

Ethics in Mapping: Inclusion

AutoCarto 2022

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International Cartographic Association
Association Cartographique Internationale



GIS & Mapping Technologies: Visibility

- “With Esri location technology, you can see relationships, patterns, connections...”
- *You can **see what others can't.***



SEE
WHAT
OTHERS
CAN'T



rankings, Salary ...

Geographers: What Are They?
liveabout.comGeographer – Career In STEM@
careerinstem.comGeographers : Occupational Outlook ...
bls.govGeographer – WeUseMath.org
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What does a geographer look like?





geologist ...



Smithsonian geologist digs up clues to ...
washingtonpost.com



10 Reasons to Become a Geologist
geologyin.com



How to Become a Geologist ...
environmentalscience.org



Geology Careers: Degree Requirements ...
research.com



GEOLOGISTS DAY - April 2, 2023 ...
nationaltoday.com



What do Geologists Do ...
whitematerial-lefilm.com



How to Become a Geologist
becomeopedia.com



How to become a Geologist - Salary ...
seek.com.au



Exploration Geologist - ...
geology.com



Why Study Geology | Geology at Illinois
geology.illinois.edu



Geologist, Kilauea 2018 Stock Phot...
alamy.com



Campus Citizen Eldridge Moores Dies ...
ucdavis.edu



Wellsite Geology
explorer.aapg.org



Why Study Geology | Geology at Illinois
geology.illinois.edu



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news.fullerton.edu



Geology (U.S. National Park Service)
nps.gov



Geologist - Wikipedia
en.wikipedia.org



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youtube.com



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What does a geologist look like?

Related searches

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Cartography - Wikipedia
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Career Guide: Cartographer
utmconsultants.com



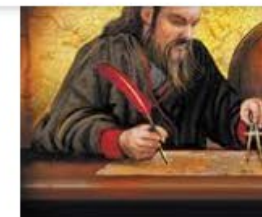
Cartographer - Career Rankings, Salary ...
money.usnews.com



North America - Atlas Obscura
atlasobscura.com



Cartographer Jobs - Description, Salary ...
careerthoughts.com



Cartographer - Dominion Strategy
wiki.dominionstrategy.com



Cartography Jobs Info
careerlancer.net



What does a cartographer ...
careereexplorer.com



What Does a Cartographer Do? - WorldAtlas
worldatlas.com



How to start a career in cartography ...
clearmapping.co.uk



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reddit.com



Cartographer | Scribble ...
scribblenauts.fandom.com



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dreamstime.com



Giulio Pignatti, Portrait ...
brunfineart.com



Cartographers (board game) - Wikipedia
en.wikipedia.org



How a Cartographer Drew North America
facebook.com

What does a Cartographer look like?





WOMEN IN MATH

FOR ALL WOMEN WHO LOVE MATH

SURVEY OF TOPICS

2/21/18 • 5:30PM

Room 111 TMCB

COME LEARN ABOUT RESEARCH DONE IN DATA
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There is a gross underrepresentation of African Americans in the Geo-science fields

- There has been **little or no significant** progress towards increasing diversity in the Earth Sciences over the past 40+ years of effort
- ***How can we become more inclusive:***
 - Inclusion of the mapped
 - Inclusion of Historically Black Colleges & Universities (HBCU)s
 - Inclusion of diverse voices & perspectives

~2005: The Human era of GIS began

- We began by exploring a ***continuous, multiscale*** image map of the world provided online by Google, Microsoft, and other companies.
- A combination of satellite and aerial photography, these pictures of Earth helped us experience the power of imagery
- **People immediately zoomed in on their own neighborhoods and saw locational contexts for where they reside in the world.**
- This emerging capability **allowed us to see our local communities and neighborhoods** through a marvelous new microscope.



Inclusion of the mapped

We must engage with the communities we are investigating

GIS Code of Ethics | URISA **Code of Ethics**

- Be aware of consequences, good and bad.
- Make data and findings widely available.
- **Strive for broad citizen involvement in problem definition, data identification, analysis, and decision-making.**
- Donate services to the **community**.

