



Climate Change and Implications for Defense and Security (CCIDS-2 2023)

Syllabus

Virtual phase: 27-29 June 2023

In-residence phase: 10 – 21 July 2023

Research and Writing Phase: 24 July – 11 August 2023

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Course Policies

William J. Perry Center for Hemispheric Defense Studies

DISCLAIMER

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ATTENDANCE POLICY TO CLASSES AND ACTIVITIES

Participants have a professional responsibility to attend all official course activities on time. Therefore, they will not be able to schedule or accept invitations to attend any type of activities, appointments, commissions and/or visits during the hours in which the presence in the course is required.

EVALUATION POLICY FOR THE COURSE

The system considers the following qualifications derived from compliance with the criteria indicated below:

1. GRADUATE: Meets all criteria
 - Does not miss any time, except illness or serious family emergency.
 - Responds, in form and substance, to the requirements of the course and the guide of the facilitator in all phases of the program.
 - Integrates with his or her team as appropriate, participates in the preparation and presentation of the work, and complies with the assignments corresponding to the course in both phases.
2. GRADUATE WITH RESTRICTION FROM PARTICIPATION IN OTHER PERRY CENTER COURSES: The participant meets one or both of the criteria
 - Missing a maximum of 8 hours of classes in total, considering both virtual and in-resident phases, without justification.
 - Does not comply with the assignments corresponding to the course during either virtual or in-resident phases

USE OF LANGUAGE

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Course Introduction

The Climate Change and Implications for Defense and Security (CCIDS) course provides an opportunity to examine climate change and the destabilizing impact it will have on communities in the Americas. Climate change has been referred to as an “existential” crisis and climate-related crises – meteorological, environmental, economic, political, and social - will accelerate as global temperatures continue to rise.

Climate change (CC) is a universal problem; global warming will produce catastrophes that impact all Latin American and Caribbean nations. All hemispheric nations are vulnerable to heat waves, forest fires, droughts, and torrential rains. Each sub-region of the hemisphere may also suffer from unique CC problems. Scientists predict that Atlantic hurricanes will strengthen in intensity; there will be more category 4 and 5 major storms that impact Caribbean and Central American nations than in previous years. Many South American communities are dependent on potable water from disappearing Andean glaciers which provide potable water and crop irrigation to millions of its citizens. Sea-level rise will disproportionately affect low-lying coastal areas of Central and South American countries. It also represents an existential threat to low-elevation Caribbean Basin countries such as the Bahamas, Belize, and Guyana. Deforestation of the Amazon jungle, a region shared not only by Brazil but also by Venezuela, Colombia, Ecuador, Peru, and Bolivia, may trigger a climate “tipping point” that leads to an irreversible feedback loop and runaway greenhouse effect.

In addition to the science and solutions associated with climate change, the CCIDS course will focus heavily on the role of security and defense institutions in combatting CC and the associated security implications of global temperature increases. To provide a broader context of how CC will impact communities in Latin American and Caribbean nations, the CCIDS course will examine causes of global temperature increases and how societies can mitigate the effects of the associated meteorological disasters. However, a large portion of the course emphasis will be on the consequences of climate change and security-related matters for governments in the region.

In general, there are four major concerns the climate crisis will have on Latin American and Caribbean security forces. First, climate change will require a heightened humanitarian assistance and disaster relief (HADR) capacity for governments so that they can effectively react to climate-induced meteorological and environmental problems such as increased rainfall, more powerful storms, rising sea level, droughts, food and water insecurity, and heat waves.

Second, climate change has been called a “catalyst for conflict.” Climate change by itself does not generate conflict but it exacerbates governance problems. In other words, climate change problems will test the ability of governments to effectively respond to natural disasters and climate catastrophes. Once public patience runs out with lack of an adequate government response, socio-economic protests may occur. Fragile states and those with weak government institutions are particularly vulnerable.

Third, afflicted nations will be required to develop doctrine and procedures for managing internally displaced persons (IDP) and climate refugees. Governments will have to respond to internal displacement of populations, temporary refugee camps, and field services. While there is no demonstrable correlation between urbanization and insecurity, rural citizens will be forced into urban areas in order to find employment and basic human needs. This may overwhelm the capacity of local governments to provide basic human needs for its residents.

Fourth and finally, climate change will threaten defense infrastructure and installations. Naval bases along the shoreline, for example, will have to “harden” their facilities against coastal flooding and increased storm surges. Military bases inland may face problems of freshwater availability, forest fires, and extreme heat that may impede their operations.

Understanding what efforts need to be taken to mitigate the impact of climate change on Latin American and Caribbean communities will also be scrutinized. These generally fall into two broad categories: (1) electrification of industry, transportation, and agricultural efforts, and (2) decarbonization of the atmosphere. The role of international organizations such as the Intergovernmental Panel on Climate Change (IPCC) and other United Nations organizations will be covered. Finally, abstract concepts such as “tragedy of the global commons” will be



explained in order to help course participants understand obstacles to collective action by the international community.

Participants

The admission process for this course seeks to recruit participants from a diverse group of professional candidates working in the Americas. These participants benefit from intense interaction facilitated by the Perry Center team over several weeks scheduled in two phases, an online pre-course phase, and a second residential phase at Perry Center spaces in National Defense University (NDU) in Washington, D.C.

The general profile of the participants corresponds to one or more of the following groups:

- Civilian officials working on climate change mitigation and adaptation efforts on behalf of their government.
- Officials from defense and/or security ministries working at the strategic and/or policy level.
- Personnel who work directly on climate change mitigation efforts for the government or nation's security forces.
- Government personnel who work in natural disaster offices or civil defense forces
- Government representatives in organizations other than the military or police (e.g., Ministry of Environment or Interior, national legislature, military war colleges, etc.).
- Personnel from civilian organizations with interest in climate change including non-government organizations (NGO), academic institutions, and think tanks.

Institutional Objectives - General

The institutional objectives of the CCIDS course reflect the 2022 National Security Strategy and the guidelines for the Western Hemisphere as well as the current requirements and priorities of the Office of the Deputy Assistant Secretary of Defense for Political Affairs in the Western Hemisphere Affairs (OSD WHA). As the Department of Defense (RC) Regional Center for Security Studies, the Perry Center is mandated to use its academic forum to build strong and sustainable international networks of security leaders.

In all of its activities, the Perry Center seeks to meet the commitments established by the Office of the Secretary of Defense outlined in the 2017 Human Rights Directives and the 2017 Women, Peace, and Security Act.

Institutional Objectives - Specific

1. Develop and offer strategic security studies, research, and outreach programs that foster long-term collaborative relationships.
2. Strengthen, sustain, and develop lasting alliances, professional networks, and communities of interest for specialists and stakeholders in security issues, professionals, and established national security institutions, especially defense, among the nations of the region.
3. Support the political priorities of the Office of the Under-Secretary of Defense for Political Affairs and the Geographic Combat Command for the region (GCS), and requirements of international allies with priority in three functional areas: maritime and territorial security; transnational and asymmetric threats; and governance of the defense sector.
4. Contribute to the advancement of Human Rights in the Hemisphere, helping military professionalization, building relationships between defense institutions and civil society.
5. Collaborate with the ministries of defense in the understanding and institutionalized application of best practices for the respect and promotion of human rights.

