

# UC Merced

## UC Merced Undergraduate Research Journal

### Title

Climate Change and its Effects on Pacific Islander Communities: Are Climate Changes and its Effects a Danger to Pacific Islander Communities?

### Permalink

<https://escholarship.org/uc/item/7s1394vb>

### Journal

UC Merced Undergraduate Research Journal, 16(2)

### Author

Evjenth, Noah

### Publication Date

2024

### DOI

10.5070/M416263467

### Copyright Information

Copyright 2024 by the author(s). This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed|Undergraduate



**Issue 16, Volume 2 April 2024**

**Climate Change and its Effects on  
Pacific Island Communities,  
Are Climate Changes  
and its Effects a Danger to  
Pacific Islander Communities?**

**Noah J. Evjenth**

**ACKNOWLEDGEMENTS**

This paper was written for WRI 10: College Reading and Composition with Philip Lovas.

**Climate Change and its Effects on Pacific Islander Communities: Are Climate Changes  
and its Effects a Danger to Pacific Islander Communities?**

Noah J. Evjenth

University of California, Merced

September 17, 2023

**Author's Note**

This research paper was created as an assignment for Mr. Lova's Fall 2023 Writing 010 course.

### **Abstract**

I examined how Pacific Islander communities are experiencing and responding to climate change, and the future of the region as a whole. For this paper, I conducted research on climate change, Pacific Islander communities, and predictions, alongside the cultural, social, economic, and political responses. Pacific Islander communities are experiencing the negative effects of climate change, and their responses—while adaptive—are often constrained due to their geography (Barnett, & Campbell, 2010). The future is full of negative effects, but the extent of the damages remains a subject of debate, with both pessimistic and optimistic perspectives. In conclusion, climate change has negative impacts on Pacific Islander communities, and this continued trend and its outcomes will persist and be determined by our actions today (Campbell, 2010). These vulnerable populations are at risk due to climate change, which makes it even more important to address the impacts in order to assist them.

*Keywords:* PIC's, Pacific Islander communities, Pacific Islander countries, climate change, political effects, environmental effects, predictions

### **Climate Change and its Effects on Pacific Islander Communities: Are Climate Changes and its Effects a Danger to Pacific Islander Communities?**

Since the year 2000, climate change has been a highly debated and researched subject, and even today, many scholars hold different views on the future and current effects of climate change (Campbell, 2010). Specifically, in the context of the island communities of the Pacific Ocean, the effects that they incur are seen as warning signs for the rest of the world. This is widely due to their geography, as many Pacific Islander countries and communities (PIC's) are low-lying, volatile islands in the middle of the Pacific Ocean. Given the location of PIC's, they are more dramatically affected by changing tides, weather, and other negative effects of climate change (Barnett, & Campbell, 2010). Research previously conducted regarding the region and the effects of climate change is very broad and covers anything from the cultural, societal, and political effects to the more scientific predictions regarding weather changes, rising sea levels, and climates (Currenti, et al., 2019). That being said, most current research tends to hold optimistic or pessimistic convictions about the futures of these vulnerable island communities, with some research being outright contradictory. Researchers that are "optimistic" are not typically denying climate change, rather they downplay its severity, while researchers that are "pessimistic" tend to overplay its effects. I aim to research and explore the potential negative effects of climate change for the region, as well as to address the debates between scholars and politicians concerning the future of these island nations.

#### **Current Environmental Effects**

While the future of climate change may be uncertain, the current environmental effects it has had are clear. Climate change is making extreme weather events more frequent and intense, including heat waves, droughts, floods, storms, and wildfires. These events are causing damage

to property and infrastructure, and are costing governments and businesses millions of dollars each year (NASA, n.d. -a). Sea levels are rising due to the melting of glaciers and ice sheets, and the expansion of seawater as it warms. This is already causing flooding and erosion in coastal areas, and is displacing millions of people around the world (NOAA, n.d., -a). Climate change is causing plant and animal life to migrate to new areas in search of more suitable habitats (Hubbart, 2023). This is disrupting ecosystems and food chains, and is putting some species at risk of extinction (Georgakakos, 2014). Climate change also has a direct impact on human health, through increased exposure to extreme heat, air pollution, and vector-borne diseases (Craggs, 2023). Climate change is having, and has had, large negative impacts across the world. The destruction and pain brought from more severe weather events, disease, and sea level rise have affected millions. The reason why this is important is because the effects felt from these impacts is largely what has pushed the vast majority of the scientific community to recognize climate change and identify it as a threat.

