THE BAHAMAS

HEALTH & CLIMATE CHANGE

COUNTRY PROFILE 2021

Small Island Developing States Initiative

World Health Organization
United Nations Framework Convention on Climate Change
Pan American Health Organization / World Health Organization Americas
PAHO

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Acknowledgements

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EXECUTIVE SUMMARY

Despite producing very little greenhouse gas emissions that cause climate change, people living in small island developing States (SIDS) are on the front line of climate change impacts. These countries face a range of acute to long-term risks, including extreme weather events such as floods, droughts and cyclones, increased average temperatures and rising sea levels. Many of these countries already have a high burden of climate-sensitive diseases that may be exacerbated by climate change. Some of the nations at greatest risk are under-resourced and unprotected in the face of escalating climate and pollution threats. In recent years, the voice of the small island nation leaders has become a force in raising the alarm for urgent global action to safeguard populations everywhere, particularly those whose very existence is under threat.

Recognizing the unique and immediate threats faced by small islands, WHO has responded by introducing the WHO Special Initiative on Climate Change and Health in Small Island Developing States (SIDS). The initiative was launched in November 2017 in collaboration with the United Nations Framework Convention on Climate Change (UNFCCC) and the Fijian Presidency of the 23rd Conference of the Parties (COP23) to the UNFCCC, held in Bonn, Germany, with the vision that by 2030 all health systems in SIDS will be resilient to climate variability and climate change. It is clear, however, that, in order to protect the most vulnerable from climate risks and to gain the health co-benefits of mitigation policies, building resilience must happen in parallel with the reduction of carbon emissions by countries around the world.

The WHO Special Initiative on Climate Change and Health in SIDS aims to provide national health authorities in SIDS with the political, technical and financial support required to better understand and address the effects of climate change on health.

A global action plan has been developed by WHO that outlines four pillars of action for achieving the vision of the initiative: empowerment of health leaders to engage nationally and internationally; evidence to build the investment case; implementation to strengthen climate resilience; and resources to facilitate access to climate finance. In October 2018, Ministers of Health gathered in Grenada to develop a Caribbean Action Plan to outline the implementation of the SIDS initiative locally and to identify national and regional indicators of progress.

As part of the regional action plan, small island nations have committed to developing a WHO UNFCCC health and climate change country profile to present evidence and monitor progress on health and climate change.

This WHO UNFCCC health and climate change country profile for The Bahamas provides a summary of available evidence on climate hazards, health vulnerabilities, health impacts and progress to date in health sector efforts to realize a climate-resilient health system.

KEY RECOMMENDATIONS

1 ASSESS HEALTH VULNERABILITY, IMPACTS AND ADAPTIVE CAPACITY TO CLIMATE CHANGE

Conduct a national assessment of climate change impacts, vulnerability and adaptation for health. Ensure that results of the assessment are used for policy prioritization and the allocation of human and financial resources in the health sector.

2 DEVELOP A CLIMATE CHANGE AND HEALTH STRATEGIC ACTION PLAN FOR THE BAHAMAS

A climate change and health strategic action plan would help The Bahamas reduce its vulnerability to climate change. Ensuring that adaptation priorities are specified, health co-benefits from mitigation and adaptation measures are considered, necessary budget requirements are allocated and regular monitoring and review of progress will support its full implementation.

3 STRENGTHEN INTEGRATED RISK SURVEILLANCE AND EARLY WARNING SYSTEMS

The Bahamas, as a low-lying SIDS, is particularly vulnerable to the impacts of extreme weather events. Establish integrated risk surveillance for health risks, such as heat stress, vector-borne, waterborne and foodborne diseases, which include meteorological information.