Course Learning Objectives:

This course is designed to developed the following educational objectives:



1. Educate participants about the scientific and meteorological causes of global warming.
2. Identify measures to improve the nation's abilities to respond to climate-induced disasters.
3. Understand the threats posed to communities in Latin American and Caribbean nations by climate change and global warming. These include more powerful storms, increased levels of precipitation, heat waves, droughts, and rising sea levels, among others.
4. Share efforts by governments in the region to mitigate the effects of climate change, for example, through conversion of electrical generation, industry, and transportation systems away from fossil fuels and toward clean energy systems; reinforcement and upgrading of critical infrastructure; and hardening existing military installations.
5. Identify interagency and whole-of-government efforts to combat climate change.
6. Examine the role of the armed forces in responding to climate change related disasters. These may include additional HADR capabilities, preparing security forces for socio-economic protests, managing climate-provoked migration, and using the armed forces to protect environmental resources and biodiversity.
7. Analyze elements of Humanitarian Assistance and Disaster Relief (HADR) associated with climate change including response to meteorological disasters, defense support of civilian authorities, preservation of critical infrastructure, interagency coordination, and continuity of operations for the government.
8. Examine ways to increase regional cooperation in the face worsening climate conditions.

Methodology

Virtual Phase (1 week)

The Virtual Phase lasts for one week and is facilitated through online platforms, such as Zoom and Blackboard. Participants will receive an orientation for the course and begin discussions on important issues associated with climate change.

Residential Phase (2 weeks)

The Residential Phase is held at the Perry Center at National Defense University -National Defense University (NDU), in Washington, D.C.

Students will participate in theoretical and practical debates on various climate change issues to include plenary presentations by subject matter experts, working group discussions, site visits, and practical table top exercises.

Research and Writing Phase (3 weeks)

As part of the course requirements, participants will complete a final essay.

Technological Platforms For The Course



Blackboard

Blackboard

Each participant will receive a unique Blackboard (Bb) account, with their respective password. This platform is used as a course tool for the Virtual Phase and the Face-to-Face Phase.



Use and content of Blackboard:

- General information of the course
- List of Participants, Working Groups (BOGs) and Assigned Perry Center Facilitator
- Study program -Syllabus and calendar of activities
- Required and suggested readings;
- Complementary bibliography, recommended documents, web links (links) available for some documents.
- PPT presentations and papers authorized by the authors for use/disclosure
- Email within the BOGs: you can use the 'Send email' option to send emails to members of your group simultaneously or individually, including the Professor
- Share documents, internet links or send queries/work/projects or course presentations to your Professor.
- Meetings of BOGs that are carried out through Blackboard Collaborate



Zoom for Government

In the Virtual Phase, some activities could be carried out on the Zoom platform. Also, during the Residential Phase, some invited exhibitors could participate remotely.

In case of using this platform, the participants will receive a message with the Meeting number (Meeting ID) and the password for the defined activity. It is recommended to have the Zoom application downloaded on your device to use, since the use of Zoom through the internet browser does not work effectively with our version Zoom for Government.

During plenary sessions, people who want to ask questions or comments at the appropriate time can do so using the Raise Hand tool. Priority will be given to people who have not asked questions and comments in previous sessions.

It is a violation of the authorized use license to share this information with people who are not enrolled in the course.

For questions or troubleshooting regarding access to Bb, ZoomGov, or functionality of any of these tools, you can contact:

Technology Team -IT
Email: chds1@ndu.edu

Academic Team

Dr. Patrick Paterson (Director), Professor of Practice at the Perry Center and Editor in Chief of the publications program. A 1989 graduate of the U.S. Naval Academy in Annapolis, Maryland, he retired from the Navy as a Commander in 2009. He is the author of four books and numerous defense and security-related articles. His latest book, *The Blurred Battlefield: The Perplexing Conflation of Humanitarian and Criminal Law in Contemporary Conflicts* (JSOU Press, 2021), addresses the need for hybrid doctrines on the use of force for Latin American militaries combating violent crime groups. His principal areas of expertise include civil-military relations, human rights, international humanitarian law, climate change, and U.S. and Latin American history.

Biography: <https://wjpcenter.org/wjpc-employees/patrick-paterson/>

Contact: patrick.paterson@ndu.edu



Dr. Alex Guerra Noriega (Deputy Director). Alex Guerra Noriega is the Director of the Instituto Privado de Investigación sobre Cambio Climático, (in English, the Climate Change Research Institute or ICC), in Guatemala, a position he has held since 2010. Alex does research in climate-related risk and geography, climate adaptation, and water resource management. He received his doctorate in Geography and the Environment and a master's of science from the University of Oxford in the United Kingdom. His most recent publication is 'Climate adaptation research for the next generation'.

Biography: <https://icc.org.gt/en/alex-guerra-noriega-ph-d/>

Contact: aquerra@icc.org.gt

Dr. Erin McFee (facilitator). Dr Erin McFee is a UK Research and Innovation Future Leaders Fellow at the Latin America and Caribbean Centre (LACC) in the London School of Economics and Political Science (LSE), a Scholar in Residence at the Carter School for Peace and Conflict Resolution at George Mason University, the Deputy Director for the Irregular Warfare Initiative, and the Lead Researcher for the Office for Military Affiliated Communities (OMAC) at The University of Chicago. She has also consulted regularly for the International Organization for Migration, U.N. Agency for Migration in the Latin America, Africa, and Middle Eastern regions. She received her doctorate in Human Development from The University of Chicago, as well as an M.A. from the same institution and an MBA from Simmons University in Boston.

Biography: <https://erinmcfree.com/about>

Contact: erinmcfree@gmail.com

Dr. Fabiana Sofia Perera (facilitator). Dr. Fabiana Sofia Perera is an Associate Professor at the William J. Perry Center for Hemispheric Defense Studies. Prior to joining the Perry Center, Fabiana was a Rosenthal Fellow at the Office of the Secretary of Defense, Under Secretary for Policy, Western Hemisphere Affairs. Fabiana holds an MA in Latin American Studies from Georgetown University and earned a PhD in Political Science from The George Washington University. For her doctorate, Fabiana completed fieldwork in Venezuela and Ecuador. Fabiana has presented her research at the annual meetings of the American Political Science Association (APSA) and the Latin American Studies Association (LASA). Her research and analysis have appeared in numerous publications including *The Washington Post*, *CNN.com*, and *War on the Rocks*. Her research has been supported by numerous organizations including Columbia University's Women in Energy program and George Washington University's Center for International Business Education.

Biography: <http://wjpcenter.org/wjpc-employees/fabiana-perera/>

Contact: fabiana.s.perera.civ@ndu.edu



Virtual Phase
27-29 June 2023

The virtual phase of the CCIDS course is designed to introduce the course participants to the main topics of the course and familiarize participants with the course structure to included active participation in plenary and working group discussions. It will be conducted online via Zoom and Blackboard.

DAY 1 – Tuesday, 27 June 2023

All times listed are U.S. Eastern Standard Time (EST)

HOURL	ACTIVITY	RESPONSIBILITY
1900 – 1930	Welcome and Introduction to Course	Dr. Patrick Paterson, WJPC
1930 – 1945	Orientation to Blackboard	Nick Foreit or Raul Neine, WJPC
1945 – 2030	Introduction to Climate Change: Science, Solutions, and Security Forces	Dr. Patrick Paterson, WJPC
2030 – 2100	Discussion	Facilitators

REQUIRED READING

1. Hoegh-Guldberg, et al. (2019), “The human imperative of stabilizing global climate change at 1-5 degrees Celsius,” *Science* vol 365, issues # 1263, 20 September 2019.
2. Yang Ou, et al. (2021), “Can updated climate pledges limit warming well below 2°C?” *Science*, vol 374, issue # 6558. 05 November 2021.

