

KACST - JCCP

**1st Joint International Workshop
for the Earth's Surface and
Subsurface 4D Monitoring - 2012**

JANUARY 8 - 11, 2012

CONFERENCE HALL - BUILDING 36
KACST HEADQUARTERS
KING ABDULLAH ROAD - RIYADH

THEWORKSHOP

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The 1st Joint International Workshop for the Earth's Surface and Subsurface 4D Monitoring in 2012, is part of KACST's program to implement the Kingdom's National Science, Technology and Innovation Plan. The workshop will highlight the most recent research, developments, innovations and applications of Earth's Surface and Subsurface 4D Monitoring, both within the Kingdom and internationally.

The key to increasing recoverable reserves is research and development. Many breakthroughs and thousands of advances in exploration and production have increased oil and gas recovery levels around the world.

Value from oil and gas production will diminish without the added value from enhanced recovery, new discoveries of oil and natural gas and the supporting industry.

Together with Japan Cooperation Centre Petroleum, KACST is hosting the 1st Joint International Workshop for the Earth's Surface and Subsurface – 4D Monitoring, in 2012.

4D monitoring and the development of other new and innovative technologies, are incredibly important for the Kingdom of Saudi Arabia, to enhance and protect its national energy security.

This workshop will bring together experts from around the world to share knowledge and expertise in the fields of 4D seismic monitoring, and other related technologies. By sharing best practices in this area, the future of oil and gas exploration and production can be developed further.

THE DISCUSSION TOPICS



Achieving technical competence and superiority to find and produce the Kingdom's oil and natural gas resources efficiently utilizing state-of-the-art technologies and solutions, is a leading national priority... The workshop seeks to promote these objectives...

The KACST - JCCP collaboration will review state-of-the-art solutions for oil & gas exploration and resource management...

The tracks will cover imaging and monitoring, micro-seismic events, gas diffusion in porous media and a variety of applications of the latest in oil and gas technologies for the Kingdom...

Evolving technologies and solutions will be presented in relationship to the 8 key technology target areas identified by KACST Oil and Gas Program.

Effective fluid injection and review of best practices applied in Japan will also be a part of this workshop. These programs for international joint research on oil refining and utilization technologies, are developed in association with senior Saudi and Japanese researchers and focus on latest research and findings in regard to critical areas for the Kingdom's oil and gas sector.

Technology transfer, development, and adoption of the latest successful applications for oil and natural gas exploration, and efficient production, are objectives of the collaboration program...

Workshop Tracks:

TRACK 1

Time lapse for heavy oil, CO₂-EOR and CSS

This track will elaborate on various topics, including the virtual source method of imaging and monitoring below complex overburden, monitoring oil-sands reservoirs, and details of time lapse experiments using the seismic ACROSS source near the Nojima-fault in Awaji Island.

TRACK 2

Physical properties of time lapse approach

Speakers will discuss the uncertainty of micro-seismic event location during fluid injection, seismic monitoring design for CO₂ injection in a carbonate reservoir, and CO₂ monitoring by the time lapse well log at the pilot-scale injection site, Nagaoka, Japan.

TRACK 3

Time lapse for reservoirs and seismogenic zones

Laboratory and numerical approaches on seismic responses of gas diffusion in porous media will be discussed, as well as examples of long term seismic monitoring and reservoir characterization at Yanaizu-Nishiyama geothermal field, and other related topics.

TRACK 4

Other technologies and future technologies

This track will incorporate presentations on enhancing old 3D seismic dataset with state of the art processing workflow in the partitioned zone of Saudi Arabia, acoustic logging in sand screened production well, upper virtual refraction interferometry of vibroseis data, D4C permanent seismic reservoir monitoring to optimize reservoir production and recovery, and experimental applications of IN-SAR technology in KSA. Technologies of the future that could be of use to the oil and gas industry will be presented.

