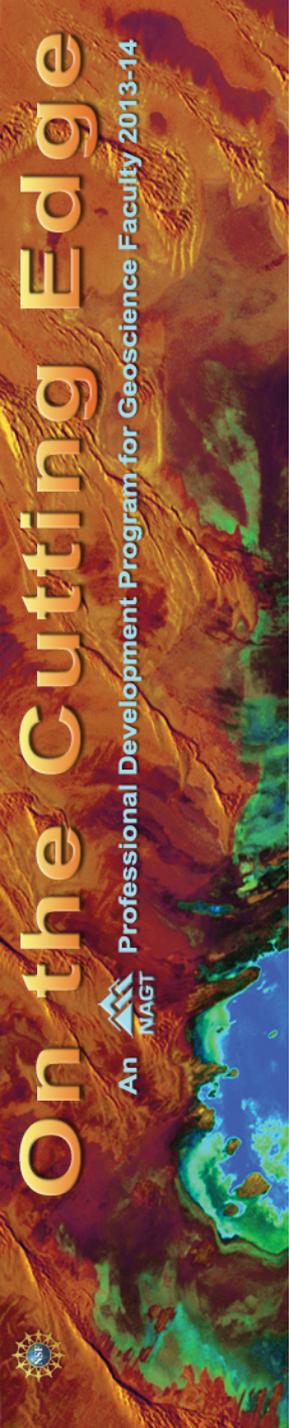


# **Inclusive Science: Strategies to Broaden Participation**

Preparing for Academic Careers in the  
Geosciences Workshop 2013

*Rosemary Capo University of Pittsburgh*



# Why?

## *Inclusion*

- Diverse viewpoints lead to better questions and solutions
- The problems the planet is facing requires broader participation
- Geoscience is lagging behind...

# What about geosciences?

- ❖ In 2008: >85,000 URM received bachelors degrees in STEM fields

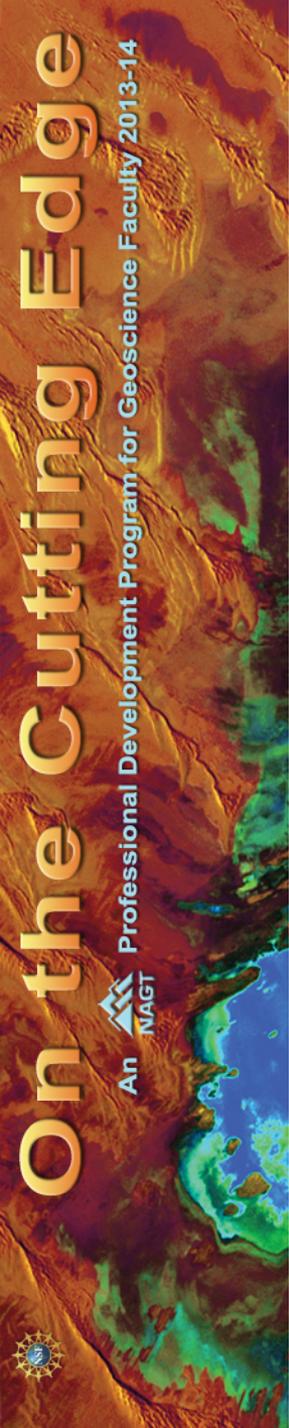
## ***Geosciences:***

- 192 Hispanic
- 89 Black
- 28 American Indian/Native American

- ❖ Between 2000-2008, URM earned 16-17% of STEM degrees

## ***Geosciences: 5-7%***

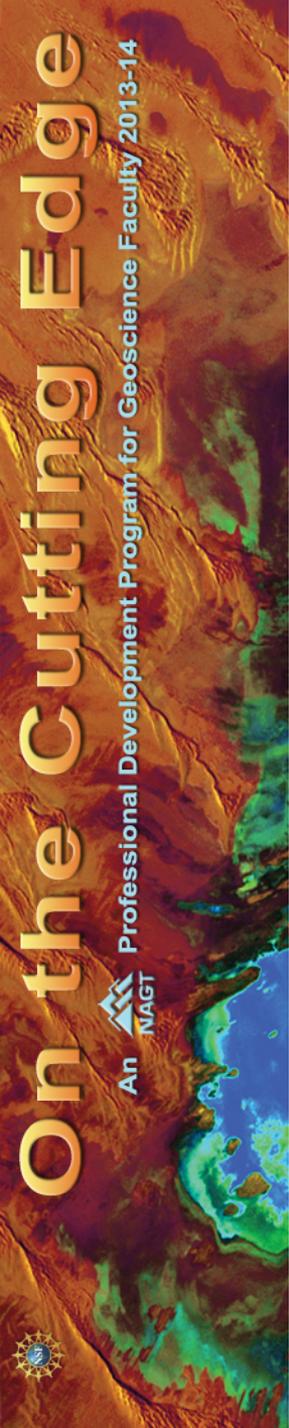
O'Connell, S. and Holmes, M. (2011) Obstacles to the recruitment of minorities into the geosciences: a call to action. *GSA Today*, 21: 52-54



