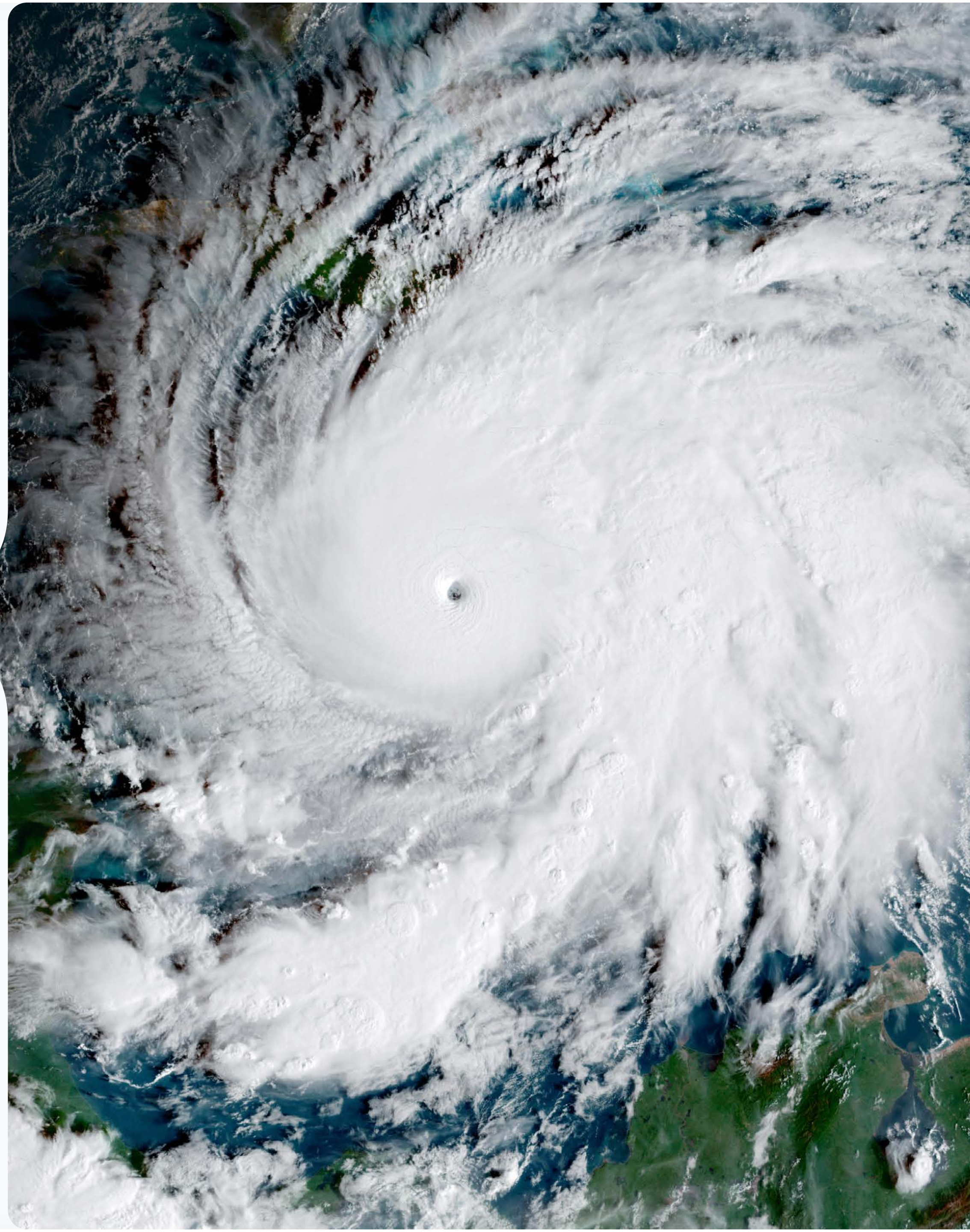
State of the Climate in Latin America and the Caribbean 2025



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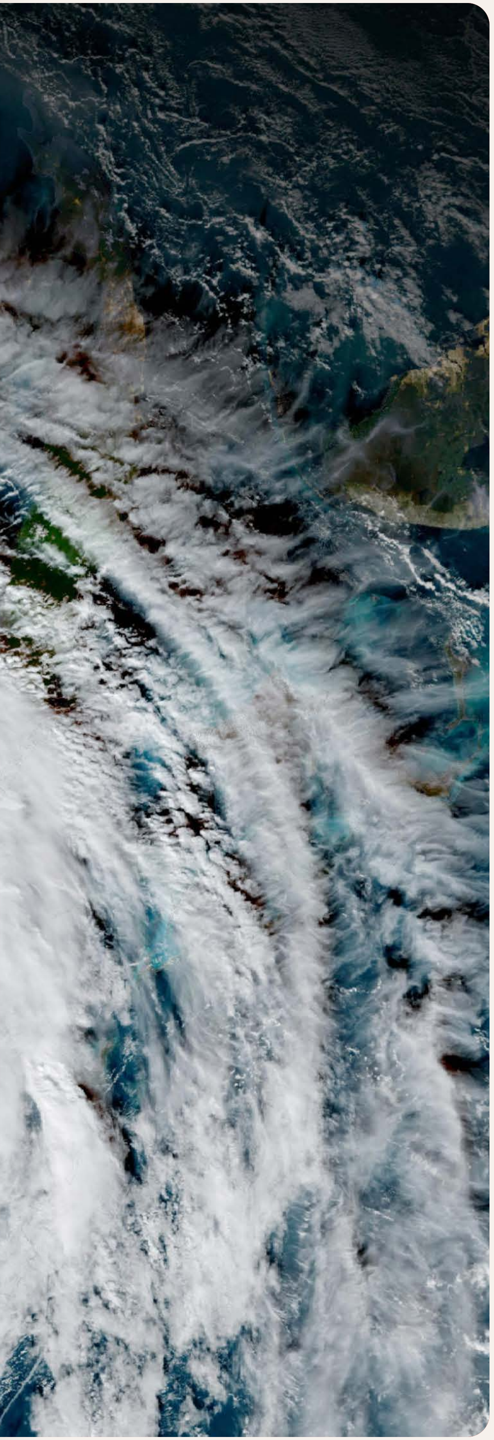

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Chair, Publications Board
World Meteorological Organization (WMO)
7 bis, avenue de la Paix
P.O. Box 2300
CH-1211 Geneva 2, Switzerland

Email: publications@wmo.int

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We need your feedback

This year, the WMO team has launched a process to gather feedback on the State of the Climate reports and areas for improvement. Once you have finished reading the publication, we ask that you kindly give us your feedback by responding to this **short survey**. Your input is highly appreciated.

Contents

Scope of the report

The WMO *State of the Regional Climate 2025* reports complement the WMO ***State of the Global Climate 2025*** report by delivering a summarized and consolidated regional assessment of the previous year's climate conditions. These reports provide authoritative information by updating key climate indicators, listing major regional extreme events, and addressing climate impacts and risks. The reports do not provide climate projections or forecasts, nor do they provide in-depth scientific discussion. They address general information needs of the National Meteorological and Hydrological Services (NMHSs), policymakers, scientists and technical experts, media and educators, as well as the public and youth. The reports are produced by WMO in collaboration with NMHSs, international data centres, leading climate research institutions and United Nations partners.

Note: While every attempt is made to ensure consistency, slight deviations in the analyses and assessments may occur between the regional and global State of the Climate reports due to differences in analysis and assessment scales (regional versus global) and slight variations in the methodologies used by different contributing centres.

"The signs of a changing climate are unmistakable across Latin America and the Caribbean, from accelerating glacier loss and rising sea levels to rapidly intensifying tropical cyclones, extreme heat, floods and drought. This report shows that while risks are growing, so too is our capacity to anticipate and act to save lives and protect livelihoods."

Professor Celeste Saulo
Secretary-General

Key messages

Temperatures remained well above average, with 2025 ranking among the fifth to eighth warmest years on record across Latin America and the Caribbean, at around +0.40 °C above 1991–2020 levels.

Andean glaciers are losing mass at an accelerating rate with implications for long-term water security in the region.

Sea levels are rising faster than the global average along the northern Atlantic coast of South America and across Central America and the Caribbean.

Ocean acidification and ocean warming are ongoing across the region, with a continued decline in surface ocean pH and rising temperatures, compounding risks to marine ecosystems and fisheries.

Hurricane *Melissa* became the first Category 5 hurricane on record to make landfall in Jamaica, leading to 45 deaths and economic losses of approximately 8.8 billion US dollars, more than 41% of GDP. Despite these impacts, successful prior risk modelling enabled both financial and policy preparedness in Jamaica.

Across the region, **extreme rainfall and flooding** triggered major humanitarian impacts, including over 110 000 people affected in Peru and Ecuador (March floods), 83 deaths in Mexico (October floods) and widespread landslides and infrastructure damage.

Prolonged and widespread drought affected large parts of the region, with up to 85% of Mexico impacted, severe water shortages in the Caribbean and over 40% rainfall deficits in parts of southern South America, contributing to agricultural losses and wildfire risk.

Record-breaking heat extremes were observed across the region, including 52.7 °C in Mexicali (Mexico) – a new national record – as well as multiple heatwaves exceeding 40 °C–45 °C across Mesoamerica, and an all-time record (37.2 °C) in São Paulo (Brazil) by the end of 2025.

As extreme heat events intensify, reducing avoidable mortality will depend on strengthening **climate–health cooperation,** improving mortality attribution and embedding climate intelligence into health planning and emergency preparedness across the region.

Global climate context

The global annual mean near-surface temperature in 2025 was 1.43 °C [1.39 °C to 1.47 °C] above the 1850–1900 pre-industrial average and 1.08 °C [1.04 °C to 1.11 °C] above the 1961–1990 baseline. The global mean temperature in 2025 was the second or third highest on record for the period 1850–2025 according to all nine datasets that WMO uses to monitor global mean temperature.[1] The year 2024 remains the warmest year on record at 1.55 °C [1.51 °C to 1.60 °C] above the 1850–1900 pre-industrial average. Each year from 2015 to 2025 was among the eleven warmest on record, and each of the past three years was among the three warmest on record.

Atmospheric concentrations of the three major greenhouse gases reached new record observed highs in 2024, the latest year for which consolidated global figures are available,[2] with levels of carbon dioxide (CO_2) at 423.9 ± 0.2 parts per million (ppm), methane (CH_4) at 1 942 ± 2 parts per billion (ppb) and nitrous oxide (N_2O) at 338.0 ± 0.1 ppb – respectively 152%, 266% and 125% of pre-industrial (the year 1750) levels (Figure 1). The increase in the annual CO_2 concentration in 2024 was the largest increase in the annual CO_2 concentration since modern measurements began in 1957. Real-time data from specific locations, including Mauna Loa[3] (Hawaii, United States of America) and Kennaook/Cape Grim[4] (Tasmania, Australia) indicate that levels of CO_2, CH_4 and N_2O continued to increase in 2025.

The rate of ocean warming over the past two decades (2005–2025) was more than twice that observed over the period 1960–2005, and the ocean heat content in 2025 was the highest on record. Ocean warming and accelerated loss of ice mass from the ice sheets contributed to a rise in global mean sea level of 4.75±0.3 mm per year between 2012 and 2025. In 2025, global mean sea level was comparable to the record high levels observed in 2024 in the satellite altimetry record. The ocean is a sink for CO_2. Over the past decade, it has absorbed more than one quarter of the annual anthropogenic CO_2 emissions into the atmosphere.[5] CO_2 reacts with seawater, altering its carbonate chemistry and decreasing pH, a process known as “ocean acidification”.

