

## *JFES Newsletter*

Secretary  
E-mail  
Phone  
Fax

Osamu Osawa  
oosawa@slb.com  
(81-3) 3434 7230  
(81-3) 3434 7252

Japan Formation Evaluation Society (<http://www.geocities.jp/ymmiya/>)

**No. 58 May 2006**

## Announcement from the Secretary Board

### The Twelfth Formation Evaluation Symposium of Japan Call for Abstract

The Twelfth Formation Evaluation Symposium of Japan will be held at Technology Research Center, Japan Oil, Gas and Metals National Corporation, on October 4-5, 2006. All persons involved with the oil, gas, geothermal energy and geoenvironment industry and research institutes are invited to submit abstracts for presentation at the symposium.

Mark your calendar now to attend the Twelfth Formation Evaluation Symposium of Japan.

**Abstract is due no later than June 16, 2005.** For details, please refer to "Call for Abstracts" attached at the last page. Your contribution is expected. Waiting for your submission!

## Invitation to 56th Chapter Meeting

We would like to announce that the forthcoming Chapter Meeting will be held as follows. Please let me know your availability by May 12<sup>th</sup>, both for Chapter meeting and buffet to Ms. Sora Shin ([sshin@tokyo.oilfield.slb.com](mailto:sshin@tokyo.oilfield.slb.com))

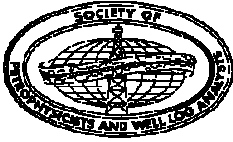
**Venue:** Mitsui Oil Exploration Co., Ltd.  
Hibiya Central Bldg. 12F1  
2-9, Nishi shimbashi 1-chome,  
Minato-ku, Tokyo 105-0003  
Tel 03-3502-5160  
Contact: Mr. Yusuke Kuwauchi  
(*Please see the map at page 3*)

**Date:** Wednesday, May 17th, 2006

**Program:** 16:00 "Monitoring of Pilot CO<sub>2</sub> Injection in Nagaoka Using Time Lapse Well Logs"  
Mr. Jiro Watanabe, Geophysical Surveying Co., Ltd.

16:45 "Time-lapse crosswell seismic tomography for monitoring the pilot CO<sub>2</sub> injection into an onshore aquifer, Nagaoka, Japan"  
Mr. Hideki Saito, OYO Corporation

