

Climate change and extreme weather events in Mesoamerica and the Dominican Republic

presentado a

preparado por

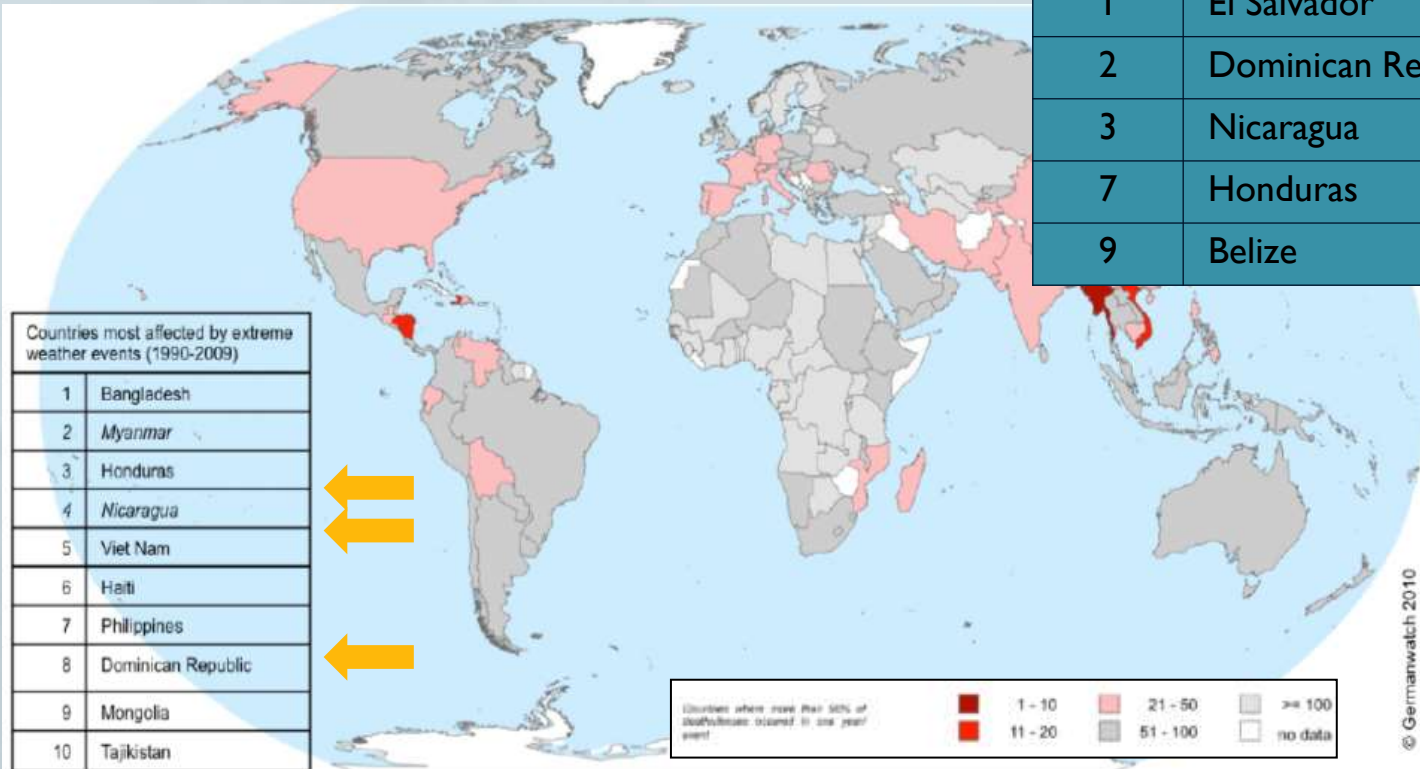
**Carlos Fuller, Caribbean
Community Climate Change
Centre**



Global Climate Risk Index

Índice de Riesgo Climático Global, los países del SICA, 2004 – 2009 (distintos años)

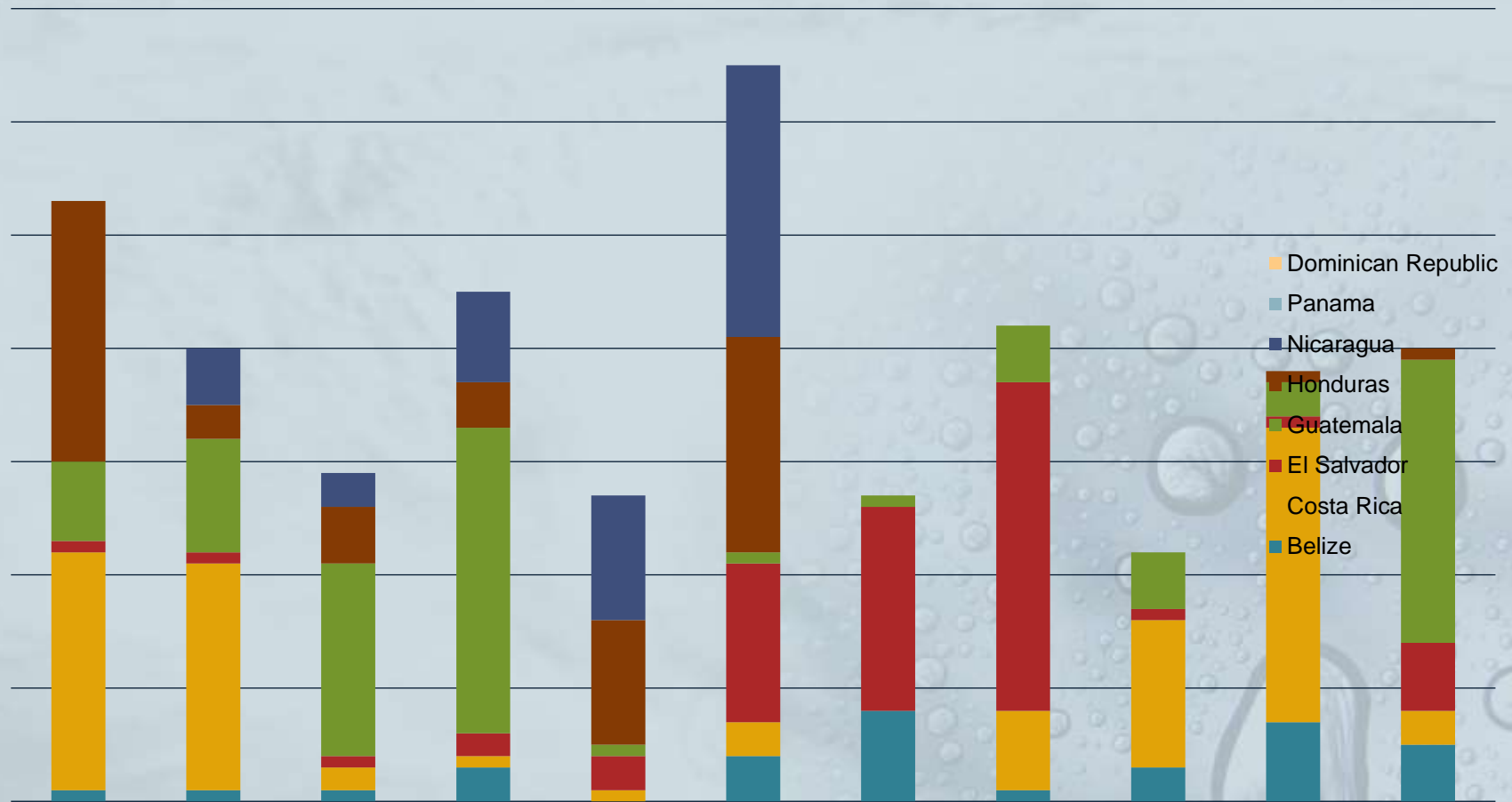
| | | |
|---|--------------------|------|
| 1 | Guatemala | 2005 |
| 1 | El Salvador | 2009 |
| 2 | Dominican Republic | 2004 |
| 3 | Nicaragua | 2007 |
| 7 | Honduras | 2005 |
| 9 | Belize | 2008 |



