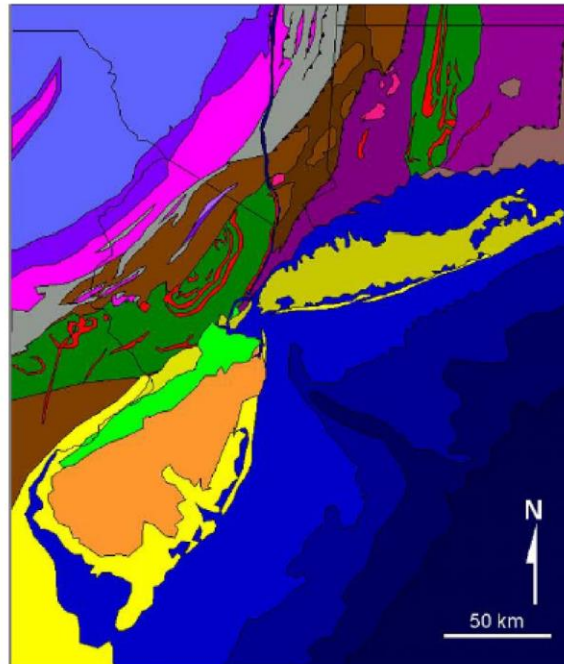


**88th ANNUAL
NEW YORK STATE GEOLOGICAL ASSOCIATION
FIELD CONFERENCE**

JOINT CONFERENCE WITH FRIENDS OF THE GRENVILLE

**“GEOLOGIC DIVERSITY IN THE
NEW YORK METROPOLITAN AREA”**



SEPTEMBER 30-OCTOBER 2, 2016

<http://www.nysga-online.net/>

Image courtesy of the U.S. Geological Survey

88th ANNUAL
NEW YORK STATE GEOLOGICAL ASSOCIATION
FIELD CONFERENCE
JOINT CONFERENCE WITH FRIENDS OF THE GRENVILLE

**“GEOLOGIC DIVERSITY IN THE
NEW YORK METROPOLITAN AREA”**

SEPTEMBER 30-OCTOBER 2, 2016

Hosts: Rutgers University-Newark & Hofstra University

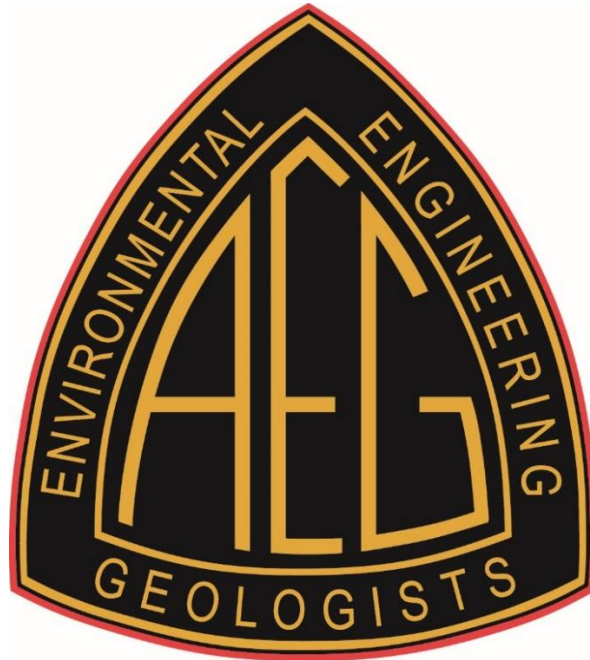
Organizers: Alexander E. Gates & J Bret Bennington

Field Volume Editor: Alexander E. Gates

<http://www.nysga-online.net/>

image courtesy of the U.S. Geological Survey

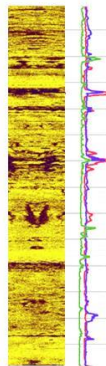
SPONSORS OF THE CONFERENCE



Have a Difficult Subsurface Issue at Your Site?

