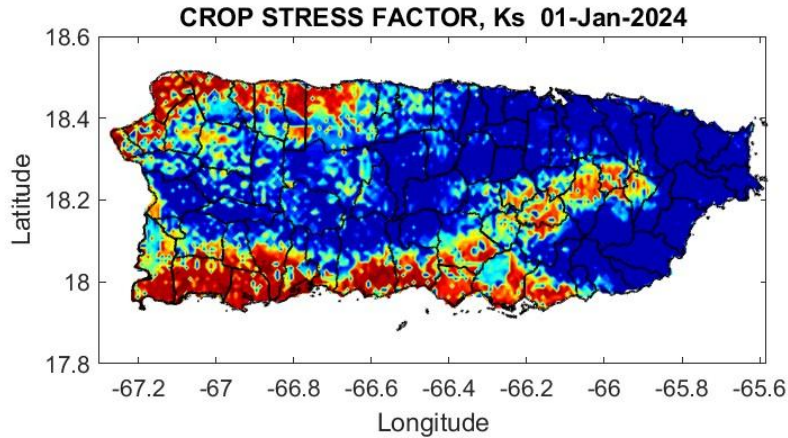


Image Caption: (Left) Crop Stress Factor for Puerto Rico. (Right) Root Zone Soil Saturation Fraction. (Valid: January 1st) Soil saturation: 1=Saturated. Crop Stress Factor: 0=high



U.S. Drought Monitor

Link to the [latest U.S. Drought Monitor](#) for the Caribbean

DROUGHT CONDITIONS : Drought conditions continue to prevail.

Drought intensity and Extent

- D2 (Severe Drought): **Severe Drought** conditions continue across Saint Thomas.
- D1 (Moderate Drought): **Moderate Drought** conditions are observed in the vicinity of Lares and Caguas, and in Saint Croix.
- D0 (Abnormally Dry): **Abnormally Dry** conditions are observed across nearly half of Puerto Rico (~53%).

U.S. Drought Monitor Caribbean

January 2, 2024
(Released Thursday, Jan. 4, 2024)
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	46.79	53.21	4.80	0.00	0.00	0.00
Last Week 12-26-2023	46.79	53.21	4.80	0.00	0.00	0.00
3 Months Ago 10-03-2023	52.86	47.14	13.66	0.00	0.00	0.00
Start of Calendar Year 01-03-2024	46.79	53.21	4.80	0.00	0.00	0.00
Start of Water Year 09-26-2023	52.86	47.14	13.66	0.00	0.00	0.00
One Year Ago 01-03-2023	81.52	18.48	0.00	0.00	0.00	0.00

Note: Statistics do not include areas represented by points.

Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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droughtmonitor.unl.edu

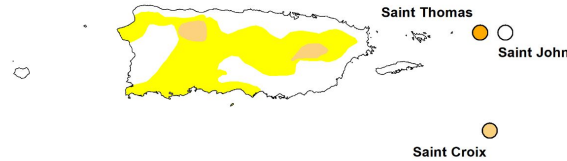


Image Caption: U.S. Drought Monitor valid 7am EST January 2nd.



Recent Change in Drought Intensity

Link to the latest [4-week change map](#) for the Caribbean

Four Week Drought Monitor Class Change.

- 1 Class Degradation is now been observed across the southwest, and most of the interior of Puerto Rico, from Maricao to the vicinity of El Yunque.