Extreme Events in the Region

- **248 extreme weather events from 1930 to 2008**
 - **Excludes minor events that were not quantified**
 - **85% - storms and land slides**
 - **9% - droughts**
- **More impacts on the Atlantic coast associated with hurricanes**
 - **Disasters have increased by 5% annually in the last 30 years**
 - **The intensity of hurricanes and other extreme events by 5 to 10% this century**

Number of natural disasters from 1900-2012



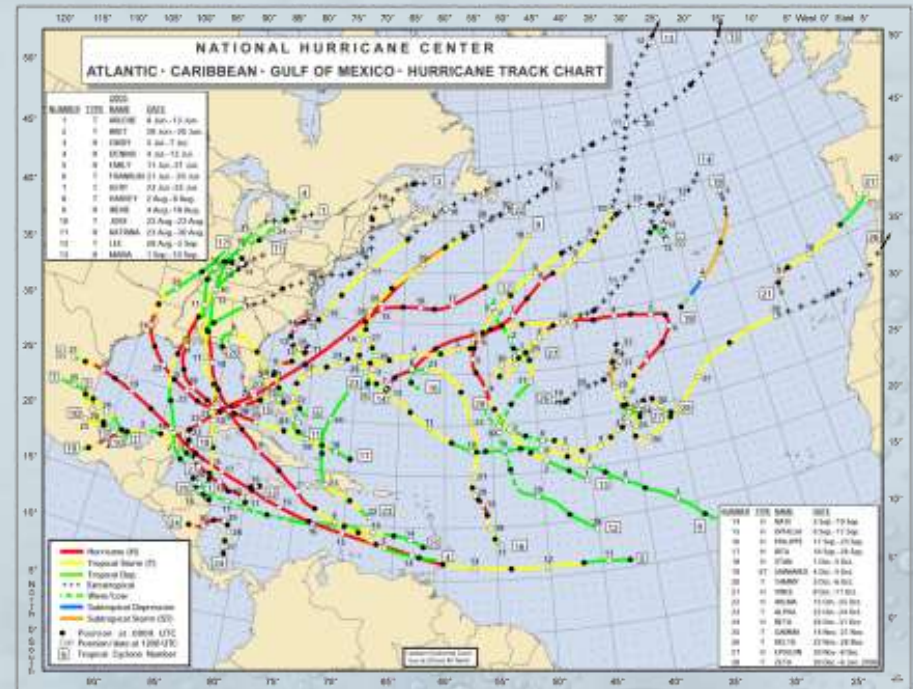
Hurricane History

- **Central America is affected by tropical cyclones from both the Atlantic and the Pacific**
- **Central America's climate is affected by both the Atlantic and Pacific: Extreme events are becoming more frequent and more intense**

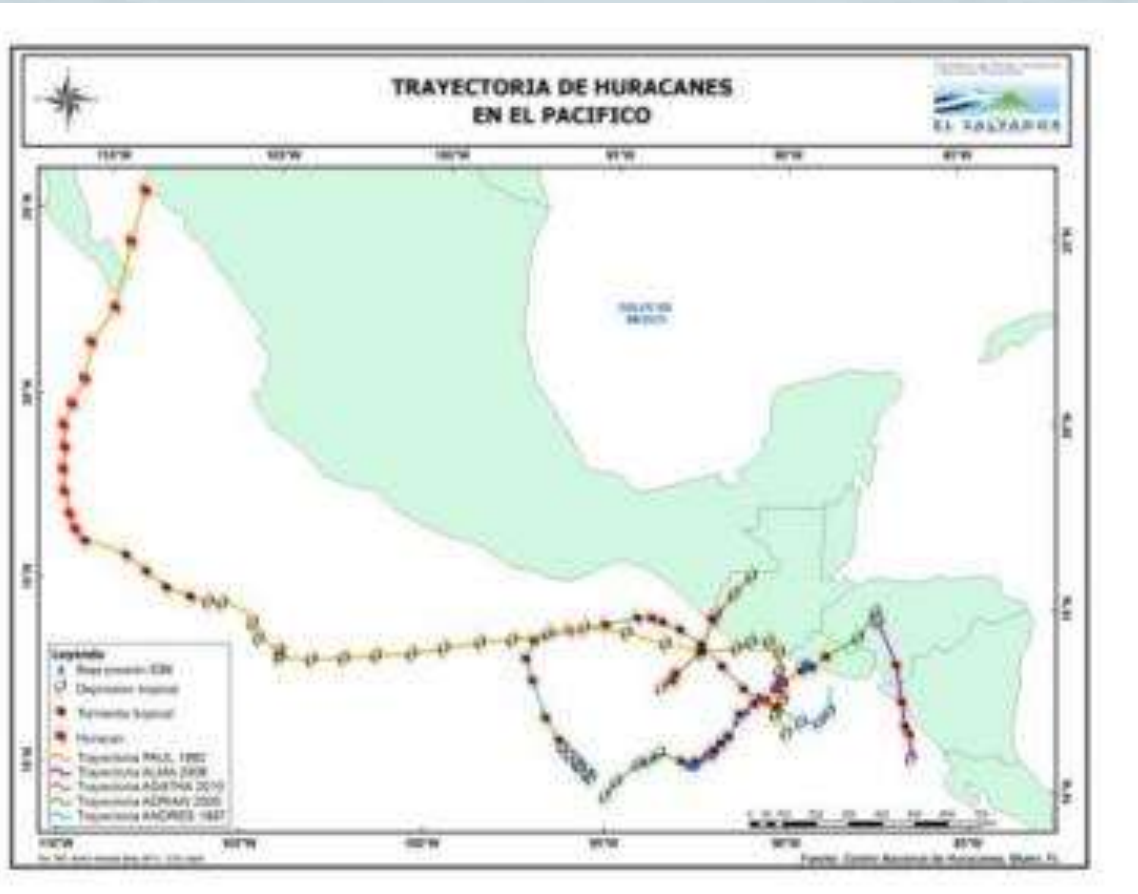


Extreme weather from the Atlantic Ocean

- 2005 - most active hurricane season
- 26 Tropical Cyclones
- 13 Hurricanes
 - 7 Category 3 hurricanes
 - 3 Category 5 hurricanes

