Extreme weather early warning systems: bridging the climate science – health divide

Sally J Edwards

Advisor, Climate Change and Health

Pan American Health Organization
World Health Organization
Americas

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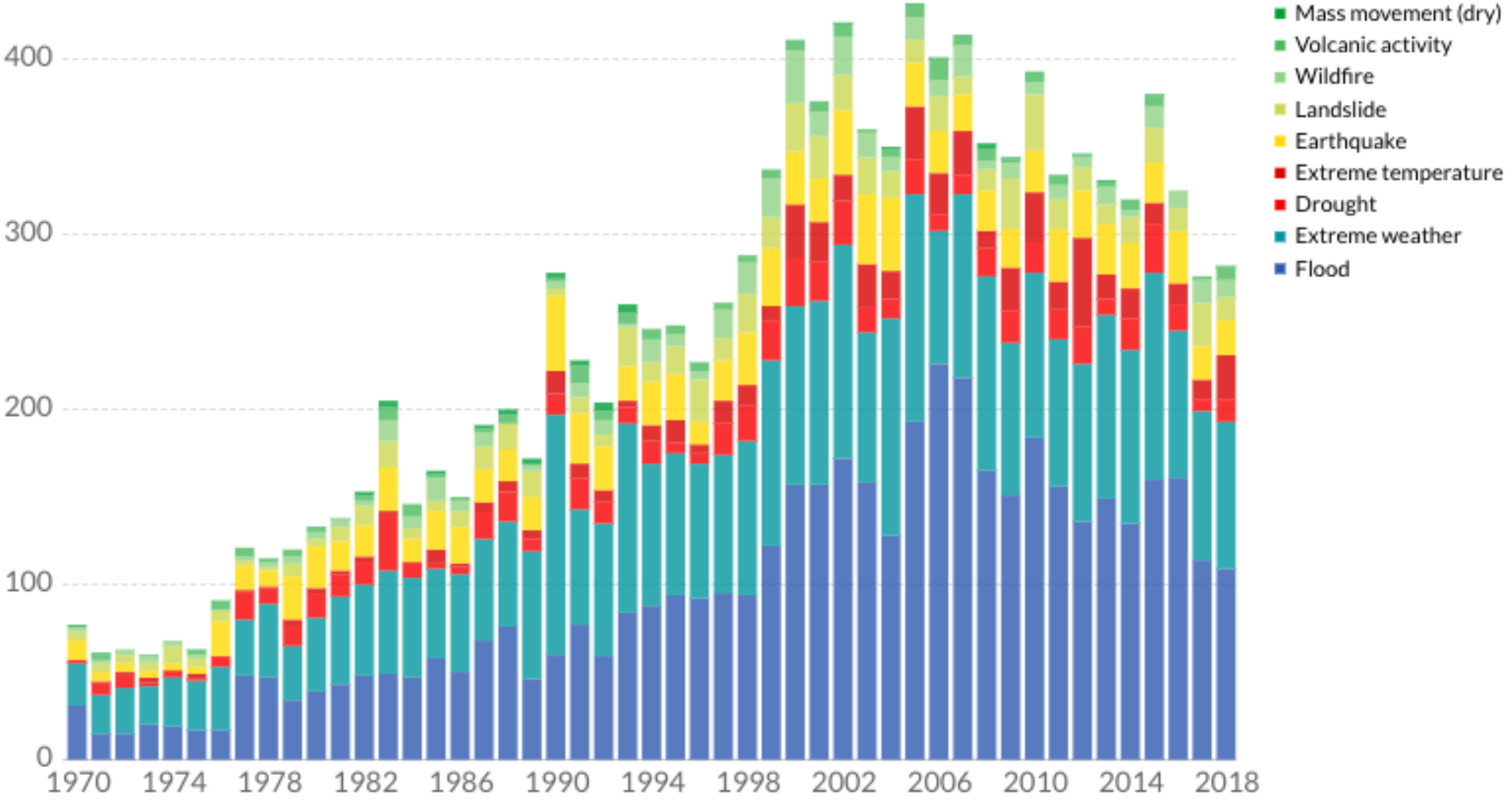
- Extreme weather events and health
- Early Warning systems
- PAHO / WHO response

Global reported natural disasters by type

The annual reported number of natural disasters, categorised by type. This includes both weather and non-weather related disasters.