DAY 2 – Wednesday, 28 June 2023

HOURL	ACTIVITY	RESPONSIBILITY
1900 – 1945	Introduction to Climate Change: Renewable Energies and Mitigation efforts	Dr Erin McFee
1945 – 2100	Discussion	Facilitators

REQUIRED READING: ADD ARTICLE

DAY 3 – Thursday, 29 June 2023

HOURL	ACTIVITY	RESPONSIBILITY
1900 – 1945	Introduction to Climate Change: “Catalyst for Conflict”	Dr. Patrick Paterson, WJPC
1945 – 2100	Discussion	Facilitators

REQUIRED READING:

1. Director of National Intelligence (DNI), “Climate Change and International Responses Increasing Challenges to US National Security through 2040,” National Intelligence Estimate (NIE), Oct 2021.
Link:
https://www.dni.gov/files/ODNI/documents/assessments/NIE_Climate_Change_and_National_Security.pdf
2. Sikorsky, Erin (2022), “The Worlds Militaries Aren’t Ready for Climate Change,” *Foreign Policy*, 22 Sept 2022.



Residence Phase
July 10-21, 2023
PERRY CENTER, WASHINGTON, D. C.

DAY 1 – Monday, 10 July 2023
All times listed are U.S. Eastern Standard Time (EST)

HOURLY	ACTIVITY	RESPONSIBILITY
0830 – 0845	Welcoming Remarks	Dr. Paul J. Angelo, Director WJPC
0845 – 0855	Administrative Brief	Ms. Maria Fernanda Martinez, WJPC
0855 – 0930	Academic Orientation and Student Introductions	Dr. Scott Tollefson, Academic Dean, WJPC
0930 – 0945	Group Photo in front of Marshall Hall	Ms. Maria Fernanda Martinez, WJPC
0945 – 1000	Break	Independent
0945 – 1145	Administrative requirements: Photos, per diem, library	Ms. Maria Fernanda Martinez, WJPC
1145 – 1215	Plenary session #1 - Course Introduction	Dr. Patrick Paterson, WJPC
1200 – 1300	Lunch	Independent
1300 – 1400	Plenary session #2 - The Science Behind Climate Change	Dr. Steve Rose (C), EPRI
1400 – 1415	Break	Independent
1415 – 1500	Plenary session #3 – Keynote Address	TBD
1500 – 1600	Welcome Reception – Lincoln Hall South Atrium	Ms. Maria Fernanda Martinez, WJPC
1600	End of day #1 – buses depart	Ms. Maria Fernanda Martinez, WJPC

DISCUSSION QUESTIONS:

What causes global warming and climate change? Are we certain that this isn't part of a natural cycle of warming that the planet periodically goes through?
Are all scientists in agreement?
How do we know the process the scientists use is accurate?
Global warming and climate change seemed to be used interchangeably? Is there a difference?
What gases are the main causes of the greenhouse gas effect?
How can we be certain what previous temperatures on the planet were when there were no measurements or temperature recordings before the period of modern civilization?

REQUIRED READING

1. Oreskes, Naomi. "The Scientific Consensus on Climate Change." *Science*, vol 306, 03 December 2004. **ADD TO ARTICLES.**
2. Xu, Yangyang (2018). "Global Warming will happen faster than we think." *Nature*, vol 564, 06 December 2018.

SUGGESTED READING:

1. Rosen, Julia (2022). "The Science of Climate Change Explained," *Washington Post*, Sept 2022.
2. Jeff Tollefson (2021), "Top Climate Scientists are skeptical that nations can rein in climate change," *Nature*, vol 599, 04 November 2021.
3. Opinion staff (2019). *Washington Post*, "How we can combat climate change?," *Washington*



Post, 02 January 2019).

4. Davenport, Carol (2018). "Major Climate Report Describes a strong risk of crisis as early as 2040." *New York Times*, 07 October 2018.

DAY 2 – Tuesday, 11 July 2023

HOURLY	ACTIVITY	RESPONSIBILITY
0830 – 0930	Plenary session #4 – The History of Climate Change mitigation efforts	Dr. Patrick Paterson, WJPC
0930 – 0945	Break	Independent
0945 – 1045	Plenary session #5 – Climate Challenges: Excessive Heat	Dr. Patrick Paterson, WJPC
1045 – 1100	Break	Independent
1100 – 1200	BOG Discussion	BOG Facilitators
1200 – 1300	Lunch	Independent
1300 – 1400	Plenary session #6 – Climate Challenges: Storms and Precipitation	Dr. Tom Knutson (C), NOAA
1400 – 1415	Break	Independent
1415 – 1515	Plenary session #7 – Panel discussion: Climate Challenges: Glacier Melt and Sea Level Rise	Dr. William Sweet (C), NOAA
1515 – 1600	BOG Discussion	Facilitators
1600	End of Day #2 – buses depart	Independent

DISCUSSION QUESTIONS:

What is the Intergovernmental Panel on Climate Change (IPCC)? What is the United Nations Framework Convention on Climate Change (UNFCCC)? What is the difference between the two organizations?

When did humanity realize that the planet was warming on account of human behavior? Why wasn't something done earlier?

How many Conference of Parties (COP) meetings have there been? Where was the last one?

Where is the next one? Who participates?

What was the Kyoto Protocol in 1998?

Why was the Paris Climate Accord so significant?

What did the scientists in Paris warn us of?

What are nationally determined contributions (NDC)?

Excessive heat:

How much have temperatures risen since 1990 or 2000? What is the forecast for temperatures in the future?

What effects of high temperatures are we starting to see or will see more of?

Is the Central American drought a result of climate change?

What is a heat dome? What is a polar vortex?

What are the symptoms of heat exhaustion and heat stroke?

Storms and Precipitation

Do scientists predict there will be more hurricanes? Or more powerful hurricanes?

What is the Atlantic Meridional Overturning Circulation (AMOC)?

What are El Niño and La Niña? Which has occurred recently? What is the El Niño Southern Oscillation (ENSO)?



How can we have droughts and excessive rainfall at the same time?

Glacier melt and sea level rise

What is happening to tropical glaciers, particularly those in Peru, Bolivia, and Chile that provide potable water for millions of South Americans?

Are the ice caps on Greenland and the North and South Poles being affected by climate change?

How much sea level rise has already occurred? How much is anticipated by 2050 or 2100?

What are Small Island Developing states (SIDS)?

What is the source of fresh water for Caribbean nations? Is it different from sources in Mexico, Central America, and South America?

REQUIRED READING

1. Fountain, Henry and Rojanaskaul, "The Last 8 Years Were the Hottest on Record," *New York Times*, 10 Jan 2023.
2. Mooney, Chris (2023). "Half of Earth's Glaciers could melt even if key warming goal is met, study says." *Washington Post*, 05 January 2023. **ADD TO ARTICLES.**
3. Sengupta, Somini and Cai, Weiyi, "A Quarter of Humanity Faces Looming Water Crises," *New York Times*, 06 August 2019.