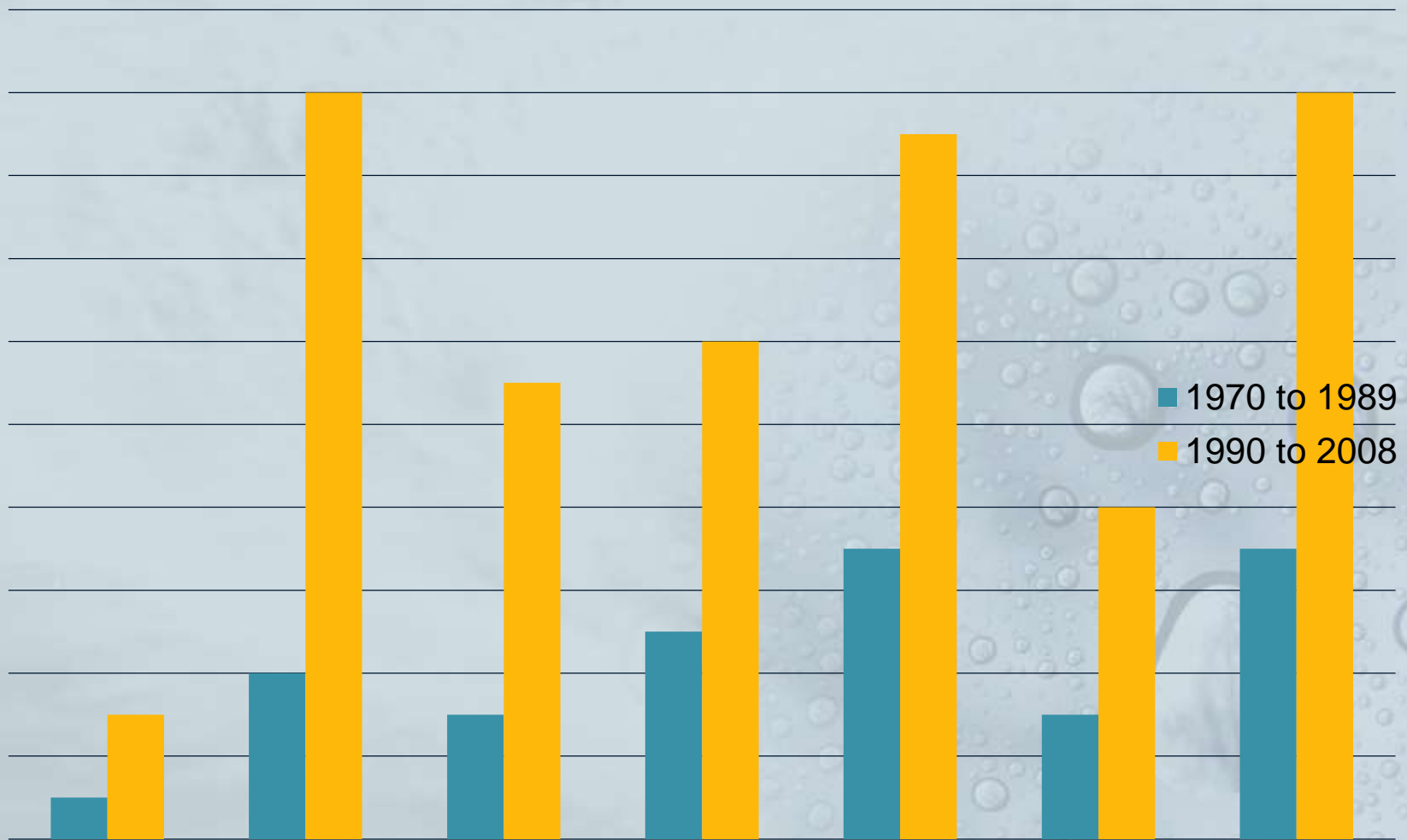


Extreme weather from the Pacific Ocean



- Tropical cyclones are developing at lower latitudes

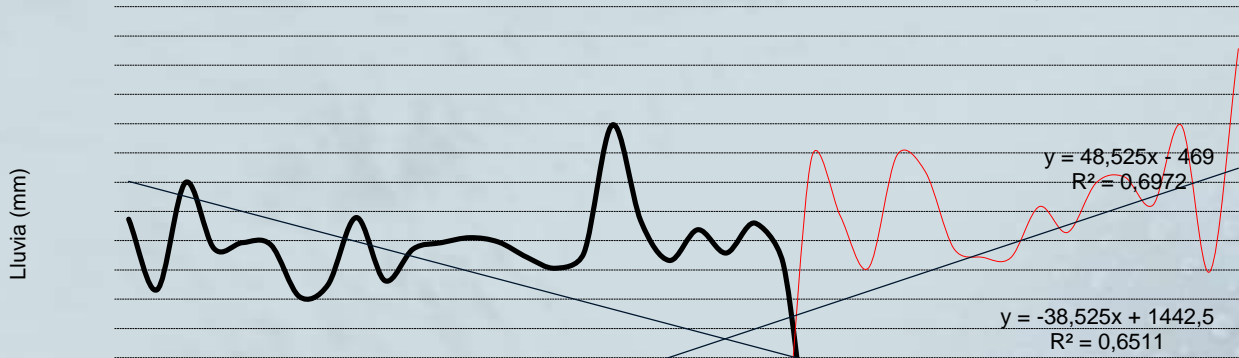
Flooding in Central America



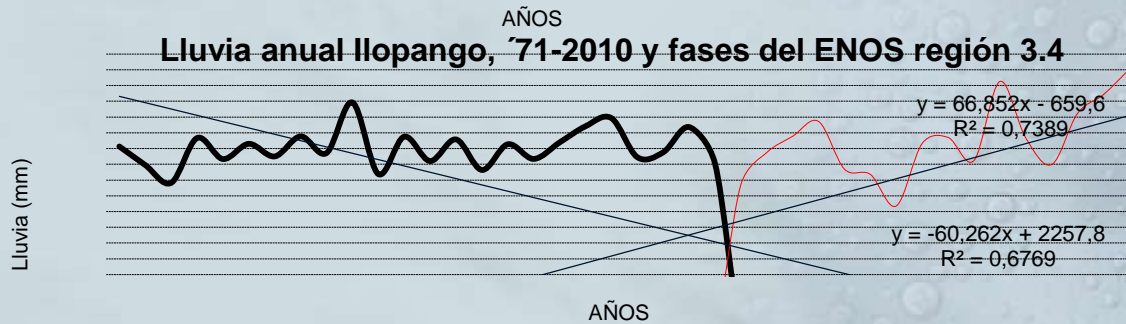
Source: ECLAC: "The Economics of Climate Change in Central America 2010"

Trends or extremes?