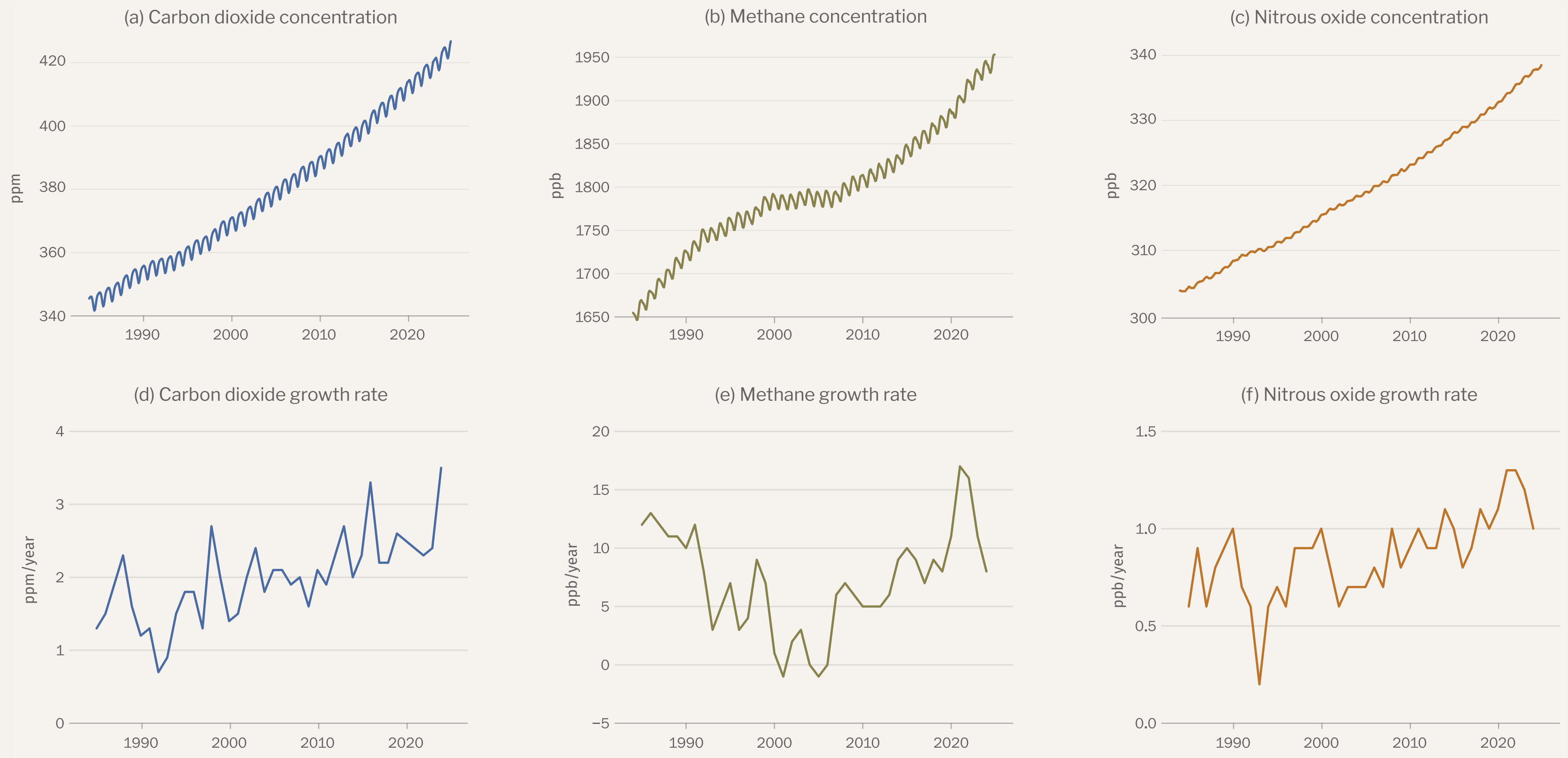


Figure 1. Top row: Monthly globally averaged mole fraction (measure of atmospheric concentration), from 1984 to 2024, of (a) CO_2 in parts per million (ppm), (b) CH_4 in parts per billion (ppb) and (c) N_2O in ppb. Bottom row: Growth rates representing increases in successive annual means of mole fractions for (d) CO_2 in ppm per year, (e) CH_4 in ppb per year and (f) N_2O in ppb per year.[6]

Regional climate

The following sections analyse key climate indicators in Latin America and the Caribbean (LAC). Some of the indicators are described in terms of anomalies, or departures from a reference period. Where possible, the most recent WMO climatological standard normal, 1991–2020, is used as the reference period, for consistent reporting. Exceptions to the use of this reference period are explicitly noted.

Temperature

Variations in surface temperature have a large impact on natural systems and human beings. The annual mean surface temperature averaged over land areas in 2025 in LAC ranked between the fifth and eighth warmest on record (Figure 2). The mean value for 2025 was 0.40 °C above the 1991–2020 average (0.28 °C–0.50 °C, depending on the dataset used). The mean value for 2025 was 0.98 °C (0.79–1.10 °C across datasets) above the 1961–1990 baseline.

Temperature rise is not uniform across the region. Positive anomalies of +1 °C to +3 °C were observed across central and eastern Mexico, Central America and the Caribbean (Figure 3 and Table 1). Above-normal temperatures of +1 °C to +2 °C also affected parts of the northern and central coasts of South America, western Amazonia, the southern Andes of Peru and the Plurinational State of Bolivia, and parts of southern Brazil and northern Argentina.

The period 1991–2025 shows the strongest warming trend since the datasets began in 1900 across South America (about 0.26 °C per decade), Central America (about 0.25 °C per decade) and the Caribbean (about 0.25 °C per decade), compared with the previous 30-year periods of 1900–1930, 1931–1960 and 1961–1990. Mexico experienced the fastest warming rate of the four subregions, about 0.34 °C per decade from 1991 to 2025 (Figure 4).

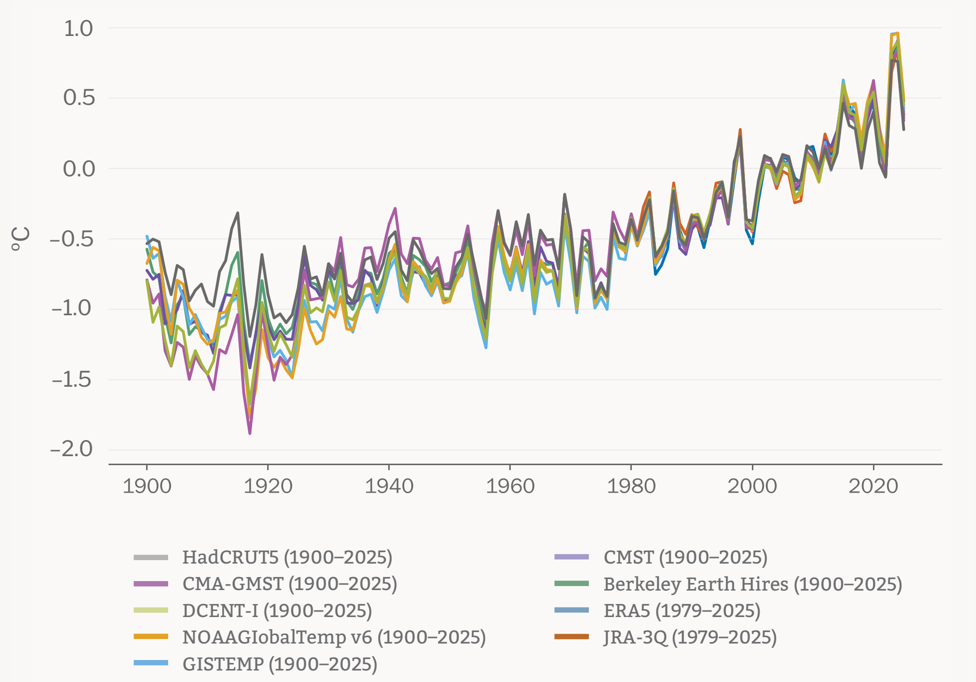


Figure 2. Annual regional mean temperature anomaly for Latin America and the Caribbean (°C, difference from the 1991–2020 average) from 1900–2025. Data are from the following nine datasets: Berkeley Earth, CMA-GMST, CMST, DCENT-I, ERA5, GISTEMP, HadCRUT5, JRA-3Q and NOAAGlobalTemp.

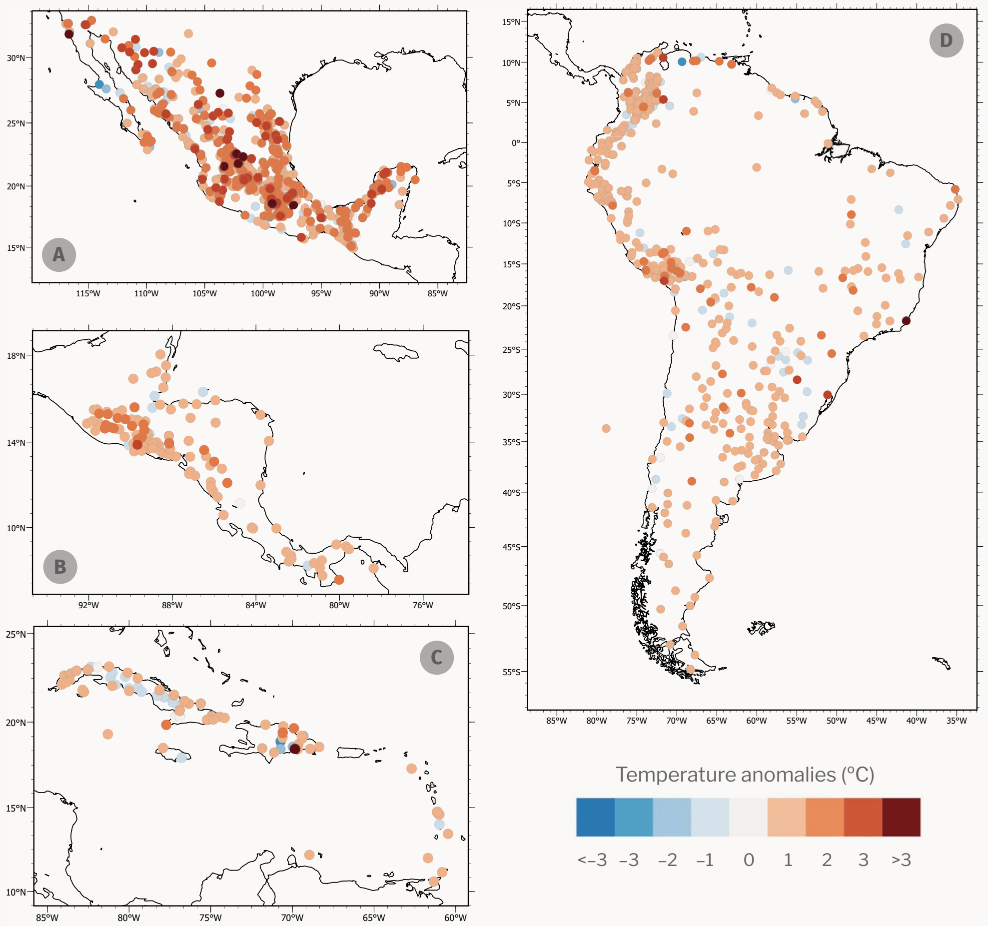


Figure 3. In situ mean air temperature (2 m) anomalies for 2025, compared to the 1991–2020 climatological period, for (A) Mexico, (B) Central America, (C) the Caribbean and (D) South America, in °C. The colour scale is shown at the bottom of the figure.

Source: Analysis by Regional Climate Centre Network Southern South America from data from NMHSs of Latin American and Caribbean countries. The boundaries and names shown and the designations used do not imply official endorsement or acceptance by WMO or the United Nations.

Table 1. Temperature ranking (1900–2025) and anomalies for LAC and its subregions in 2025 (°C, difference from the 1991–2020 and 1961–1990 averages), including uncertainties (in brackets).

Source: Data are from nine datasets: Berkeley Earth, CMA-GMST, CMST, DCENT-I, ERA5, GISTEMP, HadCRUT5, JRA-3Q and NOAAGlobalTemp.

