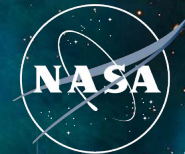




National Aeronautics and
Space Administration



A NASA OPEN-SOURCE SCIENCE MISSION: **TOPS: TRANSFORM TO OPEN SCIENCE**


Dr. Chelle Gentemann, TOPS Program Scientist
Yvonne Ivey, TOPS Project Manager
Cyndi Hall, TOPS Community Coordinator
Dr. Karla Mastracchio, TOPS Communication Strategy
Dr. Yaitza Luna-Cruz, OSSI/TOPS Science Coordinator
Dr. Elena Steponaitis, OSSI/TOPS Science Advisor

Kevin Murphy, Chief Science Data Officer SMD
Katie Baynes, Deputy Chief Science Data Officer SMD
Dr. Steve Crawford, Science Data Officer SMD
Amy (Uyen) Truong, Chief Science Data Office Coordinator
Christian Reyes, OSSI Coordinator



Welcome!

We are encouraging people to use
#NASATops and #IHeartOpenScience

I 
**Open
Science**





Code of Conduct

Expected Behavior

All participants are to...

- Be treated with respect and consideration, valuing a diversity of views and opinions
- Be considerate, respectful, and collaborative
- Communicate openly with respect for others, critiquing ideas rather than individuals
- Avoid personal attacks directed toward other participants
- Be mindful of your virtual surroundings and of your fellow participants
- Alert a host if you notice a dangerous situation or someone in distress
- Respect the rules and policies of the virtual meeting space

Unacceptable Behavior

- Harassment, intimidation, or discrimination of any form will not be tolerated
- Physical or verbal abuse of any participant
- Examples of unacceptable behavior include, but are not limited to, verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, national origin, inappropriate use of nudity and/or sexual images in the meeting space or in presentations or threatening or stalking of any participant.
- Disruption of proceedings, panels, discussions, and/or lightning talks.



Code of Conduct (Continued)

Expected Behavior

- Anyone requested to stop unacceptable behavior is expected to comply immediately.
- Hosts may take any action deemed necessary and appropriate, including immediate removal from the meeting without warning.

Reporting Unacceptable Behavior

- If you are the subject of unacceptable behavior or have witnessed any such behavior, please immediately notify a meeting host.
- Notification should be done by contacting a host via direct chat or emailing your concern to Chelle Gentemann chelle.gentemann@nasa.gov
- Anyone experiencing or witnessing behavior that constitutes an immediate or serious threat to public safety is advised to contact 911 or your local emergency number.



Submit Feedback or Suggestions

Your inputs are essential to the success of our mission. Throughout this week's panel, please feel free to submit questions, feedback, or suggestions via the feedback tool.