While these effects of climate change affect all communities across the globe in a moderate manner, at least for now, these effects are more intense in Pacific Islander communities. This is due to many reasons; as previously mentioned, PIC's are isolated, volatile islands. However, there are many other reasons for their vulnerability and usability as warning signs for the future. Many PIC's have developing economies with limited resources making it difficult for them to adapt to the impacts of climate change, such as building seawalls and infrastructure (Hezel, 2012). On the topic of infrastructure, PIC's often lack proper, efficient, or adaptable roads, bridges, and water systems, which increases the vulnerability to extreme weather events and makes recovery harder (Austrade, 2023). Pacific Islander communities rely heavily on natural resources for their livelihoods, such as fisheries, tourism, and agriculture.

Climate change has the potential to, and has, damaged these resources, making it more difficult for Pacific Islanders to make a living (Bafana, 2022). Many Pacific Islands are low-lying, meaning that they are only a few feet above sea level and atoll-shaped, meaning they are ring-like, enclosing a lagoon in the center and typically very thin (Atoll, n.d.). This makes them very vulnerable to sea level rise and storms (Parsons, 2022). As an example, Tuvalu, a Pacific Island nation, is at risk of disappearing entirely due to sea level rise (Craymer, 2022). All of these effects are specific to island communities but apply mostly to PIC's. This is important because PIC's are often seen as warnings for the rest of the world. Since PIC's feel the effects of climate change more intensely and earlier (due to their geography), they represent what the rest of the higher-lying, richer, and larger countries will also experience if the world continues to get warmer and if no action is taken. In other words; the PIC's are important to monitor because if they "go under" so to speak, then "we" are next. This reconciliation has ultimately led to changes in the political actions of the world.

### **Current Political Effects**

In addition to its negative environmental effects, climate change has also resulted in massive changes in the political landscape of the Pacific region and the world. Across the world, climate change is becoming a prominent issue in the internal politics of many countries. For example, climate change is a major issue in the upcoming elections in the United States, United Kingdom, and the political parties in these (and many other countries) have platforms that incorporate climate change action (or the lack thereof) (Poushter, 2022). Many countries have also supplied PIC's with foreign aid. Australia, for instance, supplies PIC's with much needed foreign aid; however, critics claim it is insufficient or just for political appearance as opposed to moral obligation (Hawksley, 2009). Climate change has led to the emergence of many activist

organizations and political movements. These movements aim to raise awareness of climate change, demand action from governments, and promote sustainable development (Barnett & Campbell, 2010). For example, the Fridays for Future movement and the Extinction Rebellion movement are examples of new political movements that are working to address climate change outside of the Pacific region (Buzogány, 2022). Many political impacts around the world can be traced back to climate change. This is important because the political commotion drummed up from the threat of climate change has brought about debates as to whether climate change is natural or even real in spite of the physical/environmental effects that it has had on the world. As for the Pacific region however, there is no question about the validity of climate change.

In the Pacific region, climate change has led to increased cooperation amongst the Pacific Islander nations, as PIC's have come together to advocate for international action against climate change, and to share resources and adaptation strategies. For instance, the Pacific Islands Forum developed quite a few regional climate change policies and initiatives with the aim of “immediate, significant, and coordinated practical action to address climate change and disaster risk management” (PIF, n.d.). Climate change has led to Pacific Islander states taking initiative on the world stage, in global and regional agreements, and in legal battles. This is because the PIC views the fight against climate change as a global one, which is a concept I will revisit later. There are many examples of PIC's taking initiative, such as PIC's directly influencing decisions made in the Paris Agreement and its enforcement and pressuring other states to provide foreign aid (Mead, 2021). PIC's have also seen political organizations take form in pursuit of climate change activism. An example of a Pacific Islander ethnic activist group is the Pacific Climate Warriors. They are a network of people from across the Pacific region who work to raise awareness of climate change and to demand action from local/foreign governments and the

international community (Fair, 2020). Activist groups like this organize protests, marches, and other events to raise awareness of climate change and to demand action. They also serve to lobby governments to take action on climate change and to support PIC's in adapting to the impacts of climate change (Afaese, n.d.). The reason why understanding the political effects of climate change in the Pacific region is important is because it paints a picture of a cooperative, almost desperate, group of countries and communities working together to fight what is directly hurting them. We see in other countries' political platforms' apathetic or even dismissive attitudes towards climate change largely due to the problem not affecting them or not seeming like a priority issue. This is a dangerous mindset to have and is reminiscent of "The Lorax" (Seuss, 1971) whereas the people don't act until it's too late. There is often a united front in PIC's that is difficult to replicate in northern, larger, and richer countries that do not feel such a sense of urgency about climate change..

