Monthly Diagnostics of Climate Events for the RCC-Washington Region

(i) Temperature

For March, mean maximum temperatures (Tmax) were 1 – 2°C warmer than average over the Lesser Antilles, Cuba, and Jamaica (**Fig. 1**). The northern Lesser Antilles and Jamaica experienced mean minimum temperatures (Tmin) that were also 1 – 2°C warmer than average, while Tmin remained near average over the remainder of the Caribbean (**Fig. 2**).

In Mexico, Tmax anomalies were positive (2 – 4°C) across the country's central, eastern, and southern parts. Conversely, the northern Baja California peninsula state observed Tmax that were 1-2°C below average (**Fig. 1**). In Central America, Tmax were above-average (1 – 4°C) in most of Central America, except in eastern Costa Rica and Panama that observed near-average conditions. Tmin values in Mexico were 1-2°C above average in the southern part of the country, while the central and northern parts observed below average temperatures by 1-4°C. In Central America, Tmin were above average in Guatemala, El Salvador, and Honduras. Tmin were near average across the remainder of the region (**Fig. 2**).

(ii) Precipitation

For March, rainfall ranging from 10 mm to 200 mm was observed across the Caribbean. Most of Cuba, northwestern Hispaniola, southwestern Haiti, western Jamaica, and Andros Island (in The Bahamas) observed the heaviest rainfall (> 25 mm) (**Fig. 3**). Meanwhile, a small area in the southern Dominican Republic had little to no rain during March. This pattern led to 25-100 mm positive rainfall anomalies in south Cuba, northern and southwestern Haiti, and western Jamaica. On the contrary, the northern Bahamas and central-southern Haiti observed negative anomalies of 25-50 mm. The rest of the region generally observed near-average rainfall conditions (**Fig. 4**).

Dry conditions in most parts of Mexico continued during March. Light rainfall (10-25 mm) was registered in northeastern Mexico, along the east coast of Mexico, and southern Mexico; however, some localized areas received heavy rainfall (more than 50 mm). For example, portions of Chiapas and Yucatan Peninsula observed rainfall between 25 mm and 50 mm. In addition, 25-150 mm rainfall was recorded in northwestern Baja California (**Fig. 3**). Due to this pattern, positive rainfall anomalies of 25-50mm were recorded in northwest Baja California and anomalies of 25-100mm along the Gulf of America coast. Small negative anomalies, less than 25mm, were present in most of Mexico, and larger negative anomalies (25 – 50 mm) were present over areas in eastern Mexico, southern Mexico, and the Yucatan Peninsula. (**Fig. 4**).

In Central America, moderate to heavy rainfall (25 – 200 mm) was observed in portions of Guatemala, northwestern Honduras, and central and eastern Costa Rica. Light rain (10 -25 mm) was recorded in central and east Guatemala, Belize, southern El Salvador, and across Panama. Pockets of south and northern Guatemala, most of El Salvador, and most of Honduras,

Nicaragua, and western Panama did not receive any rain (**Fig. 3**). Rainfall was above average in a few areas in Guatemala and central Costa Rica (**Fig. 4**). Meanwhile, most of Guatemala, Belize, northern and southwestern Honduras, eastern Costa Rica, and a small area in western Panama observed negative anomalies. The rest of the region observed smaller positive anomalies (10 – 25 mm) or near-average conditions.

(iii) Notable Events

Significant portions of Mexico remained drought during March. Soil moisture percentiles were below 2% during this month (**Fig. 5**), which means that soils are currently among the driest in the 40-year climatological period. The drought is affecting Mexico's north region, including the Baja California Peninsula, Chihuahua, Durango, Sinaloa, and Sonora. The prolonged water shortage affects access to water supply, agricultural production, and livestock farming.

Maximum and minimum temperatures were warmer than average in Guatemala, El Salvador, and Honduras. The lack of rainfall and warmer temperatures helped to increase evapotranspiration and decreased vegetation health in in these countries.

(iv) Sea Surface Temperature and Circulation

During March, ENSO-neutral conditions returned, with below-average sea surface temperatures (SSTs) weakening in the central and east-central equatorial Pacific Ocean. Negative SST anomalies were generally 0.5 – 1.0°C in this region. Equatorial SSTs were above average in the eastern and far western Pacific. The Niño3.4 index slightly fluctuated during the month but ended March near zero. A 'Final La Niña Advisory' is issued by the Climate Prediction Center (CPC), indicating that La Niña has ended. ENSO-neutral conditions are favored through the Northern Hemisphere summer, with over 50% chance.

