

Guidance Document for the John Wesley Powell Center for Analysis and Synthesis Proposals Process



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This version is a compilation of the information on the [Powell Center public webpage](#) with slight changes for clarification.

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Overview

The [Powell Center](#) seeks projects that address development and testing of important Earth system science ideas and theories using existing data, cutting-edge analysis of Earth system information, and use of sound science in policy and management decisions. Proposals are evaluated for scientific merit, novel approaches, and rationale for conducting investigative activities at the Powell Center. The Powell Center [Science Advisory Board \(SAB\)](#) reviews proposals and makes recommendations to the Directors who make the final decisions about which proposals to support. SAB members may not be subject matter experts; write proposals that are understandable and compelling to non-specialists.

A context statement and reviews are returned to principal investigators.

Proposals are due annually on January 31st.

For answers to questions not addressed in these instructions, email the Powell Center staff at powellcenter@usgs.gov, or contact Interim Director Leslie Hsu at lhsu@usgs.gov or 303-202-4080.

Who should apply

We welcome scientists at any stage of their career, from all disciplines, and from academic or government organizations from around the world. There can be up to four Principal Investigators. At least one of the Principal Investigators must be a USGS employee.

Powell Center does not support:

- Collection of new data or field research.
- Projects that should be funded by another entity or can be conducted elsewhere.
- Proposals requesting overhead or funds to be spent by the investigator at the investigator's home institution.
- Supplies, field research travel, or travel to professional society meetings.

What the Powell Center provides

Financial support for travel, fellows, and publication fees

Expenses covered by the Powell Center include:

- Airfare, hotel, and per diem expenses for up to 15 participants for two week-long Working Group meetings, including international travelers.
- Salary and benefit support up to \$100,000 over two years for a Fellow. (Note that if spread over two years, this is not full support of a fellow, but partial support that supplements other sources.)
- Page charges for one open-access publication.
- Salary for USGS employees on reimbursable funds for the time the participant is at the Powell Center.

Type of support	How much?	Does this money go to the PI?	For how long?
Travel for Working Group	To support up to 15 travelers for two week-long meetings	NO – travel support is direct to the traveler	About two years
Funding for Fellow	\$100,000 total (includes all indirect costs)	CESU agreements transfer \$ to universities; \$ can transfer to USGS Centers	\$100K is for life of Working Group
Page charges	One manuscript	NO – the journal is paid directly	Life of the working Group
Salary for USGS participants on reimbursable funds while onsite	None, unless you are a USGS employee on reimbursable funds	Relevant USGS participants can get an account to bill	Two weeks per person over life of Working Group

The Powell Center does not require a formal budget when you submit a proposal. We will calculate a budget if your proposal is successful. That budget will include travel

costs for Working Group meetings, funds for a Fellow (if requested), page charges, and salary (only for USGS employees on reimbursable funds while at the Powell Center).

While most Working Groups meet two times over two years, proposals with different timelines will be considered.

Fellows

If your proposal is successful and you request a Fellow housed at your institution, USGS will post an Announcement of Opportunity on Grants.gov, to which you and your institution may apply with a formal budget and proposal.

Data and computing resources

The Powell Center provides guidance about technical tools to share, integrate, and manipulate existing scientific information to generate new insights. Powell Center Working Groups tackle Earth system science issues by combining existing information; we can help point to USGS resources to manage, merge, share, and query large data sets. Scientists routinely bring diverse data sets to team meetings requiring advanced computing support.

We tailor our support to individual Working Group needs. Integration and analysis of large, diverse datasets requires extensive knowledge of appropriate software use, data accessibility and storage, and metadata generation. Working Groups include a data and computing liaison to coordinate data management and technical nuances with Powell Center staff.

Each Powell Center Working Group will be able to request more information about, or help with, the following USGS policies and resources:

- [USGS Fundamental Science Practices](#)
- [USGS Science Data Management](#)
- [USGS Advanced Research Computing](#)

During the course of the project, Powell Center Working Groups may utilize a suite of USGS-supported online collaboration tools, including access to [USGS Science Data Management](#) systems to organize, store and provide access to data sets, internet links, models, and other sources of interest.

The Powell Center also recommends the [USGS Community for Data Integration](#) as a source of resources and expertise for working with scientific data.

How to apply

Prepare a single file with the following elements, described in more detail below.

