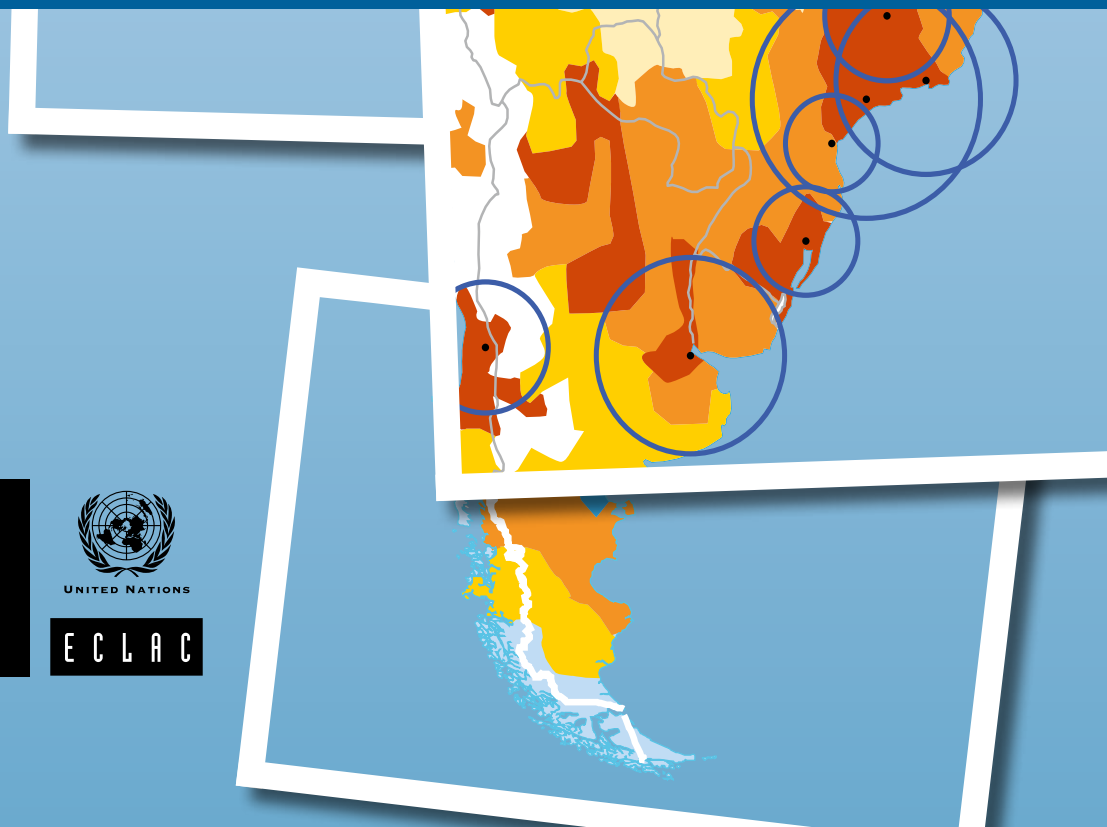




# Vital Climate Change Graphics for Latin America and the Caribbean



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#### For further information:

United Nations Environment Programme (UNEP)  
Regional Office for Latin America and the Caribbean  
Avenida Morse, Edificio 103. Clayton, Ciudad del Saber, corregimiento de Ancón  
Panama city, Panama  
P.O. Box 03590  
<http://www.pnuma.org>  
Email: [enlace@pnuma.org](mailto:enlace@pnuma.org)

Director, Division of Sustainable Development and Human Settlements  
Economic Commission for Latin America and the Caribbean  
Casilla179-D  
Santiago, Chile  
Ph: (56-2) 2102295 Fax (56-2) 2080484  
Email: [DDSAH@cepal.org](mailto:DDSAH@cepal.org)  
Web: [www.cepal.org](http://www.cepal.org)

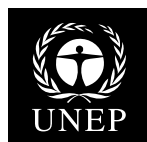
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# Vital Climate Change Graphics for Latin America and the Caribbean