Our World in Data

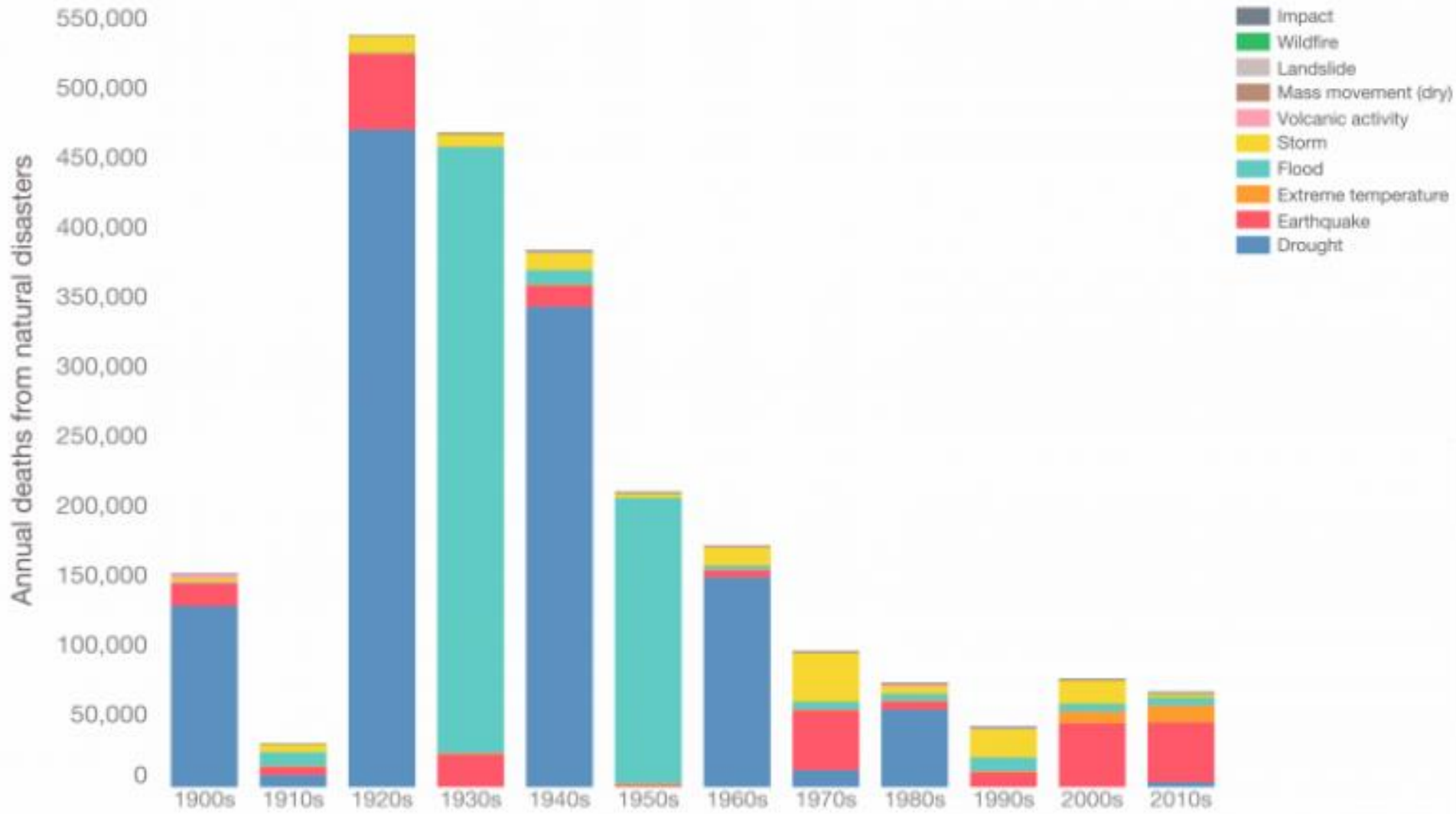


Source: EMDAT (2017): OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium

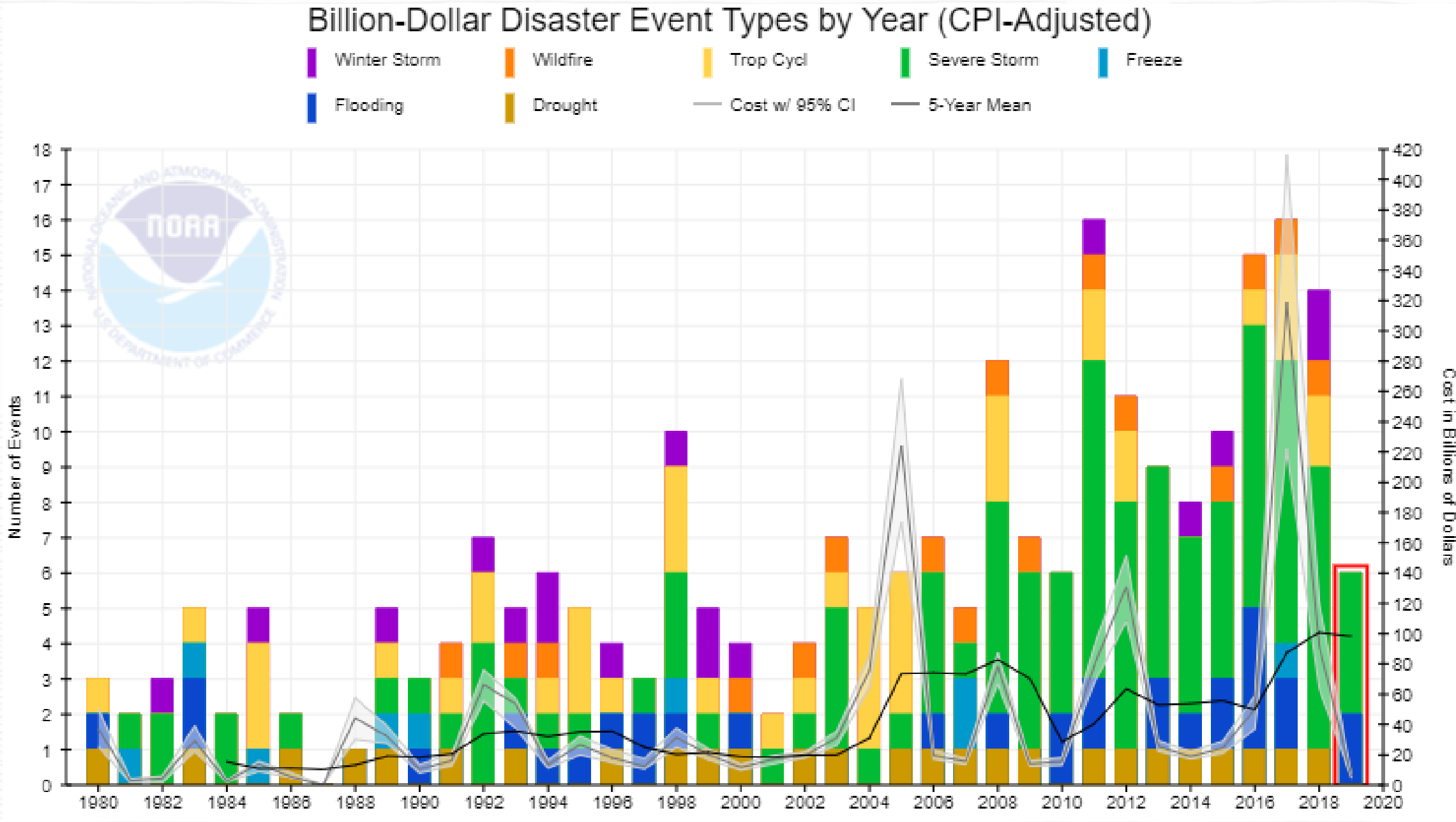
Global annual deaths from natural disasters, by decade

Our World in Data

Absolute number of global deaths from natural disasters, per year.
This is given as the annual average per decade (by decade 1900s to 2000s; and then six years from 2010-2015).



Source: EMDAT (2017): OFDA/CRED International Disaster Database, Université catholique de Louvain – Brussels – Belgium.
The data visualization is available at OurWorldinData.org. There you find research and more visualizations on this topic.



Source: NOAA, National Weather Service

Recent impacts of climate on health in the Americas

Wildfires

Drought, food and wáter insecurity

Changes in precipitation paterns and landslides

Hurricanes and tropical storms

Heatwaves

Vector borne disease outbreaks

Diseases transmitted through water

Severe storms

Air pollution

Sea level rise

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Extreme Weather Events

Intense precipitation

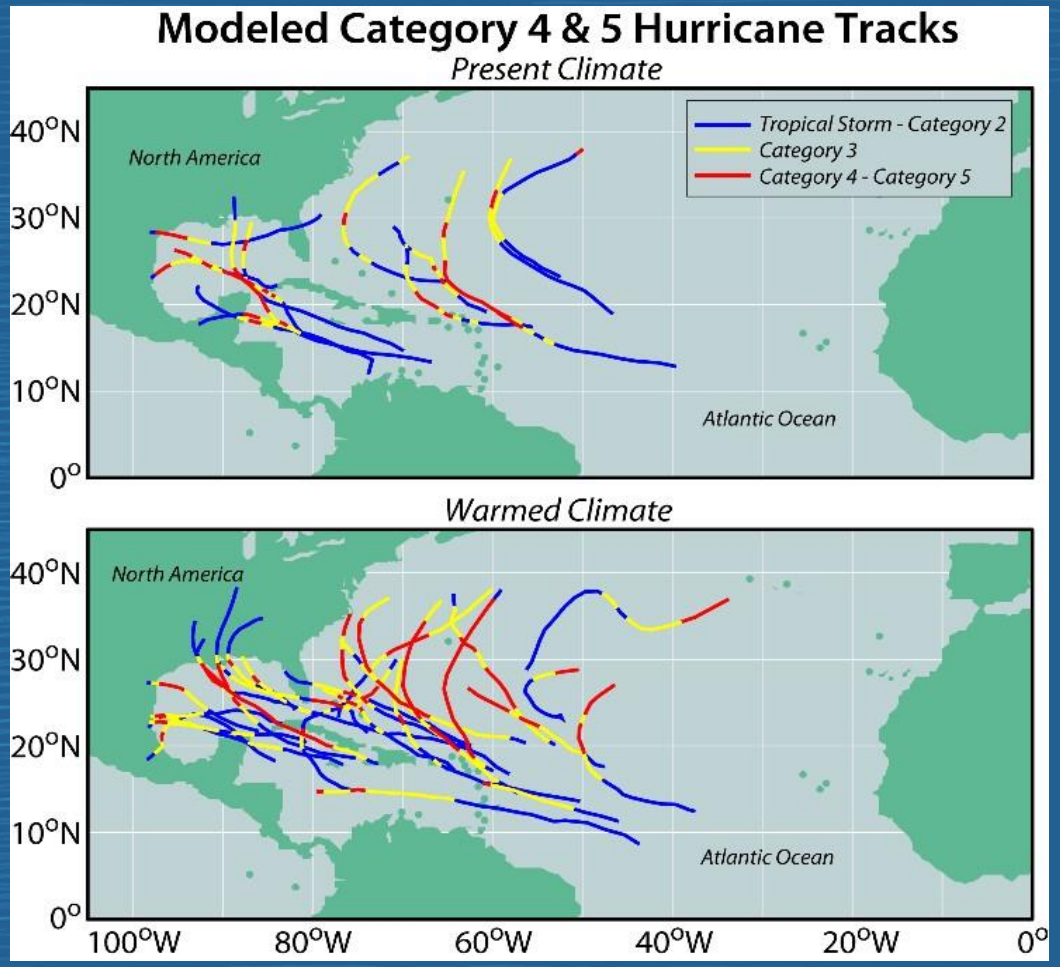
Peru – april 2017

>665,000 persons affected, >100,000 wounded, 79 deaths

>145,000 homes affected (>18,000 totally destroyed), 1,245km of roads & 159 bridges

Colombia (> 300 dead en 2017)

Other affected countries: Ecuador, Brazil,



Bender et al 2010. *Science*

Between 2004 & 2012 the region was affected by 62 tropical storms. By 2050, it is projected that these will increase in intensity and frequency.

