

PUBLISHING DATA WITH THE *JOURNAL OF SOIL AND WATER CONSERVATION*

Publishing a dataset gives more impact to research work and increases the value and usefulness of the data. Publishing datasets also provides opportunities for the creators to receive academic credit. Publishing a dataset in the *Journal of Soil and Water Conservation* (JSWC) requires two elements, each with its own digital object identifier (DOI):

- A data paper submitted through the online submission system, peer-reviewed, and accepted.
- A dataset uploaded to a permanent repository, peer-reviewed, and accepted. As an alternative for a dataset DOI, the URL that points to the dataset may be submitted.

Data papers are stand-alone papers that describe the dataset(s) by giving details about the purpose and objectives for collecting the data, the scope of the dataset, the collection methods, and the data QA/QC process, processing, format, accessibility, and availability. Data papers document the data and provide information on data availability so that other researchers can use and analyze the data for purposes that go beyond the original purpose for which the data were collected. Main characteristics and examples of how the data were or can be used should be included. Data papers should be submitted to the JSWC using the online submission system: <http://www.editorialmanager.com/jswc/>.

The dataset and the supporting metadata must be uploaded and formally archived to a journal-approved data repository, so that any qualified scientist is able to obtain the data, free of charge. The authors will be responsible for preparing data in the format required by the selected data repository. If fees are necessary to support publication of the data, the authors will be responsible for these fees. An appropriate data repository is one that is commonly used by the scientific community it supports and will be active for a very long time.

Data Repository Characteristics

There are numerous data repositories available to scientists to store their data and make them available to other scientists. We require dataset authors to use data repositories that ensure data follow the FAIR guiding principles: Findable, Accessible, Interoperable, and Reusable.

- The data should be findable, for example with a digital object identifier (DOI):
 - They have a unique and permanent identifier.
 - They are described in rich metadata that include the identifier of the data.
 - Data and metadata are registered in a searchable resource.
- The data should be accessible and retrievable using their identifier and a standard communication protocol. Metadata should be accessible even if the data are no longer available.
- The data should be interoperable, meaning they are presented using a formal, shared, and broadly applicable language.
- The data should be reusable:
 - They are well described, including provenance.

- They are open access.
- They meet domain-specific community standards.

In addition, data repositories should ensure that data and metadata will be available for a minimum of five years.

Data repositories should provide the ability to upload updated versions of the datasets (e.g., increasing temporal or spatial extent of the data, data corrections or updates, additional attributes in a database), including updated data and metadata, and documentation of the changes. New versions of the datasets should be uniquely identified, either with a unique DOI for each version, or with a version number.

Data Paper Content

A data paper should follow the same manuscript style guidelines as a regular JSWC research paper but be shorter (3,000 to 7,000 words). A data paper should include the following elements:

- Abstract (maximum 250 words).
- Introduction, which needs to include the following:
 - The content and original purpose of the dataset, including sources of funding and research program.
 - A link to the dataset: a specific DOI will be assigned to the dataset, which can therefore be cited independently from the data paper. Alternatively, the dataset needs to have a specific URL.
- A method section, which should include:
 - Structure of the dataset.
 - Collection methods: experimental setup should be fully described; data collection and processing methods, including any changes in the methods, should be well documented. Documentation should include equipment used, temporal and spatial range of the data, calibration, code and suitable controls, relevant chemical analyses, quality control, and post-collection processing of the data.
- Major characteristics of the dataset, including:
 - Quality of the dataset: overall characteristics of the data in terms of error limits, spatial and temporal variability, missing data, and potential sources of error.
 - Limited statistical analysis of the data (e.g., means, standard deviations, simple comparisons). Extensive analyses (e.g., ANOVA analyses) should not be included in a data paper. Instead they could be the basis for a research paper to be submitted to JSWC or another journal.
 - If the dataset has already been used in the past and that use is documented, give a short description of these studies.
 - Accessibility of the data: how can one access and download the dataset, in part or as a whole.
- Summary:
 - Describe the scientific value and the potential uses of the dataset.

- Acknowledgement: Credit the people or agency that collected the data and, if different, funded the data collection.