4 BUILD CLIMATE-RESILIENT AND ENVIRONMENTALLY SUSTAINABLE HEALTH CARE FACILITIES

Measures can be taken to prevent the potentially devastating impacts of climate change on health service provision, including; conducting hazard assessments, climate-informed planning and costing, strengthening structural safety, contingency planning for essential systems (electricity, heating, cooling, ventilation, water supply, sanitation services, waste management and communications). A commitment towards low-emission, sustainable practices to improve system stability, promote a healing environment and to mitigate climate change impacts can also be taken.

5 ADDRESS BARRIERS TO ACCESSING INTERNATIONAL CLIMATE CHANGE FINANCE TO SUPPORT HEALTH ADAPTATION

The lack of country eligibility has been identified as a barrier to accessing international funding. Additional funding would help to further the implementation of policies and to expand risk surveillance and early warning systems.

WHO RESOURCES TO SUPPORT ACTION ON THESE KEY RECOMMENDATIONS:
https://www.who.int/activities/building-capacity-on-climate-change-human-health/toolkit/

BACKGROUND

The Bahamas is an archipelago formed of over 700 islands in the Atlantic Ocean; less than 30 of these islands are occupied by people *(1)*. The climate of The Bahamas is tropical marine, with hurricanes often affecting the nation *(2)*. Five per cent of the world's coral and the world's third largest barrier reef are located in The Bahamas. These natural wonders are a key draw for tourists, resulting in an economy highly reliant on tourism; the service industry (mostly comprising tourism) constitutes around 90% of the economy. The islands of The Bahamas are largely flat, with approximately 80% of the land being less than 1.5 m above sea level. Furthermore, the majority of the population live along the coast *(1)*. Poverty rates vary across The Bahamas, with regional disparities in the proportion of people living below the poverty line *(3)*.

The Bahamas' reliance on tourism, low-lying land, and high concentration of coastal inhabitants makes it particularly vulnerable to climate change. Climate-related risks of particular concern include sea level rise, extreme weather events (especially tropical storms), rising temperatures, and changing precipitation patterns. These represent significant threats to human health; notably, forced displacement from sea level rise; saltwater intrusion of groundwater aquifers; loss of livelihoods; spread of infectious diseases; and death and injury from extreme weather events.

The contribution of The Bahamas to global greenhouse gas emissions is negligible (0.01%), yet it is already feeling the impacts of climate change. Tropical storms, such as Hurricane Dorian in 2019, can leave devastation in their paths. Despite its minimal contribution to global greenhouse gas emissions, The Bahamas still commits in its Nationally Determined Contribution (NDC) to reducing its 2030 emissions by 30% compared with its business-as-usual trajectory. Adaptation is absolutely essential in The Bahamas. Protection of its marine environment is highlighted in the NDC as a key means of adaptation, in providing natural protection to the islands. The Bahamas NDC also outlines potential adaptation actions specifically to protect health and wellbeing: educating health personnel and the public about the links between climate change and health, and ensuring that national emergency measures account for climate-related health risks (such as heat stress and vector-borne diseases) *(4)*.

HIGHEST PRIORITY CLIMATE-SENSITIVE HEALTH RISKS FOR THE BAHAMAS

Direct effects	
Health impacts of extreme weather events	✔
Heat-related illness	
Indirect effects	
Water security and safety (including waterborne diseases)	
Food security and safety (including malnutrition and foodborne diseases)	✔
Vector-borne diseases	✔
Air pollution	✔
Allergies	
Diffuse effects	
Mental/psychosocial health	✔
Noncommunicable diseases	✔
Mitigation actions to reduce emissions through sustainable procurement	
Mitigation measures to reduce emissions of health facilities	✔
Mitigation measures by coordinating with other sectors	

Source: Adapted and updated from the PAHO *Health and Climate Country Survey 2017 (5).*