You can use the QR code to access the feedback tool



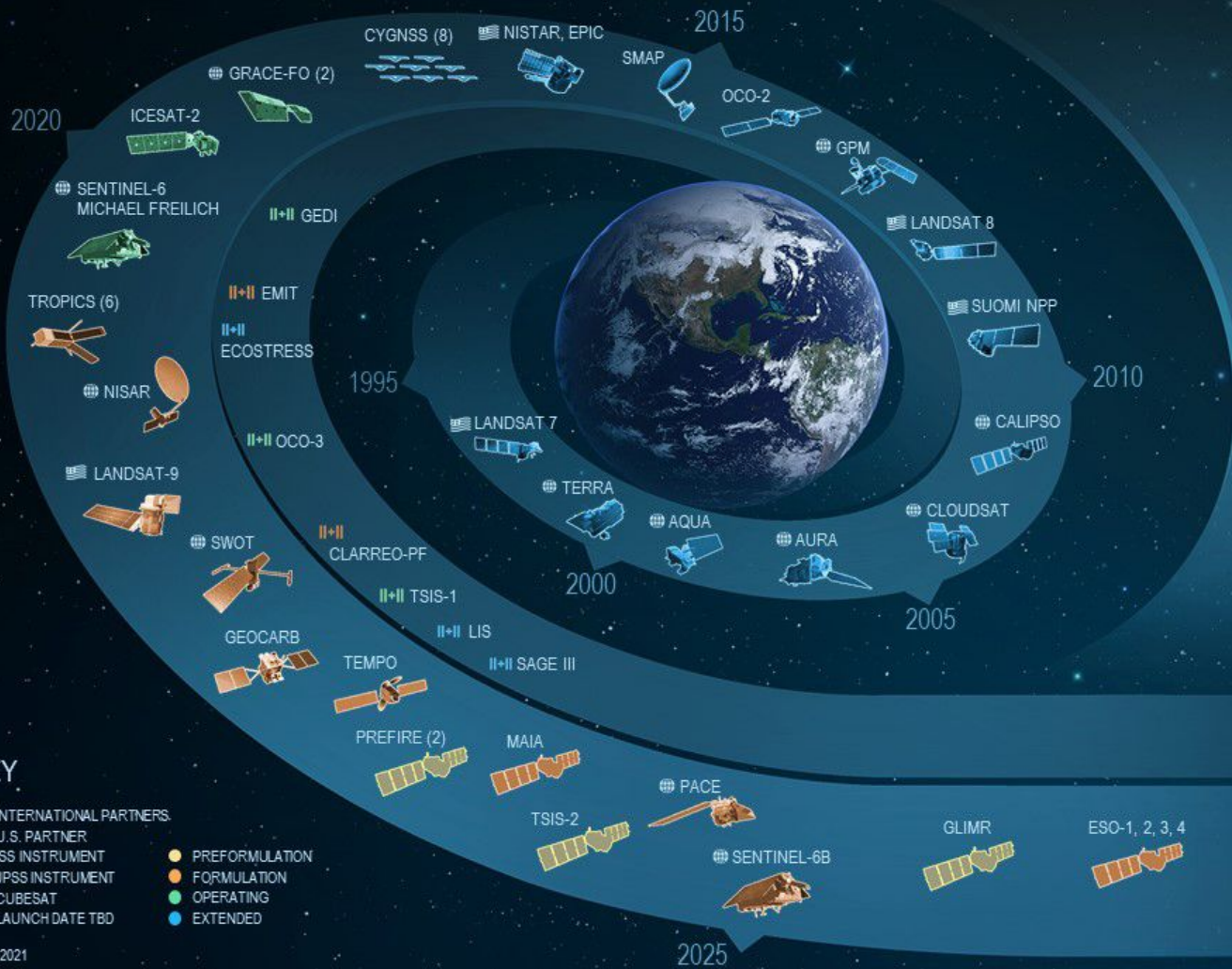
Agenda



<i>Time (ET)</i>	<i>Agenda Item</i>	<i>Presenter</i>
12:00 pm	Introduction and Review of Code of Conduct	Karla Mastracchio
12:05 pm	NASA's Open Science Policies	Steve Crawford
12:30 pm	Discussion: Policy	Steve Crawford
1:00 pm	Break	
1:10 pm	Cross-Sector Developments in the Alignment of Open Scholarship Incentives	Greg Tananbaum
1:30 pm	Open Discussion	Greg Tananbaum, Chelle Gentemann
2:00 pm	Break	
2:10 pm	Transform to Open Science (TOPS): Community Engagement Plans	Yvonne Ivey
2:30 pm	Discussion: Open Topics Suggested by Panel	TOPS Team
2:40 pm	Next Steps and Panel Wrap-up	Yvonne Ivey



EARTH FLEET



INVEST/CUBESATS

- TEMPEST-D 2021
- CSIM-FD 2023
- HARP 2022
- CIRIS 2023
- CTIM* 2022
- HYTI* 2022
- SNOOPI* 2022
- NACHOS* 2022
- NACHOS2* 2022

JPSS INSTRUMENTS

- OMPS-LIMB 2022
- LIBERA 2027

ISS INSTRUMENTS

MISSIONS



NASA's Open Science Policies

Steve Crawford
TOPS Project Manager

Science should be...



Transparent

scientific process and results should be visible, accessible, and understandable



Accessible

data, tools, software, documentation, and publications should be accessible to all (FAIR)



Inclusive

process and participants should welcome participation by and collaboration with diverse people and organizations



Reproducible

reproducible by members of the community



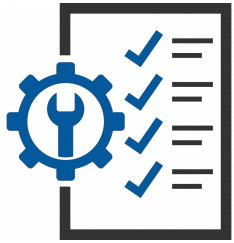
Open-Source Science is NASA's method to put Open Science into practice.

- **Open** the entirety of the scientific process, *from start to finish*
- **Broaden** community involvement in the scientific process
- **Increase** accessibility of data, software, & publications
- **Facilitate** inclusion, transparency, and reproducibility of science



Open-Source Science Initiative

Unlocking the full potential of a more equitable, impactful, efficient, scientific future



Policy development, education, compliance tools
Updating NASA policies on scientific information to better enable the activation of open science



Core Services for Science Discovery
Developing core data and computing services to enable open science



ROSES Elements
Supporting open-source software, tools, frameworks, libraries, platforms, and training with over \$5 million dollars in grants



Community Building & Partnerships - Transform to Open Science (TOPS)
Accelerating adoption of open science



Advancing Science Requires the *Sharing* of Information

SPD-41 is the NASA SMD Information Policy.

SPD-41 brings together existing NASA and Federal guidance.

It applies to all SMD-funded activities related to producing scientific information.

- SPD-41: The Science Information Policy - <https://go.usa.gov/xtNTJ>
- Science Information Policy Website - <https://go.usa.gov/xtNTt>



Feedback on proposed additions to SPD-41 were due by **March 4, 2022**

- **An update to SPD-41 will be released no earlier than June 2022**

How we share information matters - it affects the impact, the transparency, the reproducibility, and the accessibility of research.



What is the **current** policy?

Data

Scientific data shall be made publicly available with a clear, open, and accessible data license no later than the publication of the research.

Mission data shall be openly available with no period of exclusive access.

Software

Research software should be publicly available no later than the publication of the research and assigned a permissive software license.

Publications

Manuscripts versions of as-accepted manuscripts shall be deposited in a NASA repository and made publicly available within 12-months.

Mission publications shall additionally be made publicly available at the time of their publication.



What are the **new** proposed changes?

Data

Scientific data should be FAIR and shall be made publicly available with a clear, open, and accessible data license no later than the publication of the research, and be citable.

Mission data shall be openly available with no period of exclusive access.

Software

Research software shall be publicly available no later than the publication of the research, assigned a permissive software license, and be citable.

Mission software shall additionally be developed openly in a publicly accessible, version-controlled platform that allows for contributions and engagement from the community.

Publications

Manuscripts versions of as-accepted manuscripts shall be deposited in a NASA repository and made publicly available within 12-months. Publishing as open access is supported and posting preprints is encouraged.

Mission publications shall additionally be made publicly available at the time of their publication.

Science workshops and meetings shall be open to broad participation and documented in public repositories.

Open science activities will be considered in reviews of proposals.



Next steps for the Scientific Information Policy

- SMD is currently in the process of reviewing the responses to the RFI and revising SPD-41a. Adoption of SPD-41a is not expected before July 2022.
 - Once adopted it will be incorporated into ROSES23.
- Each division is releasing guidance related to Scientific Information Policy
 - Example: [Heliophysics Data Policy](#) released in February 2022
- SMD's goal is to minimize the burden in making our information as open as possible
 - Providing services that support open science
 - Improving policy and processes related to open science
 - Currently working to improve NASA software release policies and process
 - Training in open science
 - Standards related to data and metadata
 - Open source software process and intellectual property for software

