

# Hudson – Mohawk Professional Geologists Association

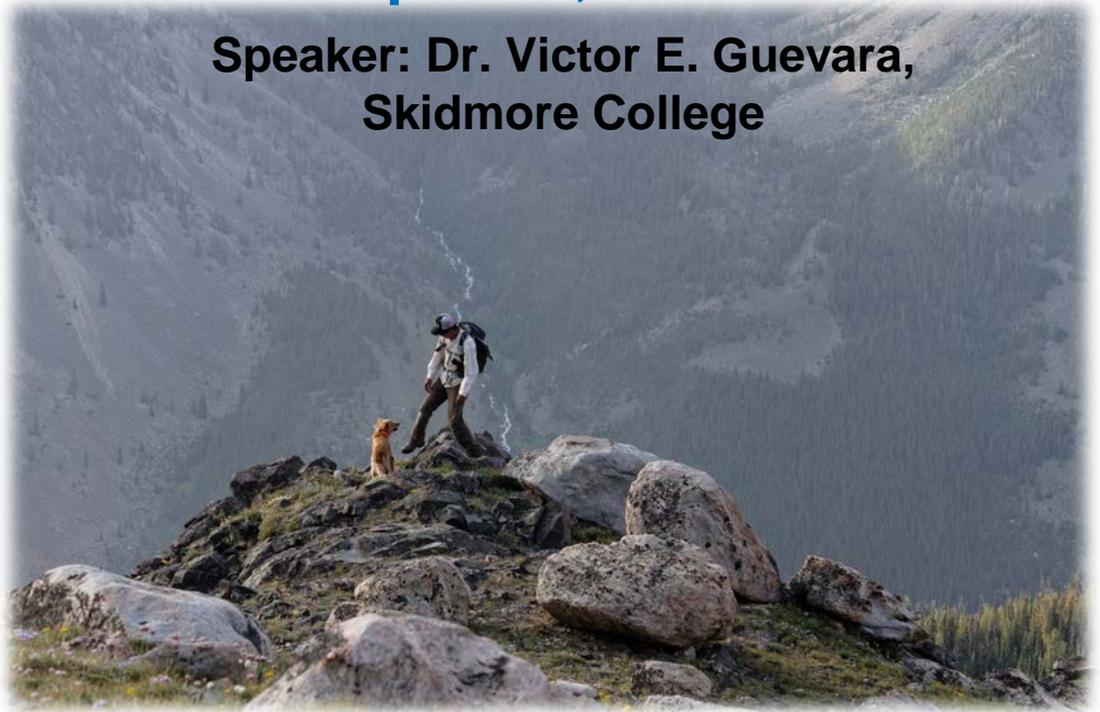
## A P R I L M E E T I N G & S T U D E N T E X P O S I T I O N

[www.hmpga.wildapricot.org](http://www.hmpga.wildapricot.org)

**How hot, how deep, how long:  
interrogating the metamorphic record of  
Earth's early mountain building events**

**April 18, 2018**

**Speaker: Dr. Victor E. Guevara,  
Skidmore College**



**Abstract:** Granulites are the dense and strong metamorphic rocks that are produced during extreme heating and partial melting of Earth's continental crust. The ubiquity of granulites in exhumed fragments of Earth's Archean (> 2.5 billion yrs old) crust within stable cratons suggests that the mechanisms responsible for extreme crustal heating may be necessary for stabilization and preservation of continents. What were the mechanisms by which Earth's early continental crust was heated, and are they similar to those observed and inferred on modern Earth? Metamorphic rocks preserve a record of the path(s) they took through the crust, which are controlled in part by the heating mechanism(s) and tectonic settings involved in their genesis. "Reading" the pressure–temperature–time (P–T–t) paths recorded by Archean granulites may thus shed light on crustal heating mechanisms and geodynamic processes early in Earth's history. *(continued on back)*



