

Enhance Your Science With Social Media and Blogging

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 [@ARMNEWSTEAM](#)  [@ARM.GOV](#)

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Your Experience



- ▶ How many of you are on social media or blog?
- ▶ Which platforms? (Twitter, Facebook, etc.?)
- ▶ How often do you use it?
- ▶ How do you use it?
 - For personal reasons?
 - For professional reasons?
- ▶ Anybody had professional success?
- ▶ Anybody had a professional problem?

Nearly All Scientists Talk with the Public

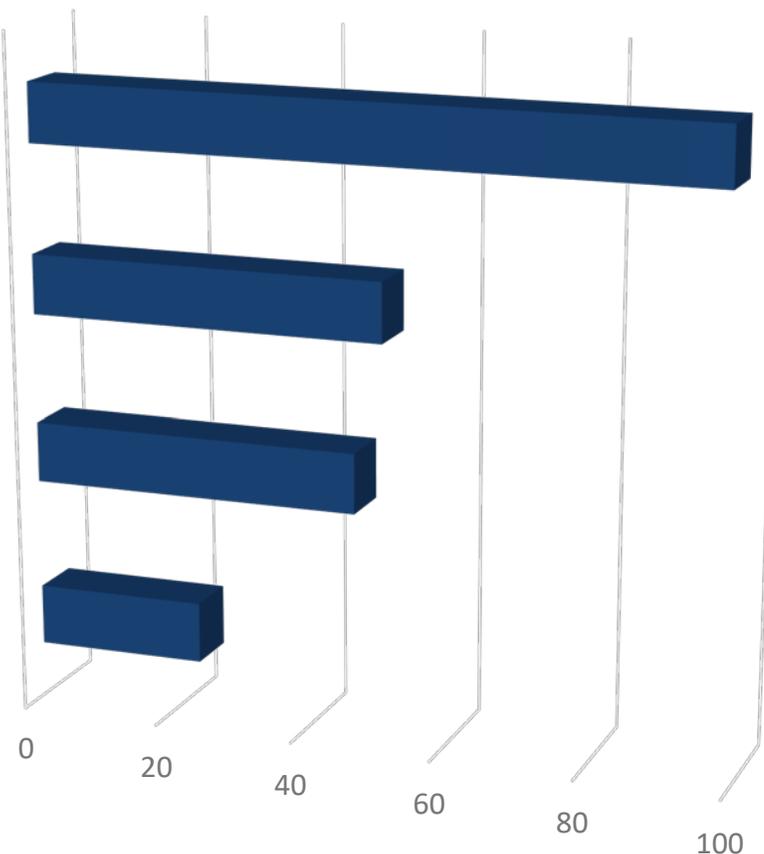
% of AAAS scientists who do each of the following

98% -- Ever talk with citizens about science, research

51% -- Ever talk with reporters about research

47% -- Ever use social media to discuss or follow science

24% -- Ever blog about science, research



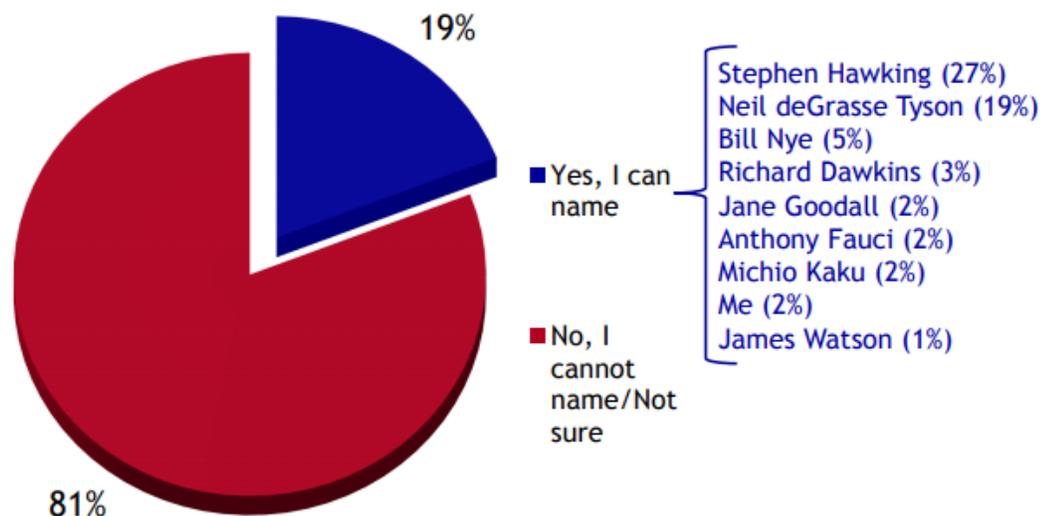
AAAS scientists survey Sept. 11-Oct. 13 2014. Q50a-f. Ever use social media based on combined responses to Q50d,e. Ever blog based on combined responses to Q50a,f. Responses of never and no answer are not shown.

