



# **Geoscience Resources on Opportunities in the Workforce**

[grow-geocareers.com](http://grow-geocareers.com)

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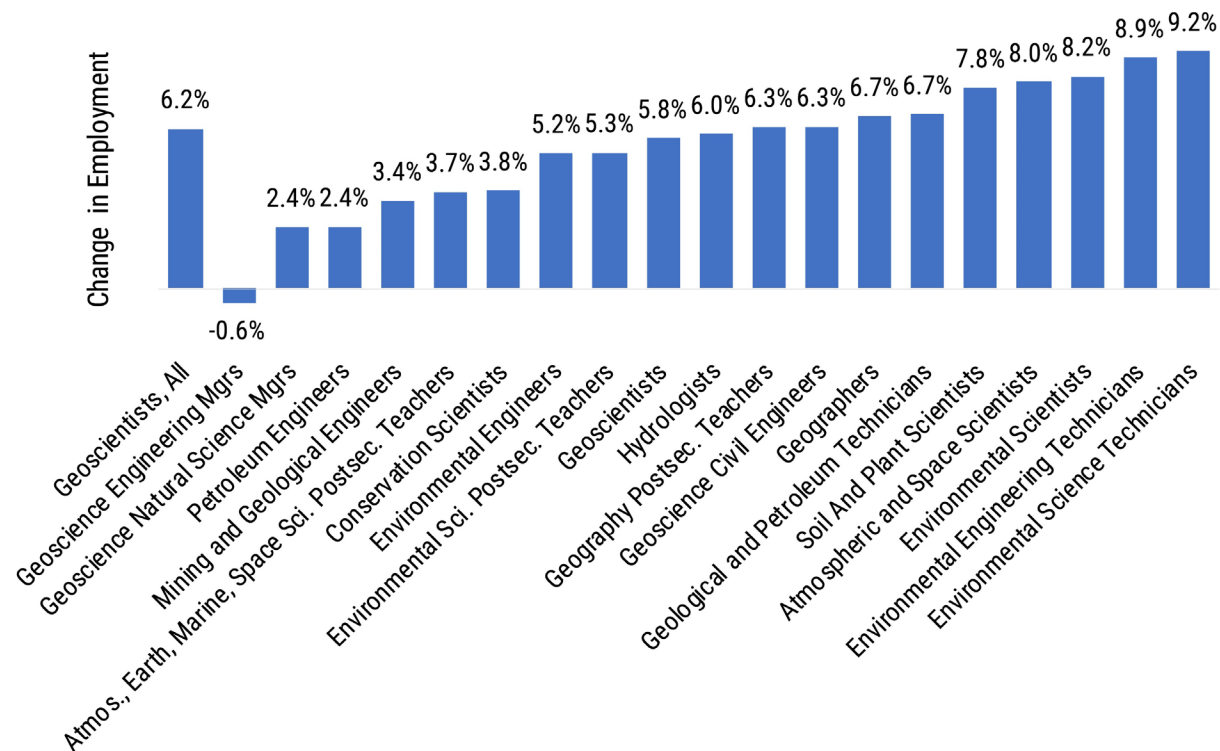
# Introducing GROW, a new career tool for the geoscience community

- I. **The Motivation:**  
preparing students for success in the geoscience workforce
- II. **The Project:**  
the goals and phases of the NSF INTERN project
- III. **The Outcomes:**  
how to use GROW to support your students

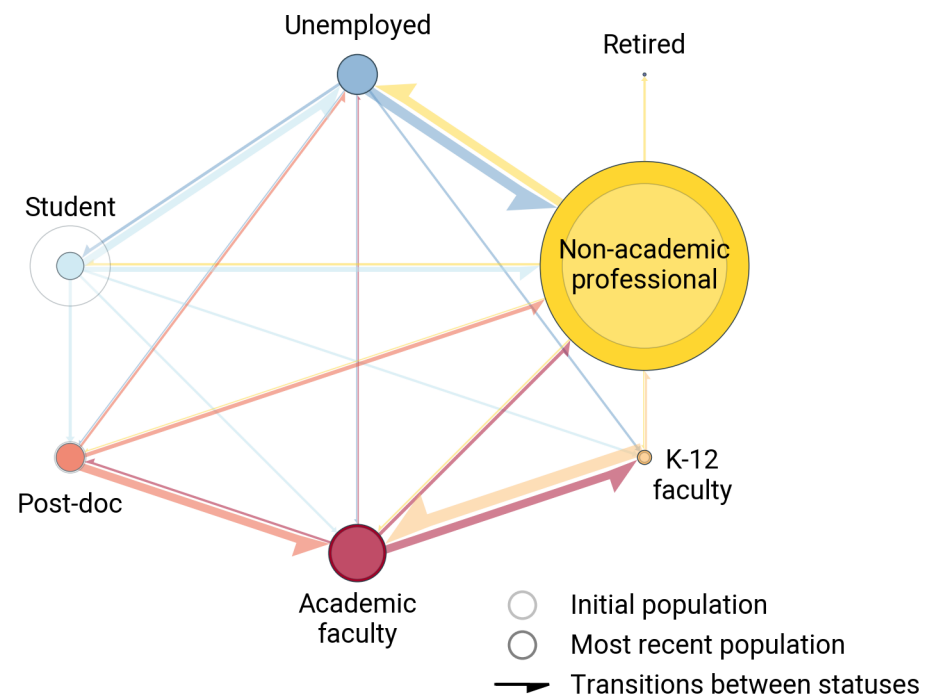


# The workforce is growing, and graduates are getting non-academic jobs.

Projected Geoscience Workforce Changes by Occupation  
2018-2028



Changes in occupational status, Feb 2020 - Mar 2022  
Recent geoscience graduates, Classes of 2014-2021