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From global observations to local interventions

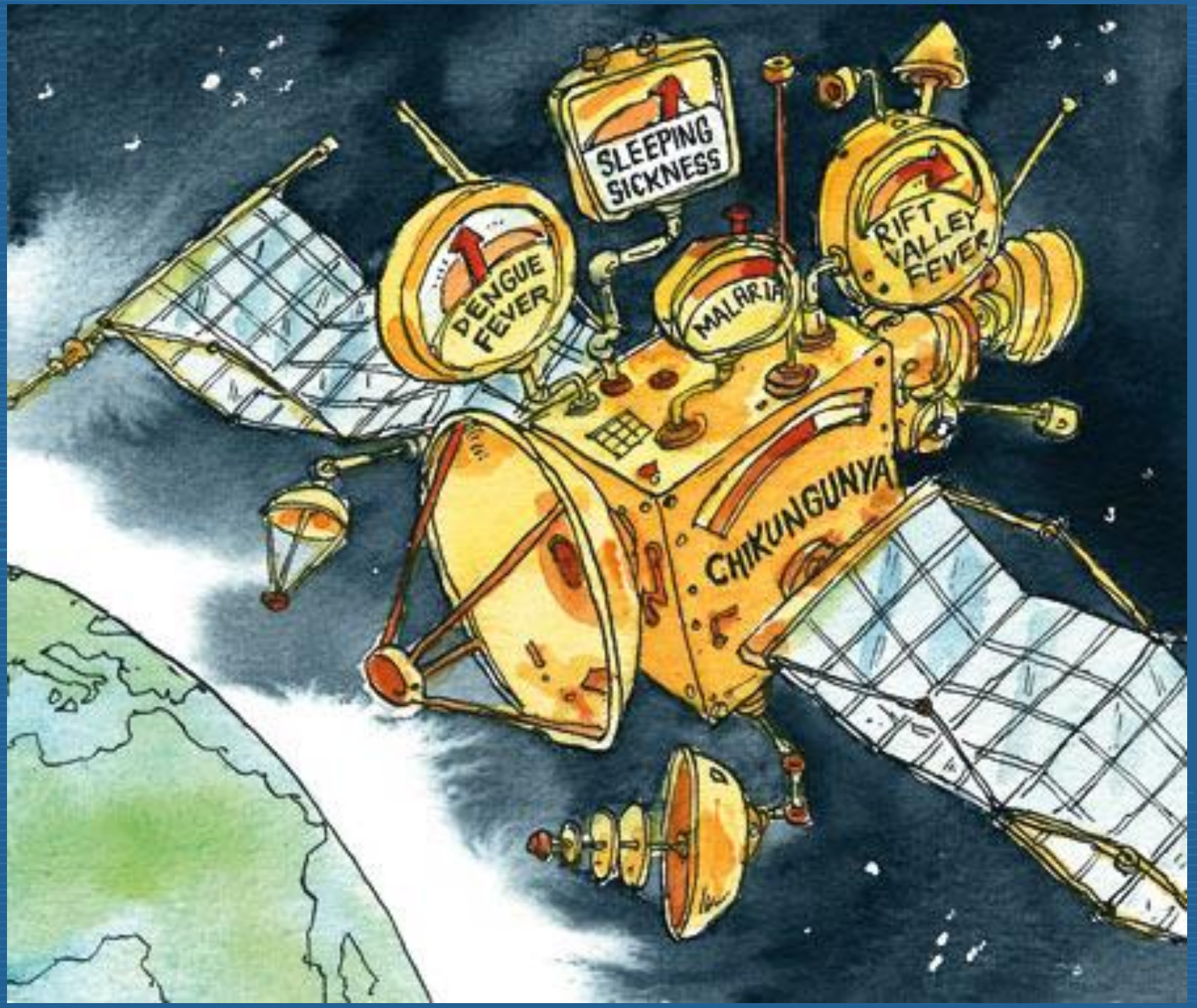

Illustration: David Simmons, The Economist

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Early warning systems

Early warning systems are means by which people receive **relevant** and **timely** information in a systematic way prior to an extreme weather event in order to make informed decisions and take action.

Early warning systems are timely surveillance systems that collect information on epidemic-prone diseases in order to trigger prompt public health interventions.

They rely on an in-depth review by epidemiologists of the data coming in

Statistics should be used to extract significant changes drowned in routine tables of weekly data.

https://www.who.int/csr/labepidemiology/projects/earlywarnsystem/en/

https://www.preparecenter.org/topics/early-warning-systems

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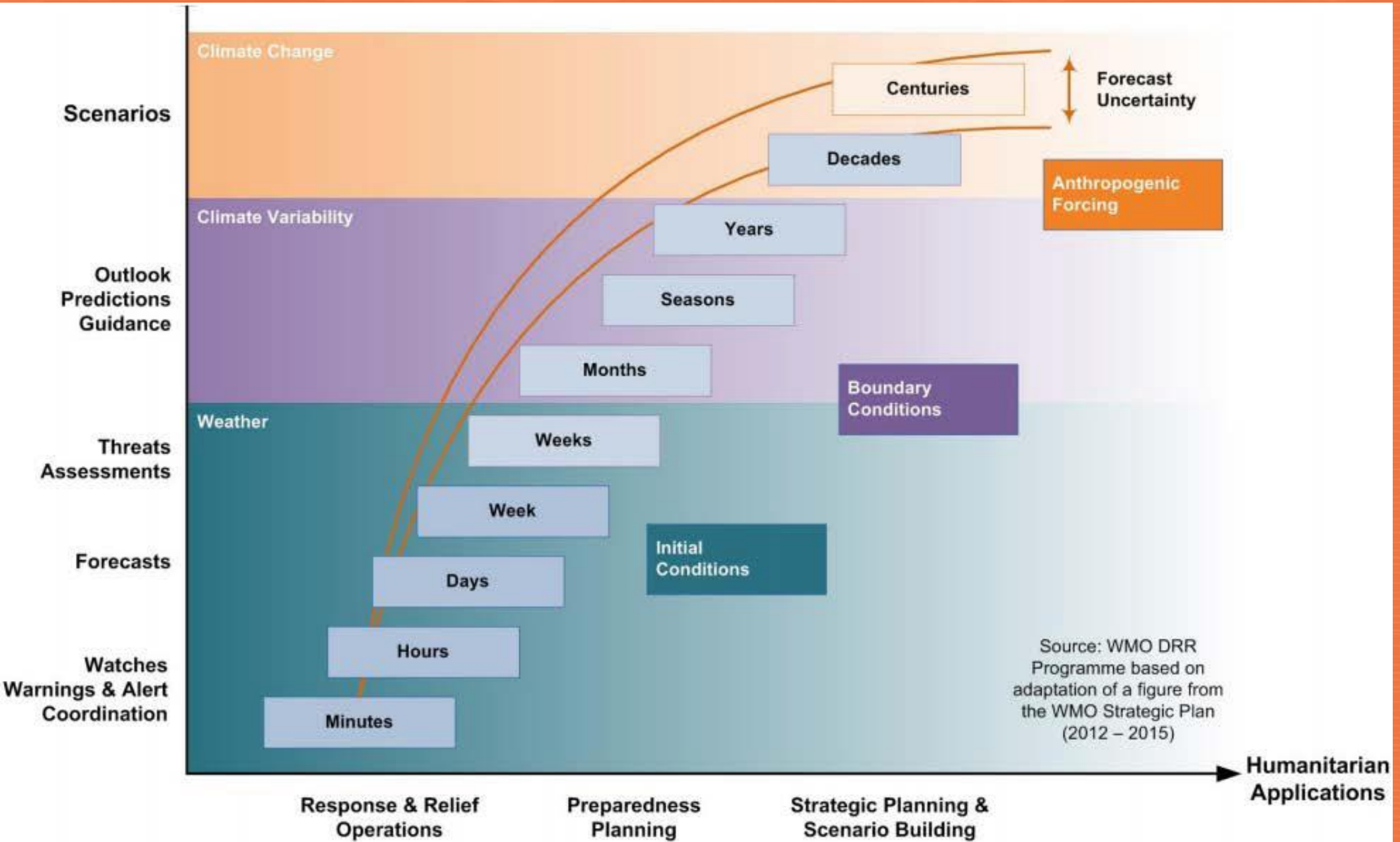
Time scales



Source: https://www.newsecuritybeat.org/2015/10/climate-data-critical-fragile-conflict-affected-states-heres/

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Climate services for health

- Transform climate information into relevant, usable decision-support tools
- Manage the risks of environmental change

Key components

- Partnership, Research, Product development & delivery, Evaluation, Capacity building
- Co-developed by health and climate professionals

