

## SCREENER

### Welcome

Welcome to our survey studying reproducible research practices in the geographical sciences. This research is funded by the National Science Foundation (---). You have been invited to participate in this survey because you have published research in a geography journal in the past five years. Your participation will help us better understand (1) current research practices and (2) potential ways to better train future researchers. Throughout the survey, you will be presented with a series of questions about your own research practices and your perceptions of the reproducibility of research in geography. This survey should take **fewer than 15 minutes** to complete.

### Risks and Benefits

There are no known risks to taking part in this study. Participation in this survey is entirely voluntary. You may stop the survey at any time, or skip questions you do not wish to answer. At the end of the survey you will have a chance to enter a prize draw to win one of three \$90 Gift Cards. By electing to participate in the prize draw you agree to the corresponding [Terms and Conditions](#) of the draw.

### Ethics Clearance

This research project has been approved by the ----- University Internal Review Board (----).

### Privacy

All personally identifiable information will be kept private. Personally identifiable information will be disconnected from your response data using a anonymous key and stored on a password protected disk drive, disconnected from the internet in the PIs secured faculty office Your anonymized individual responses will be used for statistical purposes only and may be published in an archived project database or in peer-reviewed papers, presented at academic conferences, or used in teaching workshops.

The following questions will be used to determine eligibility for this survey.

How old are you?

- ☐ Under 18
- ☐ 18-34 years old
- ☐ 35-54 years old
- ☐ 55+ years old

Have you conducted research in the field of geography in the last 5 years?

- ☐ Yes
- ☐ No
- ☐ Unsure

Select your **primary** subfield of research from the following options:

- ☐ Human geography
- ☐ Physical geography, earth and environmental sciences
- ☐ Nature and society
- ☐ Geographic methods, GIS, spatial statistics
- ☐  Other (specify)

How would you describe the type of research you primarily conduct?

- ☐ Quantitative
- ☐ Qualitative
- ☐ Mixed Methods

**Awareness of Reproducibility Practices**

In the context of conducting your research, how familiar are you with the term "reproducibility"?

- ☐ To a great extent
- ☐ Somewhat
- ☐ Very little
- ☐ Not at all

What is your understanding of the term "reproducibility" in the context of your own research?

## Importance of Reproducibility

### Clarification of Terms:

For the purposes of this survey, we adopt the following definition:

***Reproducibility*** - the ability of research results to be recreated by an independent researcher using the same materials, procedures, and conditions of analysis that were used in the original study.

In the context of conducting and publishing research in your subfield, how familiar are you with open source software?

- ☐ To a great extent
- ☐ Somewhat
- ☐ Very little
- ☐ Not at all

How often do you use open source software in your own research?

- ☐ Always
- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

For what parts of the research process, do you use open source software in your own research?

- ☐ Obtaining or collecting data
- ☐ Data cleaning or pre-processing
- ☐ Data analysis
- ☐ Data visualization or mapping

How often do you document or share information related to the computational processing environment used in your own research?

- ☐ Always
- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

In the context of conducting and publishing research in your subfield, how familiar are you with lab, field, or computational notebooks?

- ☐ To a great extent
- ☐ Somewhat
- ☐ Very little
- ☐ Not at all

How often do you use lab, field, or computational notebooks in your own research?

- ☐ Always
- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

In the context of conducting and publishing research in your subfield, how familiar are you with sharing or archiving data?

- ☐ To a great extent
- ☐ Somewhat
- ☐ Very little
- ☐ Not at all

How often do you publicly share or archive data in your own research?

- ☐ Always
- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

How often do you use digital object identifiers (DOIs) when public sharing or archiving data in your own research?

- ☐ Always
- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

How often do you use spatial metadata standards when publicly sharing or archiving data in your own research?

- ☐ Always
- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

In the context of conducting and publishing research in your subfield, how familiar are you with publicly sharing code or scripts?

- ☐ To a great extent
- ☐ Somewhat
- ☐ Very little
- ☐ Not at all

How often do you publicly share code or scripts in your own research?

- ☐ Always
- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

How often do you use version control software (e.g., Git) to facilitate sharing code or scripts in your research?

- ☐ Always
- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

In the context of conducting and publishing research in your subfield, how familiar are you with pre-registering research designs or protocols?

- ☐ To a great extent
- ☐ Somewhat
- ☐ Very little
- ☐ Not at all

How often do you pre-register research designs or protocols in your own research?

- ☐ Always
- ☐ Most of the time
- ☐ Some of the time
- ☐ Rarely
- ☐ Never

To what extent do you agree with the following statements about research in your subfield?

