

US Pacific Command, Climate Change and Collaborating on Security

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Introduction

While civil society organizers mobilize across the globe for history's biggest climate march in New York on September 21¹⁾, strikingly large numbers of Americans and an even bigger share of their political representatives remain quiet, doubtful or even in denial about climate change²⁾. But the US military, especially in the Pacific, is neither uncertain nor inactive. The August 10 *Stars and Stripes* advised that US Pacific Command (PACOM) is "not waiting on politics" in responding to climate change. Brigadier General Mark McLeod, former head of PACOM's Logistics, Engineering and Security Cooperation directorate described why. He pointed out that 70 percent of global storms are in the Pacific and that climate change's impacts are already having military consequences. He dismissed the denialism rampant in American politics and society with: "Call it climate change, call it the big blue rabbit, I don't give a hoot what you call it the military has to respond to those kinds of things³⁾."

1) The People's Climate March site is here: <http://peoplesclimate.org/march/>

2) For example, Ipsos MORI's first ever Global Trends poll (2014) includes a section on the environment. In answer to the question "To what extent do you agree or disagree? The climate change we are currently seeing is largely the result of human activity," America was last among 20 major nations with only 54% in agreement. Fully 32% of Americans disagreed, the largest level of disagreement in the sample. The 14% share who opted for "Don't know" was also the largest in the sample. See: <http://www.ipsosglobaltrends.com/environment.html>

3) See Wyatt Olson, "PACOM not waiting on politics to plan for climate change challenges," *Stars and Stripes*, August 10, 2014: <http://www.stripes.com/news/pacom-not-waiting-on-politics-to-plan-for-climate-change-challenges-1.297433>

The US military is already a leader on climate change mitigation through renewable energy and energy efficiency⁴⁾. The military's adaptation efforts are also instructive for civil society and may help curb climate related geopolitical instability. In the Pacific, centring on the vast region of Oceania, 12,000 kilometers east to west and 6,000 kilometers north to south, PACOM has an increasingly well organized focus on building resilience against climate change and cooperating on humanitarian assistance and disaster response, or HADR. The *Stars and Stripes* article pointed out that Washington's gridlock notwithstanding the best evidence indicates that climate change's threat to human security is already dire and rapidly worsening and thus "U.S. Pacific Command is forging strategies with partner nations in the region to mitigate the security effects of global warming."

Military Mitigation and Adaptation

The military take climate change very seriously, as an accelerating threat, because of a constant flow of new and disturbing data streaming in from satellite and ground based observations. For example, there is very recent hard evidence that water vapor (which accelerates climate forcing) is increasing in the upper troposphere⁵⁾. There is also good reason to believe that methane releases are accelerating, some of it from fracking, but much due to pronounced Arctic region heating ("Arctic Amplification") and what it is doing to the tundra⁶⁾. NASA's GRACE satellites have presented experts with truly shocking revelations on the reduction of groundwater flows⁷⁾. Along with these disturbing findings comes evidence that the polar vortex is indeed

4) See Jared Anderson, "Energy Quote of the Day: Turning to Renewable Energy to 'Become Better Warfighters'," *Breaking Energy*, August 20, 2014: <http://breakingenergy.com/2014/08/20/energy-quote-of-the-day-turning-to-renewable-energy-to-become-better-warfighters/>

5) Climate forcing refers to the amount of energy we receive from the sun and the amount of energy radiated back into space, a product in turn of the amount of greenhouse gases. "Global warming amplifier: Rising water vapor in upper troposphere to intensify climate change," *Science Daily*, July 28, 2014: <http://www.sciencedaily.com/releases/2014/07/140728153933.htm>

6) Chris Mooney, "Why the Scientific Case Against Fracking Keeps Getting Stronger," *Mother Jones*, August 15, 2014: <http://www.motherjones.com/environment/2014/08/inquiring-minds-anthony-ingraffa-science-fracking-methane>

7) Carol Rasmussen, "Parched West is using up underground water," *NASA Climate Change News*, July 24, 2014: <http://climate.nasa.gov/news/1125/>

out of control, and that the so called Rossby waves driving extreme weather have been accelerating since 2000⁸⁾.