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# A P R I L M E E T I N G

**Abstract (cont'd):** In this talk I will show what the P–T–t paths of rocks from two Archean granulite terranes reveal about the mechanisms for heating and metamorphism of Archean crust. In particular, I use an array of petrologic and geochronologic techniques to reconstruct the P–T–t paths of granulites from two Archean terranes that record HT/UHT metamorphism ~2.7 billion years ago: the Beartooth Mountains (Montana/Wyoming, USA), and the Pikwitonei granulite domain (Manitoba, Canada). These studies show that crustal heating of the Beartooth granulites was brief (< 1 million years duration) and may have occurred over short (10s of km<sup>2</sup>) length-scales in the middle crust, while crustal heating of the Pikwitonei granulites was long-lived (10s-100 million years duration), occurred over large length-scales (1000s of km<sup>2</sup>) near the base of the crust, and was diachronous throughout the entire terrane. The disparities in the timescales, length-scales, and the depth and amount of heating between the two terranes (Beartooth and Pikwitonei) suggests that different crustal heating mechanisms operated in each, and that the Earth may have been tectonically diverse ~2.7 billion years ago.



**About the Presenter:** Dr. Guevara is a metamorphic geologist interested in continental tectonics, heat and mass transfer in modern and ancient convergent plate boundaries, and the long-term evolution of Earth's lithosphere. Victor earned his BA from Middlebury College in 2010, MS from University of Montana in 2012, and PhD from Virginia Tech in 2017. He is currently an Assistant Professor of Geosciences at Skidmore College.

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Reservations are required by Monday

**April 16, 2018**

Whether attending the dinner  
or only the presentation.

Register on-line at [www.hmpga.wildapricot.org](http://www.hmpga.wildapricot.org)

Call or email Marie Cole at (518) 724-7254 • [marie.cole@obg.com](mailto:marie.cole@obg.com)

Cost: \$10.00 for student members / Free for Presenting Students

\$20.00 for dormant geologists

\$25.00 for members

\$30.00 for non-members

program only: Free

**Location:** Century House  
997 New Loudon Road  
Latham, NY 12110

**Time:** Social Hour 5:00pm  
Dinner 6:00pm  
Program 7:00pm

**SPONSOR OPPORTUNITY** Dinner Sponsors receive free dinner, a display table set up for the social hour and a 5 minute presentation to the dinner audience, prior to the presentation. Please contact Jesse Vollick at [jesse.vollick@obg.com](mailto:jesse.vollick@obg.com) for more information.

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# STUDENT EXPO

[www.hmpga.wildapricot.org](http://www.hmpga.wildapricot.org)

## CALL FOR STUDENT PRESENTERS

### Attention Graduate and Undergraduate Students!

HMPGA is hosting its 3<sup>rd</sup> annual Student Exposition where students in geosciences or related fields will have the opportunity to present their research related to geophysics, geology, hydrogeology, geochemistry, and earth & environmental science in an open poster session during HMPGA's monthly meeting in April. The event will be attended by geologists from research, government and consulting sectors.

The Exposition is free to presenting students and includes dinner.

## APRIL 18, 2018

<b>Location:</b>	Century House 997 New Loudon Road Latham, NY 12110	<b>Time:</b>	Poster Session 5:00pm Dinner 6:00pm Presentation 7:00pm
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**Poster Session Registration:** Current students and recent graduates of winter 2017/2018 are encouraged to present at the open poster session. Contact Jesse Vollick at [jesse.vollick@obg.com](mailto:jesse.vollick@obg.com) or (518) 724-7265 by April 11<sup>th</sup> to register.

Geosciences faculty members are encouraged to attend.

The Hudson-Mohawk Professional Geologists Association (HMPGA) was established in 1994 to provide an open forum to strengthen and advance the geological sciences. HMPGA fosters the open exchange of ideas and disseminates information regarding the geological sciences to the community. HMPGA is affiliated with the American Institute of Professional Geologists (AIPG) to help facilitate the exchange of information regarding professional activities on a state, regional and national level. Participants in the organization include working professionals from both the private and public sector; educators from colleges, universities, and high schools; and avid enthusiasts.

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