PEW RESEARCH CENTER

The Need for Scientists to Talk to the Public

Most Americans Cannot Name a Living Scientist

Can you name a living scientist?



81% of Americans cannot name a living scientist.

Zogby Analytics

Source: A Research!America poll of U.S. adults conducted in partnership with Zogby Analytics in January 2017.

RESEARCH AMERICA
AN ALLIANCE FOR DISCOVERIES IN HEALTH

A Viable Tool for Communicating Research

Communicating the societal value of basic research to nonacademic audiences is **evolving from an optional soft skill to a crucial tool** that scientists use to compete for finite research budgets.

Researchers are embracing social media to:

- ▶ Stay abreast of advancements in their fields
- ▶ Share their work
- ▶ Build scientific reputations
- ▶ Communicate science to the public

...nearly half of AAAS scientists—47%—use social media to talk about science or read about scientific developments...

Use Social Media to Advance Your Science

According to *The Scientist* and *Phys.Org*, scientists are taking to social media to:

- ▶ Challenge weak research
- ▶ Share replication attempts in real time
- ▶ Counteract hype
- ▶ Increase citation rates



Use Social Media to Advance Your Science

Incorporating social media into the different stages of a scientific publication:

- ▶ Accelerates scientific discovery
- ▶ Facilitates interdisciplinary collaboration
- ▶ Communicates results to a large & diverse audience
- ▶ Encourages post-publication conversations about findings
- ▶ Speeds research evaluation
- ▶ Increases scientific transparency
- ▶ Amplifies the positive effects of scientists' interactions with more traditional media



Use Social Media to Advance Your Science

Other reasons for scientists to use—or **engage with ARM communications** in using—social media:

