

**Professor Josh Busby**

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## **FALL 2023**

### **Fall 2023 - PA 388K – Environmental Security**

**Class Meeting Time:** T 2:00PM to 5:00PM      **Classroom:** 3.216

Can environmental problems lead to security problems? Answers to this question require an understanding of what constitutes security. Security for whom? States? Individuals? This course will primarily review two waves of scholarship on environmental security, the first from the 1990s in which scholars assessed the connections between environmental problems and conflict, and the second from the 2000s on the connections between climate change and security. In the process, the course will review different conceptions of security, from narrow conceptions that focus on environmental change and conflict onset to broader understandings of human security. We will also familiarize ourselves with the nascent practice of climate security initiatives, including what militaries are doing to respond to climate change, climate security at the UN and other multilateral organizations, and the challenges of environmental peacebuilding. Along the way, other side discussions of environmental security will be explored including (1) wildlife poaching crisis and security, (2) environmental peacemaking (3) the effects of war on the environment and (4) the geopolitics of the clean energy transition.

**Objectives:** I want to familiarize you with the latest in scholarly and policy debates about climate security and what to do about these problems.

### **Requirements and Expectations**

Course assignments will include a two short writing assignments, notes and group presentation on 4 regional/transnational climate plans, a policy memo, and a final paper.

### **Readings**

Readings will be articles and chapters on electronic reserve, roughly 100-150 pages per week.

Additional topical news articles will be sent out each week to accompany the thematic or regional readings.

My book *States and Nature: The Effects of Climate Change on Security* (Cambridge, 2022) will be an assigned text but a PDF of it will be provided. Should you wish to purchase a copy, I will send you a discount code, but you are not required to purchase the book.

### **COURSE REQUIREMENTS**

- Writing Assignments (20%)
- Regional/Transnational Climate Security Plans (30%)
- Mid-Term (20%)
- Final Paper (20%)
- Policy Memo (10%)

**Writing Assignments (20%):** You need to write two 2 double-spaced-page response papers to the readings for two different weeks before the mid-term. Your responses should be double-spaced. You should address all of the authors you read for that week. What is their argument? Do you agree with their assessment? Why or why not? This assignment will force you to be pithy. The best papers will provide a synthesis of some of the key points made in the readings, your own critical evaluation of and reactions to the readings, and comments on the conceptual implications of the readings. Do NOT sequentially summarize each of the readings. Response papers are due the beginning of the class for the topic on that given day.

**Mid-Term (20%):** You will be given news articles and asked to diagnose whether and how a certain environmental problem is connected to security outcomes and then what to do about that problem. It will be an in-class no note exam. After reading the articles, you will type your answers on a laptop.

**Regional and Transnational Climate Security Plans (30%):** For four weeks, we will delve into different region's climate security problems. The class will break up into groups and half the class will take one region and the other half will take the other half. You should upload to class in advance of the class for all regions discussed a diagnosis of the key problems in the region and some possible solutions. These can be in bullet form. This should be no longer than 1.5 pages. In class, we will break into two groups and spend 30-45 minutes with the groups coming up with a plan for each region. We will reconvene and each group will present their plan, and we will discuss each plan. Half the grade for the day will be based on the individual notes and half based on the group presentation.

**Final Paper (20%):** Take an environmental issue that you care about that you think has generated security consequences (disasters, protests, violence). Assess what those are, the nature of the relationship, the strength of the information, and several options to address the problem. You might choose paired cases of two cases both affected by environmental change but only one with negative security consequences. More detailed instructions about the essay will be handed out, but it will count for 20% of your grade and be roughly 15 pages in length (12-pt font, double-spaced) excluding the bibliography and graphics.

**Policy Memo (10%):** You will write a two-page single-spaced memo summarizing the problem of your final paper and identifying three options to do something about it.