- Cover Sheet
- Body of Proposal
- Data Management Plan
- CVs

Cover Sheet

- **Date of Submission**
- **Descriptive Title**
- **Short Title** – Two to three words for use as a unique project name
- **Principal Investigator Names**, up to four PIs. Include: Name, Email, Institution, City, State, and Country (if not U.S.). At least one PI must be a USGS employee.
- **Project Summary** – A brief scientific abstract of your project (target one third to one half page)
- **Proposed Start and End Dates** – Proposed start and end date of two-year project (month, year)
- **Duration** (4 day minimum) of two Working Group meetings at the Powell Center over two years
- **Proposed Data Release Date** - Date you expect to make your data sets publicly available
- **Is this a resubmission?** - Yes/No (If yes, provide date(s) of original submission and last name of original PI)
- **Conflicts of Interest with Reviewers** - Check the list of [Science Advisory Board members](#) and note any potential conflicts of interest
- **Keyword(s)** – Please choose one or more keywords from the following to describe your project: 1) climate and land use change, 2) ecosystems, 3) energy and minerals, 4) environmental health, 5) natural hazards, 6) water.

Body of Proposal

4000-word maximum

- **Problem Statement** – Clear and concise statement of what is to be done, why it is important, and how it will be accomplished.
- **Proposed Activities** – Brief description of methodology and why it is appropriate.
- **Participant List** – Make a table using this template for information regarding participants. Working groups and the Powell Center space are best at 8-15 participants. The Powell Center will support up to, but no more than, 15 total participants.

Name	Institutional Affiliation	Expertise	Role in Working Group	Career Stage	Confirmed?
Emma Dean	Smithsonian	Ornithology	Interpretation of migratory patterns	Post-doc	Confirmed
John Wesley	USGS	Geography	Statistical evaluation of mineral deposits	Professor Equivalent	Invited

- indicate whether participants are **confirmed**; define expertise and role of each participant;
 - **USGS FSP Liaison**: identify the USGS participant responsible for ensuring the requirements of [Fundamental Science Practices](#) are met.
 - If you are requesting support for a **Powell Center fellow**, identify that person and describe their expertise.
- **Timetable of Activities**
 - **Anticipated Results and Benefits** – This section describes scientific outcomes and contributions to applied science as well as products such as manuscripts, proposals, data and software. **For describing anticipated deliverables:** List the tangible, deliverable services or products from this project and include when they will be delivered. The description of the product should identify the specific audience requirement/issue to be addressed (for example a paper that enables specific resource management and decisions needs). For specific science information collections, identify the data to be provided, and how it will be disseminated (paper, conference, data release) and used by the USGS and partners. For specific information that is not ready or intended to result in a database, model or other

resource, indicate the specific gap or data requirement that the information serves for USGS and/or our partner.

- **Literature Cited**

Data Management Plan

Use the template for the data management plan to describe datasets you plan to use and produce. You can [download data management plan template](#) here.

The Powell Center requires data management planning in the proposal process. This work leverages data management policies for the U.S. Geological Survey as well as several other funders of scientific research, including the National Science Foundation.

As a data synthesis and analysis center, data management forms a core responsibility of the Powell Center and its Working Groups. The Data Management Plan will enhance proposal evaluation and allow the Science Advisory Board to anticipate possible support requirements and opportunities for the Working Group. Some Powell Center proposals will not require data synthesis and analysis, and the following data management planning guidance is only applicable to Working Groups that will be using and synthesizing data.

In submitted proposals, Powell Center Working Groups should provide a Data Management Plan that describes:

1. Known datasets that will be used by Working Group
2. Basic idea of the processes, transformations, and syntheses that may be conducted on the data (recognizing that much of this may develop during the project)
3. Anticipated new data derivatives produced and published by Working Group

Consider the Data Management Plan before proposal submission to become familiar with data reporting requirements. The Data Management Plan helps Powell Center staff determine support required to provide researchers with data management, scientific computing, and other functions.

Proposed derived data and data products generated by Powell Center Working Groups should be described in the Data Management Plan. Data products will be documented with metadata and released through an appropriate publishing outlet. Data publishing venues continue to evolve and include a wide range of [USGS Trusted Digital](#)

[Repositories](#). Any of these options may be used, and the Powell Center will provide guidance and technical resources as appropriate for successful projects.

CVs

- **Two-page Curriculum Vitae** ONLY for Each Principal Investigator (4 max) and Powell Center Fellow (if identified)

Submission Instructions

The submission deadline is annually on January 31.

Proposals are accepted in digital format only as a single document in either Microsoft Word or PDF. The body of the proposal should be no more than 4000 words (excluding cover sheet, references, figures, tables, data management plan, and curricula vitae).