The US Department of Defense agency Strategic Environmental Research and Development Program (SERDP), co managed by the US Department of Energy as well as the Environmental Protection Agency, is tasked with analyzing these kinds of drivers of climate crisis and building resilience in the face of them. SERDP's November 7, 2013 FY 2015 Statement of Need in the Resource Conservation and Climate Change (RC) program area focuses on "adapting to changes in the hydrologic cycle under non stationary climate conditions." "Non stationary climate conditions" are where variations in rainfall and related hydrologic phenomena (like snow and groundwater flows) are outside of the range of historic patterns. The SERDP specifically point to the need to examine rainfall patterns and their influence from climate change "for geographic regions and applications of interest of the Department of Defense (DOD)." That means just about everywhere, because the US has military bases in much of the world.

Another area of concern for the SERDP is studying the frameworks for responding to increasingly intense climate change events. In their words "these frameworks should (A) facilitate the phasing in of adaptive responses, including, for example, the ability to incorporate the use of green infrastructure, to account for the pace of change and the time horizon over which decisions must operate and (B) enable an evaluation of projected and realized robustness against a range of plausible climate change futures." That means the SERDP is committed to finding out how to use green infrastructure and other means to cope with climate challenges. They also note that the US Department of Defense is keen to avoid over committing resources as well as undertaking "maladaptive responses."

Due to the fact that the US military has permanent installations in almost every part of the world, the end product of this study is potentially very large. Its content also overlaps very much with the kinds of concerns that urban communities

8) Joe Romm, "Jet Stream Changes Driving Extreme Weather Linked Again To Global Warming, Arctic Ice Loss," Climate Progress, August 19, 2014: <http://thinkprogress.org/climate/2014/08/19/3471819/jet-stream-extreme-weather-global-warming-arctic-ice/>

and island nations have. This is because its applications of interest include “water treatment, storm water, and sewer systems; roof design; flooding, drainage, and soil erosion implications affecting infrastructure: flood zone delineation and management, and water supply quantity and quality issues.” Indeed the SERDP makes it clear that the “users of the intended research outcomes include but are not limited to: military installations; government agencies; service supply chain, real estate, insurance and contracting industries; and private developers.” They also note that they seek to “advance fundamental science considerations,” and that at the same time they expect that the research results “will be transitioned to practice “quite soon upon completion because of the demand for “adaptation strategies” that comply with laws as well as financial liability⁹⁾.

The need for this kind of research is evident in a February 16, 2011 paper published in the journal *Nature* concerning the “human contribution to more intense precipitation extremes.” The paper noted that the capacity of the atmosphere to hold moisture is expected “to increase roughly exponentially with temperature,” an empirically observed fact. For the authors, that opens the question of the degree to which “human influenced global warming” is a driver for increasingly heavy precipitation. They note that there are in fact limited “daily observations,” so that “most previous studies have examined only the potential detectability of changes in extreme precipitation through model model comparisons.” Focusing on the northern hemisphere, the authors find that in approximately 2/3 of “data covered parts” there is evidence of “human induced increases.” This may of course seem an obvious fact, but most science works in these careful fact checking ways. What is most important about their study, aside from its revelation that there are in fact inadequate means for monitoring, is that “the impacts of future changes in extreme precipitation, may be underestimated because models seem to underestimate the observed increase in heavy precipitation with warming¹⁰⁾.”

9) Strategic Environmental Research and Development Program (SERDP), “FY 2015 Statement of Need, Resource Conservation and climate change [RC] program area: “adapting to changes in the hydrologic cycle under non stationary climate conditions,” SON Number: RCSON 15 02, November 7, 2013: http://www.serdp-estcp.org/content/download/22121/228247/version/4/file/FY15_RCSON-15-02_Hydrologic_Cycle_Final.pdf

10) Seung Ki Min, Xuebin Zhang, Francis W. Zwier and Gabriele C. Hegerl, “Human contribution to more intense precipitation extremes,” *Nature* 470, 378 381 (17 February 2011) :

In other words, it is clearly imperative to renovate and bolster the existing mechanisms and models for aggregating data and making predictions relevant to climate change, and especially concerning rainfall patterns and other elements of the hydrologic cycle. This is particularly the case because recent surveys of projected infrastructure spending suggest that fully USD 78 trillion worth of infrastructure spending will be undertaken over the coming decade to 2025¹¹⁾. Whether this infrastructure will be climate resilient or not depends both on how strong it is as well as the scale of the threats it will confront over the years. Underestimating those threats could be very costly, in human as well as pecuniary terms.