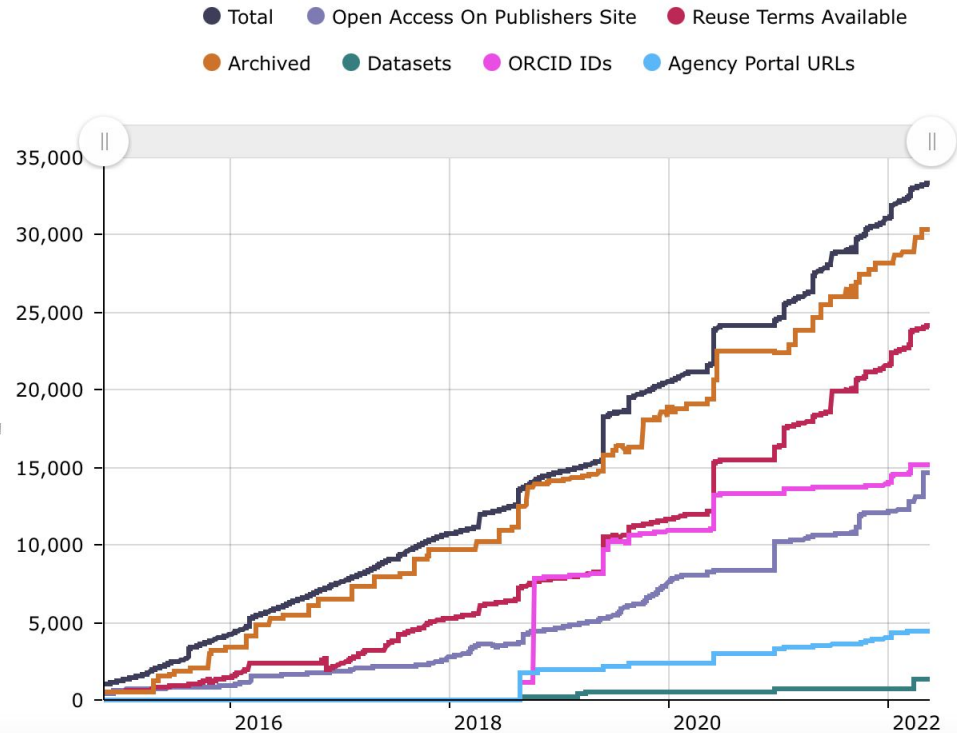


CHORUS Agreement for Open Access

NASA has entered into a partnership agreement with the Clearinghouse for the Open Research of the United States ([CHORUS](#)) publishing group.

NASA researchers who publish in a CHORUS member's journal will automatically satisfy the open access requirements for SMD publications.

More information will be released soon.





Core Services for Science Discovery

Proposal

SMD provides **common directorate capabilities**. Develops core data and computing services to be used as building blocks by divisions and the open science community (to be complete within **three years**).

Objectives

Divisions develop and operate division-specific requirements (**missions and science capabilities**) within SMD core systems.

Meet open source science goals in the Data and Computing Strategy for SMD and requirements in SPD-41.

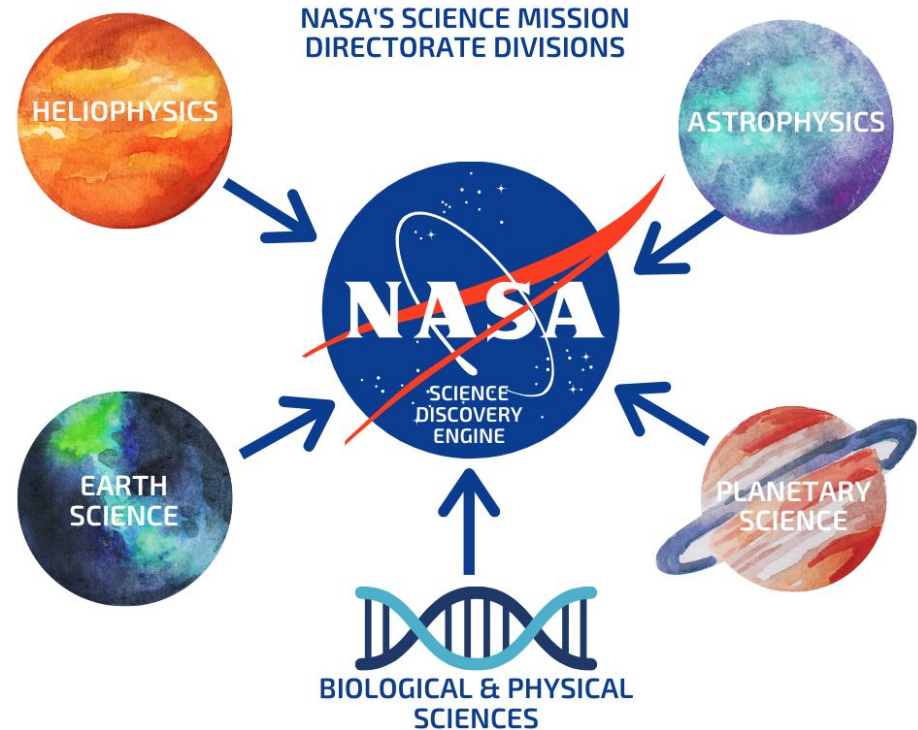
Reduce cloud environment **development duplication and barriers** to speed of adoption.

Improve computing infrastructure to seamlessly provide access to high-performance computing and cloud resources while reducing cybersecurity risk.

SMD Science Discovery Engine

Create an SMD discovery capability to enable open source science. Scope includes:

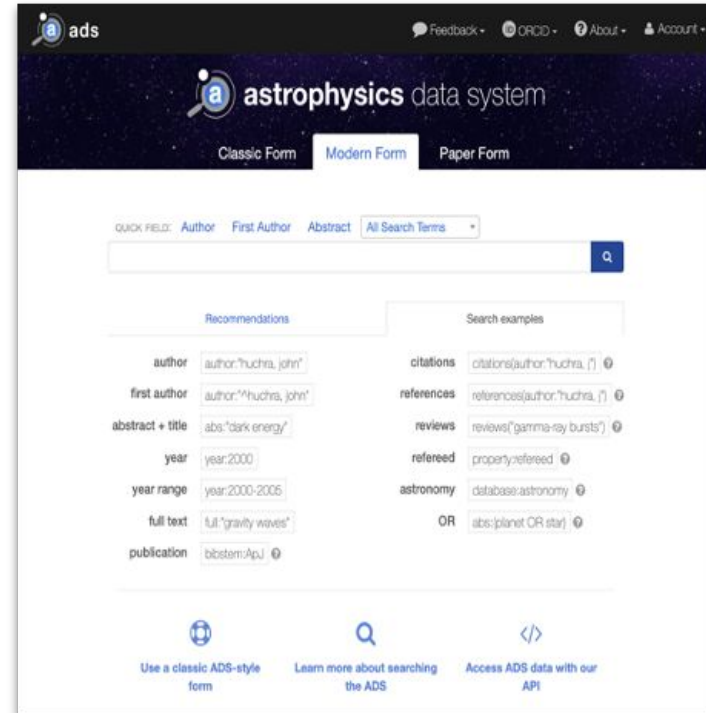
- Scientific data from the five divisions
- Contextual information such as software, documentation, publications



