ARM/ASR Open Science Workshop 2022

ADAM THEISEN

Argonne National Laboratory

2022 ARM/ASR Joint User Facility and PI Meeting

Thank you to the Organizing Team!

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- Scott Collis
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What is Open Science?

- From NASA's Open-Source Science Initiative (https://science.nasa.gov/open-science-overview)
  - **Transparent** – Scientific process and results should be visible, accessible, and understandable
  - **Inclusive** – Process and participants should welcome participation by and collaboration with diverse people and organizations
  - **Accessible** – Data, tools, software, documentation, educational resources, and publications should be accessible to all (Findability, Accessibility, Interoperability, and Reuse -FAIR)
  - **Reproducible** – Scientific process and results should be open such that they are reproducible by members of the community

Transparent

Inclusive

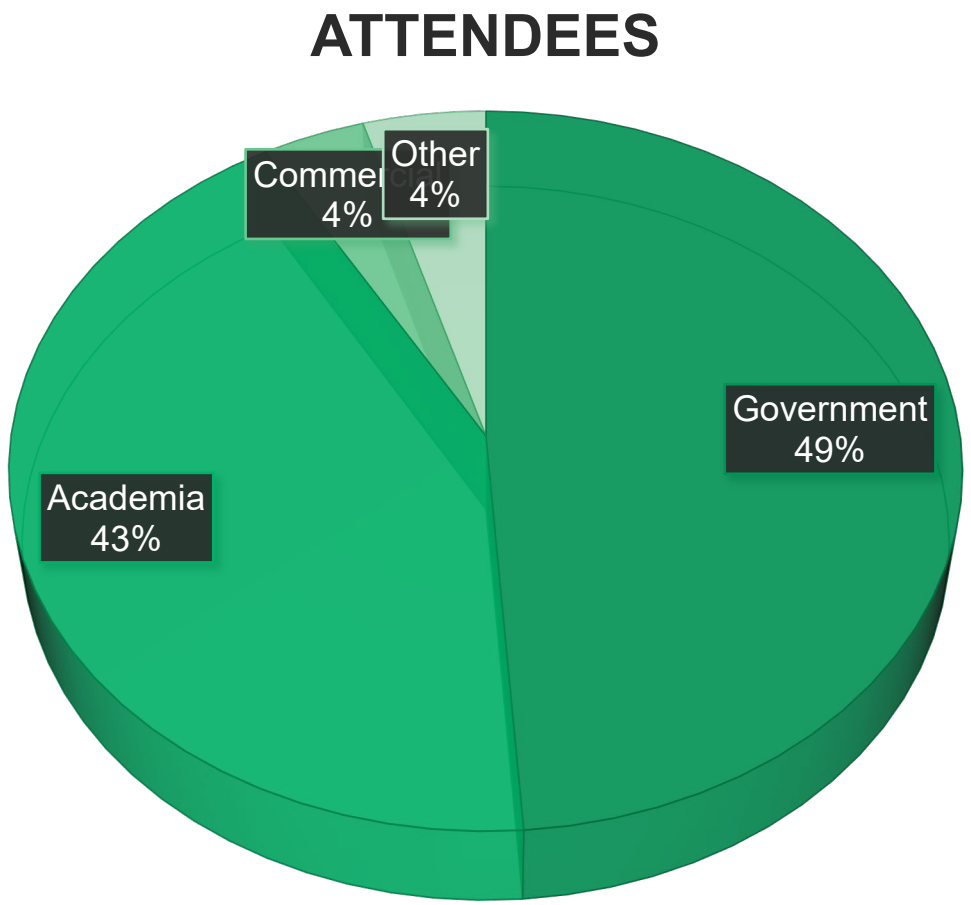
Accessible

Findable
Accessible
Interoperable
Reusable

Reproducible

Background

- 128 Unique Attendees over 3.5 days
- 15 Talks covering a range of open science related topics
  - ARM efforts in open science
  - Open-source software and hardware
  - Collaborative educational efforts
- Keynote by Chelle Gentemann about NASA's Transform to Open Science (TOPS) initiative
  - NASA is designating 2023 as the Year of Open Science!



