Overview of activities related to measuring climate change in the Latin America and the Caribbean region

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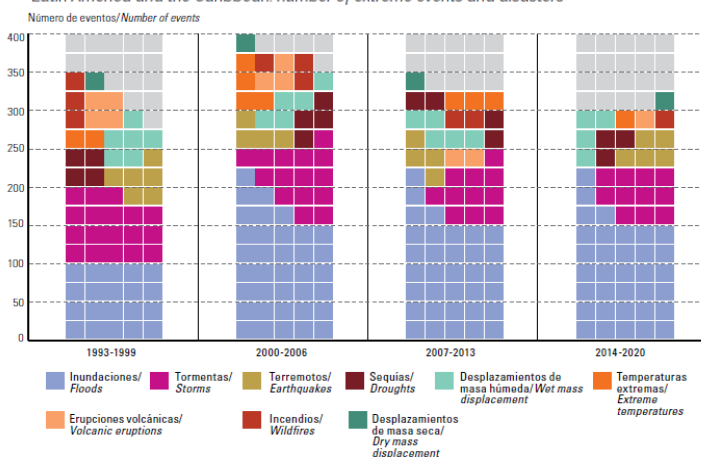Economic Commission for Latin America and the Caribbean (ECLAC)
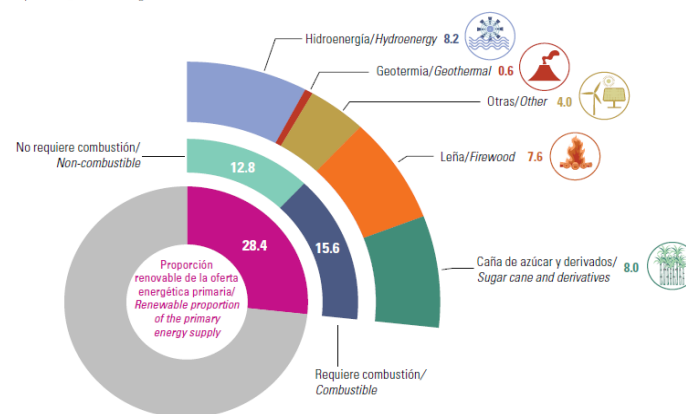
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- Indicators that require environment, climate change and disaster statistics to be compiled:
    - Of SDG targets and goals almost **70%**, and **50%** of SDG indicators
    - Of SENDAI FW: **100%** of indicators
    - Of Paris 2015 Agreement on Climate Change: **100%**

- There is an ever-growing **demand** for these metrics, both from **international and national agreements and development plans and policy targets.**

- Of the three pillars of sustainable development, the newer and weakest is monitoring/measuring **environment, climate change and disaster dynamics**

*What is **not measured, can not be properly managed or solved***

Latin America and the Caribbean: number of extreme events and disasters
Número de eventos/*Number of events*

Legend:
- Inundaciones/*Floods*
- Tormentas/*Storms*
- Terremotos/*Earthquakes*
- Sequías/*Droughts*
- Desplazamientos de masa húmeda/*Wet mass displacement*
- Temperaturas extremas/*Extreme temperatures*
- Erupciones volcánicas/*Volcanic eruptions*
- Incendios/*Wildfires*
- Desplazamientos de masa seca/*Dry mass displacement*

América Latina y el Caribe: oferta de energía primaria renovable por recurso energético, 2018[A]
Latin America and the Caribbean: supply of primary renewable energy by energy resource, 2018[A]
(En porcentajes/*Percentages*)

- Hidroenergía/*Hydroenergy* 8.2
- Geotermia/*Geothermal* 0.6
- Otras/*Other* 4.0
- Leña/*Firewood* 7.6
- Caña de azúcar y derivados/*Sugar cane and derivatives* 8.0
- No requiere combustión/*Non-combustible* 12.8
- 28.4
- 15.6
- Proporción renovable de la oferta energética primaria/*Renewable proportion of the primary energy supply*
- Requiere combustión/*Combustible*

Regional challenges to produce environment, climate change and disasters statistics and indicators

Statistical challenges:

- Insufficient and/or irregular collection of environmental, climate change and disasters **data** within National Statistical Systems.

- **Newer sources** of statistical information underutilized (i.e., remote sensing, geospatial, monitoring stations and administrative records)

- **Methodologies** to measure some aspects of climate change and adaptation, and disaster risk, impact and resilience are under development

Institutional challenges:

- **Institutionalization** and regular **budget** allocation needed in both NSOs and line ministries and authorities in the context of National Statistical Systems

- **Inter-agency technical capacities and common language** is needed (hence this project) for all teams in all relevant institutions

- Insufficient **institutionalized regular statistical cooperation** among NSO - Ministry of Environment – Disaster/Emergency, line Ministries and academia

ECLAC regional capacity-building on environment, climate change and disasters statistics

