



# Day 1- Agenda

- Introductions (Ramon, Nathan and then you all)
- Going over the syllabus and expectations.
- Discussion and topics and course expectations
- Assignment of topics (dates will be flexible)
- Discussion of Career Goals
- Discussion of Interdisciplinarity

# Instructor: Nathan A. Toke

(my background)



## Education:

B.S. Geology – University of Vermont 2003

M.S. Geological Sciences – Arizona State University 2005

Ph.D. Candidate Geological Sciences - (IGERT-Urban Ecology Fellow) 2006-Present

Visiting Graduate Student, University of Granada, Spain (spring 2008)

## Research and Work Experience:

**Earthquake geology and Tectonic Geomorphology of the San Andreas Fault, CA.**

**Urban hydrology, ecology, and geomorphology in desert environments.**

Tectonic Geomorphology and geologic mapping of faults in Baja California.

*Urban hydrology related to soil compaction and remediation in Burlington, VT.*

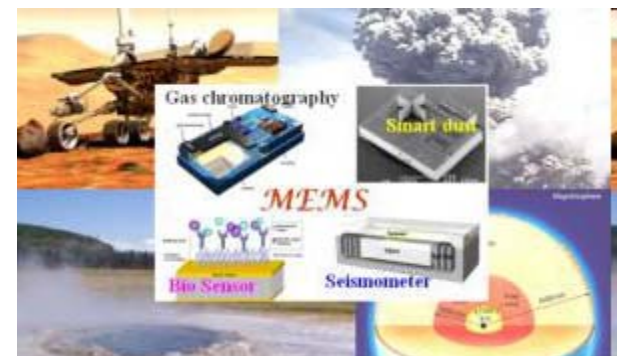
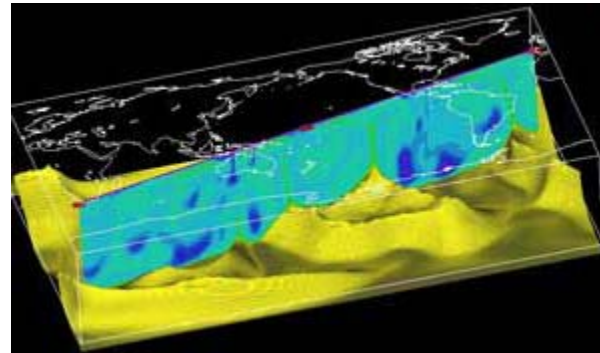
*Topographic analyses of landforms along the Alpine Fault, NZ.*

*Hydrology, Ecology, and Geology of the Little Chazy River, NY.*

*Paleoclimate study from pond cores in New England.*

**Teaching:** intro geology labs and class, field camp TA,  
Guest Lecturer at the University of Potsdam, Germany.

# School of Earth and Space Exploration (SESE)



<http://sese.asu.edu/focus-areas>



# Goals for this class

- We will gain perspective on the idea of interdisciplinarity and how it is manifest in the geosciences.
- We will read and discuss primary literature spanning a broad set interdisciplinary areas within the geosciences with the purpose of sparking interest for future research or career endeavors.
- We will meet with 4 professors from ASU that are conducting interdisciplinary research.
- We will meet with 4 professionals to discuss career opportunities.
- We will spend at least 2 classes working on professional development activities. Talking about the graduate school application process, creating CVs/resumes, and job applications.

<http://activetectonics.asu.edu/teaching/GLG494-ICOG/schedule.html>



# Assignments and Grading

- **Attend class**, do readings, **share your thoughts** and opinions: (50% of grade).
- **Co-lead one class** (work with instructor and partner to chose readings, prepare discussion questions, and facilitate the discussion). (20% of grade)
- **2 reflective papers** (journals basically) of 2-3 pages each. Topics to be assigned. (20% of grade; 10% each).
- Creation or editing of a **CV** or extended resume (10%).

