



**Society of Petroleum Engineers**

**25-26 August 2009** | Barton Creek Resort | Austin, Texas

**Register by 3 August 2009**

**WORKSHOP**

# ***Distributed Temperature Sensing: Measurement and Applications***

## **Committee Members**

**Chairman**  
**Dennis Dria**  
Shell Intl. E&P

**Co-chairman**  
**Paul Huckabee**  
Shell E&P

**Co-chairman**  
**Mikko Jaaskelainen**  
SensorTran

**Hays Allen**  
WellDynamics/Halliburton

**Charles Crawley**  
Chevron

**Tor Kragas**  
BP

**Philippe Legrand**  
Baker Hughes  
Production Quest

**Steve Mathias**  
Weatherford International

**Marise Mikulus**  
Baker Hughes  
Production Quest

**Rogério Ramos**  
Schlumberger

**Jose Sierra**  
WellDynamics/Halliburton

Distributed Temperature Sensing (DTS) measurements provide continuous, real-time information for well and reservoir management, spanning the range from mature field projects involving shallow wells through a variety of EOR applications to high-end deep water and extreme-environment wells. This emerging technology workshop aims to provide operators and service companies the opportunity to:

- Learn the latest developments in DTS measurement and interpretation techniques, hardware, and instrumentation
- Look ahead at approaches under development to address extreme environmental conditions and other current limitations
- Provide case studies of commercial field installations that demonstrate newly implemented equipment and interpretations, including completion/stimulation monitoring, well diagnostics, and reservoir/well surveillance.

## **Sponsors**

**Schlumberger**

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 **WellDynamics**  
Transforming Reservoirs™

**FloQuest**

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# Distributed Temperature Sensing: Measurement and Applications

**Preliminary Program:** For agenda updates visit [www.spe.org/meetings](http://www.spe.org/meetings).

## Sponsorship Support

Sponsorship support helps offset the cost of producing workshops and allows SPE to keep the attendance price within reach of operations-level individuals, those who benefit most from these technical workshops.

Sponsors benefit both directly and indirectly by having their names associated with a specific workshop.

While SPE prohibits any type of commercialism within the conference hall itself, the society recognizes that sponsoring companies offer valuable information to attendees outside the technical sessions.

## Sponsorship Categories

Sponsorships are offered on a first come basis. Please contact SPE to verify the availability of a particular sponsorship. Existing sponsors have the opportunity to renew the same level of sponsorship for annual workshops.

<b>Breakfast</b>	<b>Coffee Break</b>
<b>Lunch</b>	<b>Reception</b>
<b>Audio/Visual</b>	<b>Materials</b>

## Sponsorship Benefits

In addition to onsite recognition; SPE will recognize sponsors on the SPE website and in all printed material for the workshop. Based on the sponsorship selected, sponsoring companies also receive logo visibility on promotional workshop items; a half-page, full-color ad in the workshop technical program; and up to two delegate passes to the workshop.

## For More Information

For a detailed list of available sponsorships, including benefits and pricing, contact Susan Wooten, Workshops at [swooten@spe.org](mailto:swooten@spe.org).

# Schedule

## Monday, 24 August

6:00–7:30 p.m.

**Welcome Reception**

## Tuesday, 25 August

7:00–8:00 a.m.

**Registration and Continental Breakfast**

8:00–9:30 a.m.

**SESSION I: DTS – CHALLENGES AND BLOCKERS**

9:30–10:00 a.m.

**Coffee Break**

10:00 a.m.–12:00 p.m.

**SESSION II: TECHNICAL ENABLERS – INSTRUMENTATION**

12:00–1:30 p.m.

**Lunch**

1:30–3:00 p.m.

**SESSION III: TECHNICAL ENABLERS – INSTALLATION MECHANICS**

3:00–3:30 p.m.

**Coffee Break**

3:30–5:00 p.m.

**SESSION IV: WORKFLOWS AND DATA MANAGEMENT**

5:00–6:30 p.m.

**Reception**

## Wednesday, 26 August

7:00–8:00 a.m.

**Continental Breakfast**

8:00–9:30 a.m.

**SESSION V: CASE STUDIES – APPLICATIONS HEAVY OIL**

9:30–10:00 a.m.

**Coffee Break**

10:00 a.m.–12:00 p.m.

**SESSION VI: CASE STUDIES – INFLOW PROFILING**

11:30 a.m.–1:00 p.m.

**Lunch**

1:00–2:30 p.m.

**SESSION VII: CASE STUDIES – DIAGNOSTIC MONITORING FOR INJECTION PLACEMENT, STIMULATION AND DISPOSAL APPLICATIONS**

2:30–3:00 p.m.

**Coffee Break**

3:00–4:00 p.m.

**SESSION VIII: NOVEL APPLICATIONS**

4:00–5:00 p.m.

