



# Timing and Intensity of High-Grade Metamorphism in Adirondack Highlands Metagabbros

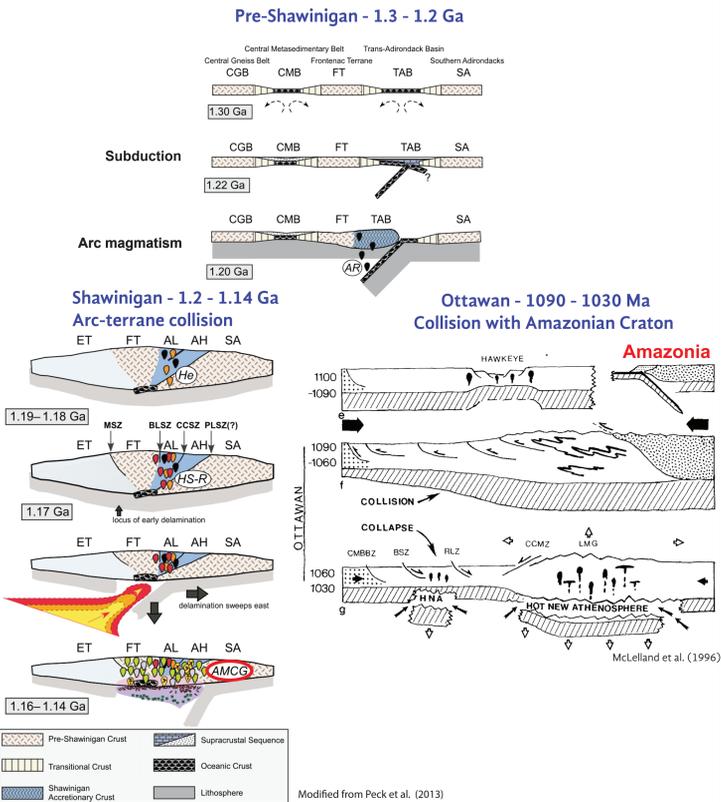
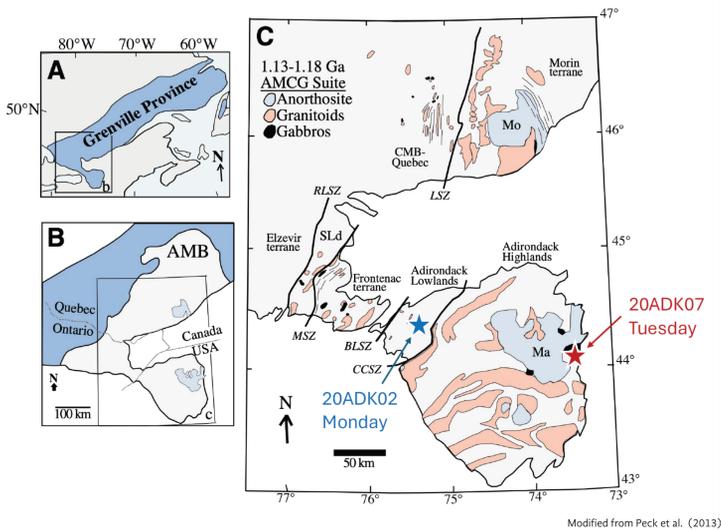
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University Of Arizona - GEOS 496E/596E Hands-on Geochronology



## Is the metamorphic history of Adirondack metagabbros related to the Ottawa or Shawinigan phases of the Grenville Orogenic Cycle?

