Power of Open Science and International Collaboration NASA - CERN

TOPS Code of Conduct

We strive to create a welcoming and inclusive culture that empowers people to provide outstanding open science. That requires an open exchange of ideas balanced by thoughtful guidelines.

It would be impossible to list everything staff can do to create a more welcoming space - and we know this team will find ways to include their colleagues that we haven't even thought of - but when in doubt, we encourage you to look to these principles for guidance:

- Practice empathy and humility.
- Participate in an authentic and active way. In doing so, you contribute to the health and longevity of this community.
- Exercise consideration and respect in your speech and actions.
- Assume that everyone we work with is doing their best work for open science.
- Listen carefully and actively.
- Ask questions, and seek to understand your partners' context.
- Encourage other people to listen as much as they speak.
- Attempt collaboration before conflict.
- Treat other people's identities and cultures with respect. Make an effort to say people's names correctly and refer to them by their stated pronouns.
- Be mindful of your surroundings and of your fellow participants. Alert community leaders if you notice a dangerous situation, someone in distress, or violations of this Code of Conduct, even if they seem inconsequential.

TOPS Code of Conduct

- The primary goal of TOPS is to be inclusive to the largest number of contributors, with the most varied and diverse backgrounds possible.

- TOPS expects everyone to comply with our code of conduct, communicating openly with respect for others and critiquing ideas rather than individuals.

- Anyone not abiding by the TOPS Code of Conduct will be asked to leave the forum. If you are the subject of unacceptable behavior or have witnessed any such behavior, please immediately notify Chelle Gentemann via chat or chelle.gentemann@nasa.gov.

For more information, review the code of conduct found on the TOPS GitHub.

Submit Questions

Your inputs are <u>essential</u> to the success of our mission. Please feel free to submit questions, feedback, or suggestions via the feedback tool.

You can use the QR code

to access the feedback tool

Dr. Paige Martin, Moderator
NASA TOPS Program Scientist

Dr. Chelle Gentemann
NASA TOPS Program Scientist

Kim Hurst
NASA Office of International and Interagency Relations
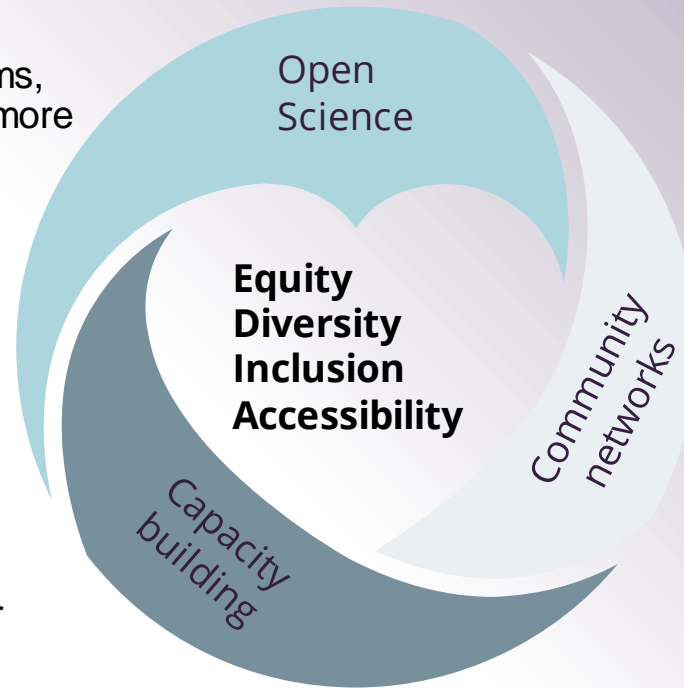
Dr. Kamran Naim
CERN

Open Science

is the principle and practice of making research products and processes available to all, while respecting diverse cultures, maintaining security and privacy, and fostering collaborations, reproducibility and equity.

The way forward with inclusive Open Science

Rich diverse research ecosystems, lead to less biased science and more ethical research practices.

Higher collaboration between researchers across different disciplines and institutions.

Open Science

Community networks

Equity
Diversity
Inclusion
Accessibility

Capacity building

Diverse teams bring new ideas, innovative solutions, and more accurate results leading to better science.

Trust in research practices leading to higher participation & engagement in science e.g. in clinical trials and citizen science.

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 and collaboration with diverse people and organizations

Reproducible
Reproducible by members of the community

NASA Transform to Open Science (TOPS)

A $40 million, 5-year mission *to accelerate adoption of open science*

Strategic Goals:

- Support 20K researchers to earn NASA's open science certification
- Double the participation of historically excluded groups across NASA science
- Enable 5+ major scientific discoveries through open science principles

Engagement   **Capacity Sharing**   **Incentives**   **Coordination**

What is TOPS doing?

Developing *OS101* - a community-developed introduction to open science & organizing *OS101* workshops at ~13 society meetings each year

Funding open science training via TOPST ($6.5 Million)

Co-leading the Office of Science and Technology Policy (OSTP) Sub-working group on the Year of Open Science

Developing and maintaining a open science community on GitHub to share resources and ensure an open and transparent working environment

Why get a digital NASA Open Science Certification?