# Barriers to a building a diverse pool of geoscientists

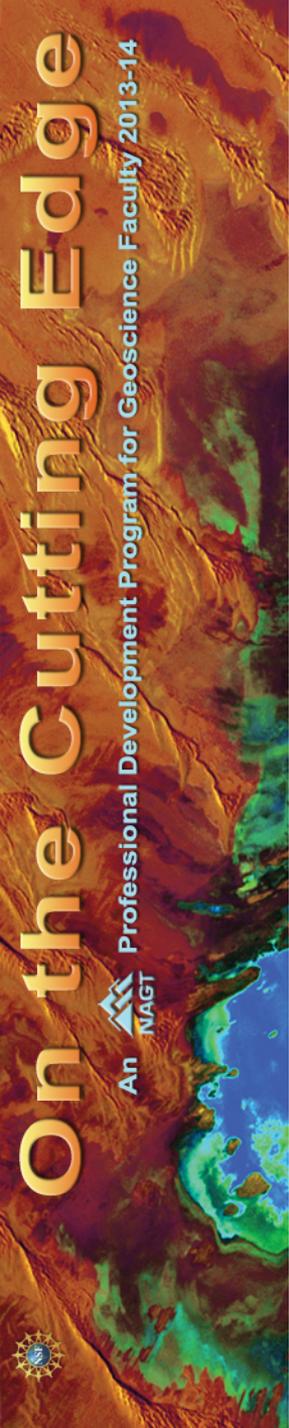
- Recruitment
- Retention
- Preparation for the next phase

*Adapted from Connecting to underserved communities; mentoring the next generation (STEM)*



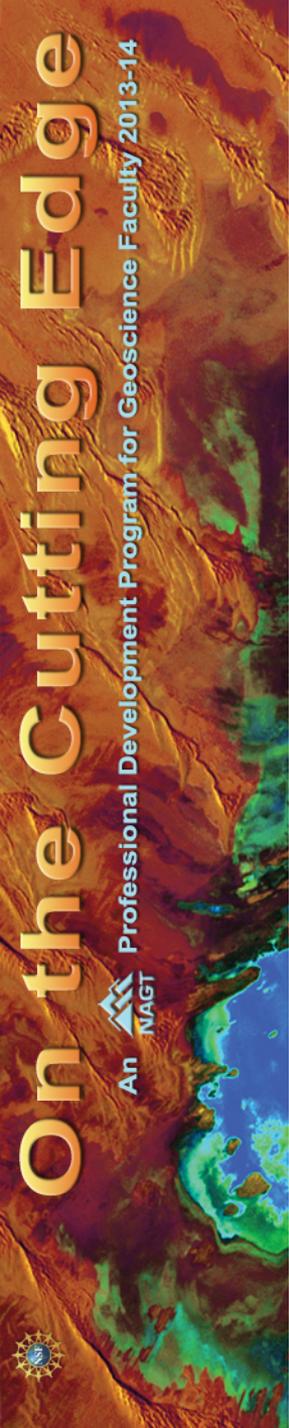
# Barriers to a building a diverse pool of geoscientists