1. Demand-driven inter-institutional **capacity building** to LAC countries
    - ✓ In-person workshops
    - ✓ **Online training course on ES**
    - ✓ **Remote TA/training on EA/EEA**
    - ✓ Quarterly webinars on environment on SDG/SENDAI indicators production
    - ✓ **Regional Network** of ES
    - ✓ **Assessment of Use of Geospatial** Technology in NSOs

2. **Methodological development**
    - ✓ **FDES in Spanish**
    - ✓ **Damage and Loss Assessment (DaLA)**
    - ✓ **Methodological Guidance Manual Environmental Indicators**
    - ✓ **Environment Statistics Biblioguide**

3. Production of **key regional environment indicators**
    - ✓ CEPALSTAT database and geoportal, Statistical Yearbook and **Statistical News**

4. Secretariat of two **working groups** of the Statistical Conference of the Americas
    - ✓ **Document to harmonize a methodological framework for the measurement of disaster-related indicators of the SDGs and the Sendai framework for disaster risk reduction**
    - ✓ **Recommendations on the Role of Official Statistics in Measuring Hazardous Events and Disasters in Spanish**

5. Partnership and **Cooperation with UN and regional organizations** and **Regional Coordination through GGIM Americas** between Official geospatial community and NSOs

+

Available data

Depending on the country the situation varies, but in general:

➢ **Climate process drivers:**
- Statistics relatively more available (energy, agriculture, other economic activities and GHG net emissions).

➢ **Climate change evidence:**
- Historical data series available for precipitation and temperature variation (terrestrial and seas).

➢ **Climate change impacts and vulnerability:**
- Data available for occurrence and impact of disasters on affected people. Economic losses due to disasters less available.
- Sea level rise data is less available

➢ **Mitigation**
- Energy renewability, energy intensity of GDP, forest cover and disaster preparedness data relatively more available.

➢ **Adaptation:**
- The least developed and more difficult to capture statistically (spatially specific programs and measures).

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Available data

# Concentrations: Global Atmospheric CO_2 Historical Levels in 2019
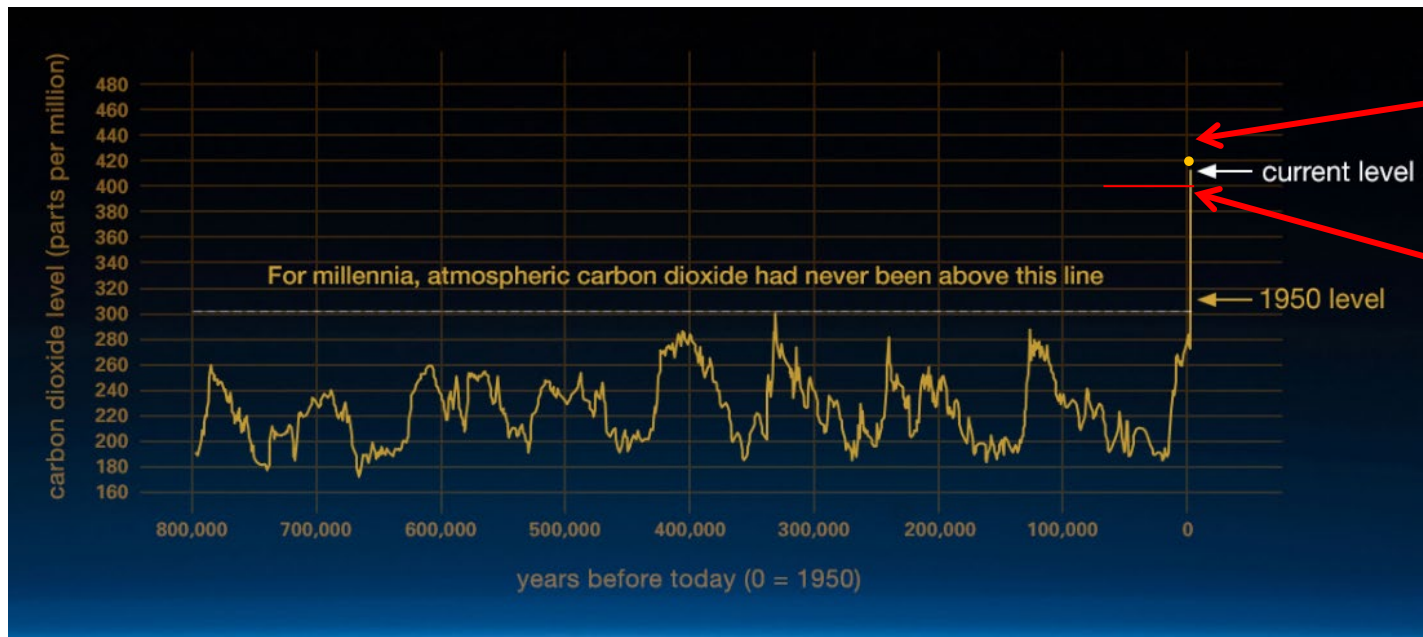
Historical high May 19 415.26 ppm (NOAA)