Expanding Access to SMD Publications

NASA has a mandate to ensure access to and reliable preservation of peer-reviewed publications that arise from NASA-funded research.

- NASA SMD supports publishing as Open Access and encourages using preprint servers.
- SMD is funding ADS to expand its holdings in Heliophysics and Planetary Science.

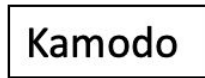
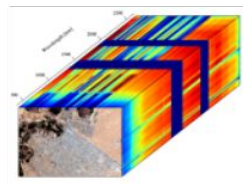


Research Opportunities in Space and Earth Sciences (ROSES): Supporting Open Source Software



[ROSES20 E.7](#) - Open Source Tools, Frameworks, and Libraries selected 8 proposals supporting 14 different projects.

[ROSES22 F.8 Supplemental Open Source Software Awards](#) - Support for existing grant holders to modernize software and to release it as open source.



F.2 Topical Workshop, Seminars, and Conferences



Funding to support events relevant to its goals to expand open science including:

- Events focused on SMD data, software, or open science practices
- Hackathons, un-conferences, and challenges that build open science skills
- Training in open science

*Proposals that include training should align to and address the Transform to Open Science (TOPS) initiative. In addition to relevance to OSSI, the proposal must also include how the material produced as part of the event will be made openly available and plans for inclusive participation in the event.

[ROSES22 F2. TWSC](#) is **currently accepting** proposals on a rolling basis until it closes in May 2023.



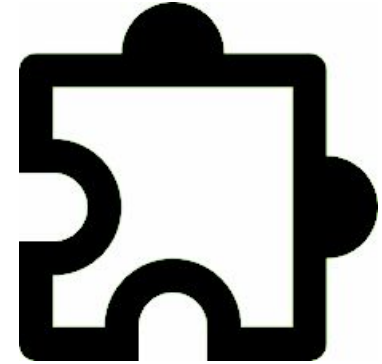
ROSES 22 - Solicitations to be released



[F.14 Transform to Open Science Training](#) - development training material and the execution of events to advance open science literacy



[F.15 High Priority Open-Source Science](#) - advance the goals of TOPS supporting innovative open source tools, software, frameworks, data formats, and libraries that will have a significant impact to the SMD science community



[F16. Supplement for Software Platforms](#) - Supplemental support to existing awards for usage of scientific platforms.



AWS Public Data Sets

As part of a Space Act Agreement with AWS, SMD plans to make 5 PB of high priority data sets available as part of the AWS Public Data sets and ready to be used for the Year of Open Science.

Registry of Open Data on AWS



NASA Space Act Agreement



Amazon Web Services and the National Aeronautics and Space Administration (NASA) have entered into a Space Act Agreement to explore best practices around discovery, access, and use of high-value NASA science datasets.

Making analytics-optimized data stores available to the science community will minimize the need for data wrangling and preprocessing within the community, leading to a faster time to insight and quicker innovation.

Search datasets (currently 4 matching datasets)

Add to this registry

If you want to add a dataset or example of how to use a dataset to this registry, please follow the instructions on the [Registry of Open Data on AWS GitHub repository](#).

Unless specifically stated in the applicable dataset documentation, datasets available through the Registry of Open Data on AWS are not provided and maintained by AWS. Datasets are provided and maintained by a variety of third parties under a variety of licenses. Please check

Multi-Scale Ultra High Resolution (MUR) Sea Surface Temperature (SST)

climate earth observation environmental natural resource oceans satellite imagery sustainability water weather

A global, gap-free, gridded, daily 1 km Sea Surface Temperature (SST) dataset created by merging multiple Level-2 satellite SST datasets. Those input datasets include the NASA Advanced Microwave Scanning Radiometer-EOS (AMSR-E), the JAXA Advanced Microwave Scanning Radiometer 2 (AMSR-2) on GCOM-W1, the Moderate Resolution Imaging Spectroradiometers (MODIS) on the NASA Aqua and Terra platforms, the US Navy microwave WindSat radiometer, the Advanced Very High Resolution Radiometer (AVHRR) on several NOAA satellites, and in situ SST observations from the NOAA iQuam project. Data are available from...

[Details](#) →

Usage examples

- [Python Jupyter Notebooks](#) by Chelle Gentemann, Rich Signell
- [State of the Ocean \(SOTO\) server](#) by PO.DAAC
- [Web discovery service](#) by PO.DAAC
- [Python Reader Software](#) by PO.DAAC
- [HTTPS server](#) by PO.DAAC

[See 10 usage examples](#) →

Open-Source Science Initiative



Unlocking the full potential of a more equitable, impactful, efficient, scientific future

Four main initiatives:

1. Policy development, education, compliance tools
2. Core Services for Science Discovery
3. ROSES Elements
4. Community Building & Partnerships



Transform to Open Science

The TOPS program is a key part of OSSI in providing training to the community.

What other activities are needed to support TOPS?

What training does TOPS need to prioritize to help support OSSI goals?