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Caribbean Outlook Forum

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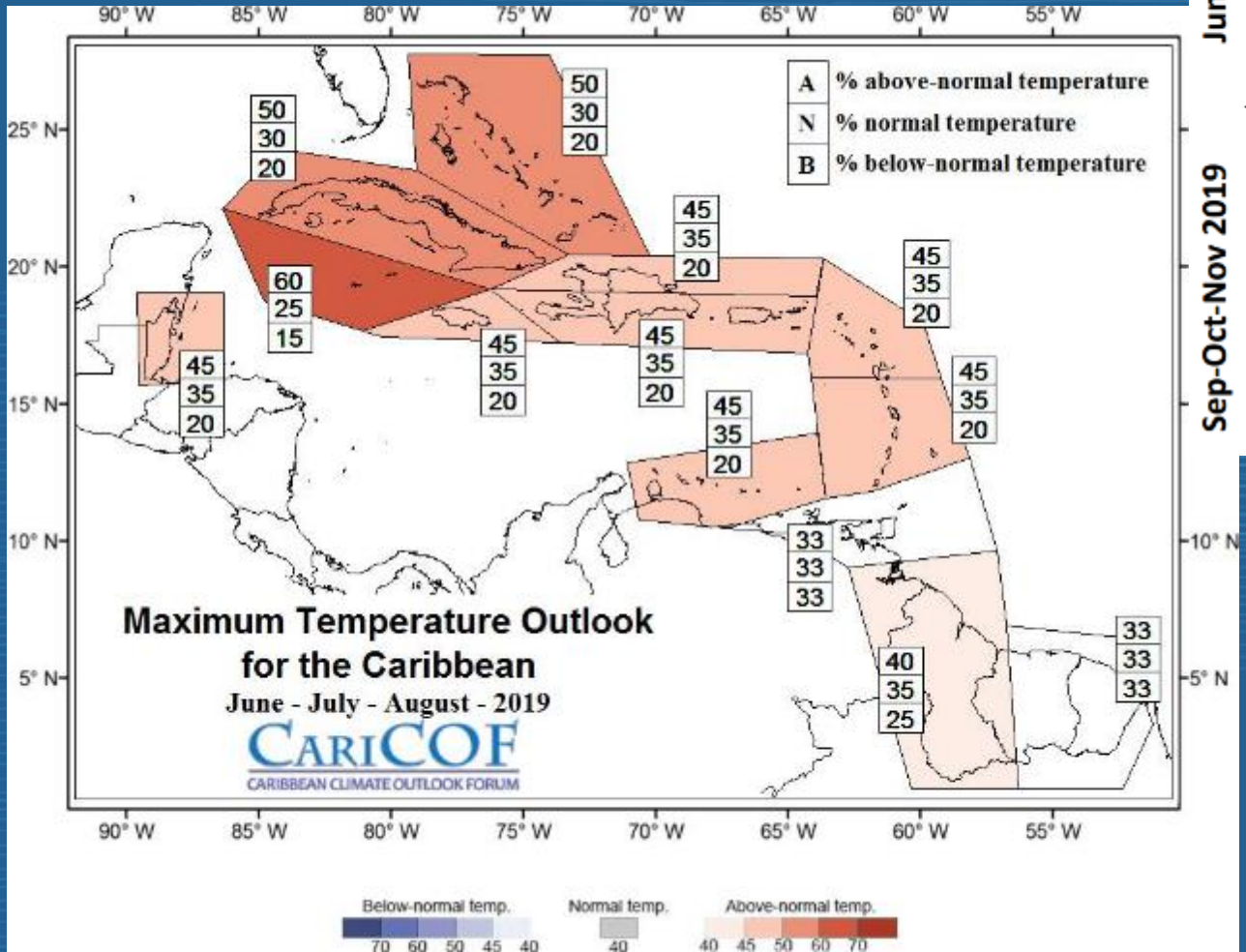
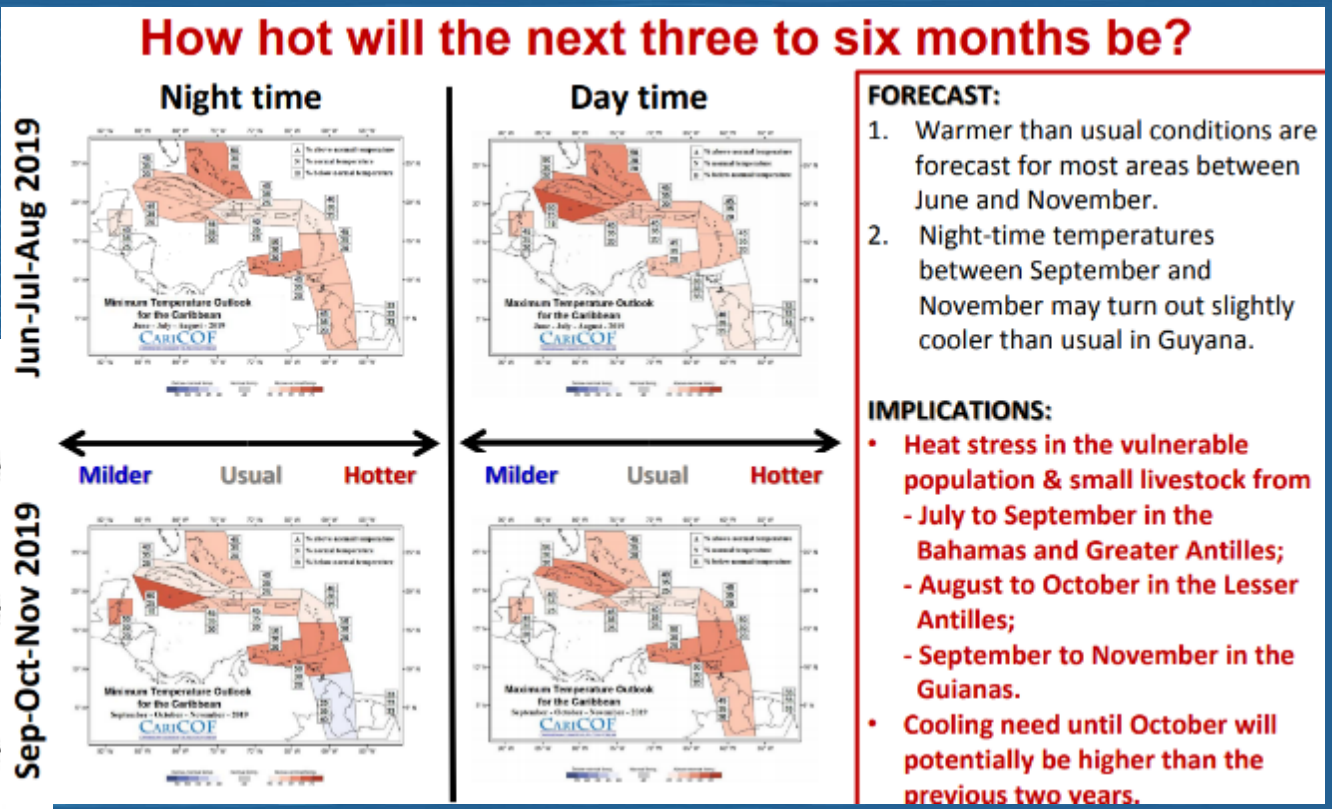
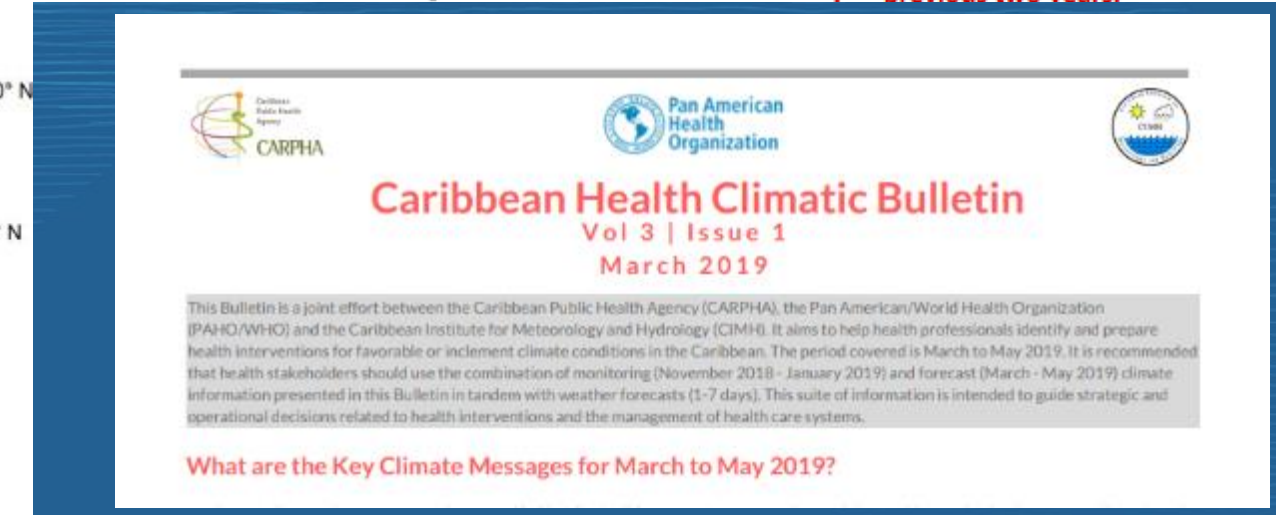
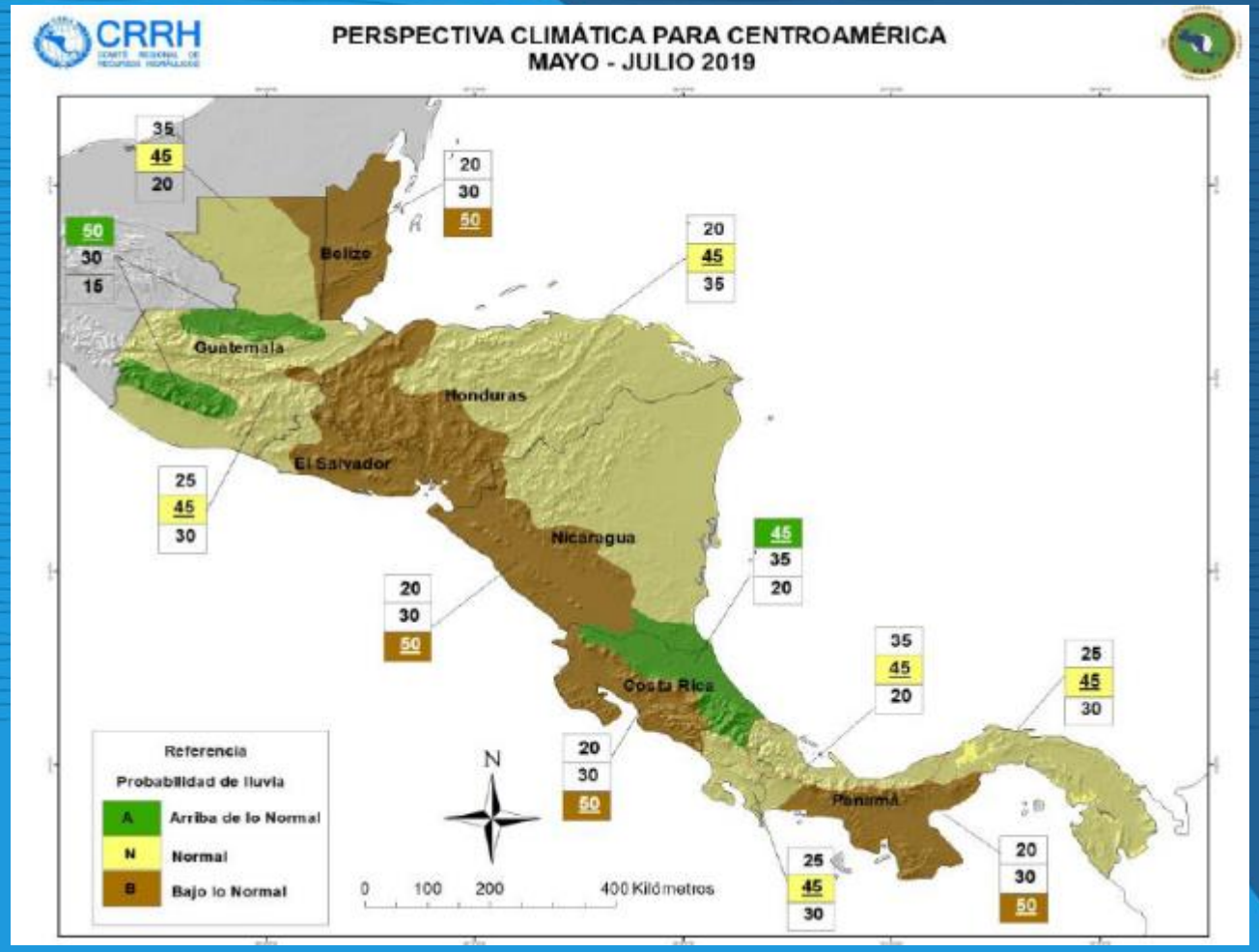