Dataset Characteristics

Each data repository will likely have their requirements. In the absence of data repository requirements, the authors should follow the guidelines below:

- The format is the responsibility of the authors and should meet the dataset repository requirements, if any. Format should be logical and consistent.
- Dataset size depends on the needs of each situation and will be evaluated during the review process.
- All units should be clearly indicated. We recommend that data be presented in the unit system they were initially collected, with a complete description of these units in the metadata.
- Metadata should be permanently linked to the dataset. Guidelines and requirements for metadata may be specific to each dataset and data repository. However, we recommend that it includes the following elements:
 - Title of the dataset
 - DOI or unique identification code
 - Names and institutions of the dataset creator/authors
 - Year of dataset creation
 - Year of last dataset update
 - Year of last metadata update
 - Version, if relevant
 - Name of data repository
 - Description of the dataset:
 - Site type (e.g. stream, watershed, prairie, producers)
 - Location (e.g., latitude, longitude)
 - Period of study
 - Scope and purpose of research study
 - Sources of funding
 - Description of each variable
 - Units of each variable
 - Related paper information (including the data paper submitted to JSWC)
 - Contact information

Review Process

The dataset, the metadata, and the data paper will be subject to peer review using the following criteria:

- Is the dataset an original dataset that has not been published elsewhere?
- Is the dataset relevant to the readers of JSWC?
- Does the dataset have scientific value?
- Scientific quality of the data:

- Are collection methods fully described? Do they contain sufficient detail to be replicated or verified by other investigators? Are changes in the data collection methods well documented?
- Are collection methods appropriate for the dataset described?
- Are data quality analysis and quality control methods fully described and appropriate for the dataset described?
- Are the data complete and consistent with their description?
- Are the data presented in units that are consistent with each other and with the method used to collect the data?
- Are metadata linked to the dataset, well organized, complete, and consistent with the dataset?
- Are data presented in a logical and organized manner?
- Are the data available and accessible? Can they be downloaded easily? (This is where the suitability of the data repository is evaluated for accessibility and ease with which one can find and download the data and associated metadata).
- Quality of the manuscript:
 - Is the information on the dataset clearly presented?
 - Is the dataset fully and accurately described, including all the elements described under “data paper content”?
 - Are missing data described, and possibly discussed? Do the missing data compromise the usefulness of the dataset? Are the potential uses of the data consistent with the amount of missing data?
 - Is accuracy of the data described? Are the potential uses of the data consistent with the accuracy of the data?
 - Are the potential uses of the data consistent with the dataset described?

Once the dataset, the metadata, and the data paper have obtained satisfactory reviews through the peer-review process, the JSWC will publish the data paper, along with a link to the underlying dataset and metadata. Data papers will be published in a subsection of the JSWC Research Section.

Suggested Data Repositories

Most of these are designed to host certain types of datasets. In addition, the authors of a dataset paper may propose a different repository, which will be evaluated by the reviewers for accessibility and the ease with which one can find and download the data and associated metadata.

- [3TU.Datacentrum](#)
- [British Atmospheric Data Centre \(BADC\)](#)
- [British Oceanographic Data Centre \(BODC\)](#)
- [CISL Research Data Archive](#)
- [CSIRO Data Access Portal](#)
- [Deep Carbon Observatory](#)

- [Digital Rocks Portal](#)
- [earthH₂Observe](#)
- [Environmental Information Data Centre \(EIDC\)](#)
- [Figshare](#)
- [GRACEnet](#)
- [IEDA:EarthChem](#)
- [IEDA:MGDS](#)
- [Inter-University Consortium for Social and Political Research \(ICPSR\)](#)
- Long-Term Agroecosystem Research Data at the National Agricultural Library
- National Center for Atmospheric Research (NCAR), USA
 - [Earth Observing Lab \(EOL\)](#), observational and supporting data from atmospheric science field experiments and arctic research
 - [Research Data Archive \(RDA\)](#), reference datasets for weather and climate research
- [National Geoscience Data Centre \(NGDC\)](#)
- [NERC Earth Observation Data Centre \(NEODC\)](#)
- [NOAA National Climatic Data Center \(NCDC\)](#)
- [NOAA National Oceanographic Data Center \(NODC\)](#)
- [NOAA National Geophysical Data Center \(NGDC\)](#)
- [PANGAEA](#)
- [Polar Data Centre \(PDC\)](#)
- [STEWARDS](#)
- [Zenodo](#)