Break Until 1:10

<i>Time (ET)</i>	<i>Agenda Item</i>	<i>Presenter</i>
12:00 pm	Introduction and Review of Code of Conduct	Karla Mastracchio
12:05 pm	NASA's Open Science Policies	Steve Crawford
12:30 pm	Discussion: Policy	Steve Crawford
1:00 pm	Break	
1:10 pm	Cross-Sector Developments in the Alignment of Open Scholarship Incentives	Greg Tananbaum
1:30 pm	Open Discussion	Greg Tananbaum, Chelle Gentemann
2:00 pm	Break	
2:10 pm	Transform to Open Science (TOPS): Community Engagement Plans	Yvonne Ivey
2:30 pm	Discussion: Open Topics Suggested by Panel	TOPS Team
2:40 pm	Next Steps and Panel Wrap-up	Yvonne Ivey



Cross-Sector Developments in the Alignment of Open Scholarship Incentives

Greg Tananbaum

Scholarly Publishing and Academic Resources Coalition
(SPARC)

Cross-Sector Developments in the Alignment of Open Scholarship Incentives

*Greg Tananbaum
Director, Open Research Funders Group
Secretariat, National Academies
Roundtable on Aligning Incentives
for Open Science*

Roundtable Parameters

Charter

The Roundtable brings together senior leaders from universities, funding agencies, professional societies, foundations, and industry to discuss incentives for adopting open science practices, current barriers, and ways to work with communities and disciplines to develop hiring, review, tenure and promotion, and funding practices that are more reflective of open research principles.

Timeline

H1/H2 2019: Information Gathering

H1 2020: Resource Development

H2 2020: Resource Testing

H1 2021: Toolkit Socialization

H2 2021 and Beyond: Scaling, Coalition-Building, Coordination



Roundtable Participants

Universities

- Arizona State University
- Atlanta University Center
- Benedict College
- Duke University
- Harvard University
- Howard University
- Iowa State University
- Johns Hopkins University
- Massachusetts Institute of Technology
- Princeton University
- Stanford University
- Trinity University
- University of Arizona
- University of California, San Francisco
- University of California at Los Angeles
- University of Houston
- University of Southern California

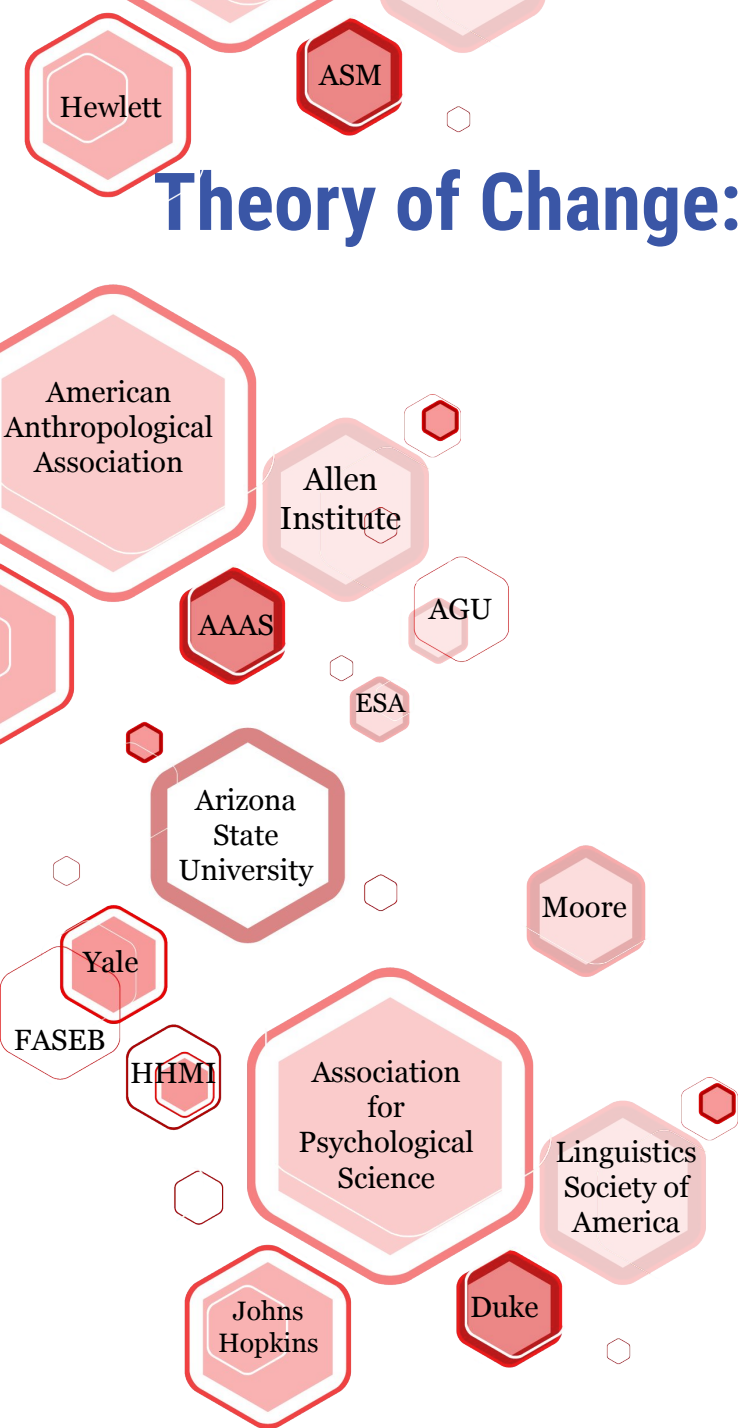
Funders

- Alfred P. Sloan Foundation
- American Heart Association
- Andrew W. Mellon Foundation
- Arcadia
- Arnold Ventures
- Bill & Melinda Gates Foundation
- Coalition for Epidemic Preparedness Innovations
- Gordon and Betty Moore Foundation
- Health Research Alliance
- Howard Hughes Medical Institute
- James S. McDonnell Foundation
- John Templeton Foundation
- Leona M. and Harry B. Helmsley Charitable Trust
- Lumina Foundation
- Robert Wood Johnson Foundation
- Schmidt Futures
- Templeton World Charity Foundation
- Wellcome Trust