SUGGESTED READING:

1. National Ocean and Atmospheric Administration (NOAA), "Sea Level Rise Technical Report 2022," Link: <https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report.html#step2>
2. Ajasa, Amudalat and Ahmed, Naema (2023), Multiple agencies concur - 22 was one of Earth's hottest years," *Washington Post*, 12 Jan 2023.
3. Fountain, Henry. "El Niño and La Niña, Explained." *New York Times*, 22 October 2021.
4. Liu, Wei, et al, (2020), "Climate impacts of a weakened Atlantic Meridional Overturning Circulation in a warming climate," *Science Advances*, vol 6, 26 June 2020.
5. Hansen, James, et al (2016), "Ice Melt, Seal Level Rise, and Superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2 deg C global warming could be dangerous," *Atmospheric Chemistry and Physics (ACP) Journal*, volume 16, 3761-3812,
6. Adalgeirsdottir, Gudfinna and James, Timothy (2023). "Acting now will reduce glacier loss," *Science*, vol 379, issue # 6627, 06 January 2023.
7. Schultz, Kai and Sharma, Bhadra (2019), "Rising temperatures could melt most Himalayan glaciers by 2100, report finds," *New York Times*, 04 February 2019. **ADD TO ARTICLES.**
8. Brady Dennis and Chris Mooney, "Scientists nearly double sea level rise projections for 2100, because of Antarctica," *Washington Post*, 30 March 2016.
9. Tollefson, Jeff (2016), "Trigger seen for Antarctic collapse," *Nature*, vol 531, 31 March 2016.



ADD TO ARTICLES.

10. Maizland, Lindsay (2022). "Global Climate Agreements: Successes and Failures," Council of Foreign Relations (CFR), 04 November 2022. Link: <https://www.cfr.org/background/paris-global-climate-change-agreements>

DAY 3 – Wednesday, 12 July 2023

HOUR	ACTIVITY	RESPONSIBILITY
0830 – 0930	Plenary session #8 – Panel discussion: Biodiversity, Environment, and Deforestation	(1) Dr. Stephanie Roe (T) (2) TBD
0930 – 0945	Break	Independent
0945 – 1045	Plenary session #9 – Solutions to Climate Change: Decarbonization and Electrification	TBD (DOE and EPA)
1045 – 1100	Break	Independent
1100 – 1200	BOG Discussion	BOG Facilitators
1200 – 1300	Lunch	Independent
1300	Depart for NOAA visit	Dr. Patrick Paterson, WJPC
1330 – 1530	Plenary session #10 – Visit to National Oceanic and Atmospheric Administration (NOAA) in Silver Spring, MD. Visit "Gateway to NOAA," interactive laboratory and "Science on a Sphere" exhibit.	Dr. Patrick Paterson, WJPC
1530	End of Day #3 – buses depart for hotel	Independent

DISCUSSION QUESTIONS:

- What environments are at risk because of humanity's greenhouse gases?
- What was the IPBES report of 2018?
- What did the participants in the IPBES Conference in Montreal in Aug 2022 pledge to do?
- How will the loss of biodiversity impact humanity?
- What role does the Amazon jungle play in climate change?
- How much deforestation in the Amazon jungle has already occurred?
- What if the Amazon reaches its tipping point?

Solutions to climate change

- What needs to be electrified?
- What methods exist to prevent further greenhouse gas contamination in the atmosphere?
- What is net zero? Is it the same as carbon neutral?
- What is a carbon tax? Is it the same as carbon pricing?

REQUIRED READING

1. O'Grady, Cathleen, "Warming of 1.5 deg Celsius carries risk of crossing climate tipping points," *Science*, vol 377, issue 6611, 09 September 2022. **ADD TO ARTICLES.**
2. Plumer, Brad (2019), "Humans Are Speeding Extinction and Altering the Natural World at an 'Unprecedented' Pace," *New York Times*, 06 May 2019.

SUGGESTED READING:

1. McKay, et al, "Exceeding 1.5 deg Celsius global warming could trigger multiple climate tipping points." *Science*, vol 377, issue 6611, 09 September 2022. **ADD TO ARTICLES.**



2. Leahy, Stephen. "Climate Change impacts worse than expected, global report warns," *National Geographic*, 07 October 2018. **ADD TO ARTICLES.**
3. Bearak, Max. "Climate Pledges are Falling Short, and a Chaotic Future looks more like Reality," *New York Times*, 26 October 2022. **ADD TO ARTICLES.**
4. IPBES (2019), "Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)." Link: <https://ipbes.net/global-assessment>
Available in English:
https://zenodo.org/record/3553579/files/ipbes_global_assessment_report_summary_for_policy_makers.pdf?download=1
Available in Spanish:
https://zenodo.org/record/3826598/files/ipbes_global_assessment_report_summary_for_policy_makers_es.pdf?download=1
5. Dinerstein, E., et al, A "Global Safety Net" to reverse biodiversity loss and stabilize Earth's climate," *Science Advances*, 04 September 2020.
6. Morelle, Rebecca (2014). "Caribbean coral reefs 'could vanish in 20 years,'" *BBC*, 02 July 2014.
7. Getirana, Augusto, et al, (2021), Brazil is in Water Crisis – it needs a drought plan," *Nature*, vol 600, 09 December 2021.

DAY 4 – Thursday, 13 July 2023

HOUR	ACTIVITY	RESPONSIBILITY
0830 – 0930	Plenary session #11 – Solutions to Climate Change: Industry and Transportation	Dr Erin McFee (C)
0930 – 0945	Break	Independent
0945 – 1045	Plenary session #12 – Solutions to Climate Change: Renewable Energies	Mr. Scott Sklar (C) President of <u>The Stella Group</u> .
1045 – 1100	Perry Center Outreach brief	Kara O’Ryan and Georgina Crovetto
1115 – 1115	Break	
1100 – 1200	BOG Discussion	BOG Facilitators
1200 – 1300	Lunch	Independent
1300 – 1400	Plenary session #13 – Solutions to Climate Change: reducing plastics pollution	Dr. Fabiana Perera (C), WJPC
1400 – 1415	Break	Independent
1415 – 1515	Plenary session #14 – Contemporary energy sources in the Americas – what needs to change?	Dr. Debora Ley (C) Via Zoom.
1515 – 1600	BOG Discussion	Facilitators
1600	End of Day #4 – buses depart	Independent

DISCUSSION QUESTIONS:

Industry and Transportation

What industries produce the most greenhouse gases?

How are electricity (power) generation stations powered?

What impact will electric vehicles have on greenhouse gas emission reductions?



Where does the lithium in electric batteries come from?
Does large scale energy storage exist? Why or why not?

Renewable Energies

What are the common types of renewable energy? What are their advantages and disadvantages?
What percentage of electric power comes from renewable energies?
Is the use of renewable energies increasing fast enough for humanity to avoid climate catastrophes?
Is nuclear power safe?

New Technologies

What new energy technologies offer the most hope to reduce greenhouse gas emissions and slow the warming of the planet?
What is the difference between carbon capture and direct air capture?
Can we genetically produce heat resistant crops?
Is desalination (of sea water to fresh water) an effective means of providing potable water and water for irrigation of crops?
Why was the news about the success of nuclear fusion testing in December 2022 so important?
What are the benefits and risks of geoengineering?