Carbon dioxide officially passed the symbolic 400 ppm mark, point of no return

Mauna Loa Observatory reported an atmospheric CO_2 concentration of over **415.26** parts per million (ppm), far higher than any point in the last 800,000 years.
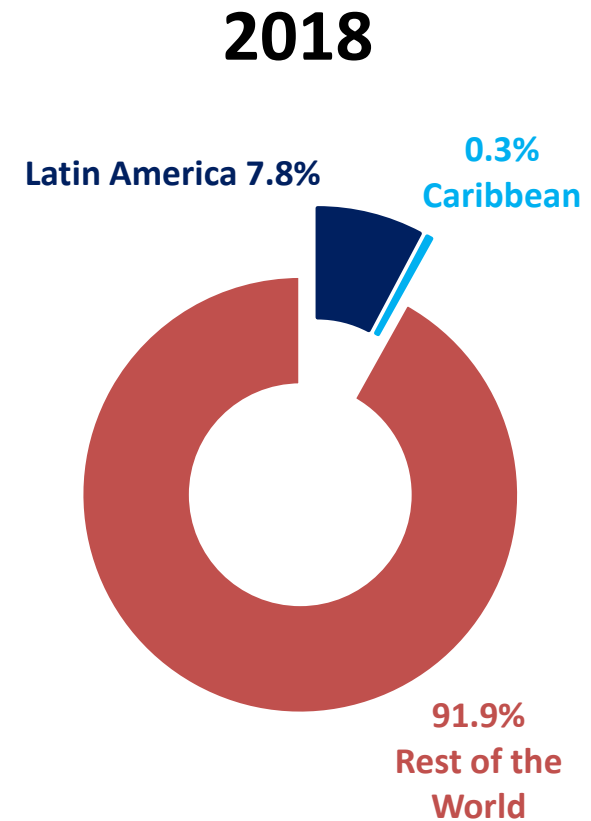
Source: Mauna Loa Observatory. NOAA
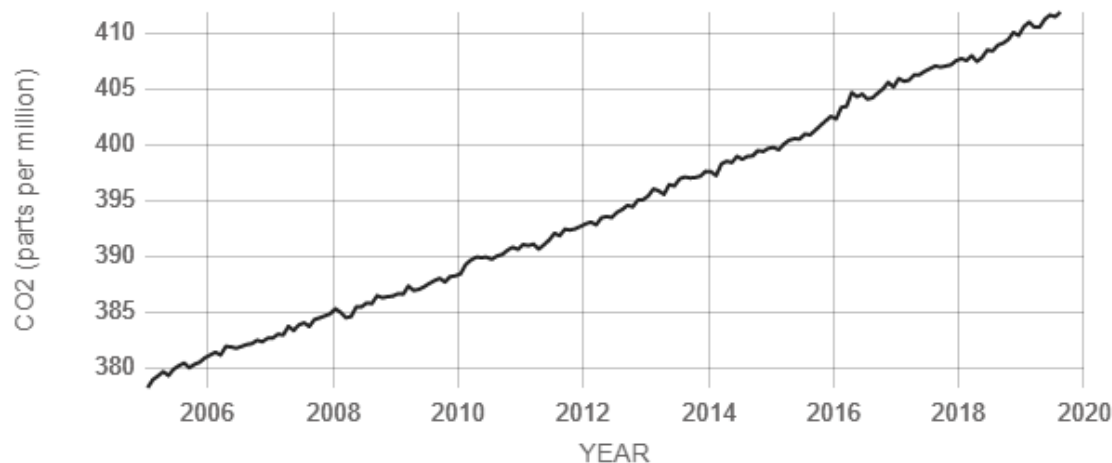
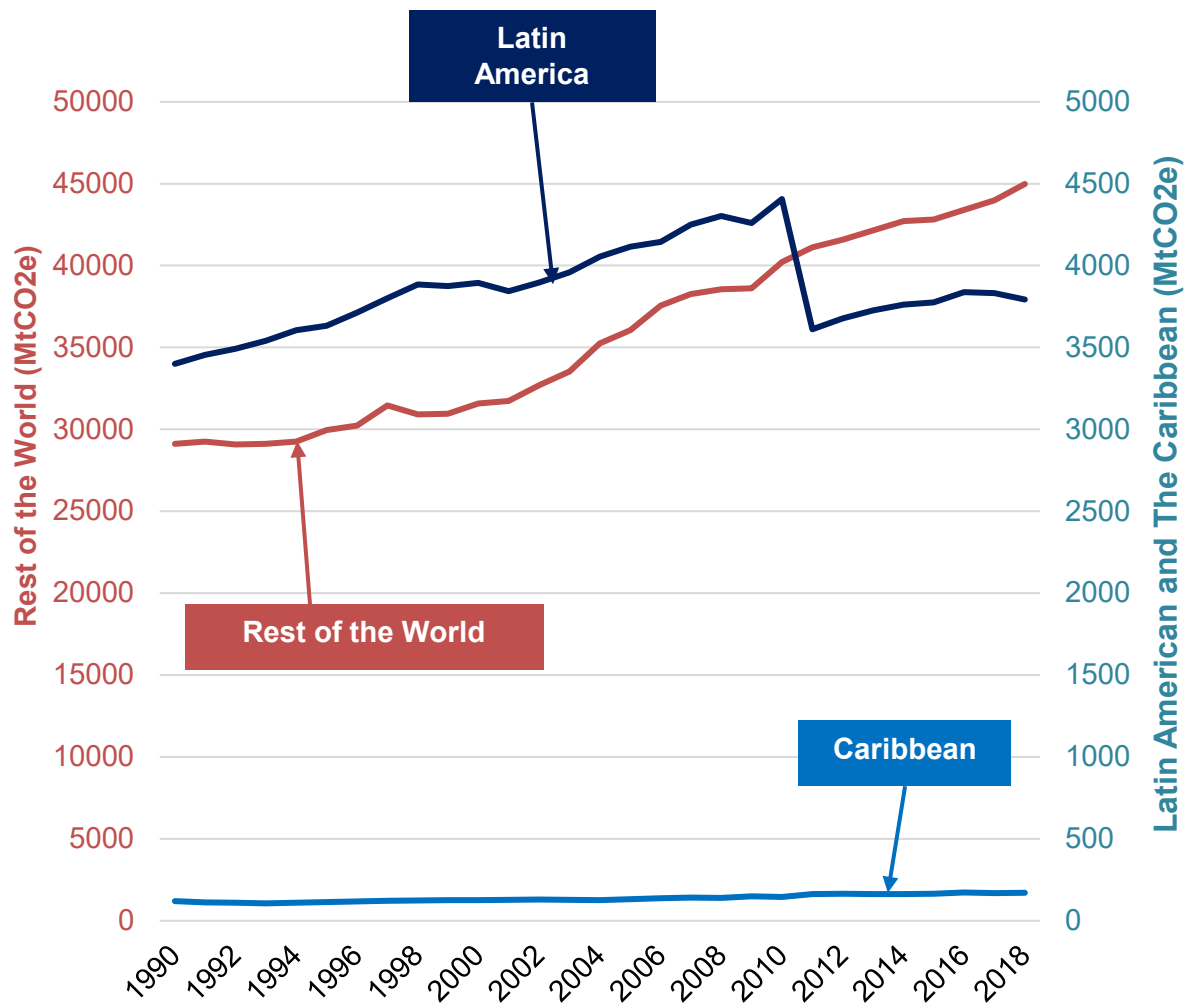**Last measurement August 2019: 412 ppm (NASA)**
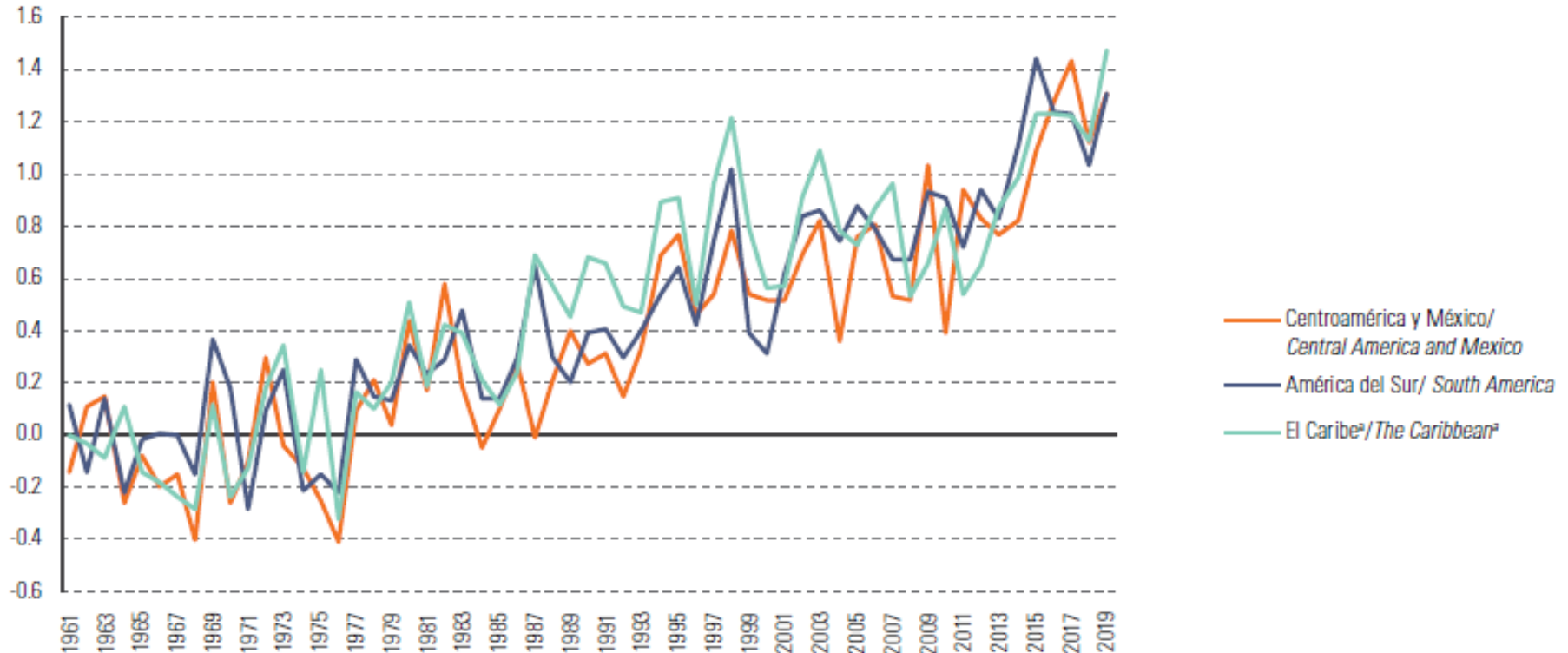
Source: climate.nasa.gov