- **Recruitment**
- **Retention**
- **Preparation for the next phase**



# Why is diversity hard to achieve in geosciences?

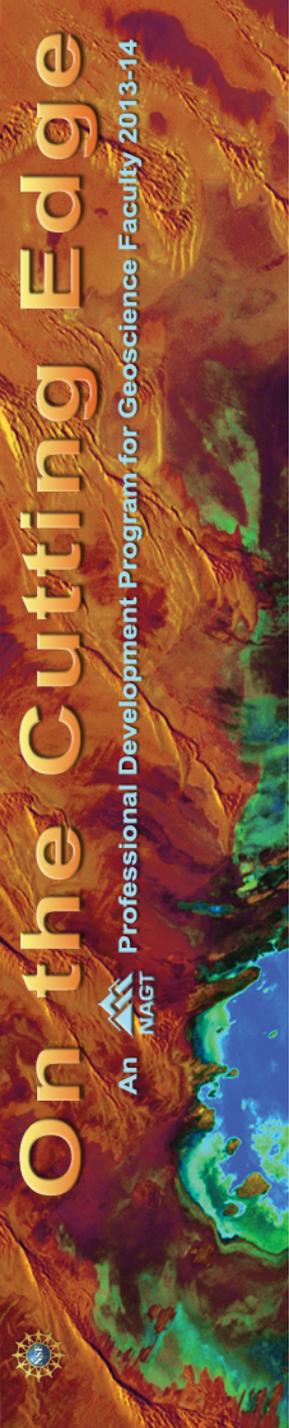
What about geoscience makes it hard to attract and advance students from historically underrepresented groups?



# Attractors to current geoscience majors

- Positive undergraduate experience
- Love of the outdoors
- Family influences

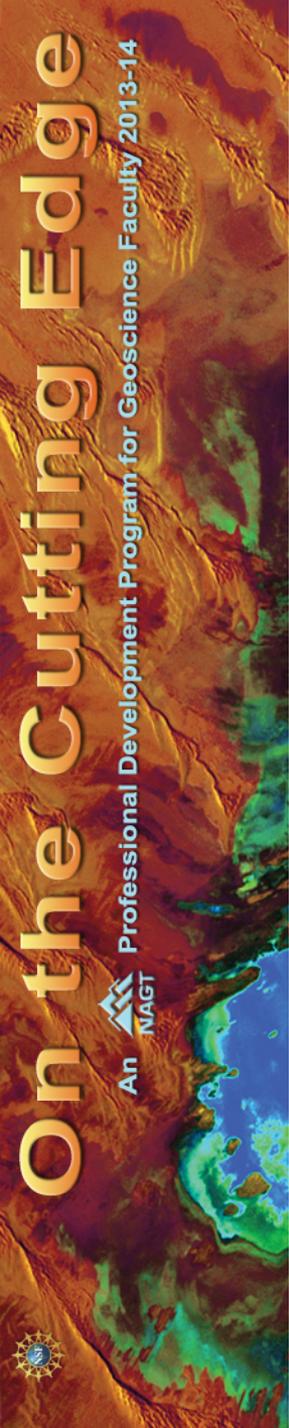
O'Connell, S. and Holmes, M. (2011) Obstacles to the recruitment of minorities into the geosciences: a call to action. *GSA Today*, 21: 52-54