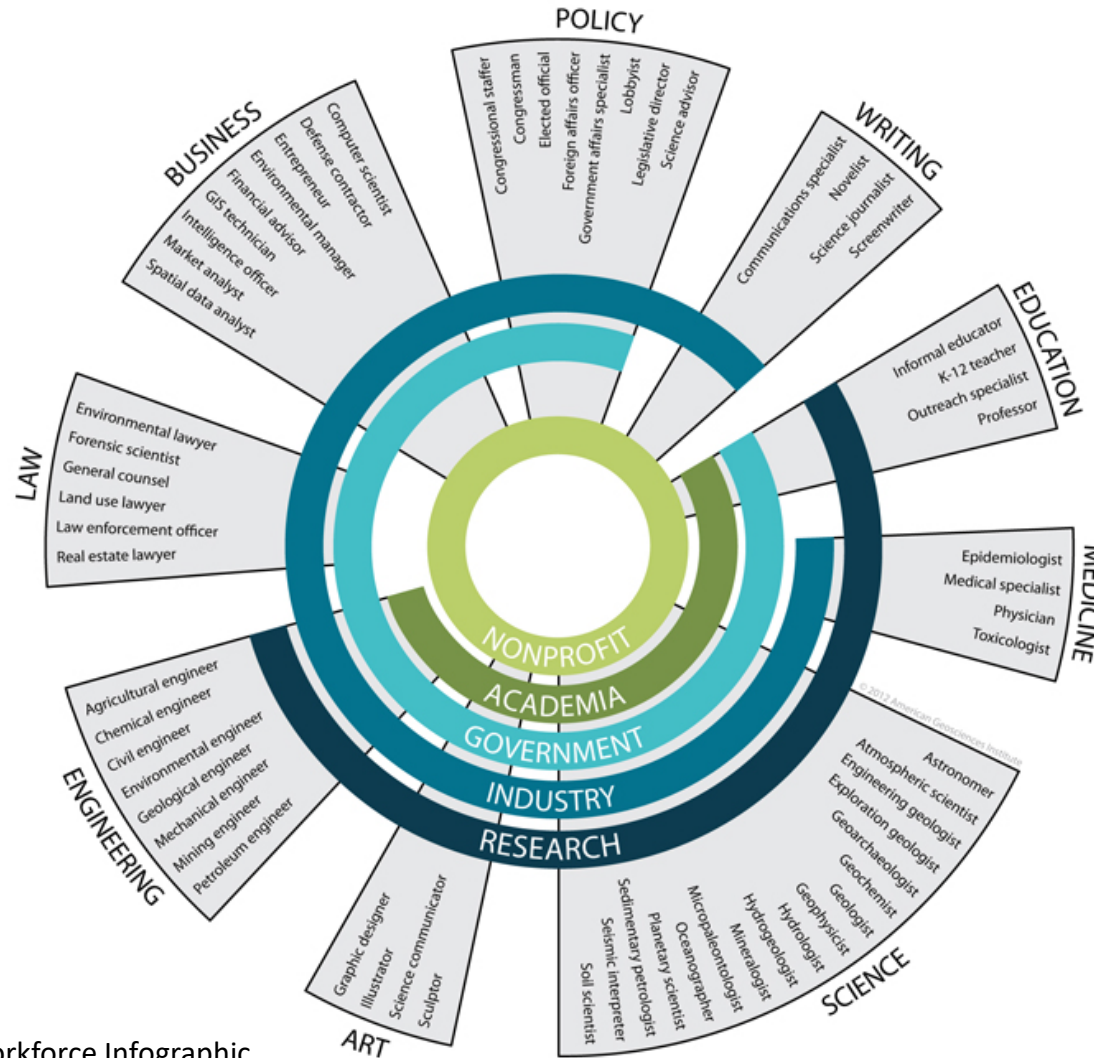
Source: AGI Geoscience Workforce Program; Data derived from the U.S. BLS Employment Projections

**Geoscience students learn transferable skills** suited to a range of jobs outside of academia in industry, government, policy, and other sectors.