Drivers: LAC: Evolution of GHG emissions

(MtCO$_2$e) 1990-2018 y percentage 2018

2018

Latin America 7.8%

0.3% Caribbean

91.9% Rest of the World

Evidence: LAC Average Annual Temperature Variation, 1961-2019 (°C)

Legend:
- Centroamérica y México/ *Central America and Mexico*
- América del Sur/ *South America*
- El Caribe[a]/*The Caribbean*[a]

[A] FAO, Base de datos estadísticos (FAOSTAT) [en línea] http://www.fao.org/faostat/es/#home.
[a] Incluye Cuba y la República Dominicana.

[A] FAO, Database for Statistical Data (FAOSTAT) [online] http://www.fao.org/faostat/en/#home.
[a] Includes Cuba and the Dominican Republic.

Impact: Air Quality

Latin America and the Caribbean: concentration of particulate matter (PM10) and (PM2.5) in 26 cities, last year available[A]

(En ug/m³/ug/m³)
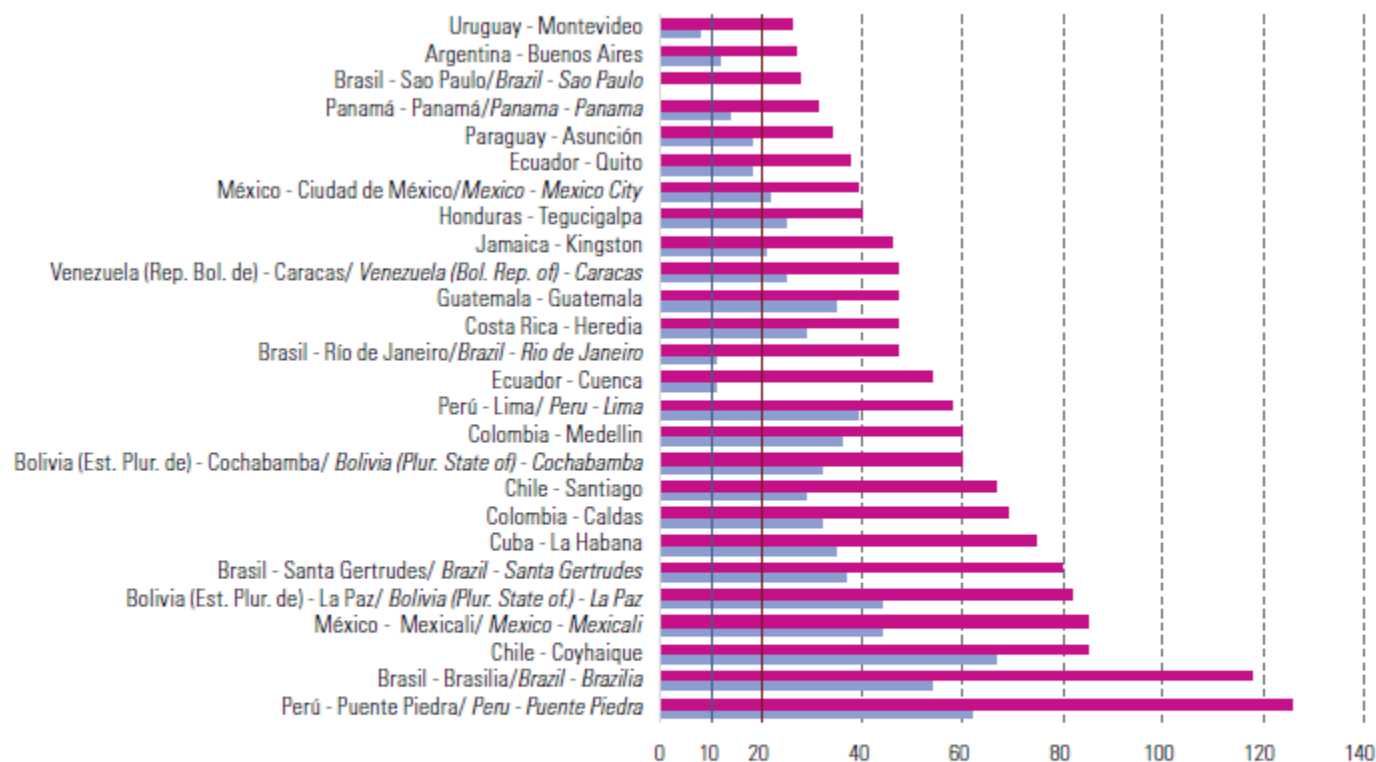
Media anual PM2.5 (µg/m3)/PM2.5 Annual mean (µg/m3)