Background

- Tutorials (10) were set up to run on ADC resources (JupyterHub)
  - Access to ADC's JupyterHub resources can be requested through a regular Research Account Request. Visit the ADC team at the data booth for more information!
  - https://github.com/ARM-Development/ARM-Notebooks
- Talks and Tutorials were recorded and are available on ARM's YouTube channel (ARMGOV)

Key Takeaways

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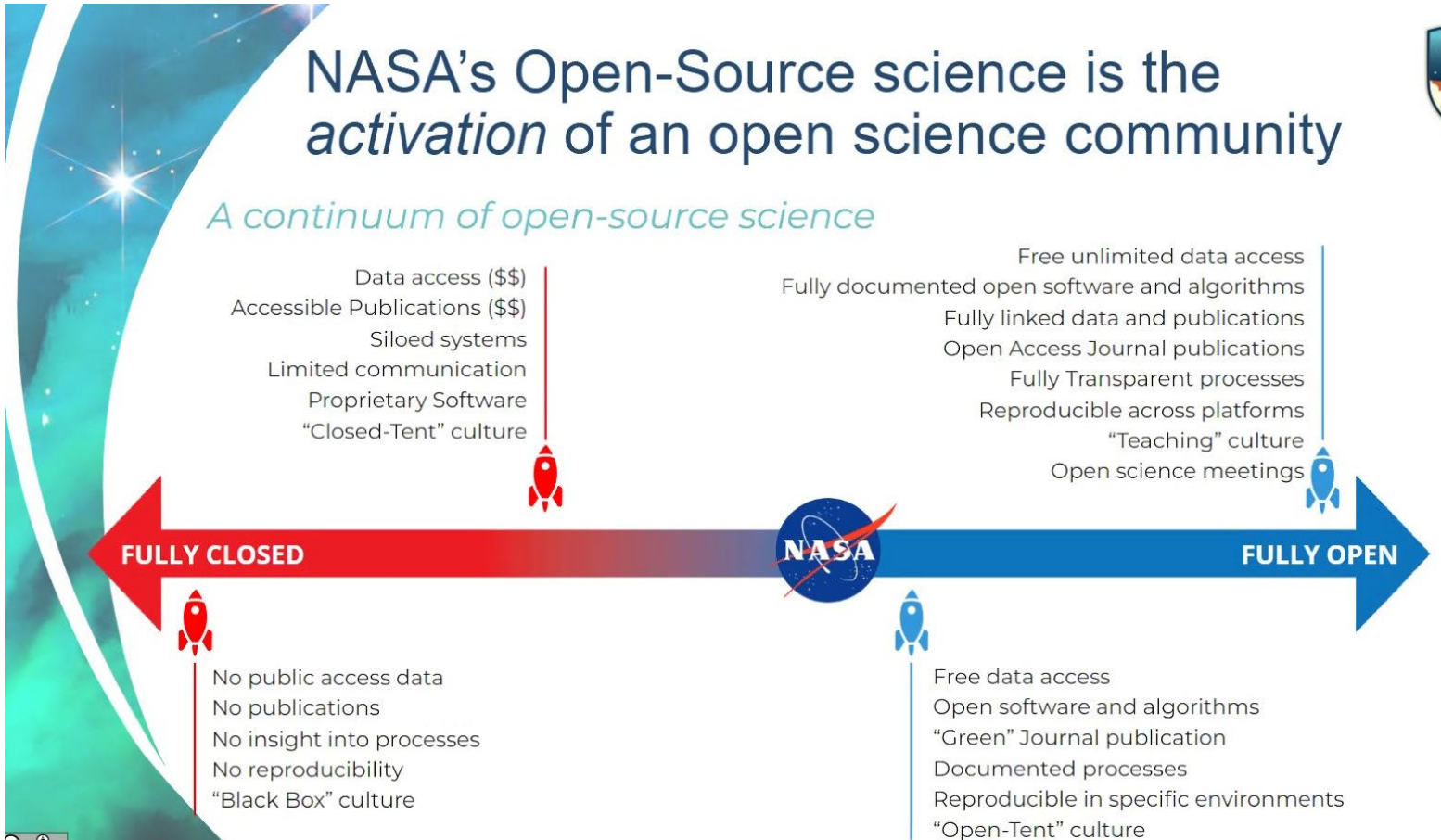
- Continued outreach is necessary to keep moving the ARM/ASR culture more towards open-science
  - "We need to meet people where they are…. We want to move everyone more towards openness and celebrate each step towards more openness" – Chelle Gentemann