Narrowing the focus to the RCC region, SSTs were warmer than average in most of the Gulf of America, with anomalies ranging from 0.5°C to as much as 2.5°C in the northwest quadrant (**Fig. 6**). The Caribbean exhibited positive SST anomalies of 0.5 – 1.5°C. The Atlantic's Main Development Region exhibited positive anomalies of 0.5 – 1.5°C. The tropical East Pacific basin was warmer than average, with SST anomalies ranging from 1°C to 3°C. The broad region around the Baja California peninsula exhibited a negative SST anomaly of 1.0 – 2.5°C.

The 850mb circulation pattern featured an anomalous northerly component to the winds in northeastern Mexico, while westerly anomalies in southern Mexico. Meanwhile, Central America observed near-average conditions. Most of the Caribbean has observed easterly wind anomalies. Positive westerly anomalies were over Cuba, The Bahamas, and the northern Dominican Republic (**Fig. 7**). At 200mb, strong upper-level westerly anomalies were registered in north Mexico, while easterly anomalies dominated southern Mexico. In Central America, strong easterly anomalies were observed in Nicaragua, Costa Rica, and Panama. In the Caribbean, Hispaniola observed near-average conditions, while The Lesser Antilles observed easterly anomalies (**Fig. 8**).

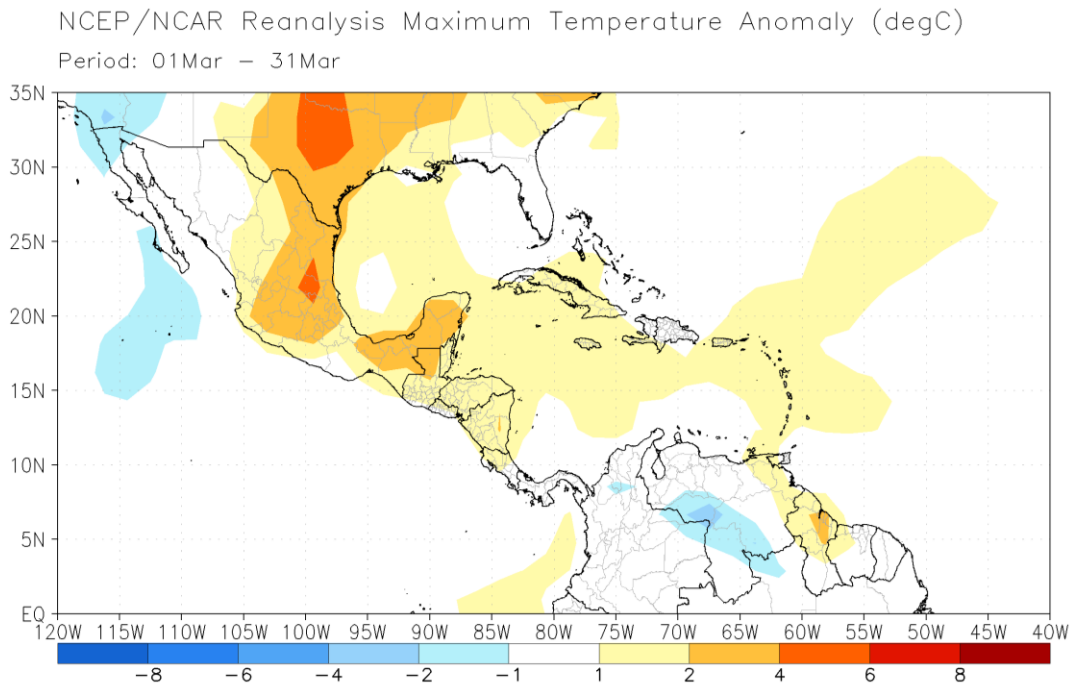

Figure 1. NCEP/NCAR Reanalysis mean maximum temperature anomaly (°C) during the month of March 2025. Anomalies are computed with respect to the 1991-2020 base period.

