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Massachusetts  
Amherst

## Micah Vandegrift Keynote - Open to Change: Possibilities and Probabilities

Item Type	event;event
Authors	Vandegrift, Micah
DOI	<a href="https://doi.org/10.7275/p88t-kt30">https://doi.org/10.7275/p88t-kt30</a>
Download date	2026-03-16 08:59:39
Item License	<a href="http://creativecommons.org/licenses/by/4.0/">http://creativecommons.org/licenses/by/4.0/</a>
Link to Item	<a href="https://hdl.handle.net/20.500.14394/38506">https://hdl.handle.net/20.500.14394/38506</a>

Monday, October 26th from 4:00 – 5:00 p.m.

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Bio - <https://github.com/micahvandegrift/micahvandegrift.github.io/blob/master/bio.md>

Photo - <https://github.com/micahvandegrift/micahvandegrift.github.io/blob/master/Headshot.jpg>

## Title - **Open to Change: Possibilities and Probabilities**

Description - The grand challenges of our day are being met with grand visions for the future. An opportunity sits at the intersection of climate change, open science, and community engagement. This talk will speak to what is distinctive about that opportunity in 2022, especially in light of the fresh directions in U.S. research policy, and will offer a case study of what that might look like. Mr. Vandegrift will speak from experience and his recent research and will provide attendees with a foundation and a forecast.

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## **Open to Change: Possibilities and Probabilities**

Thanks to Sarah Hutton and Christine Turner for the invitation, and to colleagues at JMU for allowing me to borrow their space.

### **1. Intro**

#### A personal story

In August of 1992, Hurricane Andrew barreled through south Florida. I grew up on the east coast of central Florida, far enough away to not be directly affected, but close enough to sense the worry and unease in my parents and their friends. Three years later Hurricane Erin, the next hurricane to make landfall since Andrew, aimed itself directly at Central Florida. It was the first time ever to that point, and ever since, that we evacuated our home, unsure that we would be able to go back. We found a last-minute hotel inland outside Orlando and waited out the storm with many other families crammed into small rooms, with hand-crank radios and piles of junk food, because that was all that was available at the grocery stores. As a young boy, I remember the mixed emotions of excitement, an out-of-town road trip staying in a hotel watching lots of T.V., paired with the disquiet of seeing my parents in a state of anxiety and deep concern.

In the end, Andrew didn't come as far north as expected, and our home only lost some fence panels, tree limbs, and branches. My experience is a far cry from any kind of climate displacement, but looking back those years between Andrew and Erin were the first time I can recall being awed at how the weather can radically change people's lives.

Speaking as a real-life #FloridaMan, I am also fortunate to have experienced that awe from that same central Florida front yard where for all the formative years of my youth I

watched the launch of every space shuttle. At this point in my life it has become more of an ice-breaker than anything, and only in the last few years have I reflected in wonder at the technical and scientific marvel that NASA's space program represented. As NASA recently launched its [TOPS \(Transform to Open Science\) program](#) and declared 2023 the Year of Open Science, I am struck by how my childhood experiences have melded with my professional interests and work.

I prefer boiling ideas down to simple drawings, so my diagram of choice for this talk will be a classic Venn. I wanted to begin with these three points - hurricanes, front-yard shuttles, and open science - to tee up my theme for the day.

Now, after a global pandemic, a renaissance in technology, and an evolving research policy environment - What has changed, what is the same, and what is ahead for open and public access to academic knowledge?