Non-academic career resources for students exist but these **resources do not sufficiently reach their audiences.**

**Academic mentors often do not have experience or resources to help students** navigate the non-academic workforce.





AGI Workforce Infographic  
 Illustrator: Kathleen Cantner  
 Content: Heather Houlton & Abigail Seadler

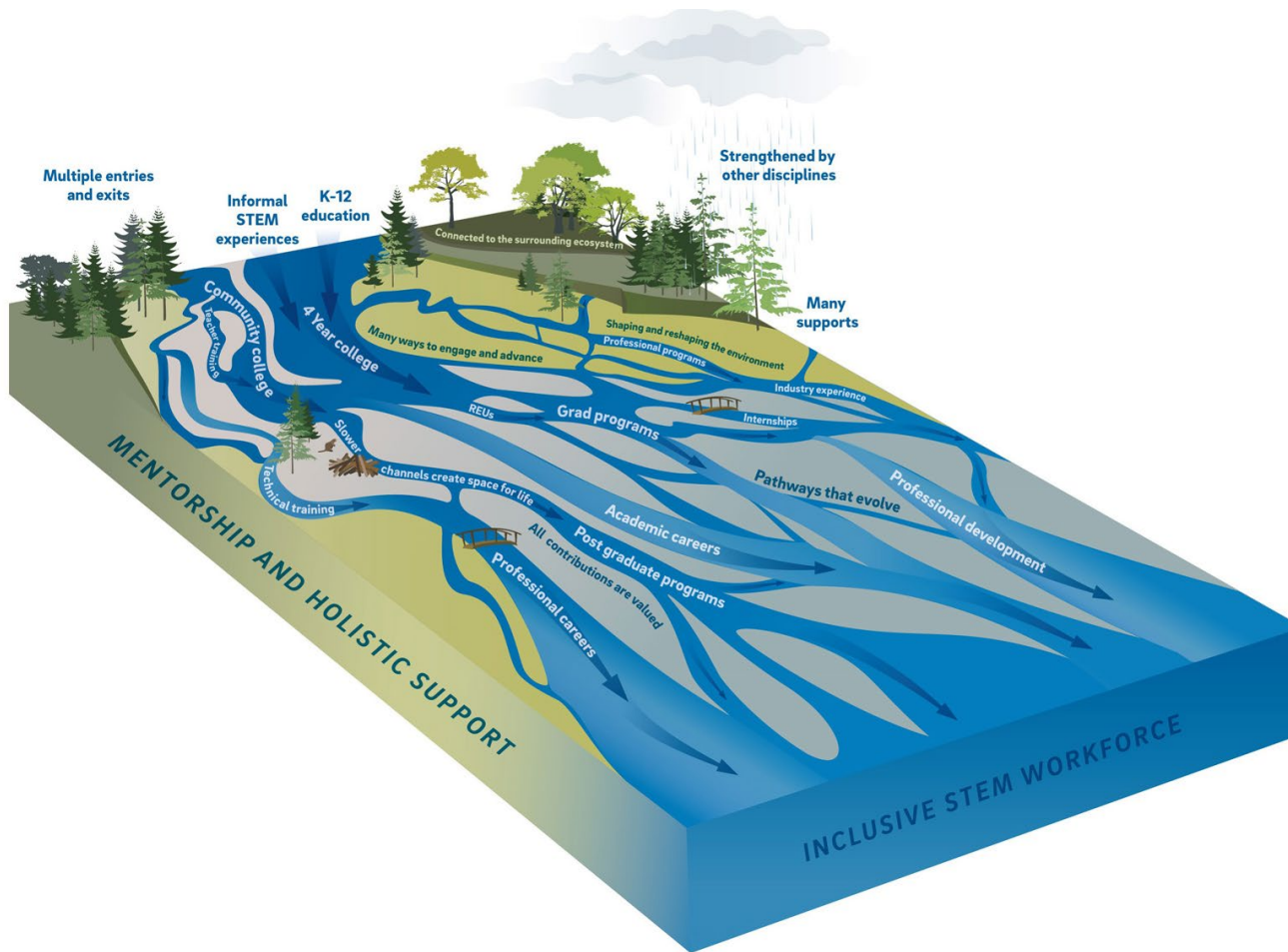
## How can we more effectively:

- provide students with a current and complete **understanding of the workforce** and its varied opportunities?
- give concrete, specific, **actionable guidance** to students who are looking for jobs?
- **emphasize transferable skills and adaptability** in a changing workforce?



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Reimagining STEM Workforce Development as a Braided River  
Batchelor et al. 2021



# Developing and Disseminating Information Resources on Non-Academic Careers in the Geosciences

NSF INTERN Project

Three phase proposal:

- I. Assemble and evaluate existing geoscience career resources
- II. Create new resources based on identified gaps (e.g., licensing, mentor connections, specific job information)
- III. Disseminate widely through targeted distribution





# Developing and Disseminating Information Resources on Non-Academic Careers in the Geosciences

NSF INTERN Project



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Project Lead  
UC Santa Cruz



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GEOPATHs PI  
UC Santa Cruz



**Heather Houlton**  
Project Consultant  
Colorado School of Mines



**American Institute of Professional Geologists**  
INTERN Host



# I. Assemble and evaluate existing geoscience career resources

GSA	AIME	NABG
AGU	SME	ESWN
ASLO	CIM	IAGD
MSA	SEG	AAAS
AGI	SSA	NASW
AIPG	USGS	IRIS
AAPG	NASA	UNAVCO
IAHS	NOAA	EPA
AWG	BLM	Paleo. Soc.
Universities & colleges		
Non-profit organizations		
Private companies		
National parks		
Geological museums		
.....		

- **What kind of information is provided?**  
Is it general (geoscience) or specific to a sector (e.g., industry) or position (e.g., museum curator)?
- Is the resource **current or outdated**?
- Is the format **accessible**?
- Does the resource represent **diverse identities and perspectives**?