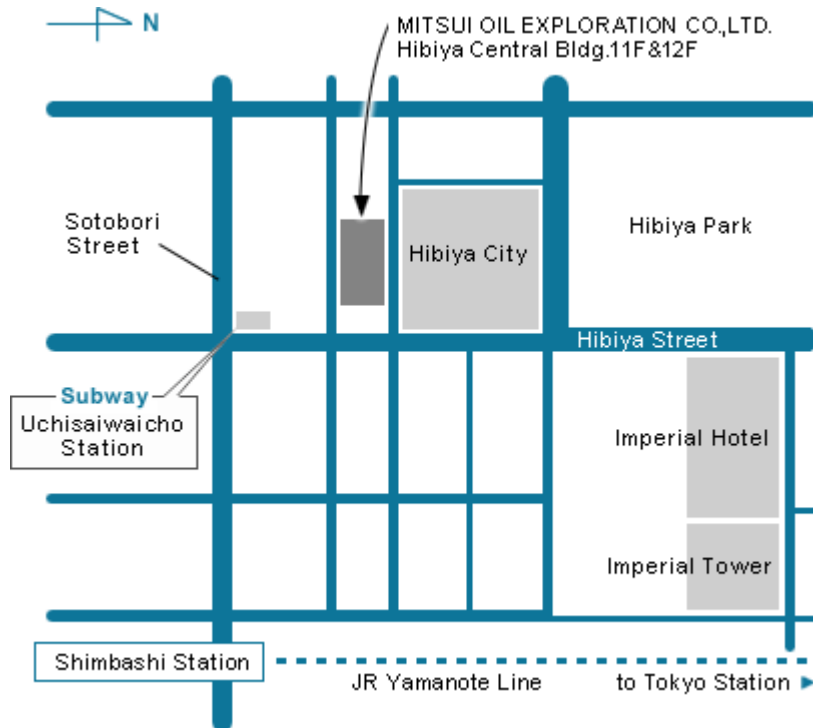
17:30 Icebreaker

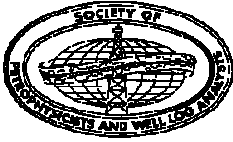


# JAPAN FORMATION EVALUATION SOCIETY

- Japan Chapter of Society of Petrophysicists and Well Log Analysts -

## Map of the venue:





# JAPAN FORMATION EVALUATION SOCIETY

- Japan Chapter of Society of Geophysicists and Well Log Analysts -

---

**Abstract: “Monitoring of Pilot CO<sub>2</sub> Injection in Nagaoka Using Time Lapse Well Logs”**

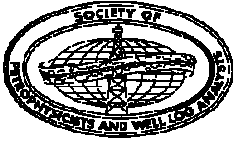
Increased emission of greenhouse gas, especially Carbon dioxide (CO<sub>2</sub>), that is warming the planet is becoming serious worldwide environment issue. The injection of CO<sub>2</sub> into a subsurface aquifer layer is one of promising process to reduce CO<sub>2</sub> in the atmosphere. A pilot-scale CO<sub>2</sub> injection into an aquifer has been conducted by Research Institute of Innovative Technology for the Earth (RITE). CO<sub>2</sub> injection site was located at Minami-Nagaoka gas field. One injection well (CO<sub>2</sub>-1) and three observation wells (CO<sub>2</sub>-2, CO<sub>2</sub>-3, CO<sub>2</sub>-4) were drilled. The target layer located about 1,100m below the ground surface. The supercritical CO<sub>2</sub> injection started on 7 July 2003, and ended on 11 January 2005 with the total amount of 10,405.2 tons. CO<sub>2</sub> was injected at CO<sub>2</sub>-1 into the sand stone reservoir layer. The time lapse well logs were surveyed regularly at the observation wells to monitor CO<sub>2</sub> breakthrough and to interpret the relationship between CO<sub>2</sub> saturation and result of each well logs. On 10 March 2004, The first CO<sub>2</sub> breakthrough was confirmed at the well CO<sub>2</sub>-2 by change of resistivity, neutron and V<sub>p</sub>. The Neutron porosity decreased at 1,116m after the CO<sub>2</sub> breakthrough, and neutron log showed CO<sub>2</sub> bearing zone getting wider during the injection. The V<sub>p</sub> has reduced 0.77km/sec after the CO<sub>2</sub> breakthrough, and it had tendency that CO<sub>2</sub> bearing zone was getting wider as in the neutron log. The response of V<sub>p</sub> to the change of CO<sub>2</sub> saturation is different from the response of neutron and resistivity. That is, the change of minute CO<sub>2</sub> saturation in the early CO<sub>2</sub> breakthrough stage brought a dramatic change to V<sub>p</sub>. CO<sub>2</sub> saturation can be shown as function of V<sub>p</sub> using Gassmann theory. We succeeded to detect CO<sub>2</sub> breakthrough and to estimate CO<sub>2</sub> saturation (S<sub>g</sub>) using time lapse well logs.

**Presenter:** Jiro Watanabe  
Geophysical Surveying CO., LTD. Manager, sales division  
Field of expertise: Wireline logging  
Industry Experience: 1981-present Geophysical Surveying Co., Ltd.

**Abstract: “Time-lapse crosswell seismic tomography for monitoring the pilot CO<sub>2</sub> injection into an onshore aquifer, Nagaoka, Japan”**

Japan’s first pilot-scale CO<sub>2</sub> sequestration experiment has been conducted at the Nagaoka test site, where 10400 t of CO<sub>2</sub> have been injected into an onshore aquifer at a depth of about 1100 m. Among various measurements conducted at the site for monitoring the injected CO<sub>2</sub>, we conducted time- lapse crosswell seismic tomography between two observation wells to determine the distribution of CO<sub>2</sub> in the aquifer by the change of seismic velocities. The crosswell seismic tomography measurements were carried out five times; once before the injection as a baseline survey, and four times during and after the injection as monitoring surveys. The velocity tomograms obtained from the monitoring surveys were compared to the baseline survey tomogram, and velocity difference tomograms were generated. The velocity difference tomograms showed that velocity had decreased in a part of the aquifer around the injection well, where the injected CO<sub>2</sub> was supposed to be distributed. We also found that the area in which velocity had decreased was expanding in the formation up-dip direction, as increasing amounts of CO<sub>2</sub> injected. The maximum velocity reductions observed were 3.5% after 10400 t of CO<sub>2</sub> had been injected.