Media anual PM10 (µg/m3)/PM10 Annual mean (µg/m3)

Directrices de la OMS sobre calidad del aire para PM2.5 (µg/m3 de media anual)/
WHO Ambient air quality standards for PM2.5 (µg/m3 annual mean)
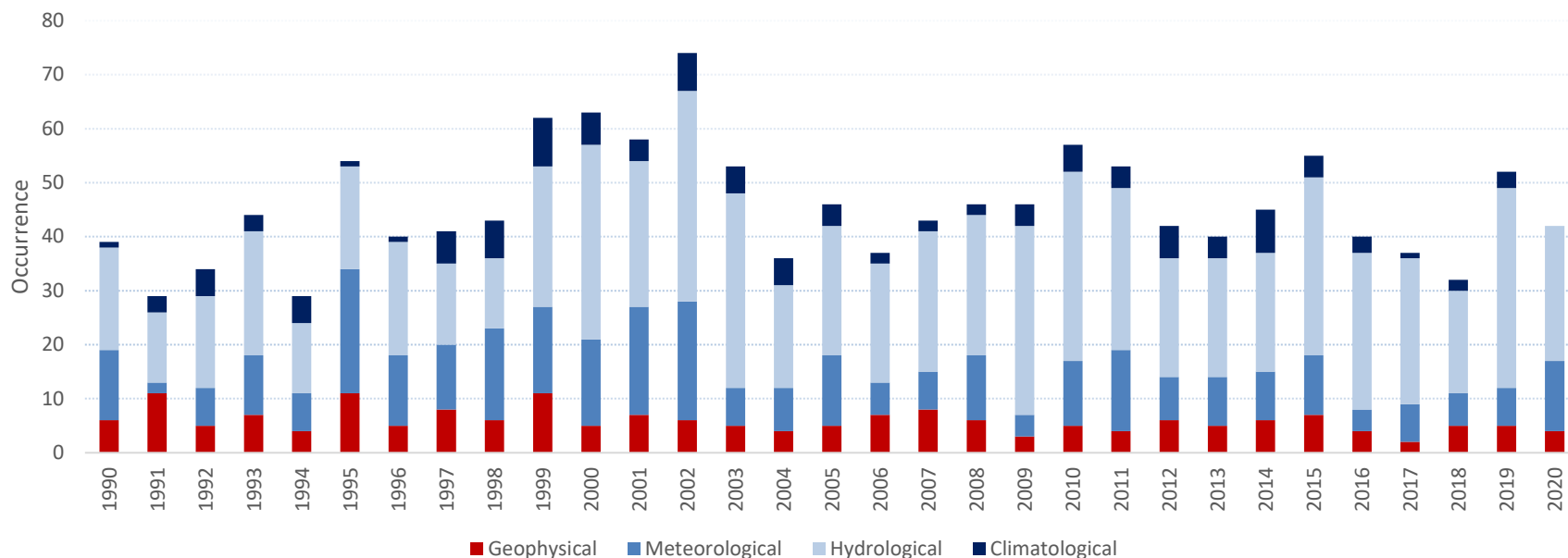
Directrices de la OMS sobre calidad del aire para PM10 (µg/m3 de media anual)/
WHO Ambient air quality standards for PM10 (µg/m3 annual mean)
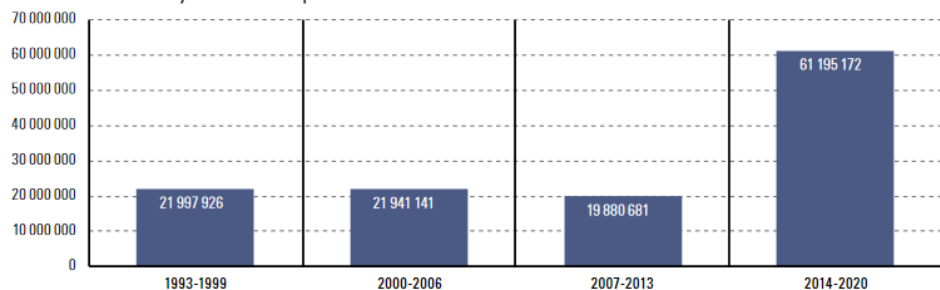
[A] OMS, Global Ambient Air Quality Database [en línea] http://www.who.int/airpollution/data/cities/en/.

