

the facilitator

Newsletter of the Industry Technology Facilitator

Issue 8

Global growth plans

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Welcome
by Neil Poxon, MD

2011 is an exciting year for ITF, which I hope will be pivotal in the future development and direction of the organisation.

Our calendar has a strong international flavour: we kicked-off the new year with a successful technology challenge workshop on enhanced oil recovery technologies, which was held in Kuwait. This was our first technology challenge workshop in the Middle East, and our programme of workshops for the rest of 2011 includes dates in Houston, Perth, Kuala Lumpur and Amsterdam as well as the UK.

ITF opened a new Abu Dhabi office in April, which will be followed up with bases in Houston and Australia later this year, with an Asia Pacific office planned for early in 2012. Our aim at ITF is to facilitate collaborative development and implementation of new technology. If we are to make a real impact on technology development - and bring availability of new technology to the industry, it is important that we engage effectively with technology users and developers around the globe. I hope that establishing these new bases will enable us to increase our membership, work more closely with the global technology development community and, ultimately, result in the delivery of more innovative and game changing technologies to the industry.

25th April, 2011

Board appointments



Tom Tilton



Melfort Campbell

We are pleased to announce that Tom Tilton of Weatherford and Melfort Campbell of IMES Group have been appointed to the ITF Board of Directors. Selection of Board members is based on maintaining a balance of skills and experience. All Directors act as individuals rather than as representatives of any group or organisation and have a duty to execute their duties in the best interests of ITF.



New members

ITF is delighted to welcome EnQuest and Marathon as new members. This brings total membership to 21 operators and five service companies. We are looking forward to developing fruitful working relationships with these two new members, to help drive technology innovation.



EUROnet

EUROnet was initially established as an informal network of European oil and gas associations. Participants gather a few times a year to exchange information and ideas. This network has now been formalised by a reciprocal collaboration between the eight members, of which ITF is one. Benefits of this partnership will include: best practice, sharing of information between organisations; facilitating supply chain involvement and assistance in arranging network visits in respective countries. The members of EUROnet are:

- Carbon Energy Club – Belgium
- Danish Marine & Offshore Group
- Decom North Sea – United Kingdom
- EIC – United Kingdom
- GEP – France
- IRO – the Netherlands
- ITF
- Norsk Industri

ITF maps out global growth plans

Operations Director Dorothy Burke outlines ITF's plans for 2011 and beyond



“A major benefit of establishing bases in other regions is that it will help ITF to engage with new technology developers”



The oil and gas industry depends on new technology to sustain future production, and ITF aims to facilitate collaborative technology research and development (R&D) to meet these needs. I believe that in an international industry like ours, to make the greatest impact, this collaboration has to be at a global level: indeed, as the industry continues to mature, we are seeing a degree of global convergence with respect to technology needs. In producing provinces around the world, difficult to access reserves require enhanced reservoir characterisation; mature assets present life extension issues and deeper and harsher environments can only be exploited through significant technology developments. This presents a real opportunity for a step change in collaborative working.

In recent years we have significantly grown our international membership, and have now reached a point

where, to engage effectively with existing members, and increase our membership further, it is necessary to expand ITF's presence around the world. We are actively pursuing this exciting goal during 2011 and beyond: a new Middle East office was established in April, with plans to open offices in Houston and Australia later this year, and Asia Pacific early in 2012.

As the world's largest producer of oil and gas, the Middle East is clearly an important region with respect to future hydrocarbon supply. There are some really innovative and forward looking R&D programmes underway in the Middle East, and discussions we have had with companies there indicate a desire to adopt a more collaborative R&D approach, and to increase engagement with developers from other regions. Establishing a Middle East base will allow us to build stronger relationships with the companies in that region, gain a better understanding of the technology issues, and effectively facilitate collaboration.

North America is another of the world's largest hydrocarbon producers. Houston is recognised as a centre of excellence for the industry, and many of ITF's members have operations there. The Gulf of Mexico and onshore provinces present technologically challenging issues, such as deep water, tight gas, heavy oil and unconventional resources, and collaboration is already a recognised approach to R&D in North America. A major benefit of establishing bases in other regions is that it will help ITF to engage with new technology development companies. Houston is an important region for oil and gas technology development expertise, so improving our links there will have benefits for all our members.

Australia and Asia Pacific are also interesting areas to be engaging with at this time – they are important regions that look set to become even more significant both in terms of hydrocarbon production and growing technology development communities, so I'm looking forward to working more closely with organisations in these areas.

All these plans go hand in hand with proposals to increase ITF membership from 26 to 40 organisations by 2015 and significantly increase the funding secured to bring more game-changing technologies to market.

This is an exciting time to be taking on the role of Operations Director at ITF – these plans are ambitious but I am confident that they will help us to focus on the most important global technology needs, understand more about the expertise available and find the best solutions.