*\* Late assignments will be penalized by 1/3 of a letter grade for every day late. Thus, an A- would become a B+, a B+ a B, etc.*

*My grading scale  
93 and up is an A  
90-93 A-  
87-90 B+  
83-87 B  
80-83 B-*

→ *Keep in mind LBJ School policies on academic integrity. Duly cite and quote your sources in any written material.*

## Course Digest

1	August 22	What is the Environment? What is Security?
2	August 29	Environmental Security – First Generation
3	September 5	First Generation Critiques
4	September 12	Climate and Security – The Academic Debate
5	September 19	Climate and Security – The Policy Debate
6	September 26	Environmental Impact of War Conservation and Security
7	October 3	Geopolitics of the Energy Transition
8	October 10	Environmental Peacebuilding
9	October 17	MIDTERM
10	October 24	<u>Regional Issues</u> : Horn of Africa & South Asia/Oceania
11	October 31	<u>Regional Issues</u> : Middle East & Latin America
12	November 7	<u>Regional Issues</u> : United States & the Arctic
13	November 14	<u>Transnational Issues</u> : Food Security & Migration
	November 21	NO CLASS FALL BREAK
14	November 28	What To Do Going Forward? PAPER DRAFTS DUE
	December 8	<b>Final Paper and Memo Due</b>

## Course Schedule

1	August 22	<p><i>What is the Environment? What is Security?</i></p> <p>D. L. Johnson, S. H. Ambrose, T. J. Bassett, M. L. Bowmen, and et al. “Meanings of Environmental Terms.” 1997. <i>Journal of Environmental Quality</i>; Madison 26, no. 3: 581-589.</p> <p>Stephen M. Walt 1991. “The Renaissance of Security Studies,” <i>International Studies Quarterly</i> 35, no. 2 (1991): 211–39.</p> <p>Richard Ullman. 1983. “Redefining Security.” <i>International Security</i> 8, no. 1: 129–53.</p> <p>J. Barnett, Matthew, R.A., O’Brien, K.L., 2010. Global Environmental Change and Human Security: An Introduction, in: Matthew, R.A., Barnett, J., McDonald, B., O’Brien, K.L. (Eds.), <i>Global Environmental Change and Human Security</i>. MIT Press, Cambridge, 3–32.</p> <p>Roland Paris. 2001. “Human Security: Paradigm Shift or Hot Air?” <i>International Security</i> 26, no. 2: 87–102</p>
2	August 29	<i>Environmental Security – First Generation</i>

		<p>Thomas Malthus. 1798. "An Essay on the Principle of Population." Chapters 1-2, 1-11.</p> <p>Robert Kaplan, 1994. <i>The Coming Anarchy</i>. <i>Atl. Mon.</i> 273, 44–76.</p> <p>Thomas F. Homer-Dixon. 1991. "On the Threshold: Environmental Changes as Causes of Acute Conflict." <i>International Security</i> 16, no. 2 (1991): 76–116.</p> <p>Thomas F. Homer-Dixon. 1994. "Environmental Scarcities and Violent Conflict: Evidence from Cases." <i>International Security</i> 19, no. 1: 5–40.</p> <p>Ken Conca and Geoffrey D. Dabelko. 2002 <i>Environmental Peacemaking</i> (Washington, D.C. Baltimore: Woodrow Wilson Center Press ; Johns Hopkins University Press), 1-23, 220-234.</p>
3	September 5	<p><i>First Generation Critiques</i></p> <p>D. Deudney. 1990. The Case Against Linking Environmental Degradation and National Security. <i>Millennium</i> 19, 461–476.</p> <p>M.A. Levy. 1995. Is the Environment a National Security Issue? <i>Int. Secur.</i> 20, 35–62.</p> <p>T.F. Homer-Dixon, Levy, M.A., 1995. Environment and Security. <i>Int. Secur.</i> 20, 189–198.</p> <p>N.P. Gleditsch. 1998. Armed Conflict and the Environment: A Critique of the Literature. <i>J. Peace Res.</i> 35, 381–400.</p> <p>C.H. Kahl. 2006. <i>States, scarcity, and civil strife in the developing world</i>. Princeton University Press, Princeton. 1-64.</p>
4	September 12	<p><i>Climate and Security – The Academic Debate</i></p> <p>Katherine Mach et al. 2019. "Climate as a risk factor for armed conflict." <i>Nature</i>, 193-197.</p> <p>Nina von Uexkull and Halvard Buhaug. 2021. "Security implications of climate change: A decade of scientific progress." <i>Journal of Peace Research</i>, 3-17.</p> <p>Hendrix, C.S., Koubi, V., Selby, J. et al. 2023. "Climate change and conflict." <i>Nat Rev Earth Environ</i> 4, 144–148.</p> <p>Joshua Busby. 2019. "Taking Stock: The Field of Climate and Security," <i>Current Climate Change Reports</i>, 1-9.</p>