[A] WHO, WHO Global Ambient Air Quality Database [online] http://www.who.int/airpollution/data/cities/en/.

Impact: LAC: Hazardous Events and Disasters, 1990-2020

Latin America and the Caribbean: number of extreme events and disasters

Legend: Geophysical, Meteorological, Hydrological, Climatological

Directly affected persons:
- 1993-1999: 21 997 926
- 2000-2006: 21 941 141
- 2007-2013: 19 880 681
- 2014-2020: 61 195 172
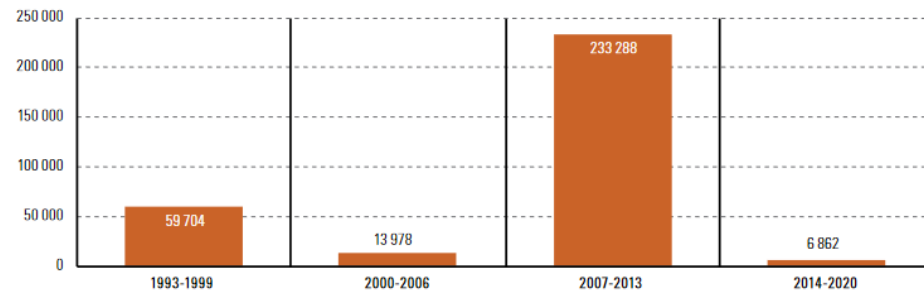
Human deaths:
- 1993-1999: 59 704
- 2000-2006: 13 978
- 2007-2013: 233 288
- 2014-2020: 6 862

[A] Centro de Investigaciones sobre la Epidemiología de los Desastres (CRED), Base de Datos Internacional sobre Desastres (EM-DAT) [en línea] http://www.emdat.be/.
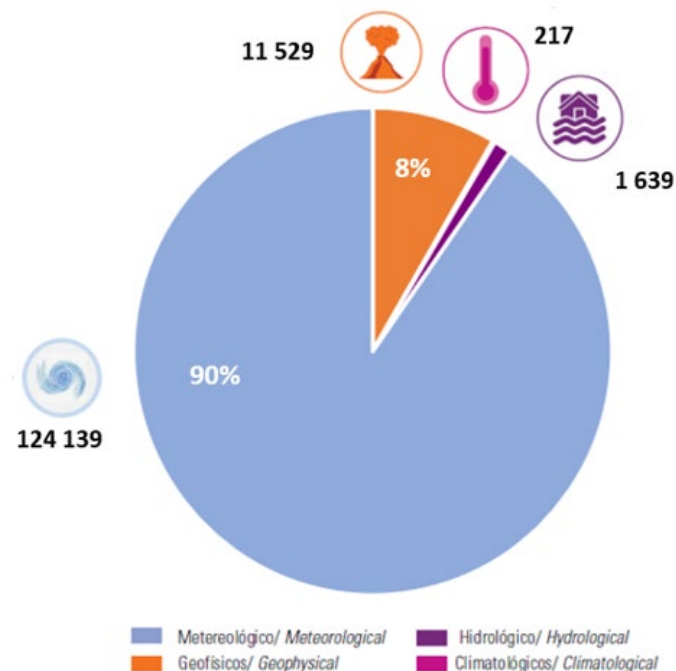
[A] Centre for Research on the Epidemiology of Disasters (CRED), International Disaster Database (EM-DAT) [online] http://www.emdat.be.

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(En millones de dólares y porcentajes/Millons of dollars and percentages)

Latin America and the Caribbean

22 046

48 036

71 188

7%

15%

55%

23%

174 768

Metereológico/*Meteorological*
Geofísicos/*Geophysical*
Hidrológico/*Hydrological*
Climatológicos/*Climatological*

The Caribbean

11 529

217

1 639

8%

90%

124 139

Metereológico/*Meteorological*
Geofísicos/*Geophysical*
Hidrológico/*Hydrological*
Climatológicos/*Climatological*

These damages and losses are only part of the story, as most disaster reports submitted to EM-DAT (63%) do not contain economic data.