Energy in the Americas

What is the biggest source of greenhouse gas emissions in the Americas, industry, transportation, or agriculture?
What are the common types of energy used in Latin America and Caribbean nations?
What percentage of electricity in Latin America is generated from renewable energy?

REQUIRED READING:

1. Temple, James (2017). "The Growing Case for Geoengineering." *New York Times*, 18 April 2017.
2. Dietz, Simon (2021). "How ambitious are oil and gas companies' climate goals?" *Science*, vol 374, issue 6566, 22 October 2021.

SUGGESTED READING:

1. Mervis, Jeffrey and Cho, Adrian (2022), "Massive climate and health bill also benefits U.S. energy labs," *Science*, vol 377, issue #: 6608, 19 August 2022.
2. Taub, Eric (2022), "EVs Start With a Bigger Carbon Footprint. But it doesn't last." *New York Times*, 19 October 2022.
3. Shao, Elena (2022). "Renewables Will Overtake Coal by Early 2025, Energy Agency Says." *New York Times*, 06 December 2022.

DAY 5 – Friday, 14 July 2023

HOURLY	ACTIVITY	RESPONSIBILITY
0830 – 0930	Plenary session #15 – The Human Impact of Climate Change	Dr. Erin McFee (C)
0930 – 0945	Break	Independent



0945 – 1045	Plenary session #16 – Food and Water (in)security	Panel discussion: (1) Dr. Johanna Mendelson-Forman (C), American University; (2) TBD
1045 – 1100	Break	Independent
1100 – 1200	BOG Discussion	BOG Facilitators
1200 – 1300	Lunch	Independent
1300 – 1400	Plenary session #17 – Climate Change and the Role of the Armed Forces	Alejandro Wilder Sanchez (C)
1400 – 1415	Break	Independent
1415 – 1515	Plenary session #18 – Climate Change as a Catalyst for Conflict	Sherri Goodman (C), Woodrow Wilson Institute
1515 – 1600	BOG Discussion	Facilitators
1600	End of Day #5 – buses depart	Independent

DISCUSSION QUESTIONS:

Human impact of climate change

What are the predictions of the World Bank and United Nations on migration by climate refugees?

Are “climate refugees” eligible for asylum according to international law? Related question, what is the Los Angeles Declaration of 2022?

What areas of the Americas are most susceptible to problems of food and water availability?

Is urbanization a cause for concern? Why or why not?

Is there a link between urbanization and insecurity?

What lessons could be drawn from the COVID-19 pandemic as Latin American and Caribbean nations prepare for worsening climate conditions?

Vulnerable populations

What demographic groups are considered most vulnerable to climate change?

Describe the relation of inequality and climate resilience.

Should developed nations provide climate assistance (financial) to less developed countries? What is the status of the Climate Funds initiative?

How will advances in social and economic development be impacted by climate change?

The Role of the Security Forces

What role will the security forces in the Americas play in adapting to climate change?

How can the Latin American and Caribbean nations protect biodiversity and provide environmental security, both in land and sea areas?

Catalyst for conflict

Why does the U.S. Department of Defense refer to climate change as a “catalyst for conflict” or a “threat multiplier”?

What are the characteristics of a “failed state” or “fragile state”?

What nations in the Americas are considered “fragile states” by the Fund for Peace?

What and where is the Guarani Aquifer? Do countries in the region have a resource-sharing agreement for it?

Are there examples in the Americas of “water wars”? Where might these occur?

REQUIRED READING:



1. Jeff Masters, "Fifth Straight Year of Central American Drought Helping Drive Migration," *Scientific American*, 23 December 2019. Link: <https://blogs.scientificamerican.com/eye-of-the-storm/fifth-straight-year-of-central-american-drought-helping-drive-migration/>
2. Wilder Alejandro Sanchez, "The 21st Century Latin American Military: Climate Change and the Future of HA/DR Operations," *William J. Perry Center Regional Insights*, April 2022. Link: <http://dev.williamjperrycenter.org/sites/all/modules/pubdCnt/pubdCnt.php?fid=2012>
3. World Bank Group, "Groundswell: Preparing for Internal Climate Migration (Overview), 2018. Read the Latin American Policy Note, Link: <https://openknowledge.worldbank.org/bitstream/handle/10986/29461/GroundswellPN3.pdf?sequence=8&isAllowed=y>

Full Groundswell report from 2018 available here; NOT required reading:

Available in English:

<https://openknowledge.worldbank.org/bitstream/handle/10986/29461/GroundswellOV.pdf?sequence=19&isAllowed=y>

Available in Spanish:

<https://openknowledge.worldbank.org/bitstream/handle/10986/29461/GroundswellOVsp.pdf?sequence=17&isAllowed=y>

SUGGESTED READING:

1. Jafino, Bramika Arga, et al (2020). "Revised Estimates of the Impact of Climate Change on Extreme Poverty by 2030," World Bank Group, September 2020. Link: <https://documents1.worldbank.org/curated/en/706751601388457990/pdf/Revised-Estimates-of-the-Impact-of-Climate-Change-on-Extreme-Poverty-by-2030.pdf>
2. The White House, National Security Council (NSC), "Report on the Impact of Climate Change on Migration," October 2021. Link: <https://www.whitehouse.gov/wp-content/uploads/2021/10/Report-on-the-Impact-of-Climate-Change-on-Migration.pdf>
3. Paul J. Angelo, "Climate Change and Regional Instability in Central America," *Council on Foreign Relations* (CFR), September 2022. Link: <https://www.cfr.org/report/climate-change-and-regional-instability-central-america>
4. Paul Meyer, "Central American Migration Root Causes and US Policy," *Congressional Research Service* (CRS), 12 Dec 2022.
5. Joshua Klein, "International Migration Trends in the Western Hemisphere," *Congressional Research Service* (CRS), 15 July 2022.
6. The White House, "Fact Sheet: The Los Angeles Declaration on Migration," 10 June 2022. Link: <https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/10/fact-sheet-the-los-angeles-declaration-on-migration-and-protection-u-s-government-and-foreign-partner-deliverables/>
7. Full version of the Los Angeles Declaration available here: <https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/10/los-angeles-declaration-on-migration-and-protection/>



8. Paul Meyer (2019), “U.S. Strategy for Engagement in Central America: Policy Issues for Congress,” *Congressional Research Service (CRS)*, 12 November 2019.
9. Wilder Alejandro Sanchez, “The Creation of a TIAR 21 to Combat Illegal Fishing in Latin America,” *William J. Perry Center Regional Insights*, July 2021. Link: <http://dev.williamjerrycenter.org/sites/all/modules/pubdlnet/pubdlnet.php?fid=2081>
10. Wilder Alejandro Sanchez, “The Peruvian Armed Forces vs. Environmental Crimes: An Analysis,” *William J. Perry Center Regional Insights*, November 2022. Link: <http://dev.williamjerrycenter.org/sites/all/modules/pubdlnet/pubdlnet.php?fid=2134>
11. United Nations Food and Agriculture Organization (FAO), “2022 Global Report on Food Crises,” Link: https://docs.wfp.org/api/documents/WFP-0000138913/download/?_ga=2.237792709.412715539.1676907364-1045834763.1676907364
12. Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DMHA), “Best Practices for DoD to Increase Readiness for Climate Change Impacts on HADR Related Missions,” 31 May 2022. Link: <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=vLER9nsHy4o%3d&portalid=0>
13. Centre for Research on the Epidemiology of Disasters CRED and UNDRR UN Office for Disaster Risk Reduction (2020). “The Human Cost of Disasters - An Overview of the Last Twenty Years 2000 – 2019,” 13 October 2020. Link: <https://www.undrr.org/publication/human-cost-disasters-overview-last-20-years-2000-2019>