Subregion/ region	Temperature ranking	Anomalies (°C) relative to 1991–2020	Anomalies (°C) relative to 1961–1990
Mexico	2nd to 4th	+0.84 (0.78–0.94)	+1.51 (1.24–1.66)
Central America	3rd to 7th	+0.57 (0.45–0.70)	+1.06 (1.01–1.22)
Caribbean	6th to 11th	+0.37 (0.18–0.50)	+0.93 (0.73–1.13)
South America	5th to 9th	+0.34 (0.20–0.46)	+0.92 (0.69–1.06)
LAC	5th to 8th	+0.40 (0.28–0.50)	+0.98 (0.79–1.10)

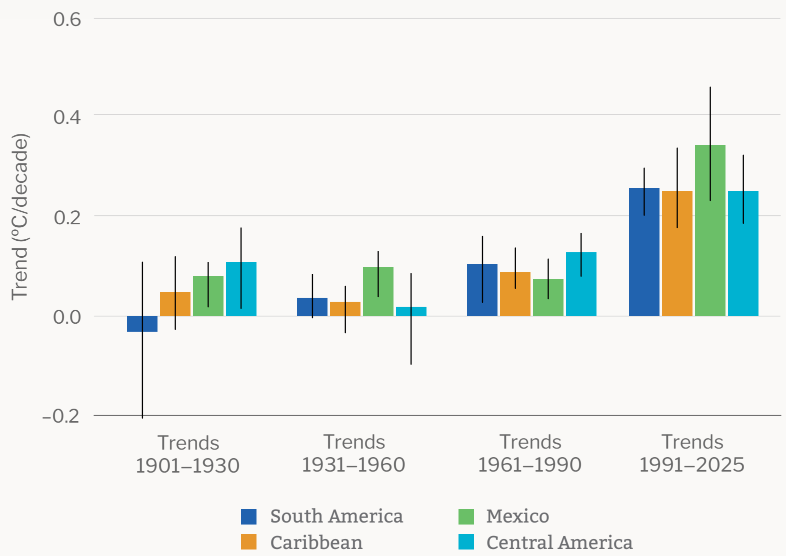


Figure 4. Area-averaged temperature trends in °C per decade for four subperiods (1901–1930, 1931–1960, 1961–1990 and 1991–2025). Coloured bars show the mean trend for each subregion, and the black vertical lines indicate the range of different estimates.

Precipitation

Precipitation is essential for water supply, agriculture, hydropower and ecosystems, but its high variability can also lead to droughts, floods and landslides.

In the last 50 years or so, rainfall trends in Latin America and the Caribbean (LAC) are highly heterogeneous, and the dominant signal is greater variability rather than a simple increase or decrease in mean rainfall. Many regions experience longer dry spells and more intense wet events. Heavy precipitation events have increased in Central America and in northern South America (for example, in Colombia, the Bolivarian Republic of Venezuela and the Amazon fringe). Wetting tendencies have been observed in south-eastern South America (southern Brazil, Uruguay and northern Argentina), with an increase in annual rainfall, and more frequent extreme events (floods). On the other hand, drying tendencies have been identified in central Chile, north-east Brazil and in some areas of Central America and the Caribbean. The Amazon region exhibits a mixed or uncertain signal, with longer dry seasons, stronger wet-season extremes and increased drought frequency in the southern and eastern Amazon.[7]

In 2025, precipitation patterns across Latin America and the Caribbean showed marked spatial contrasts (Figure 5). Much of Central America and Mexico received more precipitation than usual, especially in central areas and along the eastern coast of Mexico, in Panama and on the Pacific side of Costa Rica (20%–100% above normal). Some of the northern islands of the Lesser Antilles had unusually wet conditions.

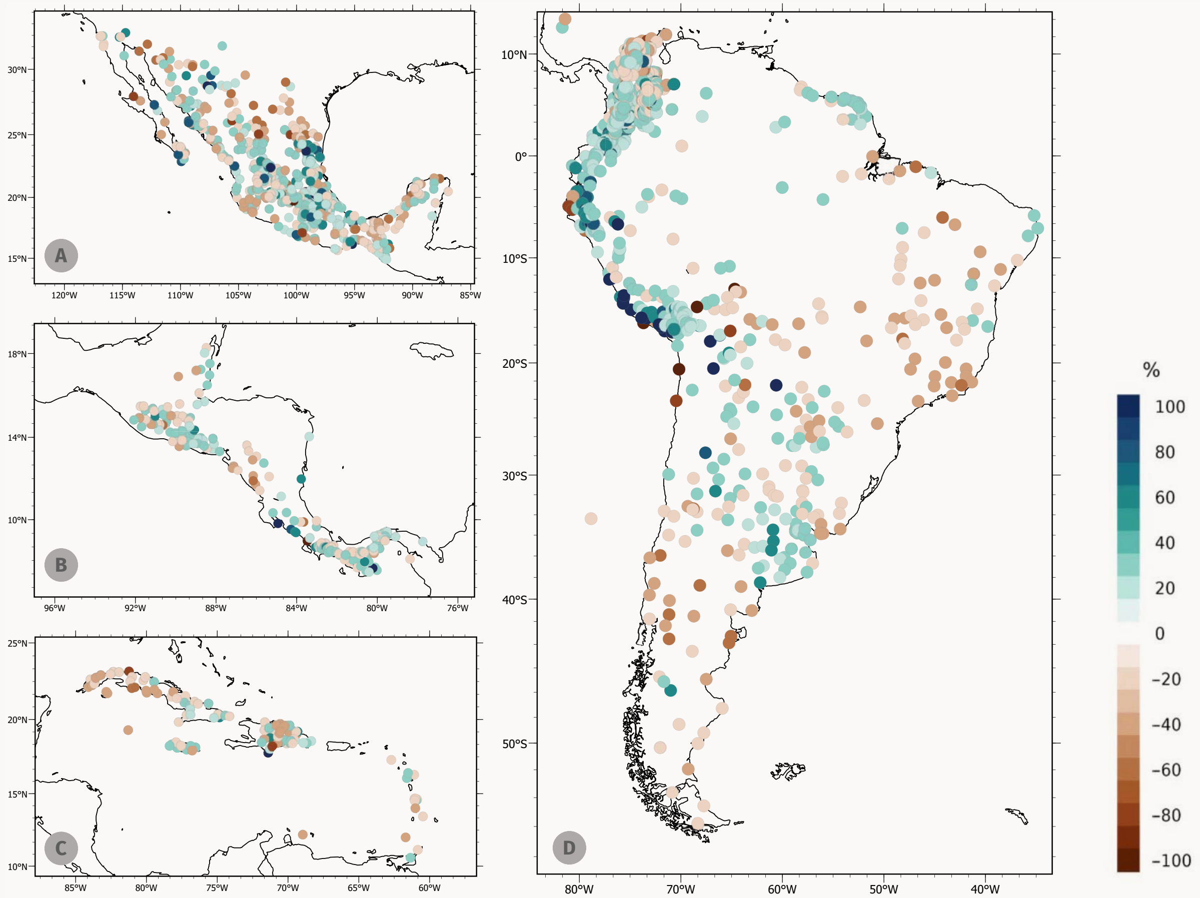


Figure 5. In situ rainfall anomalies for 2025 (as % of the 1991–2020 average) in (A) Mexico, (B) Central America, (C) the Caribbean and (D) South America. The colour scale is shown to the right of the figure.

Source: Analysis by Regional Climate Centre Network Southern South America, from data from NMHSs of Latin American and Caribbean countries. The boundaries and names shown and the designations used do not imply official endorsement or acceptance by WMO or the United Nations.

In contrast, around the Bay of Campeche and in northern Mexico, dry conditions were observed (10%–30% below normal). Most of the Greater and Lesser Antilles experienced unusually dry conditions (10%–30% below normal).

The northern and southern Andes, Llanos and the north-east coast of South America received more precipitation than normal (20%–40% above normal), and some locations in southern Peru (Ica and Arequipa) recorded even higher surpluses. Large portions of the Gran Chaco and the Altiplano had higher-than-normal annual precipitation totals, with some locations (20%–40% above normal) experiencing unusually wet conditions. Westward, the Rio de la Plata experienced unusually wet conditions (20%–30% above normal), with flooding in the region.

The southern and western parts of the Amazon basin, as well as the Serra dos Parecis region in Brazil, received less-than-usual total precipitation. Some of these locations were unusually dry, including around the Amazon Estuary during the first half of 2025, which prolonged dry conditions of the previous year. Large parts of the Brazilian Highlands were drier than normal, and the region around the Serra da Mantiqueira mountains received unusually low precipitation amounts (10%–20% below normal). Large parts of Patagonia, the southern Pampas and the Atacama region received less precipitation than the long-term mean, and some locations in the southern Andes were unusually dry (10%–40% below normal).

Cryosphere

Snow

Snow cover plays an important role in the feedback mechanisms in the climate system, such as albedo, runoff, soil moisture and vegetation.

In the early hours of 29 May, an intense polar air mass brought the first snowfall of the year to Brazil, blanketing cities in the mountains of Santa Catarina and Rio Grande do Sul states. In Santa Catarina, cities such as Urupema, São Joaquim and Urubici woke up to minimum temperatures below zero and snowfall.[8] On 26 June, a rare snowfall event affected the arid Atacama Desert. The snow covered the Operations Support Centre of the ALMA Observatory in Chile, situated at an altitude of 2 900 m. Snowfall in this location is highly uncommon, with the last significant event occurring over a decade ago. In addition, on 25 June, unusual snowfall was reported in Mar del Plata (Argentina), the Calamuchita Valley in Córdoba and hilly regions of northern Patagonia.[9]

Glaciers

Melting of glaciers affects sea level, regional water cycles and the occurrence of local hazards such as glacial lake outburst floods (GLOFs).

Andean glaciers form a critical water tower for approximately 90 million people, supplying freshwater for domestic consumption, hydroelectric power, agriculture and industry along the full length of the Andean chain.[10] The recent global glacier mass balance dataset provides annual estimates of glacier fluctuations from 1976 to 2024.[11] According to Dussaillant et al. (2025),[12] at the global scale, glaciers have lost 9 179 ± 621 Gt of water since 1976, contributing 25.3 ± 1.7 mm to global mean sea-level rise. Critically, approximately 41% of this total loss – equivalent to ~10 mm of sea-level rise – occurred in the single decade 2015–2024. For the southern Andes (Patagonia), Dussaillant et al. (2025) report a mass loss rate of −17.5 ± 13.5 Gt year^{-1} since 1976, accelerating to −27.3 ± 7.9 Gt year^{-1} during the last decade (2015–2024). For the central southern Andes, the rate reached −4.5 ± 1.8 Gt year^{-1} in the same recent decade. Tropical glaciers in low-latitude regions show a specific mass change rate of −0.51 ± 0.48 m water equivalent (w.e.) year^{-1} in the last decade, compared to −0.29 ± 0.61 m w.e. year^{-1} over the full period since 1976, reflecting an accelerating trend (Dussaillant et al., 2025). The convergence of accelerating ice loss, rising water demand and limited adaptive capacity – particularly among rural Andean communities – makes the future of the Andean water tower one of the most pressing water-security challenges in Latin America.

Figure 6 shows glacier mass balance (2022–2025) for selected glaciers in Argentina, Chile, Colombia, Peru and Ecuador. Only a few of the monitored glaciers recorded a positive mass balance over the 4-year period, while the majority recorded mass balance values between 0 and −6 m w.e.