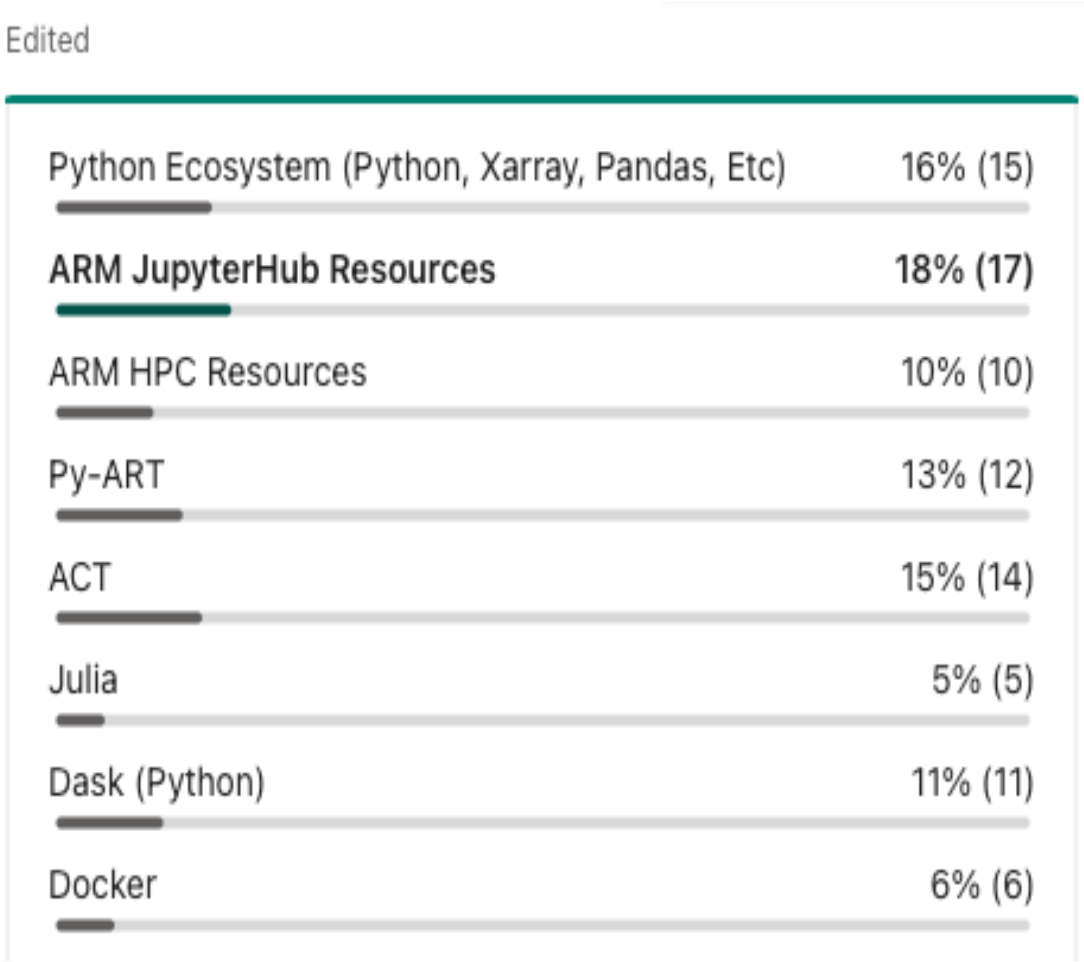


Accelerating Scientific Discovery

Credit: NASA ESDS.