Designed to provide researchers with **core open science skills**:

- Use digital tools to perform open science (e.g., ORCID, Zenodo, Github accounts)
- Familiar with data management and software management plan best practices and resources
- Grow connections across a community of open science practitioners

Enroll now !

Open Science 101: A **community-developed** introduction to open science with inclusivity, accessibility, and diversity at the forefront.

CERN/NASA Summit:
July 10 - 14

Free streaming with registration.

International Cooperation at NASA

Kim Hurst

Office of International and Interagency Relations, NASA HQ

www.nasa.gov

International Cooperation: Overview

- International cooperation at NASA:

  – Has been a cornerstone of NASA's activities throughout its history

  – Since 1958, NASA has concluded over 5000 agreements with over 125 nations and international organizations

  – Over 700 active international agreements

  – Cooperation now established with every region in the world

  – By mission area: 2/3 of agreements are for NASA

International Cooperation: Current Guidelines

- NASA international partners are generally government agencies due to the significant level of investment and legal requirements
- No exchange of funds; each partner funds its respective contributions, but contributions need not be equivalent
- Cooperation must have scientific and technical merit and demonstrate specific benefits
- Cooperation must be consistent with foreign policy objectives of each Partner
- Specific cooperative activities are documented in written, legally binding agreements, closely coordinated with the U.S. Department of State
- NASA promotes the full and open sharing of all data with the research and applications communities, private industry, academia, and the general public.

International Cooperation: Current Guidelines

- NASA promotes the full and open sharing of all data with the research and applications communities, private industry, academia, and the general public.

- Any international partnership with NASA requires our partners to adopt the same values of free and open data
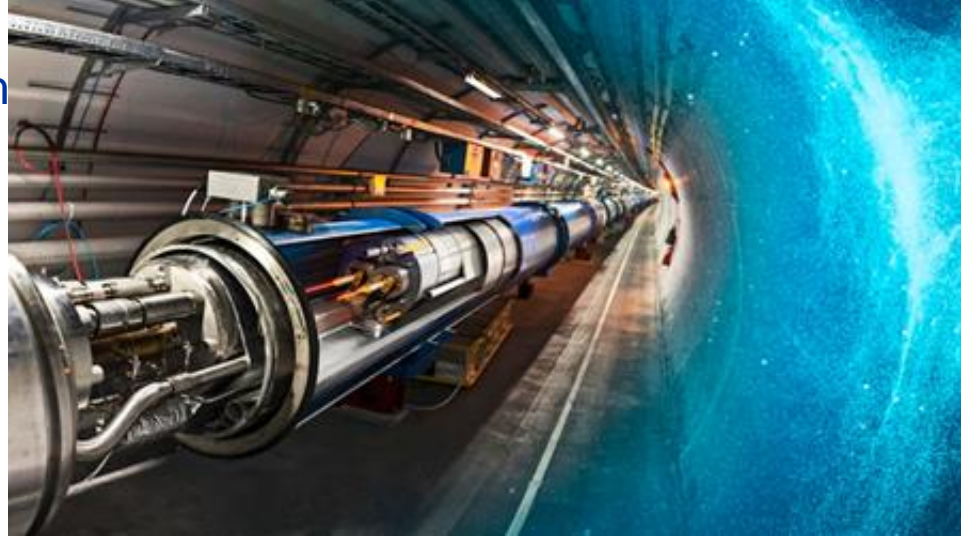

EARTH OBSERVING DASHBOARD

ABOUT   EXPLORE DATASETS

Earth Observing Dashboard

Global environmental changes observed by NASA, ESA, and JAXA

| ATMOSPHERE | AGRICULTURE | BIOMASS | OCEANS | CRYOSPHERE | COVID-19 | ECONOMY |

Open Science Policy & Practice

Dr. Kamran Naim, Head of Open Science

NASA TOPs Community Forum, 11th May 2023

CERN's Mission is to:

- perform world-class research in fundamental physics;
- provide a unique range of particle accelerator facilities that enable research at the forefront of human knowledge, in an environmentally responsible and sustainable way;
- unite people from all over the world to push the frontiers of science and technology, **for the benefit of all;**
- train new generations of physicists, engineers and technicians, and engage all citizens in research and in the values of science.

"…and the results of its experimental and theoretical work shall be published or otherwise made generally available"
CERN Founding Convention (1953)