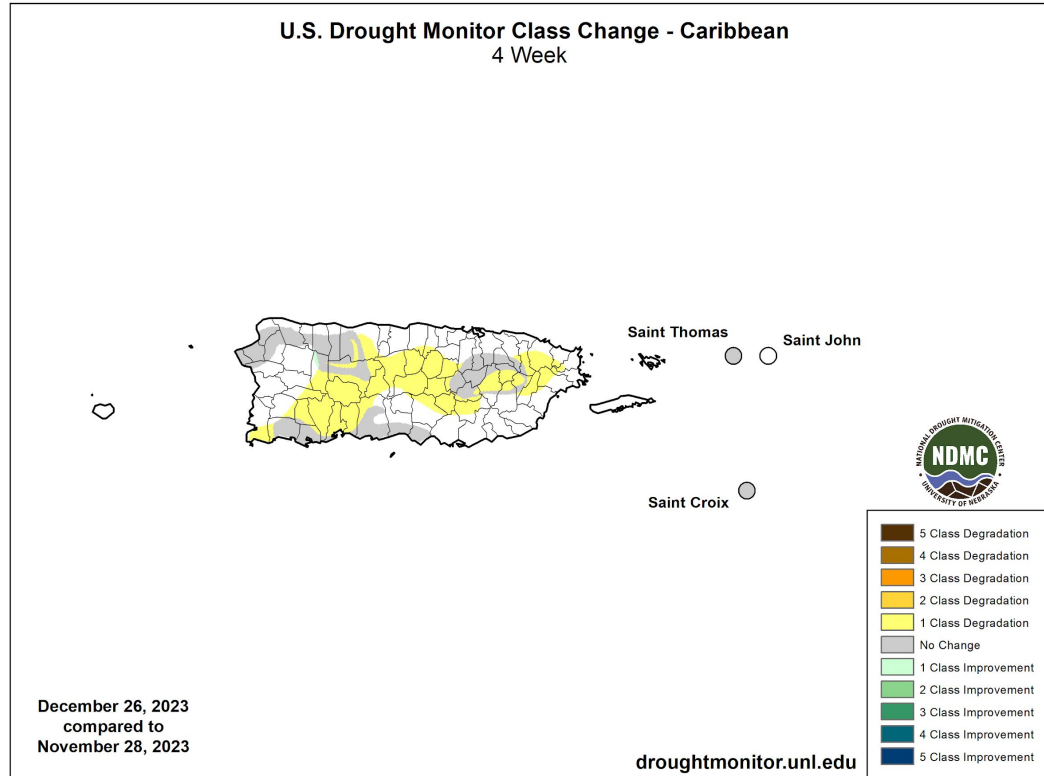


Image Caption: U.S. Drought Monitor 4-week change map valid 8am AST Dec 26th, 2023.



Long-Range Precipitation Outlook

The latest monthly and seasonal outlooks can be found on the [CPC homepage](#)

- The North American Multi-Model Ensemble (NMME) favors neither below nor above normal precipitation through at least early spring across the northeastern Caribbean.

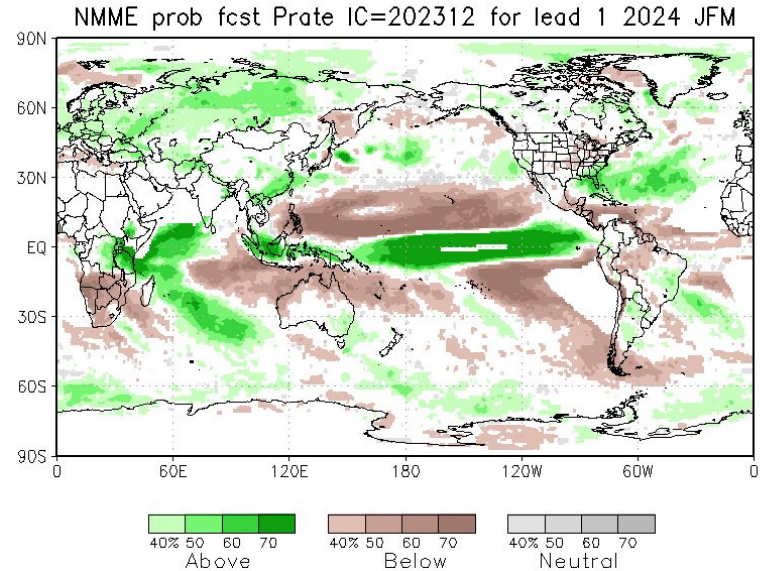


Image caption: NMME precipitation forecast issued December 2023. Valid January-February-March 2024.