Key Takeaways

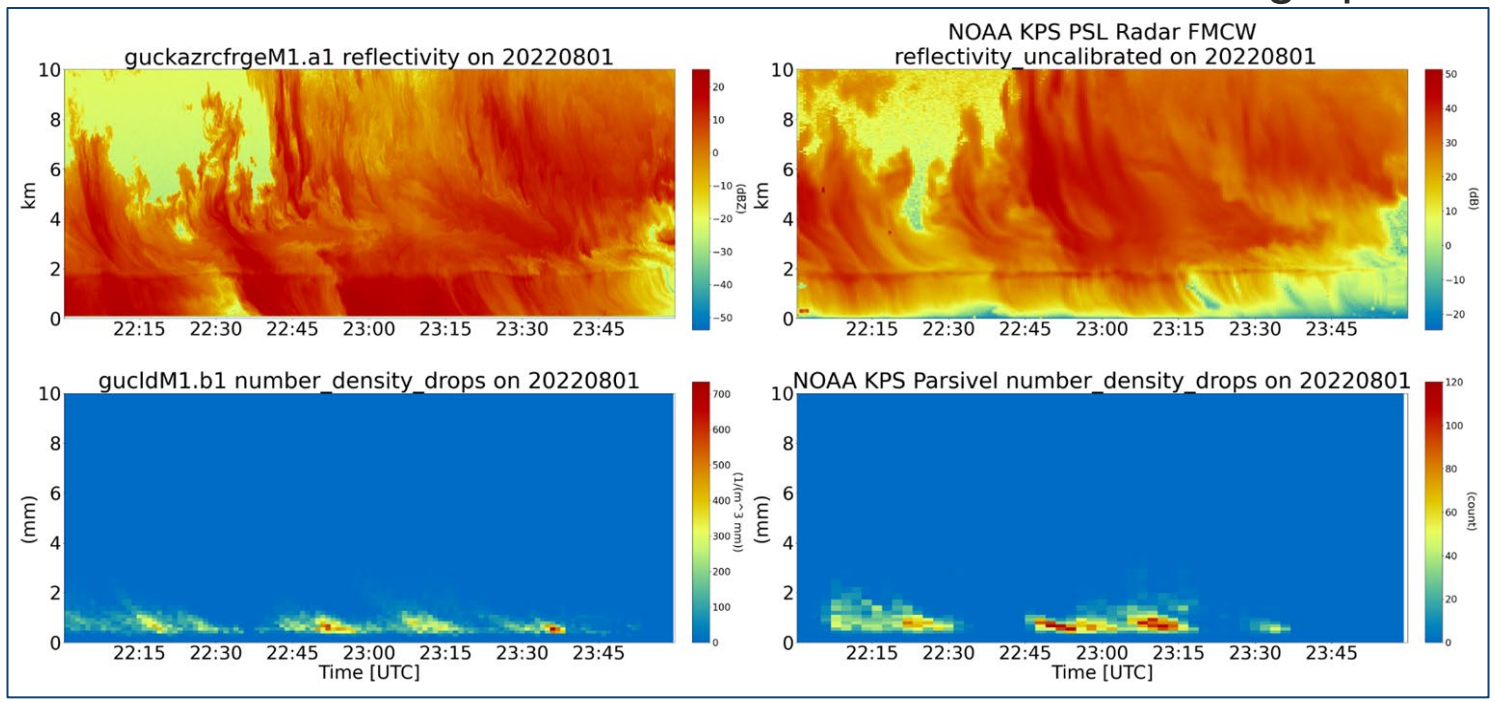
- Continue developing ARM/ASR human capital in areas of open-science and open-source software
  - There is interest in continuing to provide training and education opportunities to the community
    - Python, JupyterHub, Py-ART, ACT, Machine Learning, HPC Resources
  - Hackathons to bring people together to work on targeted features, additions to code, or other predefined goals



Key Takeaways

- Opportunities for Partnerships Exist!
  - NASA – Designating 2023 as the year of open science
  - Project Pythia – Benefit the broader community through education (https://projectpythia.org/)
  - Co-development between different organizations (ARM, AmeriFlux, NOAA, NASA, AGU, AMS, etc…)

ARM SAIL and NOAA SPLASH data retrieved and visualized using open-source software



Key Takeaways

- Need high-level visibility and support for open-science!
  - Every agency is different about sharing code, data, etc… Release agreements need to be updated to support open science
  - Career advancements to include contributions to open science efforts and not just by publications
  - Need continued support to maintain the infrastructure (hardware and software) to keep up with advancements in the community
  - Support to continue development of open-source resources of interest to the community such as
    - Instrument specific software packages (PySP2)
    - Enhancing or adding to ARM Simulators (EMC^2)
    - Developing online courses for working with ARM data

Administration Priorities

AUGUST 25, 2022

OSTP Issues Guidance to Make Federally Funded Research Freely Available Without Delay

OSTP ▸ BRIEFING ROOM ▸ PRESS RELEASES

Thank you to all the presenters, tutorial leaders, and attendees!

Please come talk to us at the data booth about open science or reach out to those that are active in open science. They may just have some open science swag to share with you!

Scan Me!

Link to the Workshop Tutorials