

4 STEPS TO PUBLISH OPEN EARTH SCIENCE SAMPLES



Increase the impact of your research! Citing samples in publications and sharing sample metadata enables scientific discovery, ensures credit is given to sample curators, and enhances sample data reuse and reproducibility. Take these four steps now to support open science for sample-based research and streamline your publication workflow:

1. DESCRIBE SAMPLES WITH RICH METADATA

Metadata is “data about data” – it’s the information needed to find and reuse a sample. Create a spreadsheet that describes basic characteristics of your samples (e.g., material, geographic coordinates). The [System for Earth Sample Registration \(SESAR\)](#) [helps you create a template for geoscience samples](#). Take time up front to maximize the information you provide: it will save you time when reusing or sharing samples in the future. Remember that information that might be trivial or obvious to you (e.g., sample was collected with a hammer) may be important to a future researcher.



2. ASSIGN OR USE IDENTIFIERS FOR SAMPLES

Persistent identifiers (PIDs) are unique numbers that can be assigned to a sample and then used to store and retrieve information about that sample.

If you collect your own samples: Upload your sample metadata to SESAR to register them for persistent identifiers (PIDs), specifically International Generic Sample Numbers (IGSN IDs). Each registered sample will have an associated, openly accessible landing page containing its metadata; SESAR provides printable sample labels with a QR code linking to this page. You can then start building your personal sample catalog, and make it easier to quickly share or update metadata about your samples (e.g., add related links over time). Even if a sample has already been published, you can still register it with SESAR now!

If you are using samples from an existing collection: Ask the sample owner or repository manager how you should acknowledge the collection and what PIDs or other identifiers to use to reference samples in your paper and datasets. Be aware that sub-samples may require a different PID from the “parent.” This makes it possible for repositories to show the impact of their collections and enables future researchers to locate samples.

3. PUBLISH AND CITE DATASETS WITH SAMPLE PIDS

Publish data associated with your samples, ideally in a domain or institution-specific data archive. To ensure samples are linked to datasets, include sample PIDs in your dataset metadata and designate a column in each file/table for your sample PIDs, even if you use a related sample name. Then cite the dataset in the reference section of your paper.

4. REFERENCE SAMPLES IN YOUR PAPERS USING CONSISTENT FORMATTING

When referencing PIDs in text, files/tables, and data availability statements, include a prefix identifying what kind of PID you are using before writing the number, and a hyperlink to the sample landing page – for instance, [igsn:10.58052/IENHR0000](#). This will make your PID findable by both humans and computers.

WHAT IS ESIP? EARTH SCIENCE INFORMATION PARTNERS IS A NON-PROFIT ORGANIZATION SUPPORTED BY NASA, NOAA, USGS, AND 180+ PARTNER ORGANIZATIONS. ITS MISSION IS TO SUPPORT THE NETWORKING AND DATA DISSEMINATION NEEDS OF ITS MEMBERS AND THE GLOBAL EARTH SCIENCE DATA COMMUNITY BY LINKING THE FUNCTIONAL SECTORS OF OBSERVATION, RESEARCH, APPLICATION, EDUCATION AND USE OF EARTH SCIENCE.

THE ESIP PHYSICAL SAMPLES CURATION CLUSTER IS A FORUM FOR THE COMMUNITY SUPPORTING PHYSICAL SAMPLES IN THE EARTH, SPACE, AND ENVIRONMENTAL SCIENCES. THE WORKING GROUP CONSISTS OF INDIVIDUAL RESEARCHERS WHO COLLECT AND WORK WITH PHYSICAL SAMPLES, CURATORS AND COLLECTIONS MANAGERS, AND CYBERINFRASTRUCTURE PROVIDERS AND DEVELOPERS. WE ARE ALWAYS LOOKING TO HEAR FROM RESEARCHERS ABOUT SUCCESSES AND CHALLENGES THEY FACE IN CONDUCTING SAMPLE-BASED RESEARCH.

TO GET INVOLVED WITH ESIP:

- VISIT [ESIPFED.ORG](https://esipfed.org)
- SIGN UP FOR THE WEEKLY *ESIP UPDATE* NEWSLETTER
- JOIN THE ESIP SLACK AT [HTTPS://ESIPFED.ORG/JOIN-SLACK](https://esipfed.org/join-slack)

JOIN THE ESIP
PHYSICAL SAMPLES
CURATION CLUSTER



CITE THIS FLYER USING: [HTTPS://DOI.ORG/10.6084/M9.FIGSHARE.24291148](https://doi.org/10.6084/M9.FIGSHARE.24291148)