

NSF view on CCMC role in open science in modeling

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CCMC Workshop



Our Commitment to Open Science

To support the community's data infrastructure for open science, the GS would consider

- establishing an active collaboration with other federal agencies to leverage resources;
- sponsoring a community workshop on Data Infrastructure;
- developing a data policy in line with the FAIR principles;
- requesting PIs to report their DMP practices in the project reports.

What we have done



- We have formed an Interagency Heliophysics Data Working Group
- We have sponsored a few workshops;
- We are heavily involved in the NSF public access open science working group to develop policy updates and DMSP requirements.



Geospace Data Infrastructure Activities

- Issued a Dear Colleague Letter: Innovations in Open Science Planning workshops (NSF 23-141)
- Created the Interagency Heliophysics Data Working Group
 - Organized a Cloud Workshop, July 2023
 - Held Listening Sessions July-October, 2023
 - Held agency townhall at TESS, April 2024
- GEO rep and member of the NSF Public Access Open Science Working Group involving in policy changes.
- Provided travel funds to Workshops and a summer school
 - DASH Meeting 2023, October 2023.
 - Python in Heliophysics Summer School, May 20-24, 2024.
 - NSF NCAR Community Expectations for a Geoscience Data Commons, May 29-31, 2024.
 - CCMC Workshop, June 3-7, 2024.



AGS-Supported Data Infrastructure

- **Madrigal Database:** manages and serves archival and real-time data from a wide range of upper atmospheric science instruments.
- **SuperMAG:** provides easy access to validated ground magnetic field perturbations in the same coordinate system, identical time resolution and with a common baseline removal approach.
- **Community Coordinated Modeling Center (with NASA):** provides access to modern space research models; tests and evaluates models; supports Space Weather forecasters; supports space science education.
- **SuperDARN:** provides access to SuperDARN data in platform-independent netCDF files and data visualizer.
- **AMPERE:** provides AMPERE magnetic perturbation data and data products derived from the Iridium constellation



AGS-Supported Data Infrastructure

The US NSF National Center for Atmospheric Research (NSF NCAR)

- **Geoscience Data Exchange (GDEX):** public data repository.
- **Computational and Information Systems Lab (CISL):** provides supercomputing, analysis and visualization resources, stores, develops, and curates data sets and maintains user-centered online access.
- **High Altitude Observatory (HAO):** provides data (MLSO and PFI) and models.
- **Climate Data Gateway (CDG):** provides long-term stewardship for data assets related to geo- and helio-science model output that are generated as a result of NCAR research. Datasets are assigned Digital Object Identifiers (DOIs) upon request. Published datasets have landing pages that provide metadata and download.

To search and discover datasets across all of NCAR's data repositories, use: <https://data.ucar.edu/>.

To submit a request to deposit data at NCAR, do so through: <https://submit-data.ucar.edu>.

Contact datahelp@ucar.edu or Douglas Schuster schuster@ucar.edu for more information.



Additional AGS- or NSF-Supported Data Infrastructure Related Projects in Heliophysics

- **Summer Schools and Workshops:** provide students with a hands-on learning experience of software tools.
- **Integrated Geoscience Observatory (InGeO)** project supported by the NSF EarthCube (RISE-1541057) and CSSI (OAC-1835573) awards.
- **Assimilative Mapping of Geospace Observations (AMGeO)** project supported by NSF EarthCube award (RISE-1928403).
- **Swarm over Poker 2023: An auroral system-science campaign exemplar of archiving and sharing heterogeneously-derived data products** project supported by NSF CEDAR award (AGS-2329979, AGS-2329980, AGS-2329981)



Open Science Funding Opportunities

- **NSF 23-141:** Dear Colleague Letter: Innovations in Open Science (IOS) Planning Workshops (nsf23141) | NSF - National Science Foundation
- **NSF 23-529:** Research Coordination Networks (RCN)
- **NSF 23-556:** Pathways to Enable Open-Source Ecosystems (POSE)
- **NSF 23-046:** Advancing Research in the Geosciences Using Artificial Intelligence (AI) and Machine Learning (ML)
- **NSF 23-534:** Geosciences Open Science Ecosystem (GEO OSE)
- **NSF 22-632:** Cyberinfrastructure for Sustained Scientific Innovation (CSSI)
- **NSF 24-7414:** Cyberinfrastructure Public Access Open Science (CI PAOS)
- **NSF 24-085:** Dear Colleague Letter: Leveraging Cyberinfrastructure for Research Data Management (RDM)
- **National AI Research Resource Pilot:** [NAIRR Pilot - NAIRR Pilot Resource Requests to Advance AI Research](#)

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