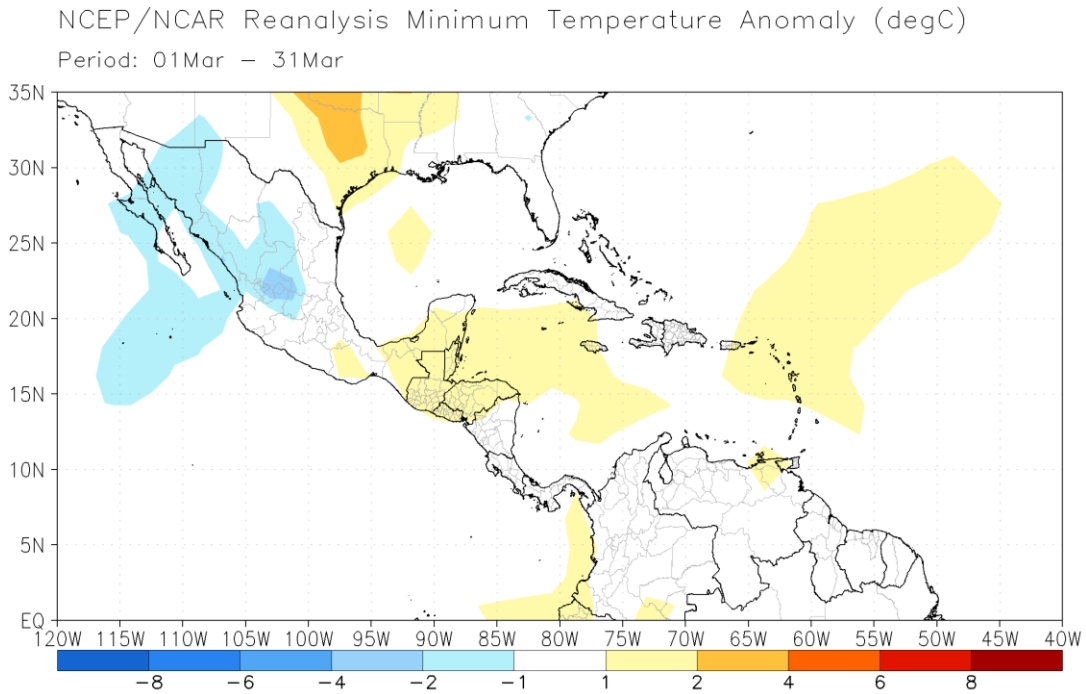

Figure 2. NCEP/NCAR Reanalysis mean minimum temperature anomaly (°C) during the month of March 2025. Anomalies are computed with respect to the 1991-2020 base period.

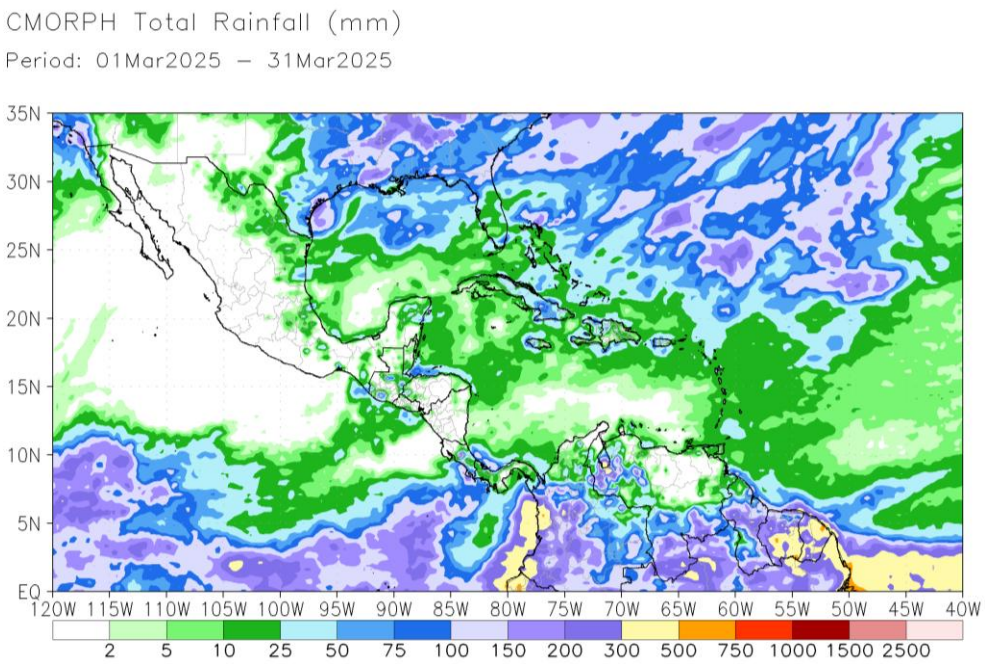

Figure 3. Satellite-estimated rainfall total (mm) during the month of March 2025.