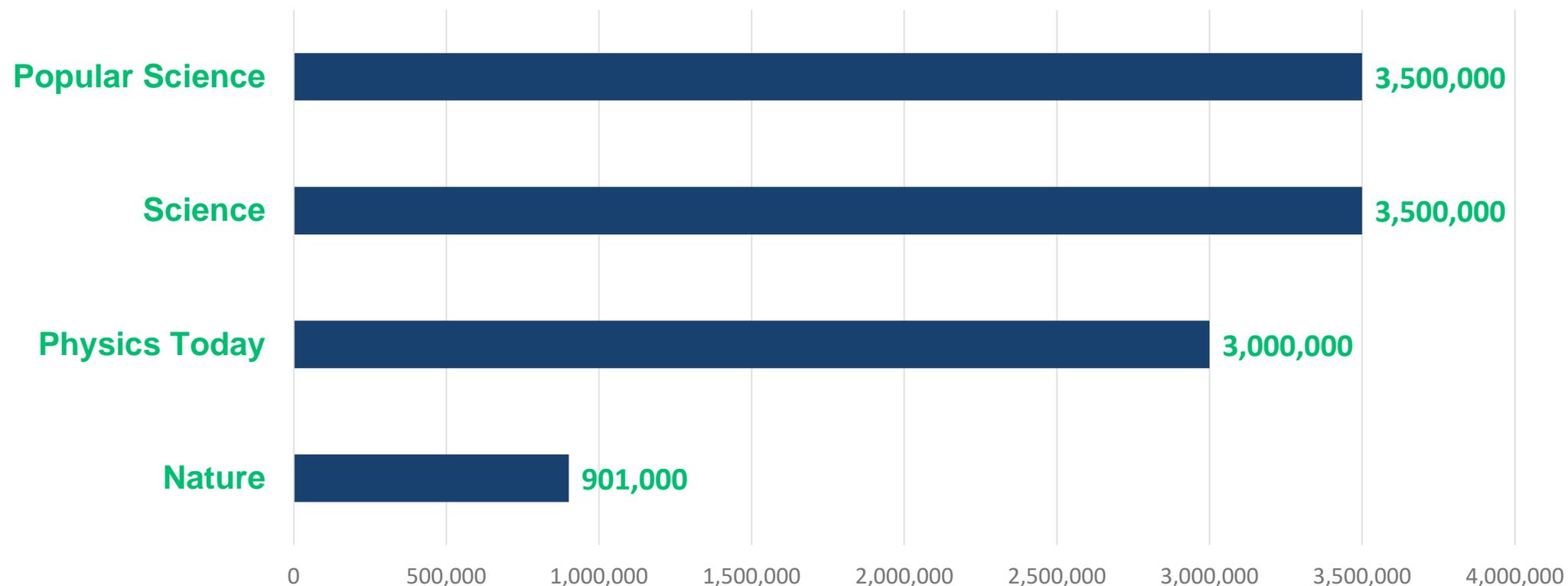
- ▶ Facilitates interest in a campaign
- ▶ Generates invitations to present at conferences
- ▶ Generates media interest in research
- ▶ Engages DOE leadership
- ▶ Expands your network
- ▶ Helps you get more out of large meetings (AGU, AMS, AAAS etc.)
- ▶ Promotes your—or your peer's—talk or poster at conferences
- ▶ Shares new findings, tools & cutting-edge trends—sometimes months before they appear in print
- ▶ Helps you be known as a thought leader
- ▶ Helps support ARM & your organization(s)

At least 45,000 scientists around the world use Twitter.

Ke Q, Ahn Y-Y, Sugimoto CR (2017) A systematic identification and analysis of scientists on Twitter. PLoS ONE 12(4): e0175368.

Use Social Media to Advance Your Science

These science-related Facebook pages have 901 thousand to 3.5 million followers as of 2019:



Why NOT Use Social Media?

- ▶ It is easy to post things you wish you hadn't
- ▶ You could receive public criticism—some could be vicious
- ▶ Posts last forever—could be taken out of context or shared long after you update your opinion
- ▶ It seems time-consuming
- ▶ Discomfort (fear of stigma) with self-promotion
- ▶ Fear of over-simplifying results to the point of inaccuracy
- ▶ Fear of being “scooped” on your science
- ▶ Worry about ethics of other scientists
- ▶ May become obsessed