Collaborating on HADR and Human Security in Oceania

The above imperatives encapsulate many of the reasons PACOM's work in Oceania is important. PACOM's partner countries include many of Oceania's 22 island nations and territories in the subregions of Melanesia, Micronesia and Polynesia. Their human populations total 9 million, and their biodiversity and species endemicity are unparalleled on the planet¹²⁾. Among them is Kiribati, 4,000 kilometers southeast of Hawaii and with a population of 103,000. It may be the world's first island nation to disappear beneath the rising sea. The 33 islands that compose Kiribati's total land area of 811 square kilometers, spread out over 3.5 million square kilometers, are for the most part only a meter or two above sea level. And many are hardly wider than a city block. The islands are increasingly vulnerable to storm surges and their groundwater flows of fresh water are endangered by drought and the intrusion of salinity from the rising ocean. Kiribati president Anote Tong's request to PACOM for engineering support earlier this year has met with proposals that include an exchange of environmental engineers whose work seems likely to include desalinization, rainwater collection systems, bolstering natural wave barriers such as mangrove forests and coral reefs, and if necessary building seawalls¹³⁾.

<http://www.nature.com/nature/journal/v470/n7334/full/nature09763.html>

11) "Infrastructure spending and capital project to grow to more than \$9 trillion annually by 2025," PWC Press Release, July 29, 2014: <http://www.pwc.com.cy/en/press-releases/2014/capital-projects-infrastructure-spending-to-grow.jhtml>

12) See "About Oceania," International Union for Conservation of Nature," nd: http://www.iucn.org/about/union/secretariat/offices/oceania/oro_aboutoceania/

13) See Wyatt Olson, "PACOM not waiting on politics to plan for climate change challenges,"

PACOM is also partnered on climate change adaptation with larger regional players such as Australia, including a 6 month rotational deployment of Marines to the northern area of Darwin since April 2012¹⁴⁾. Daniel Russel, the US State Department's senior official for the Asia Pacific region, notes that "a significant component of the rationale and the mission for the rotational [US Marine] presence in Darwin... is to increase the region's ability to respond to natural disasters¹⁵⁾." This collaboration became awkward in 2014, at the political level, because climate denialism is even more of a problem in Australian politics than in America. Though climate deniers can be found at all levels of American government, the Obama White House itself is unequivocal on the climate threat. Indeed, Secretary of State John Kerry put climate change at the centre of the pivot to Asia in his August 13 speech, at the East West Center in Hawaii, on the "U.S. Vision for Asia Pacific Engagement." Kerry described climate change as "the biggest challenge of all that we face right now." He did not stop there, and instead made a point of citing "unprecedented storms, unprecedented typhoons, unprecedented hurricanes, unprecedented droughts, unprecedented fires, major damage, billions and billions of dollars of damage being done that we're paying for instead of investing those billions of dollars in avoiding this in the first place."

By contrast, Australia's current federal government is led by Prime Minister Tony Abbott, a climate denialist who eliminated his country's carbon tax in mid July of 2014. Through his ideologically driven action, Abbott became the first national leader ever to abolish a carbon price¹⁶⁾. Indeed, Tom Arup, the Environment editor of *The Australian* newspaper *The Age*, described his country as being in a "climate

Stars and Stripes, August 10, 2014: <http://www.stripes.com/news/pacom-not-waiting-on-politics-to-plan-for-climate-change-challenges-1.297433>

14) The initial deployment of 200 Marines is slated to be expanded to a 2,500 member Marine Air Ground Task Force during 2016-17. See Donna Miles, "Rotational Force in Australia Paves Way for Big Growth in 2014," DoD News, September 4, 2013: <http://www.defense.gov/news/newsarticle.aspx?id=120844>

15) See the quote in Peter Hartcher and John Garnault, "US administration and Tony Abbott have 'meeting of minds' on climate change," *Sydney Morning Herald*, August 14, 2014: <http://www.smh.com.au/federal-politics/political-news/us-administration-and-tony-abbott-have-meeting-of-minds-on-climate-change-20140813-103pq8.html>

16) Lisa Cox, "Carbon tax is gone: Repeal bills pass the Senate," *Sydney Morning Herald*, July 17, 2014: <http://www.smh.com.au/federal-politics/political-news/carbon-tax-is-gone-repeal-bills-pass-the-senate-20140717-3c2he.html>

coma” because the Abbott government has not only axed the carbon tax but is also attacking mechanisms to foster clean energy and efficiency¹⁷⁾. Reflecting this extremist antipathy to climate science and renewable energy, Abbott’s top business advisor, Maurice Newman, wrote a bizarre opinion piece in the August 14 edition of *The Australian* warning that the real threat to humanity is global cooling due to declining solar activity and efforts to diffuse renewable energy¹⁸⁾. The Abbott government was also reluctant to put climate change on the very important G20 leaders summit in Brisbane (in November of 2014), despite increasing US, European and eminent Australians’ calls to for him to relent and be reasonable. Among the prominent Australians calling for climate change to be included on the G20 agenda are twelve leading medical scientists who wrote an open letter to Abbott¹⁹⁾.

