



## **Development of a conjugate shear system in the Hudson Highlands and Adirondacks, New York: An exhumed Himalayan-type syntaxis in the Grenville orogen.**

**Presented by Dr. David W. Valentino**

**Professor of Geology, State University of New York at Oswego**

A deep-seated analog of the syntaxis developed in the Tibetan Plateau occurs in the Grenville orogen of eastern Laurentia (ancient North America). During the final assembly of Rodinia, Amazonia collided with Laurentia and produced a series of large, conjugate, transcurrent, shear systems and pervasive strike-slip deformation that over-printed compressional structures related to the Ottawa Orogeny (the last orogenic phase of what is considered Grenvillian). A northeast-striking dextral shear system at least 30-km wide developed in the Hudson Highlands of New York. U-Pb SHRIMP zircon geochronology and Ar/Ar thermochronology on the lowest grade cataclasites constrain the age of movement between 1008 and 876 Ma. A 60-km-wide, east-west striking, sinistral shear system developed across the central

Adirondack Highlands. This system overprints rocks with granulite-facies metamorphic assemblages containing ca. 1050 Ma metamorphic zircons and is cut by a swarm of 950 Ma leucogranites. The timing, geometric relationships, and shear sense of the Adirondacks and Hudson Highlands shear systems suggest a conjugate system within a syntaxis with bulk compression directed ENE-WSW. This tectonic scenario invokes a component of strike-parallel deformation during the Ottawa Orogeny and provides a kinematic mechanism for an otherwise enigmatic, synchronous, late (ca. 930 Ma) extensional event including the Carthage-Colton mylonite zone in the northwest Adirondacks and Canada.

Dr. Valentino's area of special interest is the tectonics of the Appalachian Mountains and the Adirondacks. He teaches Tectonics, Geophysics, Structural Geology, and Metamorphic Petrology. He received a BS from New Mexico Tech, a MSc from the University of Manitoba, and a PhD from the University of Maryland. Appointed.

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**Meeting logistics:** The meeting will take place on Thursday, November 16th at the Ramada Inn, located Buckley Road in Syracuse, New York. A social hour will be held from 5:30 p.m. to 6:30 p.m. and will be followed by a buffet dinner starting at 6:30 p.m. The main presentation by Dr. Valentino will begin at about 7:30 p.m.

The cost of dinner is \$20 for members, \$22 for non-members and \$15 for student members. People may also attend the presentation only for a nominal fee of \$3. Please RSVP by Monday, November 13th to Bonnie at Parratt-Wolff via e-mail at [bolney@pwinc.com](mailto:bolney@pwinc.com) or (315) 437-1429.

**CNYAPG will be sponsoring (free of charge) the first five students to sign up for the meeting!**