TOM GAULD

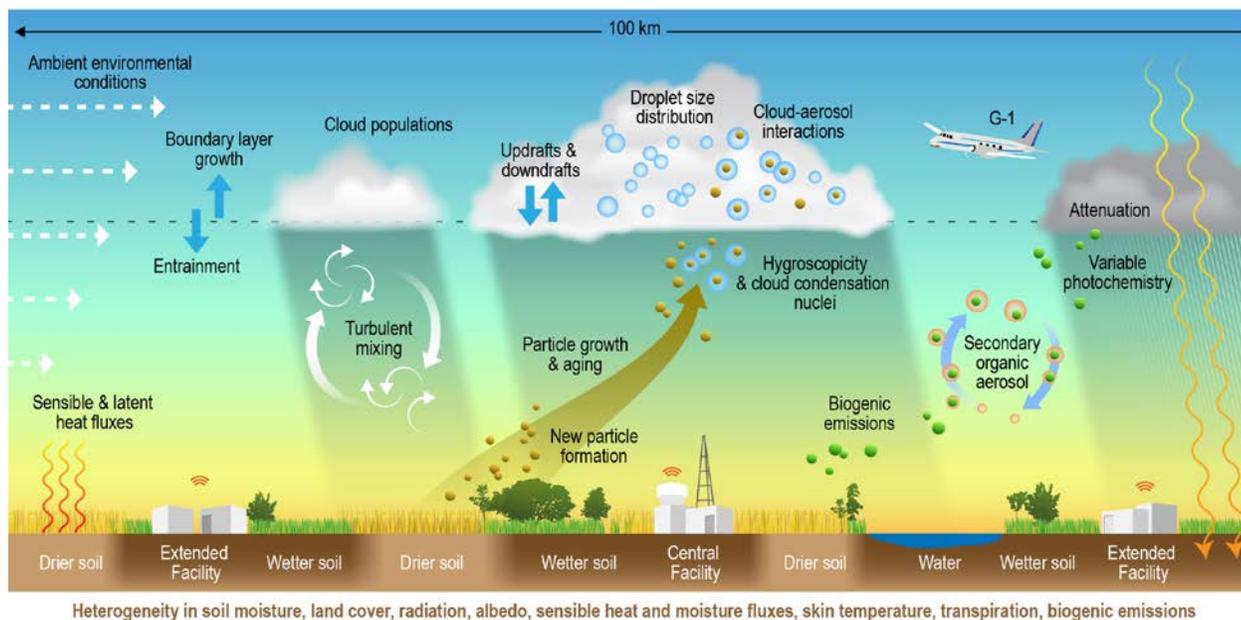
Case Study: HI-SCALE

HI-SCALE: Holistic Interactions of Shallow Clouds, Aerosols, and Land-Ecosystems

24 APRIL 2016 - 23 SEPTEMBER 2016

LEAD SCIENTIST: JEROME FAST

- ▶ 2 separate month-long intensive observational periods (IOPs) - spring and late summer of 2016
- ▶ Research into the effects of vegetation and land surface conditions on the shallow cloud life cycle in Oklahoma
- ▶ Extensive aerial measurements coupled with observations from the ARM Southern Great Plains (SGP) observatory
- ▶ Data used to validate large-eddy simulations (LES) and cloud resolving models