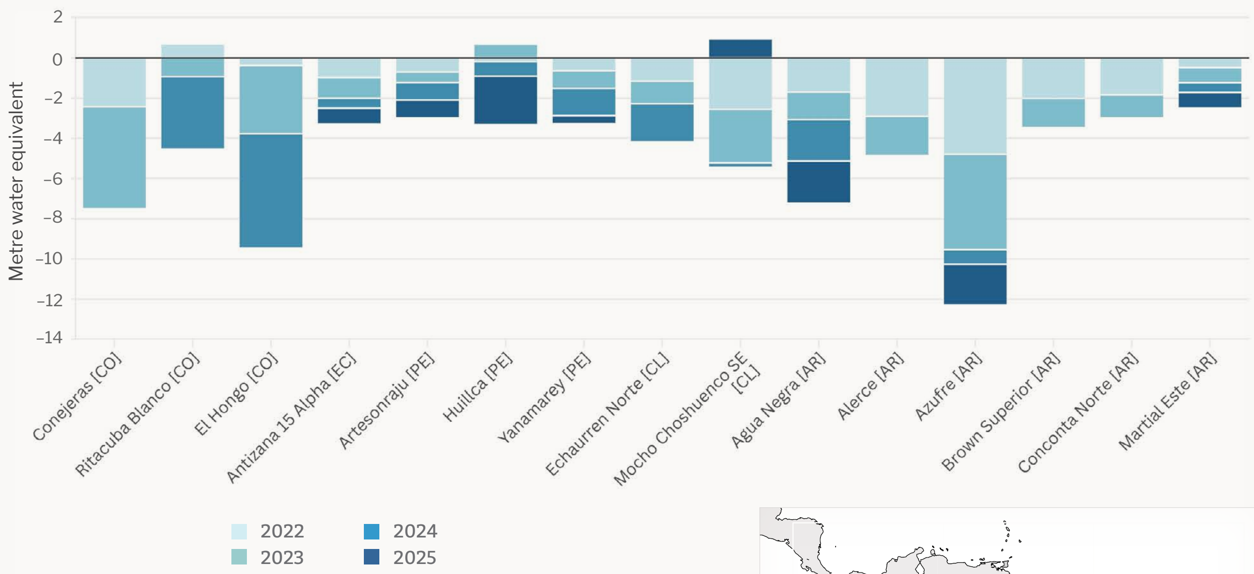


Figure 6. Annual glacier mass balance (m w.e.) for selected glaciers in Colombia, Ecuador, Peru, Chile and Argentina, 2022–2025. Colours indicate individual years. Note: Some glaciers have incomplete records and are not represented for all years.

Source: Data provided by the World Glacier Monitoring Service (WGMS). The boundaries and names shown and the designations used do not imply official endorsement or acceptance by WMO or the United Nations.

Oceans

Sea-surface temperature

Variations in sea-surface temperature (SST) alter the transfer of energy, momentum and gases between the ocean and the atmosphere.

In 2025, area-averaged mean SSTs were generally lower as compared to the record high SSTs observed in 2023 (Figure 7). This can be explained by the changing El Niño–Southern Oscillation (ENSO) conditions, which are known for their far-reaching implications on South American weather and climate.[13] During the austral summer in the equatorial Pacific, SST anomalies were not as strong as they usually are during ENSO-neutral conditions. Conditions shifted from near-neutral or weak La Niña signals in mid-2025 to a weak La Niña by late 2025, indicated by further cooling in the central and eastern equatorial Pacific. Record high SSTs in 2025 were observed in the Caribbean Sea and in the Gulf of Mexico. SSTs in the South Pacific also reached record values in 2025, concentrated in an area across 30°S off the coast of Chile.

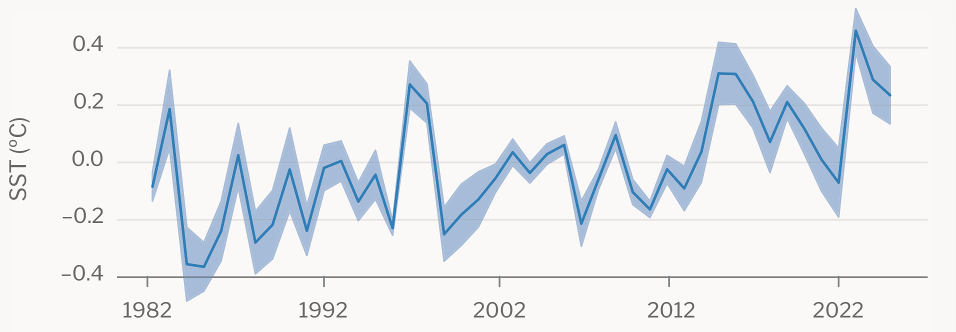


Figure 7. Area-averaged annual mean sea-surface temperature (SST) anomalies (relative to 1991–2020) for the LAC region from 1982–2025, derived from remote-sensing observations. Shading indicates uncertainty range.

Source: Copernicus Marine

Ocean heat content

Ocean warming contributes to sea-level rise and alters ocean currents. It also indirectly alters storm tracks, increases ocean stratification and can lead to changes in marine ecosystems.

The regional ocean heat in 2025 was within the range of historically high values from the past 10 years (2015–2024). Following a rapid increase between 2011 and 2015, the period 2015–2025 has no clear trend, although each year, including 2025, was warmer than any year prior to 2015 (Figure 8). Areas of record high ocean heat content in 2025 were recorded locally in parts of the Atlantic (most notably around 20°–30°S), the western Gulf of Mexico, and an area west of the southernmost point of South America.

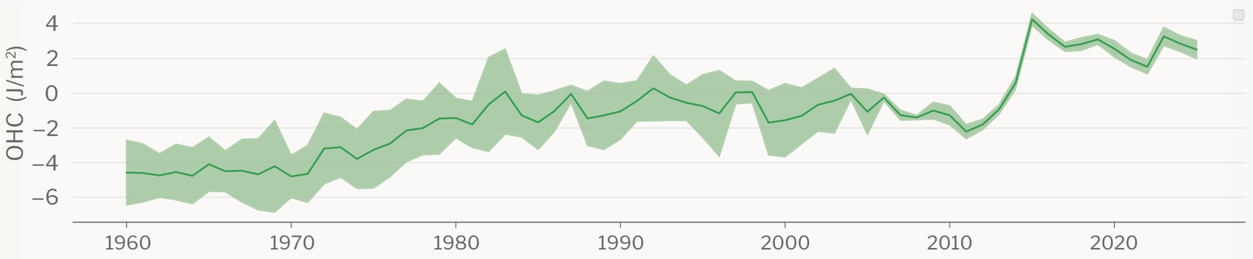


Figure 8. Area-averaged annual mean ocean heat content (OHC) (0–700 m) anomalies (in joules per square metre and relative to 1991–2020) for the LAC region from 1960–2025, derived from in situ observations. Shading indicates uncertainty range.

Source: Copernicus Marine

Sea level

The sea level rises in response to ocean warming (via thermal expansion) and the melting of glaciers, ice caps and ice sheets, thereby affecting the lives and livelihoods of coastal communities and low-lying island nations.

The maps of altimetry-based regional sea-level trends from January 1999 to April 2025 in the Central America and Caribbean subregions show significant regional variability in sea-level trend patterns, with higher sea-level rates in the Gulf of Mexico and the northern Caribbean Sea, compared to the Pacific side (Figure 9 map A).

Figure 9 map B shows altimetry-based regional sea-level trends from January 1999 to April 2025 around South America. The map shows significant regional variability in sea-level trends, with higher rates along the northern coasts of South America (see also area-averaged trends for three subregions in Table 2). The map also shows a clear pattern of high sea-level rise in the Argentine basin, where the South Atlantic Current meets the Antarctic Circumpolar Current.

Figures 9 and Table 2 indicate that subregional area averages of sea-level trends around the northern Atlantic coast of South America as well as around the Central America and Caribbean subregions are higher than the global mean rate of 3.6 mm year⁻¹.

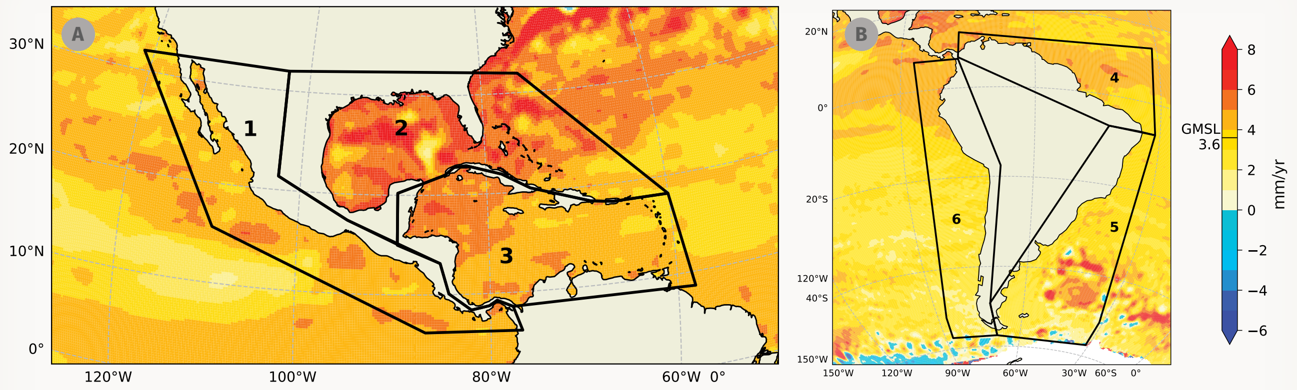


Figure 9. Spatial trend patterns in sea level observed by altimeter satellites between January 1999 and April 2025 for Mexico, Central America and the Caribbean (map A, left) and for South America (map B, right). The global mean sea-level trend of 3.6 mm year⁻¹ is included. The data are based on the DT2024 Copernicus Climate Change Service (C3S) gridded sea-level product (www.copernicus-climate.eu/documents/satellite-sea-level/; resolution 0.25°). The numbered boxes indicate subregions for which the gridded altimetry data have been averaged to compute sea-level time series and associated trends (Table 2).

Source: Third-party map. This map was provided by the Centre national d'études spatiales (CNES) in March 2026 and may not fully align with United Nations and WMO map guidance.

Table 2. Subregional rates of sea-level rise computed from January 1999 to April 2025 after averaging the gridded altimetry data over each of the subregions shown in Figure 9 (map A, Mexico, Central America and Caribbean and map B, South America), as well as in 50 km wide bands along the coasts.

Subregion	Box number	Box-average sea-level trend (mm year⁻¹) 1999–2025	Sea-level trend averaged over 0–50 km from the coast (mm year⁻¹) 1999–2025
Mexico, Central America and the Caribbean	1	4.5 ± 0.27	4.5 ± 0.28
	2	5.5 ± 0.15	5.8 ± 0.2
	3	4.7 ± 0.12	4.8 ± 0.12
South America	4	4.2 ± 0.1	4.4 ± 0.1
	5	3.3 ± 0.1	2.9 ± 0.15
	6	3.1 ± 0.1	3.2 ± 0.2

Ocean acidification

Ocean acidification refers to the shift in the carbonate chemistry towards a less basic state (lower pH) and is a consequence of the oceans' increasing uptake of CO_2. Ocean acidification, together with ocean warming and deoxygenation, is affecting marine ecosystems, habitats and biodiversity.

Latin America accounts for 8.8% of the world's coastline, and its marine ecosystems are strongly influenced by regional features such as seasonal and permanent upwelling systems and extensive oxygen minimum zones. In the region, ocean acidification combined with warming and deoxygenation is affecting calcifying ecosystems, including warm-water coral reefs and rocky shores dominated by corals, barnacles and mussels, with implications for biodiversity and fisheries.[14]

In 2025, surface ocean pH continued to decline in the LAC region at an area-averaged rate of 0.016 ± 0.004 units per decade (Figure 10). Nearly the entire fraction of the Pacific Ocean in this region adjacent to western Central and South America experienced record low values of ocean pH in the year 2025. Also, record values in 2025 were observed in the Atlantic Ocean areas adjacent to western and tropical South America, the Gulf of Mexico and adjacent to the southern tip of North America.