Lluvia anual Ciudad de Guatemala, '71-2010 y fases del ENOS región 3.4

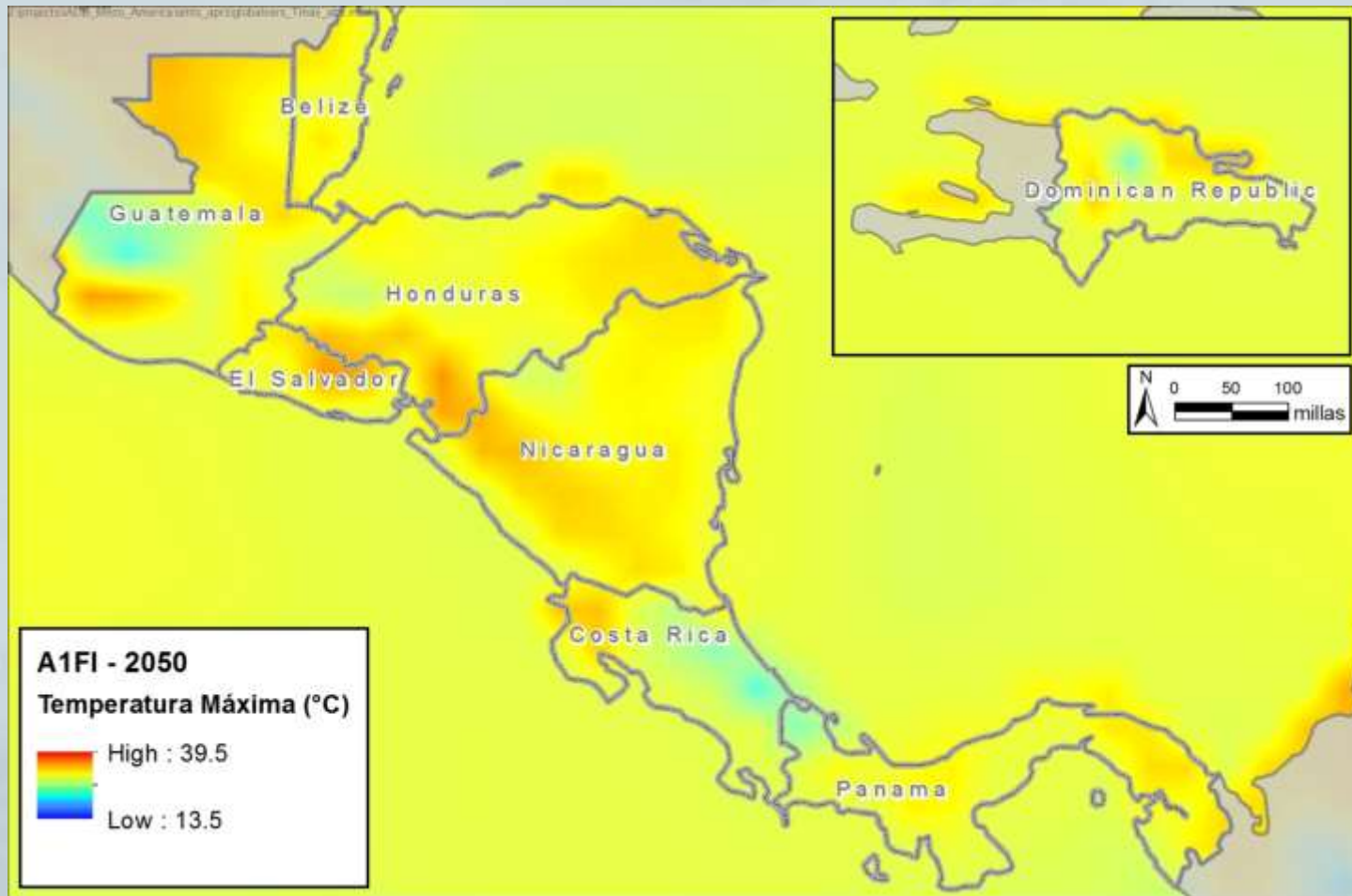


Lluvia anual Ilopango, '71-2010 y fases del ENOS región 3.4



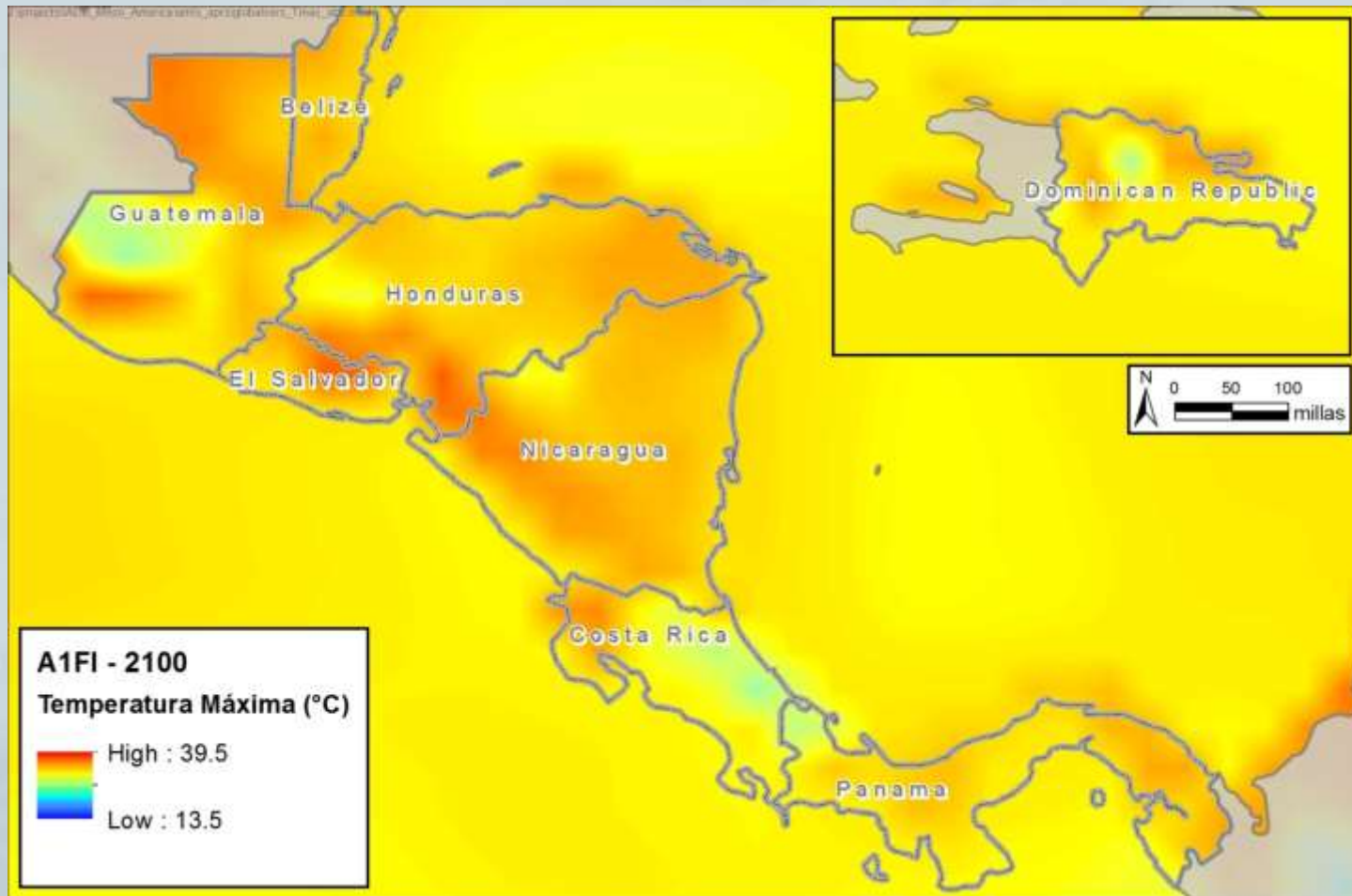
Temperature tendencies
in Guatemala City and
Ilopango, El Salvador,
1970 - 2010

Projection: maximum temperature (2050)



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Projection: maximum temperature (2100)

