

Invitation to the 99th Chapter Meeting

We are pleased to announce that the forthcoming Chapter Meeting will be held as follows. Those who are interested in attending this meeting are asked to send an e-mail registration at JFES-Newsletter@slb.com no later than **Mar 24, 2017**.

Date & Time: Thursday, March 30, 2017, 15:30 – 17:30

**Venue: Japan Petroleum Exploration Co.,Ltd. (石油資源開発株式会社)
1-7-12 Marunouchi, Sapia Tower, Chiyoda-ku, Tokyo (Room#1202)
東京都千代田区丸の内 1-7-12 サピアタワー (1202会議室)**

Program:

First Presentation:

地層の力学的健全性評価のための長期AEモニタリングとジオメカ連成解析に関する取組の紹介

Long-term AE Monitoring for Geomechanical Surveillance of Reservoir and Seal Integrity

<講演者>

◎熊野裕介・手塚和彦・芦田彬久・大崎豊・柏原功治（石油資源開発株式会社技術本部技術研究所）

<要旨>

近年の積極的な流体圧入を伴う非在来型油ガス田の開発やCCSに関する技術開発等を背景に、地層の力学的健全性評価が重要視されている。AEモニタリングは微小な地層破壊に伴う弾性波を監視するもので、ジオメカ連成解析によるシミュレーション結果と照らして解釈することで、圧入操業と微小破壊の因果関係についての議論や、地表に影響を与えるような誘発地震の未然防止に役立てることができると期待されている。本報告では、AEモニタリングと、ジオメカ連成解析に基づく解釈の事例について紹介する。

Second Presentation:

孔径分布からの浸透率の推定

Estimating Permeability Using Pore-throat Distribution From Mercury Intrusion Porosimetry

<講演者>

◎辻隆司・切明畑伸一（石油資源開発株式会社技術本部技術研究所）・今井素直
(JOGMEC TRC)

<要旨>

孔径分布から浸透率を推定する関係式はこれまでに多く提案されている。しかしながら、その推定精度は必ずしも高くはない場合がある。既存の関係式のうちPurcell (1949) は、測定された孔径のすべてをその大きさに関わらず同等に扱い推定浸透率を算出した。しかし、同じ岩質でも孔径が異なれば、また同じ孔径でも岩質が異なれば屈曲度 (tortuosity) などの性状も異なることが予想される。そこで今回Purcellの式に工夫を加え、岩質や孔径毎にその性状の違いに応じた補正を行うことが容易にできるようにした。その結果、泥岩から砂岩までのより幅広い岩質や孔径範囲で浸透率を精度良く推定できるようになった。

17:45 - Icebreaker (TBD)
1,000 yen

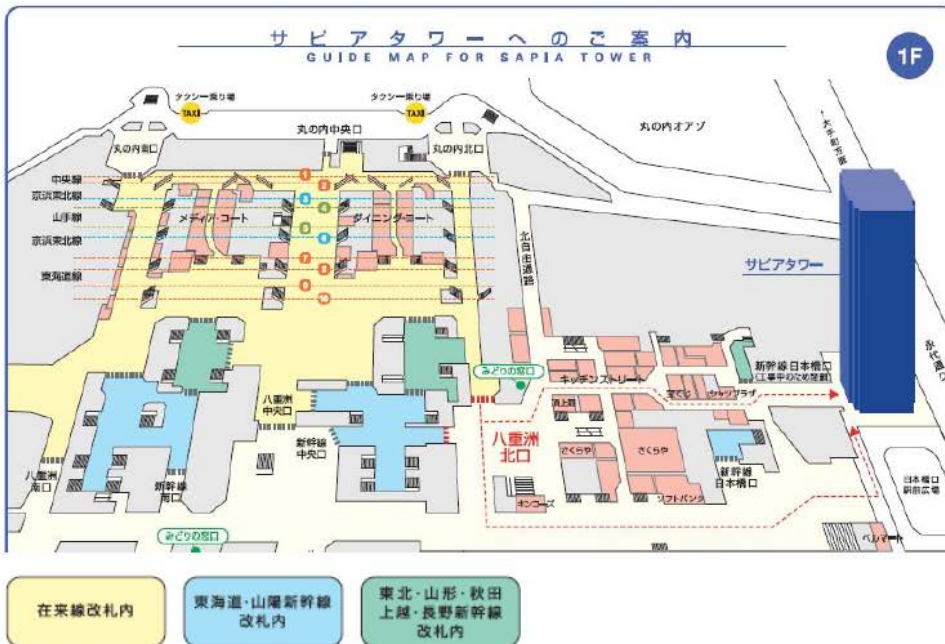
<< Access Information >>

石油資源開発株式会社 (JAPEX)

東京都千代田区丸の内1丁目7番12号 サピアタワー



JR「東京駅」日本橋口より徒歩30秒
 東京メトロ 丸の内線「東京駅」より徒歩1分
 東京メトロ 東西線、丸の内線、半蔵門線「大手町駅」B7出口より徒歩1分





Best Paper of the 22nd Formation Evaluation Symposium 2016

The best paper was selected from 23 papers presented at the 22nd Formation Evaluation Symposium held at JOGMEC-TRC on September 29-30, 2016. For this selection, Board members reviewed every paper at the last board meeting and chose the awarded paper by the voting. The testimonial will be given to the awardees at the coming JFES Symposium of this year. The awarded paper and the authors are shown below.

UNDERSTANDING LWD QUADRUPOLE SHEAR IN ANISOTROPIC ENVIRONMENTS

Matthew Blyth⁽¹⁾, Naoki Sakiyama⁽²⁾, Ryohei Iritani⁽²⁾, Hiroaki Yamamoto⁽²⁾ and Henri-Pierre Valero⁽²⁾

(1) Schlumberger Technology Corp.

(2) Schlumberger K.k

Nowadays, quadrupole (QP) shear measurement became an ubiquitous measurement from LWD acoustic tools, however not much is known about what QP mode actually measures in anisotropic formations and how sensitive the data is to such an environment. The authors explored, through mathematical model and field data, the effect of anisotropy on the QP mode, its azimuthal sensitivity, what it measures and its limitations in anisotropic formations.

As a result of on this research, the following points have been clarified:

1. When the QP firing is symmetrical with the anisotropy direction then the measured quadrupole shear will tend towards the faster shear value, however the dispersion curve asymptote to the fast shear is very weak in energy and any estimation of formation speed shear speed would be sensitive to background noise.
2. When the QP firing is anti-symmetrical it will read closer to the slow shear wave, however there is still an energy content traveling faster than the slow shear value which would complicate the extraction of a reliable slow shear.
3. QP acquisition is routinely done with a rotating tool and stacked waveforms and so the above azimuthal sensitivity is usually lost, therefore, it is not yet routinely possible to extract anisotropy information from the quadrupole mode despite the evidence of azimuthal sensitivity.

The board members recognized that Mr. Blyth clearly and concisely presented the research result which demonstrated what exactly the QP mode measures in the presence of shear anisotropy. It is expected further challenges will continue to develop methods to extract reliable fast and slow shear information by LWD tools in the future.

(Aoyama Takeo, Session Chair)