<http://activetectonics.asu.edu/teaching/GLG494-ICOG/syllabus.html>

# We need to pick 6 topics (vote for 3) Geoscience and....

Topic

Votes

- Policy and Government
- Law
- Ecosystems
- Engineering/Planning
- Global Hazards response
- Human History
- Evolutionary Biology/paleontology
- Energy Resources
- Climate studies
- Education
  
- Human space exploration
- Planetary Science
- Sustainability
- Environmental Safety

# Geosciences Hazards/Policy/law/planning

California Geological Survey - Alquist-Priolo Earthquake Fault Zones - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.conservation.ca.gov/cgs/rghm/ap/Pages/Index.aspx

MyCheckFree.com Exercise following mec... Teach the Earth Geological Society of ... Hulu - A River Runs T... Thirty-Five-Year Cree... GSA Publications - Ge... Prote

California Geological Survey - Alq... Arizona State University - Calendar Geological Society of America - Graduate Student Research Grants  
http://www.geosociety.org/grants/gradgrants.htm

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**CA**.GOV State of California  
Department of Conservation

Home Earthquakes **Geologic Hazards** Mineral Resources Education Library Publications Maps

**CALIFORNIA GEOLOGICAL SURVEY**

- > Products of the Alquist-Priolo Program
- > Revised Official AP map, Released August 16, 2007.
- > Official Maps of New and Revised Earthquake Fault Maps, Released May 1, 2003.

[CGS](#) -> [Regional Geologic Hazards and Mapping Program](#) -> [AP](#)

## California Geological Survey - Alquist-Priolo Earthquake Fault Zones

The [Alquist-Priolo Earthquake Fault Zoning Act](#) was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. Surface rupture is the most easily avoided seismic hazard.