**SESSION IX: WRAP-UP DISCUSSION**

## Tuesday, 25 August

8:00–9:30 a.m.

### **SESSION I: DTS – CHALLENGES AND BLOCKERS**

*Chairman's Welcome: Dennis Dria, Shell*

An overview of Distributed Temperature Sensing (DTS) as an emerging technology for the E&P industry: Keynote topics will include a major operating company's challenge to address specific well and reservoir surveillance needs, and the identification of significant blockers that must be overcome to meet those needs.

10:00 a.m.–12:00 p.m.

### **SESSION II: TECHNICAL ENABLERS – INSTRUMENTATION**

*Session Chairs: Rogerio Ramos, Schlumberger*

*Mikko Jaaskelainen, SensorTran*

Successful DTS installations must be planned and implemented from a system perspective. DTS instrumentation and fibers continue to improve, increasing system performance while enabling new applications. This session will review recent technology advances in the area of DTS systems.

1:30–3:00 p.m.

### **SESSION III: TECHNICAL ENABLERS – INSTALLATION MECHANICS**

*Session Chairs: Philippe Legrand, Baker Hughes Production Quest*

*Rogerio Ramos, Schlumberger*

Good installations are critical to the effectiveness and long term performance of any sensor. This session focuses on effective installation methods and practices.

3:30–5:00 p.m.

### **SESSION IV: WORKFLOWS AND DATA MANAGEMENT**

*Session Chairs: Tor Kragas, BP*

*Marise Mikulis, Baker Hughes Production Quest*

Critical to capturing value from DTS technology is the ability for engineers to easily and efficiently access and interface with the data and use it to assist in decision-making on well operations and field development. This session will focus on the management, visualization, and interpretation of DTS data, along with its integration with other information in broader reservoir and petroleum engineering workflows.

## Wednesday, 26 August

8:00–9:30 a.m.

### **SESSION V: CASE STUDIES – APPLICATIONS HEAVY OIL**

*Session Chairs: Hayes Allen, WellDynamics/Halliburton*

*Philippe Legrand, Baker Hughes Production Quest*

*Charles Crawley, Chevron*

High temperature applications of DTS such as monitoring steam assisted gravity drainage (SAGD) wells, huff/puff steam enhanced oil recovery (EOR) or other novel high temperature applications using DTS will be covered.

**10:00 a.m.–12:00 p.m.**

**SESSION VI: CASE STUDIES – INFLOW PROFILING**

*Session Chairs: Jose Sierra, WellDynamics/Halliburton*

*Tor Kragas, BP*

One of the principal applications of DTS technology in oil and gas wells is inflow monitoring. When installed across multiple reservoir intervals or in a horizontal well, DTS can be used to provide zonal allocations, locate intervals of water or gas breakthrough, monitor reservoir conformance, indentify fractures, and identify crossflow. It can provide a cost-effective, non-intrusive alternative to production logging.

**1:00–2:30 p.m.**

**SESSION VII: CASE STUDIES – DIAGNOSTIC MONITORING FOR INJECTION PLACEMENT, STIMULATION AND DISPOSAL APPLICATIONS**

*Session Chairs: Paul Huckabee, Shell International E&P*

*Steve Mathias, Weatherford International*

Case studies that demonstrate field applications during injection placement operations to evaluate effectiveness of distribution and/or containment of injected fluids relative to target treatment or disposal intervals will be presented.

**3:00–4:00 p.m.**

**SESSION VIII: NOVEL APPLICATIONS**

*Session Chairs: Philippe Legrand, Baker Hughes Production Quest*

*Steve Mathias, Weatherford International*

Focus will be on new and novel DTS applications that expand the value proposition for DTS.

**4:00–5:00 p.m.**

**SESSION IX: WRAP-UP DISCUSSION**

Open discussion and debate on key topics covered during the course of the workshop. Participants will discuss key challenges and future directions in the characterization of DTS measurements and applications.

**Workshop guidelines**

**FORMAT**

Workshops maximize the exchange of ideas among attendees and presenters through brief technical presentations followed by extended Q&A periods. Focused topics attract an informed audience eager to discuss issues critical to advancing both technology and best practices. The majority of the presentations are in the form of case studies, highlighting engineering achievements and lessons learned. In order to stimulate frank discussion, no proceedings are published and the press is not invited to attend.

**DOCUMENTATION**

Proceedings from the workshop will not be published; therefore, formal papers and handouts are not requested of speakers or panel members. A URL containing released copies of the workshop presentations will be available to attendees following the workshop.

**COMMERCIALISM**

In remaining consistent with workshop objectives and SPE guidelines, excessive commercialism in presentations will not be permitted. Company logos should be limited to indicate the affiliation of the presenter(s).

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***MAILING INDICIA LABELS***