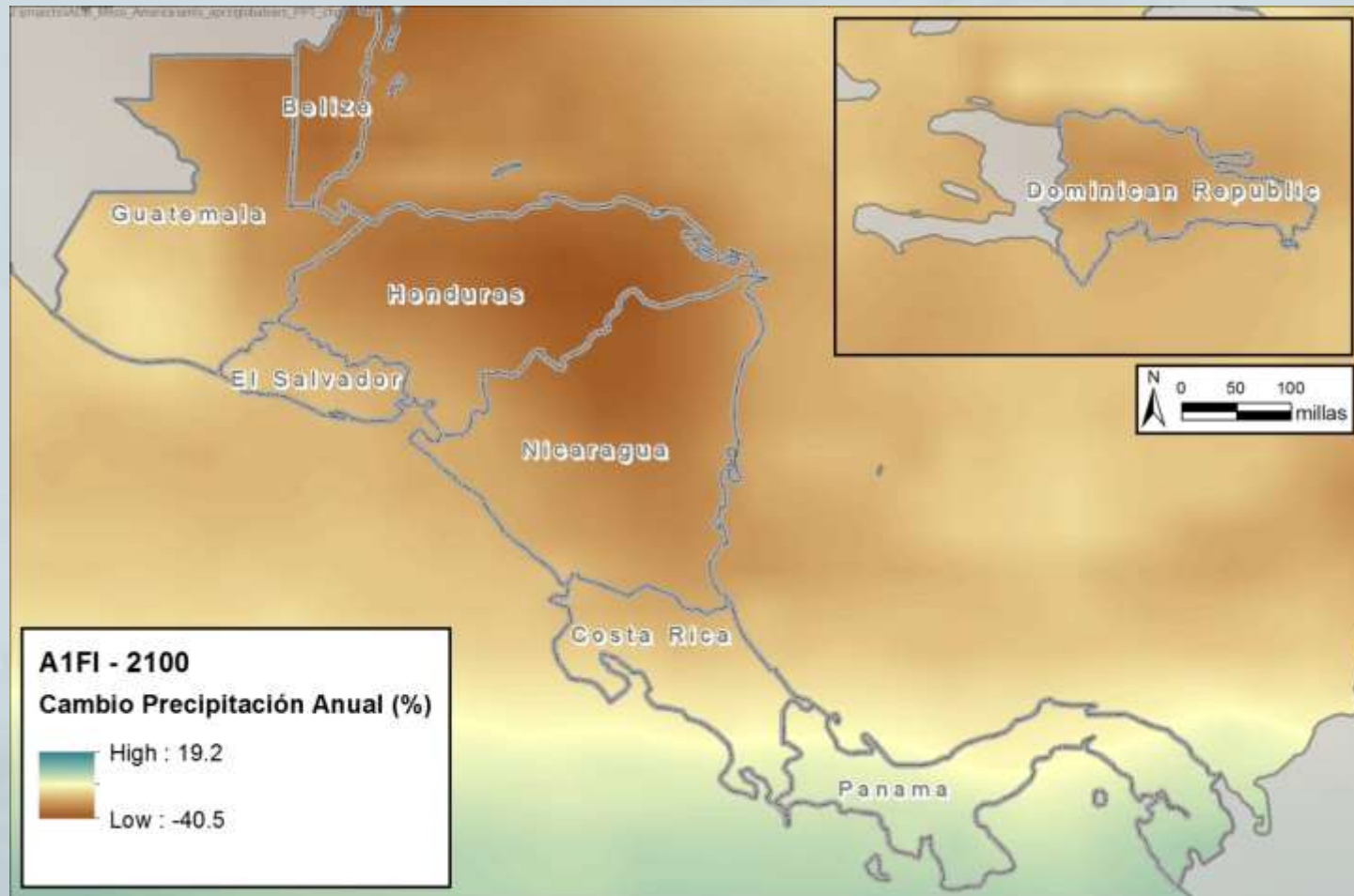


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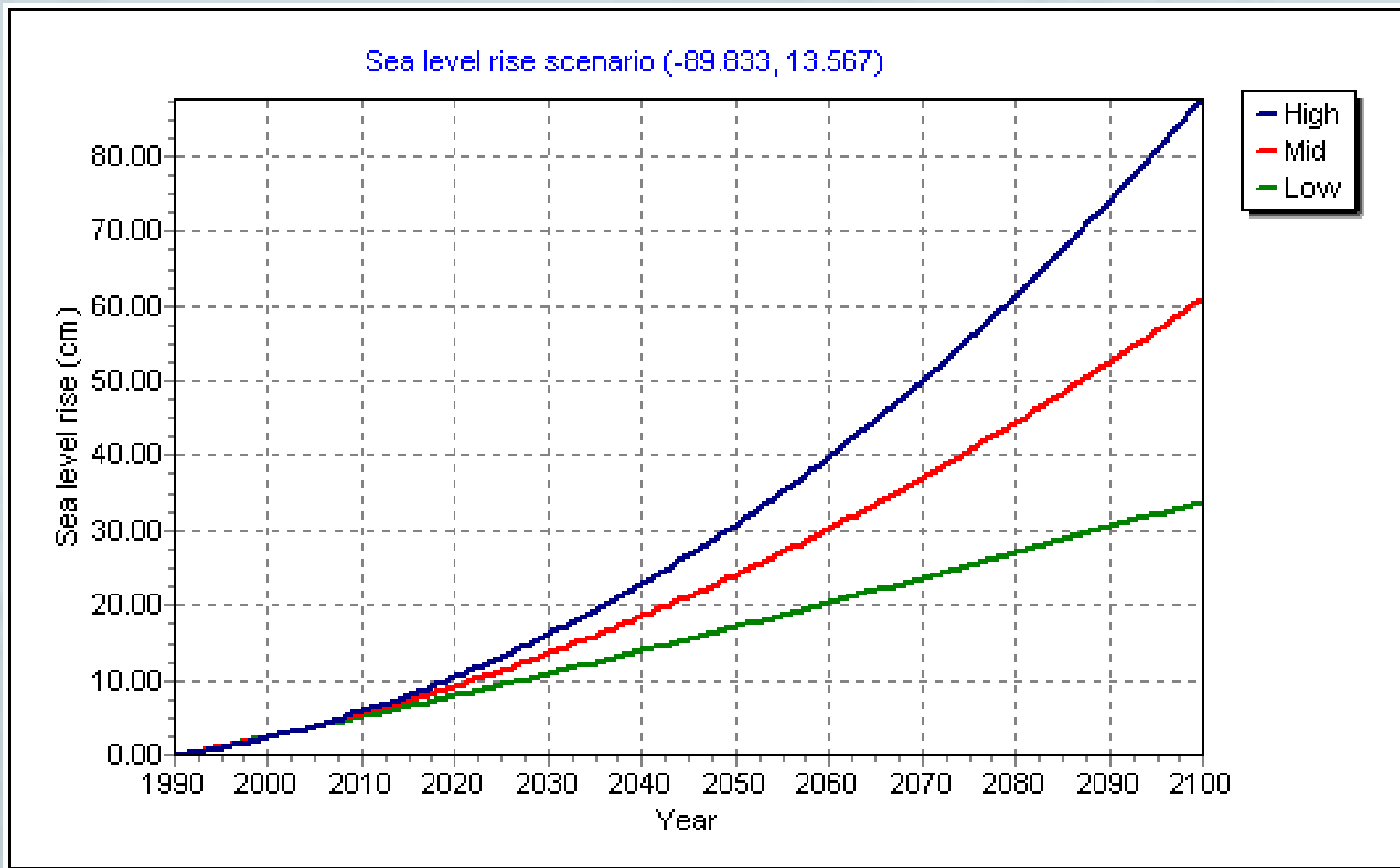
Projection: annual precipitation (2050)



Projection: annual precipitation (2100)