## II. Create new resources based on identified gaps

### What should this tool look like?

**Audience:**

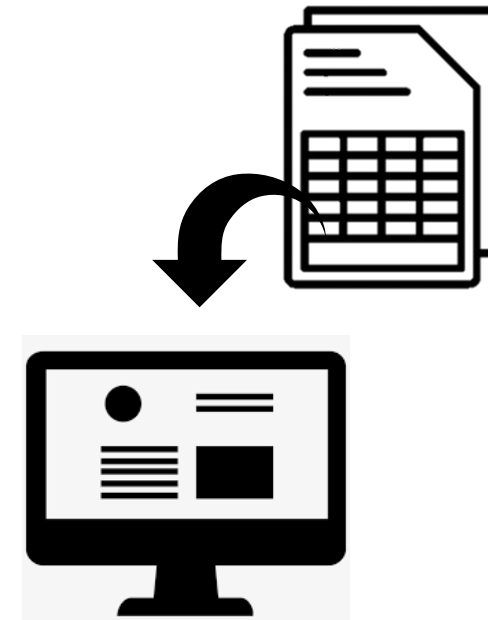
undergraduates and graduates, and their departments/mentors

**Scope:**

exploring options to applying for jobs

**Access:**

easy to navigate content with clear messaging,  
not a link farm





## II. Create new resources based on identified gaps

- **Sector-specific information:**  
describe what kinds of jobs are available, what preparation is needed, how to get started
- **Licensing information:**  
assemble previous webinars, create FAQ snapshot, provide library of links to ASBOG information.
- **Ask an Expert:**  
new career profiles



**Megan Sever**  
Communication



**Crystal Tulley-Cordova**  
Tribal government



**Kathleen Quardokus Fisher**  
Education

## II. Create new resources based on identified gaps

### ■ Ask an Expert:

- New career profiles spanning all sectors
- Q&A focused on navigating non-linear career paths, adaptability, and transferable skills
- Options for networking and learning more: LinkedIn, Twitter, email