Feasibility study tackles detection and classification of sea ice

RAIDACT is a six month feasibility project, being undertaken by System Engineering and Assessment Ltd (SEA), and is focused on the challenge of detecting and classifying sea ice approaching exploration platforms. SEA designs and builds radars with a range of applications, with recent projects including minefield detection, and investigation of foliage penetration.

Alan Fromberg, Ground Systems Business Manager, Aerospace Division, from SEA explains "This project aims to improve understanding of how the oil and gas industry can optimise use of radar to detect sea ice. For example, there are commonly a number of navigation radars on a drilling platform, which might be used in getting the platform to the location, then switched off. We are looking at whether this kind of equipment can be used in a different way, what information about sea ice the industry needs, and what we could add to radar already on the rig to optimise the information acquired".

He continued "It would be relatively straightforward to design a state-of-the-art radar system to detect sea ice, but the cost could run into millions of pounds – what we want to do is

focus on the optimum solution, looking at what information is really needed and how technology already used within the industry could be adapted".

Costs associated with stopping drilling and repositioning a rig are high, and better information about the state of the ice and how rapidly it is moving could help to avoid unnecessary stoppages as well as reducing the likelihood of an accident.

There are a number of radar configurations and types, with different applications. Higher radar frequencies give more information about the surface of the ice, with lower frequencies giving greater penetration. Low angle radars such as navigation radars can detect certain types of ice, but cannot classify it, so for instance chunks of floating ice, known as growlers, are difficult to detect with ship-mounted radar. High angle polarimetric radar

systems, which are used on earth observation satellites, are proven as a means of classification, but the repeat cycles are long, data delivery is not real time and it has to be processed.

The researchers at SEA believe that it is possible to design an operational system, to provide real-time ice classification and plotting based on polarimetric radar operation.

Fromberg "One approach might be a system which, most of the time transmits and receives from the rig, but if something of concern appears, an unmanned aerial vehicle (UAV) could be launched to collect extra data. Flying above the target gives the higher viewing angle required for polarimetric data, which can distinguish different

characteristics, such as thickness of the ice and other properties that help predict how much damage it might do.

"The usual issue with radar from a small platform such as a micro UAV is that there is not enough power on board to handle the amount of data produced. Processing data on board requires a bigger - more expensive - aircraft, so it makes sense to put as much of the transmitting and receiving infrastructure on the rig as possible, and to use transponder technology on the UAV to receive and transmit back to the rig where the data is processed and decisions are made".



"Costs associated with stopping drilling and repositioning a rig are high..."

PROFA: Pipeline Repair Operators Forum (Australasia)

Chevron, INPEX and Woodside approached ITF last year with respect to setting up a pipeline repair club in the Australasian region. ITF has since helped to establish the requirements of setting up such a club, the objectives of which are to connect developers and vendors of pipeline technology with users, to identify technology gaps in relation to pipeline repair, and to purchase hardware and intervention tooling that would then be shared amongst participating companies. In this initial phase, membership is open to subsea pipeline operating companies located in Australia, and once the organisation is fully up and running, it is planned to extend membership to the wider Australasian region. If you would like to know more about PROFA, contact Keith Mackie at ITF: k.mackie@oil-itf.com

Energy KTN

The Energy Knowledge Transfer Network (KTN) is a UK-wide network that was established to promote collaboration and technology transfer between energy sectors. It is an initiative of the UK government's Technology Strategy Board (TSB), and is run by a consortium of organisations representing the different energy sectors.

ITF is the partner for oil and gas. KTN events and activities that are relevant to oil and gas companies focus on opportunities where there is crossover of technology with other sectors, such as offshore wind, wave and tidal, carbon capture and storage, nuclear, fuel cells and hydrogen. For example, a recent London event focused on energy mix post 2020 and addressed

topics including North Sea reserves and technology challenges.

You can sign up for the Energy KTN and learn about some of the latest energy technology developments by visiting:

www.innovateuk.org/energyktn

The network currently has more than 2000 members with interests across the energy spectrum.



Upcoming KTN events

Event	Location	Date
Technology crossover event: wind, wave and tidal/oil and gas. One-to-one meetings to explore supply chain opportunities and technologies relevant to oil and gas.	Aberdeen	17 May
All-Energy 2011. Visit the Energy KTN stand and attend sessions on offshore wind, wave and tidal, biomass, supply chain development and more.	Aberdeen	18/19 May
Carbon capture and storage – the big debate between oil and gas and the power industry.	Aberdeen	June



"collaboration and technology transfer between energy sectors"

Meet the new team members

ITF has some ambitious goals and global growth plans for the next few years, so we have strengthened our team in order to meet the challenges that lie ahead. There are some new faces in the office as well as some new roles for existing staff. Read on to find out more....



