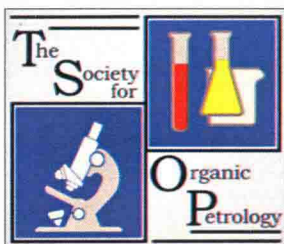


TSOP 2017

**Annual Meeting of The Society for Organic
Petrology Sept 21-27th, 2017
Calgary, Alberta, Canada**

SHORT COURSE NOTES





TSOP 2017

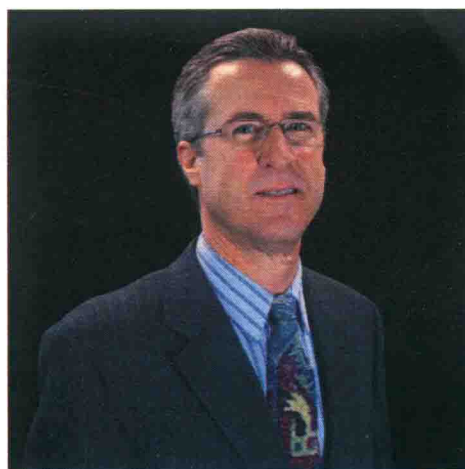
Sept 22ndth, 2017 Imperial Ballroom 4, Hyatt Regency Hotel, Calgary

SHORT COURSE

Applications of organic petrography in the North American shale petroleum systems

Synopsis: This full-day course will present a comprehensive examination of organic petrography applications in the North American shale plays, discussing reflectance analysis, fluorescence microscopy, SEM and other micro-spectrometry approaches to characterization of organic matter in shale reservoirs. Petrographic applications will be integrated with observations from programmed pyrolysis to interpret thermal maturity, present-day and original organic matter type, and development of organic porosity. Pros and cons of organic petrographic approaches to shale reservoir characterization will be reviewed in the tight oil plays including the Bakken, Eagle Ford and Niobrara, and shale gas and condensate plays such as the Barnett, Duvernay, Haynesville-Bossier, Marcellus, Utica, and Woodford.

Presenters: Dr. Paul Hackley, US Geological Survey and Brian Cardott, Oklahoma Geological Survey



Short Course coordinator: Dr. Judith Potter, JP PetroGraphics, Calgary, Canada

Instructor Biographies

Paul Hackley, Research Geologist, US Geological Survey, Reston Va.

Education:

B.A. Geoenvironmental Studies, Shippensburg State University (1995)

M.S. Geology, George Washington University (1999)

Ph.D. Chemistry & Biochemistry, George Mason University (2017)

Thesis: Using hydrous pyrolysis, organic petrography and micro-spectrometry to understand solid bitumen and kerogen evolution in the early oil window

Work Experience

2002-present: Research geologist with the U.S. Geological Survey. His primary research involves the application of organic petrology to reducing uncertainty in assessment of fossil fuel resources. Paul's experience includes international work on coal deposits and source rocks, and Gulf Coast basin energy resource studies including coalbed methane, coal resources, conventional oil and gas, and shale petroleum systems. He manages the USGS Organic Petrology Laboratory.

Publications and Society Memberships

Paul has contributed to 40+ indexed journal articles and 100+ technical presentation abstracts, primarily on the topics of organic petrology and thermal maturity.

He is Chair of ASTM subcommittee D05.28 for the petrography of coal and coke, Chair of ICCP Commission II Geological Applications of Organic Petrology, previous TSOP Secretary (2006) and current TSOP Vice-President Elect, and holds memberships in the American Association of Petroleum Geologists (Vice-President, Energy Minerals Division 2015-2016), Geological Society of America, and the Society for Sedimentary Geology.

Paul received TSOP's Distinguished Service Award in 2013 and was a co-recipient of the TSOP Ralph Gray Award in the same year.

Brian Cardott, Organic Petrologist/Coal Geologist, Oklahoma Geological Survey

Education:

B.S. Geology, University of Illinois-Urbana (1977)

M.S. Geology (Coal Petrology), Southern Illinois University-Carbondale (1981)

Thesis: A comparative study on the occurrence and distribution of fluorescent macerals in coals from three major coal basins of the United States [Appalachian, Illinois, and San Juan Basins.

Work Experience:

1977-1978 Coal chemist, Illinois State Geological Survey: Proximate analysis (moisture, ash, volatile matter, fixed carbon by difference); partial Ultimate analysis (carbon, hydrogen, total sulfur); sulfur forms (Eschka method); free swelling index; Gieseler plastometer.

1978-1981 Assistant manager of Coal Characterization Laboratory (Southern Illinois University-Carbondale) with Jack Crelling.

1981-present: Organic petrologist/coal geologist with the Oklahoma Geological Survey. His primary research involves coalbed methane, gas shales, tight oil, and the petrologic characterization of coals, hydrocarbon source rocks, and solid hydrocarbons of Oklahoma.

Publications and Society Memberships:

Brian has written more than 60 articles and books on coal, coalbed methane, gas shales, tight oil, unconventional energy resources, hydrocarbon source rocks, solid hydrocarbons, organic weathering, graptolite reflectance, and SEM of shale/coal.

Brian is a member of The Society for Organic Petrology (serving as President, 1995-1996), International Committee for Coal and Organic Petrology (Full Member), American Association of Petroleum Geologists (serving as President of the Energy Minerals Division, 2004-2005), Geological Society of America, Oklahoma City Geological Society, and Tulsa Geological Society.

Brian compiled the 33 reference lists on the TSOP web site <http://tsop.org/references.html>).

Applications of Organic Petrography in the North American Shale Petroleum Systems – 2017 TSOP
Sept 22, 8.00am – 5.00pm, Imperial Ballroom 4.

Short Course Outline

1. Instructor background and class introduction/expectations
2. Overview
 - 2.1. Introduction to vitrinite and bitumen reflectance as thermal maturity indicators
 - 2.2. Organic petrography sample preparation and polishing:
 - 2.3. Microscope systems – state-of-the-art,
3. Vitrinite reflectance ‘suppression’: Fact or fiction in low maturity Paleozoic shales?

12.00 – 1.00PM Buffet Lunch will be served in Imperial 4

4. SEM applications – New technique for imaging geologic materials via Integrated Correlative Light and Electron Microscopy (iCLEM),
5. Secondary optical thermal maturity parameters
6. Kerogen conversion,
7. North American shale petroleum systems:
 - 7.1. Ingredients for successful shale resource play
8. Shale oil plays
 - 8.1. Bakken Formation
 - 8.2. Eagle Ford Formation
 - 8.3. Niobrara Formation
 - 8.4. Tuscaloosa marine shale
9. Shale condensate and dry gas plays
 - 9.1. Barnett Shale
 - 9.2. Duvernay Formation
 - 9.3. Haynesville-Bossier formations
 - 9.4. Marcellus Formation
 - 9.5. Utica Shale
 - 9.6. Woodford/Caney Shale

Time for questions

5.00pm End of course

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