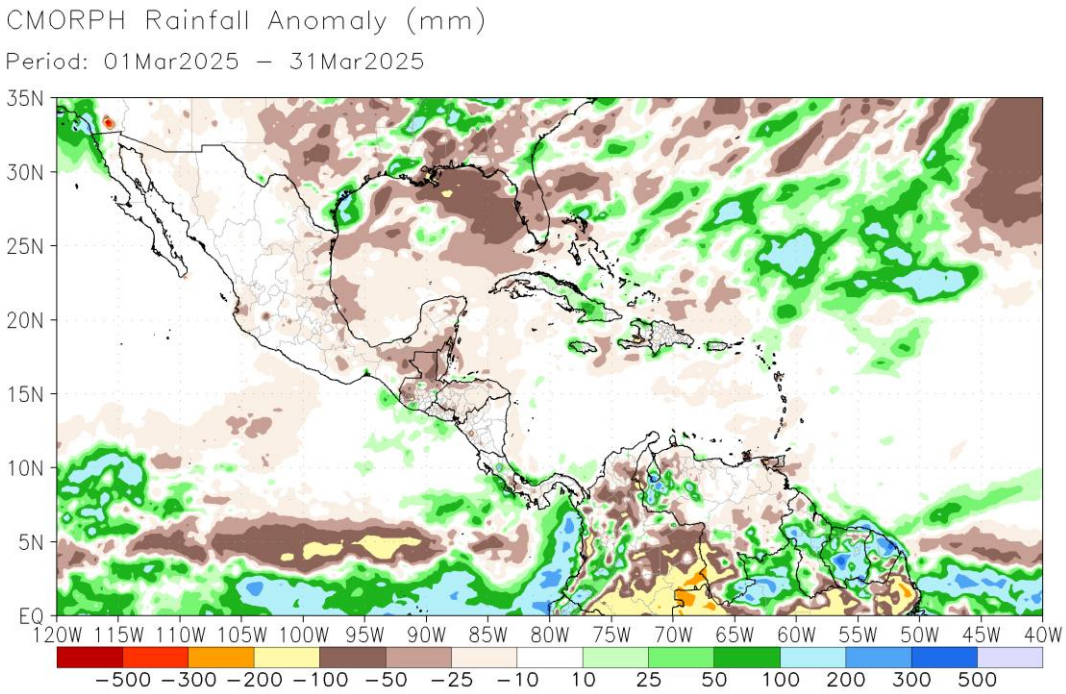

Figure 4. Satellite-estimated rainfall anomaly (mm) during the month of March 2025. Anomalies are computed with respect to the 1998-2012 base period.