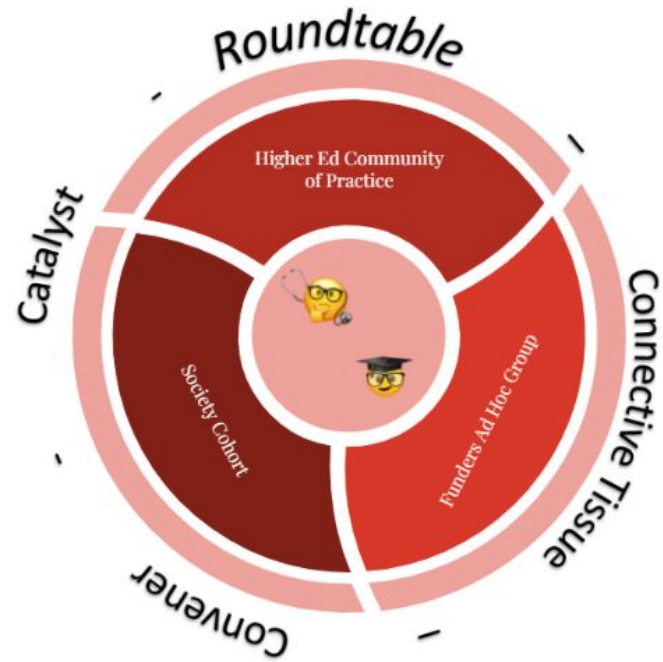
Agencies & Others

- Association of American Medical Colleges
- Association of American Universities
- Association of Public and Land-grant Universities
- European Commission
- International Science Council
- Natural Environment Research Council
- National Institute of Standards and Technology
- National Institutes of Health
- Open Research Funders Group
- National Science Foundation
- Office of Science and Technology Policy
- Scholarly Publishing and Academic Resources Coalition
- U.S. Department of Education
- United Kingdom Research and Innovation

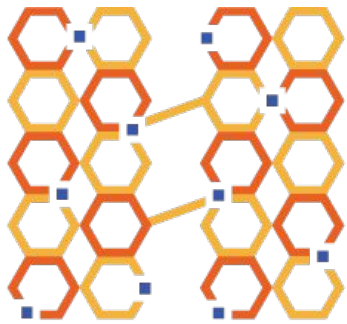
Theory of Change: Mutually Reinforcing Vectors



Roundtable as Connective Tissue



What is HELIOS?



HELIOS

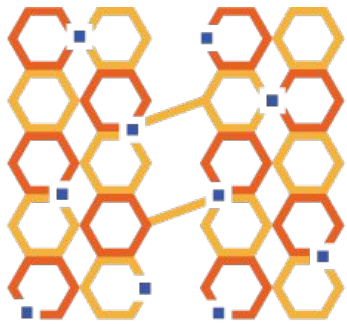
HELIOS is a community of practice launched as an outcome of discussions convened by the National Academies of Sciences, Engineering, and Medicine's [Roundtable on Aligning Incentives for Open Science](#).

At a high level, engagement from colleges and universities has three core components:

- Presidential Commitment
- Campus Engagement
- Community of Practice

<https://heliosopen.org>

Current Members



HELIOS

- 44 Public and Land Grant Institutions
- 32 Private, Not-for-Profit
- 12 Minority Serving Institutions
- 7 Ivies

76 heterogeneous institutions
2.2 million FTE

<https://heliosopen.org/members>

HELIOS Leadership



Michael Crow

HELIOS Co-Chair
President
Arizona State University



Roslyn Artis

HELIOS Co-Chair
President
Benedict College



Ron Daniels

HELIOS Co-Chair
President
Johns Hopkins University

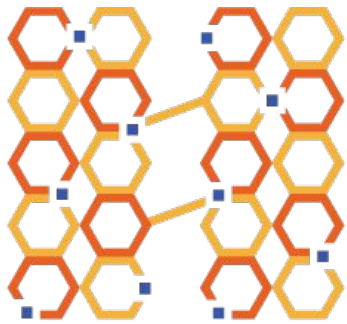


Geeta Swamy

HELIOS Strategic Lead

Duke University Associate Vice President for Research
& Vice Dean for Scientific Integrity

So...what is HELIOS doing?



HELIOS

- Identify areas of interest/intervention
- Arrive at a set of testable recommendations (via research, sharing of experiences, discussion, etc.)
- Work with individual members and/or clusters of members to adapt and adopt recommendations
- Learn from shared experiences, revise as appropriate, and scale
- Engage with other sectors to harmonize activities

Working Groups



Drafting guidance for students and faculty to clearly and succinctly articulate good practices for sharing specific forms of open scholarship (e.g., papers, data).



Engaging with other key stakeholders (e.g., government agencies, philanthropies, professional societies, publishers) to align open scholarship policies and incentives.



Collaborating with other institutions on shared resourcing and infrastructure.



Identifying policy language that can be adapted and adopted by departments on our campus, and/or across the entirety of the institution.

Society Cohort



Societies' Identified Shared Interests



Devising policy guidance that explicitly promotes the nexus among openness, inclusivity, and equity



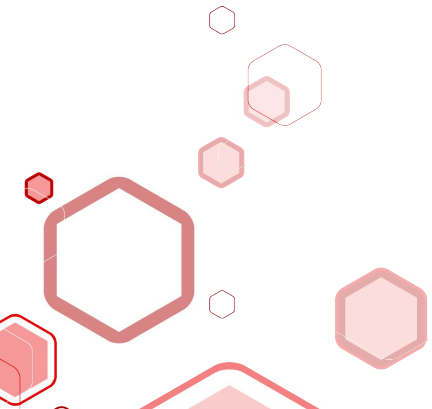
Providing guidance on discipline-specific open research good practices



Clearly articulating the direct link between specific open research practices (e.g., data sharing) and organizational mission/values



Collaborating with colleges and universities on language that can be adapted for hiring, review, and tenure & promotion



Societies' Possible Next Steps



Statement

“As a professional society committed to promoting a positive research culture in the field of X, we affirm our support for the principles of A, B, and C.”