NOTE: The VALUE of all damages and economic losses directly or indirectly related to disasters in the last 5 decades amounts to 323 billion dollars, this represents more than 4 times the GDP of the entire Caribbean for the year 2019

[A] Centro de Investigaciones sobre la Epidemiología de los Desastres (CRED), Base de Datos Internacional sobre Desastres (EM-DAT) [en línea] http://www.emdat.be/.
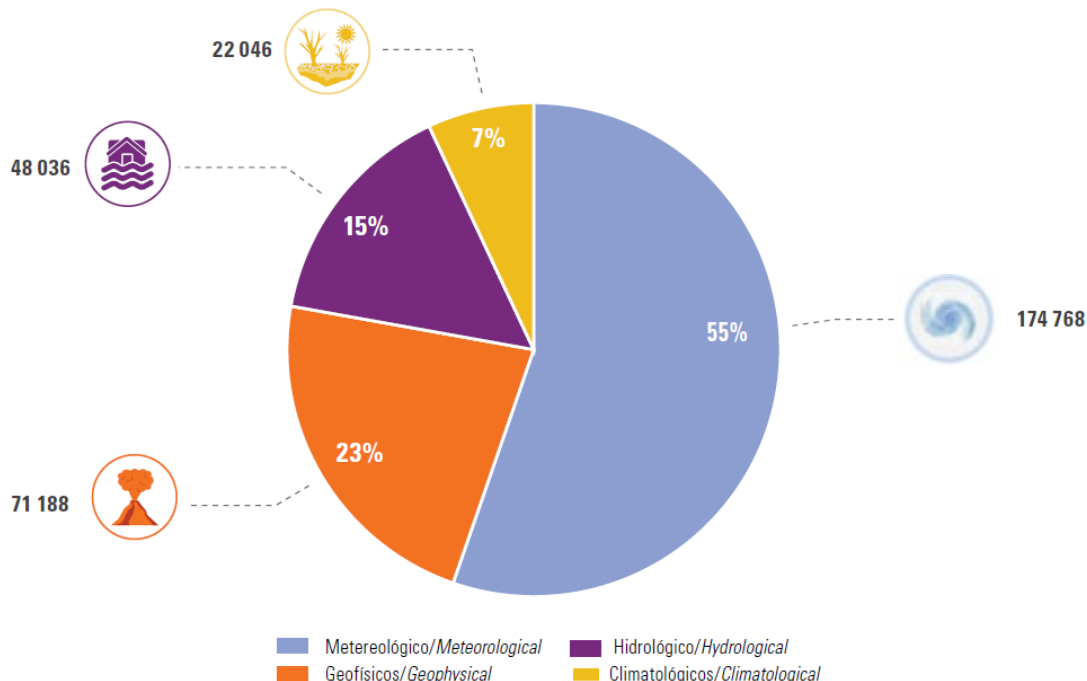
[A] Centre for Research on the Epidemiology of Disasters (CRED), International Disaster Database (EM-DAT) [online] http://www.emdat.be.

New project: Caribbean SIDS relevant climate change and disasters indicators for evidence-based policies

UN ECLAC : Caribbean First Strategy

Project Objective:

To **enhance the climate change and disaster risk reduction statistical and institutional capacities** of target countries in the Caribbean to improve policy coherence in the implementation of the SDGs, the SAMOA Pathway, the Paris Agreement, and the Sendai Framework.

Project Expected results:

✓ Strengthened national statistical and institutional capacities of Caribbean SIDS to sustainably produce and disseminate relevant internationally agreed climate change and disaster risk reduction indicators

✓ Strengthened regional capacities of Caribbean SIDS stakeholders to use the indicators for sustainable evidence-based development policies

✓ Produce a geo-referenced resilience database of the occurrence and impact of hazardous events and disasters in Caribbean SIDS

NOTE: Starting this year with Suriname, Antigua and Barbuda and Dominica. We will organize sub-regional workshops and prepare an online course so that all SIDS countries can benefit

Recommendations and Main Challenges

Towards a regional framework on climate change and disaster indicators

- **ECLAC**
  - Producing regional CC indicators, focusing on impact and adaptation (regional and subregional)
  - Building a list of regionally relevant indicators for climate change reporting (keeping in mind the draft of Global Set of Climate Change Statistics and Indicators)
  - Focusing on occurrence and impact of disasters, environmental health, impact on agriculture and tourism, loss of mangroves and coral bleaching
  - Best use of the geospatial data on disasters is to integrate them into the official statistics on population, households, establishments, agriculture, land cover and land use Information to enable anticipating disasters, improving preparedness and providing quick relief support to people.
  - Fund raising for a first 3 to 4-year regional program
- **Member-States**: ECLAC and Regional Experts are supporting national production of climate change statistics and encourage Member States to:
  - Assess data availability on climate change to build on the existing
  - Develop CC indicators starting with the most relevant issues for the region (i.e., disasters and adaptation)

Main challenges

- Developing mitigation statistics other than renewables, electromobility, etc.
- Developing indicators to relate natural resource use, biodiversity with climate change and development
- Developing adaptation indicators as they are spatially specific (potential collaboration with UBA Germany)
- Developing indicators related to build back better
- Implementing global frameworks for providing geospatial support to disaster management

Thank you!

Environment, Climate Change Statistics Area
ECLAC Statistics Division
https://www.cepal.org/en/topics/environmental-statistics