Case Study: HI-SCALE

Outreach Plan

Blogs

- ▶ 5 completed
- ▶ 3 by a postdoc Siegfried Schobesberger
- ▶ 2 by Jerome

Social Media

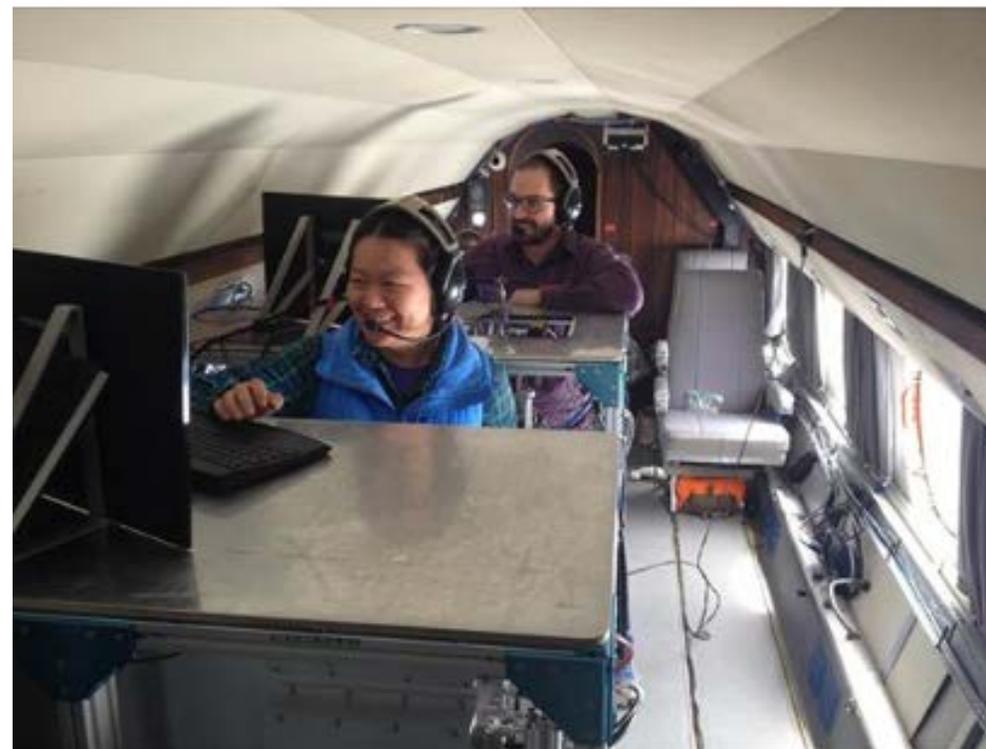
- ▶ 21 Twitter posts
 - 37 likes, 31 retweets, 1 reply
 - Argonne retweeted; 61.2K followers
- ▶ 17 Facebook posts
 - 88 likes, 12 comments, 6 shares
 - PNNL shared; 10K followers



ARM Climate Research Facility

May 12, 2018 · 🌐

Meet the team and instruments in Jerome Fast's, Pacific Northwest National Laboratory - PNNL , latest #HISCALE blog. <http://1.usa.gov/1T2ozsx>
Argonne National Laboratory, Environmental Molecular Sciences Laboratory



Case Study: HI-SCALE



Jason Tomlinson @JTomlinsonPhd · 25 Apr 2016
Preparing for the first #HiScale research flight! @armnewsteam



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PNNL liked



Hanna Goss @HannaBGoss · 14 Dec 2018
Discover what Larry Berg @PNNLab will be sharing in his #ARMAGU poster session tomorrow on research using #HISCALE data. #AGU18 @armnewsteam



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Case Study: HI-SCALE

Pacific Northwest National Laboratory - PNNL
June 25, 2016

ARM Climate Research Facility
June 24, 2016

Airborne & ground-based observations from #HISCALE will help #scientists quantify the influence of differences in land use, vegetation, soil moisture; turbulence within convective eddies; and aerosol properties on the evolution of shallow clouds.
<http://1.usa.gov/22o1VgE> #ARMSci5 Pacific Northwest National Laboratory - PNNL, Argonne National Laboratory

You, Mike Wasem, John Nicksich and 23 others
4 Comments

Like Comment Share

Jeffrey Dill Not sure what to think about a national lab that posts all their stuff on FB instead of publishing in the open, peer reviewed, lit. Typical for PNNL though. You will read their research anywhere but the open, peer reviewed lit. Sad.
Like · Reply · 2y

Joseph Morad Wait, what? A quick search indicated PNNL is credited with 373 publications in 2016 alone, including journal articles, formal reports, book chapters, and conference papers. I'm not trying to change your mind because you're obviously going to think what... [See More](#)
Like · Reply · 2y

Jeffrey Dill Your source link was 404. Searched PNNL pubs on ARM and Climate saw only 7 related pubs in the last 8 years. Among these, the last and only pub I saw on ARM was some bulletin on its structure and capabilities back in 2011 (not really science)...except, of course, for the above on Facebook. Go to <http://www.pnnl.gov/publications/> search all publications and type in ARM Climate in keywords block and click search. I did this and it returned 7 pubs since 2008 and none since 2013. Evidence.