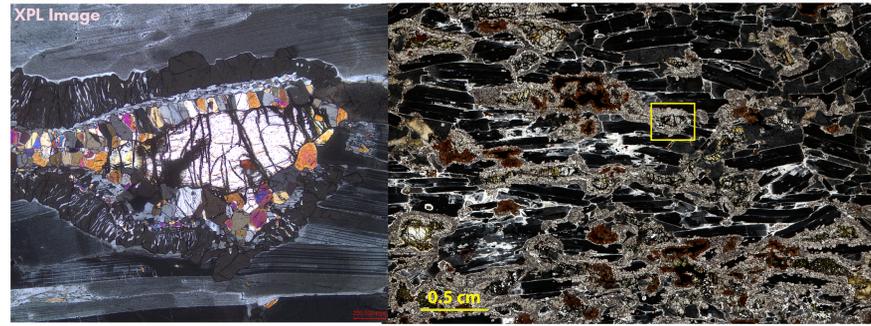
### INTRODUCTION & BACKGROUND



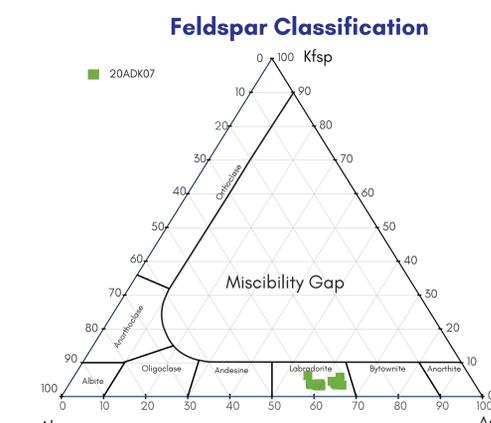
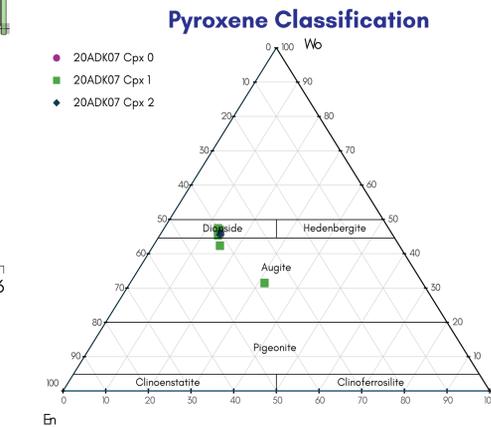
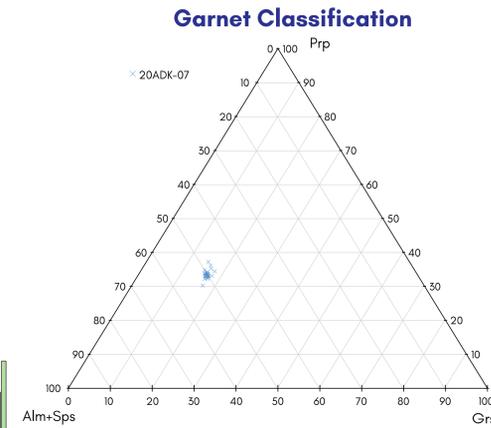
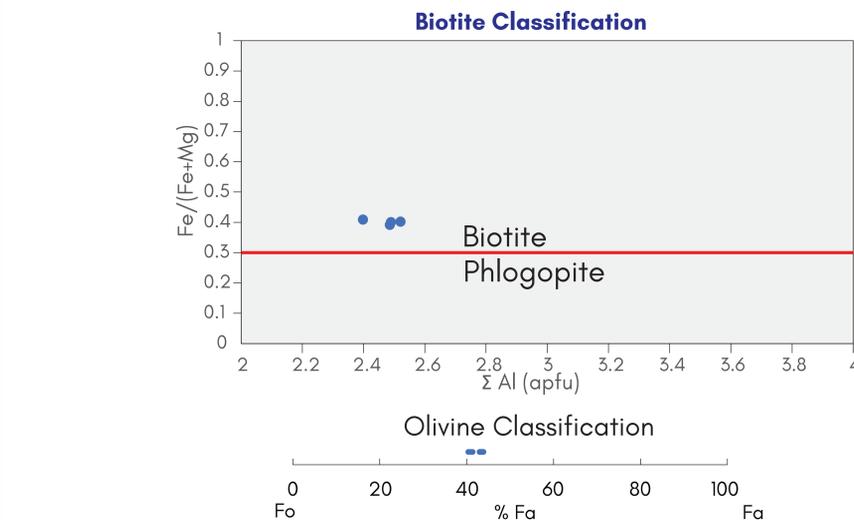
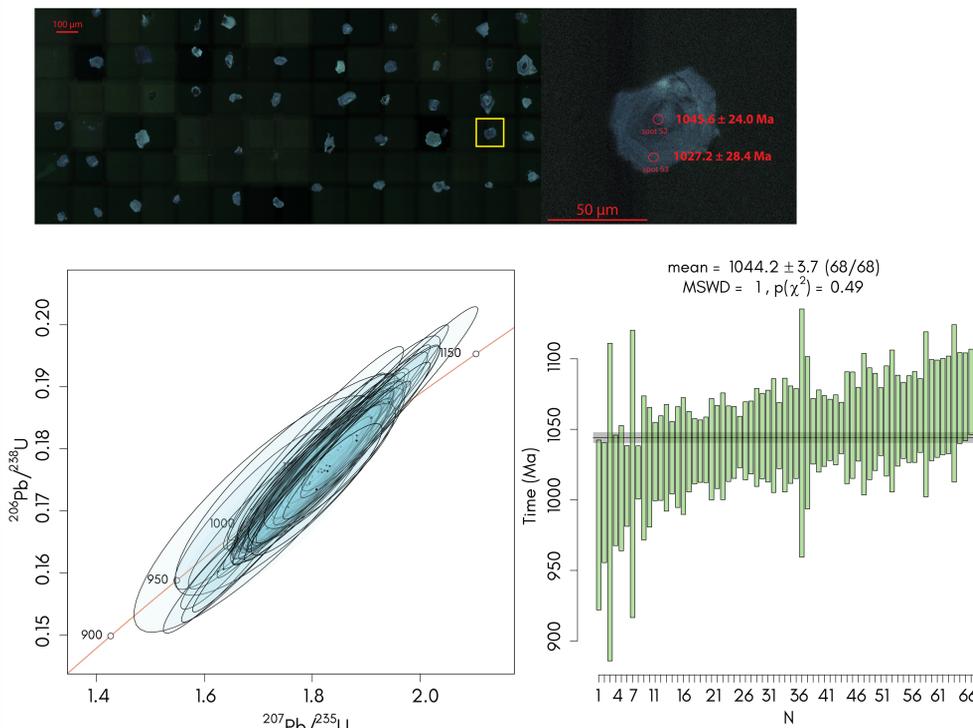
### METHODS