Format proposals to standard letter size (8.5" W by 11" L), with graphics embedded directly in the document. The body of the proposal should follow the cover sheet. Do not send compressed collections of files, such as .zip files. Proposals including the requested information (cover sheet, body, data management plan, CVs) must be provided as one document; **do not send separate files**.

The submission of your proposal indicates you are in agreement with and will abide by the [Powell Center Code of Ethics](#).

Send the proposal document as an email attachment to powellcenter@usgs.gov. You will receive an email confirming proposal receipt within 1 business day of submission. If you do not receive a confirmation email, have difficulty submitting your proposal, or have extenuating circumstances that prevent you from submitting a digital version of your proposal by the deadline please contact us.

Proposal Review Process

The Powell Center's [Science Advisory Board \(SAB\)](#) reviews proposals and makes recommendations to the Director who makes final decisions about which proposals to support. SAB members recuse themselves from proposal review if conflict of interest is perceived.

All proposals are reviewed by at least four SAB members. A summary of the written and panel review comments is sent to principal investigators, often within six weeks after submission. Summaries include descriptions of the strengths and weaknesses of the proposal. Proposals that are unsuccessful can revise and resubmit up to three times. We strongly encourage you to contact Leslie Hsu (lhsu@usgs.gov) ahead of time if you are considering submitting a proposal to discuss your ideas and approach. She can advise whether the ideas are suitable for synthesis and offer guidance on how to develop a successful proposal.

Proposals are evaluated on the following criteria:

1. **Compelling and Urgent:** research question(s) tackle important Earth or environmental challenges; the proposal describes why question(s) are critically important right now and how the work will contribute to scientific knowledge.
2. **Methods:** methods are sound and sufficiently described to allow evaluation of their potential for synthesis and analysis success
3. **Plan of action:** provides a clear vision for accomplishing the synthesis
4. **Outcomes and results:** clearly describes the project's expected research and products and how those outcomes may advance science
5. **Expertise:** invited participants have necessary expertise and technical skills
6. **Justification for coming to the Powell Center:** describes why this effort requires a team of experts and must be conducted at a synthesis center. Could the work be done elsewhere?
7. **Data availability:** data are available and accessible
8. **Model and data management:** data and data analytics management plans and plans for dissemination are sound
9. **Unique contribution:** the research and challenge occupy unique and exciting niche(s) that the Powell Center should support

Examples of Successful Proposals

[Fiber Optic Seismology for Earthquake Hazards Research, Monitoring and Early Warning](#), *Powell Center Working Group Proposal, 2022*

[Status of butterflies in the United States](#), *Powell Center Working Group Proposal, 2021*

Tips

To help Working Groups develop successful proposals, the Powell Center [Science Advisory Board](#) has adopted the following NCEAS rules of thumb to guide proposal preparation:

- Proposals are evaluated primarily on the significance and novelty of the idea(s) under consideration and should be question-driven (i.e., not purely descriptive).
- Provide a clear rationale for why the proposed activities should be, or can only be, done at the Powell Center with or without potential NSF co-funding.
- Be clear and concise. Provide brief examples of major points being made or approaches being used. “Trust me” proposals are not effective.
- Your reviewers are not always subject matter experts. Minimize technical jargon and unidentified acronyms.
- For each participant, specify the expertise brought to the project and whether he/she has agreed to participate.
- Indicate sources and attributes of data used in the project and their availability.
- If the results are designed or imagined to be useful to resource managers, make clear, valid statements about why and how that is so.

Most working group participants recognize the challenge of maintaining clear channels of communication among team members, so Powell Center collaborators are encouraged to discuss authorship and data sharing early and often. Publications resulting from Powell Center activities are authored by groups of researchers representing scientific fields with varied views on authorship and data sharing.

Reporting Requirements

The Powell Center is committed to developing methods to locate, access, analyze, and make data widely available to the scientific community. To meet this goal, the Powell Center requires that:

- *Derived data* (resulting from analyses from which the original data cannot be reconstituted) generated by research project activities are documented with metadata and made publicly available.
- Notification of publications resulting from Powell Center support be provided to the Powell Center at the time of publication.
- Working group participants sign the [Code of Ethics agreement](#), which includes compliance with the data and information policy, prior to initiating research activities.

Data Management Plan Template

You can [download data management plan template](#) here.