CLIMATE HAZARDS RELEVANT FOR HEALTH

Climate hazard projections for The Bahamas

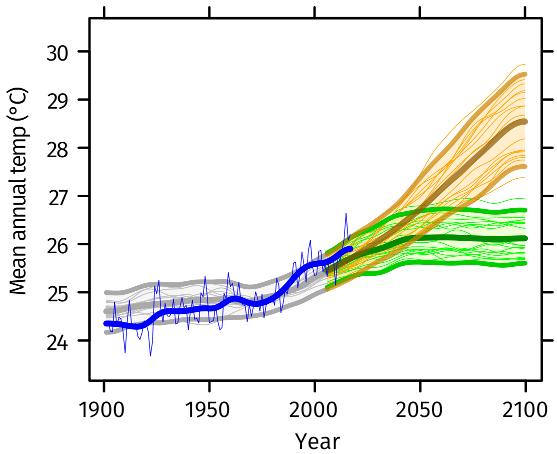
Country-specific projections are outlined up to the year 2100 for climate hazards under a 'business as usual' high emissions scenario compared to projections under a 'two-degree' scenario with rapidly decreasing global emissions (see Figures 1–5).

The climate model projections given below present climate hazards under a high emissions scenario, Representative Concentration Pathway 8.5 (RCP8.5 – in orange) and a low emissions scenario (RCP2.6 – in green).[a] The text describes the projected changes averaged across about 20 global climate models (thick line). The figures[b] also show each model individually as well as the 90% model range (shaded) as a measure of uncertainty and the annual and smoothed observed record (in blue).[c] In the following text the present-day baseline refers to the 30-year average for 1981–2010 and the end-of-century refers to the 30-year average for 2071–2100.

Modelling uncertainties associated with the relatively coarse spatial scale of the models compared with that of small island States are not explicitly represented. There are also issues associated with the availability and representativeness of observed data for such locations.

Rising in temperature

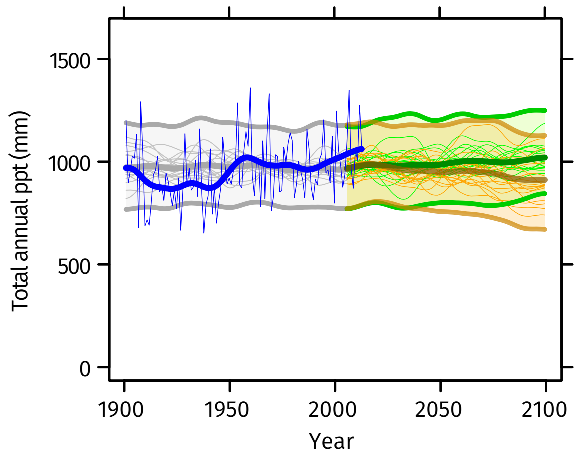
FIGURE 1: Mean annual temperature, 1900–2100



Under a high emissions scenario, the mean annual temperature is projected to rise by about 3°C on average by the end of the century (i.e. 2071–2100 compared with 1981-2010). If emissions decrease rapidly, the temperature rise is limited to about 0.9°C.

Little change in total precipitation

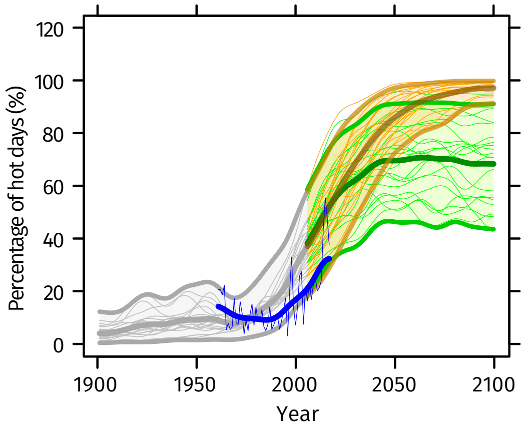
FIGURE 2: Total annual precipitation, 1900–2100



Total annual precipitation is projected to decrease by about 5% on average under a high emissions scenario, although the uncertainty range is large (-17% to +8%). If emissions decrease rapidly, there is little projected change on average: an increase of 4% with an uncertainty range of -4% to +13%.