		<p>Joshua Busby. 2022. <i>States and Nature: The Effects of Climate Change on Security</i> (Cambridge U Press), 19-70.</p> <p>IPCC Fifth Assessment. 2014. "Human Security." 758, OPTIONAL: 759-779.</p>
5	September 19	<p><i>Climate and Security – The Policy Debate</i></p> <p>CNA Corporation, 2007. National Security and the Threat of Climate Change, 5-18.</p> <p>Joshua Busby. 2007. Climate Change and National Security: An Agenda for Action. Council on Foreign Relations. 1-27.</p> <p>National Research Council, 2008. Climate and Social Stress. 1-14.</p> <p>National Intelligence Council, 2008. National Intelligence Assessment, Climate and Security. 1-20.</p> <p>Adelphi and Woodrow Wilson Center. 2015. A New Climate for Peace. Executive Summary. Vii-xix.</p> <p>US Department of Defense. 2021. DOD Climate Risk Analysis, 1-16.</p> <p>U.S. Director of National Intelligence. 2021. National Intelligence Estimate: Climate Change and International Responses Increasing Challenges to US National Security Through 2040, 1-15.</p> <p>NATO. 2023. NATO Climate Change and Security Impact Assessment, 3-24.</p>
6	September 26	<p><i>Environmental Impact of War/New Dimensions in Environmental Security</i></p> <p>Rafael Reuveny, Andreea S. Mihalache-O’Keef, and Quan Li. 2010. "The Effect of Warfare on the Environment." <i>Journal of Peace Research</i> 47 (6): 749–61.</p> <p>Thor Hanson, Thomas M. Brooks, Gustavo a. B. Da Fonseca, Michael Hoffmann, John F. Lamoreux, Gary Machlis, Cristina G. Mittermeier, Russell A. Mittermeier, and John D. Pilgrim. 2009. "Warfare in Biodiversity Hotspots." <i>Conservation Biology</i> 23 (3): 578–87.</p> <p>M. Lawrence et al. 2015. The effects of modern war and military activities on biodiversity and the environment. <i>Environ. Rev.</i> 23: 443–460.</p> <p>Van Butsic,, Matthias Baumann, Anja Shortland, Sarah Walker, and Tobias Kuemmerle. 2015. "Conservation and Conflict in the Democratic Republic of Congo: The Impacts of Warfare, Mining, and Protected Areas on Deforestation." <i>Biological Conservation</i> 191 (November): 266–73.</p>

		<p>Rene L. Beyers et al. 2011. Resource Wars and Conflict Ivory: The Impact of Civil Conflict on Elephants in the Democratic Republic of Congo - The Case of the Okapi Reserve. <i>PLoS One</i>. 1-12.</p> <p>DNI. 2013. Wildlife Poaching Threatens Economic, Security Priorities in Africa. 1-7.</p> <p>Cathy Haenlein and M L R Smith. 2016. “Poaching, Wildlife Trafficking and Security in Africa: Myths and Realities.” Whitehall Papers. Introduction and Conclusion. 1-21 &amp; 102-109.</p> <p>Fred Pearce. 2022. “Collateral Damage: The Environmental Cost of the Ukraine War” Yale 360.  <a href="https://e360.yale.edu/features/ukraine-russia-war-environmental-impact">https://e360.yale.edu/features/ukraine-russia-war-environmental-impact</a></p> <p>Council on Strategic Risks. 2023. “One Year Later: Unraveling Climate And Ecological Security In Ukraine.” 1-7.</p>
7	October 3	<p><i>Geopolitics of the Energy Transition</i></p> <p>Jason Bordoff and Meghan O’Sullivan. 2022. “Green Upheaval: The New Geopolitics of Energy.” <i>Foreign Affairs</i>. 1-20.</p> <p>Michael Davidson et al. 2022. “Risks of decoupling from China on low-carbon technologies.” <i>Science</i>. 1266-1269.</p> <p>Joshua Busby and Paul Orszag. 2023. “Overdependent: A U.S. National Security Imperative to Diversify Battery and Solar Supply Chains?” 1-11.</p> <p>Thea Riofrancos. 2022. “The Security–Sustainability Nexus: Lithium Onshoring in the Global North.” <i>Global Environmental Politics</i>. 20-36.</p> <p>IRENA. 2023. <i>Geopolitics of the Energy Transition: Critical Materials</i>. 12-21, 34-71.</p>
8	October 10	<p><i>Environmental Peacebuilding</i></p> <p>Tobias Ide et al. 2021. “The past and future(s) of environmental peacebuilding,” <i>International Affairs</i>. 1-16.</p> <p>Florian Krampe and Ashok Swain. 2021. “Environmental Peacebuilding,” <i>The Oxford Handbook of Peacebuilding, Statebuilding, and Peace Formation</i>. 1-10.</p> <p>Florian Krampe. 2019. “Climate Change, Peacebuilding And Sustaining Peace,” SIPRI, 1-8.</p>