***It's clear that our shared global/human experiences are increasing in scale, complexity, and frequency. Today I'll continue speaking from my own perspective and experience, in no way hoping to claim it as a norm or standard, but instead hoping to tell a story that inspires others to reflect on our shared global heritage and, as academics, practitioners, community members, to position ourselves for responsible and careful action.***

## **2. Open Science: From UNESCO to UMass**

*[what has changed in 2022, especially in light of the fresh directions in U.S. research policy]*

The past 20-odd years have seen an incredible evolution in the manners, modes, and methods of research production. What was titled "open access" in the early 2000s, the sharing of scholarly research online, freely accessible and openly licensed, has grown to be a worldwide movement encompassing more than just equitable access to knowledge, new paradigms for research evaluation, and entire continents of open infrastructure. From our vantage point in the U.S. the NIH's Public Access Policy (2008) and the Holdren Memo (2013) are significant moments along the path. I'd like to propose that we've moved through three distinct phases: from open access, to open data, to open science.

A word about terminology - I prefer to use the phrase "open science" in these contexts primarily because that is the phrase that our colleagues from Japan to Johannesburg to Rio de Janeiro tend to use. If we were to use a strictly American socio-cultural phrase to describe the set of practices and principles I am referring to we might say "Open Research and Scholarship." Recognizing the inherent euro-anglo centrality of academic research, I am ok bearing a little discomfort for my own humanities background and my friends in the broad humanities disciplines to align my phrasing with the global consensus.

One marker of change in this evolution that parallels the lingo shift is the delicate back and forth we have managed in the U.S. between a policy-forward approach to opening up the scholarly

record, vs. a cultural/behavioral-forward approach. In spite of the NIH's Public Access policy and the Holdren memo, due in no small part to the nature of our gigantic landmass of a democratic republic, top-down national policies like those in the Netherlands or Denmark have not been the primary mover.

So, culture and behaviors have taken center stage. Evidence of this is clear across many disciplines, from the Modern Language Association allowing authors publishing in their journals to retain their own copyright since 2012 and launching the MLA Commons open repository in 2016 to the Microbiology Society announcing that in 2023 the founding journal, *Microbiology*, will be fully Open Access. The sharing of pre-prints went from an ancient practice in High Energy Physics on the arXiv to contributing to the rapid spread of scientific knowledge about COVID-19. Graduate seminars introduce research methods in the same breath as ResearchGate. And yet... the past two years have seen a flurry of activity that could be seen as either hard cultural change or soft policy development.

I'll skim across two examples briefly just to illustrate the point that the frequency, scale, and complexity of events in the scholarly climate are increasing and having wider and deeper impacts.

#### **National Academies Roundtable on Aligning Incentives for Open Science and ORFG**

- Launched in Feb '19
- Released a Toolkit for Fostering Open Science Practices in Sept 2021
- Launched the [Higher Education Leadership Initiative for Open Scholarship \(HELIOS\)](#) based on momentum and commitment from more than 80 colleges on universities to implement and operationalize parts of the Toolkit

#### **UNESCO**

- Dec. 2019 conducted open sessions online and in-person on open science awareness and understanding
- Feb-July 2020 global consultation (RFI) on defining open science, its practices, and stakeholders
- Nov '21 [Open Science Recommendation adopted](#)
  - 1st time to have a consensus statement with clear connections
  - Definition
  - Graphics that outline the major areas of work
  - Highlight equity
  - "open science is defined as an inclusive construct that combines various movements and practices aiming to make multilingual scientific knowledge openly available, accessible and reusable for everyone, to increase scientific collaborations and sharing of information for the benefits of science and society, and to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community. It comprises all scientific disciplines and aspects of scholarly practices, including basic and applied sciences, natural and social sciences

and the humanities, and it builds on the following key pillars: open scientific knowledge, open science infrastructures, science communication, open engagement of societal actors and open dialogue with other knowledge systems.”

At a global scale, and a national scale, as well as many examples of local actions in labs and classrooms, the culture and behaviors of open science grew and normalized. And then, in late August, Dr. Alondra Nelson, then acting Director of the OSTP, drops a [mic/memo](#) on the policy side of the scale, directing that all federally-funded research should be made fully, immediately open access as of 2026.