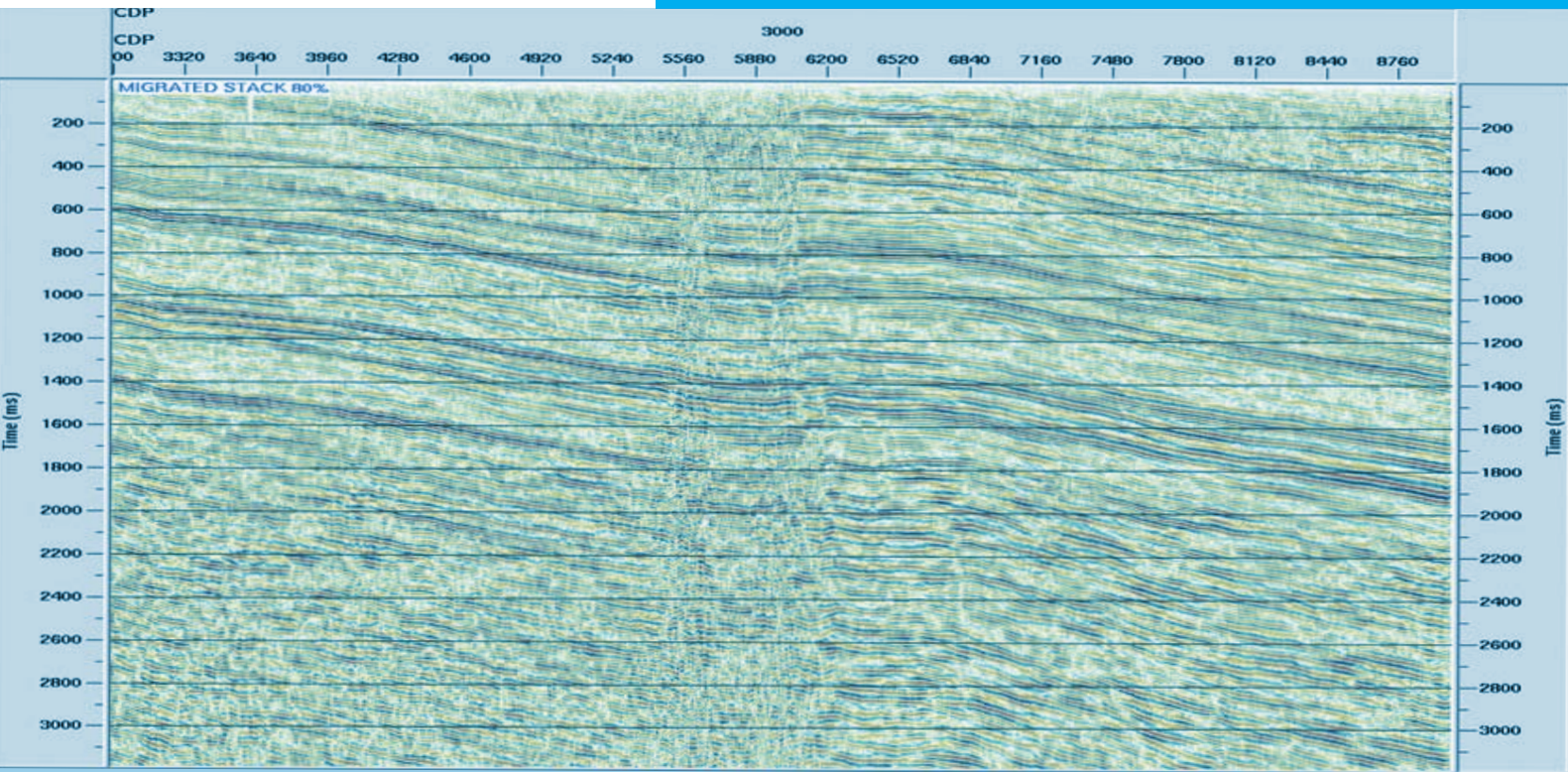
Target Attendees

The conference seeks to gather researchers, investors, decision makers, and all those who are interested in the field of oil and gas technologies. The event seeks to enhance cooperation between the various stakeholder groups for the purpose of increasing the technologies available in Saudi Arabia, and sharing best practices.

Target attendees include:

- Senior government officials
- Oil and gas sector decision makers
- Engineers, Geophysicists, and professionals
- Oil & Gas education professionals and students
- Providers of oil and gas solutions and services
- Financial leaders and economists
- Bankers and other national investors
- Local and international business leaders
- Oil and gas technology sector training centres
- Centres of excellence, intellectual property and patent offices
- Interested members of the public

KACST OIL & GAS



The KACST Oil and Gas Program

Oil and gas Research is a multidisciplinary field that relies on devices, instruments and materials developed in fields such as information technology, electronics, mechanics and advanced materials. KACST researchers and scientists working on the Oil and Gas Technology Program aim to improve methods of finding, producing and processing oil and gas in order to maintain the prosperity that these natural resources offer to the Kingdom.



MISSION

To create an effective research and development environment for oil and natural gas exploration and production technologies through:

- Research and development infrastructure with qualified professionals.
- Policies and procedures facilitating collaboration between research institutes.
- Localization and development of oil and natural gas exploration and production technologies to solve problems, improve quality and reduce costs.