Zircon U-Pb - Neoma MC-ICP-MS  
Apatite U-Pb - Neptune MC-ICP-MS  
Garnet Lu-Hf - Neptune MC-ICP-MS

Mineral Chemistry - SX100 Microprobe Analyzer  
Thermobarometry - Grt-Px Thermobarometer

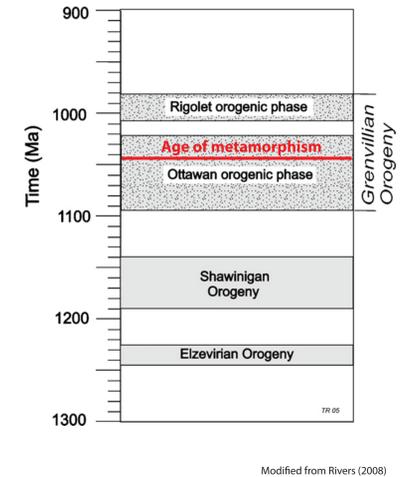


### RESULTS



### INTERPRETATIONS AND CONCLUSIONS

## High grade metamorphism in the Adirondack Highlands is related to the Ottawa phase (Mesoproterozoic).



#### Next Steps:

- Determine pressure and temperature of metamorphism using garnet-pyroxene thermobarometry.
- Date garnet using Lu-Hf chronometer.
- Date apatite using U-Pb chronometer.
- Determine closure temperatures and cooling rate by comparing high- and moderate-closure-temperature chronometer ages.
- Use thermobarometry and geochronology data to construct a more complete thermal history of the Adirondack Highlands.

### REFERENCES

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Peck, W.H., Selleck, B.W., Wong, M.S., Chiarenzelli, J.R., Harpp, K.S., Hollocher, K., Lackey, J.S., Catalano, J., Regan, S.P., and Stocker, A., 2013, Orogenic to postorogenic (1.20-1.15 Ga) magmatism in the Adirondack Lowlands and Frontenac terrane, southern Grenville Province, USA and Canada: Geosphere, v. 9, p. 1637-1663, doi:10.1130/G-ES00879.1.

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