Yet PACOM and Kerry have a staunch ally in the Australian military. The Australian Chief of Army (the top ranking position), Lieutenant General David Morrison, has made it clear that he sees climate change as “the great challenge of our time.” Morrison points to the large number of low lying islands in the region, and concludes the climate threat will entail “providing immediate assistance for humanitarian and disaster relief²⁰⁾.” And Morrison is not a lone voice. In January of 2013 (prior to Abbott’s taking office), the Australian National Security Strategy incorporated climate change. For many observers, this major development in Australian secu-

17) Tom Arup, “Tony Abbott battles the future by axing carbon tax,” Sydney Morning Herald, July 17, 2014: <http://www.smh.com.au/federal-politics/political-opinion/tony-abbott-battles-the-future-by-axing-carbon-tax-20140710-zt2d2.html>

18) Maurice Newman, “We’re ill prepared if the iceman cometh,” *The Australian*, August 14, 2014: <http://www.theaustralian.com.au/opinion/were-illprepared-if-the-iceman-cometh/story-e6frg6zo-1227023489894#mm-premium>

19) See John Conroy, “Bishop Kerry talks covered climate: US official,” Daily Telegraph, August 14, 2014: <http://www.dailytelegraph.com.au/business/breaking-news/bishop-kerry-talks-covered-climate-us-official/story-fnn9c0gv-1227023880573?nk=6c794d25e14d378b62b073eb58c72fa3>

Also, “Put climate change on G20 agenda, medics tell Tony Abbott,” Responding to Climate Change, August 12, 2014: <http://www.rtcc.org/2014/08/12/put-climate-change-on-g20-agenda-medics-tell-tony-abbott/#sthash.h7EE12Wj.dpuf>

20) See the transcript of General Morrison’s interview with Karon Snowdon, “Australian army chief says climate change will impact military role,” ABC Radio Australia, February 20, 2014: <http://www.radioaustralia.net.au/international/radio/program/asia-pacific/australian-army-chief-says-climate-change-will-impact-military-role/1268044>

urity policy shows “that the career military and national security establishments in the country have been taking climate change risks very seriously²¹⁾.”

This approach is rapidly becoming common sense throughout the region’s militaries. On July 18, the Philippines appointed Lieutenant General Gregorio Pio Catapang Jr., an officer expert on climate change and HADR, to be their new Chief of Staff Armed Forces of the Philippines. Echoing the leadership of America’s Pacific Command, General Catapang argues that climate change not armed conflict is the greatest threat his country confronts²²⁾.

PACOM has many other allies on this issue, among militaries as well as in politics. One high level illustration of this fact was seen at the prestigious Shangri La Dialogue 2014²³⁾, held over May 30 to June 1 of this year. It hosted a special session on “Climate change, HADR, and Security in the Asia Pacific.” The speakers included the Prime Minister and Minister for Foreign Affairs and Defence of Tonga, New Zealand’s Minister of Defence, and the International Affairs Advisor to the Prime Minister of Bangladesh²⁴⁾. Tonga’s Prime Minister, Lord Tu’ivakano, delivered an eloquent description of how climate change is the “number one threat to the security of our region, our survival, and our people” and “now not just an environmental issue, or an economic issue.” The New Zealand Minister of Defence, Jonathan Coleman, revealed that a 2010 white paper study determined that “30% of our resources in New Zealand’s defence force are actually committed to HADR work.” He also

21) See “Climate Security on the Australia United States Ministerial Consultation Table,” The Center for Climate and Security, August 14, 2014: <http://climateandsecurity.org/2014/08/14/climate-security-on-the-australia-united-states-ministerial-consultation-table/>

22) See Nikko Dizon, “Climate change buff is new AFP chief of staff,” *Philippine Daily Inquirer*, July 17, 2014: <http://newsinfo.inquirer.net/620650/climate-change-buff-is-new-afp-chief-of-staff>