VISION

Achieving technical competence and superiority to find and produce all of the oil and natural gas resources in the Kingdom's territories.

The workshop seeks to present the latest in oil and gas technologies for the sector's professionals...



TECHNOLOGY TARGET AREAS

The Oil and Gas Program has identified eight technology target areas (TTA) that will be the focus of Saudi Arabian oil and gas research and development in the future. These technology targets were developed by identifying technology gaps in high priority areas:

- An advanced and integrated database with high end visualization and communication tools for oil and gas information:
- Completion of the petroleum geological information such as mapping, modelling, seismic data interpretation.
- Enhanced oil recovery (EOR).
- Reservoir modelling, monitoring and management.
- Improved oil and gas exploration success rates especially in the Rubaii Alkhali and the Red Sea.
- Oil and natural gas production – reservoir simulation and production free of pollutants.
- Improved efficiency and quality of drilling operations.
- Protecting the environment – for example improved systems to monitor emissions from wells, and enhanced production standards to avoid emissions.

Key achievements and collaborations

Core analysis and reservoir engineering tests to aid oil exploration

Routine core analysis is a laboratory method of determining the basic petrophysical properties of cores recovered from specific geologic formations associated with oil and gas exploration and production.

Some key properties determined are lithology, porosity, permeability, fluid saturation and grain density.

Special core analysis (SCAL) involves tests that are supplementary to routine core analysis such as measurements of relative permeability, capillary pressure, wettability, electrical and mechanical properties studies. SCAL and Advanced Reservoir Engineering tests provide specific information to characterize particular property and provide a more complete understanding of a reservoir rock. Saudi oil and gas companies currently outsource some of the tests and analysis to independent international laboratories.

The Oil and Gas Research Unit within the Geophysics Research Institute at KACST proposed utilizing state of the art equipment, deep domain knowledge and trained manpower at KACST to provide advanced reservoir engineering tests and core analysis services to oil and gas companies in the Kingdom.

Ground penetrating radar to detect sand dunes thickness (Oil Applications)

Oil and gas are undoubtedly the most important strategic resources for Saudi Arabia's national economic performance is and will remain dependant on these natural resources. Given the importance of oil and gas to the Kingdom, the National Policy for Science and Technology has identified oil and gas among the top technology areas of strategic importance for the Kingdom's future development.

In light of this natural priority, researchers at KACST have developed a novel ground penetrating radar device that allows them to "see" through sand dunes with the potential to dramatically reduce the cost of oil exploration in the Kingdom

THE CO-ORGANIZER



JCCP aims to transfer Japan's technologies to oil-producing countries and support their research efforts, by promoting exchanges between researchers from oil-producing countries and researchers in Japan. Researchers from oil-producing countries are invited to conduct research activities in Japan under the guidance of Japanese researchers in relevant fields.

The JCCP

Japan Cooperation Center, Petroleum (JCCP) was founded in November 1981 to promote technical cooperation and personnel exchanges with the oil-producing countries in the downstream sectors of the oil industry. Its mission is to contribute to the stability of oil supplies to Japan as well as the economic development of both Japan and the oil-producing countries.



Its major activities include programs to accept overseas technical and administrative staff for training, to dispatch Japanese experts abroad, to sponsor international conferences and seminars and to conduct studies and research.

In April 2001, JCCP inherited the projects of promotion of oil information exchanges, international joint research projects and joint technical projects in the oil-producing countries from Petroleum Energy Center (PEC). This merger incorporated international cooperation in the downstream sectors of the oil industry into JCCP, seeking to make the projects proceed more efficiently and comprehensively.

In the 21st century, JCCP continues its commitment to promoting friendship and cooperation with the oil-producing countries with the help of the private companies concerned and under the auspices of the Ministry of Economy, Trade and Industry.

The latest in Japanese best practices taken from various fields in Japan will be presented at the workshop...

Technical Cooperation

JCCP technical cooperation programs are implemented in oil-producing countries, with the primary objectives of providing technical cooperation in response to their specific needs and conducting demonstrations of relevant technologies, in partnership with Japanese companies possessing advanced technologies.

The ultimate goal of the projects is to further strengthen cooperative relationships between Japan and oil-producing countries, by transferring Japan's technologies and experience related to oil to the respective countries.

JCCP offers Joint Technical Cooperation Programs and International Research Cooperation Programs.

Joint Technical Cooperation Programs

These programs form the core of JCCP's technical cooperation activities. Around 25 to 30 projects are implemented each year, in major oil-producing countries in the Middle East (Saudi Arabia, UAE, Iran, Kuwait, Qatar, and Oman).