### **Current Cultural and Societal Effects of Climate Change**

Climate change has had many social and cultural effects in the world as well as in the Pacific region. Around the world, climate change has worsened general conditions, especially in poorer, unstable regions, and has helped exacerbate existing social and political tensions, leading to conflict and instability. For example, competition for scarce resources such as water and land can increase tensions between different groups of people (Ryan, 2019). Climate change has also displaced people from their homes, which can lead to increased social unrest from migration issues, which have always been a cause of conflict (McAllister, 2023). Globally, climate change has also led to political activism and has greatly affected pop culture and the media, especially in richer, larger countries (Bulfin, 2017). The social and cultural effects of climate change in the world have been mostly negative in poorer, more unstable regions, or compacted to pop

culture/activist movements in richer, larger countries. This contrasts the emphasis that the Pacific Islander communities place on climate change and their need for collective action. Climate change is a pressing issue for the Pacific Islander communities, yet PIC's often feel like it is not given the attention it deserves.

The social and cultural impacts of climate change on the Pacific region have been significant, exacerbating economic issues and leading to voluntary or forced migration within island countries. Pacific Islanders see climate change as a moral obligation for richer countries to reduce greenhouse gas emissions, and some PIC's even have antagonistic attitudes towards more carbon-emitting countries (Weir, 2017). Many PIC's are faced with the fear of losing their land, cultures, and autonomy. Many Pacific Islanders become disgruntled or discontent while more powerful countries accept losses and make what appear to be mediocre pledges to cut emissions. PIC's see climate change as a global, communal battle. When nations disagree or appear to be apathetic, this can also lead to PIC's becoming politically aggressive, but not in a military sense (Kirsch, 2020). From the PIC's point of view, the powers of the world made bad environmental decisions, which caused climate change, and have now accepted losses and decided that the strife the PIC's have and will bear is a worthy sacrifice to make their lives easier (Barnett, 2017). Whether or not this is true is not what I'll get into; however, this is indeed a shared point of view amongst many PIC's and is the main reason why speeches from PIC representatives can get very heated at times (Perkiss, 2018). On another note, the religious groups of the Pacific Islander region have been affected by climate change as well, with researchers noting a “spiritualization of climate change” and compared the interesting phenomenon to “manifestations of the biblical story of Noah and the Flood” (Fair, 2018). This shows just how far-reaching the extent of climate change is and how much it has affected the culture of the Pacific region in comparison to the rest

of the world. Researchers have also observed that Pacific Islanders are resilient and determined, and that they tend to be more self-sufficient. This self-sufficiency is useful for adapting to climate change; however it can also be damaging when climate change threatens self-sufficient means of food production such as agriculture and fisheries (Currenti, et al., 2019). Climate change's effects on the culture and societies of PIC's are far reaching and reflect a very affected region. This information regarding the cultural and societal effects is not just important for understanding political contexts, but for understanding the PIC's current condition. As established, PIC's represent warnings and a glimpse into the future for the rest of the world in the context of climate change. Understanding their socio-cultural responses helps us to learn about our own socio-cultural landscape whilst helping us to litigate the non-physical effects of climate change now, and in the future.

### **Climate Change Predictions**

The future of climate change is that of a continued downward trend assuming we keep at our current rate of greenhouse gas emissions. Global average temperatures are expected to increase by 1.5 to 4 degrees Celsius by the end of the 21st century. This global warming will lead to an increase in extreme weather events, such as heatwaves, droughts, floods, and wildfires (NASA, n.d., -a). These extreme weather events will affect PIC's severely as PIC's are particularly vulnerable to cyclones, floods, and storms which can lead to flooding, infrastructure damage, and losses of life. (Austrade, 2023) Sea levels are projected to rise by 0.26 to 0.82 meters (0.9 to 2.7 feet) by 2100, threatening low lying coastal communities and infrastructure (ETABL, n.d.). Sea level rise is especially dangerous for the Pacific Islands, as it leads to saltwater intrusion that can contaminate rare freshwater sources, erosion of coastlines, and

damage to infrastructure. In some low-lying atoll-shaped islands, there is a risk of disappearing altogether (Craymer, 2022).