Action

“In order to ensure that these values are fully embedded within our field's culture, we commit to taking and/or supporting the following actions...”



Funder Cohort - Signatories



Funder Cohort - Participants

Advanced Education Research &
Development Fund

Albert and Mary Lasker Foundation

Alex's Lemonade Stand

Alfred P. Sloan Foundation

Aligning Science Across Parkinson's

Allen Institute

American Epilepsy Society

American Federation for Aging
Research

American Heart Association

Arnold and Mabel Beckman
Foundation

Arnold Ventures

Bill & Melinda Gates Foundation

Burroughs Wellcome Fund

Chan Zuckerberg Initiative

CureSearch for Children's Cancer

Dana Foundation

David and Lucile Packard Foundation

Esmee Fairbairn Foundation

Fidelity Foundation

Focused Ultrasound Foundation

GO2 Foundation for Lung Cancer

Gordon and Betty Moore Foundation

Health Research Alliance

Hillman Family Foundations

Howard Hughes Medical Institute

John D. and Catherine T. MacArthur
Foundation

John S. and James L. Knight
Foundation

John Templeton Foundation

Klarman Family Foundation

Leona M. and Harry B. Helmsley
Charitable Trust

Lipedema Foundation

LUNgevity Foundation

Lyda Hill Philanthropies

Marguerite Casey Foundation

Michael J. Fox Foundation

National Psoriasis Foundation

Ovarian Cancer Research Alliance

Pew Charitable Trusts

Rainwater Charitable Foundation

Robert Wood Johnson Foundation

Sierra Health Foundation

Simons Foundation

Skoll Foundation

St. Baldrick's Foundation

Templeton World Charity Foundation

The ALS Association

The Sontag Foundation

Tinker Foundation Inc.

Tuberous Sclerosis Alliance

VolkswagenStiftung

William and Flora Hewlett
Foundation

William Randolph Hearst Foundation

Funder Cohort Meeting Goals

1



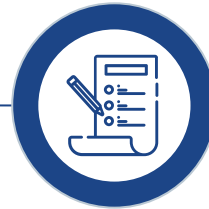
Gauge appetite for collective action

2



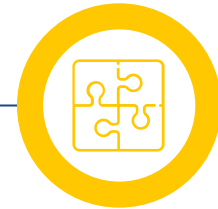
Explore statement→action approach

3

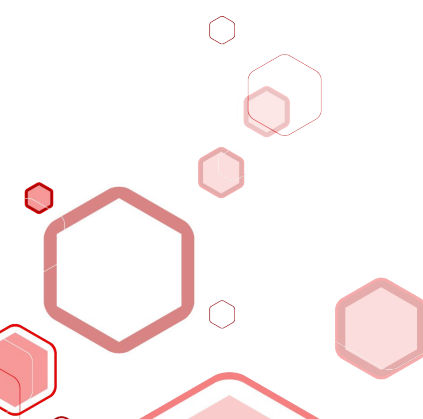


Identify funders ready to move forward with their own open research policies

4



Identify funders interested in engaging in cross-stakeholder alignment



Areas for TOPS Discussion



How can the Roundtable incorporate TOPS insights and work products into its cohorts, and vice versa?



How do we use our combined efforts to drive change at other federal agencies?



How can we socialize the breadth of these activities to more fully engage communities and individual researchers?

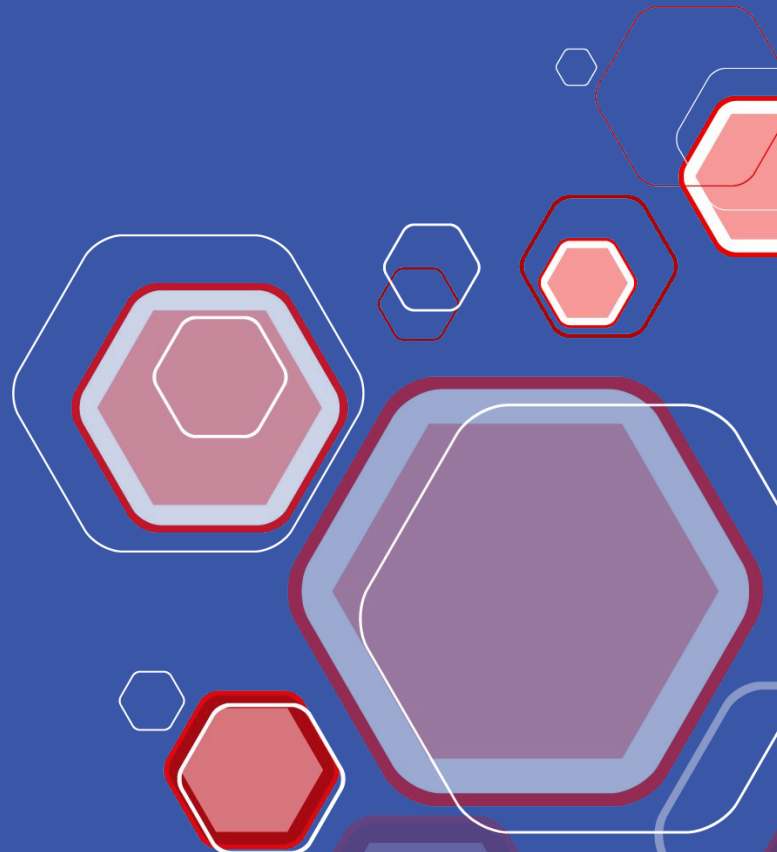


What are we learning about incentives that can really move the needle on systems change?

Thanks!

Any questions?