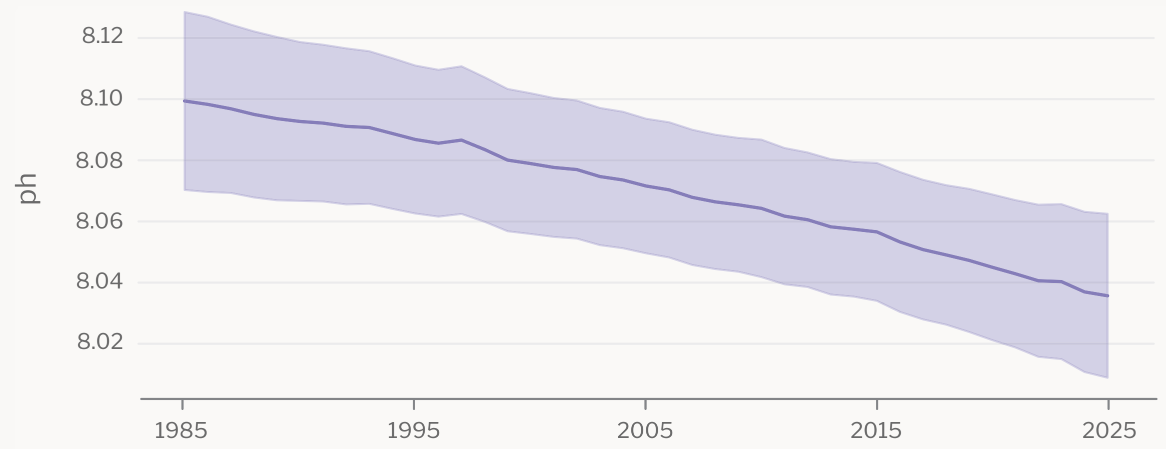
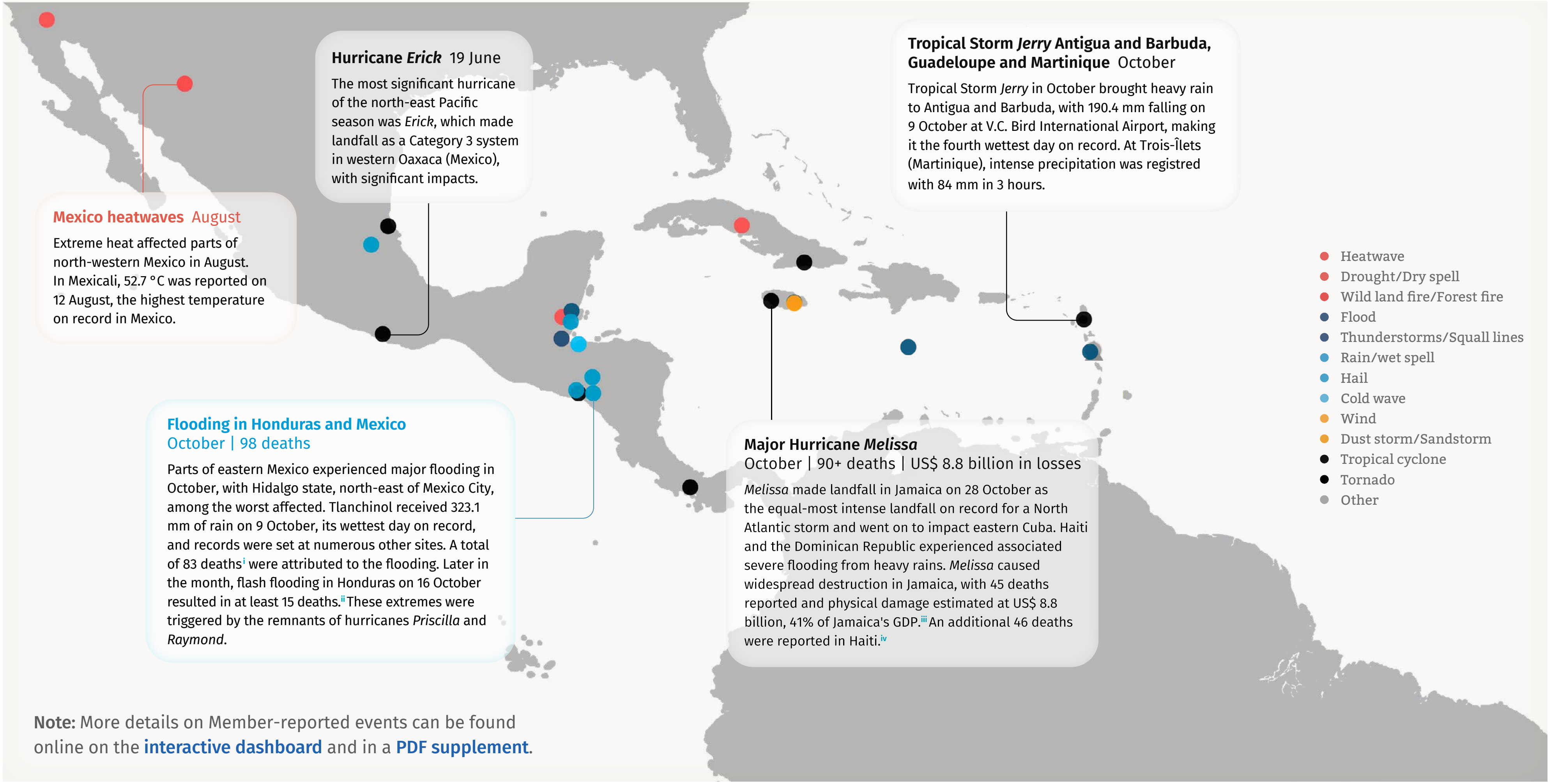


Figure 10. Area-averaged annual mean surface ocean pH for the LAC region from 1985–2025, derived from in situ observations. Shading indicates uncertainty range.

Source: Copernicus Marine

Extreme events

Several LAC countries experienced heavy rainfall, resulting in floods, flash floods and landslides, as well as storms, cold waves and heatwaves, with fatalities and significant economic losses. Figure 11 summarizes selected key extreme events that affected the LAC region in 2025. More details on other extremes are reported in the upcoming subsections.



Note: More details on Member-reported events can be found online on the **interactive dashboard** and in a **PDF supplement**.

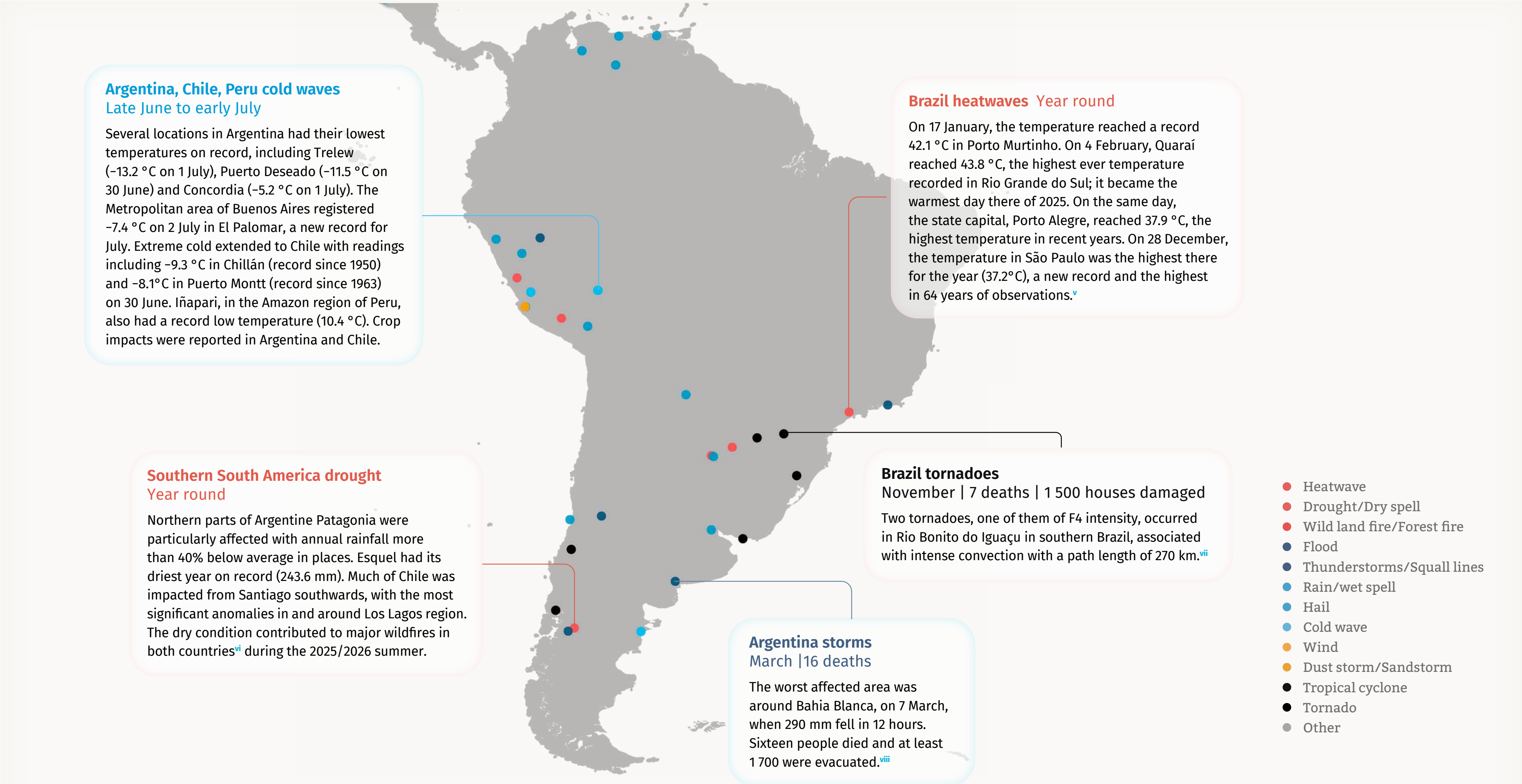


Figure 11. Examples of extreme weather and climate events reported in LAC in 2025. The timing, location, event description and impacts are provided.[15]

Source: Data are from the LAC NMHSs. The boundaries and names shown and the designations used do not imply official endorsement or acceptance by WMO or the United Nations.

Note: More details on Member-reported events can be found online on the **interactive dashboard** and in a **PDF supplement**.

Heavy precipitation, floods and landslides

June 2025 was the rainiest month ever recorded in Mexico, with the National Meteorological Service (SMN) reporting an average national accumulated rainfall of 155.5 mm, 55.8% above the average for the 1991–2020 period. Very intense rainfall occurred on 2, 16, 18 and 22 June. The day of 18 June was identified as the rainiest day of that period, coinciding with Hurricane *Erick* making landfall in Oaxaca (Mexico). On 29 June Tropical Storm *Barry* formed over the Bay of Campeche and caused widespread flooding in eastern Mexico resulting in 8 fatalities.[16] Also during June, in El Salvador several tropical waves brought intensified, prolonged rainfall, triggering thunderstorms, high winds, and significant flooding and landslide risks.[17] In Costa Rica, the National Meteorological Institute (IMN) reported that early January saw heavy rains and flooding in areas such as Sarapiquí and Guatuso, leaving hundreds in shelters. In the Bolivarian Republic of Venezuela, the National Institute for Meteorology and Hydrology (INAMEH) reported that the country experienced ~300% above-normal rainfall in 2025. Heavy rainfall between 8 and 9 October in the state of Apure triggered landslides and mass movements, leaving 56 dead and economic losses in the order of 500 million US dollars (US$), with rivers overflowing homes and washed-out infrastructure. Heavy rainfall caused a landslide and floods in a gold mining area on 12 October in the state of Bolivar in eastern Bolivarian Republic of Venezuela, causing casualties and at least 14 deaths, with two people rescued.[18]

Heavy rains on 12–13 June triggered landslides in the north-east of Medellín, in western Colombia, resulting in fatalities and damage.[19] In late June, several days of heavy rainfall swept across western Bolivarian Republic of Venezuela, causing widespread flooding, overflowing rivers and numerous landslides. Some locations in western Bolivarian Republic of Venezuela experienced more than 12 hours of continuous rainfall on 24 June, with 111.4 mm recorded in 11 hours,[20] and widespread flash floods and debris flows.[21]