**What is the Alquist-Priolo Act?**



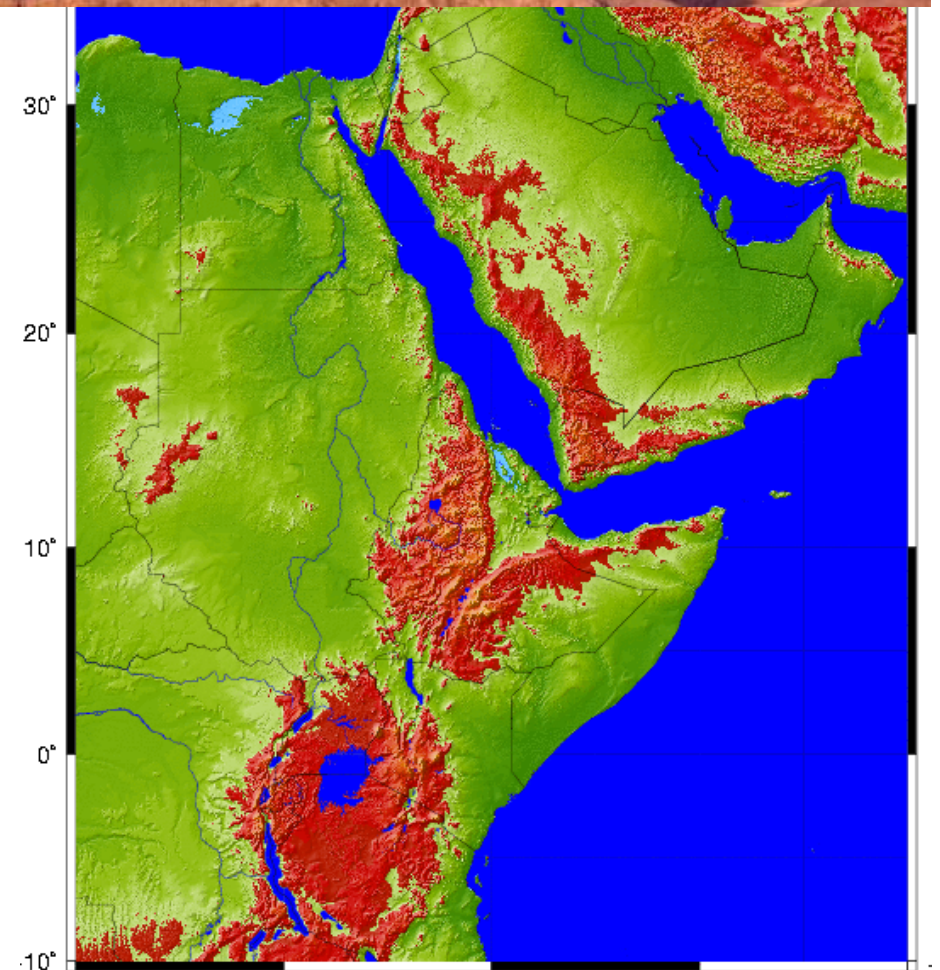


# Ecosystems and Engineering



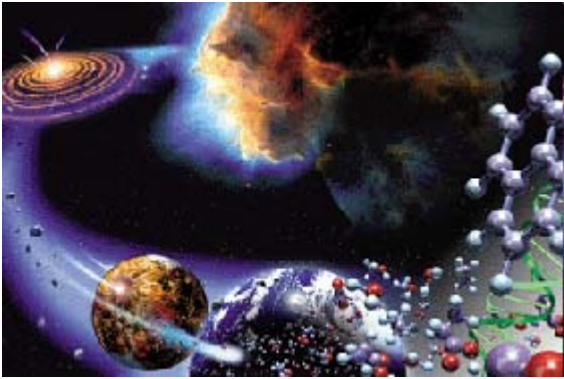


# Human History/geoarcheology



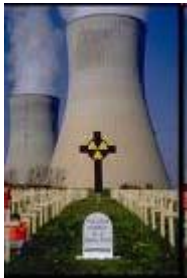


# Evolutionary Biology/Paleontology/astrobiology





# Energy and Resources





# Climate and Atmospheric Studies

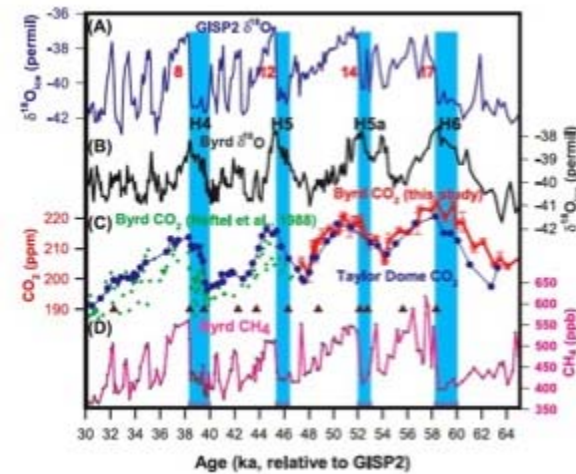
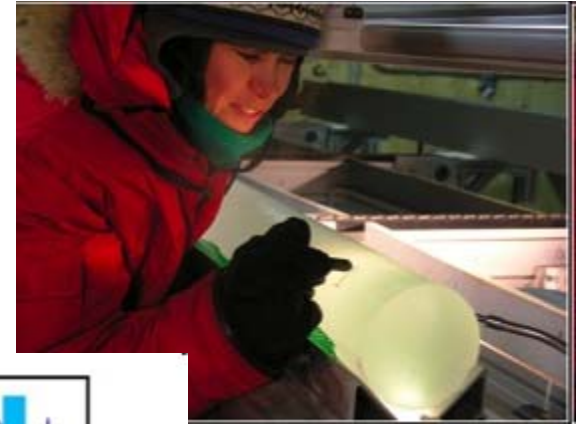
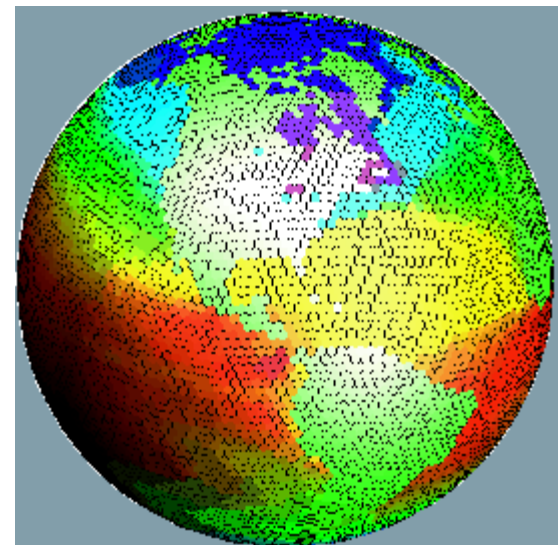


Image courtesy of NASA





# Education and Insights from Geosciences



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## Journal of Geoscience Education

Julie Libarkin and Joe Elkins - Editors

### Associate Editors

The Journal of Geoscience Education (JGE) is the premier peer-reviewed publication for geoscience education research at the undergraduate and pre-college levels. JGE is the publication of record for NAGT, and serves as the only international forum for the publication of research concerning the pedagogy, assessment, and philosophy of teaching and learning about the geosciences.

JGE is published five times per year in January, March, May, September and November. Each issue typically consists of between six and 10 research papers as well as recurring columns on topics such as educational research, mathematical geology, precollege education, and common geological misconceptions. JGE also frequently sponsors Special Issues on important emerging topics such as Teaching in the Field and Teaching Quantitative Skills.