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## Production Equipment

Graciela Metternicht (UNEP Regional Office for Latin America and the Caribbean)

Jan Kappen (UNEP Regional Office for Latin America and the Caribbean)

Ieva Rucevska (UNEP/GRID Arendal)

José Luis Samaniego (ECLAC, Santiago, Chile)

Luis Miguel Galindo (ECLAC, Santiago, Chile)

## Authors and Contributors:

Luis Miguel Galindo (ECLAC, Santiago, Chile)

Carlos de Miguel (ECLAC, Santiago, Chile)

Jimmy Ferrer (ECLAC, Santiago, Chile)

## Layout:

Petter Sevaldsen & Robert Barnes  
(UNEP/GRID Arendal)

## Cartographic Production

Cartographer Nieves López Izquierdo  
(Associate Consultant UNEP/GRID-Arendal)  
with specific contributions Pravettoni Riccardo  
(UNEP/GRID-Arendal)

## Expert Reviewers Panel

Mara Murillo Correa (Regional Office for Latin America and the Caribbean)

Jan Kappen (UNEP Regional Office for Latin America and the Caribbean)

Miguel Naranjo (UNEP Regional Office for Latin America and the Caribbean)

Seraphine Haeussling (UNEP Division of Technology, Economy and Industry)

Kaveh Zahedi (UNEP Division of Technology, Economy and Industry)

Emil Cherrington - Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC), Panama

Africa Flores - Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC), Panama

Emilio Sempris - Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC), Panama

Eric Anderson, Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC), Panamá

José Eduardo Alatorre, CEPAL, Santiago, Chile

Julie Lennox, ECLAC, Mexico

Karina Martinez, CEPAL, Santiago, Chile.

# Preface

Climate change – its causes, its global consequences and the magnitude of its expected effects on both ecosystems and human activities – will be one of the greatest challenges of this century. It will significantly alter current patterns of production, distribution and consumption, as well as the overall lifestyles of modern societies.

During the present century, countries will be compelled to deal with two simultaneous challenges: adapting to the new climate conditions and working to mitigate them. This will require an international agreement that recognizes historical, but differentiated, responsibilities. The Latin American and the Caribbean region is not immune to this challenge – one of the most difficult confronting modern economies – and will have to transition to a sustainable development strategy that pursues a low-carbon path and promotes equity and social inclusion.

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**Alicia Bárcena**

Executive Secretary  
Economic Commission for Latin America  
and the Caribbean (ECLAC)

The United Nations Development Programme (UNEP), the Economic Commission for Latin America and the Caribbean (ECLAC) – through its Sustainable Development and Human Settlements Division – and GRID-Arendal hereby present Vital Climate Change Graphics for Latin America and the Caribbean. The objective of this work is to show, in a clear and articulate way, through charts, maps and detailed analyses, the status of climate change and its implications for the region. This document, in addition to contributing to the study and debate on the phenomenon of global climate change and its effects on the region, also provides a reference source for decision makers in both the public and private spheres.

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**Margarita Astrálaga**

Regional Director  
United Nations Environment Programme  
(UNEP)

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# Introduction

The phenomenon of climate change – its global causes and origins, and the magnitude of its environmental, economic and social effects – constitutes one of the highest-priority issues on the public and private agendas of both the developed and developing countries.

Available scientific evidence shows that climate change manifests itself primarily in a gradual but continuous increase in temperature, changes in precipitation patterns, a rise in sea levels, a reduction of the cryosphere, and shifts in the patterns of extreme events. This phenomenon is the result of a variety of anthropogenic activities, associated primarily with the burning of fossil fuels, changes in land use and, in particular, deforestation and the generation of solid waste.

For the countries of Latin America and the Caribbean, the effects of climate change projected for the present century will be significant – this despite the fact that the region's emissions of greenhouse gases represent only a small proportion of total global emissions.