In March, both northern Peru and Ecuador experienced significant flooding due to prolonged heavy rain. These events were part of a broader, intense rainy season affecting large parts of both countries. The northern regions were hit hardest, including Tumbes, Piura, Cajamarca, Amazonas, Huánuco and Ancash, where intense rainfall triggered major river overflows, floods and landslides.[22] In the arid coastal region of Ica in central Peru, daily rainfall totals reached unprecedented values, with anomalies exceeding 900%–1 700% of the monthly average. The event caused the overflow of the Ica River and significant impacts on agriculture.[23] The National Institute of Meteorology and Hydrology (INAMHI) of Ecuador issued alerts for heavy rains around 10–12 March, with coastal and Amazonian provinces among the most affected. The sustained floods and associated landslides affected over 110 000 people, displaced thousands and damaged tens of thousands of homes. A major landslide on 13 March ruptured a key oil pipeline, causing a significant oil spill into rivers used for drinking water and irrigation, compounding environmental and health challenges in regions like Esmeraldas.[24]

In the Plurinational State of Bolivia, an extraordinary storm on 16–17 November triggered floods and mudflows in the tourist town of Samaipata and the nearby Achiri community (Santa Cruz region). The disaster caused significant material damage: 25 homes collapsed, 30 were severely damaged and 560 families were rendered homeless. Two people went missing and were later found dead.[25] The Dirección de Meteorología e Hidrología (DMH) in Paraguay reported torrential rains in the Chaco region, displacing thousands, and intense storm activity in eastern Paraguay in November. In Pedro Juan Caballero (Paraguay), 128.4 mm of rain fell on 26 November.[26]

In Brazil, the National Meteorological Institute (INMET) reported that heavy rains affected the state of Amazonas from 4 March, causing floods and landslides that resulted in casualties and damage: two people were injured, and one person was missing.[27] On 25 March, heavy rains affected western Brazil, particularly the state of Acre, on the border with Peru and the Plurinational State of Bolivia, causing flooding and river overflows that led to evacuations and population displacement. Several locations in the state of Rio Grande do Sul recorded high rainfall totals: between 15 and 17 June, Encruzilhada do Sul received 159.2 mm, while Santa Maria recorded 152.6 mm. On 18 June, Rio Pardo experienced the highest total with 171.0 mm, and São Borja recorded 117.0 mm.[28] The following day, on 19 June, Cruz Alta registered 125.2 mm and Soledade 123.0 mm. These intense rainfall events contributed to widespread flooding, landslides and associated impacts across the state. In early September, southern Brazil, central and northern Argentina, Paraguay and Uruguay experienced persistent heavy rainfall of 40–120 mm, with some localized totals above 200 mm, causing continued urban flooding in low-lying areas.[29]

Drought

Areas affected by severe drought from January to December (Figure 12) include parts of north-western and north-eastern Mexico, Guatemala, Honduras, El Salvador, northern and eastern Bolivarian Republic of Venezuela, and parts of the Caribbean. In South America, extreme to moderate drought was detected in southern Amazonia, north-east and south-east Brazil, the Paraná and São Francisco River basins, northern and western Argentina, and northern and central Chile.

The drought that intensified in Mexico around 2023 continued into 2025, affecting the northern and central regions – sometimes covering up to 85% of the country – and creating a water crisis for crops and reservoirs (SMN, National Water Commission (CONAGUA)). Northern and north-western regions, especially Chihuahua, Sonora and Baja California, continued to experience moderate to severe dry conditions. In the Caribbean, drought in early 2025 brought a hot, dry summer. Cuba experienced significant water shortages due to drought and higher temperatures, especially in the provinces of Guantánamo and Holguín, leading to severe water rationing and affecting agriculture, infrastructure and power supply.[30]

Abnormally dry conditions were observed in central Plurinational State of Bolivia, northern Peru and the Amazon states of Brazil (Amazonas, Acre and Rondonia) at the beginning of 2025.[31] Drought conditions increased fire risk in the border regions between the Bolivarian Republic of Venezuela and Guyana, threatening ecosystems and settlements.[32] In Brazil, during the first half of 2025, severe drought conditions stretched from the north and north-east to central agricultural states, including São Paulo, Goiás, Minas Gerais and Mato Grosso do Sul. Rivers fell to extreme low levels, urban water supplies came under pressure and indigenous and rural communities struggled with limited access to drinking water and declining harvests.[33] Large areas in north-east and central Argentina faced significant rainfall deficits at the beginning of 2025.[34] In the Paraguay River basin, north of Asunción, severe rainfall deficits and low river levels were observed – a sign of broader water stress in the La Plata basin that started in 2024 and continued in early 2025.[35] At Itaipu Dam, flows remained below average from January 2025, and the Paraguay River basin endured 18 consecutive months of exceptional drought from February 2024 to July 2025 according to the Brazilian National Centre for Monitoring and Early Warning of Natural Disasters (CEMADEN).[36]

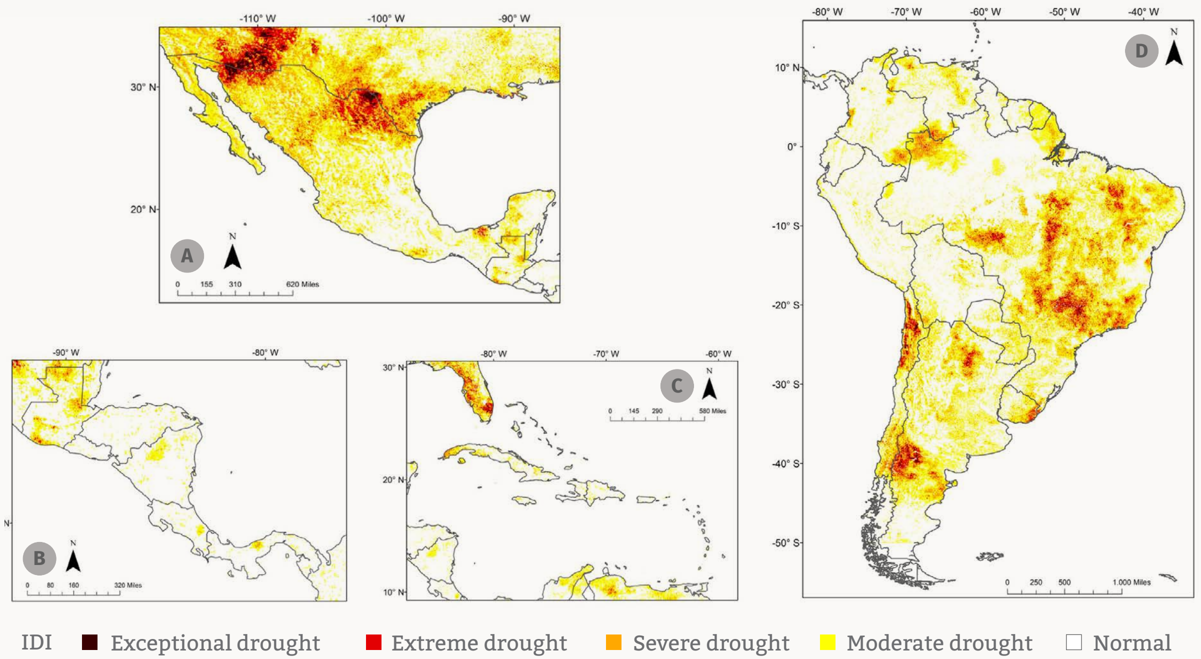


Figure 12. Integrated Drought Index (IDI) for January–December 2025 in (A) Mexico, (B) Central America, (C) the Caribbean, and (D) South America. The colour scale shows the intensity of the drought.

Source: Third-party map. This map was provided by CEMADEN in March 2026 and may not fully align with United Nations and WMO map guidance.

Heatwaves

Between late February and mid-March, the first heatwave of the year hit southern and eastern Mexico, as well as Guatemala, Belize, Honduras and El Salvador, when temperatures soared to between 40 °C and 45 °C in the Mexican states of Guerrero and Oaxaca. Many other states experienced temperatures from 35 °C–40 °C.[38] Another heatwave occurred between 14 and 21 May. Official records indicate temperatures of 46 °C–47 °C in several municipalities, including San Ciro de Acosta in San Luis Potosí state (SMN). Guatemala recorded an exceptionally high numbers of heat days, and El Salvador reported temperatures above 40 °C through the beginning of the year.[39]

INMET reported that seven heatwaves affected Brazil.[40] In the state of Rio Grande do Sul and parts of Rio de Janeiro, temperatures exceeded 40 °C from January through early March. The austral summer of 2024–2025 was the warmest since 1961.[41] In south Brazil, the extreme heat disrupted daily life – schools delayed returns after holidays, and people sought relief at beaches and public cooling points. On 16 February, a temperature of 44 °C was measured in Rio de Janeiro; in the capital cities of Florianópolis, Campo Grande and São Paulo, the temperature exceeded 37 °C on 17 February. Additional information on heatwaves in the region is shown in Figure 11.

The Plurinational State of Bolivia also experienced significant heat events throughout the year, especially in the southern hemisphere spring and autumn seasons. In September, Ascensión de Guarayos recorded a temperature of 40.6 °C, surpassing previous extreme temperatures. From the second half of February, northern Argentina, southern Brazil and much of Paraguay and Uruguay experienced extreme heat, with temperatures above 40 °C,[42] and anomalies of up to 10 °C above normal.[43] The heatwave in Argentina (29 January to 12 February) affected the central and northern parts of the country. Several record high temperatures were recorded (46.5 °C in Rivadavia, 43.7 °C in Reconquista and 45.0 °C in La Rioja, among others).[44]

Extreme heat also worsened wildfire conditions, especially along the Argentina–Chile border, where large blazes burned extensive forest areas.[45] In January and February, Chile experienced several intense warm spells and temperatures above 38 °C in central regions. These events increased health and fire risks, prompting authorities to issue precautionary recommendations. Warm spells also occurred in March and December.[46]

Wildfires

In 2025, wildfire activity was comparatively moderate. Estimates from the Global Wildfire Information System (GWIS) indicate that the total burned area was below the 2021–2025 climatological mean. Country-level burned area data show that Brazil had the largest burned area in absolute terms, consistent with its continental size, followed by the Bolivarian Republic of Venezuela, Plurinational State of Bolivia and Argentina, in descending order.[47]

Cold waves

In late May, a strong cold front brought sharp temperature drops, frost and snow in the mountain areas of southern and south-eastern Brazil – unusual for much of Brazil. São Paulo registered one of its lowest daily temperatures of the year (12.4 °C on 29 May).[48] A record-breaking polar cold wave affected southern South America from 26 June to 3 July. The cold wave peaked on 30 June, resulting in record low temperatures across Argentina, Chile and Uruguay, reaching 10 °C–15 °C below normal. By late June, temperatures dropped below −15 °C in Patagonia and the Andes highlands. At least 15 deaths were attributed to the cold in Argentina, Chile and Uruguay. On 2 July, Buenos Aires recorded its lowest temperature since 1991, at −1.9 °C. Montevideo recorded its lowest maximum temperature since 1967, at 5.8 °C. On 30 June, stagnant cold air over the Chilean cities of Santiago, Rancagua and Talca led to the build-up of pollutants and deteriorating air quality.[49] The event was described as one of the most intense southern hemisphere cold waves in decades, with rare frost and snow extending far beyond their usual range.[50]

Tropical cyclones

The 2025 Atlantic hurricane season had a near-normal number of storms (13 named storms), compared to an average of 14 named storms for 1991–2020.[51] In the North Atlantic, the Accumulated Cyclone Energy (ACE)[52] index was near its long-term average. Five storms evolved into hurricanes, four of which were major hurricanes: *Erin*, *Humberto*, *Melissa* (all Category 5) and *Gabrielle* (Category 4). LAC was affected significantly by Tropical Storm *Barry* (28–30 June) and Major Hurricane *Melissa* (21–31 October). Tropical Storm *Barry* brought heavy rain and flooding to south-eastern Mexico and parts of Belize. It caused flooding and infrastructure damage, resulting in 8 fatalities and approximately US$ 32 million in losses.