	Strongly agree	Agree	Disagree	Strongly disagree	Don't Know
Failing to reproduce a result often means the original finding is false.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Failing to reproduce a result rarely detracts from the validity of the original study.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a researcher does not share the data used in their study, I trust the results less.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important for students to attempt reproductions as part of their training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be credible, research must be reproducible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reproducibility is incompatible with the epistemologies within my subfield.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Research Practices

In the last 2 years, have you...?

	Yes	No	Don't Know
Thought about the reproducibility of your research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spoke with colleagues about reproducibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Questioned the reproducibility of published research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Published original data with your study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Published code and/or protocols with your study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considered reproducibility while peer reviewing a grant or publication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attempted to reproduce your own or someone else's research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thinking about the reproduction(s) you attempted in the last 2 years, what made you decide to attempt the reproduction(s)?

Thinking about the reproduction(s) you attempted in the last 2 years, what proportion of the original research results were you able to...?

	All	Some	None	Don't Know
Identically reproduce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Partially reproduce (e.g., slightly different results but same conclusions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fail to reproduce (e.g., different results and different conclusions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Thinking about the reproduction(s) you attempted in the last 2 years, were you able to...?

	Yes, all	Yes, some	No	Did not attempt
Access the original study's data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access the original study's code or analytic procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreate the computational environment (hardware, software, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Submit your findings for publication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you were not able to submit all of the findings of your reproduction(s) for publication, why not?

### Proportion of reproducibility

In your opinion, what percentage of the published results are reproducible within...?

Enter percentage (0 to 100)

Geography

Your primary subfield (e.g., human geography, physical geography, nature & society, GIS/methods/spatial stats)

### Challenges or barriers to reproducibility

In your opinion, how frequently do each of these factors contribute to a lack of reproducibility in research in your subfield?

	Frequently	Occasionally	Rarely	Never
Fraud (e.g., fabricated or falsified results)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pressure to publish for career advancement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient oversight or mentoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of publishing raw data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of publishing research protocols or computer code	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of publishing full results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Differences in the software processing environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use of proprietary data or software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Complexity and variability of geographic systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Random effects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient documentation about study data (metadata)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Researcher positionality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please list any other factors that you believe contribute to a lack of reproducibility in research in your subfield.

Who should be responsible for the reproducibility of published research in your subfield? (Select all that apply)

- ☐ Principal investigator of the study
- ☐ Peer-reviewer(s)
- ☐ Journal editor(s)
- ☐ Funding agency
- ☐  Other (specify)

How important is reproducibility within your subfield for...?

	Very important	Somewhat important	Somewhat not important	Not important
Validating research findings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reducing the risk of errors in the research process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increasing trust in study results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preventing duplication of efforts in future research projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Establishing credibility of research in geography	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Establishing credibility of research in your primary subfield (e.g., human geography, physical geography, nature & society, GIS/methods /spatial stats)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicating research to academics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicating research to practitioners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training geography students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meta-analyses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please list any benefits or important function of reproducibility in your subfield not mentioned above.

**Demographics**

How many people are part of your research group or lab? Include all relevant senior investigators, postdoctoral fellows, technicians, and graduate or undergraduate students.

- ☐ 1 person
- ☐ 2 - 5 people
- ☐ 6 - 10 people
- ☐ 11 - 15 people
- ☐ 16+ people

Which job title best applies to you?

- ☐ Full professor/lecturer
- ☐ Associate professor/lecturer
- ☐ Assistant professor/lecturer
- ☐ Laboratory director/head
- ☐ Research scientist
- ☐ Post-doctoral fellow
- ☐ Graduate student (PhD, masters)
- ☐ Technician/research assistant
- ☐  Other (specify)

How do you describe yourself?

- ☐ Female
- ☐ Male
- ☐ Non-binary / third gender
- ☐  Prefer to self-describe
- ☐ Prefer not to say

Choose one or more races that you consider yourself to be:

☐ American Indian or Alaska Native

☐ Asian

☐ Black or African American

☐ Hispanic

☐ Native Hawaiian or Pacific Islander

☐ White

☐ Other

☐

☐ Prefer not to say

In which country do you currently reside?

## Prize Draw

If you wish to be entered into the prize draw for a \$90 gift card, please check the box below. By choosing to participate in the prize draw you acknowledge that you have read and understand the terms and conditions of the draw as outlined in the materials provided to you in the original contact email.

☐

I would like to be entered into the prize draw

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