The Vital Graphics series provides a clear, direct, visual presentation of issues relevant to the global environment, based on a scientific analysis of currently available information. Vital Climate Change Graphics for Latin America and the Caribbean outlines for decision makers, academics and the general public the status of the climate change phenomenon in the region, focusing on its effects and its causes. The document describes the ways in which climate change manifests itself, drawing on historical analysis of variables such as temperature, precipitation and sea levels. In addition, it details the effects of climate change on ecosystem services, human health and the region's vulnerability to extreme events. Lastly, it provides an analysis of global and regional greenhouse gas emissions and identifies possible options in the region for mitigating the impact of climate change.

## Key Messages

- Available international scientific evidence (IPCC, 2007a) points to the existence of the phenomenon of climate change, which is caused primarily by specific anthropogenic activities.
- Climate change manifests itself in an increase in the temperature of the earth's surface and of the oceans, shifts in precipitation patterns, changes in the frequency and intensity of extreme climate events, reduction of the cryosphere and a rise in sea levels.
- The consequences of climate change – in terms of economic activities, people and ecosystems – are significant and will most likely increase unless there is a change in the current baseline, or inertial, trajectory.
- Significant effects from climate change are expected to be felt in Latin America and the Caribbean. It is therefore essential to advance attempts to find ways to adapt to the changes, in order to reduce risks to the populations most exposed to these impacts, while at the same time aiding efforts to reduce poverty levels and inequality in the region.
- Any solution to climate change, as a global problem, must be based on the participation of all countries, with a recognition of historical, but differentiated, responsibilities.
- Climate projections under the different emissions scenarios indicate that forms of production, distribution and consumption must be profoundly altered, in order to move towards economies with lower levels of CO<sub>2</sub> emissions and greater social inclusion.
- In the coming decades, Latin America and the Caribbean will face two simultaneous challenges: adapting to the new climate conditions and working to mitigate their effects through a global agreement that is just and inclusive.
- The Latin American and the Caribbean region is not immune to this challenge – one of the most difficult confronting modern economies – and must transition to a sustainable development strategy that pursues a low-carbon path and promotes social inclusion.



# 1. Manifestations of climate change

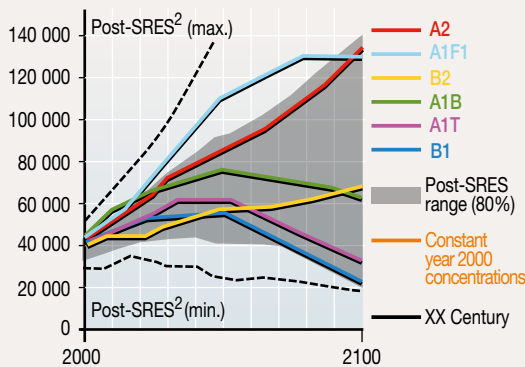
Climate change manifests itself primarily through a gradual increase in the average temperatures of the earth's surface, alterations in precipitation patterns, changes in the intensity and/or frequency of extreme climatic events, a slow but significant reduction in the cryosphere (including glaciers) and a rise in sea levels (IPCC, 2007a).

Available scientific evidence associates the phenomenon of climate change with increased concentrations of anthropogenic greenhouse gases (GHG) in the atmosphere resulting principally from greater use of fossil fuels, changes in land use, agricultural activities, and solid waste disposal methods.

## Greenhouse gas emissions scenarios<sup>1</sup> and surface temperature projections

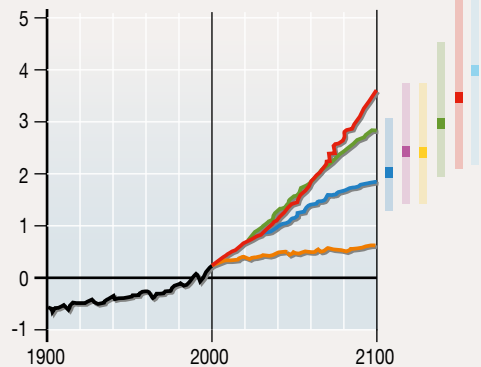
Global greenhouse gas emissions

Millions of metric tons of CO<sub>2</sub> equivalent per year



Global surface warming

Degrees centigrade



A1 Very rapid economic growth and global population, and introduction of new and more efficient technologies:

A1F1 Fossil intensive

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