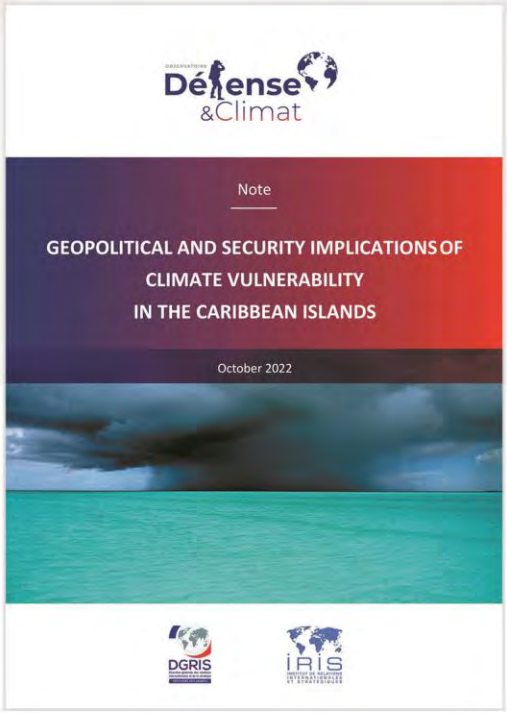
EXECUTIVE SUMMARY

STRATEGIC AND FORESIGHT REFLECTION BRIEF: GEOPOLITICAL AND SECURITY IMPLICATIONS OF CLIMATE VULNERABILITY IN THE CARIBBEAN ISLANDS

October 2022



The Defence and Climate Observatory, launched in December 2016, is tasked with studying climate-related security and defence issues.

The Observatory is coordinated by IRIS under the contract carried out on behalf of the Ministry for the Armed Forces' Directorate General for International Relations and Strategy (DGRIS). The Observatory's multidisciplinary and crossdisciplinary team gathers research fellows, specialised in international relations, security, defence, migrations, energy, the economy, climatology and health. It is led by two scientific coordinators: Julia Tasse and François Gemenne.

The Observatory is strong of multiple partnerships with European partners (Netherlands, Luxembourg), international partners (Australia, United States, India), international NGOs, and national and international public bodies. Such initiatives enabled strengthening cooperation on climate issues and their security implications.

The Defence and Climate Observatory produces reports and notes, organises restricted seminars as well as public conferences, and hosts the podcast « Sur le front climatique »

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The French Ministry for the Armed Forces regularly calls upon outsourced studies from private research institutes, according to a geographical or sectoral approach that complements its expertise. These contracts are part of the development of a defence foresighting approach, which, as the last White Paper on Defence and National Security underlines, enable armed forces to rely on independent, multidisciplinary and original strategic thinking, integrating university research as well as specialised institutes.

Most of these studies are made public and available on the website of the Ministry for Armed Forces and the Observatory's website.

DISCLAIMER: The Directorate General of International Relations and Strategy or the organisation leading the study cannot be held responsible for the statements made in the studies and observatories, nor do they reflect an official position of the French Ministry for Armed Forces.

This brief addresses the current and future consequences of climate changes in the insular Caribbean. The analysis is divided into three parts : a contextual study of climate vulnerability in the Caribbean islands and its consequences on the French armed forces present in the region (*Forces Armées aux Antilles – FAA*) ; a prospective study for the year 2045, based on three scenarios which challenge the French armed forces in a regional framework subjected to climate changes; and finally, a set of recommendations formulated to alleviate the climate vulnerability of FAA.

A – CLIMATE VULNERABILITY IN THE CARIBBEAN ISLANDS AND ITS IMPACT ON THE FRENCH ARMED FORCES

SEA	AIR
Increasing water temperature	**Increasing air temperature**
Increase of the sea surface temperature in 2020 of 0.87°C above the 1981-2010 average.	Increase of 0.8°C in 2020 compared to the 1981-2010 period.
Water acidification	**Decreasing rainfall and increasing periods of drought**
Decreasing carbonate saturation of 3% per decade (2000-2017).	A 0.2-1.0°C increase of the global average temp. would cause a 5-15% reduction in rainfall.
Increasing number and intensity of hurricanes	**Decreasing water reserves, loss of biodiversity, forest fires**
Category 5 hurricane have doubled since 1950.	Each additional degree Celsius would cause a 60% increase in the number of people under water stress by 2043.
Rising water levels, flooding and erosion	
Acceleration of sea level rise from 2mm/year (1950-2009) to 3.6mm/year (1993-2020): by 2100, a rise of 1m and 6m would result in the submersion of 9% and 50% of the islands respectively.	
Disappearance of corals, destruction of mangroves, increase in the volume of stranded sargassum	
Compared to the pre-industrial era, disappearance of corals by 70% to 90% above +1.5°C and by 99% above +2°C	