23) The Shangri La Dialogue was initiated in 2002 “in response to the clear need for a forum where the Asia Pacific’s defence ministers could engage in dialogue aimed at building confidence and fostering practical security cooperation.” The Dialogue has since become “a key element of the emerging regional security architecture,” “the most important regular gathering of defence professionals in the region,” and “a vital annual fixture in the diaries of Asia Pacific defence ministers and their civilian and military chiefs of staff.” See: <https://www.iiss.org/en/events/shangri-s-la-s-dialogue/about-shangri-la>

24) A transcript of the session is available here: <http://www.iiss.org/en/events/shangri%20la%20dialogue/archive/2014-c20c/special-sessions-b0a1/session-3-18b0>

stressed the opportunity for expanding collaboration on climate change related HADR training and deployment to include China. He used a concrete example: “last year for the first time ever we held a quadrilateral exercise in New Zealand involving China, New Zealand, Australia and the US the first time we had PLA troops exercising in New Zealand, and that was a scenario that took lessons from the Christchurch earthquakes and sought to apply those in possible scenarios across the Asia Pacific region.”

For his part, Gowher Rizvi, International Affairs Advisor to Bangladesh’s Prime Minister, pointed out that 70% of the world’s low lying coastlines are in the Asia Pacific, with one estimate of USD 85 billion annual damage rising to USD 500 billion by 2030. He added that the multiplicity of effects from climate change makes it “the largest and the most significant global threat to peace and security,” with a particular intensity in the Asia Pacific. He also lamented that climate change and security “remains peripheral to national, regional and international peace and security architecture and strategies.”

Is HADR Just Politics?

There is a fair amount of cynicism that political actors are using HADR as a wedge “to pursue military engagement or soften military connections²⁵⁾.” Yet given the acceleration of climate change, the military role in HADR surely needs to be expanded and more deeply and deliberately institutionalized in collaboration with NGOs and other organizations. This argument is receiving increased academic attention²⁶⁾ and is the focus of critical thinking and institutional initiatives within the military itself. One example of useful initiatives is the US military itself realizing that HADR expertise is repeatedly lost through personnel turnover and thus “efforts to institutionalize effective policies, tactics, techniques, and procedures (TTPs) that draw on lessons observed from recent responses and provide increased education and training opportuni-

25) On this point, see the remarks of Anthony Bergin, Deputy Director of The Australian Strategic Policy Institute, in “Multilateral disaster relief efforts not as easy as you might think,” *The Strategist*, March 11, 2014: <http://www.aspistrategist.org.au/multilateral-disaster-relief-efforts-not-as-easy-as-you-might-think/>

26) One example is Glen Penner “A Framework for NGO Military Collaboration,” *Small Wars Journal*, July 9, 2014: <http://smallwarsjournal.com/jrnl/art/a-framework-for-ngo-military-collaboration>

ties related to disaster relief for individuals and units²⁷⁾.” Experts within the US military have also begun to highlight means through which PACOM’s could facilitate a “community centric approach” that goes beyond short term HADR to build multifaceted resilience and thus reduce disaster risk²⁸⁾.

Yet this argument for an expanded, collaborative military role, is in contrast to HADR’s reigning normative framework, the so called Oslo guidelines of 1994 (updated in 2007). These guidelines relegate the military role in foreign country HADR to a “last resort²⁹⁾.” And many of the multitudinous NGOs in the HADR field are in fact vociferously opposed to military involvement in relief operations.

It would of course be ideal to keep foreign military forces out of HADR. But non military actors already lack adequate means, especially to do large scale HADR. One precondition for keeping the military out of HADR would be to slash 2012’s global military spend of over USD 1.5 trillion and devote much of it to the under USD 20 billion funding humanitarian assistance. That seems unlikely to happen, especially as East Asia and other regions ramp up their military spending³⁰⁾. Moreover, our increasingly unstable geopolitics presents opportunities. As New Zealand’s Defence Minister implied in his talk, the more our militaries collaborate on HADR, building bridges and bolstering human security, the less risk of yet more wars driven by climate, resource and other inter related and escalating crises. This perspective has now

27) See Center for Excellence in Disaster Management and Humanitarian Assistance Director Pamela K. Milligan, “PACOM Disaster Response Lessons Trends 1991 2013,” Center for Excellence in Disaster Management and Humanitarian Assistance, March 12, 2014: www.coe-dmha.org/shared/ppt/PLN_20140314_Disaster_Management_LL_Trends_PRS_Hallett.pptx