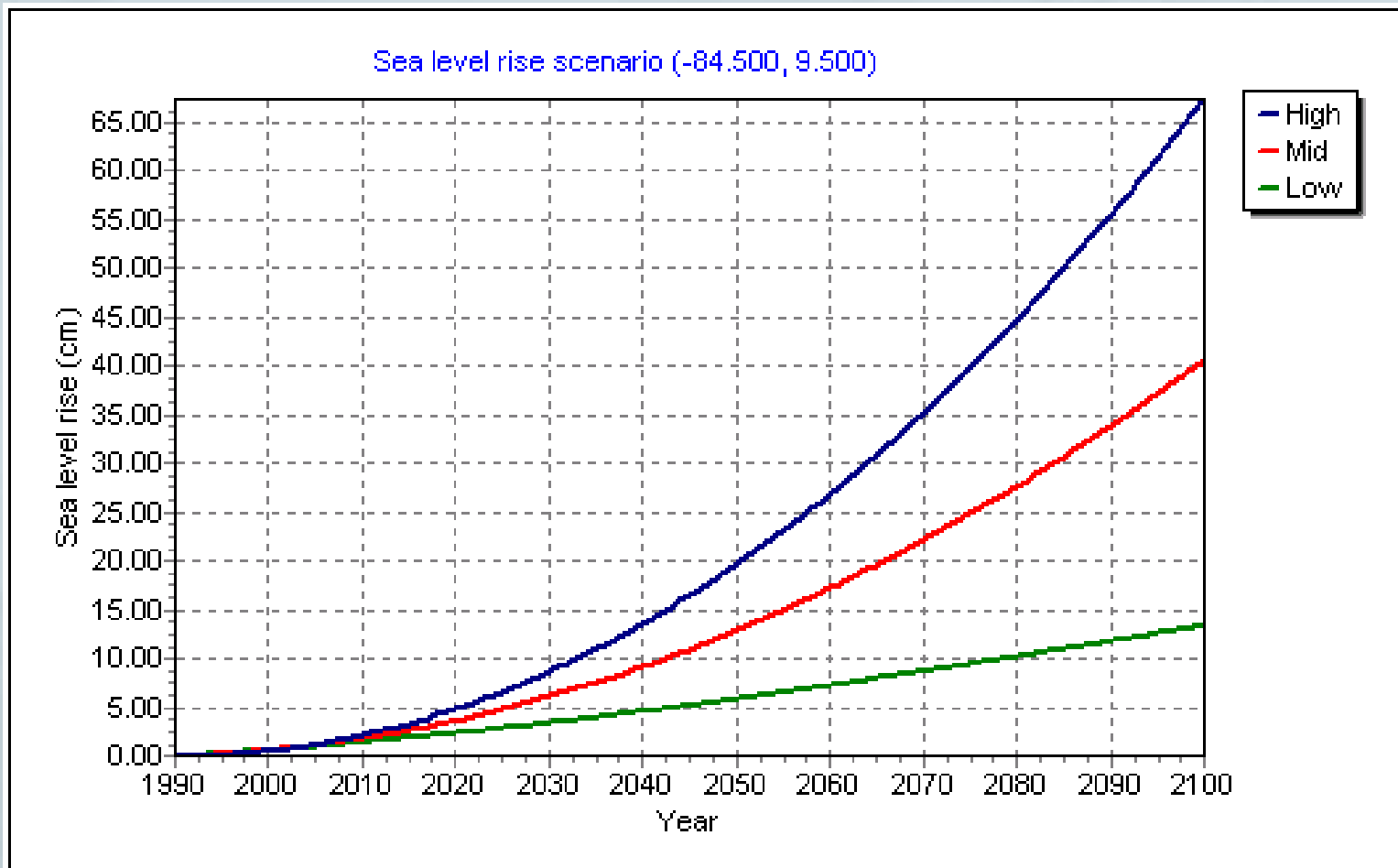
Sea level rise projection, El Salvador



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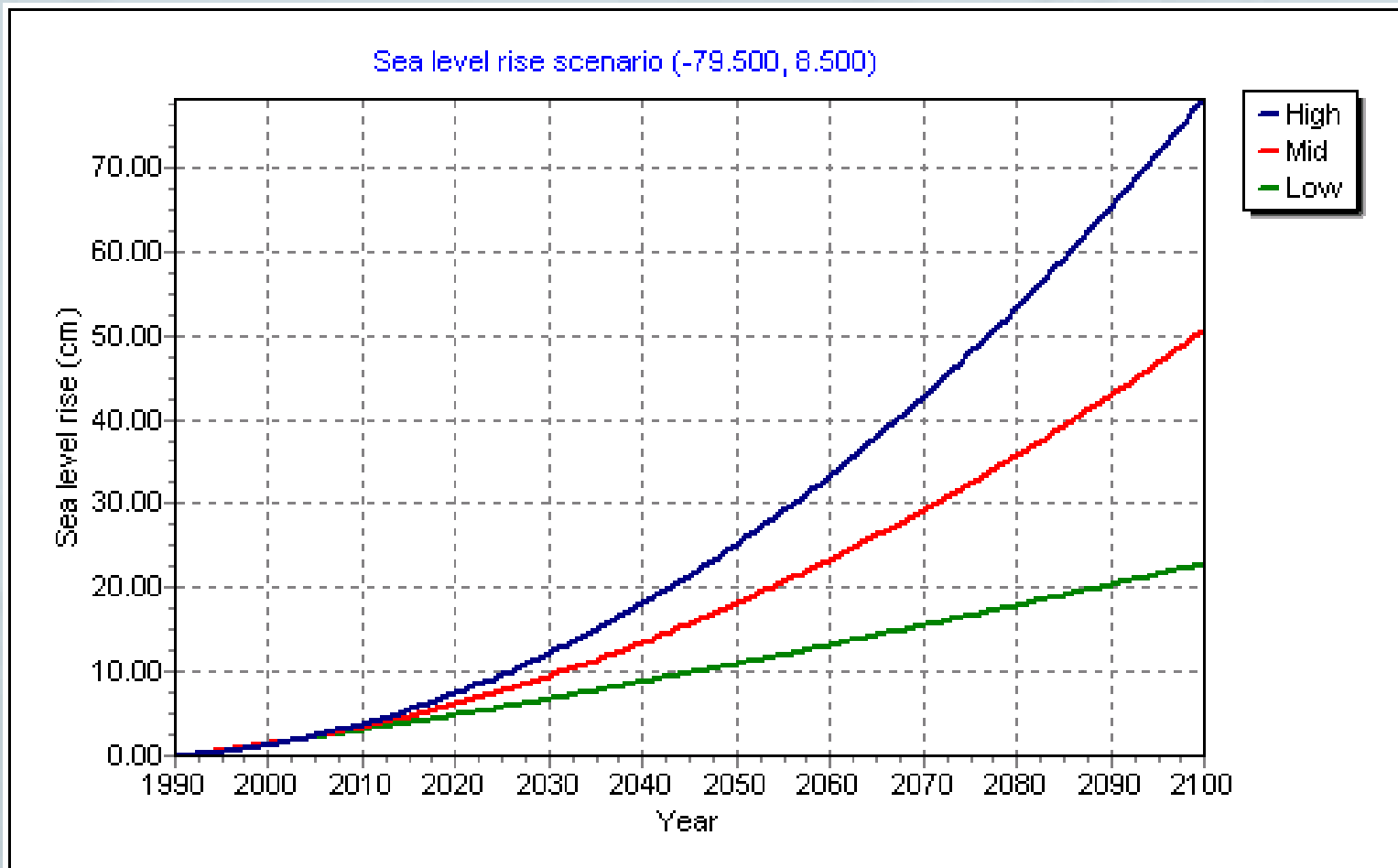