PNNL.GOV
PNNL: Publications

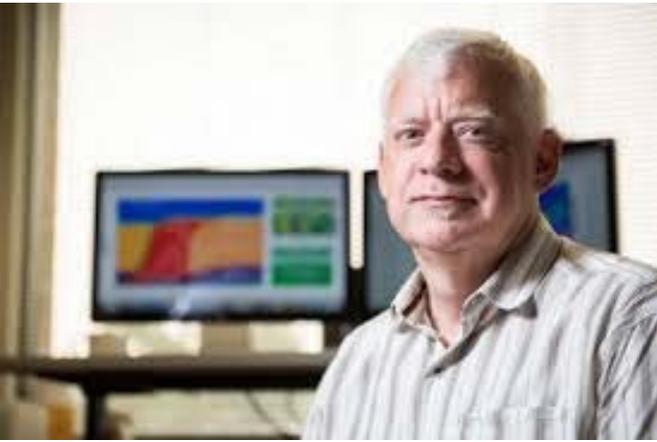
Like · Reply · 2y · Edited

ARM Climate Research Facility Hi, Jeffrey. There is a reason that a search for ARM on PNNL's publications database doesn't show more than 7 publications--but it doesn't mean there aren't more publications! In fact, there have been 62 ARM publications this year, and last year we had 197. ARM is a national science user facility managed by 9 national laboratories, including PNNL. ARM publications are not in the PNNL database because we do our work for the U.S. Department of Energy and ARM publications are on the ARM website. PNNL researchers who submit publications that use ARM data are not required to make ARM a search term on their site. You can find ARM publications by going to <https://www.arm.gov/publications/journal>.

ARM.GOV
ARM - Journal Articles 2016

Like · Reply · Commented on by Hanna Goss [?] · Remove Preview · 2y · Edited

Case Study: HI-SCALE



Jerome's Lessons

- ▶ Provide information on activities in near real-time for those who were interested—not everybody can be in the field
- ▶ Find the time—may need to make it part of the schedule
- ▶ Encourage blogging & posting by people who naturally have an interest—guidance is needed to ensure right messaging
- ▶ Share most of what goes on in a campaign, particularly photos of activities—but don't give away details that you may use in a journal article
- ▶ Social media facilitates interesting results to be disseminated quickly, as opposed to several years later down the road—initial findings could be proven wrong once other information becomes available

Case Study: HI-SCALE

Jerome's Lessons (cont.)

- ▶ Get feedback from collaborators or scientists on what would be useful in near real-time
 - i.e. respond to a flight plan or preliminary data, get feedback that would help better design next series of measurements
- ▶ Be familiar with the platforms—there are technical limitations
- ▶ Get ARM communications support—help managing the communications process is an advantage
- ▶ Use it as a way to document things that worked or didn't work to review later when memory fades
- ▶ Share papers that come out of the campaign in the future



Case Study: MOSAiC

MULTIDISCIPLINARY DRIFTING OBSERVATORY FOR THE STUDY OF ARCTIC CLIMATE (MOSAIC)

1 SEPTEMBER 2019 - 31 OCTOBER 2020

LEAD SCIENTIST: MATTHEW SHUPE

- ▶ An entire year trapped in the Arctic ice
- ▶ The largest Central Arctic expedition ever
- ▶ A total of 600 people from 17 countries
- ▶ The 2nd ARM mobile facility will be on board
- ▶ Will include extensive social media & blogs



Case Study: MOSAiC



Plan

- We will be getting raw content every 8 weeks

Social Media

- German partner will be leading official social media on Twitter [@MOSAiCArctic](https://twitter.com/MOSAiCArctic) & Instagram [@mosaic_expedition](https://www.instagram.com/mosaic_expedition)
- CIRES will be official Facebook [@CIRESnews](https://www.facebook.com/CIRESnews)
- ARM will do social media on [@arm.gov](https://twitter.com/arm.gov) & [@armnewsteam](https://twitter.com/armnewsteam), tagging & linking to others [#ARM MOSAiC](https://twitter.com/ARM MOSAiC)
- Matt will start tweeting in July

Blogs

- AWI will run the official blog with post beginning in July & ramping up at campaign launch in September
- CIRES will set up a platform for US participant blogging
- ARM has its Field Notes blog

Case Study: MOSAiC

Social media is changing the way that scientists interact with each other and with the global community.