Data Inputs (list of datasets used to produce the synthesized data product(s))				
Title	Format (csv, ascii)	Data Volume Estimate (MB, GB, TB)	Source/URL	Use Restrictions
Dataset A				
Dataset B				
Dataset C				
(Repeat as needed)				

Data Processing (will occur during the course of Working Group activities)	
Access and Sharing	<i>How will the acquired data be accessed for the project? How will data be shared among members?</i>
Data Storage	<i>Where will the acquired datasets be stored and processed?</i> • <i>Option 1: USGS ScienceBase</i> • <i>Option 2: A participant's institution/organization</i>
Transformation and processing workflow	<i>List data transformations, synthesis actions, or other processing steps</i>
Technology needs	<i>Describe technologies and capabilities that will be used for data processing. Powell Center staff may be able to assist in identifying available computing capabilities, software, and other specifics.</i>

Proposed Data Publishing¹ (repeat if there will be multiple derived data products)	
Title	<i>Name for the new derived data product</i>
Description	<i>Description or abstract of the new derived data product</i>
Format	<i>Type or format of the derived data product</i>
Data Volume Estimate	<i>Rough magnitude of the derived data product (MB, GB, TB)</i>
Data Storage	<i>Where will the derived data be hosted and made available online?</i> • Option 1: USGS ScienceBase • Option 2: Acceptable Digital Repository (e.g. GenBank)
Metadata Point of Contact	<i>Who is the point of contact for creating the metadata? Powell Center can point to USGS resources for creating metadata.</i>
Restrictions	<i>Are there any restrictions that will need consideration before making the derived data available to the public (e.g. proprietary data inputs or other factors)?</i>

¹ USGS has official guidance on data publication at <https://www.usgs.gov/office-of-science-quality-and-integrity/fundamental-science-practices-fsp-guide-data-releases-or>

Code of Ethics

Publication:

Powell Center authors seeking to publish Working Group products will abide by the following principles of ethical professional conduct:

- I will not falsify, fabricate, or intentionally misrepresent my own data or the data of the group.
- I will cite and credit all information used from other publications.
- I will provide thoughtful, honest, and practical evaluation of the scientific actions of the group.
- I will provide fully described and replicable scientific methods.
- I agree to publish all derived data as data papers or data releases. Data papers or data releases will be made available on or before the time of journal publication in open repositories.
- I agree to provide access to all analytical tools and software products developed by Powell Center working groups on or before journal publication in open repositories.
- I agree to acknowledge the Powell Center in all publications resulting from the Powell Center's support.
- I will notify the Powell Center of all publications resulting from the Powell Center's support.

I _____ agree to abide by the Powell Center Code of Ethics.

Signature

Date

Powell Center Acknowledgment

Publications and Products

A suggested acknowledgment format is: “This work was conducted as a part of the (Insert your Working Group Title) Working Group supported by the John Wesley Powell Center for Analysis and Synthesis, funded by the U.S. Geological Survey [and other funding sources if appropriate].”

Please use our [emblem](#) on your presentation slides.

Press Releases

If you have press releases prepared at your home center, we request that you mention the John Wesley Powell Center for Analysis and Synthesis in the text of the press release.

Please let us know about any press releases and when you publish!

Powell Center email: PowellCenter@usgs.gov

USGS Mission Essential Functions

While not required, aligning your proposal to the current relevant **USGS Assigned Mission Essential Function(s)** (see chart below) helps us in reporting our contributions to USGS and Department of the Interior priorities.

Number	Description
MEF #3-4	Monitor the quality and quantity of water in the nation's rivers and aquifers and assess the sources and fate of contaminants in aquatic sources.
MEF #3-5	Provide water resource information to support nationwide flood control operations.
MEF #3-6	Observe the earth with remote sensing satellites, monitor and analyze changes on the land, and provide relevant science information to inform public decisions.
MEF #3-7	Provide a national archive of remotely sensed images of the earth's land surface to provide information regarding natural hazards and environmental conditions.
MEF #3-8	Provide current and accurate geospatial data for local, national, and global hazard support.
MEF #3-9	Monitor and assess active and potentially active volcanoes, issue timely forecasts and warnings of hazardous activity, assess their hazards, and respond to volcanic crises in support of public safety.
MEF #3-10	Provide geomagnetic data to partner federal agencies in support of space weather monitoring and warning capabilities.
MEF #3-11	Provide technical assistance in response to landslide emergencies.
MEF #3-12	Monitor domestic and global seismic activity and provide warnings, rapid information, and decision support products for situational awareness of earthquake impacts.
MEF #3-13	Monitor diseases in free-ranging wildlife populations, predict the ecological and public health consequences, and provide data for disease management practices in an interagency One Health response.