Crystal Tulley-Cordova

Sara Pratt

Kyle Hardage

Tim Oleson

Carolyn Gramling

James Super

Kat Cantner

Emily Weiss

Phil Stokes

Kevin Harmon

Karen McLaughlin

Emily Osborne

Dione Rossiter

Caitlin Keating- Bitonti

Hehewutei (Cody) Amakali

Samantha Carter

Gifford Wong

Danielle Woodring

Grace Chang

Joyeeta Bhattacharya

James Bishop

Megan Sever

Tahlia Bear

Esra Mescioglu

Kathryn Hansen

Alexandra Witze

Carlie Wiener

Spencer Klinefelter

Isabel Carrera Zamanillo

Pranoti Asher

Craig Steward

Dena Smith-Nufio

Erin Wayman

Ursula Rick

Elizabeth Landau

Susanna Honig

Haley Currie

Dave Reidmiller

Lawrence Sim

Sarah Cooley

Bhavna Arora

Kathleen Quardokus Fisher

Wendy Davidson

Kimberley Mayfield

Wendy Bohon

Ellen Gray

Brittany Schieler

Lisa White

Anne Egger

Delphine Deforray

Saminda Fonseka

Adam Ringler

Michael Osborne

Kathryn Kynett

Andre Perkins

Gari Mayberry

Nicole Kinsman

Erica Grow

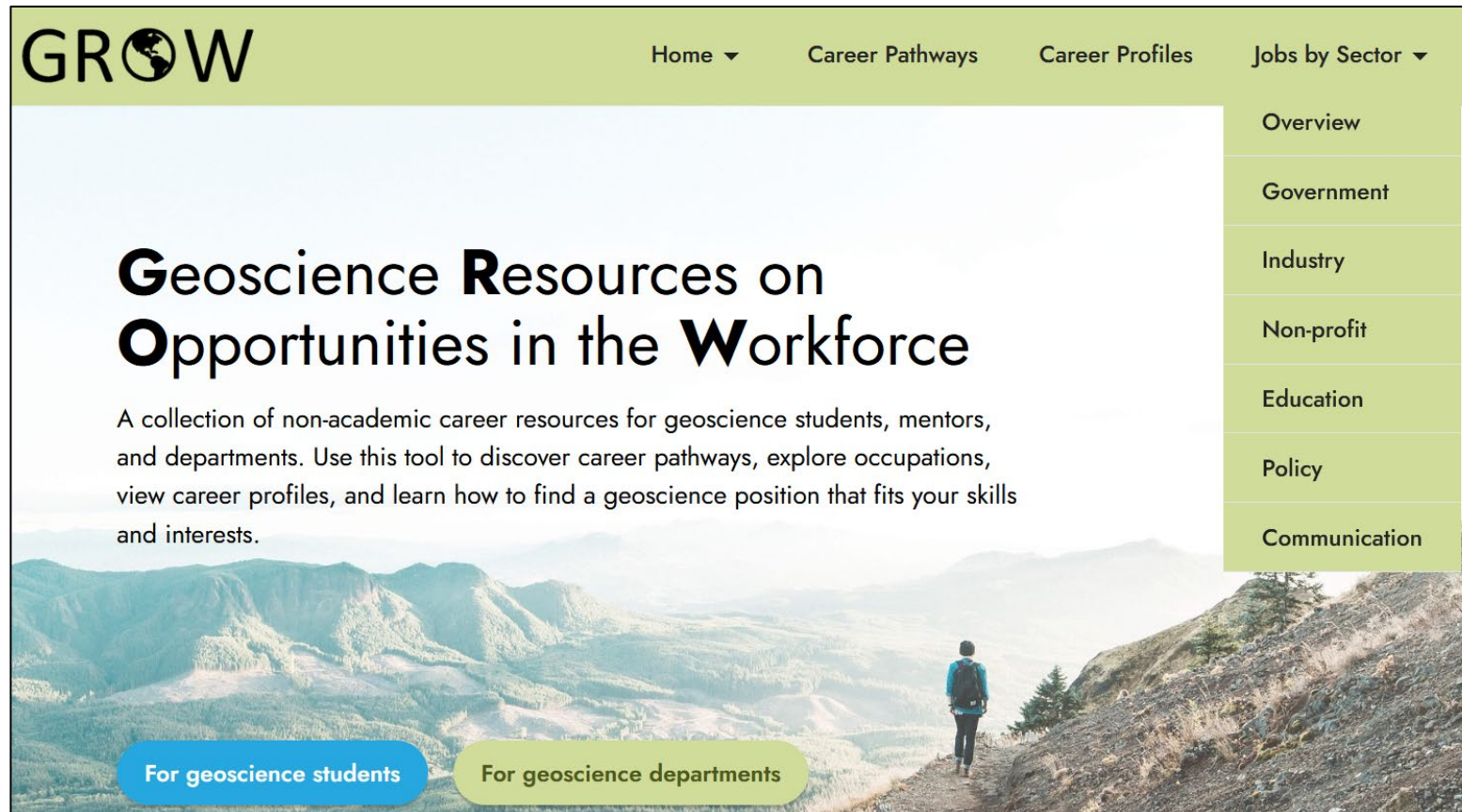
Angela Hessler

Sarah Carr

Helen Cooper



## II. Create new resources based on identified gaps

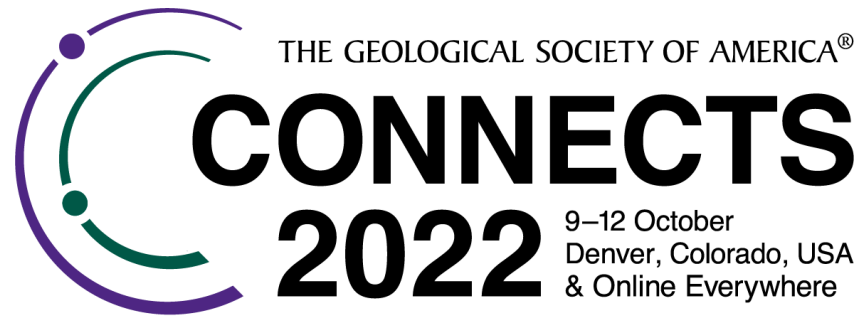


Designed website to host all **new content with external links** to existing resources.

Resources organized by **audience**, career development **stage**, and workforce **sector**.

*grow-geocareers.com*

### III. Disseminate widely through targeted distribution





# III. Disseminate widely through targeted distribution

## Pageviews ⓘ

Mar 11 (12:00 AM) to Apr 10 (9:39 AM)