DAY 6 – Monday, 17 July 2023

HOURLY	ACTIVITY	RESPONSIBILITY
0830 – 0930	Plenary session #19 – Panel discussion: The U.S. Perspective on Climate Change	Dept of State Office of Global Policy (t)
0930 – 0945	Break	Independent
0945 – 1045	Plenary session #20 – Panel discussion: DOD Mitigation and Adaptation of Climate Change effects	(1) DASD Iris Ferguson (t), Deputy Assistant Secretary of Defense for Arctic and Global Resilience. (2) TBD
1045 – 1100	Break	Independent
1100 – 1200	BOG Discussion	BOG Facilitators
1200 – 1300	Lunch	Independent
1300 – 1400	Plenary session #21 – Panel discussion: the U.S. Armed Services and Climate Change	Panelists: (1) Meredith Berger, US Navy (2) TBD Moderator: Dr Erin McFee
1400 – 1415	Break	Independent
1415 – 1515	Session #22 - Student presentations: round #1	Dr. Patrick Paterson, WJPC
1515 – 1600	BOG Discussion	Facilitators
1600	End of Day #6 – buses depart	Independent

DISCUSSION QUESTIONS:

U.S. Government Perspective



The United States is the second largest emitter of greenhouse gases of any country in the world (second behind China). What is the government doing to reduce emissions?
What is the Inflation Reduction Act passed by the U.S. Congress on August 16, 2022?
Why are some U.S. states taking aggressive action against climate change while others are not?
Are climate change mitigation and adaptation efforts worth the cost it will incur on our economies?
Why did the U.S. not participate in the Kyoto climate accord in 1997? Why did President Trump withdraw the United States from the Paris Climate Accord in 2017 and why did President Biden rejoin that initiative in 2021?

U.S. Department of Defense (DOD) perspective

The DOD is the largest source of greenhouse gas emissions of any organization within the U.S. government. How can the DOD maintain military readiness while reducing emissions?
What are the main features of the DOD Climate Adaptation Plan of 2021?
What are the potential impacts of sea level rise along East Coast military installations? What are bases doing to prepare for this threat?
What risks to military bases in the interior of the country face from rising global temperatures?

U.S. Armed Services

What are each of the branches of the U.S. armed services (Army, Navy, Air Force, Marines) doing to abide by the federal government's initiatives to reduce greenhouse gases?
Can aircraft or ships be powered by biofuels or another type of clean energy?

REQUIRED READING:

1. U.S. Government Accountability Office (GAO), "Climate Change Risks to National Security," September 2022. Link: <https://www.gao.gov/assets/gao-22-105830.pdf>
2. Harris, Shane and Birnbaum, Michael, "White House, intelligence agencies, Pentagon issue reports warning that climate change threatens global security," *Washington Post*, 21 Oct 2021.

SUGGESTED READING:

1. Goodman, Sherri and Baudu, Pauline (2023), "Climate Change as a Threat Multiplier: History, Uses, and Future of the Concept," *Center for Climate and Security*, 03 January 2023. Link: <https://i0.wp.com/climateandsecurity.org/wp-content/uploads/2023/01/38-CCThreatMultiplier.jpg?resize=232%2C300&ssl=1>
2. Director of National Intelligence, "Global Trends 2040: A More Contested World," National Intelligence Council, March 2021. https://www.dni.gov/files/ODNI/documents/assessments/GlobalTrends_2040.pdf
3. Gordon, Noah (2022). "How Climate Change Helps Violent Nonstate Actors," Carnegie Endowment for International Peace, 14 December 2022. Link: <https://carnegieendowment.org/2022/12/14/how-climate-change-helps-violent-nonstate-actors-pub-88637>
4. Busby, Joshua and Uexkull, Nina (2018). "Climate Shocks and Humanitarian Crises: Which Countries are most at Risk," *Foreign Affairs*, 2018. Link: <https://www.foreignaffairs.com/world/climate-shocks-and-humanitarian-crises>



5. Poushter, Jacob, et al (2022). "Climate Change Remains Top Global Threat Across 19-Country Survey," Pew Research Center, 31 August 2022. Link: <https://www.pewresearch.org/global/2022/08/31/climate-change-remains-top-global-threat-across-19-country-survey/>

DAY 7 – Tuesday, 18 July 2023

HOURLY	ACTIVITY	RESPONSIBILITY
0830 – 0930	Session #23 - Student presentations: round #2	Dr. Patrick Paterson, WJPC
0930 – 0945	Break	Independent
0945 – 1045	Plenary session #24 – Caribbean Panel	Dr. Michelle Mycoo (t) Dr. Adelle Thomas, (c)
1045 – 1100	Break	Independent
1100 – 1200	Plenary session #25 – Central America and Mexico Panel	Dr. Alex Guerra (C) Dr. Ruth Cerozo Mota (t)
1200 – 1300	Lunch	Independent
1300 – 1400	Plenary session #26 – Amazon deforestation	Dr. Adriana Abdenur (t) Dr. Lincoln Alvez (c)
1400 – 1415	Break	Independent
1415 – 1515	Plenary session #27 – Andean Glacier melt	Dr. Daniel Ruiz Carrascal (t) Dr. Lucas Ruiz (t)
1515 – 1600	BOG Discussion (if Forum conducted at Perry Center)	Facilitators
1600	End of Day #6 – buses depart	Independent

DISCUSSION QUESTIONS:

What are most countries in the region doing to mitigate or adapt for climate change?

Who leads the climate change efforts in most countries?

What role do the security forces play in these efforts?

Have any of the Latin American or Caribbean nations reorganized for new missions of environmental security and biodiversity protection?

REQUIRED READING

1. World Bank Group (2022). A Roadmap for Climate Action in Latin America and the Caribbean, 2021-2025. Washington, DC: World Bank.

Available in English:

<https://openknowledge.worldbank.org/bitstream/handle/10986/38001/English.pdf?sequence=7&isAllowed=y>

Available in Spanish:

<https://openknowledge.worldbank.org/bitstream/handle/10986/38001/Spanish.pdf?sequence=9&isAllowed=y>

SUGGESTED READING:

1. World Meteorological Organization, "State of the Climate in Latin America and the Caribbean, 2021."

Available in English: https://reliefweb.int/attachments/2fc4db15-cb79-46ca-bc8e-16ff17c041ff/1295_WMO_State_of_the_Climate_in_LAC_2021_en.pdf

Available in Spanish: https://reliefweb.int/attachments/7cfffbe7-95a9-40e9-afd8-c66fd31b592c/1295_WMO_State_of_the_Climate_in_LAC_2021_es.pdf