- ▶ **Connect with data in a new way** – discover interesting data days or problems that may impact data quality
- ▶ **Connect with researchers in a new way** – jumpstart after-campaign conversations, help find collaborations & linkages
- ▶ **Get a bigger picture** – get a clearer understanding of what's going on that may be relevant to your research
- ▶ **Get early information** – discover when talks, posters, & papers will be using the campaign data

Social Media Best Practices

Be Intentional

All social media platforms allow you to reach both intended and unintended audiences.

- **Posts last forever** – Assume any message could go viral
- **Kindness matters** – Post as if you are speaking to someone next to you—sometimes the best response is no response
- **Platform matters** – Think about how you want to use different platforms; are you using them in a professional or personal capacity, or both?
- **Follow the rules** – Contact your institution’s communication office for their communications policies
- **Share and share alike** – Share other people & organization’s content, as well as your own



Social Media Best Practices

Know Your Platform

All social media platforms aren't created equal. Find the platform that fits your needs.

Take a moment and think about:

- Who do you want to talk to?
- What kind of activities do you want to be engaged in? Writing? Sharing links? Collaborating with scientists? Outreach with nonscientists?
- How much time do you want to spend?
- Pick one. You don't have to start accounts on every social media platform.
- Keep a long view of the kind of identity you want to present to the world.



Know Your Platform – Twitter

Why use Twitter

- ▶ Brevity of tweets (280 characters up from 140) & capacity to include images & videos
- ▶ Easy to go through a lot of information at a glance, with the option to dig deeper
- ▶ Filter posts to match your interests through the creation of lists—put journals, funders, institutes, science news outlets, bloggers & individual scientists in separate lists
- ▶ Hashtags (#) can make it easy to follow discussions & can give you the highlights of a conference session you missed
- ▶ Learn about important research papers, & bring your latest work to the attention of the community



