



# *Geophysical Society of Pittsburgh*



*Proudly Presents Tuesday, May 5, 2015  
At  
Cefalo's Restaurant, Carnegie, PA*

## **MARCELLUS FRACTURE CHARACTERIZATION USING P-WAVE AZIMUTHAL VELOCITY ATTRIBUTES; COMPARISON WITH PRODUCTION AND OUTCROP DATA**

Tanya Inks

IS Interpretation Services, Inc.

**Abstract:** Using a good quality northern Pennsylvania (PA) 3D survey, available well data, published outcrop data and subsurface information as well as production data available from the state, we are able to demonstrate that wide-azimuth seismic is sensitive to variations in fracturing at the scale of individual pads or even individual wells. This variation in fracturing begins to explain why production varies significantly, even locally, within the Marcellus shale gas play. Rose diagrams from quantitative fracture analysis using azimuthal seismic velocity volumes are compared to published data from Appalachian black shale outcrops and subsurface fracture models proposed in various papers in order to validate the results from subsurface data. It has long been understood that natural fracture systems are essential for achieving the best production in Marcellus shale gas wells. We analyze interval P-wave azimuthal velocity variations at the reservoir level and show how it can provide insight into the rock fabric and presence of systematic joints that likely affect production.



**Biography:** Tanya Inks has been providing integrated geophysical and geologic consulting services in Denver, Colorado since 1993. She holds B.S. and M.S. degrees in Geophysical Engineering from the Colorado School of Mines. Ms. Inks is currently involved with projects in several unconventional plays including the Marcellus Shale play and the Niobrara play. She worked as a processor for Geophysical Service, Inc. and CGG prior to graduate school, and worked for Mobil Exploration and Producing US Inc. in Rocky Mountain and Gulf of Mexico Exploration for the first six years following graduate school. Since 1993, she has consulted for many clients, initially as manager of Vector Interpretation Services and later (1998) as a partner in IS Interpretation Services, Inc. In addition to her work in the Marcellus, she has contributed geoscientific expertise to both exploration and field development projects in structurally and stratigraphically complex areas such as the Bearpaw uplift and Disturbed Belt in Montana, The Greater Green River, Wind River and Big Horn Basins of Wyoming, Utah's Uinta Basin, the North Slope of Alaska, California's Sacramento and San Joaquin Basins, Oklahoma's Arkoma Basin, as well as international projects in Columbia's thrust belt, Chile's Fell Block and Venezuela's thrust belt. Ms. Inks is a longtime member of the SEG, AAPG, DGS and RMAG.

*Please RSVP using the PayPal link on the Geophysical Society of Pittsburgh website at: [www.thegsp.org](http://www.thegsp.org)  
Cost: \$35 Members, \$40 Non-members (\$20 for Students). Meeting Location: 428 Washington Ave, Carnegie, PA 15106  
(412) 276-6600. Note the significant detour warning on page 2 of the newsletter.*

May 5, 2015 Agenda

5:00 pm Social Hour sponsored by



6:00 pm Dinner Buffet

7:00 pm Lecture – Sponsored by

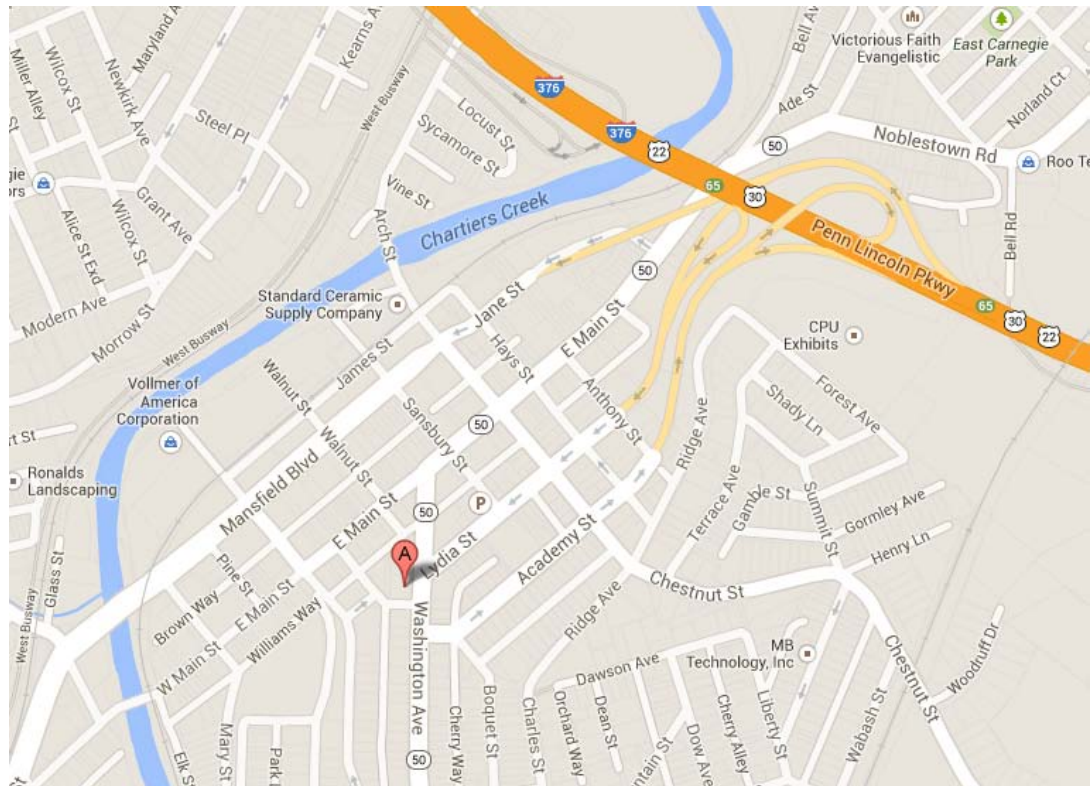


*This months lecture will be held at :*

[Cefalo's](#)

**Banquet & Event Center**  
428 Washington Ave.  
Carnegie, PA 15106  
412.276.6600

Note that the Carnegie Exit (65) on/off ramps of the Parkway West (376) are closed until December 2015. Seek an alternate route (two posted detours are the Green Tree Exit on I376 or the Carnegie Exit on I79)



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