Papers Presented at the 33rd Annual GCSSEPM Foundation Bob F. Perkins Research Conference

OMNI Houston Westside
Houston, Texas
January 26–28, 2014

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Foreword

“Mommy, where do basins come from?”

Children do ask good questions!

On the one hand, it might seem that this is a rather esoteric question; on the other hand, the simple explanation of plates ramming together or pulling apart does not fully suffice as a satisfactory answer. From the exploration point of view, how the basin formed is of fundamental importance in determining source rock, reservoir, and their distribution in the basin. Although the exact origin of basins is not the main theme of this conference, our goal is cognizance of their origin and to understand better how this affects petroleum systems. For us in the oil and gas business, this is a matter of prime importance.

Our talks, therefore, start with rifting, as passive margins are from the hydrocarbon point-of-view of extreme importance, and then by area. Finding analogs to plays is as important as finding inspiration in the ideas of others and we certainly hope that all attendees will get something out of the conference.

This conference also has one innovation. There has been much discussion by all groups that more must be done to bring the younger generation into our community. Therefore, we sponsored a poster contest with prizes, a course on the structure and stratigraphic framework of the northern Gulf of Mexico, and invited the students to attend the conference. We hope they will understand that face-to-face contact with colleagues (i.e., networking) is just as important (if not more so) than tweeting and texting. Carl Fiduk organized the effort; course teachers were Ursula Hammes, Mike Blum, Bruce Hart, and Carl Fiduk. Thank you for your time and effort in this endeavor.

Unfortunately, I must add the same paragraph that I had in our last conference: My apology for not having the Proceedings ready for distribution at the time of the conference. It used to be that people had time to write and communicate their results and obtaining permission to do so was a relatively easy task. Now the paper must be completed (often later than expected because of work load) and then submitted for approval by people who are not concerned about our deadlines. If all goes well, we will be mailing the DVDs in March 2014.

There are many people to thank for this conference. Alan Lowrie first proposed the topic. Jim Pindell and Brian Horn then took on the task of getting the show on the road. They pulled together an excellent technical committee to recommend and edit papers. Of course, my thanks to the authors who spent the time in writing the papers and preparing a poster. Mike Nault has been invaluable in ensuring adequate physical arrangements for the conference; Arden Callender was once again in charge of arranging for poster boards; Gail Bergan is in charge of getting the

program book and Proceedings DVD together; and Sheila Barnette once again volunteered to be at our registration table. A special thank you also goes to our corporate sponsors who are generously supporting our cause. None of this would have been possible without all of the above. Finally, I thank all of the attendees for coming; it would be difficult to have a conference without you.

Norman Rosen
Coordinator

Introduction

The 33rd Annual GCSSEPM Foundation Bob F. Perkins Research Conference sought to highlight the structural and depositional diversity of sedimentary basins and continental margins, and their associated petroleum systems. This diversity encompasses rifts, sag basins, pull-apart and low-angle detachment basins, foreland basins, and divergent and transform passive margins.

Technological advances in data acquisition are changing our conceptual models of many facets of geology. This, in turn, impacts the way we think, interpret data, and explore for energy resources. Thus, for the first time in the history of the Perkins meetings, a diverse array of seismic sections were provided in the form of a super-poster by ION Geophysical. The super-poster afforded conference-goers the opportunity to examine and discuss with colleagues many of the phenomena presented in the technical sessions, thereby adding to the practical effectiveness of the meeting in general. In addition, an array of 19 student posters was shown throughout the meeting, providing a chance for our industry's future to talk with and gain impressions from the active professionals at the meeting; congratulations to Carl Fiduk for getting this program going.

The phenomena addressed by speakers and demonstrated by the posters and super-posters include recognition of the ongoing dynamics of "passive" margins, visualization of the Moho with implications for heat flow history and crustal balancing during extension, appreciation for low-angle detachment faults in extension, exhumation of subcontinental mantle at continent-ocean transition zones, subsalt imaging, and generation of seaward-dipping reflector packages, all of which help to control subsidence histories at passive margins, and the depositional processes that take advantage of that subsidence.

Special thanks are given to Paul Weimer, Menno Dinkleman, Allen Lowrie, Richard Fillon, James Granath, and Lorcan Kennan, who formed the program committee, suggesting several papers, and assisting with reviews of submitted papers. It should be noted that the original concept for this meeting was suggested by Alan Lowrie. We also would like to thank Dr. Norman Rosen for once again being chief cat herder, as well as our corporate sponsors who generously subsidized the cost of the conference.

James Pindell (Tectonic Analysis Ltd)
Brian Horn (ION Geophysical)

Abbreviations (Acronyms and Initialisms)

It seems each year that the use of abbreviations increases in the literature. I have not figured out whether this is because journals are trying to save space, whether authors are reflecting trends in texting and tweeting, or people really believe they sound more erudite by using abbreviations. It used to be understood that no abbreviation would be used without a first definition. This is not always done; and when it is done in a 30 page paper, defining it on page 3 and then using the acronym on page 27 often requires the reader to scurry back through the article to find out what the author really means.

Through the years, some abbreviations have become standardized and part of the jargon, such as BOE, Ro, and TOC, at least for us who are involved with hydrocarbon exploration. Many others have not, unless you are writing to a specific subgroup that uses them all the time. However, scientific papers are supposed to be designed for clarity of thought, not writing as quickly as possible. Although clearly informal and spoken English evolves with time, there is a strong rationale for maintaining standards in scientific papers. Excessive use of abbreviations makes for disjointed reading, causing the reader to lose the trend of the argument as he/she deciphers the message. Worse, some acronyms mean different things to different groups (*e.g.*, LOC: is this location, or limit of oceanic crust?) and should be avoided completely.

Authors are vaguely aware that I am the final editor of style in this publication. One of my pet peeves (besides the overuse of the word “with”) are acronyms and if they (the authors) had bothered to read the *Instructions to Authors* we give them, we ask specifically that acronyms should **NOT** be used. Despite this, they are. I try to take them out as much as possible, but I cannot eliminate them when used in figures and normally leave them in figure captions; and because of system overload I occasionally let them through in the text. Of course, authors go ahead and use them anyway in their presentation.

For those of us who are not "Great Tectonic Thinkers," the following is an explanation of some of the acronyms used in the following papers and oral presentations. I regret it is not a complete list.

FA: Free Air
FZ: Fracture Zone
COB: Continental-Oceanic (crust) Boundary
ILOC: Inward Limit of Oceanic Crust
LOC: Limit of Oceanic Crust
OA2: Second Oceanic Anoxic Event
OCB: Oceanic-Continental (crust) Boundary
SDR: Seaward-Dipping Reflectors.

Norman Rosen, Coordinator

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Posters Only

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Cover Image

The cover image chosen for this year's conference is the Eyjafjallajökull glacier and volcano in southern Iceland. The volcano erupted in April 2010. The ash cloud from the eruption caused cancellation of flights all over the world and for some time closed the entire European airspace. Photo taken May 15, 2010 and obtained from www.dreamstime.com.

Basins form when continental plates collide or pull apart. The Mid-Atlantic Ridge is the spreading center for the American plate to the west in the North Atlantic and the European plate to the east. It continues to the south and separates Africa from South America. In Iceland the spreading center is exposed, and its volcanoes are part of the Mid-Atlantic Ridge.