Changes in precipitation patterns will lead to some regions experiencing increased rainfall and flooding, while others will become drier. This will have significant impacts on agriculture, water resources, and ecosystems (C2ES, n.d.). Many PIC's may receive increased or decreased rainfall depending on their geography. Pacific Islands that receive less rain may have agricultural problems, droughts, and increased vulnerability to wildfires. PIC's that receive more rainfall may have an uptake in waterborne diseases, flooding, and of course more intense weather events (McLeod, 2019). Loss of biodiversity due to climate change will cause species to migrate, and many species are likely to go extinct. "Recent research indicates one-third of all plant and animal species could be extinct by 2070" (FAU, 2022). In the Pacific Islands climate change and the loss of biodiversity will lead to agriculture shortages, fisheries becoming smaller or disappearing entirely, and a reliance on foreign products. All of this will make life in the Pacific much more difficult, and expensive (Campbell, 2010). Fisheries are also under attack from ocean acidification, which occurs as the ocean absorbs more carbon dioxide from the atmosphere, it becomes more acidic. This is harmful to marine life, particularly shellfish and corals. Many coastal regions around the world rely on fisheries as sources of food and economic prosperity, and the Pacific region is of course not an exception as many economies rely on the leasing of rights to fish in certain areas (NOAA, n.d. -b).

Predictions for the future of climate change are alarming, threatening to the world, and are generally more severe for the Pacific region. The Pacific region is at the forefront of the negative effects for the future of climate change and appear to be in serious danger. This reflects

how serious the fight against climate change is and what the future consequences of greenhouse gasses will do to not just the Pacific Region but the rest of the world.

### **Addressing Controversies**

To date, in the scientific community, the overall consensus regarding climate change is that climate change is real, human-caused, and a serious threat to the planet (NASA, n.d. -b). Nevertheless, there is still debate about the extent of the effects of climate change in the future and the possible solutions. When it comes to the extent of damages, statistics are often exaggerated, from statistical errors, biases, and differing operational definitions. There seems to be no consensus on the exact predictions of death tolls, economic costs, and biodiversity loss. Most of this confusion comes from differing organizations operationalizing their conceptual definitions. For example, one group may label “climate victims” as anyone even slightly or remotely affected by climate change, while another group may label “climate victims” to be only individuals who are directly affected by changing weather patterns (Klein, 2009). These may seem small, but it makes the difference between thousands or tens of millions of deaths. Climate activists are very prone to being biased and are not the best statisticians, and this fact often bleeds through climate change research reports (Maraun, 2017). For example, in 2014 WHO released a report concerning the death tolls of vulnerable peoples due to climate change up until 2050 (WHO, 2014). It made big claims regarding millions of casualties and death unlike never before. Almost ten years later and we haven't felt the fullness of these alleged impacts, but why? It was found that they had exaggerated the changes in climate, what defines a vulnerable population, and did not account for the human nature of adaptation and technological improvements (Goklany, n.d.). While scholars and activists may overplay the effects of climate change, politicians often downplay or ignore the effects of climate change altogether. For

instance, President Trump was often known for his downplaying of climate change and his apathetic behavior to make positive changes, which is still a sentiment felt in the USA today (Jotzo, 2018). In the context of PIC's, the overplaying of climate change can lead to fears and feelings of hopelessness while downplaying can lead to PIC's feeling neglected and can lead to restlessness. The bias of climate change research on both sides of the spectrum and the pushing of agendas is a negative to the world and especially the Pacific region, who only seek to maintain their continued existence via the fight against climate change.

