

Seismic Rock Physics Application (SRPA) Workshop Before SEG Beijing



From De-hua Han, “Fluids/DHI” consortium, University of Houston

Schedule: Suggest date: 9:00 Am to 4:30 Pm on Apr. 22-23, 2009

Registration fee: 1,000 Yuan for registration and pay at door.

Provide two free lunches and break refreshment.

Limit 50 seats for workshop.

Participant has to commit for two days meeting.

How to register: Send email to msun3@uh.edu, indicate your name, company, email, phone. Please register ASAP, so we can do better job to organize the workshop.

Meeting location: Beijing Tu Ha Petroleum Hotel. SINOPEC help to host the workshop and get meeting rate from the hotel as follows. Mr. Zhang Meihua from SINOPEC is representative of the host. His contact information as follows:

Pho: 010-8231-2792 Cell: 13661091060 Email: zmf@pepris.com

北京吐哈石油宾馆:

地址: 北京市朝阳区安苑东里三区 2 号

邮编: 100029

宾馆联系人: 张三毅

电话: 010-64980077 转 2101 手机 13911731803

房间价格:

标间: 300 元/天 单间: 340 元/天 豪华套房: 760 元/天

Goal for the workshop: We would like to use this workshop to bring together a community, who are interest in the rock physics and bridge to geophysical data analysis. In the workshop we want to update this group on the state of the art for a series of central topics within rock physics, and discuss serious challenges their application in seismic data analysis. Hopefully, the workshop can push more efforts on research and application in seismic rock physics for reservoir exploration and production.

Meeting Agenda: We hope to use the workshop to present

1. Short course: **Seismic Evaluation of Hydrocarbon Saturation**
-Application of Seismic Rock Physics
Check Appendix for the abstract.
2. Introduce current research effort in the Fluids/DHI consortium, include
 - a. Properties of tight gas sands
 - b. Properties of shale
 - c. Properties of heavy oil and heavy oil sands
 - d. Workflow to build a rock physics model for a hydrocarbon reservoir
 - e. Fluid property calculators: FLAG program

- f. Topics may also include recommend one from meeting attendee.
3. We will use a full day to discuss current challenges in Seismic Rock Physics Application. The format will be presentation and discussion from meeting participants. Please prepare to make presentation to share your experiences for success and challenge.

Topics can cover wide range of rock and fluid properties and different reservoirs and their seismic signatures including:

- Porous sandstone (compacted/cemented – assumed to be mature technology)
- Tight sandstone without or with fractures
- Shale, oil shale
- Carbonates without or with fractures
- Heavy oil sand
- Coal bed methane, gas hydrate
- Fluid properties (brine/dry gas/condensate/light oil/heavy oil)
- Velocity dispersion and attenuation
- Scaling rock physics model in reservoir scale

The presentation provides opportunity to discuss common interest challenges for potential research project and cooperation, which may significantly impact reservoir exploration, characterization and production.

Every speaker will have 20 min. for presentation. We plan to have maximum 10 presentations. Please email the abstract (less than a page) ASAP to get your spot.

Who should participate: Geophysicist, petrophysicist, reservoir interpreters from sponsor companies and whoever interest on Seismic Rock Physics.

Language: Formal presentations by Fluid/DHI consortium staff will be in English, but Q/A session and panel discussion can be in either Chinese or English. Presentations by guests from oil companies can be either in Chinese or English.

Please let me know who from your company will participate the meeting. Seats in the meeting are limited. Please register ASAP.

Looking forward to meeting you.

De-hua Han

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Appendix

Seismic Evaluation of Hydrocarbon Saturation

-Application of Seismic Rock Physics

De-hua Han, RPL, University of Houston

Abstract

Direct Hydrocarbon Indicator (DHI) techniques based on rock physics provide fundamentals for quantitative seismic interpretation and play an important role to reduce risk in seismic exploration and exploitation. Recently we have achieved significant progress in integration of rock physics application into seismic technique called Seismic Rock Physics. These efforts include:

1. Understand geological deposition environment, sedimentary processing and reservoir condition to characterize and constrain properties of the reservoir rock and fluid.
2. Investigate of rock and fluid properties at reservoir conditions from proper rock and fluid samples (hard data measured at lab), and establish proper relationship of seismic properties to rock and fluid parameters at in situ conditions.
3. Based on rock and fluid properties to build a forward model in the reservoir scale to include geological structure and derive optimal seismic attributes for hydrocarbon indicator and other reservoir parameters.

4. To test model on seismic data to derive hydrocarbon indicators and compare forward model result to the inversion result with local calibration, to iterate the forward model and the inversion result to fit in all the data constrain (rock physics model, log and seismic data and structure (heterogeneity) in reservoir scale), to develop practical procedure for quantitative interpretation on seismic data with controlled uncertainties.

In this short course, we will systematically summarize our efforts to explore Seismic Rock Physics techniques with a focus to build rock and fluid model and using seismic data to evaluate hydrocarbon saturation in unconsolidated sand reservoirs in deep-water, the Gulf of Mexico.