**Presenter:** Hideki Saito, Hiroyuki Azuma, Dai Nobuoka, Oyo Corporation  
Daiji Tanase, Engineering Advancement Association of Japan (ENAA)  
Ziqiu Xue, Research Institute of Innovative Technology for the Earth (RITE)



# JAPAN FORMATION EVALUATION SOCIETY

- Japan Chapter of Society of Petrophysicists and Well Log Analysts -

## The 12th Formation Evaluation Symposium of Japan JOGMEC-TRC, Chiba October 4-5, 2006 CALL FOR ABSTRACTS

**Sponsored** by Japan Formation Evaluation Society  
**Cosponsored** by Technology Research Center, Japan National Oil Corporation  
**Supported** by Japanese Association for Petroleum Technology  
Society of Exploration Geophysicist of Japan  
Geothermal Research Society of Japan  
Society of Petroleum Engineers, Japan Section  
Subsurface Instrumentation Division of MMIJ

The 12th Formation Evaluation Symposium of Japan will be held at Japan Oil, Gas and Metals National Corporation (JOGMEC) - Technology Research Center, Chiba on October 4-5, 2006. All persons involved with the oil, gas, geothermal energy and geoenvironment industry and scientific drillings are invited to submit abstracts of papers for presentation at the symposium.

**NOTE TO AUTHORS:** Complete this application form and submit with Abstract containing 200 to 400 words in English by **e-mail**. Notification of acceptance will be made by **the end of June, 2006**. If accepted, a complete manuscript or extended abstract in English will be required for the proceedings by **July 31, 2006**.

### **ABSTRACT IS DUE NO LATER THAN JUNE 16, 2006**

Submit abstracts to: Kazuhiko Tezuka (Vice President of Technology, JFES)  
JAPEX Research Center  
Telephone: +81(43)275-9311 Fax: +81(43)275-9316  
e-mail: tezuka@japex.co.jp

Title of Paper: .....  
Author(s): .....  
Corresponding Author: .....  
Company: .....  
Address: .....  
Tel: ..... Fax:..... e-mail: .....

Subject classified as (check):

- |  |   |
|--|---|
| <input type="checkbox"/> Acoustic/borehole seismic               | <input type="checkbox"/> Electrical/electromagnetic logging       |
| <input type="checkbox"/> Borehole imaging                        | <input type="checkbox"/> Well test analysis/production logging    |
| <input type="checkbox"/> General formation evaluation techniques | <input type="checkbox"/> Petrophysical properties/relationships   |
| <input type="checkbox"/> Fractured reservoirs                    | <input type="checkbox"/> Reservoir characterization               |
| <input type="checkbox"/> Geological applications                 | <input type="checkbox"/> Geoenvironment & geothermal applications |
| <input type="checkbox"/> Scientific drilling                     | <input type="checkbox"/> CO2 sequestration engineering            |

# 会 告

平成 18 年 5 月  
物理探査学会 国際委員会

## SEG/EAGE Distinguished Instructor Short Course (DISC2006) 参加者募集のお知らせ

米国SEGおよび欧州EAGEの主催する教育プログラムDistinguished Instructor Short Course (DISC) を今年度も日本でも開催することになりました。このプログラムは、SEGの著名な講師が世界各地の連携学会を回り、最新のトピックスについて1日講義を行うものです。最先端の技術を知る大変よい機会ですので、下記テーマに関心のある方は奮ってご参加ください。また、SEGのサイト<http://www.seg.org/services/ce/disc/> 及び物理探査学会のサイト<http://www.segj.org/committee/kokusai/education.html> もご覧下さい。(コースの概要(英文)を別紙に添えます。)

### 記

テーマ：**Seismic Attribute Mapping of Structure and Stratigraphy**

講師：**Kurt Marfurt (University of Houston)**

日時：**平成18年7月13日(木) 9時30分～17時00分**

会場：**産業技術総合研究所臨海副都心センター第1～2会議室**

ゆりかもめ テレコムセンター駅より徒歩2分

URL：[http://unit.aist.go.jp/waterfront/jp/access\\_map/index.html](http://unit.aist.go.jp/waterfront/jp/access_map/index.html)

