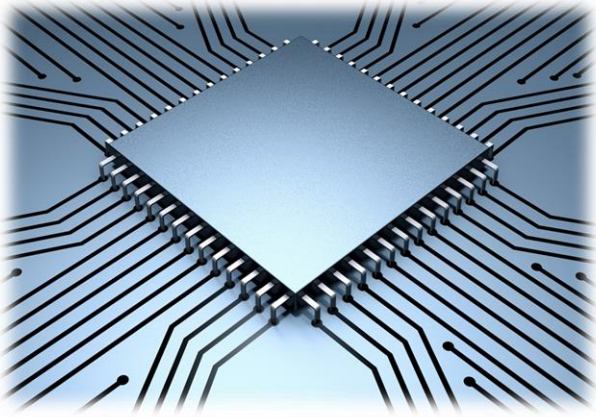# Shaping tomorrow's geoscientists: Navigating workforce trends and empowering student transitions

Leila Gonzales and Christopher Keane

American Geosciences Institute

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BLS Employment Projections & Drivers


- **AI & Automation**
  - Changing the entire occupational landscape
  - Replacement of jobs: missing labor, automatable
  - Increased productivity and efficiency
 - Job growth: application of AI & expert knowledge to complex problems

- **Climate change & sustainability**
  - Job growth for adaptation, mitigation, preparedness
  - More data, more complexity = need for AI technologies

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Stumbling blocks vs. building blocks
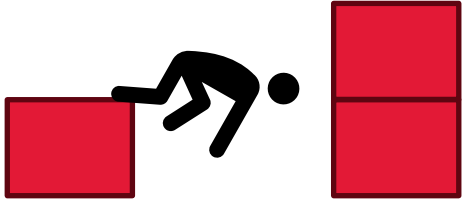
- "I tried ChatGPT and it's useless."
- "It's just a fad and hallucinates."
- "It's for someone else to figure out."
- "I don't know where to start."
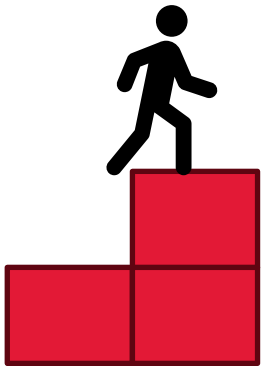
- "How do I use this tool to focus on the harder questions?"
- "What are some other ways to look at this topic?"
- "How do I integrate a constellation of automated processes to handle dynamic scenarios?"