		<p>Tobias Ide. 2020. “The dark side of environmental peacebuilding.” <i>World Development</i>. 1-7.</p> <p>SIPRI. 2021. “Environment of Peace”, 4-7 and 73-81.</p> <p>Climate Security Mechanism. 2020. <a href="#">Toolbox Checklist</a>. 1-4.</p> <p>Climate Security Mechanism. 2020. Conceptual Approach. 1-7.</p> <p>United Nations E-learning. 2020. “<a href="#">Climate Change, Peace and Security: Understanding Climate-Related Security Risks Through an Integrated Lens</a>,” Register and Complete All Three Modules  Module 1: Climate Change, Peace and Security  Module 2: Conducting Integrated Analysis  Module 3: Entry Points for Policymaking and Programme Design</p>
9	October 17	MIDTERM
10	October 24	<p><i>Regional Issues: Horn of Africa and South Asia</i></p> <p><u><i>Horn of Africa</i></u></p> <p>NUPI. 2022. Climate, Peace and Security Fact Sheet: Somalia. 1-4.</p> <p>NUPI. 2022. Climate, Peace and Security Fact Sheet: Ethiopia. 1-4.</p> <p>Weathering Risk. 2022. Climate Risk Profile: Somalia: Summary for Policymakers. 1-3.</p> <p>Michelle Gavin. 2022. “Climate Change and Regional Instability in the Horn of Africa.” Council on Foreign Relations. 1-23.  Optional Podcast: “<a href="#">What Climate Change Means for the Horn of Africa, With Michelle Gavin</a>,” Council on Foreign Relations, 2023.</p> <p>Busby. 2022. “Droughts and Famine in Somalia and Ethiopia,” <i>States and Nature</i>. 71-119.</p> <p><u><i>South Asia</i></u></p> <p>Sarang Shidore. 2023 “Climate Security and Instability in the Bay of Bengal Region,” Council on Foreign Relations. 1-31.  Optional Podcast: “<a href="#">What Climate Change Means for the Bay of Bengal, With Sarang Shidore</a>,” Council on Foreign Relations, 2023.</p> <p>Busby. 2022. “Cyclones in South Asia: The Experiences of Myanmar, Bangladesh, and India,” <i>States and Nature</i>. 176-221.</p>

		<p>Busby. 2022. Sequential Comics, Bangladesh and Myanmar. 1 page.</p> <p>International Military Council On Climate And Security. 2020. Climate And Security In The Indo-Asia Pacific. 5-10, 36-47.</p> <p>CSEN. 2019. “Climate-Fragility Risk Factsheet Pacific Islands Region.” 1-2.</p> <p>CSEN. 2019. “Climate-Fragility Risk Brief The Pacific Islands Region.” 3-18.</p> <p>Volker Boege. 2018. “Climate Change and Conflict in Oceania.” Toda Peace Institute. 1-12.</p> <p>ASPI. 2022. “The geopolitics of climate and security in the Indo-Pacific.” 1-15, 51-83.</p>
11	October 31	<p><i>Regional Issues: Middle East and Latin America</i></p> <p><u><i>Middle East</i></u></p> <p>Peter Schwartzstein. 2017. “Climate Change and Water Woes Drove ISIS Recruiting in Iraq.” <i>National Geographic</i>. 1-12.</p> <p>Busby. 2022. “Drought in the Middle East,” <i>States and Nature</i>. 120-175.</p> <p>Weathering Risk. 2020. “Scenario-based Analysis: Levant” 1-9.</p> <p>Carnegie Endowment for International Peace. 2023. “Climate Change and Vulnerability in the Middle East.” 1-29.</p> <p><u><i>Latin America</i></u></p> <p>CSEN. 2020. “Climate-Fragility Risk Factsheet Latin America &amp; The Caribbean.” 1-2.</p> <p>CSEN. 2020. “Climate-Fragility Risk Brief Latin America &amp; The Caribbean.” 1-18.</p> <p>Andrew Linke, Stephanie Leutert, Maria Duque, Matt Shawcroft, and Simon Brewer. 2023. “Dry Growing Seasons Predict Central American Migration to the US” Under review. 1-13.</p> <p>Paul Angelo. 2022. “Climate Change and Regional Instability in Central America.” Council on Foreign Relations. 1-30.</p> <p>Optional Podcast: “<a href="#">What Climate Change Means for Central America, with Paul Angelo</a>,” Council on Foreign Relations, 2022.</p>