### **Potential Solutions**

There are no actual “solutions” to climate change, just mitigation and adaptation strategies. To mitigate the effects of climate change is to reduce greenhouse gas emissions thereby hampering the effects of climate change in the future (NASA, n.d. -c). To adapt is to develop solutions to help people and ecosystems cope with the impacts of climate change that are already happening (Georgieva, 2022). There are many ways to mitigate and adapt to climate change. For example, carbon capture is a technology being developed to capture carbon dioxide emissions from sources like power plants and industrial facilities and store them underground. The goal is to prevent CO<sub>2</sub> from entering the atmosphere and contributing to climate change but requires energy and the secure storage of the captured carbon (National Grid, 2023). A few other strategies are reducing emissions, investing in clean energy sources, building sea walls, and building better flood drainage systems, etc (Fawzy, 2020).

PIC's are doing what they can to adapt but are limited by their geography, resources, and economics and can only push larger and more greenhouse gas emitting countries to reduce their emissions (Barnett, & Campbell, 2010). In the end, mitigating and adapting to climate changes are what the global community has to do. Depending on how the global community exercises

adaptation strategies and mitigates greenhouse gas emissions will shape the landscape of the world and the Pacific Islander communities in the future.

### **Conclusion**

In conclusion, the impacts of climate change on PIC's are significant, and the far future is uncertain, with debates on the extent of damages and varying perspectives. These vulnerable populations are at risk from suffering the effects of climate change, underscoring the need to address the impacts urgently. PIC's serve as early warnings of climate change, experiencing its effects intensely. Their united front politically, contrasts with apathetic attitudes in the larger, richer nations of the world. The cooperative efforts of Pacific Islander countries represent a collective sentiment of urgency that should be reflected by collective action in the global community. The social and cultural impacts highlight the serious nature of climate change for Pacific Islander communities, contrasting with responses in larger, richer, countries.

Understanding these effects is important for both political contexts and gaining insights into the current conditions of PIC's. Looking ahead, predictions make alarming threats, especially for the Pacific region. Overemphasizing or downplaying climate change's effects can create feelings of fear or neglect in PIC's. Recognizing biases in climate change research is essential for a global understanding of the severity of the fight against climate change. The vulnerability of the Pacific region serves as an important reminder of the consequences of apathy for the entire world.

Unless the correct strategies are applied now to mitigate and adapt to climate change, along with coordinated and honest research. Pacific Islander communities will be adversely affected by climate change, and those effects incurred will echo throughout the rest of the world.

### References

Afaese, U. (n.d.). *For generations to come*. National Library Wellington.

<https://natlib.govt.nz/schools/teaching-and-learning-resources/te-kupenga-stories-of-aotea-roa-nz/for-generations-to-come>

Australian Trade and Investment Commission. (2023). *Building resilient infrastructure in the Pacific Islands*. Austrade.

<https://www.austrade.gov.au/en/news-and-analysis/analysis/building-resilient-infrastructure-in-the-pacific-islands>

Barnett, J., & Campbell, J., (2010). Climate change and small island states: power, knowledge and the South Pacific. *Earthscan*.

Barnett, J. (2017). The dilemmas of normalizing losses from climate change: Towards hope for Pacific atoll countries. *Asia Pacific Viewpoint*, 58(1), 3-13.

<https://doi.org/10.1111/apv.12153>

Bafana, B. (2022). *Climate Change is No 'Future Scenario' for Pacific Island Nations; Climate Change is 'Real.'* ReliefWeb.

<https://reliefweb.int/report/world/climate-change-no-future-scenario-pacific-island-nations-climate-change-real>

Bulfin, A. (2017). Popular culture and the “new human condition”: Catastrophe narratives and climate change. *Global and Planetary Change*, 156, 140-146.

<https://doi.org/10.1016/j.gloplacha.2017.03.002>

Buzogány, A., & Scherhauer, P. (2022). Framing different energy futures? comparing Fridays for future and extinction rebellion in Germany. *Futures*, 137, 102904.

<https://doi.org/10.1016/j.futures.2022.102904>

C2ES. (n.d.). *Drought and climate change*. Center for Climate and Energy Solutions.

<https://www.c2es.org/content/drought-and-climate-change/>

Campbell, J. (2010). Climate Change and Population Movement in Pacific Island Countries.

*Climate Change and Migration*. 29-50.