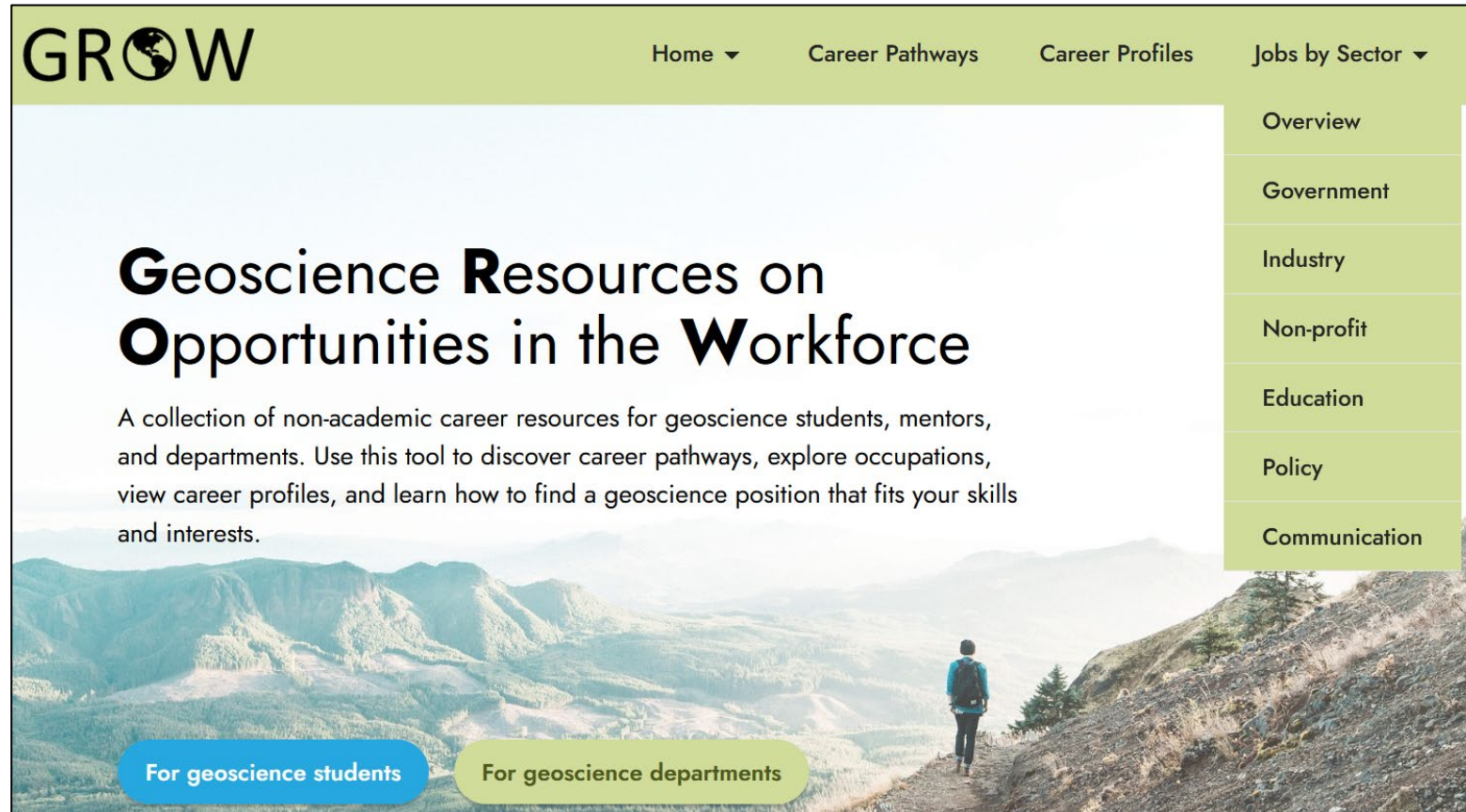


## Unique visitors ⓘ

Mar 11 (12:00 AM) to Apr 10 (9:39 AM)



# Supporting your students with GROW





# GROW

## For departments

Earth Science Literacy

Transferrable Skills

Evolving Workforce

Career Values

Diversity & Inclusion

Unearth Your Future

## For students

Find a Community

Advice from Grads

Career Pathways

Career Profiles

Jobs by Sector

# The geoscience workforce has a place for you.

**What can you do with your geoscience degree?** The common perception of a geoscientist as a hammer-toting outdoorsperson is not always representative of what a geoscientist actually does. In fact, many geoscientists do not conduct field work or study rocks. The broad skills gained from a geoscience degree can be transferred to many other fields, such as law, medicine, finance or journalism. Your geoscience degree can support you in finding a job that fits your interests and career goals.

[Find your fit](#)[Advice from recent grads](#)

# Find your fit

**Picture Yourself a Geoscientist**

**Join a Community**

**Career Pathways**

**Career Profiles**

**Jobs by Sector**

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To meet the challenges of the future, we need a diverse geoscience workforce. Your individuality and life experiences make you uniquely equipped to have an impact in the geosciences.

**Discover geoscientists like you.** Read the stories of [500 Queer Scientists](#). Connect with [500 Women Scientists](#). Join a group of [Unlikely Hikers](#). Hear the experiences of [Chicano/Hispanic and Native American scientists](#). Follow the stories of [Black Geoscientists](#). Watch the [IF/THEN: Women in Geoscience](#) video series.

**Get advice from your peers.** The profiles below highlight recent geoscience graduates who have found employment in a range of geoscience positions. [See what's possible for you!](#)



# Find your fit

**Picture Yourself a Geoscientist** **Join a Community** **Career Pathways** **Career Profiles** **Jobs by Sector**

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**Find support and share experiences** in one of many organizations and societies for geoscientists.

[American Indian Science and Engineering Society](#)

[Institute for Tribal Environmental Professionals](#)

[Geoscience Alliance](#)

[Indigenous Women in Science Network](#)

[Society of Latinxs/Hispanics in Earth and Space Science](#)

[Latinas in STEM](#)

[GeoLatinas](#)

[Society for Advancement of Chicanos/Hispanics and Native Americans in Science](#)

[National Association of Black Geoscientists](#)

[Black in Marine Science](#)

# Explore Geoscience Career Pathways

Who are geoscientists? What do they do? How can you get started in this field?



*IRIS Geoscience Careers—Parts 1 & 2. What can I do with my degree in geoscience?*

# Explore Geoscience Career Pathways



**Finding Your Fit**  
AGU Webinar



**Think Outside the Box**  
IRIS Webinar



**Geoscience Careers**  
AGI video & brochure



**AGI Career Compass**  
Infographics



**Career Cornerstone**  
Website



**SAGE 2YC Career Info**  
Website



## B.S.

Broad education in geoscience. Typically required for entry-level positions in industry, government, education, and non-profit sectors.

[Details](#)

## M.S.

Further training in a geoscience sub-discipline. Required for some entry-level positions. Most likely to promote career growth.

[Details](#)

## Ph.D.

Specialization and original research in a geoscience sub-discipline. Required for most academic and research scientist positions.