More high temperature extremes

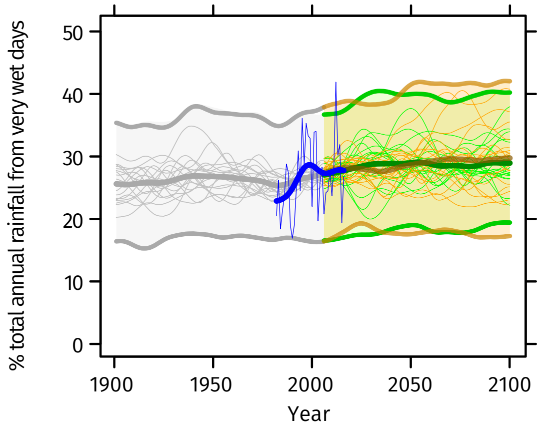
FIGURE 3: Percentage of hot days ('heat stress'), 1900–2100



The percentage of hot days[d] is projected to increase substantially from about 15% of all observed days on average in 1981–2010 (10% in 1961–1990). Under a high emissions scenario, almost 100% of days on average are defined as 'hot' by the end of the century. If emissions decrease rapidly, about 70% of days on average are 'hot'. Note that the models overestimate the observed increase in hot days (about 25% of days on average in 1981–2010 rather than 15%). Similar increases are seen in hot nights[d] (not shown).

Small increase in extreme rainfall

FIGURE 4: Contribution to total annual rainfall from very wet days ('extreme rainfall' and 'flood risk'), 1900–2100

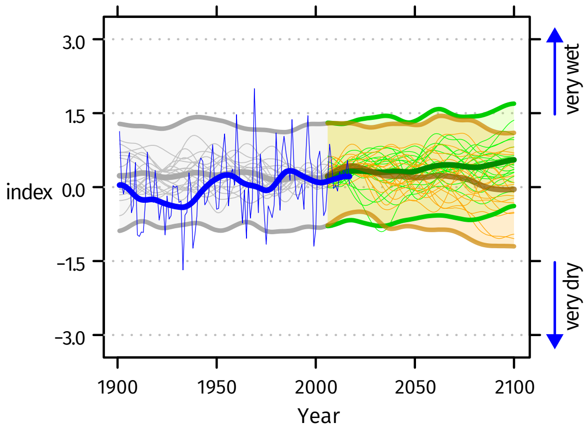


Under a high emissions scenario, the proportion of total annual rainfall from very wet days[e] (about 25% for 1981–2010) could increase a little by the end of the century (to about 30% on average with an uncertainty range of about 15% to 40%), with similar change if emissions decrease rapidly. These projected changes are accompanied by little or no change in total annual rainfall (see Figure 2).

FIGURE 5: Standardized Precipitation Index ('drought'), 1900–2100

The Standardized Precipitation Index (SPI) is a widely used drought index which expresses rainfall deficits/excesses over timescales ranging from 1 to 36 months (here 12 months, i.e. SPI12).[f] It shows how at the same time extremely dry and extremely wet conditions, relative to the average local conditions, change in frequency and/or intensity.

SPI12 values show little projected change from about 0.2 on average, though year-to-year variability remains large. A few models indicate larger decreases (more frequent/intense dry/drought events), particularly under a high emissions scenario, or increases (more frequent/intense wet events), particularly if emissions decrease rapidly.[f]



NOTES

[a] Model projections are from CMIP5 for RCP8.5 (high emissions) and RCP2.6 (low emissions). Model anomalies are added to the historical mean and smoothed.

[b] Observed historical record of mean temperature and total precipitation is from CRU-TSv3.26. Observed historical records of extremes are from JRA55 for temperature and from GPCC-FDD for precipitation.

[c] Analysis by the Climatic Research Unit, University of East Anglia, 2018.