Central American Outlook Forum



- Precipitation
- Temperatures

- Agriculture
- Food security and Health
- Water
- Fisheries and aquaculture

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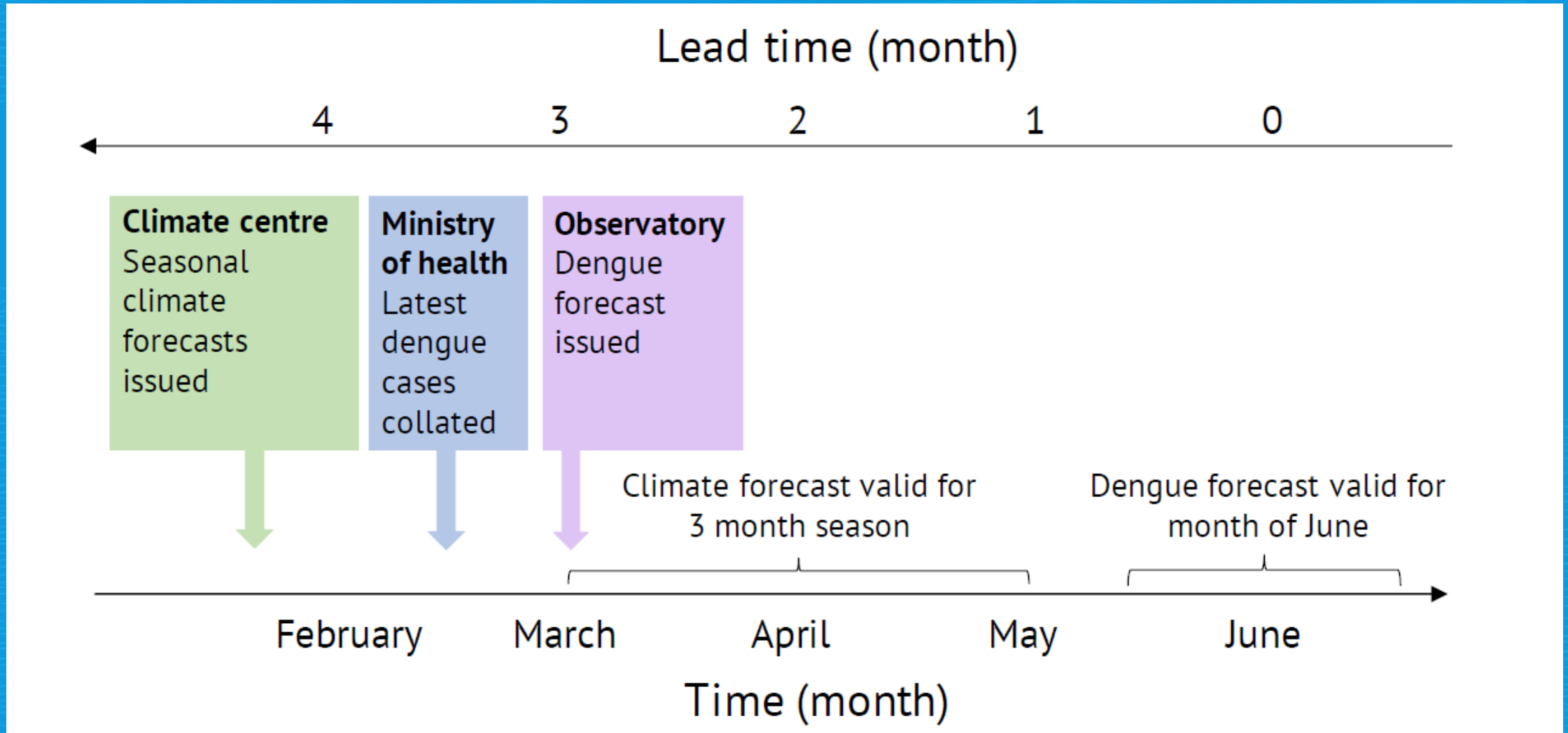
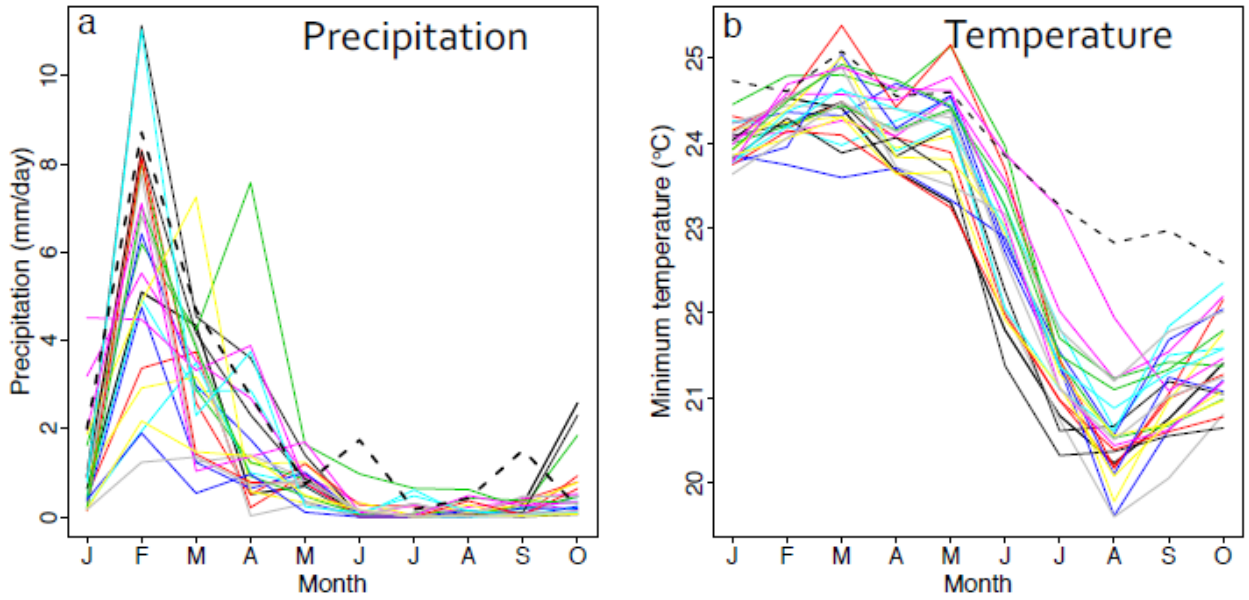
Early Warning Systems for Dengue