		Cynthia Brady and Lauren Risi. 2023. "Addressing Climate Security Risks In Central America." Wilson Center. 1-11.
12	November 7	<p><i>Regional Issues: United States and the Arctic</i></p> <p><u>United States</u>  Council on Foreign Relations. 2019. Impact of Climate Risk on the Energy System. 1-10, 54-64.</p> <p>Alice Hill and Leonardo Martinez-Diaz. 2020. "Adapt or Perish Preparing for the Inescapable Effects of Climate Change." <i>Foreign Affairs</i>. 107-117.</p> <p>Alice Hill. 2021. "The United States Isn't Ready for the New Phase of Climate Change," <i>Foreign Affairs</i>. 2-7.</p> <p>Mackenzie Burnett and Katharine Mach. 2021. "A "precariously unprepared" Pentagon? Climate security beliefs and decision-making in the U.S. military." <i>Global Environmental Change</i>. 1-12.</p> <p>DHS. 2021. DHS Releases New Climate Action Plan to Address the Impacts of Climate Change and Ensure the Department's Climate Resilience. 1 page.</p> <p><u>The Arctic</u></p> <p>CSEN. 2021. Climate-Fragility Risk Factsheet: The Arctic. 1-2.</p> <p>Maddox, Marisol. 2021. Climate-Fragility Risk Brief: Arctic. 2-26.</p> <p>Council on Strategic Risks. 2021. Security and Climate Risk in the Arctic. 1-19.</p> <p>Center for Climate and Security. 2021. Climate Change and Security in The Arctic. 1-20.</p>
13	November 14	<p><i>Transnational Issues: Food Security and Migration</i></p> <p><u>Food Security</u></p> <p>Iglesias, Ana, Sonia Quiroga, and Agustin Diz. 2011. "Looking into the Future of Agriculture in a Changing Climate." <i>European Review of Agricultural Economics</i> 38, no. 3: 427-47.</p> <p>von Uexkull, Nina, Mihai Croicu, Hanne Fjelde, and Halvard Buhaug. 2016. Civil conflict sensitivity to growingseason drought. <i>Proceedings of the National Academy of</i></p>

		<p>Sciences: 201607542. 1-6.</p> <p>Lagi, Marco Karla Z. Bertrand and Yaneer Bar-Yam. 2011. "The Food Crises and Political Instability in North Africa and the Middle East." New England Complex Systems Institute. 1-11.</p> <p>Smith, T.G., 2013. "Food Price Spikes and Social Unrest in Africa." CCAPS. 1-12.</p> <p>Hendrix, Cullen. 2013. "Climate Change, Global Food Markets, And Urban Unrest." CCAPS 1-8.</p> <p><u>Migration</u></p> <p>McLeman, Robert. 2017. "Migration and Displacement in a Changing Climate." Center for Climate and Security. 100-106.</p> <p>Robert McLeman and Francois Gemenne. 2018 "Environmental migration research: evolution and current state of the science." Routledge Handbook of Environmental Migration. 3-13.</p> <p>Collin Douglass. 2017 Sea Level Rise, Deterritorialized States and Migration: The Need for a New Framework. Center for Climate and Security. 1-4.</p> <p>Biden Administration. 2021. Report On The Impact Of Climate Change On Migration. 4-32.</p>
	November 21	NO CLASS FALL BREAK
14	November 28	<p><i>What To Do Going Forward?</i></p> <p>Tobias Ide, McKenzie F. Johnson, Jon Barnett, Philippe Le Billon, Lucile Maertens, Nina von Uexkull &amp; Irene Vélez-Torres. 2023. "The Future of Environmental Peace and Conflict Research." <i>Environmental Politics</i>. 1-24.</p> <p>Rod Schoonover and Dan Smith. 2023. "Five Urgent Questions On Ecological Security." SIPRI. 1-25.</p>
	December 8	<b>Final Paper and Memo Due</b>