Sea level rise projection, Costa Rica

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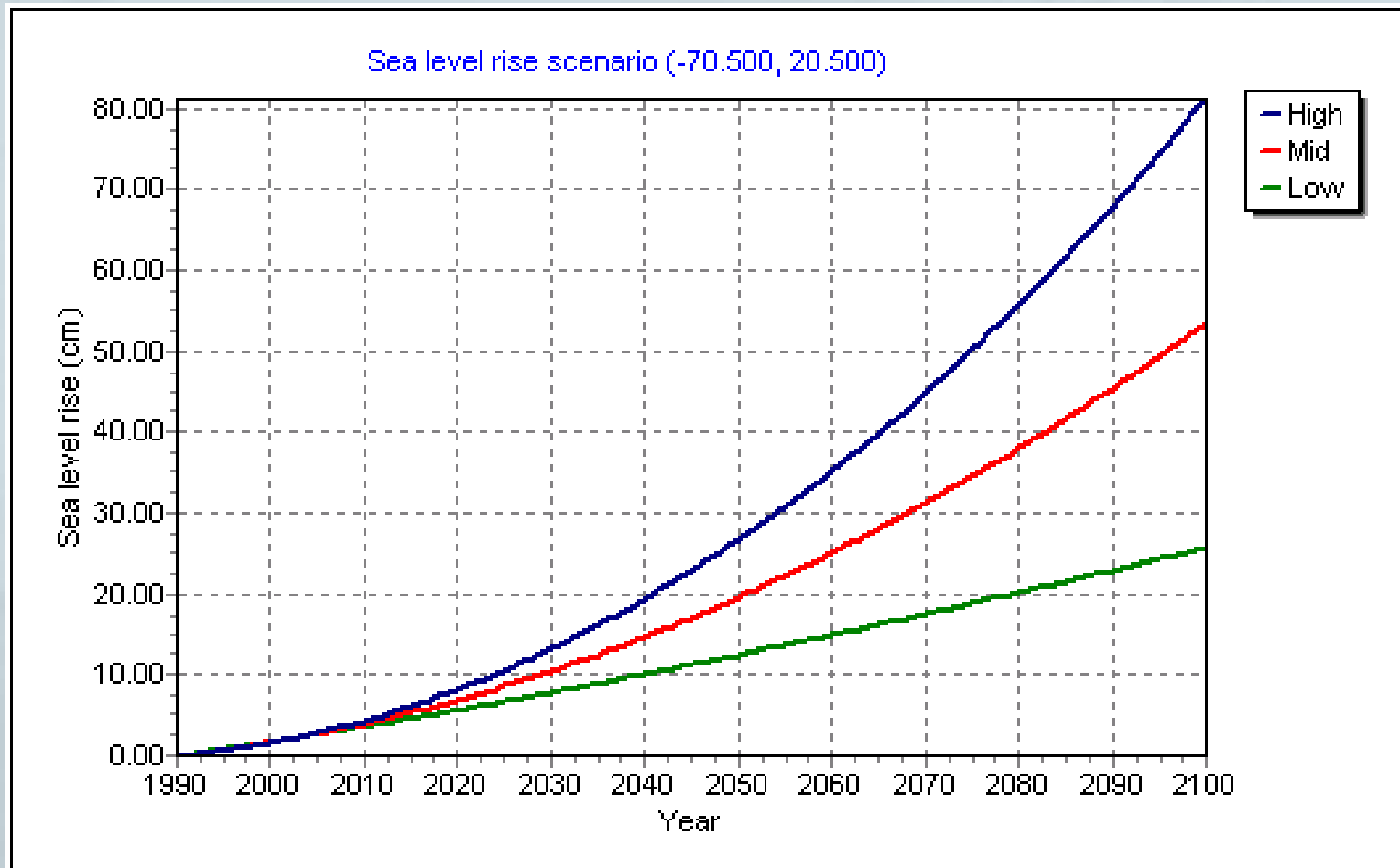
Sea level rise projection, Panama