[Details](#)

## Licensing

Required in some states for geologists that offer services to the public. Uses the [ASBOG® Fundamentals of Geology Exam](#).

[Learn more](#)

## Certifications

Further preparation for advancing a geoscience career (for example, [science communication programs](#) or [Geologist-in-Training Certification](#)).

[Learn more](#)

## Professional degrees

For those interested in [environmental law](#) or [medical geology](#).

[Learn more](#)



# Explore Geoscience Career Profiles

Select collections below to learn more about the career paths and day-to-day work life of geoscientists with unique backgrounds and skills, working in a variety of fields and occupations.



*Collection by SAGE 2YC*

**What do you do and how did you get there?** Find answers to these questions and more in interviews with geoscientists working in a variety of sectors.

Explore >



*Collection by PROGRESS*

**Identify with a geoscientist** through stories featured by Promoting Geoscience Research, Education & Success (PROGRESS).

Explore >



*Collection by UNAVCO*

**Watch a video playlist of geoscience career spotlights** by UNAVCO, featuring a science writer, a polar field engineer, a museum curator, and more!

Explore >

# Explore Geoscience Career Profiles

Select collections below to learn more about the career paths and day-to-day work life of geoscientists with unique backgrounds and skills, working in a variety of fields and occupations.



*By Teach the Earth*

**Covers a variety of jobs, emphasizing education and outreach.**



*By On the Cutting Edge*

**Perspectives from geoscience employees & employers.**



*By EGU GeoLog*

**Highlights geoscientists who took non-linear career paths.**



*By Eos*

**"Choose Your Own Geoscience Adventure" features scientists who took unique paths.**



*By EEK*

**Natural-resource focused, including park rangers & naturalists.**



*By Rock-Head Sciences*

**Features a variety of geoscientists and graduate students.**



*By Fossil Guy*

**Interviews with paleontologists about their jobs and fossils.**



*By UIC Earth & Environmental Sciences*  
**Video collection of UIC alumni working in industry.**



*By SSA At Work*

**Features seismologists working in various research positions.**



*By AMS*

**Includes meteorologists, researchers, engineers, and a storm chaser!**



*By AWG*

**Features geoscientists from the major employment sectors.**



*By Science Societies Career Center*

**Highlights soil scientists, as well as agronomists and crop scientists.**



*By transverse RANGES*

**Long-form interviews with geoscientists from a variety of fields.**



*By PBS NOVA*

**Video profiles of scientists at work, and at play.**



*By GS of London*

**UK-focused with international applicability, all sectors.**



*By AAG & MCOE*

**Geoscientists discuss their paths into geography.**

## Jobs by Sector

Government

Industry

Education

Communication

Non-profits

Policy

Get Started

Ask an Expert

Explore Employers

Career Preparation



# Geoscience Jobs in Government

[Get Started](#)[Ask an Expert](#)[Explore Employers](#)[Career Preparation](#)[Overview](#)[Government](#)[Industry](#)[Non-profit](#)[Education](#)[Policy](#)[Communication](#)

1

## Explore government positions

The U.S. Department of the Interior (which includes the Bureau of Land Management, National Park Service, United States Geological Survey, and additional bureaus) hosts a useful tool for finding federal government positions based on career level, work setting, and your strengths. [Search positions to get an idea of the types of jobs suited to your skills and preparation.](#)

Keep in mind that similar government positions can also be found in the divisions of natural resources, environmental protection, transportation, and education (just to name a few) in state, local, and tribal governments, as well as in national laboratories and local agencies.

2

## Learn about employers

Positions and work responsibilities differ between agencies and organizations. [Visit the career pages of various government employers](#) for a deeper look at available occupations, mission statements, and current initiatives. This list is by no means comprehensive, but provides examples of the types of places a geoscientist might work.

3

## Gain insight from government employees

Visit the [Ask an Expert](#) page to read Q&A format advice from geoscientists working in government roles. Contact these experts to learn more about their jobs and expand your network. [employers](#) to learn about geoscientists working in government roles.

4

## Prepare to apply

Visit the [Career Preparation](#) page to learn how to apply for government jobs, step-by-step, and how to navigate the federal job search.

5

## Search for jobs

View a [list of job boards](#) where geoscience jobs are commonly posted, plus advice for successful job searching with keywords. You can find federal government jobs on [USAJOBS](#), while most state, local, and tribal governments have their own job portals.

# Geoscience Jobs in Government

[Get Started](#)[Ask an Expert](#)[Explore Employers](#)[Career Preparation](#)[Overview](#)[Government](#)[Industry](#)[Non-profit](#)[Education](#)[Policy](#)[Communication](#)

**Crystal Tulley-Cordova**

Principal Hydrologist

*Navajo Nation Dept. of  
Water Resources*

[View Q&A](#)

**Gari Mayberry**

Natural Hazards Team  
Lead

*United States  
Geological Survey*

[View Q&A](#)

**Dena Smith-Nufio**

Program Director

*National Science  
Foundation*

[View Q&A](#)

**Bhavna Arora**

Research Scientist

*Lawrence Berkeley  
National Laboratory*

[View Q&A](#)

**Emily Osburne**

Research Scientist

*National Oceanic and  
Atmospheric  
Administration*

[View Q&A](#)