[https://www.researchgate.net/profile/Bruce-Burson/publication/327638277\\_Climate\\_change\\_and\\_migration\\_in\\_the\\_South\\_Pacific\\_region\\_policy\\_perspectives/links/5fd2c42092851c00f8661f60/Climate-change-and-migration-in-the-South-Pacific-region-policy-perspectives.pdf#page=43](https://www.researchgate.net/profile/Bruce-Burson/publication/327638277_Climate_change_and_migration_in_the_South_Pacific_region_policy_perspectives/links/5fd2c42092851c00f8661f60/Climate-change-and-migration-in-the-South-Pacific-region-policy-perspectives.pdf#page=43)

Craggs, A. (2023). Climate change. *World Health Organization*.

<https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

Craymer, L. (2022). Tuvalu turns to the metaverse as rising seas threaten existence. *Reuters*.

<https://www.reuters.com/business/cop/tuvalu-turns-metaverse-rising-seas-threaten-existence-2022-11-15/>

Currenti, R., Pearce, T., Salabogi, T. et al. (2019). Adaptation to Climate Change in an Interior Pacific Island Village: a Case Study of Nawairuku, Ra, Fiji. *Human Ecology* 47, 65–80.

<https://doi.org/10.1007/s10745-019-0049-8>

Dr. Seuss. (1971). *The lorax*. HarperCollins Children's Books.

Energy Technologies Area, Berkeley Lab. (n.d.). *Dampness and Mold from Severe Storms and Sea Level Rise*. Indoor Air Quality Lawrence Berkeley Laboratory.

<https://iaqscience.lbl.gov/dampness-and-mold-severe-storms-and-sea-level-rise>

Evers, J. (Ed.). (n.d.). Atoll. [education.nationalgeographic.org](https://education.nationalgeographic.org); *National Geographic Society*.

<https://education.nationalgeographic.org/resource/atoll/>

Fair, H. (2018). Three stories of Noah: Navigating religious climate change narratives in the Pacific Island region. *Geo: Geography and Environment. The Royal Geographical Society* 5(2), e00068.

<https://doi.org/10.1002/geo2.68>

Fair, H. (2020). Their Sea of Islands? Pacific Climate Warriors, Oceanic Identities, and World Enlargement. *The Contemporary Pacific* 32(2), 341-369.

<https://doi.org/10.1353/cp.2020.0033>

Fawzy, S., Osman, A. I., Doran, J., Rooney, D. W. (2020). Strategies for mitigation of climate change: a review. *Environmental Chemistry Letters*, 18, 2069-2094.

<https://link.springer.com/article/10.1007/s10311-020-01059-w>

Friedrich-Alexander-Universität Erlangen-Nürnberg. (2022). *Will species go extinct with climate change and is there anything we can do to prevent it?* FAU Erlangen-Nürnberg.

<https://www.fau.eu/2022/03/03/news/research/will-species-go-extinct-with-climate-change-and-is-there-anything-we-can-do-to-prevent-it/>

Georgakakos, A., Fleming, P., Dettinger, M., Peters-Lidard, C., Richmond, T., Feldman, V., White, K., & Yates, D. (2014). *U.S. Global Change Research Program. National Climate Assessment.*

<https://nca2014.globalchange.gov/report/sectors/water>

Georgieva, K., Gaspar, V., & Pazarbasioglu, C. (2022). *Poor and Vulnerable Countries Need Support to Adapt to Climate Change.* IMF.

<https://www.imf.org/en/Blogs/Articles/2022/03/23/blog032322-poor-and-vulnerable-countries-need-support-to-adapt-to-climate-change>

Goklany, I. M. (n.d.) Unhealthy Exaggeration: The WHO report on climate change. *The Global Warming Policy Foundation*.

<https://www.netzerowatch.com/content/uploads/2014/11/WHO-paper.pdf>

Hawksley, C., (2009) Australia's aid diplomacy and the Pacific Islands: change and continuity in middle power foreign policy, *Global Change, Peace & Security*, 21:1, 115-130.

<https://doi.org/10.1080/14781150802659473>

Hezel, F. (2012). *Pacific Island Nations: How Viable Are Their Economies?*. East-West Center.

<https://www.eastwestcenter.org/publications/series/pacific-islands-policy>

Hubbart, S. (2023). *How climate change is changing animal habits*. The National Environmental Education Foundation (NEEF).

<https://neefusa.org/story/climate-change/how-climate-change-changing-animal-habits>

Jotzo, F., Depledge, J., Winkler, H. (2018). US and international climate policy under President Trump. *Climate Policy*, 18(7), 813-817.