2. Abdenur, Adriana Erthal and Lukas Rüttinger 2020: Climate-fragility Risk Brief: Latin America and the Caribbean. Berlin: CSEN.
Available in English: [https://climate-security-expert-network.org/sites/climate-security-expert-network.com/files/documents/climate fragility risk brief latin america and the caribbean.pdf](https://climate-security-expert-network.org/sites/climate-security-expert-network.com/files/documents/climate%20fragility%20risk%20brief%20latin%20america%20and%20the%20caribbean.pdf)
Available in Spanish: [https://climate-security-expert-network.org/sites/climate-security-expert-network.com/files/documents/informe de riesgos de fragilidad climatica lac.pdf](https://climate-security-expert-network.org/sites/climate-security-expert-network.com/files/documents/informe_de_riesgos_de_fragilidad_climatica_lac.pdf)
3. Intergovernmental Panel on Climate Change (IPCC), “Small Islands.” Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014. Link: https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap29_FINAL.pdf
4. National Resources Defense Council (NRDC), “Latin America’s 2020 Climate Leaders and Laggards,” 21 December 2020. Link: <https://www.nrdc.org/experts/amanda-maxwell/latin-americas-2020-climate-leaders-and-laggards>
5. United Nations Office for Disaster Risk Reduction (UNDRR), “Regional Assessment Report on Disaster Risk in Latin America and the Caribbean,” 2021. Note: read summary, not full report.
Available in English: <https://www.undrr.org/media/48868/download>
Available in Spanish: <https://www.undrr.org/media/48869/download>

DAY 8 – Wednesday, 19 July 2023

HOURLY	ACTIVITY	RESPONSIBILITY
0830 – 0930	Plenary session #28 – Multi-national companies and Clean Energy Sustainability	TBD
0930 – 0945	Break	Independent
0945 – 1045	Plenary session #29 – International Organizations	1. Dr. Genivieve Connors (C), World Bank 2. Dr. Katherine Calvin (t), IPCC (NASA)
1045 – 1100	Break	Independent
1100 – 1200	Depart for U.S. Naval Academy, Annapolis MD	Dr. Patrick Paterson, WJPC
1200 – 1300	Executive time and Lunch in Annapolis MD	Independent
1300 – 1500	Session #30 - Climate change adaptation efforts at the U.S. Naval Academy	Dr. Patrick Paterson, WJPC
1500	End of Day #8 – buses return to Wash DC and hotel	Dr. Patrick Paterson, WJPC

DISCUSSION QUESTIONS:

Multi-national Companies

What actions are multi-national companies taking to reduce greenhouse gas emissions? Is it effective?
 How long have oil companies known about climate change and why has it taken them so long to act?
 What is “greenwashing”?
 Is fracking better for the environment than traditional forms of resource extraction?
 If natural gas produces greenhouse gases, is it a better source of energy than petroleum or coal?
 How can petroleum and natural gas companies be environmentally responsible without reducing their revenues?



International Organizations

What is the Intergovernmental Panel on Climate Change (IPCC)? Who runs it? What Latin American and Caribbean countries are represented among its scientists?

What have the following international organizations said and done about climate change? World Food Program? UN High Commissioner for Refugees (UNHCHR)? UN High Commissioner for Human Rights (UNHCR)? **NAME OTHERS.**

Do non-government organizations (NGO) participate in the COP meetings?

REQUIRED READING:

1. United States Naval Academy, Sea Level Rise Advisory Council, 2019. Report to the Superintendent: Initial Analysis and Recommendation to Prepare for 21st Century Sea Level Rise and Storm Tides, Annapolis, MD, USA. **(on Blackboard)**
2. Sea Level Rise Advisory Council, 2017, "Planning for Annapolis Sea Level Rise and Future Extreme Water Levels," 31 October 2017. **(on Blackboard)**

SUGGESTED READING:

1. Union of Concerned Scientists, "The US Military on the Front Lines of Rising Seas," 27 July 2016. Link: <https://www.ucsusa.org/sites/default/files/images/gw-cover-us-military-front-lines-rising-seas.jpg>
2. Patrick Paterson, "Climate change is coming for Annapolis," *U.S. Naval Institute Proceedings*, October 2019. Link: <https://www.usni.org/magazines/proceedings/2019/october/climate-change-coming-annapolis> **(on Blackboard)**
3. CNA Military Advisory Board, National Security and the Accelerating Risks of Climate Change (Alexandria, VA: CNA Corporation, 2014). Link: https://www.cna.org/archive/CNA_Files/pdf/mab_5-8-14.pdf
4. Sarah Kaplan and Brady Dennis, "Sea level to rise one foot along U.S. coastlines by 2050, government report finds," *Washington Post*, 15 February 2022.

DAY 9 – Thursday, 20 July 2023

HOUR	ACTIVITY	RESPONSIBILITY
0830 – 0930	Session #31 - Student presentations: round #3	Dr. Patrick Paterson, WJPC
0930 – 0945	Break	Independent
0945 – 1045	Session #32 - Student presentations: round #4	Dr. Patrick Paterson, WJPC
1045 – 1100	Break	Independent
1100 – 1200	Session #33 - Student presentations: round #5	Dr. Patrick Paterson, WJPC
1200 – 1215	Perry Center Outreach Brief	Ms. Kara O’Ryan, WJPC
1215 – 1315	Lunch	Independent
1315 – 1415	Session #34 - Student presentations: round #6	Dr. Patrick Paterson, WJPC
1415 – 1430	Break	Independent
1430 – 1515	Session #35 - Student presentations: round #7	Dr. Patrick Paterson, WJPC
1515 – 1600	Session #36 - Student presentations: round #8	Dr. Patrick Paterson, WJPC
1600 – 1800	Class dinner – Lincoln Hall South Atrium	Ms. Maria Fernanda Martinez, WJPC



1800	End of Day #9 – buses depart	Independent
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REQUIRED READING: None.

SUGGESTED READING:

1. Patrick Paterson (2017), “Calentamiento Global y Cambio Climático en Sudamérica” (Global Warming and Climate Change in South America). *Revista Política y Estrategia*, National Academy of Strategic and Political Studies (ANEPE).
2. Patrick Paterson, “Global Warming and Climate Change in the Caribbean,” in *Contemporary Security and Defense Issues in the Caribbean*, William J. Perry Center for Hemispheric Defense Studies, Washington DC. August 2016.

DISCUSSION QUESTIONS: None.

DAY 10 – Friday, 21 July 2023

HOUR	ACTIVITY	RESPONSIBILITY
0830 – 0930	Plenary Session #37 – What will 2100 look like for humanity?	TBD
0930 – 0945	Break	Independent
0945 – 1045	Plenary Session #38 – Faculty Roundtable and Student Feedback	CCIDS Faculty
1045 – 1100	Break	Independent
1100 – 1200	Administrative issues and Rehearsal for Graduation	Ms. Maria Fernanda Martinez, WJPC
1200 – 1300	Lunch	Independent
1300 – 1400	Graduation ceremony	Keynote speaker (TBD)
1400 – 1500	Graduation reception – Lincoln Hall South Atrium	Ms. Maria Fernanda Martinez, WJPC
1500	End of Day #10 and CCIDS course – buses depart	Independent

DISCUSSION QUESTIONS:

What is the distant outlook for humanity by the end of the 21st century? Will our species be able to manage the climate change challenges? Or will it result in an “existential” threat to human civilization as we know it?

How was the international community able to solve the hole of ozone layer? Or the acid rain problem?

What are the Montreal Protocol and the Kigali Amendment?

What is “tragedy of the commons”? What are the problems associated with collective action?

What can individuals do to reduce their carbon footprint?