Hurricane *Melissa* developed into the third Category 5 hurricane of the season, becoming one of the strongest Atlantic basin hurricanes on record when it made landfall in western Jamaica on 28 October at near-peak intensity, with maximum sustained winds of 298 km/h and a central pressure of 892 hPa. In Jamaica, Knock Patrick received 454.7 mm rain on 27 October, just before *Melissa*'s landfall. In the southern Dominican Republic, seven-day totals included 704.4 mm at Polo station and 435.1 mm at Santo Domingo station. *Melissa* caused extensive damage across the Caribbean Sea, including in eastern Cuba, Haiti and the Dominican Republic.

In the eastern Pacific, the hurricane season produced 18 named storms (compared with an average of 15 for 1991–2020), of which 10 became hurricanes (one of them, Hurricane *Henriette*, reached hurricane intensity outside of the east Pacific area) and four intensified to major hurricane status (*Erick*, *Flossie*, *Kiko* and *Priscilla*). Major Hurricane *Erick*, from 17 to 20 June, reached Category 4 intensity and made landfall in southern Mexico.[53] Notable individual storms in 2025 are described in Figure 11.

Marine heatwaves

Marine heatwaves (MHWs) are prolonged periods of extreme heat in the ocean that have a range of consequences for marine life and communities that depend on it.

In 2025, the highest category of extreme MHWs was reported for the Gulf of Mexico and the Caribbean Sea, and in the ocean area adjacent to Chile (Figure 13). The largest fraction of moderate to severe MHWs covering the WMO LAC area, exceeding 15 million km², occurred during the months of February and March 2025. After the record years of MHW events covering this area in the years 2023 and 2024, the average area coverage decreased to lower values in 2025.

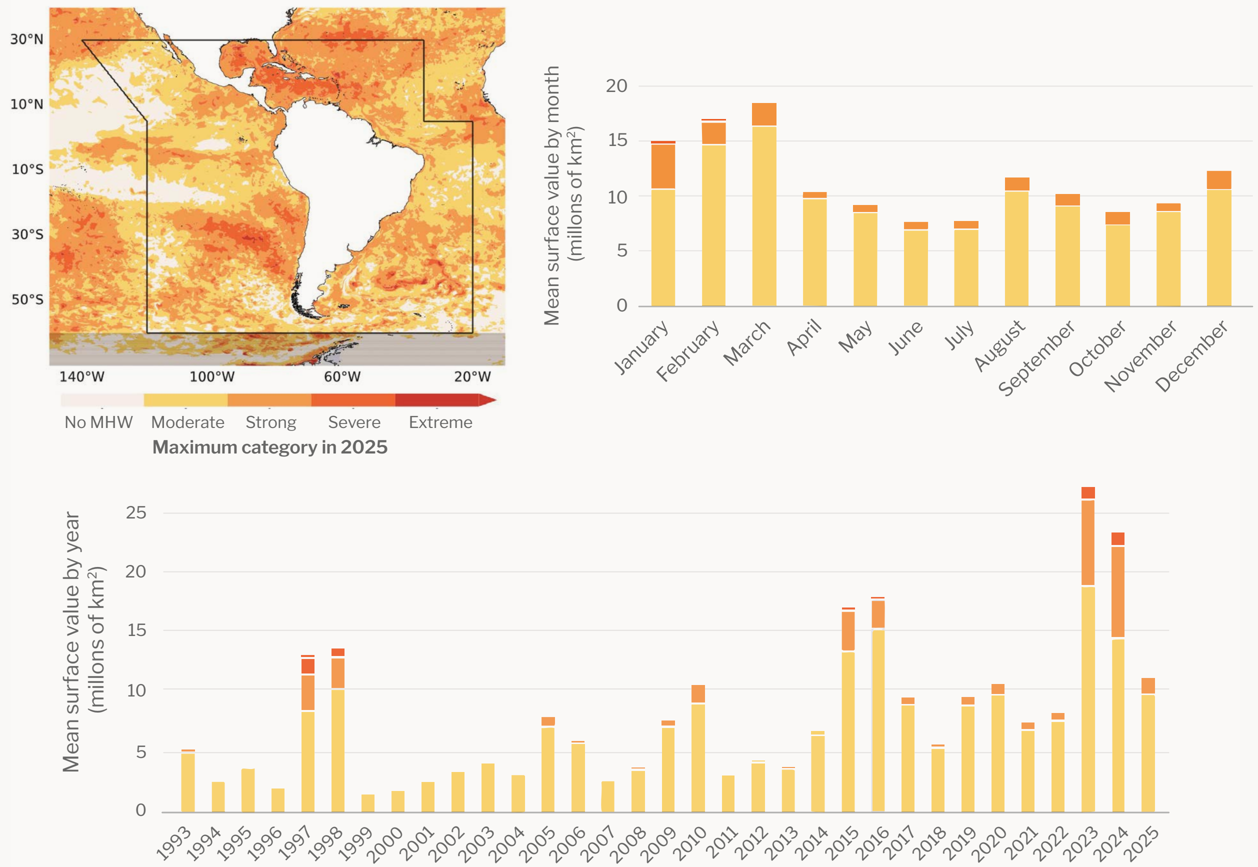


Figure 13 . Left: Map of annual maximum marine heatwave (MHW) category in the year 2025 for the LAC region (enclosed by the black line on the map), using a Copernicus Marine product. The light shaded areas (corresponding to the "No MHW" category) in the Arctic Ocean and in the Southern Ocean indicate product limitations and/or limitations from seasonal sea-ice coverage. Right: Monthly mean surface area affected by MHWs during 2025 (upper diagram) and its annual mean over the entire period from 1993 to 2025 (lower diagram). The colours correspond to the categories on the map (left).

Source: Third-party map. This map was provided by Mercator Ocean International in March 2026 and may not fully align with United Nations and WMO map guidance.

Major climate drivers

There are many modes of natural variability in the climate system, often referred to as climate patterns or climate modes, which affect weather and climate at timescales ranging from days to months, or even decades.

In LAC, the large-scale tropical atmospheric circulation in 2025 was influenced by ongoing global warming and a short-lived La Niña event. Weak La Niña conditions at the end of 2024 dissipated in early 2025 and neutral conditions prevailed until La Niña conditions re-emerged toward the end of 2025.

Climate-related impacts and risks

Three case studies are presented below, showcasing the impacts and risks associated with selected weather and climate-related events in the LAC region. Following an introductory overview, the examples highlight impacts on communities, summarize societal response and conclude with a brief discussion of lessons learned and outlook.

Hurricane *Melissa*: The relevance of risk knowledge for efficient disaster risk reduction

1. Overview

In late October 2025, Hurricane *Melissa* (Figure 14) became the first Category 5 hurricane (Saffir–Simpson scale) to make landfall in Jamaica, since records began in 1851. The storm caused widespread destruction across residential, commercial and tourism areas, including Black River and Montego Bay. The extent of damage across different types of buildings and infrastructure underscored the importance of prioritizing vulnerability assessments to understand disaster risk. In some instances, physical vulnerability was reduced through compliance to building codes. Given the characteristics of the North Atlantic basin, the fact that a Category 5 hurricane had not previously made landfall in Jamaica was more a matter of (good) luck than of changing weather patterns. This good fortune had enabled Jamaica to make relevant progress over the past ten years in preparing for an event that was known to be feasible, even though it was not known to have occurred before.

2. Immediate impacts

- Fatalities occurred, including at Black River's central market, which collapsed under wind and storm surge, where

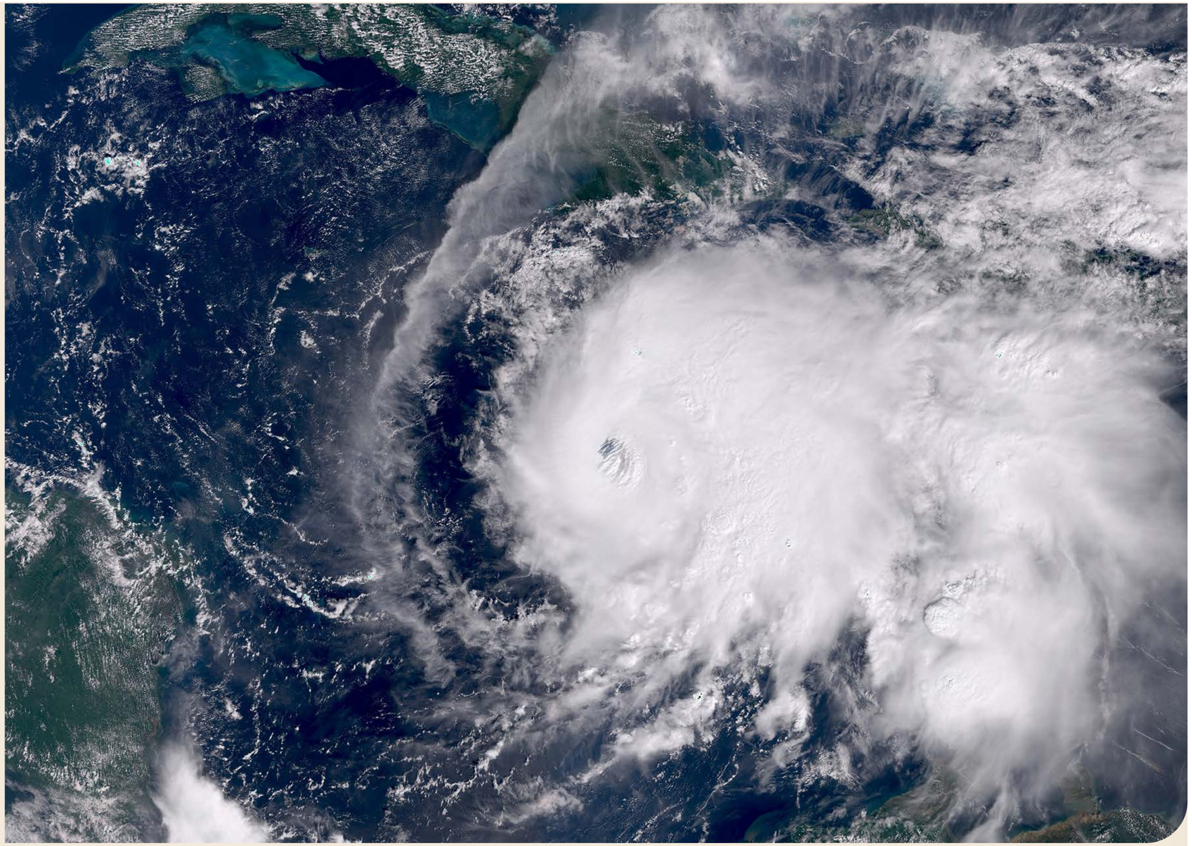


Figure 14. Satellite image of Hurricane *Melissa* on 26 October 2025

Source: Copernicus (https://www.eumetsat.int/image-week-hurricane-melissa)

some residents had sought shelter based on its past performance during Hurricane *Beryl* (2024), highlighting risk misperception.
- Extensive roof failures and structural collapses affected the residential sector, tourism infrastructure and coastal communities, including fishing communities, such as those based at White House.
- Contrasting damage between adjacent buildings exposed differences in physical vulnerability and therefore, structural performance.

3. Intervention and risk-based mechanisms

— Early warning systems (EWS)

- Hazard-based warnings and evacuation guidance were issued through various communication channels.
- *Melissa*'s slow approach to south-west Jamaica provided valuable lead time; however, rapid intensification to Category 5 posed forecasting and preparedness challenges.

— Use and availability of probabilistic risk models

Jamaica's preparedness benefited from the existence of prospective hurricane risk models, including:

- Global models (such as the United Nations Office for Disaster Risk Reduction (UNDRR) Global Assessment Report (GAR) Atlas);
- Regional models underpinning Caribbean Catastrophe Risk Insurance Facility (CCRIF) parametric insurance;
- World Bank Catastrophe Bond (CAT-Bond) mechanisms, which triggered combined payouts exceeding US$ 240 million.