Long-Range Temperature Outlook

The latest three-months temperature outlook can be found on the [CPC homepage](#)

- Based on the North American Multi-Model Ensemble (NMME), there is a $\geq 90\%$ chance of observing above normal temperature for the period of January, February and March 2024

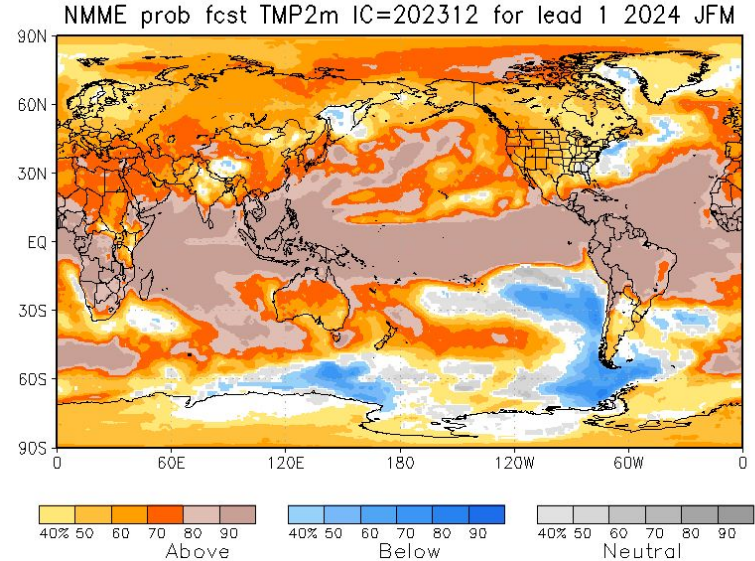


Image caption: NMME temperature forecast issued December 2024. Valid January-February-March 2024.



Long Range Drought Outlook

The latest monthly and seasonal outlooks can be found on the [CPC homepage](#)

- Based on the expected conditions, drought conditions are expected to **deteriorate** across Puerto Rico and the US Virgin Islands as the eastern Caribbean dry season continues.

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for December 21, 2023 - March 31, 2024
Released December 21, 2023

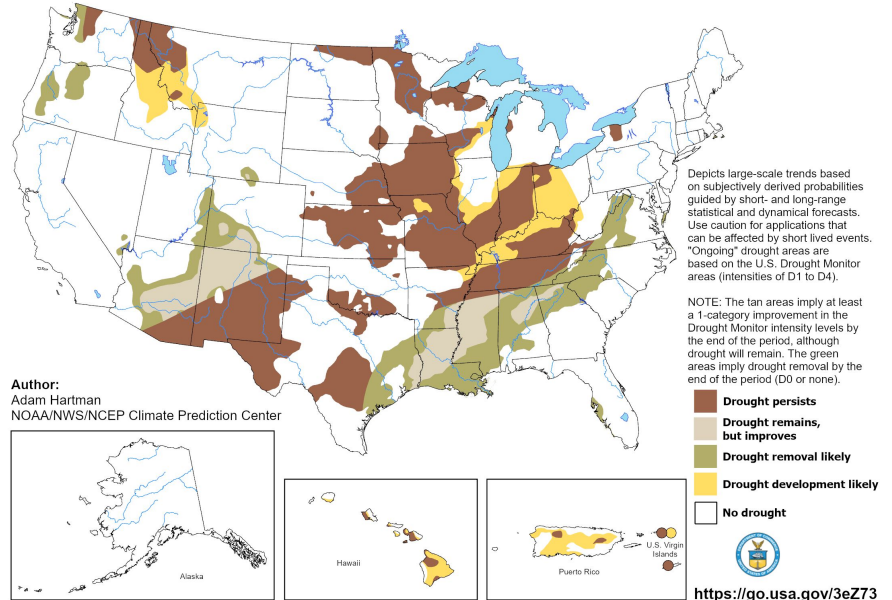


Image Caption: U.S. Seasonal Drought Outlook Valid for December 21th 2023 - March 31st, 2024.