# Recommendations to attract URM

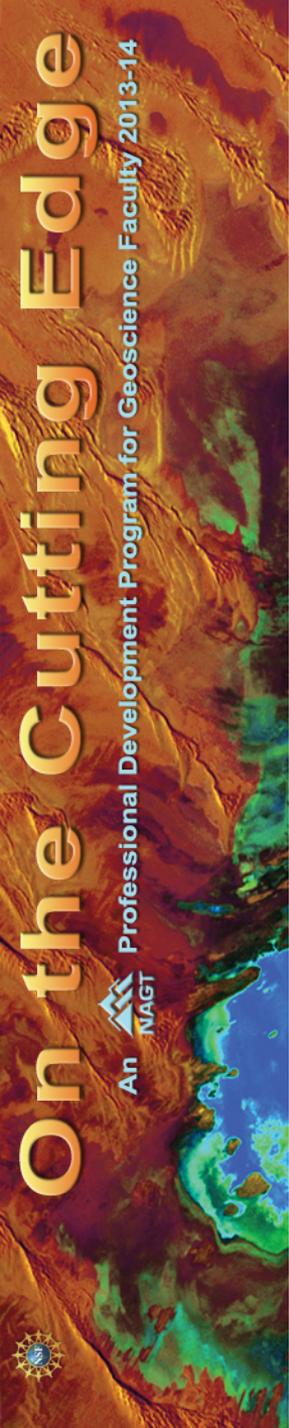
## Positive undergraduate experience

- Extend yourself via teaching, undergraduate research experience, outreach



# Positive undergraduate experience

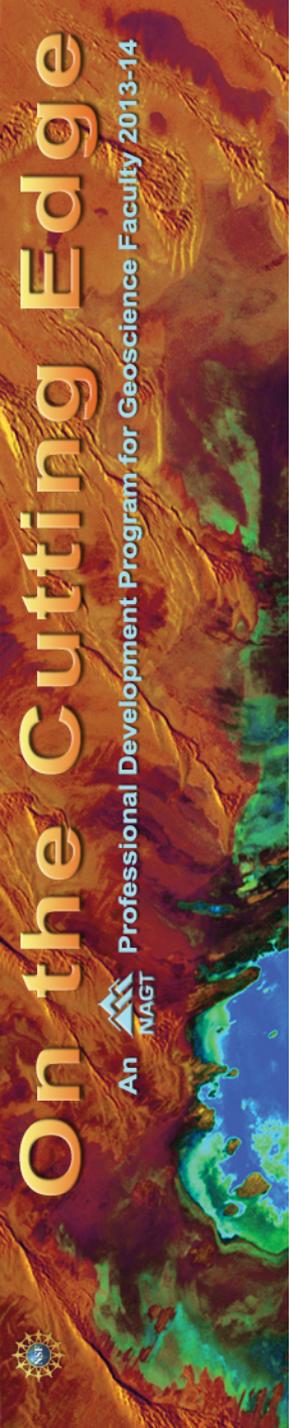
- ❖ Introductory science courses that inspire and engage
  - ❖ A picture can speak volumes
  - ❖ Emphasize career paths
  - ❖ Show labs and indoor settings as well as outdoors
- ❖ Undergraduate research experience
  - ❖ Work study
  - ❖ Let students know about scholarships
  - ❖ Sponsor directed research projects



# Outreach: Help fill the pipeline

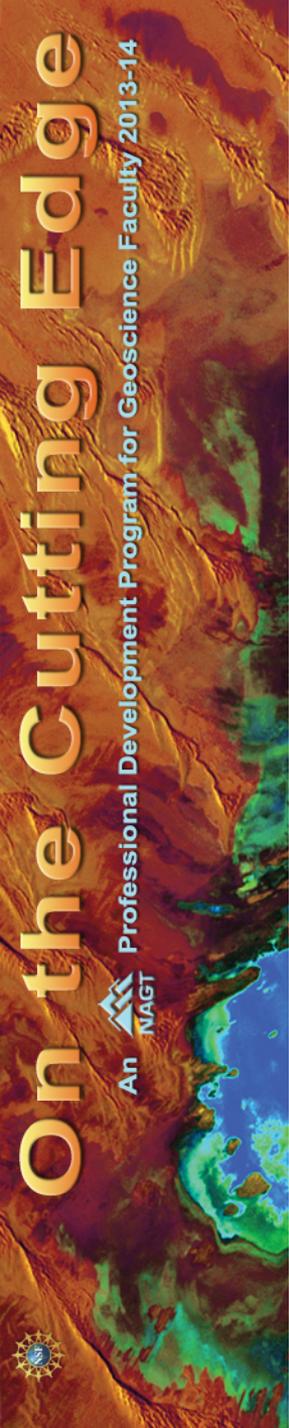
- ❖ Partner with local schools or institutions serving underrepresented communities

This can be part of your Broader Impacts section of NSF proposals



# Recommendations to attract URM: Go beyond the great outdoors

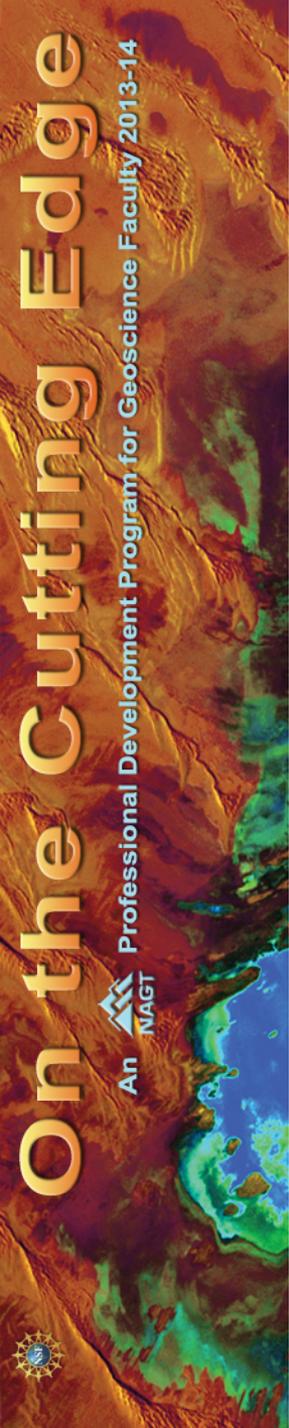
- Provide information about geoscience careers in your lectures, websites
- Show that geoscience offers a wide variety of opportunities
- Include images of the tools of geoscientists: labs, instruments, computers