28) See the excellent and highly informative article on this by Erik J Reaves, Michael Termini, and Frederick M Burkle, “Reshaping US Navy Pacific Response in Mitigating Disaster Risk in South Pacific Island Nations: Adopting Community Based Disaster Cycle Management,” Prehospital and Disaster Medicine Special Report, Vol 29, No 1, February 2014: http://pksoi.army.mil/conferences/psotew/documents/PACOM_Disaster_Risk_Management_in_Pacific_Islands.pdf

29) See “Humanitarian Civil Military Coordination and the Oslo Guidelines,” UNOCHA: <http://greenhumanitarians.files.wordpress.com/2013/11/the-oslo-guidelines-for-humanitarian-civil-military-coordination.pdf>

30) For the numbers, see Yantoultra Ngui, “As China flexes maritime muscle, SE Asia builds home grown defence industry,” Reuters, August 12, 2014: <http://in.reuters.com/article/2014/08/11/southeast-asia-defence-idINKBN0GB23920140811>

begun to emerge publicly from within PACOM itself, in a recent analysis by PACOM regional analyst Jen Pearce. Pearce's argument is very systematic at outlining the benefits for both China and the US, as well as the larger region, from collaborating on HADR³¹). One of those benefits may be building a bridge between the Japanese and Chinese, through HADR, as some Japanese experts suggest³²). One might add that the more our militaries devote resources to HADR and related activities, in collaboration with NGOs, the greater the prospect of civilizing the military rather than further militarizing society.

It seems useful to reflect on the remarks of Gowher Rizvi, International Affairs Advisor to Bangladesh's Prime Minister. He expressed dismay that the link between climate change and security is marginal in most of the institutions that shape international relations. The inattention of every major country's public debate concerning what the militaries are doing on HADR, and why, is just as lamentable. Among other things, it leaves room for unscrupulous politicians like Tony Abbott to play games that will exacerbate the already costly consequences of climate change.

Conclusion

The highly regarded environmentalist George Marshall, formerly senior campaigner for Greenpeace US and the Rainforest Foundation, writes about this inattention in his new book (out on August 19) *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*³³). Neuroscience and sociology reveal much about why even academe has yet to come to grips with the enormity of climate change. Marshall also tells us that climate change activism can come in a variety of forms that we might not recognize or feel comfortable about. One example he uses is emerg-

31) See the excellent analysis from PACOM regional analyst Jen Pearce, "HADR and US China Military Cooperation," *The Diplomat*, July 28, 2014: <http://thediplomat.com/2014/07/hadr-and-us-china-military-cooperation/>

32) On this, see Hideshi Futori, "Japan's Disaster Relief Diplomacy: Fostering Military Cooperation in Asia," *Asia Matters for America (East West Center)*, May 21, 2013: <http://www.asiamattersforamerica.org/japan/japans-disaster-relief-diplomacy>

33) A July 23 interview with George Marshall can be read and listened to at "A World Burns in Silence," *Radio Ecoshock*, July 23: <http://www.ecoshock.info/2014/07/a-world-burns-in-silence.html>

ing climate change activism among pro life evangelicals on the basis of the rights of the unborn. In interviews, Marshall makes a convincing case that:

1) climate change is already too vast and fast to be compartmentalized as an environmental issue, and

2) that climate change activism is emerging among groups very different from progressive environmentalists and in discourses that the latter would never dream of.

Though Marshall himself does not, apparently, explore what the PACOM and partner militaries are doing, their mobilization on climate change as a national security threat is surely a profound example of precisely what he means.

As we have seen in the above, many elements of the militaries and associated think tanks are building the analytical tools to understand the speed and scale of climate change. And they are also working on how to construct resilient infrastructure, communities and international relations. That activism may seem bizarre from the perspective of much academic discourse, and indeed it has even been interpreted as conspiratorial and malign³⁴). But surely it is best seen as a promising paradigmatic potential, as defence identifies and responds to the unprecedented, accelerating and truly collective threat of climate change. Interdisciplinary academe should harness the example and help broaden the expanding link between climate change and national security into a more encompassing paradigm of human security.

34) Annie Isabel Fukushima, Ayano Ginoza, Michiko Hase, Gwyn Kirk, Deborah Lee and Taeva Shefler, "Disaster Militarism: Rethinking U.S. Relief in the Asia Pacific," *Foreign Policy in Focus*, March 11, 2014: <http://fpif.org/disaster-militarism-rethinking-u-s-relief-asia-pacific/>