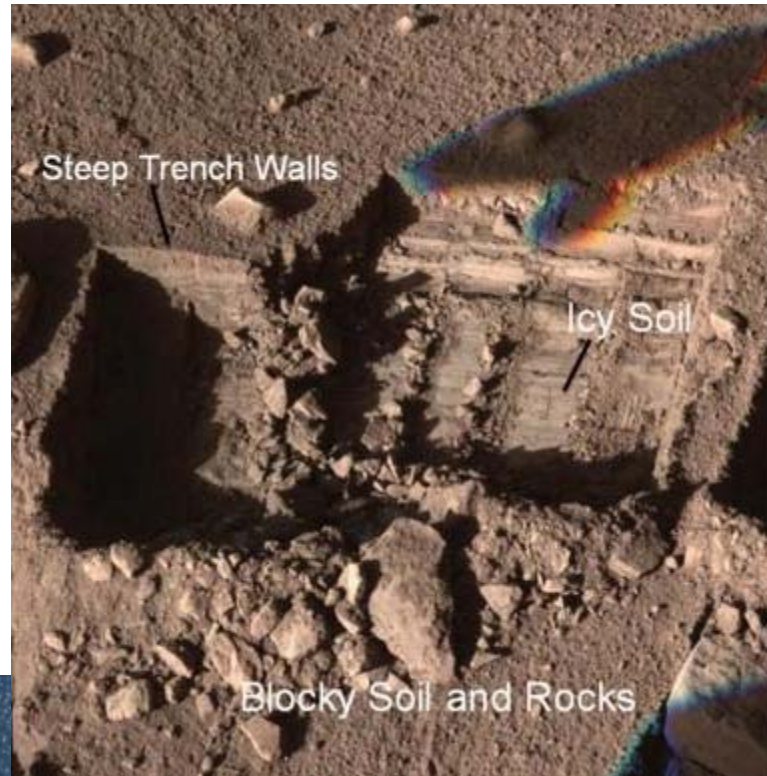
**\*\*JGE is moving to a new online submission and review system. The Co-Editors are asking all authors to hold submissions until after this system is available in early Feb. 2009. Please continue to watch this space for further updates.\*\*** -posted, Jan. 21, 2009

### JGE Online

JGE has a number of online services and products that educators and geoscientists can make use of. Reuse of these materials is covered under our [Terms of Use](#) policy.



# Space and Planetary Exploration



Sol 148 View

LaMancha Trench

Icy soil few cm  
beneath blocky soil





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- Education
  
- Human space exploration
- Planetary Science
- Sustainability
- Environmental Safety

# Topic Leaders

	Topic	Leaders	Date
1			Feb 5
2			Feb 12
3			Feb 19
4			Mar 19
5			Mar 26
6			April 2



# Potential Guests

## Academics:

Prof. Brad Allenby (Earth Systems Engineering)  
Prof. Nancy Grimm (Ecology)  
Prof. Steven Semken (Geoscience Education)  
Prof. Hillary Hartnett (Biogeochemistry)  
Prof. Ed Hackett (Science and Technology Studies)  
Prof. Christopher Boone (Urban Geography and Environmental Justice)  
Prof. Jon Fink (Urban sustainability, hazards)  
Prof. Jim Holway (Public Policy, Growth and Resource Use (water))

## Professionals:

Ted Lehman (Geomorphologist; JE Fuller and Associates)  
Dr. Peter Kroopnick (hydrologist Arcadis)  
Dr. Jeri Young, Mimi Diaz, or other from (AZGS)  
Paul Ivanich (Arizona Department of Water Resources)  
Flood Control District of Maricopa County  
City Planner  
Utilities (SRP, APS)  
Mining/Resources

# Career and Research Opportunities

Graduate School?

Industry?

- Energy, resources, environmental remediation, consulting, engineering,

Government?

- Planning, surveys, research, environmental monitoring, stewardship,

Education?

- Higher ed, K-12,



# Interdisciplinarity

- Definitions?
- How does it work?
- How have you experienced it in classes?
- Research?

# Things to define for next week's readings.

Disciplines

Multidisciplinary

Interdisciplinary

Transdisciplinary

Pandisciplinary

Epistemological

Ontology



# Assignments

- Readings posted on the website
- Answer discussion questions I post.
- Come up with one question of your own and share it next week!
- Finish survey?
- Check for any announcements
- Start thinking about finding papers for your leading day (especially the first group)