**Karen McLaughlin**

Principal Scientist

*Southern California  
Coastal Water  
Resource Project*

[View Q&A](#)

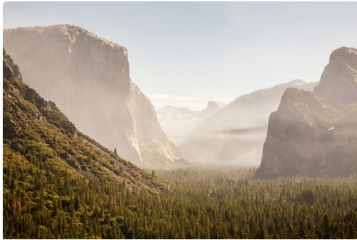
**Adam Ringler**

Physical Scientist

*United States  
Geological Survey*

[View Q&A](#)

# Geoscience Jobs in Government

[Get Started](#)[Ask an Expert](#)[Explore Employers](#)[Career Preparation](#)[Overview](#)[Government](#)[Industry](#)[Non-profit](#)[Education](#)[Policy](#)[Communication](#)

## People of Interior #WorkWithUs

A collection of videos featuring geoscientists working for bureaus within the US Department of the Interior (USGS, NPS, BLM).

[Watch videos >](#)

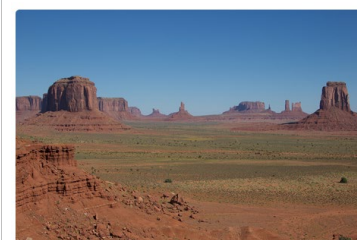
## Faces of the Forest Service

From soil scientist to legislative affairs specialist to avalanche forecaster, many Forest Service positions require transferable geoscience skills. Learn more about working for the Forest Service with these employee profiles.

[Read profiles >](#)

## NASA Science People

Learn about National Aeronautics and Space Agency (NASA) scientists studying the Earth and sharing science with the public.

[Read profiles >](#)

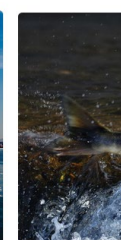
## Navajo Nation Department of Water Resources

The Navajo Nation Department of Water Resources is just one example of a tribal government organization employing geoscientists. Learn about the work of Dr. Crystal Tulley-Cordova, Principal Hydrologist.

[Listen to podcast >](#)

## EPA Researchers at Work

Meet researchers at the Environmental Protection Agency (EPA) working on management of water, waste, ecosystems, health, and more.

[Read profiles >](#)

## Columbia Commission

CRITFC is an example of a tribal agency working to restore natural resources and ecosystems with traditional ecological knowledge and modern science. Read about the work of Aja DeCoteau, CRITFC Watershed Department Manager.

[Read article >](#)



# Geoscience Jobs in Government

[Get Started](#)[Ask an Expert](#)[Explore Employers](#)[Career Preparation](#)[Overview](#)[Government](#)[Industry](#)[Non-profit](#)[Education](#)[Policy](#)[Communication](#)

## Federal Government

If you are interested in working in the federal government, learning how to navigate the job search is important. Start with the basics of searching the federal hiring website ([USAjobs.gov](https://www.usajobs.gov)) and applying with this [IRIS tutorial](#). Also read the Union of Concerned Scientists' guide to [Becoming a Federal Scientist](#).

Next, check out the federal [Pathways Program](#), which offers opportunities for students and recent graduates to get their foot in the door with paid internships and early career employment. Visit the resources below to learn more about programs that can help you find a career in the federal government.



AGU ADVANCING EARTH AND SPACE SCIENCE

Webinar: Navigating the Federal Job ...

Poll #1: How far have you gotten in the federal hiring process?

- I have never applied to the U.S. government
- I am in the middle of an application
- I received a phone interview
- I have done an in-person interview
- I work, or have worked, for the U.S. government (employee or contractor)

Watch on YouTube

*Navigating the Federal Job Search Process, AGU Webinar*

# Geoscience Jobs in Government

[Get Started](#)[Ask an Expert](#)[Explore Employers](#)[Career Preparation](#)

## Pathways Program

A federal program for students and recent graduates to get started on career paths in government.



## GeoCorps™ America

A partnership between GSA and federal employers to provide paid geoscience experiences on public lands.



## NOAA Internships

Internships in research, resource management, and policy at NOAA facilities and offices.



## Scientists in Parks

A National Park Service work experience program, providing a potential pathway to federal employment.



## Mosaics in Science

A National Park Service internship program for underrepresented youth to build skills for a federal job.

[Overview](#)[Government](#)[Industry](#)[Non-profit](#)[Education](#)[Policy](#)[Communication](#)

## Ready to apply?

Check out the [American Association of Petroleum Geologists Career Learning Center](#) and [Incorporated Research Institutions for Seismology Career Resources](#) for advice on writing job applications and preparing for interviews.

For more resources, check out your university's career center or library. Most universities have published guides for resume/CV writing, interviewing, negotiating, and more. You can also look online for contacts in your campus career center or reach out to mentors for support with your applications.

## Supporting your students with GROW

- I. Visit **grow-geocareers.com/forgeodepartments** and review resources for supporting student success and retention in the geosciences
- II. Share the website with students and help them navigate to useful sections depending on their career development stage.
- III. If you have resources to add, please share those! We will also continue to update Ask an Expert and Advice from Recent Grads.



# Thank you!

[grow-geocareers.com](https://grow-geocareers.com)



*Contact: Madison Wood, [mamwood@ucsc.edu](mailto:mamwood@ucsc.edu)*