受講料：SEG(もしくはEAGE)の一般会員：(事前申込)5,000円、(当日払)6,000円

SEG(もしくはEAGE)の学生会員：1,000円

SEG(もしくはEAGE)の非会員の方も、当日、加入手続きをしていただくことにより参加していただけます。なお、SEG一般会員の年会費は75米ドルであり、受講料とは別途に請求させていただきます。SEG学生会員の年会費はHalliburton社からの補助があるため、学生の方は無料でSEGに入会できます。新規にSEG学生会員になられる方には、専用の申込み紙を配布いたしますので、当日学生証をお持ち下さい。

テキスト：受講者には講義テキストが配布されます。

キャンセル：誠に恐縮ですが、事前申込み締切日以降のキャンセルに関しましては、受講料の返却はいたしません。講義テキストを後日郵送させていただきます。

申込方法：

- (1) 下記の必要事項を記入の上、DISC2006開催事務局([disc2006@segj.org](mailto:disc2006@segj.org)：申し込み専用アドレス)へ電子メールでお申込みください。または、下記申込書を学会事務局宛郵送あるいはFaxにてお申込みください。参加受付証及び受講料振替用紙をお送りします。ご不明な点は学会事務局までお問い合わせください。

〒143-0027 東京都大田区中馬込2-2-18 サンエスビル 物理探査学会

TEL/FAX: 03-3774-5858

E-mail: [office@segj.org](mailto:office@segj.org)

- (2) 事前申込〆切日：平成18年6月26日(月)

先着順に申込をお受けします。会場の席に限りがありますので、お早めにお申し込みいただくようお願いいたします。

以上



受付日時：

受付番号：

SEG/EAGE Distinguished Instructor Short Course (DISC2006) 参加申込書

氏名：(和文) \_\_\_\_\_ (英文) \_\_\_\_\_

所属：(和文) \_\_\_\_\_ (英文) \_\_\_\_\_

部署名： \_\_\_\_\_

住所：〒 \_\_\_\_\_

電話： \_\_\_\_\_ FAX: \_\_\_\_\_ E-mail: \_\_\_\_\_

加入学会：SEGもしくはEAGEの会員/学生会員/いずれも非会員

\_\_\_\_\_ 物理探査学会の \_\_\_\_\_ 会員 / 学生会員 / 非会員 (該当するものに○印を付けてください)

***Seismic Attribute Mapping  
of Structure and Stratigraphy***  
**Dr. Kurt Marfurt**  
**University of Houston**



## **Overview**

Seismic data are incredibly rich in information, including amplitude, frequency, and the configuration or morphology of reflection events. Seismic attributes, including volumetric estimates of coherence, dip/azimuth, curvature, amplitude texture, and spectral decomposition, can greatly accelerate the interpretation of newly acquired 3D surveys as well as provide new insight into old 3-D surveys. Successful use of seismic attributes requires both an understanding of seismic data quality and of sedimentary and tectonic processes.

Participants in this one-day course will gain an understanding of the physical basis, geologic expression, and petrophysical calibration of seismic attributes.

## **Summary**

This course will address the following questions:

How can we use attributes to accelerate the interpretation of very large data volumes?

What is the impact of seismic acquisition and processing on attribute images? Can we use attributes to help choose processing parameters?

What is the physical basis for modern volumetric attributes, including coherence, dip/azimuth, curvature, amplitude gradients, textures, and spectral decomposition?

How do we display these attributes to provide the most information and to communicate important concepts to nontechnical members of our team?

What is the attribute expression of clastic versus carbonate depositional environments? Of extensional versus compressional deformation?

How can we use geometric attributes and spectral decomposition to more accurately define the reservoir model?

Participants will be able to take home and use the answers and methods discussed in this course.

## **Who should attend?**

Seismic interpreters who want to extract more information from their data.

Seismic processors and imagers who want to learn how their efforts impact subtle stratigraphic and fracture plays

Sedimentologists, stratigraphers, and structural geologists who use large 3-D seismic volumes to interpret their plays within a regional, basin-wide context

Reservoir engineers whose work is based on detailed 3-D reservoir models and whose data are used to calibrate indirect measures of reservoir permeability

Advanced knowledge of seismic theory is not required; this course focuses on understanding and practice.