How do geoscientists think about hazards?
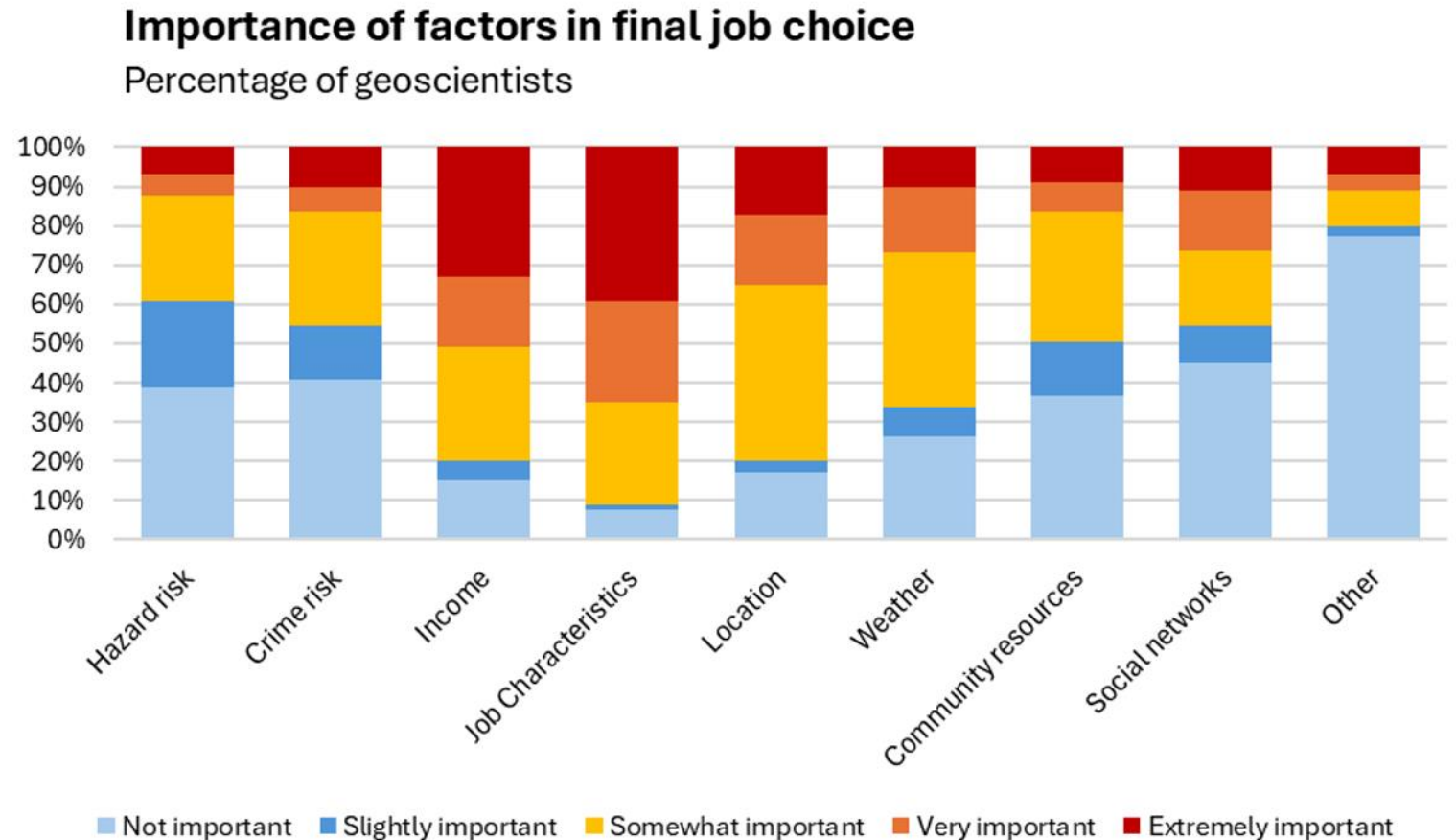
- Hazards as inspiration and a means to help others

But of concern…

- No integration of hazard risk assessment into personal life
- Poor ability to assess actual risk for job locations
- Low prevalence of direct experience