We can assist!

Expert Geological & Environmental Consulting Services:



- Geological Site Assessment
- Borehole Geophysical Logging to Assess Site Geology, Fractured Bedrock, DNAPL, & Other Complex Site Conditions
- ISRA, CERCLA, RCRA Remediation
- Peer Review & Technical Support for Consulting Industry Colleagues
- LSRP Services for Industrial and Commercial Clients



PRINCETON GEOSCIENCE, INC.
15 Vandeventer Ave. • Princeton, NJ 08542
tel: 609.279.0008 • fax: 609.252.9238
www.princetongeoscience.com



GEI 
Consultants

Consulting
Engineers and
Scientists

**Environmental
Ecological
Geotechnical/Geostructural
Water Resources**

www.geiconsultants.com

Ph.: 973.873.7110
300 Broadacres Dr., Ste. 100
Bloomfield, NJ 07003

FIELD TRIPS

<u>Trip Title</u>	<u>Page</u>
Friday, September 30	
<i>Tectonic evolution of the western Hudson Highlands basement, New York,</i>	
Jeff Chiarenzelli, David Valentino, Alexander Gates and Matthew Gorrington.....	6
Saturday, October 1	
<i>A-1 Cretaceous Fossil Localities in Central New Jersey,</i> J Bret Bennington.....	43
<i>A-2 Environmental Geology of the Hackensack Meadowlands Estuary, NJ,</i>	
Francisco Artigas, Joseph Grzyb and Michael Stepowij.....	63
<i>Electrical Environmental Geophysics in Northern New Jersey,</i> Dimitris Ntarlagiannis.....	75
<i>A-3 Crystalline Megaboudins Along the Leading Edge of the</i>	
<i>Taconic Thrust Sheet, Orange County, NY,</i> Alexander Gates.....	91
<i>A-4 *Petrogenesis and Tectonics of pre-, syn-, and post-Ottawan Granitoids</i>	
<i>of the western Hudson Highlands, NY,</i> Matthew Gorrington, Alexander Gates	
and David Valentino.....	112
<i>A-5 Stratigraphy, Structure and Tectonics of New York City as Viewed Through</i>	
<i>Its Parks and Engineering Projects,</i> Charles Merguerian and Mickey Merguerian.....	142
<i>A-6 New Insights on rift basin development, mass extinction, and carbon</i>	
<i>sequestration from outcrops, and new core, drill holes and seismic lines</i>	
<i>from the northern Newark Basin (New York and New Jersey),</i> Paul Olsen,	
Sean T. Kinney, Natalia V. Zakharova, Roy W. Schlische,	
Martha O. Withjack, Dennis V. Kent, David S. Goldberg and Brian E. Slater.....	190

Sunday, October 2

B-1 Geology of Staten Island, NY, Alan Benimoff.....276

B-2 Naturally occurring filtration systems sequestering metal contaminants

from historical tailing wastes at the Sterling Lake Smelter Complex,

Hudson Highlands, New York, Sivajini Gilchrist and Alexander Gates.....294

B-3 *Late Proterozoic Shear Zones in the Western Hudson Highlands, NY,

Michael Kalczynski and Alexander Gates.....305

B-4 Lower to Middle Devonian rocks of the Delaware Water Gap

National Recreation Area, New Jersey: fracture and lithologic control

on rock-shelters, karst and groundwater flow, Don Monteverde and Don Witte.....334

B-5 New Insights on rift basin development, mass extinction,

and carbon sequestration from outcrops, and new core, drill holes

and seismic lines from the northern Newark Basin (New York and New Jersey),

Paul Olsen et al. Continued.....190

B-6 Late- and Post- Igneous Mineralization of the Orange Mountain Basalt

and the co-Magmatic Lower Palisades Sill, John Puffer,

Karin A. Block, Chris Laskowich and Michael Dorsey.....418

* denotes joint NYSGA-FOG field trips