

Petroleum Structure
and Geomechanics Division

A Division of the American Association of Petroleum Geologists

01 October, 2012

PSGG 2012 - Long Beach, California

Petroleum Structures and Geomechanics Group Meeting

Long Beach, California

April 24, 2012 • 7:00 – 10:00 PM

Total attendance: 77

This year's meeting was a little different from previous ones in a couple of respects:

We started with a buffet dinner courtesy of AAPG, supplemented by beer and wine funded by David Wolf (Shell).

During dinner the concept of forming the AAPG Petroleum Structure and Geomechanics Group (or Division), to replace the Reservoir Deformation Research Group was proposed and discussed and supported by the community. EC members Beaumont, Brittenham, and Laubach offered remarks supporting the active involvement of technical communities within AAPG and pointing out some of the aspects of how AAPG works. Following discussion of the proposal, the usual technical discussion meeting was held.

Proposal Synopsis

For the past 15 years the petroleum structural geology and geomechanics community has met under the auspices of the AAPG Reservoir Deformation Research Group (RDRG), a technical interest group affiliated as a subcommittee with the AAPG Research Committee (RC). A proposal is now pending before the AAPG Executive Committee (EC) to establish more formally a collaborative association within AAPG of individuals in the discipline areas of structural geology and reservoir geomechanics.

The proposal is the creation of a formal discipline affiliation, which in AAPG parlance is a technical Division. A closer and more formal affiliation, facilitated by AAPG, could (i) increase the quantity and quality of specialty conferences, publications, and educational outreach for this discipline within the AAPG, (ii) provide greater discipline-specific assistance to local organizing groups, and (iii) better serve an important interest community within the general AAPG membership.

The Opportunity

Driven by keen interest in geomechanics and supported by an established foundation in structural geology and tectonics, the amalgamated discipline of geomechanics and petroleum structural geology is one of the fastest growing disciplines in petroleum geoscience. Evidence of the growing importance of this

technical area includes rapid growth of technical teams on these topics within companies, the increasing importance of deep and or geomechanically complex targets (including unconventional and subsalt), the proliferation of papers and specialty meetings on these topics, and other indicators such as many new LinkedIn groups recently formed in the areas of structural geology and geomechanics.

An important opportunity for the AAPG stems from the current situation wherein this interest group is neither well represented by other professional societies nor by the AAPG. There is no equivalent organization, for example, to that of the SEPM. For their technical affiliation and to support their common interests, individuals from the structural geology and geomechanics community must currently look to various organizational groups including the Structure and Tectonics Division of GSA, the Tectonic Studies Group and the Petroleum Group of the Geological Society of London, the American Rock Mechanics Association, the American Geophysical Union, and the Society of Petroleum Engineers.

Background

AAPG has helped foster this community, but the effort has been deeply hidden within AAPG's committee structure. In 1997, led by Steve Laubach, the AAPG Reservoir Deformation Research Group (RDRG) was established at the AAPG Dallas convention as an informal technical interest group. The following year the RDRG was designated a standing sub-committee of the Research Committee. Yearly the RDRG has met on Tuesday evenings at the Annual Conference and Exhibition (ACE) for a short social gathering followed by an informal technical session focused on brief presentations and discussions with extensive group participation. AAPG has supported this annual event by covering the cost of the room.

The governance structure of the existing group is simple and has been effective. The Chair and the Vice Chair select the topic for the discussion meeting, invite discussion leaders, and preside at the meeting. At the Tuesday meeting the group selects a new Vice Chair who will become Chair the following year. By group agreement, the new Vice Chair has an industry affiliation if the current Chair has an academic affiliation and vice versa, so that the group leadership is always balanced. The 16 chairs that have served this group so far are a cross section of the leaders of the worldwide geomechanics and structure community. That news about this effort is seven clicks in on the AAPG website showing a measure of how hidden this group is within AAPG.

Rotating RDRG chairs and vice chairs have traditionally covered the expense of beer and wine through company sponsorship (in other words, the person from industry has to settle the beer bill for two years). Each year the group has had ~30-60 or more attendees mainly attracted via word of mouth at the annual convention and by email notification.

The RDRG has generated a few AAPG products such as a couple of Hedberg conferences and an AAPG Bulletin special issue. This group, however, can do much more. For example, for the Geological Society of London members of this community

played a substantial role in the creation of four published books 2011-2012 and 2 books published in Online First in 2012.

We believe that the RDRG under the current AAPG organizational structure has reached a plateau in terms of professional impact and benefit to AAPG, and this informal organization is now ready to be broadened and reconstituted as the AAPG Petroleum Structure and Geomechanics Division (PSGD).

Recent Developments

Peter Hennings and Steve Laubach have approached the EC with a request to form a new technical Division. Informal conversations with EC members and AAPG President Ted Beaumont's remarks at the Tuesday meeting suggest that the EC is supportive of sanctioning a more formal structure. The details of establishing, funding and promoting our affiliation will take some time to sort out. Formation of new technical Divisions requires a vote of the AAPG House of Delegates (HOD). In the meanwhile we can begin our efforts at forming the PSGD and accomplishing some publication and meeting goals that will serve our community and AAPG.

Charter Organization

The purpose of the charter organization is to help get the group organized and started on the sought for new tasks of publication and meeting organization. If the group is formally constituted by AAPG a formal governance structure will be needed, although we believe that selecting group leadership by consent at the annual meeting and keeping an industry-academic balance by rotating chairs and co-chairs is a good solution for this group. Such an arrangement minimizes the overhead of formal balloting and encourages participation in the annual meeting discussion session. Thus the initial charter group structure includes the Division Chair (Hennings-Industry Affiliation), Division Vice Chair (Ferrill-Academic Affiliation), Annual Discussion meeting Chair 2012 (Morris-Academic Affiliation), Annual Discussion Meeting Co-Chair (TBD-Industry Affiliation), and representatives (or liaisons) of the group to various AAPG committees where the group seeks to provide content (Publications, Research/Hedbergs; TAC/Conventions; Grants-in-Aid). The AAPG committee appointments require AAPG presidential appointment.

Main Tuesday evening business

In memoriam:

In the last 12 months our community has lost Bill Muehlberger and Dave Wiltschko, two powerful influences on structural geology and tectonics. Peter Hennings delivered remembrances of both.

Announcements:

Bob Krantz announced an upcoming Hedberg Conference on cognitive learning styles in structural geology interpretation, and invited contributions.

The evening concluded with four technical presentations and discussion:

- **Dr. Kevin Smart** (Southwest Research Institute) - “Important Inputs to and Lessons Learned from Geomechanical Modeling”
- **Dr. Colleen Barton** (GMI Geomechanics Services) - “Modeling Shear-Enhanced Permeability as the Mechanism for Fluid Flow in Fractured Reservoirs – A Promising Improvement to Predicting Reservoir Production”
- **Dr. Seth Buseti** (ConocoPhillips) - “Computational Simulations of Rock Mechanics Experiments Used to Complement Laboratory Tests”
- **Dr. Peter Connolly** (Chevron) - “Integration of traditional geomechanics, rock mechanics and structural geology to provide usable solutions”

Meeting Report by P. H. Hennings
October 2012