[d] A 'hot day' ('hot night') is a day when maximum (minimum) temperature exceeds the 90th percentile threshold for that time of the year.

[e] The proportion (%) of annual rainfall totals that falls during very wet days, defined as days that are at least as wet as the historically 5% wettest of all days.

[f] SPI is unitless but can be used to categorize different severities of drought (wet): above +2.0 extremely wet; +2.0 to +1.5 severely wet; +1.5 to +1.0 moderately wet; +1.0 to +0.5 slightly wet; +0.5 to -0.5 near normal conditions; -0.5 to -1.0 slight drought; -1.0 to -1.5 moderate drought; -1.5 to -2.0 severe drought; below -2.0 extreme drought.

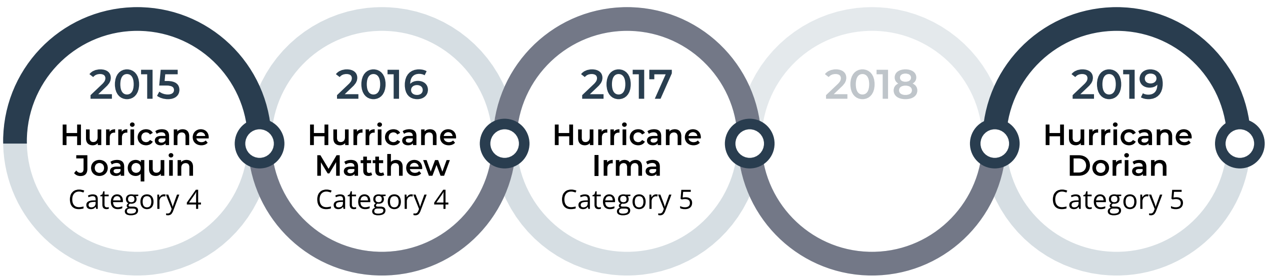
Tropical cyclones

Information and understanding about tropical cyclones (including hurricanes and typhoons) from observations, theory and climate models have improved in the past few years (*6–13*). Despite this, robust projections for specific ocean basins or for changes in storm tracks are difficult to make. It is anticipated that the total number of tropical cyclones may decrease towards the end of the century. However, it is likely that human-induced warming will make cyclones more intense.

Case Study

Hurricane Dorian, the strongest hurricane in modern Bahamian history, devastated the north-western Bahamas when it struck on 1 September 2019. More than 76 000 residents were affected and 10 000 people evacuated these islands. This created an unprecedented need for mental health and psychosocial support (MHPSS). Shortly after Hurricane Dorian passed, staff from the Sandilands Rehabilitation Centre, Public Hospitals Authority, the Bahamas Psychological Association, and a number of NGOs and INGOs were dispatched to the islands and different tent shelters to provide MHPSS. More than 3000 children and 3000 adults received MHPSS either face to face and/or by the telepsychology method. Helplines were also established immediately after the hurricane and more than 500 calls were received, between March 2020 and September 2020, from five islands and also Bahamians in universities outside the country.

It is anticipated that there will be a continuation of MHPSS services, as there may be an increased need given the traumatic experiences, uncertainty, effects of ongoing isolation, and economic situation resulting from both Hurricane Dorian and COVID-19 (case study provided by the Ministry of Health).



- Severe flooding (including a 4.6 metre storm surge), contamination of freshwater wells, and destruction of roads and infrastructure.
- Total cost for

- Many households had not yet recovered from Hurricane Joaquin.
- Damage to the electricity system took months to repair.

- First mandatory evacuation in Bahamian history (5000 people were transported to the capital).
- Ragged Island was hardest hit and is uninhabitable

- Devastated the island of Abaco, its surrounding cays, and Grand Bahama.
- Houses, schools and business were flattened in and around Marsh Harbour in particular.
- Unprecedented flooding, with roads and bridges unpassable and/or collapsed *(15)*.
- Electrical power losses meant some health