These models explicitly accounted for the possibility of a Category 5 landfall, even if it had not yet occurred, enabling prearranged financial instruments.

4. Positive outcomes

- Demonstrated value of prospective risk modelling in preparedness planning
- Effective activation of financial risk transfer mechanisms that guaranteed rapid liquidity
- Clear evidence that building code compliance reduces losses
- Strengthened case for integrating risk information into warning systems and development planning

Although impacts were severe, prior risk modelling enabled both financial preparedness and policy readiness for an event that had not yet occurred historically.

5. Lessons learned and outlook

— Key insights

- Disaster risk reduction must be based on prospective risk, not historical records only.
- Physical vulnerability remains a critical determinant of disaster loss.
- Financial instruments provide liquidity but do not, on their own, reduce disaster risk.

— Enhancing EWS through impact-based forecasting and anticipatory action (AA)

Probabilistic risk assessments support:

- Impact-based warnings (communicating what the hazard will do, not just what it is);
- Targeted guidance for vulnerable groups (such as persons with disabilities, fisherfolk, rural communities, health facilities);
- Robust threshold-setting for AA instruments and sustainability planning.

— Challenges

- Rapid intensification events are increasing in frequency in the North Atlantic basin.
- Risk perception gaps can lead to unsafe shelter decisions.
- Continued strengthening of building code enforcement is essential.

Recovery is being led by Jamaica's National Reconstruction and Resilience Authority (NARA).

Going forward, multi-hazard probabilistic risk assessments should inform:

- Land-use planning;
- Updates to the Jamaican Building Codes;
- Risk-sensitive investment in tourism, energy, telecommunications, and water and sanitation;
- Development of targeted anticipatory action instruments (for example, for fishing communities).

Hurricane *Melissa* demonstrates that quality risk information is foundational to disaster resilience. While risk transfer mechanisms provide critical financial protection, sustainable disaster risk reduction requires embedding prospective risk analysis into planning, investment and governance decisions.

Heat-related illness and mortality

1. Overview

In 2025, recurrent and intense heatwaves affected large parts of North, Central and South America, reinforcing extreme heat as a growing public health threat in the region. In early 2025, a record-breaking heatwave in parts of South America drove temperatures above 40 °C–44 °C in areas of Brazil and neighbouring countries, prompting school schedule changes and public health warnings.[54, 55] These events illustrate the increasing and sustained heat burden in the Americas under a warming climate.

2. Immediate impacts

— **Health impacts**

- Reported heat-related deaths and hospitalizations in multiple countries
- Elevated mortality and morbidity among older adults, people with cardiovascular and respiratory disease, and outdoor workers
- Increased emergency visits for heat stroke, dehydration and cardiorespiratory complications

Impacts in other sectors exist but are not documented. Despite these documented impacts, important data challenges limit the ability to quantify heat-related mortality in the region. Many countries do not routinely publish cause-specific heat-mortality data, and impacts are frequently inferred from excess-mortality analyses. Long-term estimates suggest approximately 13 000 heat-attributable deaths annually (2012–2021 average across 17 Latin American countries), underscoring the likely scale of underestimation.[56]

— **Systems and infrastructure**

- Sustained thermal stress on health services and critical infrastructure
- Limited documentation of indirect impacts, including chronic disease treatment interruption, disruption of medication cold chains and health facility functionality during peak demand periods
- Psychosocial and mental health impacts: Extreme heat events, compounding pre-existing socioeconomic vulnerabilities, contributing to increased psychological distress across affected communities. Populations displaced or bereaved by climate-related disasters.

3. Intervention and response

Governments and health authorities implemented heat alerts, public health advisories and institutional schedule adjustments. In some settings, early warning systems supported anticipatory action.

The extreme heat events in 2025 highlight the importance of linking meteorological intelligence with public health decision-making. Connecting early warnings to predefined health-sector triggers can support:

- Emergency medical deployment;
- Supply pre-positioning;
- Enhanced surveillance;
- Targeted outreach to vulnerable populations.

4. Lessons learned and outlook

— **Key gaps**

- Under-recording of heat as a cause of death
- Limited to no documentation of impacts outside health sector
- Limited standardized reporting of morbidity, indirect mortality and health infrastructure impacts
- Insufficient integration of climate data into routine health surveillance

— **What is needed**

- Strengthened climate-informed health surveillance systems
- Standardized reporting of heat-related morbidity and mortality
- Operational integration of meteorological early warnings with public health triggers
- Investment in heat-resilient health infrastructure
- Cross-sectorial coordination for extreme heat risk governance
- Capacity- and network-building among climate and health experts to launch joint projects such as heat EWS threshold-setting

As extreme heat events intensify, reducing avoidable mortality will require moving from recognition to institutionalized action. The Belém Health Action Plan, endorsed at COP30 in November 2025, provides the regional road map for this transition. For the LAC region, translating these commitments into practice will require NMHSs to formalize data-sharing protocols with national health ministries, thereby improving heat-mortality attribution and operationalizing climate-informed early warning triggers for the health sector. Leadership by the Pan American Health Organization (PAHO) in establishing a regional hub for the Global Heat Health Information Network (GHHIN) in Latin America and the Caribbean further anchors this agenda at the institutional level and must be supported by sustained investment in heat-resilient infrastructure and community-level preparedness.[57]

Impacts on agriculture and food security associated with extreme climate events

1. Overview

In 2025, extreme hydrometeorological events, including Hurricane *Melissa*, floods, drought and fire, severely affected agro-food systems and rural livelihoods across Latin America and the Caribbean. These events exposed the region's high vulnerability to simultaneous impacts on agricultural production, rural assets, market functioning and food access.

2. Immediate impacts

— **Food security**

- In Haiti, it was estimated that 33 113 hectares of crops were flooded, while another 43 922 hectares of agricultural land were at risk of flooding.[58]
- In Jamaica, it was estimated that at least 149 412 hectares of agricultural land in production was severely affected in key parishes, compromising national food security and the productive capacity of small and medium producers.[59]
- In Cuba, massive losses were reported in plantations of plantain, corn, yuca, coffee and vegetables.[60]
- In Argentina, the floods in March 2025 in Bahía Blanca severely affected peri-urban production systems, with local producers reporting the total loss of crops and farm animals.[61]

— **Systems and infrastructure**

- In Jamaica, Hurricane *Melissa* caused extensive damage to rural production systems, including farms, greenhouses, livestock facilities, feed sources and fishing landing sites that support coastal livelihoods.
- In Argentina, floods compromised both the local availability of fresh food and the income of rural households dependent on agricultural production.
- In the Andean countries, which account for around 70% of national vegetable production, floods posed significant risks to national food availability due to damage to productive infrastructure and disruptions to market access.[62]

3. Intervention and response

The most recent data shows that levels of hunger and food insecurity in the region have decreased for four consecutive years. However, despite these improvements, persistent inequalities remain across the region. In addition, all three subregions (Caribbean, Mesoamerica and South America) had a higher cost of healthy diets compared to the global estimate, and malnutrition in all its forms – including child stunting, micronutrient deficiencies and obesity – continues to be a major challenge.[63]

4. Lessons learned and outlook

Extreme weather and climate events highlight the region's agro-food systems' high exposure to climatic shocks, with simultaneous impacts on agricultural production, rural productive assets, market functioning and physical and economic access to food.

Datasets and methods

A description of the data and methods used for this report can be accessed here:

https://wmo.int/files/regional-state-of-climate-2025-datasets-and-methods

Contributors

Contributing experts

José A. Marengo (lead author, National Centre for Monitoring and Early Warning of Natural Disasters (CEMADEN)), Nahuel Arenas (United Nations Office for Disaster Risk Reduction (UNDRR)), Christine Berne (Météo-France), Angela Blanco (Food and Agriculture Organization of the United Nations (FAO)), Daniel Buss (Pan American Health Organization (PAHO)), Anny Cazenave (Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS)), Mabel Calim Costa (CEMADEN), Sebastián Cortinez (FAO), Felipe Costa (International Research Centre on El Niño (CIIFEN)), Ana Paula Cunha (CEMADEN), Flora Gues (Mercator Ocean International), Jennifer Guralnick (UNDRR), Peer Hechler (WMO), Sarah Holmes (WMO), John Kennedy (WMO), Byungjun Kim (WMO), Lancelot Leclercq (LEGOS), Renata Libonati (Federal University of Rio de Janeiro (UFRJ)-Laboratory for Environmental Satellite Applications), Paulina Lopez (United Nations Educational, Scientific and Cultural Organization (UNESCO)-Surface Hydrology, University of Talca), Jorge Molina-Carpio (Universidad Mayor de San Andres (UMSA)), Clare Nullis (WMO), Zuhelen Padilla (PAHO), Maria M. Poggi (SMN Argentina, Regional Climate Centre Network Southern South America), Karen Polson (PAHO), Pablo Ramos (FAO), Claire Ransom (WMO), Mario Salgado-Gálvez (UNDRR), Karina von Schuckmann (Mercator Ocean International), María de los Milagros Skansi (SMN Argentina), Bárbara Tapia (WMO), Blair Trewin (Bureau of Meteorology (BOM)), Australia), Markus Ziese (Deutscher Wetterdienst (DWD), Germany)

Expert Team on Monitoring and Communication of Climate Variability and Change (reviewers)

Jessica Blunden (United States of America), Renata Libonati (Brazil), Awatif Ebrahim Mostafa (Egypt), Serhat Sensoy (Türkiye), Blair Trewin (Australia), Freja Vamborg (European Centre for Medium-Range Weather Forecasts (ECMWF)), Ken Yamada (Japan), Markus Ziese (Germany)

Contributing organizations

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Contributing WMO Member National Meteorological and Hydrological Services

Antigua and Barbuda Meteorological Services; SMN, Argentina; Bahamas Department of Meteorology; Barbados Meteorological Services; National Meteorological Service, Belize; Servicio Nacional de Meteorología e Hidrología (SENAMHI), Bolivia (Plurinational State of); National Institute of Meteorology (INMET), Brazil; Dirección Meteorológica de Chile (DMC); Instituto de Hidrología, Meteorología y Estudios Ambientales (IDEAM), Colombia; Instituto Meteorológico Nacional (IMN), Costa Rica; Instituto de Meteorología (INSMET), Cuba; Meteorological Department Curaçao; Instituto Dominicano de Meteorología (INDOMET), Dominican Republic; Instituto Nacional de Meteorología e Hidrología (INAMHI), Ecuador; Ministerio de Medio Ambiente y Recursos Naturales (MARN), El Salvador; Météo-France; Grenada Meteorological Service; Instituto Nacional de Sismología, Vulcanología, Meteorología e Hidrología (INSIVUMEH), Guatemala; Hydrometeorological Service, Guyana; Centro de Estudios Atmosféricos, Oceanográficos y Sísmicos (CENAOS), Honduras; Meteorological Service, Jamaica; Servicio Meteorológico Nacional (SMN), Mexico; Instituto Nicaragüense de Estudios Territoriales (INETER), Nicaragua; Instituto de Meteorología e Hidrología de Panamá (IMHPA); Dirección de Meteorología e Hidrología (DMH), Paraguay; Servicio Nacional de Meteorología e Hidrología (SENAMHI), Peru; Saint Lucia Meteorological Services; Meteorological Department Sint Maarten; Meteorological Service Suriname; Trinidad and Tobago Meteorological Service; National Oceanic and Atmospheric Administration-National Hurricane Center (NOAA-NHC), USA; Instituto Uruguayo de Meteorología (INUMET), Uruguay; Instituto Nacional de Meteorología e Hidrología (INAMEH), Venezuela (Bolivarian Republic of).

Endnotes

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Pan American Health Organization
World Health Organization
Americas Region

UNDRR
UN Office for Disaster Risk Reduction

Food and Agriculture Organization of the United Nations

Cemaden
Centro Nacional de Monitoramento e Alertas de Desastres Naturais

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