## ADDITIONAL RESOURCES

### Publications

Daniel Moran, 2012. Climate Change and National Security: A Country-Level Analysis, Georgetown University Press. <http://press.georgetown.edu/book/georgetown/climate-change-and-national-security>

David Reed, 2014. In Pursuit of Prosperity: U.S Foreign Policy in an Era of Natural Resource Scarcity. (Routledge).

David Reed, 2017. Water, Security, and U.S. Foreign Policy Routledge

Other USG Documents

<https://climateandsecurity.org/resources/u-s-government/>

<https://climateandsecurity.org/resources/u-s-government/intelligence/>

Other Govt & IOs

<https://climateandsecurity.org/resources/other-governments-and-regional-institutions/>

<https://climateandsecurity.org/resources/international-institutions/>

Routledge has a number of books (most of them available for free through library)

<https://www.routledge.com/search?kw=climate+security>

### Organizational Resources

adelphi, <https://www.adelphi.de/en/topics/climate/climate-and-security>

American University, Inventory of Conflict and the Environment,

<http://mandalaprojects.com/wordpress/index.php/ice/>

American Security Project, <http://www.americansecurityproject.org/climate-security/>

Center for American Progress, <https://www.americanprogress.org/projects/climate-migration-security/>

Center for Climate and Security, <https://climateandsecurity.org/>

Climate Security Expert Network, <https://climate-security-expert-network.org/>

CNA Corporation, <https://www.cna.org/centers-and-divisions/ipr/mab>

ECC Factbook. [www.newclimateforpeace.org/thematic-reading/factbook](http://www.newclimateforpeace.org/thematic-reading/factbook)

Environmental Peacebuilding, <https://environmentalpeacebuilding.org/>

International Alert, <http://international-alert.org/climate-change>

International Crisis Group, <https://www.crisisgroup.org/climate>

International Military Council on Climate and Security, <https://imccs.org/council/>

LBJ School PRP on Oceania, <http://sites.utexas.edu/climatesecurity/>

New Security Beat, <https://www.newsecuritybeat.org/>

Oregon State, Transboundary Freshwater Dispute Database,  
<http://www.transboundarywaters.orst.edu/>

Pacific Institute, Water Conflict Chronology, <https://www.worldwater.org/conflict/map/>

Planetary Security Initiative, <https://www.planetarysecurityinitiative.org/>

Stockholm International Peace Research Institute, <https://www.sipri.org/research/peace-and-development/climate-change-and-risk/climate-change-and-security>

Strauss Center, Climate Change and African Political Stability (CCAPS),  
<https://www.strausscenter.org/ccaps/>

Strauss Center, Complex Emergencies and Political Stability in Asia (CEPSA),  
<https://www.strausscenter.org/cepsa>

Strauss Center, State Fragility Initiative,  
<https://www.strausscenter.org/state-fragility/>

Wilson Center Environmental Change and Security Program,  
<https://www.wilsoncenter.org/program/environmental-change-and-security-program>

### **Multi-Media**

Climate for Conflict

<http://thegroundtruthproject.org/somalia-climate-change-conflict-podcast/>

Years of Living Dangerously

<https://www.natgeotv.com/za/shows/natgeo/years-of-living-dangerously>

Backdraft Podcast Series.

<https://www.podomatic.com/podcasts/ecsp-wwc>

Center for Climate and Security Podcast.

<https://climateandsecurity.org/podcast/>

### **MOOC**

UNEP. Environmental Security and Sustaining Peace.

<https://www.edx.org/course/environmental-security-and-sustaining-peace>

### **Data**

UNEP World Environment Situation Room (climate hazard maps)

<https://app.mapx.org/?project=MX-XVK-HPH-OGN-HVE-GGN&lockProject=true>

EM-DAT International Disaster Database

<http://www.emdat.be/>

Munich-Re (German re-insurer with disaster data)

<http://natcatservice.munichre.com/>

Surging Seas

<https://sealevel.climatecentral.org/>