- What has changed? - communities have taken ownership of open science
- what is the same? - the stakeholders (funders, universities, publishers, researchers)
- what is ahead for open and public access to academic knowledge? - its all a game of possibilities at this point

### **3. Open Science + Climate action**

[offer a case study of what that might look like]

In what ways, then, might we imagine or repurpose some of those possibilities into probabilities? Returning to our open access week theme of “how open can be a means for climate justice,” I would love to tell a story of my own journey of discovery that I hope can serve as a case study or inspiration.

I was and will be eternally proud of the fact, that I had the pleasure to serve as the first ever Open Knowledge Librarian in the world when I was hired in 2018 at NC State University. I had spent all of my academic life at Florida State, a liberal arts-hearted school, and was shocked, excited, and uneasy at how commonplace open was at NC State, a land-grant university. Developing first an understanding and then respect for the land-grant mission, I found it quite easy to have conversations about the value of public knowledge, and equitable access to research outputs. In one of my explorations, I came across [this article published on The Conversation by Dr. Erin Seekamp](#).

What this article represented for me is the throughline that connects everything that has come after. I saw in the work a confluence of cultural heritage, ecological concern, climate consciousness, and community care. The current under Dr. Seekamp’s work is **a recognition that change is occurring and therefore focusing on adaptability and transformation as a resilience measure**. That sentiment echoes in conversations about the future of research sharing as equally as what small choices we can all make to alter our relationship with the planet.

The seed that article planted in me grew quickly and deeply in the fertile North Carolina State University soil. I met two researchers, Natalie Nelson and Shelia Saia, who work in bio-agricultural engineering, and who also happened to be open science advocates. In

attempting to find novel ways to connect during the pandemic, Shelia and I launched a series of podcast-ish live streams on the gaming platform Twitch under the title “Open Science and Reproducibili-Tea.” My cheeky wit was on full display with titles like Earl Grey Literature, Open Kombucha Knowledge, and Contributorship and Chai.

On a similar timeline, I was lucky to serve on the Universities’ Research Symposium planning committee, which had the theme of **Climate Change and Resilience**. Of course, I recommended Erin for a panel, and subsequently worked with the Office of Research to gather, describe, and distribute the proceedings of the symposium as openly-accessible objects in a global scholarly repository called Zenodo. Concurrently from another corner of the library, my colleague Karen Ciccone was partnering with a campus-wide, administration-supported initiative called Wicked Problems, Wolfpack Solutions, highlighting the best and brightest minds across campus in easy to ingest short form videos introducing their research under a single broad theme. The first iteration of Wicked Problems, Wolfpack Solutions focused on pandemics, the second on Global Change. I was proud to be involved in recommending the utility of PubPub, an open publishing infrastructure connected with MIT’s Knowledge Futures Group. Together, all of these activities encapsulate a whirlwind year and a half during which I attempted to employ Dr. Seekamp’s resilience through adaptability in my work advancing open science as a viable and valuable opportunity.

The culmination of this story was the planning and launch of the [Open Climate Data Science](#) symposium in March of this year. Supported by funding from the Office of Research, in partnership with the State Climate Office, and reuniting me with my friends Shelia Saia and Douglas Rao, we conceptualized a meeting with the goal to bring together three key focus areas on campus – data science, bolstered by the launch of our Data Science Academy, climate research, building from momentum at the Research symposium the previous year, and open science, a global/national/local interest. Borrowing tips from all the best COVID-era symposia, and guidelines like those from the CSCCE and [Code for Science and Society](#), we hosted the symposia over two weeks, peppered with keynote style presentations, community-sharing and collaboration-inspiration sessions, and detailed hands-on training in data science methods using local state climate data sources.

I can only speak to the outcome of these initiatives personally, as I left NC State just after the symposium. I have no doubt that the library, the State Climate office, my friends and colleagues, are continuing to do great work in many topic areas. But, personally, these experiences came together in two ways: 1) a new and deepened appreciation for the multidisciplinary research being conducted that can affect climate action, policy, and technology, and 2) the clear recognition that social and public impact of academic research can be elevated by and through open science, especially in topic areas like health and climate.