The Caribbean islands are not only highly exposed to climate changes, but also very vulnerable to it. The economies of the region and the livelihoods of its populations are highly dependent on tourism, agriculture and fishing. However, the resources, infrastructures and territories necessary for these activities are threatened by slow-onset climate hazards such as droughts, submersion and erosion phenomena, and one-off climate hazards such as extreme weather events. This vulnerability is amplified by the fragility of governments, whose effectiveness and legitimacy are reduced and questioned by corruption and crime linked to parastatal groups. At the regional level, cooperation on adaptation measures is hampered by a lack of human and financial resources, major differences in development between states, and competition for foreign investments. Regional cohesion is further compromised by the progressive bipolarisation of the area, due to competition between the United States and China. In this context of environmental and political insecurity, the FAA's missions are becoming more diverse and complex, and the health of soldiers and the functional integrity of infrastructure and equipment are being affected.

Military issues	Climate hazard	Socio-economic Consequences	Consequences for the military
Missions	Drought, heat	Epidemics, fires, drug trafficking	Increasing diversity and complexity of missions
	Increasing water temperature	Hurricanes, IUU fishing	
	Resource scarcity	Pauperisation, inter-state tensions, gangs	Unsafe environment
Facilities and infrastructure	Droughts	Water stress, fires	Military holdings and their supply at risk
	Increasing temperatures (air and water)	Overheated mechanical and electronic systems	Functional integrity of equipment at risk
		Increasing cloud cover	Compromised air navigation (icing)
		Growth of marine microorganisms	Biofouling (vessels: increasing energy consumption, slowing down)
		Hurricanes	Military and critical infrastructure under threat
	Increasing sea level	Flooding	Infrastructure and connections under threat
Soldier health	Drought, heat	Epidemics	Contamination of soldiers
		Heat stroke	Reduced performance, illness
	Cumulation of phenomena	Overwork	Physical and psychological exhaustion

B – SCENARIOS

Scenarios		Crisogenic factor related to climate change	Geopolitical situation in the region	French situation in the region
1	**Business as usual: The rise of popular protests**	Declining livelihoods and rising popular protests.	Settlement of China in the area, massive migrations, counter-cooperative phenomenon.	Overstretch of the French armed forces (epidemics, trafficking, bush fires).
2	**Disruptive: The return of the Cold War in the insular Caribbean**	Extreme temperatures are crippling the energy infrastructures of several islands.	Escalation of Sino-American tensions in Cuba. Call for the NATO defence against the backdrop of block logic.	Paralysis of France, seen as a power dependent on the Chinese presence. Geostrategic isolation.
3	**Disruptive: The nuclear accident in Florida**	Category 5 hurricane in Florida and nuclear accident at Turkey Point. Regional radioactive contamination.	American withdrawal and the rise of Chinese-led regional cooperation.	Tension over military capabilities and questioning of nuclear advantage. Strategic dependence on China.

C – LESSONS LEARNED (L) AND PROPOSALS (P)

L.1. Preventing over-solicitation of the armed forces through regional cooperation
→ *P.1. Broaden the framework for regional cooperation: from HADR cooperation to climate resilience cooperation*
→ *P.2. Enact a French/European reference military camp to pilot multilateral climate resilience operations in the region*
→ *P.3. Develop drug control cooperation with insular and Latin American countries*
→ *P.4. Improve the identification of French regional support in the fight against IUU fishing*
L.2. Strengthen the coordination of the armed forces with civilian actors on an interministerial level
→ *P.1. Appoint a "Caribbean climate response coordinator" officer in the framework of the Joint Territorial Defence Organisation (OTIAD in French)*
→ *P.2. Organise an annual climate meeting of the Antilles Defence Zone Joint Committee*
→ *P.3. Develop and use the voluntary commitment mechanisms in the Antilles (in particular the Adapted Military Service, SMA) to enforce civil-military cooperation to help the population*
→ *P.4. Establish a Caribbean Civil Protection Training and Intervention Unit (UIISC in French)*
L.3. Diversify and strengthen the military mechanism in the region
→ *P.1. Redefine the staffing number and their distribution in the area*
→ *P.2. Invest in air and satellite capabilities*
→ *P.3. Ensure resilience of military bases: risk assessment mapping, readjustment work and relocation*
→ *P.4. Develop a regional geopolitical watch*

ABOUT THE AUTHORS

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