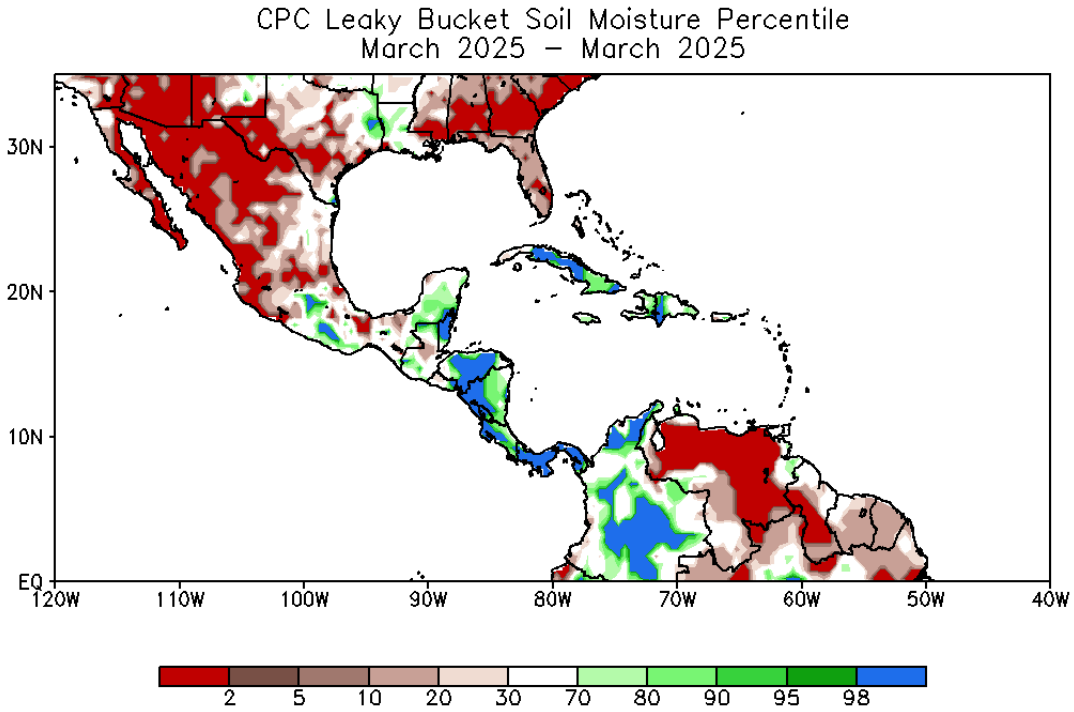

Figure 5. CPC Leaky bucket Soil Moisture Percentile for the 1-month period from 1 March to 31 March 2025 utilizing a climatology period of 1979-2019.

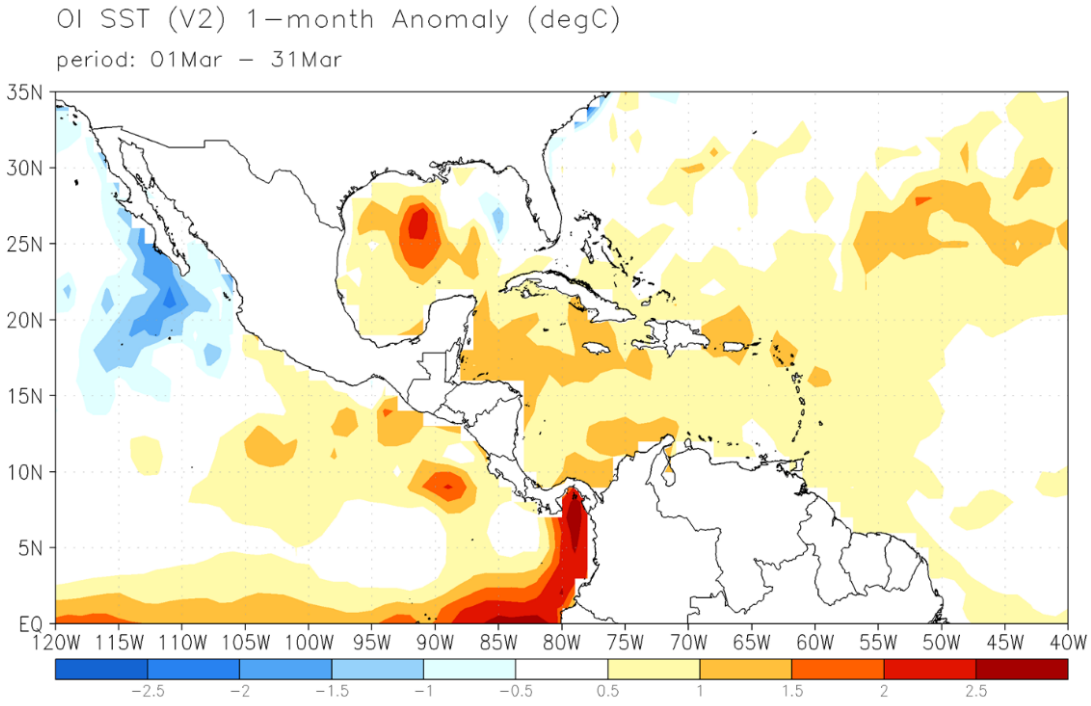

Figure 6. Average sea surface temperature (SST) anomalies (°C) for the month of March 2025. Anomalies are computed with respect to the 1991-2020 base period.