Twitter

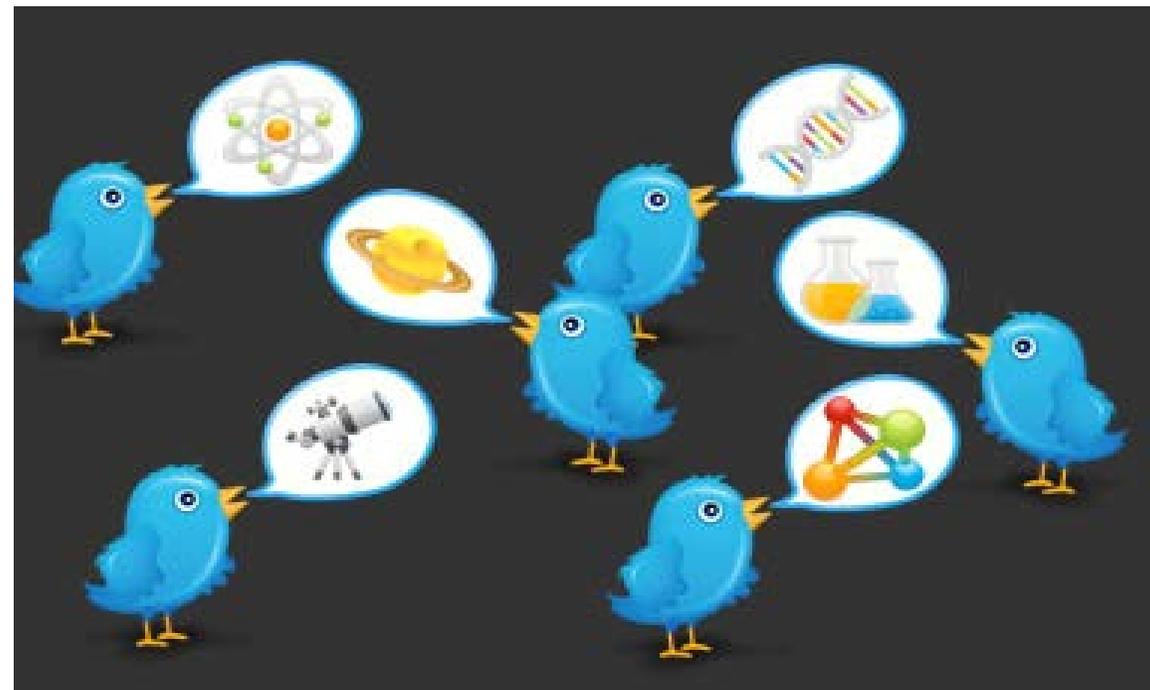


- ▶ Tweet often! 1 to 4 times a day
- ▶ Use hashtags (#), comment on other people's tweets, & respond to comments
- ▶ Live tweet events by using relevant hashtags (such as #AGU2019 for an AGU conference)
- ▶ Use the website bitly.com to shorten links
- ▶ Use the [Tweetdeck](#) or [Hootsuite](#) apps to manage multiple twitter accounts

Twitter Best Practices

Build a Strong Network

- ▶ Step 1 – Follow scientists you already know
- ▶ Step 2 – Follow scientists you have heard of or want to meet, labs, societies, academic departments, companies, journals, & journalists
- ▶ Step 3 – Follow who they follow, repost or interact with, & repost and interact with them, too
- ▶ Step 4 – Unfollow or block accounts that don't add value or detract from your feed





Why Use Facebook

- ▶ Share public or private posts, include links, photos, & videos
- ▶ More room to write & provides flexibility of setting up topic & group pages
- ▶ Keep up with association or organization news & announcements on official pages
- ▶ Can post a couple of times a week and still be relevant

Best Practices

Facebook

- ▶ Make posts & links audience appropriate
- ▶ Friend scientists you know & meet at conferences. Don't friend scientists you don't know
- ▶ Follow labs, societies, academic departments, companies, & journals
- ▶ Be you—within reason
- ▶ Respond to comments people make on your posts & start conversations



Know Your Platform – Blogging



Why Blog?

Blogging requires more thought than other social media platforms, but its permanence & reach can make it more rewarding

- Posts can take 30 minutes to many hours, depending on the topic.
- Post at least 1 to 2 times a week—or more
- Can reach a wide audience & have a big impact
- Should still keep brevity in mind, but can more fully explain concepts

Best Practices

Blogging

- ▶ Know your audience & write with them (their interests, education level, etc.) in mind
- ▶ Decide on a theme & (mostly) stick to it
- ▶ Make it visually appealing—minimalism & simplicity should be your bywords
- ▶ Promote your blog on Twitter, Facebook, etc.
- ▶ Use the ARM blog to share relevant content to atmospheric scientists & the ARM user community



Why Use Social Media?

- ▶ Even if you rarely post, following scientists, labs, societies, journals, & journalists creates a curated list of **fresh discoveries, events, discussions**
- ▶ A scientist with about 1,000 Twitter followers **reaches a broad audience**, including educational organizations, media, & the public
- ▶ Some academic institutions are starting to reward scientists for engagement—the Mayo Clinic includes social media scholarship activities in their **criteria for academic advancement**



Why Use Social Media

“It doesn't matter how right you are if nobody is listening to you.”

Kim Cobb, @coralsncaves, Climate Scientist



Learn More about Using Social Media for Science

Resources

- **Science, A social media survival guide for scientists**

<https://www.sciencemag.org/careers/2018/11/social-media-survival-guide-scientists>

- **ASLO, A Scientist's Guide to Social Media**

<https://www.aslo.org/page/scientist-guide-to-social-media>

- **PLOS, An Introduction to Social Media for Scientists**

<http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1001535>

- **PLOS, How are Scientists Using Social Media in the Workplace?**

<http://dx.doi.org/10.1371/journal.pone.0162680>