#### **4. Public Impact Research**

[experience and recent research]

Returning to my simple graph of the day, I'd like to wind down by offering a direction in which to aim for our next few years. It's clear that there will be much to work out in the policy space, and every discipline and academic department will feel those impacts. But, the opportunity area is somewhere in the nexus of open science (principles and practices), public impact, and community engagement.

Thomas Mboa and Ahou Rachel Koumi write in Branch Magazine, part of the Climate Action Tech community, that openness in publications and data, and openness to public impact on research and of research, are still not enough to produce meaningful change in useful time. They focus their work on "openness to excluded knowledge and epistemologies. It happens through the dialogue between different knowledge holders, which recognizes the richness of diverse knowledge systems and epistemologies" which can "Reimagine Climate Crisis Mitigation with Traditional Ecological Knowledge (TEK) Perspectives." Through personal stories of their experience, in this case, Thomas' heritage in the Beti tribe, being brought to bear as a separate but equal well of knowledge, they argue that "committing to the recognition of the plurality of knowledge means democratizing knowledge and giving birth to a new form of justice on the international knowledge scene. This justice recognizes the right of several forms of knowledge to coexist." Thomas and Rachel are clear that this is not easily achievable work, or easily recognizable knowledge as traditional languages and heritage need to be taught and tended to, but they offer a compelling argument and a few beginning steps including the instance on open source software and openly licensed traditional knowledge materials.

I had the pleasure to meet Thomas in 2017 at OpenCon, which was an annually held meeting for five years between 2014 and 2018. It was the briefest of encounters, walking together to a restaurant in Berlin after the conference sessions, but his passion and at the same time matter of fact approach to openness in higher education led me to follow his career since then. It is folks like Thomas that are inspiring change locally in their regions, cities, and neighborhoods, and that change is amplified through communities like OpenCon and reflected back into academia. The knowledge-turn that I look forward to is when local needs, like water quality or fishing rights, become co-collaborative research projects where the University gives more than it takes.

## **5. Closing**

I'll end with a forecast. Open science, and under that banner, open access, open data, and the recognition of open knowledge from outside academia will have an outsized role in the popular academic press over the next few years. The Nelson Memo and its impacts have ensured that. However, the foundation on which we can truly build, in my opinion, will not be policy or technology, but community. Tracing my own path from that front yard in Melbourne, Florida through some incredible, important initiatives at NC State, to this virtual stage in VA/Mass, the clear connection throughout is the community that supported and inspired me.

The last conference I went to before the pandemic was MozFest in London. I went under the auspices to deepen my international connections around open science and broaden my scope

of understanding in the social/civic tech space, but came back with an accidental new career direction. I attended a session titled “Health Data Sharing is Caring” where Natalia Norori and Stefano Vrizzi asked participants to brainstorm how can we ensure that the next era in healthcare does not replicate biases and inequality. Diverse representation in health data, and the opening of that data for broad research, was something I had never considered. Now, I work on it daily as a User Experience Strategist for the National Institutes of Health’s All of Us Research Program. Natalia is such an inspiration to me, and I have great hopes for the future of open science, health equity, and community engagement because of people like her.

But, to truly illustrate the feeling of community that I value, and that I hope you all find in this journey also, I need to pair Natalia’s inspiring words you see here with the time she called me her “open access grandpa.”

## PERSONAL STORY

**Open will advance through technology, policy, and behavioral change, but let's be sure to center community as our foundation for action.**

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## **References and Resources**

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- Thomas Mboa [article](#)
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- <https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1067&context=oa>
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- [Open Climate Campaign \(@OpenClimateCamp\) / Twitter](#)
- [Using open data to ensure the sustainability of the Ocean](#)
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