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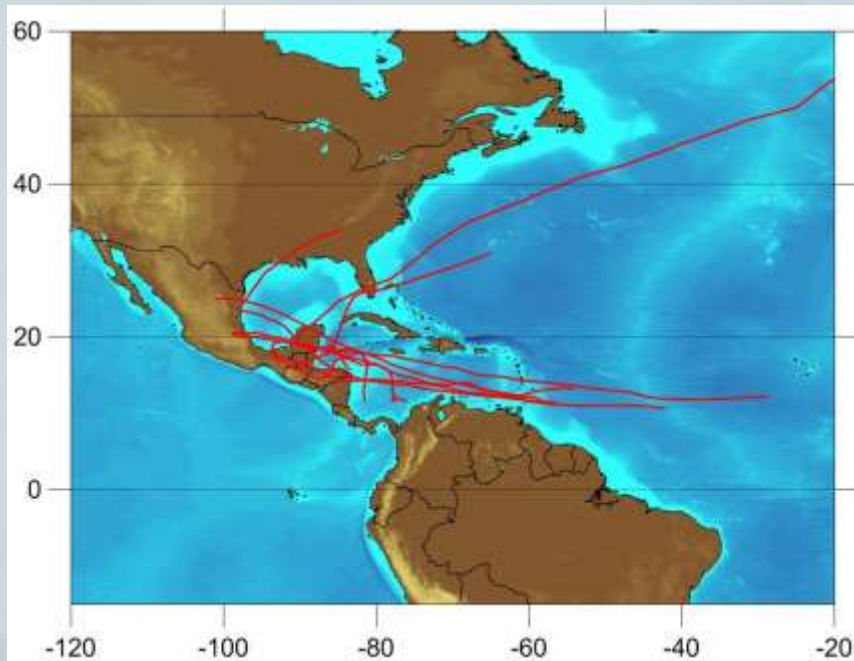


Sea level projection, Dominican Republic

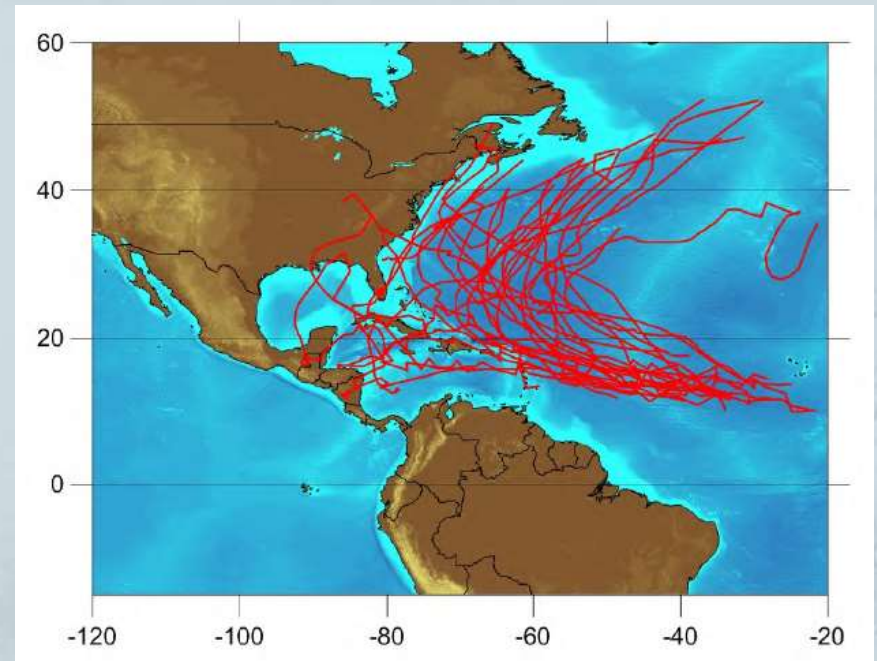
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Projections of Category 5 Hurricanes



Category 5 hurricanes (1965 – 2010)



Projections of category 5 hurricanes (2045 – 2055)

Projections of climate extremes

- ◆ The real threat to transport infrastructure are those caused by extreme weather events, such :
 - ◆ Storms and hurricanes
 - » Sea level rise and storm surges
 - » Intense precipitation (which produce floods, erosion, land slides, etc.)
 - » Extreme temperatures

Activities in the transport sector

- » The IPCC and the UNFCCC both recognize the important contribution of the transport sector to greenhouse gas emissions and climate change
- » Countries and sectors such as international aviation and marine transport are already taking actions to reduce these emissions
- » The financial mechanisms are already providing support for these activities, eg. NAMAs
- » Although some countries are undertaking vulnerability studies in this sector, very few are undertaking actions to reduce this vulnerability
- » The Central American region has initiated one of the first regional initiatives on adaptation in the transport sector with the support of the IDB

Climate Change and Transport Project

- ◆ **Funded by the IDB**
- ◆ **Implementation by Cambridge Systematics,**
 - » **Collaborating institutions: Cal y Mayor, CCCCC & Stratus Consulting**
 - » **Ministries of Transport and Climate Change of Central America and Dominican Republic**
- ◆ **Assessment of infrastructure, development of vulnerability assessment toolkit, capacity building, pilot assessment using approved toolkit**