The scope of the programs widely varies according to the needs of each oil-producing country, and ranges from providing consultation on refinery operations, to conducting feasibility studies of new programs, and includes R&D activities in the environmental field, as well.

These programs aimed at strengthening collaboration with oil-producing countries, are divided into programs focusing on the promotion of oil information exchange with oil-producing countries and joint technical cooperation programs. The former includes Joint GCC-Japan Environment Symposiums and comprehensive surveys in oil-producing countries, and the latter joint technical cooperation programs include country-specific technical cooperation programs.

These technical cooperation projects are divided into the following six categories.

1. Basic study
2. Project-finding (PF) study
3. Consulting Service(CS)
4. Feasibility study (FS)
5. Research and development (RD) project
6. Business development (BD) project (begun in FY2005)

International Research Cooperation Programs

These programs for international joint research on oil refining and utilization technologies, are subdivided into research assistance activities, which include the high-level researcher dispatching program, symposiums, and research framework support activities, which are represented by the VIP invitations and Researcher invitation program. Researchers from oil-producing countries will be invited to conduct research in Japan, long-term, under the guidance of Japanese researchers, and Japanese high-level researchers will be dispatched to oil-producing countries, also long-term, to provide research assistance. Local symposiums will also be jointly hosted by JCCP and counterpart organizations, covering the exchange of information on the latest technologies. JCCP aims to transfer Japan's technologies to oil-producing countries and support their research efforts, by promoting exchanges between researchers from oil-producing countries and researchers in Japan. Researchers from oil-producing countries are invited to conduct research activities in Japan under the guidance of Japanese researchers in relevant fields. During their stay in Japan, they not only develop their research capacities, but also gain first-hand experience in Japanese technologies and culture. Joint seminars with oil-producing countries are also carried out under the Research Support Program. Annual seminars held in Saudi Arabia and Kuwait have become regular events. Furthermore, in 2007, JCCP launched another initiative for promoting researcher exchanges. Under this initiative, Japanese researchers are dispatched to research institutions in oil-producing countries, to provide guidance to local researchers over a long term.

Saudi-Japan Joint Symposium

JCCP regularly hosts a joint catalyst symposium with King Fahd University of Petroleum and Minerals (KFUPM) in Dahrán, Saudi Arabia, and a joint symposium with Kuwait Institute for Scientific Research (KISR) in Kuwait. These symposiums, like the researcher invitation program, were initially launched to provide lateral support to international joint research programs, such as on the development of advanced catalysts. All joint research programs have been completed to date, but research exchanges are still held on an ongoing basis, as a forum for sharing new research results and technical information, and for supporting researchers in oil-producing countries.

THE ORGANIZER...

King Abdulaziz City for Science and Technology (KACST)...



King Abdulaziz City for Science and Technology (KACST) is an independent scientific organization that is both the Saudi Arabian National Science Agency and its national laboratories. KACST's duties include: technology policy making, and coordination of 63 government agencies and over 190 national programs for the development of the Kingdom's strategic technologies. KACST also funds over 400 independent research projects annually and acts as the Kingdom's patent office. KACST currently has over 2500 researchers and professionals on its staff.

Together with Japan Cooperation Centre Petroleum (JCCP), King Abdulaziz City for Science and Technology (KACST) is hosting the 1st Joint International Workshop for the Earth's Surface and Subsurface – 4D Monitoring, in 2012.

Japan Cooperation Center, Petroleum (JCCP)



As a country that depends on imports for almost all of its oil supplies, which accounts for half of its oil primary energy sources, Japan gives high national priority to assuring stable supplies of oil by maintaining relationships of trust and friendship with the oil-producing countries. Particularly in a world subject to turbulent changes, Japan finds it crucial to keep close ties and promote mutual understanding with other countries, especially the oil-producing countries.

Japan Cooperation Center, Petroleum (JCCP) was founded in November 1981 to promote technical cooperation and personnel exchanges with the oil-producing countries in the downstream sectors of the oil industry. Its major activities include programs to accept overseas technical and administrative staff for training, to dispatch Japanese experts abroad, to sponsor international conferences and seminars and to conduct studies and research. JCCP has established a long track record in these endeavors since its founding. It merged with the Petroleum Energy Center in 2001, and inherited their projects of promotion of oil information exchanges, international joint research projects and joint technical projects in the oil-producing countries.



Online registration

You are invited to register early and receive additional information, please visit the Forum website at:

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