REQUIRED READING:

1. Intergovernmental Panel on Climate Change (IPCC), “Climate change widespread, rapid, and intensifying,” 09 August 2021. Link: <https://www.cfe-dmha.org/LinkClick.aspx?fileticket=VdzvR21uje8%3d&portalid=0>

SUGGESTED READING:

1. Eckstein, David, et al (2021), “Global Climate Risk Index,” Germanwatch, January 2021. Link:



<https://www.germanwatch.org/en/19777>

2. United Nations Development Programme (UNDP), "Uncertain Times, Unsettled Lives: Shaping our Future in a Transforming World (Human Development Report, 2021-2022), 08 September 2022.
Link:
<https://hdr.undp.org/content/human-development-report-2021-22>



Annex 1. Written Essay Instructions.

All Perry Center courses involve a research and writing phase that contributes to the existing scholarship on the subject. The “Climate Change and Implications for Defense and Security (CCIDS)” course requires course participants to select a topic related to climate change or environmental security, examine it in detail, and submit a 6-10 page written essay to the course director during the post-course research and writing phase from 22 May to 12 June.

Course participants have an immense amount of liberty to choose a topic related to climate change, energy transformation, climate as a security concern, or environmental protection. It may be a topic of concern to your organization, to your country or government, or even something about which you have studied or wondered. Or, with permission of the course director, CCIDS participants may select a unique topic associated with climate change, one not covered in the course.

Essay Milestones:

11 July, submission of essay topic to BOG facilitator – by the second day of the resident phase, CCIDS participants must identify an investigation topic and submit a proposal by email to your BOG facilitator who will review and approve the proposal. The summary should consist of a 200-word abstract that identifies two important features of your project: (1) the primary research question (what is it you intend to examine), and (2) why it is an urgent issue related to climate change.

18, 19, and 20 July – class presentations. CCIDS participants will provide a brief 5’ verbal presentation of their topic to the course participants in the main plenary room. Visual aids (slides) may be used but are not required. Because of time constraints associated with hearing research proposals from nearly 50 course participants, the verbal presentation should address four issues: (1) the primary research question, (2) why it is an urgent issue related to climate change, (3)

11 Aug – final essay submitted to course director. By the last date of the research and writing phase, CCIDS participants must send their completed essay to the course director by email, Patrick.paterson@ndu.edu. Essays should be 6-10 double-spaced pages, 12-point font size, with 1-inch right and left margins. The essays should follow a conventional format of using an introduction with thesis statement, evidence in the body of the paper, and conclusion. Document your sources carefully and use footnote citations in accordance with the Chicago Manual of Style (CMS). Consult the Purdue University Online Writing Lab (OWL) for proper formatting procedures: link: https://owl.purdue.edu/owl/research_and_citation/chicago_manual_17th_edition/cmof_formatting_and_style_guide/chicago_manual_of_style_17th_edition.html

For additional guidance, see the Perry Center Publications Handbook and Writing Guide, posted on the center’s webpage at <http://dev.williamjperrycenter.org/publication-types>. Or ask the course director via email at Patrick.paterson@ndu.edu.



Annex 2 - Climate Change references from Latin American and Caribbean Countries
Material assembled by Perry Center Research Assistant Zoe Nelson, February 2023

Annex 2 - Climate Change from South and Central American Countries	
Country	References
Argentina	<p>Plan de Acción Frente al Cambio Climático 2020 Buenos Aires Ciudad http://cdn2.buenosaires.gob.ar/espaciopublico/apra/pacc_2020.pdf</p> <p>Plan Nacional de Adaptación y Mitigación al Cambio Climático (2022) https://www.argentina.gob.ar/sites/default/files/pnaymcc_-_version_integral_con_medidas_-_28.11.2022.pdf</p> <p>Estrategia de desarrollo resiliente con bajas emisiones a largo plazo a 2050 https://www.argentina.gob.ar/sites/default/files/estrategia_de_desarrollo_resiliente_con_bajas_emisiones_a_largo_plazo_2050.pdf</p> <p>Plan de Acción Nacional de Agro y Cambio Climático (Versión 1 – 2019) https://www.magyp.gob.ar/sitio/pdf/plan_sectorial_cc.pdf</p> <p>Argentine Republic Intended Nationally Determined Contribution (Indc, English) http://www4.unfccc.int/Submissions/INDC/Published Documents/Argentina/1/Argentina_INDC_Non-Official_Translation.pdf</p> <p>República Argentina Contribución Prevista Y Determinada A Nivel Nacional http://www4.unfccc.int/Submissions/INDC/Published Documents/Argentina/1/INDC_Argentina.pdf</p> <p>Actualización de la meta de emisiones netas de Argentina al 2030 (Octubre 2021) https://unfccc.int/sites/default/files/NDC/2022-05/Actualización%20meta%20de%20emisiones%202030.pdf</p>
Belize	<p>Belize: Updated Nationally Determined Contribution https://unfccc.int/sites/default/files/NDC/2022-06/Belize%20Updated%20NDC.pdf</p>
Brazil	<p>National Plan on Climate Change: Brazil (English) http://www.mma.gov.br/estruturas/208/_arquivos/national_plan_208.pdf</p> <p>Plano Nacional de Adaptação à Mudança do Clima (Portuguese) https://www.gov.br/mma/pt-br/assuntos/climaozoniodesertificacao/relatorio-final.pdf</p> <p>National Adaptation Plan to Climate Change (English) https://www.gov.br/mma/pt-br/assuntos/climaozoniodesertificacao/clima/arquivos/final-report_en_web.pdf</p> <p>Federative Republic of Brazil Intended Nationally Determined Contribution Towards Achieving the Objective of the United Nations Framework Convention on Climate Change (INDC, English) http://www4.unfccc.int/Submissions/INDC/Published Documents/Brazil/1/BRAZIL_INDC_english_FINAL.pdf</p> <p>Federative Republic of Brazil Paris Agreement Nationally Determined Contribution (NDC) https://unfccc.int/sites/default/files/NDC/2022-06/Updated%20-%20First%20NDC%20-%20FINAL%20-%20PDF.pdf</p>



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Material assembled by Perry Center Research Assistant Zoe Nelson, February 2023

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Annex 4 – IPCC Strategies and Assessment Reports

All sources from: <https://www.ipcc.ch/reports/?rp=ar1>

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First Assessment Report (FAR) Climate Change: Impacts Assessment of Climate Change
<https://www.ipcc.ch/report/ar1/wg2/>

FAR Climate Change: Scientific Assessment of Climate Change
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<https://www.ipcc.ch/report/ar1/syr/>

Second Assessment Report (SAR) Climate Change 1995: Synthesis Report (October 1995)
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SAR Climate Change 1995: Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses (July 1995)
<https://www.ipcc.ch/report/ar2/wg2/>

SAR Climate Change 1995: The Science of Climate Change (February 1995)
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<https://www.ipcc.ch/report/ar3/syr/>

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AR5 Synthesis Report: Climate Change 2014 (October 2014)

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Special Reports - Global Warming of 1.5°C (October 2018)

<https://www.ipcc.ch/report/sr15/>

AR6 Synthesis Report: Climate Change 2023 (March 2023)

<https://www.ipcc.ch/report/sixth-assessment-report-cycle/>

AR6 Climate Change 2022: Mitigation of Climate Change (April 2022)

<https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/>

AR6 Climate Change 2022: Impacts, Adaptation and Vulnerability (February 2022)

<https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/>

AR6 Climate Change 2021: The Physical Science Basis (August 2021)

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