<https://www.tandfonline.com/doi/full/10.1080/14693062.2018.1490051>

Kirsch, S. (2020). Why Pacific Islanders stopped worrying about the apocalypse and started fighting climate change. *American Anthropologist*, 122(4), 827-839.

<https://doi.org/10.1111/aman.13471>

Klein, R. J. (2009). Identifying countries that are particularly vulnerable to the adverse effects of climate change: an academic or political challenge. *Carbon & Climate L. Rev.*, 284.

<https://heinonline.org/HOL/LandingPage?handle=hein.journals/cclr3&div=50&id=&page>

Maraun, D., Shepherd, T. G., Widmann, M., Zappa, G., Walton, D., Gutiérrez, J. M., Mearns, L. O. (2017). Towards process-informed bias correction of climate change simulations.

Nature Climate Change, 7(11), 764-773.

<https://www.nature.com/articles/nclimate3418>

McAllister, S. (2023). *There could be 1.2 billion climate refugees by 2050. Here's what you need to know*. Zurich.com.

<https://www.zurich.com/en/media/magazine/2022/there-could-be-1-2-billion-climate-refugees-by-2050-here-s-what-you-need-to-know>

McLeod, E., Bruton-Adams, M., Förster, J., Franco, C., Gaines, G., Gorong, B., James, R.,

Posing-Kulwaum, G., Tara, M., Terk, E. (2019). Lessons From the Pacific Islands –

Adapting to Climate Change by Supporting Social and Ecological Resilience. *Frontiers in Marine Science*, 6:289.

<https://doi.org/10.3389/fmars.2019.00289>

Mead, S., Wewerinke-Singh, M. (2021). Recent Developments in International Climate Change

Law: Pacific Island Countries' Contributions. *International Community Law Review*,

23(2-3), 294-309. <https://doi.org/10.1163/18719732-12341479>

NASA. (n.d. -a). *Extreme Weather and Climate Change*. NASA.

<https://climate.nasa.gov/extreme-weather/>

NASA. (n.d. -b). *Understanding our planet to benefit humankind*. Climate. NASA.

<https://climate.nasa.gov/>

NASA. (n.d.-c). *Mitigation and Adaptation*. NASA.

<https://climate.nasa.gov/solutions/adaptation-mitigation/>

National Grid. (2023). *What is Carbon Capture and Storage?* Wwww.nationalgrid.com.

<https://www.nationalgrid.com/stories/energy-explained/what-is-ccs-how-does-it-work>

NOAA. (n.d. -a). *Is sea level rising?*. National Oceanic And Atmospheric Administration's

National Ocean Service. <https://oceanservice.noaa.gov/facts/sealevel.html>

NOAA. (n.d. -b). *Understanding Ocean Acidification*. Fisheries. National Oceanic And Atmospheric Administration.

<https://www.fisheries.noaa.gov/insight/understanding-ocean-acidification>

Pacific Islands Forum. (n.d.). *Climate change and resilience*. forumsec.

<https://www.forumsec.org/resilientpacific/>

Parsons, C. (2022). *The Pacific Islands: The front line in the battle against climate change*. NSF.

<https://new.nsf.gov/science-matters/pacific-islands-front-line-battle-against-climate>

Perkiss, & Moerman, L. (2018). A dispute in the making: A critical examination of displacement, climate change and the Pacific Islands. *Accounting Auditing & Accountability Journal*, 31(1), 166–192.

<https://doi.org/10.1108/AAAJ-06-2016-2582>

Poushter, J., Fagan, M., Gubbala, S. (2022). *Climate change remains top global threat across 19-country survey*. Pew Research Center's Global Attitudes Project.

<https://www.pewresearch.org/global/2022/08/31/climate-change-remains-top-global-threat-across-19-country-survey/>

Ryan, D. (2019). *Stanford-led study investigates how much climate change affects the risk of armed conflict*. Stanford News.

<https://news.stanford.edu/2019/06/12/climate-change-cause-armed-conflict/>

Weir, T., Dovey, L., & Orcherton, D. (2017). Social and cultural issues raised by climate change in Pacific Island countries: an overview. *Regional Environmental Change*, 17,

1017-1028.

<https://doi.org/10.1007/s10113-016-1012-5>

World Health Organization. (2014). *Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s*. World Health Organization.

<https://www.who.int/publications/i/item/9789241507691>