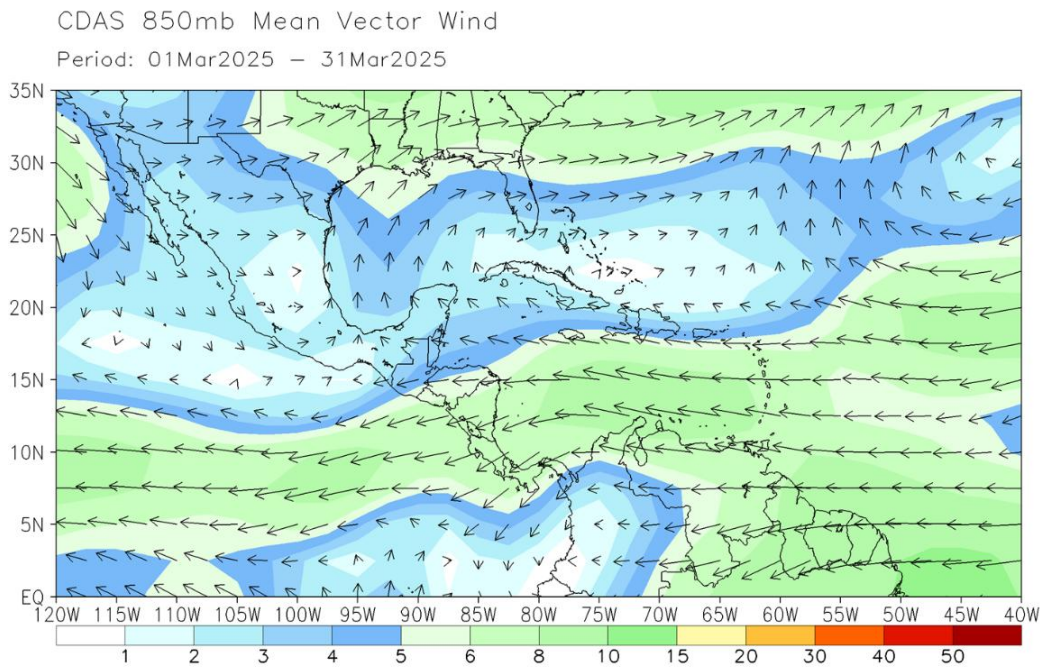

Figure 7. 850mb mean vector wind anomalies for the month of March 2025. Anomalies are computed with respect to the 1991-2020.

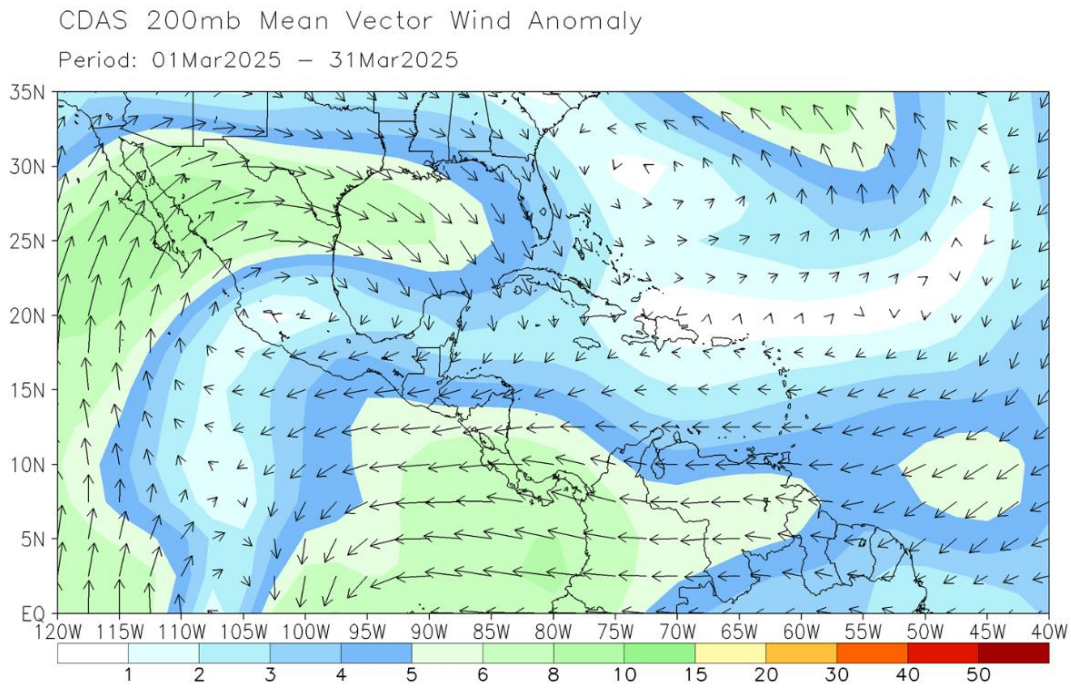

Figure 8. 200mb wind vector anomaly for the month of March 2025. Anomalies are computed with respect to the 1991-2020.

16 April 2025

Update prepared by Climate Prediction Center / NCEP