[Ethics in Mapping \(esri.com\)](http://esri.com)

[Locus Charter | EthicalGEO](#)

- A lot of focus on the Mapper and Map user but -- not for the **mapped**.
Except in terms of their protection of sensitive content/identity.

Participatory mapping

[9 Ethical Considerations in Participatory Digital Mapping with Communities - ICTworks 2013](#)

Showcasing innovation:

Is digital mapping really about communities, or are we really just using communities as a backdrop to showcase our own innovation and coolness or that of our donors?

External agents should be supporting communities **to articulate and to be full partners in saying, doing, and knowing what they want to do with maps**. Digital mapping may not be better than hand drawn maps

What Are the Ethics of Participatory Digital Mapping - NYC “Technology Salon” 2013

- convened a forum around power dynamics, processes, and politics that change **once a community is mapped and online for the world to see**.

- Whose responsibility is it to **create base maps**? Who owns (or should **own**) the map data?
- Are digital maps useful **for rural, offline communities**? Is digital mapping better than **hand-drawn mapping**?

Inclusion of HBCUs

GEOPATHS: Expanding HBCU Pathways for Geo-science Education will deliver a strategic multidimensional solution to:

- impact K-12 teacher preparation **curricula** and professional development activities and
- improve **minority access** to the geo-sciences.