Impact Severity vs. Concern Level

Geoscientists
Final Job Choice: Perceived Risk by Actual Risk for Job Location
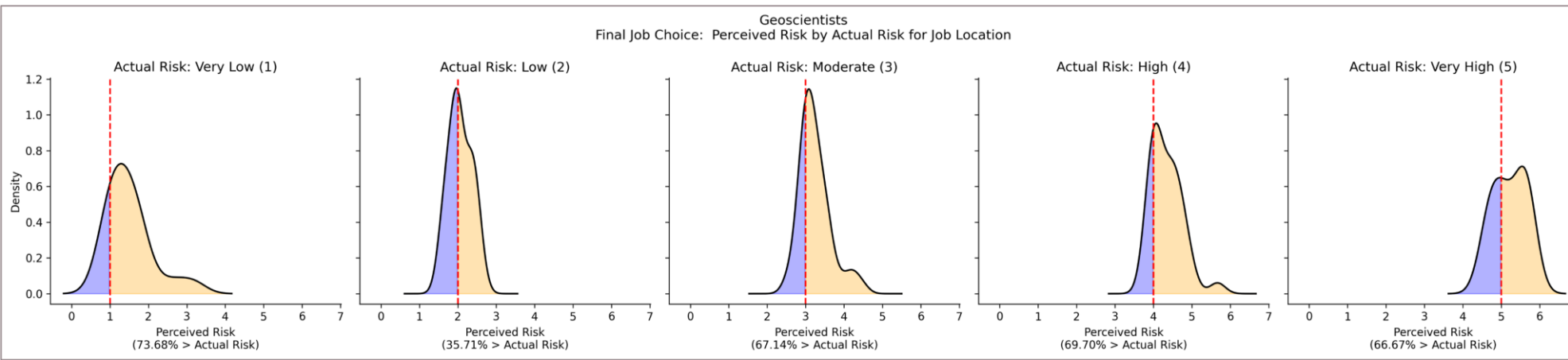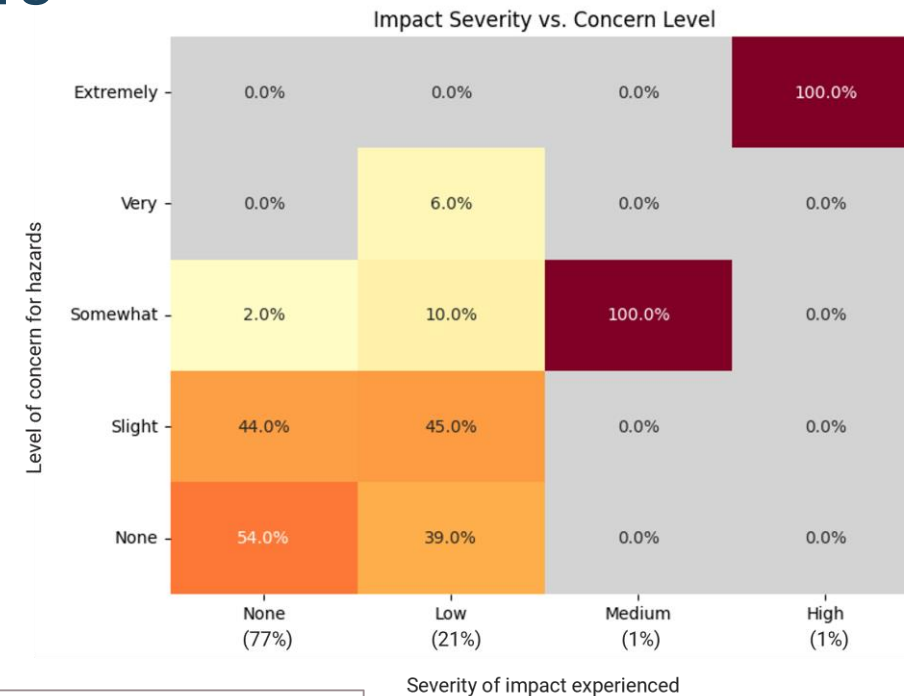
What is important in choosing a job?

- Money to spend
- Interesting jobs
- Appealing locations… high hazard risk

Importance of factors in final job choice
Percentage of geoscientists

Legend: Not important · Slightly important · Somewhat important · Very important · Extremely important

Categories: Hazard risk, Crime risk, Income, Job Characteristics, Location, Weather, Community resources, Social networks, Other

What are interesting jobs?

- Application of scientific expertise and cutting-edge technologies
- Advancing knowledge and developing new solutions through research & innovation
- Leadership roles with high levels of responsibility and influence
- Contribution to environmental conservation and sustainability efforts
- Collaborative teamwork across disciplines and sectors
- Involvement in teaching, mentoring, and raising public awareness
- Projects with meaningful outcomes for society

A whirlwind of questions....

- Where are we integrating AI technologies into curriculum, student projects, internships, REUs?

- How are we fostering leadership skills and higher levels of responsibilities?

- What are the technical skills we are equipping our graduates with?

- Where are we being innovative with respect to sustainability and climate change impacts?

- What types of collaborative opportunities are we forging in our research and for our students? Private sector, public sector, local communities, etc.?

- How do we start integrating natural hazard risk into our personal lives?

Discussion

- What are we collectively doing to prepare the next generation for an AI-future?

- If society is recognizing the impacts of climate change, what does that mean for the next generation and their education?