Greg Tananbaum
greg@orfg.org
@OpenResearchFG





Break until 2:10

<i>Time (ET)</i>	<i>Agenda Item</i>	<i>Presenter</i>
12:00 pm	Introduction and Review of Code of Conduct	Karla Mastracchio
12:05 pm	NASA's Open Science Policies	Steve Crawford
12:30 pm	Discussion: Policy	Steve Crawford
1:00 pm	Break	
1:10 pm	Cross-Sector Developments in the Alignment of Open Scholarship Incentives	Greg Tananbaum
1:30 pm	Open Discussion	Greg Tananbaum, Chelle Gentemann
2:00 pm	Break	
2:10 pm	Transform to Open Science (TOPS): Community Engagement Plans	Yvonne Ivey
2:30 pm	Discussion: Open Topics Suggested by Panel	TOPS Team
2:40 pm	Next Steps and Panel Wrap-up	Yvonne Ivey



Transform to Open Science (TOPS): Community Engagement Plans

Yvonne Ivey

Area of Action: Capacity Sharing Resources

Engagement with the Community



TOPS Champions

Scientists to help teach modules at events and act as Open Science champions



Cohorts

Engage with learners through a virtual cohort model to increase Open Science Badge achievement



Summer Schools

Institutions selected to run ~6 weeks of teaching the 5 modules to selected science teams + open competitive under-represented researchers



Curriculum Expansion

Groups funded to migrate/create discipline specific modules and data science skills modules to Open edX TOPS platform



Hackathons

More hackathons that advance data science skills and open science

Area of Action: Capacity Sharing Resources

Engagement with the Community



TOPS Champions

Scientists to help teach modules at events and act as Open Science champions

During the Year of Open Science there will be OpenCore workshops at many conferences and meetings

- We need domain experts to be trained on the modules to help teach the workshops and act as champions within their community.

Area of Action: Capacity Sharing Resources

Engagement with the Community



Cohorts

Engage with learners through a virtual cohort model to increase Open Science Badge achievement

During the Year of Open Science there will be OpenCore workshops at many conferences and meetings

- Many people will have time to take 1 or more modules
- We need groups to engage with these learners to support and encourage them to complete the modules and become advocates for open science

Area of Action: Capacity Sharing Resources

Engagement with the Community



Summer Schools

Institutions selected to run
~6 weeks of teaching the 5
modules to selected science
teams + open competitive
under-represented
researchers

During the Year of Open Science there will be OpenCore workshops at many conferences and meetings

- Many people will have time to take 1 or more modules
- We need groups to engage with these learners to support and encourage them to complete the modules and become advocates for open science

Area of Action: Capacity Sharing Resources

Engagement with the Community



Curriculum Expansion

Groups funded to migrate/create discipline specific modules and data science skills modules to Open edX TOPS platform

During the Year of Open Science there will be OpenCore workshops at many conferences and meetings

- For researchers with established workflows, they may be more motivated to explore open science by seeing domain examples showcasing the power and efficiency of open science
- OpenCore is the base, we will need more detailed modules as learners want to try out and learn more advanced open science

Area of Action: Capacity Sharing Resources

Engagement with the Community



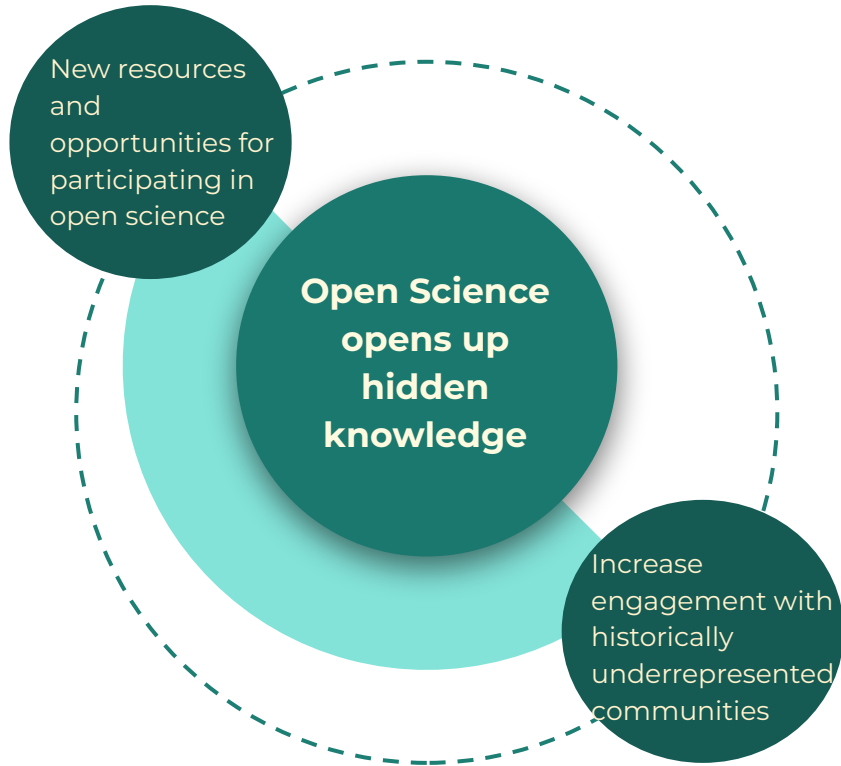
Hackathons

More hackathons that advance data science skills and open science

During the Year of Open Science there will be OpenCore workshops at many conferences and meetings

- Hackathons are often a space where interdisciplinary work can be enabled by open science practices
- Attractive to a wide range of communities
- Expand who is participating in science

Engagement with Minority Serving Institutions



- Engagement via NASA's Minority University Research and Education Project ([MUREP](#))
- Partnering with internal NASA programs like [Science Activation](#), SMD [Bridge Program](#)



Discussion: Open Topics

- Tell us what you need to better engage with NASA?
- Where have you found success working with a federal agency?
- Where are there gaps that need to be addressed?
- Where are they potential entry points for working together?
- Areas of opportunities to truly build together.

Next Steps/ Wrap Up





So What's Next

- Panel Review: Individual reviews synthesized into a panel review.
 - **5/23/22**: We will provide panelists with a short written summary of each day, via a google doc.
 - **6/17/22**: Panel will provide written feedback in the google doc. Please work with each other to provide constructive feedback on our future work.
- TOPS Community Panel #2 will be in October 2022
- Upcoming Monthly Community Forums - June 9, 2022

Connect with Us:



TOPS GitHub



TOPS Email List