ORGANISATION EUROPÉENNE POUR LA RECHERCHE NUCLÉAIRE
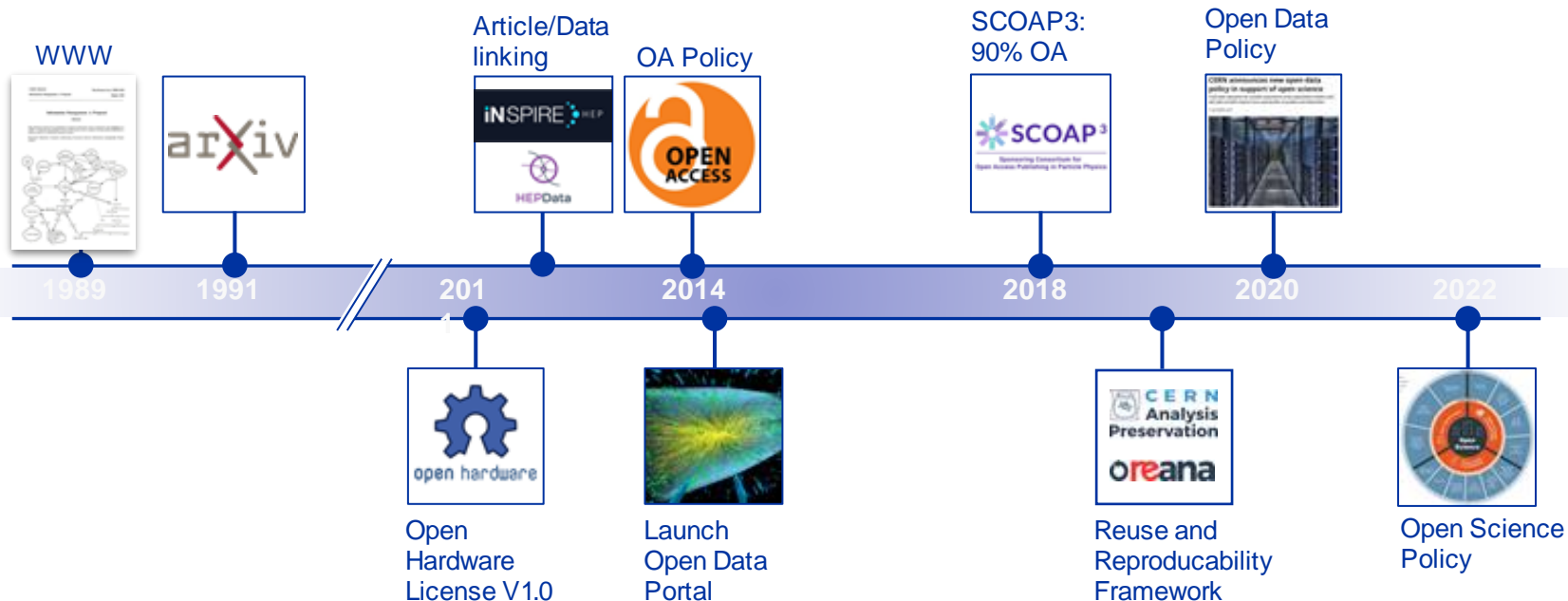CERN EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

CONVENTION

FOR THE ESTABLISHMENT OF A EUROPEAN ORGANIZATION
FOR NUCLEAR RESEARCH

PARIS, 1st JULY, 1953

Illustration by Stephanie van de Sandt

CERN – on the path to universal Open Science

WWW

Article/Data linking

OA Policy

SCOAP3: 90% OA

Open Data Policy

1989 — 1991 — 2011 — 2014 — 2018 — 2020 — 2022

Open Hardware License V1.0

Launch Open Data Portal

Reuse and Reproducability Framework

Open Science Policy

Policy framework for Open Science at CERN

CERN Open Access Policy (2014)

- All CERN research articles published OA (CC-BY)
- Central fund available
- Different routes (SCOAP^3, Read & Publish, APC payment)
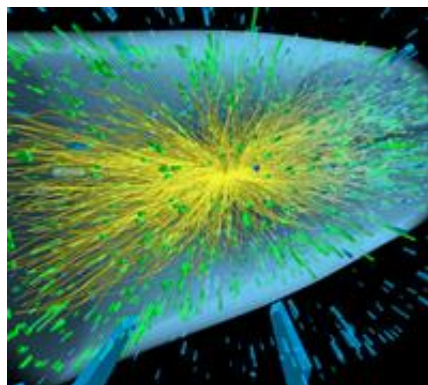
LHC Open Data Policy (2020)

- 4 LHC collaborations will release all level 3 data (+ level 1 and 2)
- Gradual release will start ~5 years after collection
- Other experiments to follow

European Strategy for Particle Physics(2020)

- OS recognized as organizational issue for the discipline
- Should develop and implement an OS policy for the field

Funder Open Science Policies

- Funding agencies supporting experimental collaborations have specific open data requirements
- CERN will establish central support office for compliance

CERN Open Science Policy

- Captures current practice and states progressive vision across multiple Open Science domains:

  - Open Access to Publications
  - Open Research Data
  - Open Software
  - Open Hardware

  - Research Integrity, Reuse & Reproducibility
  - Infrastructure for Open Science
  - Research Assessment & Evaluation
  - Education, Training & Outreach
  - Citizen Science

- Policy to be regularly updated to reflect changes in landscape, practices, funder requirements & community demands

- Policy and its implementation plan are developed and governed by the community.

- V1.0, Oct 2022: https://cds.cern.ch/record/2835057

Thank you!

Contact: kamran.naim@cern.ch

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Sign up here to get Open Science certified!

Learn more and collaborate with us!

TOPS Email List TOPS Website

THANK YOU!