# Recommendations to attract URM:

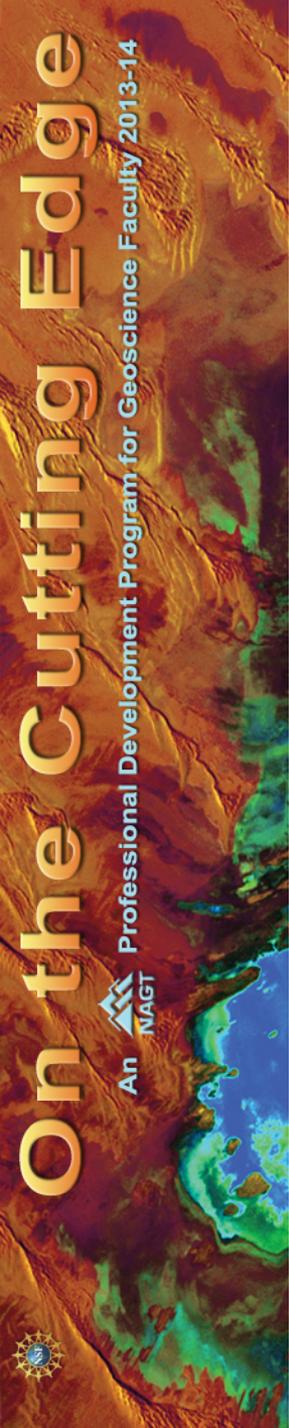
## Family influences

- Understand the negative perception many have regarding geoscience
  - Can be considered low prestige compared to other STEM fields
  - Top students can be “tracked out” of geoscience
- Provide positive career information on websites and in class that students can share with family
- Share your enthusiasm for your field



# Barriers to a building a diverse pool of geoscientists

- Recruitment
- **Retention**
- Preparation for the next phase

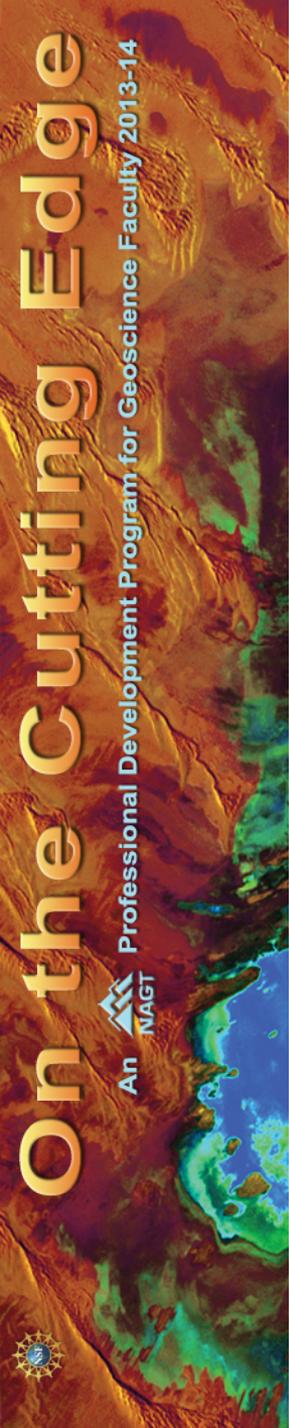


# Retention: Beyond the pedagogy

Be sensitive and responsive to the needs of underrepresented students

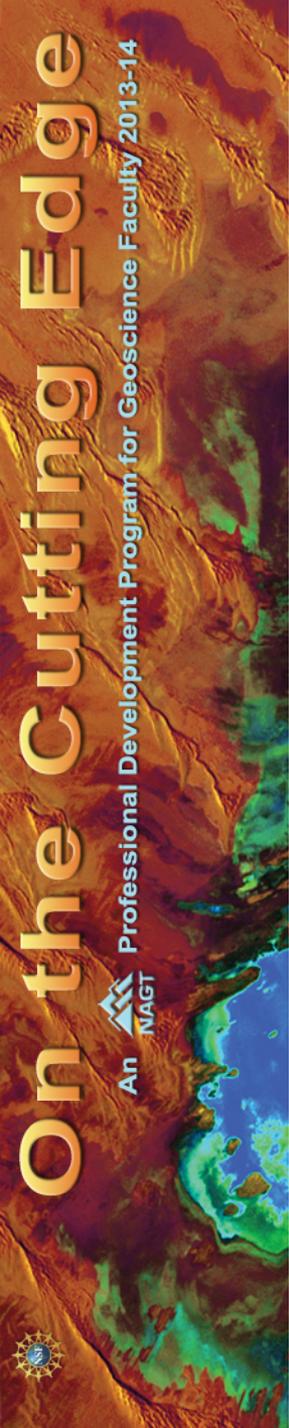
- ❖ *Never forget that you can have a major impact on a student's future*
- ❖ *Inspire motivation*
- ❖ *Let students know it's ok to stumble –and that you did too*
- ❖ *Recognize the “imposter syndrome”*