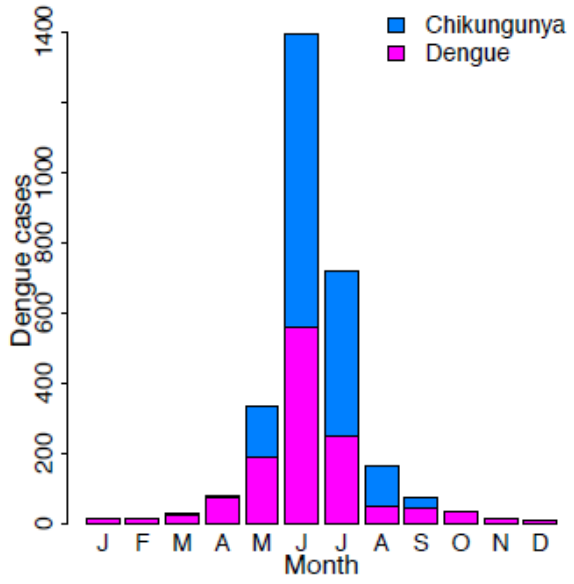
Source: Rachel Lowe & Anna Stewart

Sources of predictability

Timing



Magnitude



Seasonal climate forecasts

Active surveillance

Source: Rachel Lowe & Anna Stewart

Dengue in Barbados

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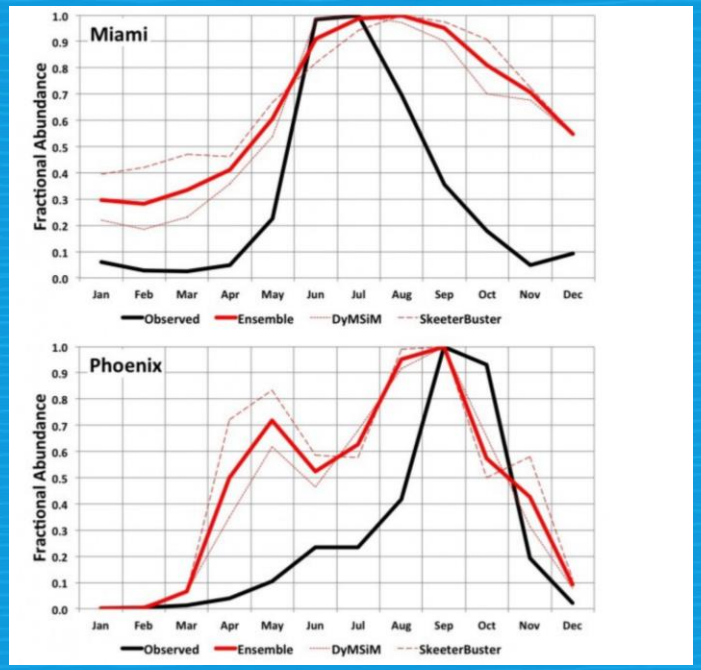
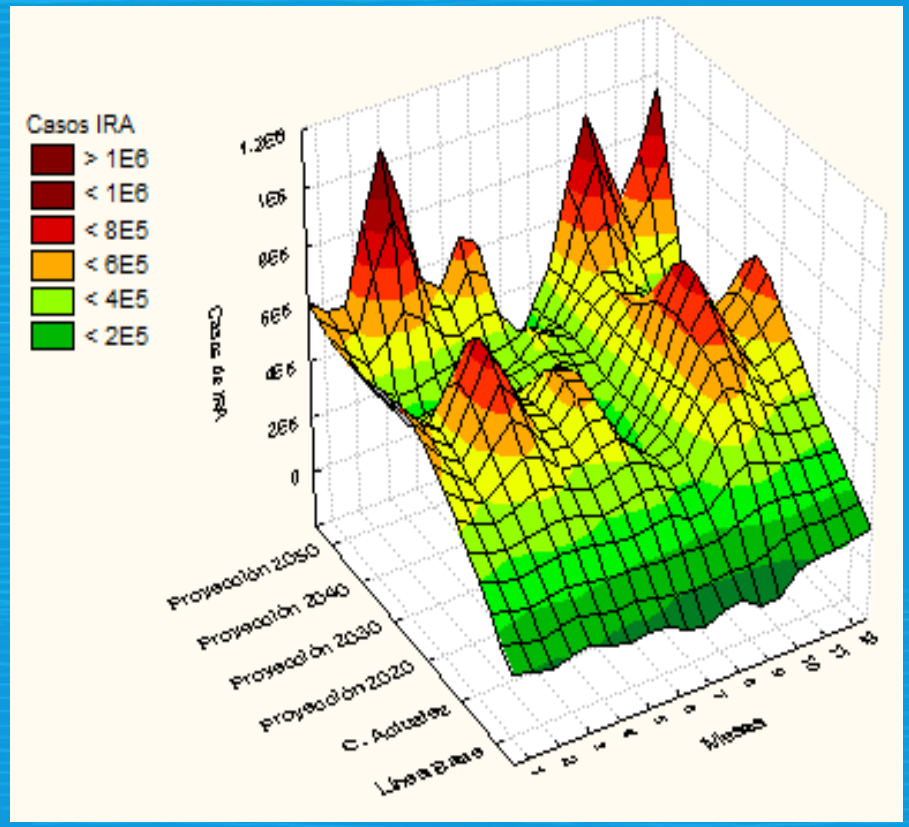
Findings

- Drought periods followed by warm & wet conditions could provide optimum conditions for imminent outbreaks
- Model predicted months with dengue outbreaks v non-outbreaks in most years, but last 2 years complicated by CHIKV & ZIKV introductions



Abundance of Aedes aegypti

Respiratory infections in Cuba



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Road Map

Health in the Americas 2017

Mitigation and Adaptation actions by the health sector


On reducing emissions:

- Assess the health system's emissions
- Reduce emissions of health-care facilities
- Monitor the hospitals' and health systems' climate footprint
- Identify environmentally friendly suppliers
- Implement green purchasing policies


On strengthening health system resilience:

- Develop vulnerability and adaptation assessment plans
- Map climate risks and vulnerable populations
- Prepare Early Warning Systems
- Implement emergency preparedness and disaster risk management plans


On Training:

- Train health personnel about the linkages between climate change and health
- Engage communities and prepare health literacy and health promotion programs
- Provide access to climate and health data to better inform scientists and the population

Intersectoral actions: co-benefits

Opportunities to improve health and reduce GHG emissions

On energy:

- Health need to be included in energy projects and policies
- Invest in clean energy and decarbonize the healthcare supply chain
- Advocate a rapid phase out of coal

On agriculture:

- Health need to be included in food and agricultural policies
- Follow and promote WHO healthy diets guidelines
- Promote agro-ecological and agroforestry systems

On transportation:

- Include health in transportation policies
- Improve public transportation, city planning, and infrastructures for walking and cycling.
- Measure city planning through a set of environmental and health indicators


On financing and governance:

- Develop a strategy to access climate finance in order to ensure financing for the health system to cope climate change risks
- Raise awareness about the linkages between climate change and human health among health organizations and communities
- Develop and update WHO climate and health country profiles
- Support multisectoral collaboration for climate action to maximize co-benefits and accomplish SDGs
- Consider all people while designing the interventions, giving adequate space for the more vulnerable groups to have their needs properly addressed as a priority

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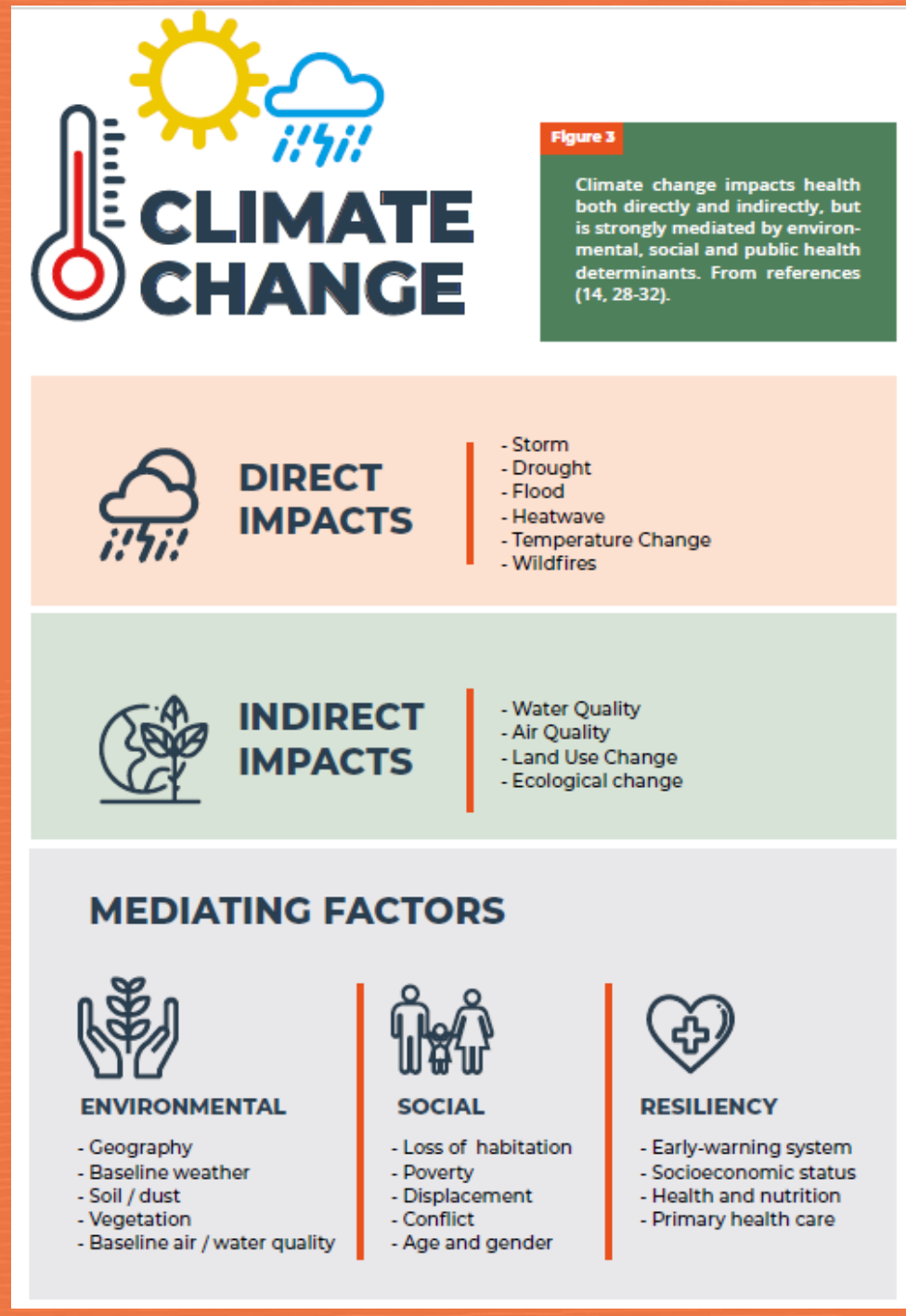
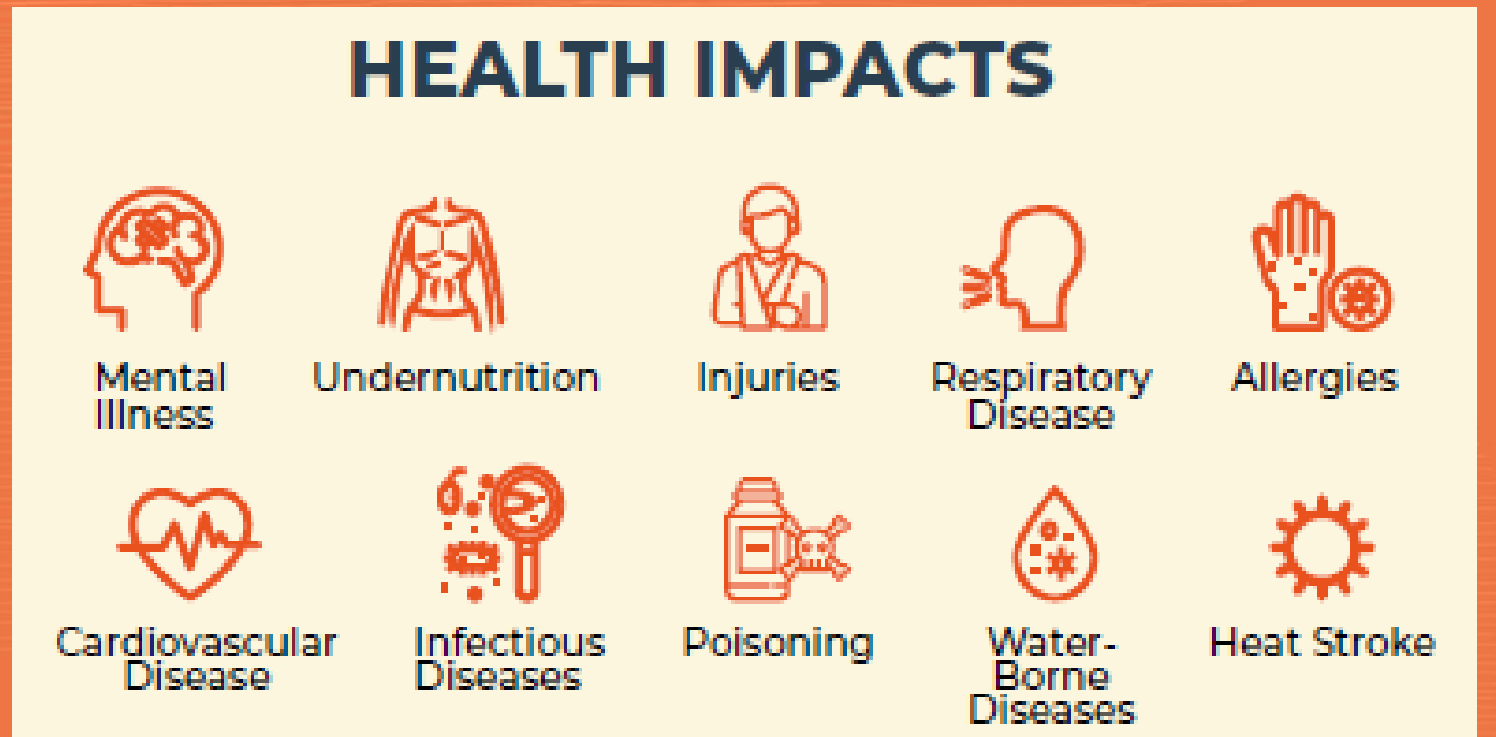
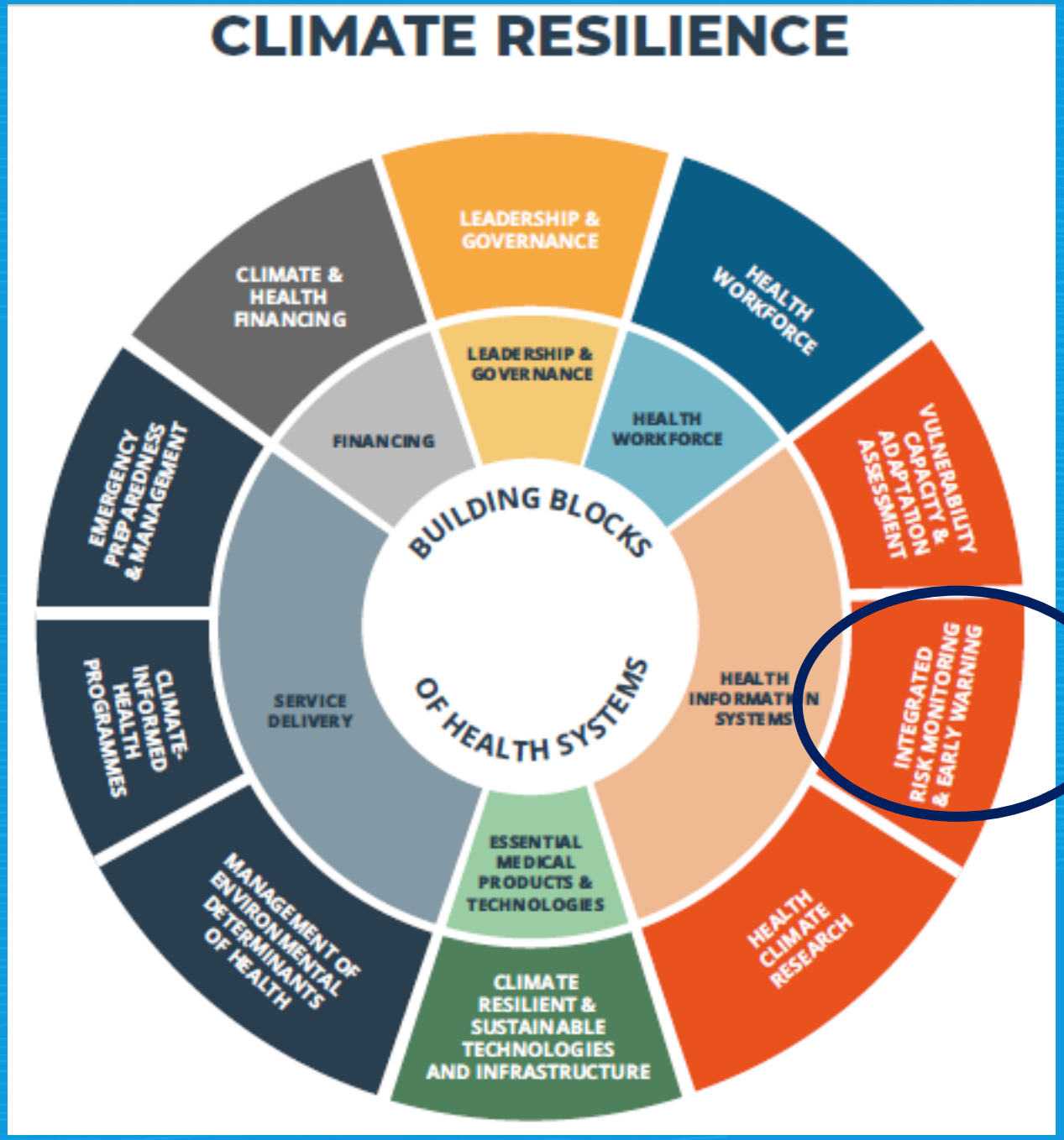
WHO COP24 Special Report on Health and Climate Change