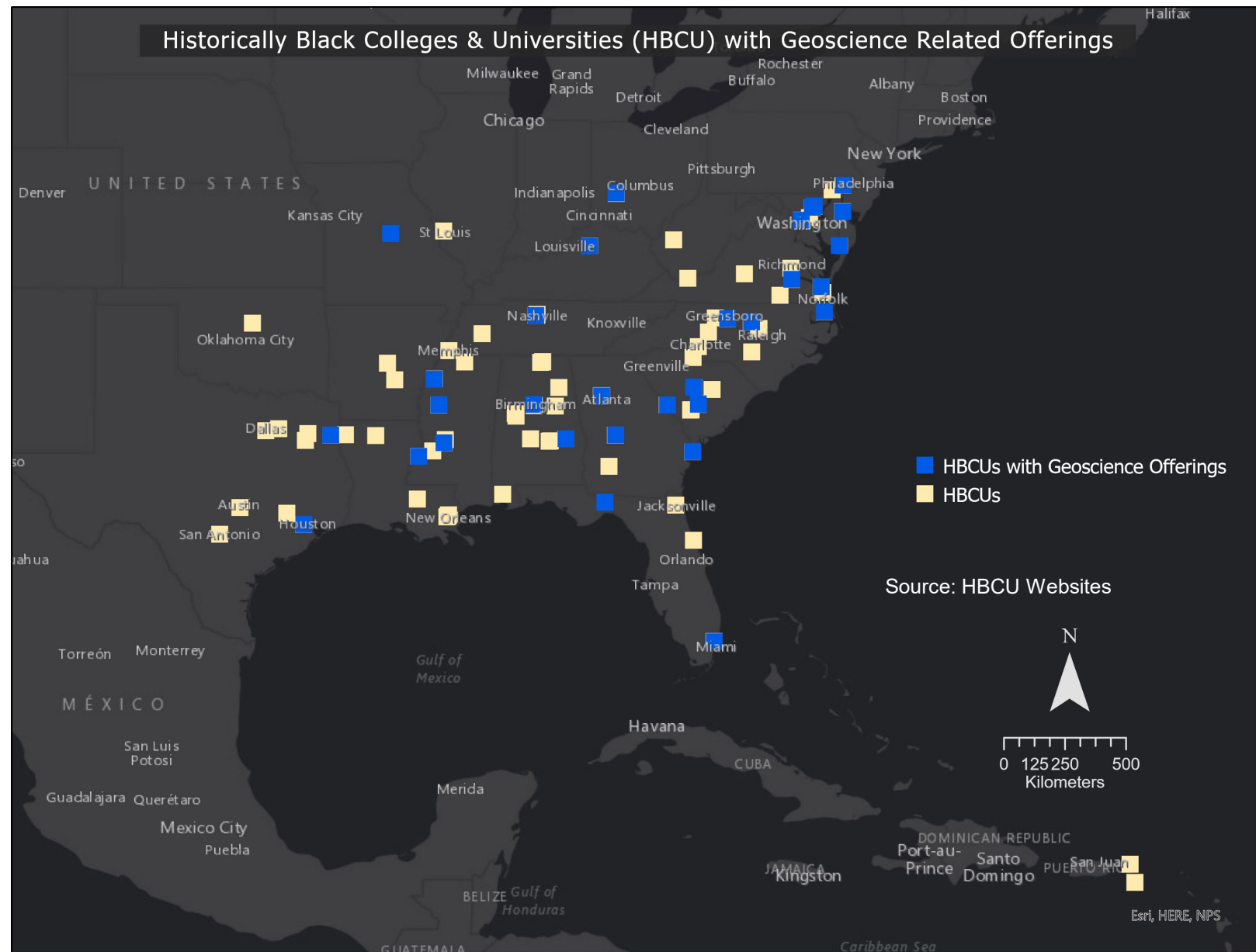


Historically Black Colleges and Universities (HBCUs) are uniquely positioned to broaden participation of Black students in STEM



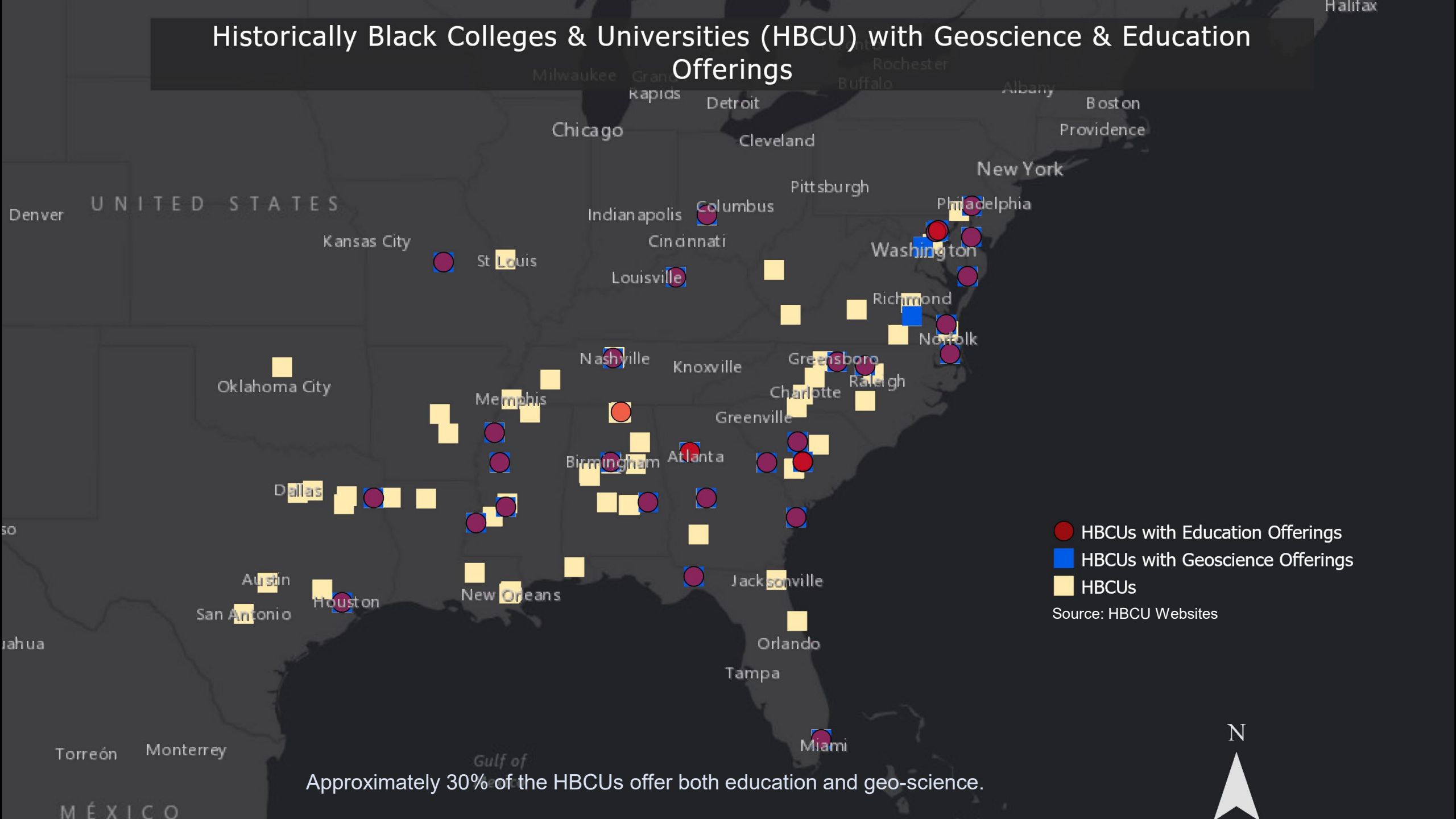
- Graduate ~23% of all African American students
- Educate ~50% of African American teachers
- Confer ~40% of engineering STEM degrees
- The geo-sciences represent the STEM area with the least black representation
- Less than 1% of undergraduate geo-science degrees are conferred nationally to African Americans
- Many STEM departments at HBCUs tend to relate more to environmental sciences broadly, rather than Geo-science or Earth science majors.
- Less connections between education programs and geo-sciences.
- Opportunities to introduce Geo-sciences to students from underrepresented and underserved communities by putting science in the hands of the teachers.