The fact you chose this workshop is proof that you're the kind of people that can make a positive difference!



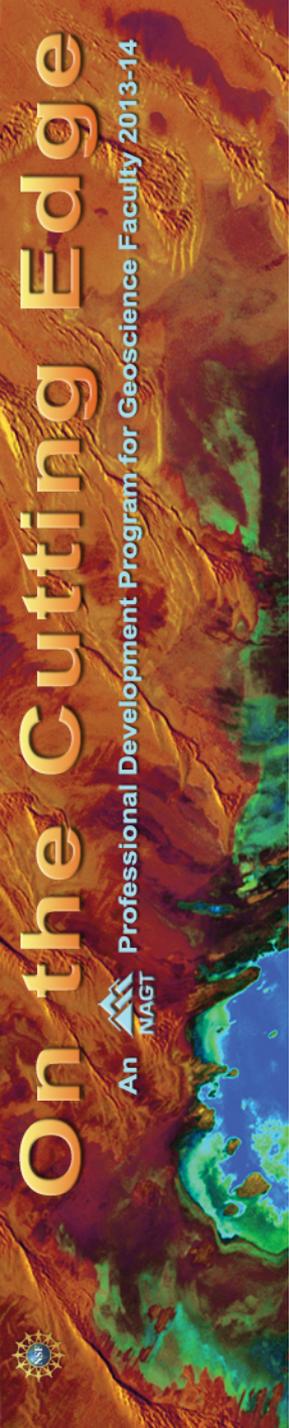
# Barriers to a building a diverse pool of geoscientists

- Recruitment
- Retention
- **Preparation for the next phase**



# Help students move on to graduate school or a job

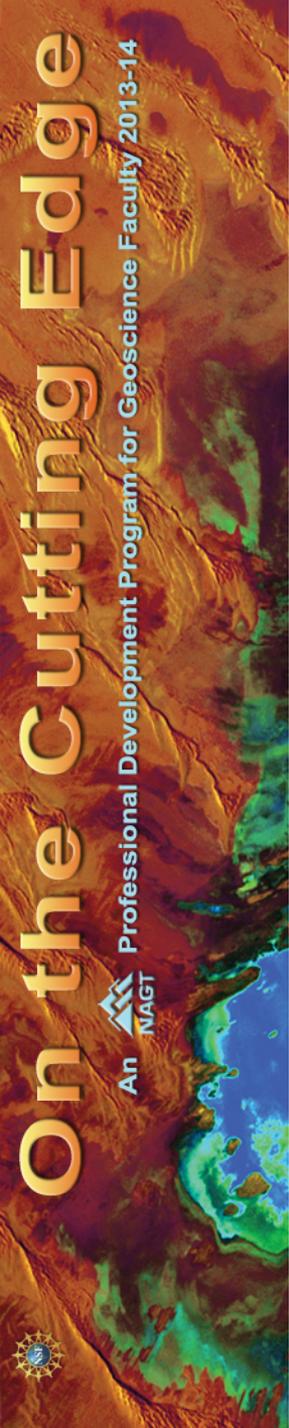
- Provide information about career tracks and what it takes to get there
- Encourage talented students – don't assume they know they're good enough
- Advise students about courses and research activities that will help them succeed in graduate school
- Don't assume they know about available resources
- Be accessible



# Be a mentor

❖ *"Keep away from people who try to belittle your ambitions. Small people always do that, but the really great make you feel that you, too, can become great."*

-- Mark Twain



# Handout

O'Connell, S. and Holmes, M. (2011) Obstacles to the recruitment of minorities into the geosciences: a call to action. *GSA Today*, **21**: 52-54