WHO Operational Framework

Integrated Risk Monitoring and Early Warming

Heatwaves and Actions to be Taken – PAHO 2019

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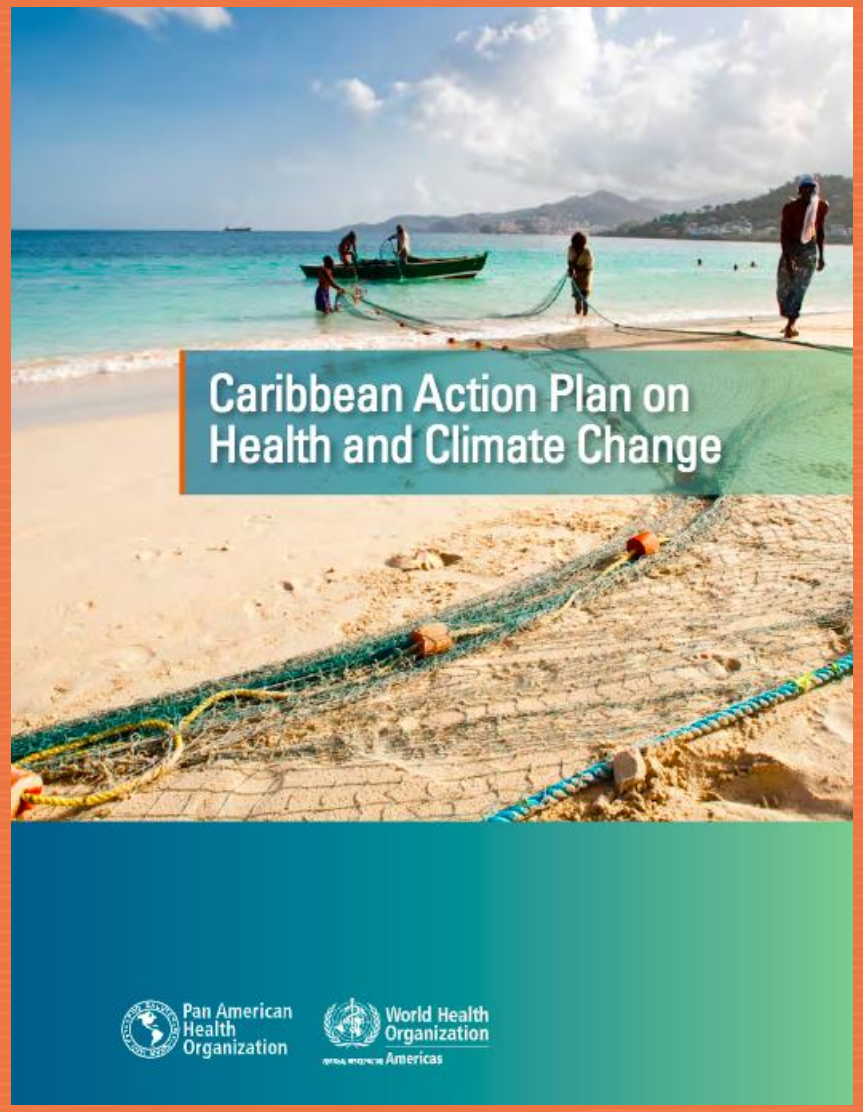
PAHO Action Plans on Climate and Health



Empowerment - Supporting health leadership in the Caribbean to engage nationally and internationally

Evidence – Understanding the impacts on health, preparing health systems and building the health argument for investments

Implementation – Preparedness for climate risks, building climate-resilient health systems and health-promoting mitigation policies

- Implement early warning systems for weather and climate-related diseases and conditions
- Develop and provide climateinformed health services
- Incorporate health in weather and climaterelated disaster preparedness, response and recovery plans

Resources – Facilitating access to climate and health finance

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Global Framework for Climate Services

WMO and WHO tackle health impacts of pollution, extreme weather, climate change

WMO/WHO Joint Office

THANK YOU!

Sally J Edwards
edwardss@paho.org