<40% of HBCUs offer Geo-sciences directly or through related disciplines and courses.



Map includes environmental, Earth sciences, physical geography, agricultural sciences, marine, climate, and many others.

Historically Black Colleges & Universities (HBCU) with Geoscience & Education Offerings



Geospatial mapping can be used as an inclusive approach for instruction at the K-12 schools

Teachers may perpetually be underprepared to teach geospatial information due to non-specialization of curricula of the geo-sciences in K-12 and teacher prep programs, resources, and support to bring this to realization.

- Not enough **time**, or focus, devoted to geo-science in K-12, more attention is given to math reading and biology.
- Curriculum in K-12 science education must begin to have more **focus** on the geo-sciences, with the big content areas in science curriculum having more concentration on biology, chemistry and physics.
- The “**perception**” of geoscientists has not changed much.
- **Increase representation** in social media, and other media, to market and promote GIS and related fields.
- Teachers must be allowed to be **creative, try something new**, get their hands dirty by doing science and creating experiments. This spills over to their students.
- Teachers need more **training**, and **awareness** of the geo-sciences.

The issues must be addressed in order to mitigate the effects of children being unaware and non-participatory in the geo-sciences.

Inclusion of diverse perspectives & voices

Geo-scientists help protect the planet by studying it, learning from it, and predicting what the future will bring.

- We perform environmental assessments and study global environmental systems.
- We locate water, mineral, and energy resources.
- We predict potential disasters and model the consequences.
- And we offer advice on major development projects. As a geo-scientist, you can make a huge impact on the world around you.
- Consider...how YOU can be more inclusive in mapping
- More importantly, **WHY** should you?

Build a community of practice to improve representation in our communities

Our GEOPATHS team emerged from the Historically Black Colleges and Universities Geo-sciences Working Group (**HBCU GWG**), which formed to create network of people at HBCUs and allies who have, or may be developing, Geo-science programming.

Encourage and improve participation in the GIS & location intelligence fields

- Include cohorts of students
- Include inter-, cross-, multi- disciplinary, culturally relevant ideas.
- Include culture, experiences, wisdom into problem solving and exploring societal impacts.
- Include communities

This will enable and empower us to see what we can't see now...more relationships, patterns, & connections



Inclusive mapping

Reimagine how you will apply your science

Don't operate in silos – collaborate, connect

Build trust networks – i.e. HBCU GWG

Strengthen Mentee/Mentor relationships

Build on common experiences, contribute your expertise

Communicate the science

include opportunities outside of conferences or academic circles

Upskill – take advantage of professional development opportunities

Participate in community building opportunities

i.e. Thriving Earth Exchange, bridge programs, research experiences

Be present and engage!

“Don't attempt to do for us... without us” Congressman Troy Carter of Louisiana

Tennessee State University

Graduate Certificate in Applied GIS

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Excellence
is our Habit!



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