David Liddle
Strategic Technology Director

As part of ITF's expansion plan, David Liddle has taken up the post of Strategic Technology Director. His new role will enable him to focus on growing the ITF membership and understanding their technology needs, as well as taking a strategic view on special technology projects for members.



Dorothy Burke
Operations Director

Dorothy Burke joined ITF as Operations Director, following a contract with us to project manage the oil and gas sector of the Energy Knowledge Transfer Network (see page 5). She was previously a regional director of Connect Scotland, an independent organisation which attracted more than £220 million of private equity investment to the Scottish technology sector.



Keith Mackie
Technology Manager

Keith Mackie has been promoted to the post of Technology Manager, following three years at ITF, initially as a Technology Analyst. Keith, who has held previous positions with Acergy, Amerada Hess and Chevron, will be leading a team of four technology analysts alongside Dorothy Burke.



Ryan McPherson
Regional Manager – Middle East and Asia Pacific

Ryan McPherson has taken up the post of Regional Manager – Middle East and Asia Pacific. Ryan was a Senior Technology Analyst at ITF, before taking up a position as Business Improvement Lead at PSN. This new post is based in Abu Dhabi.



Anthony Onukwu
Senior Technology Analyst

Anthony Onukwu joined ITF as a Senior Technology Analyst in September 2010. Anthony has more than eight years oil and gas industry experience, both in West Africa and the UK. He has previously held posts with GE Oil & Gas and Eclipse Petroleum Technology as project engineer and petroleum engineer.



Pauline Otręba
Senior Technology Analyst

Pauline Otręba joined ITF as a Senior Technology Analyst in March 2011. Pauline has previously worked as a Geologist for research consultancies within the oil and gas industry, as a researcher within academia at Heriot-Watt University and Oxford University and also within the public sector.



Alison Broomhall
Legal and Business Analyst

In this new post Alison Broomhall will be focusing on the legal side of facilitating collaborative technology development, as well as business growth analysis. Alison is a law graduate who has previously worked for Viper Subsea and Collabro.

For details on our full team, visit the ITF website:
<http://www.oil-itf.com/index/meet-the-team>

ITF chalks up four new carbonate reservoir project launches

Four joint industry research projects that aim to improve understanding of carbonate reservoirs have been launched, representing a total investment of more than £1.5 million.

Carbonate reservoirs make a substantial contribution to hydrocarbon supplies – many of the big Middle Eastern fields are carbonate – and their relative importance is likely to increase, as they account for a large proportion of remaining reserves. However, they present different challenges to their sandstone counterparts, where recovery factors are generally higher.

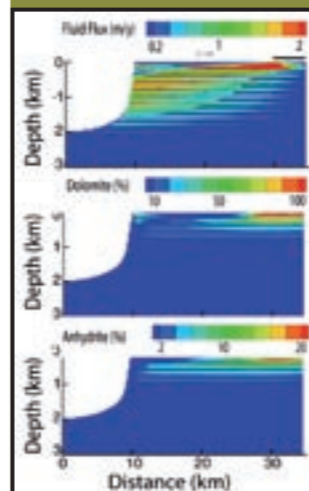
Senior Technology Analyst Colin Sanderson explains "Carbonate reservoirs are more heterogeneous than sandstone ones for a number of reasons, including the chemical and biological origin of the material, its depositional environment, and the subsequent geological processes. Carbonates are also susceptible to chemical change following deposition, increasing their complexity. Techniques used to characterise sandstone reservoirs are applied to carbonate reservoirs, although it is recognised their properties are very different. For example, reliable

porosity and permeability data is a basic requirement for reservoir characterisation. This information is generally gathered from cores and logging tools – a reasonable approach in sandstone reservoirs, but the more heterogeneous nature of carbonate reservoirs makes scaling up from a core more problematic: additional tools and technology are required to improve our understanding of the rock properties and fabric, and these four projects go some way to addressing that".

1.

Integrated reaction transport modelling of dolomite evolution

Dr Fiona Whitaker,
University of Bristol



Dolomites typically represent distinct units within a reservoir and can act as barriers or conduits for fluid flow, but their distribution and quality is difficult to predict. The project will integrate numerical modelling of fluid flow and reactions with existing observational data, to aid prediction of reservoir quality in partially dolomitised limestones. The results of this study could significantly increase production from mature fields by targeting infill drilling, as well as helping to focus exploration and aid early identification of targets.

2.

Role of microporosity and wettability on fluid flow in carbonates.

Dr Rachel Wood,
University of Edinburgh and ECOSSE



This project will use new 3D pore models to enable modelling of the microscopic transport physics of multiphase flow in complex carbonates. Two previously separate approaches will be linked to develop a method that allows quantification of the impact of microporosity in multiphase flow and how this interacts with the wettability of the multi-scale pore system.

3.

The influence of carbonate depositional and diagenetic facies on the petrophysical properties of fault damage zones

Dr Dave Healy,
University of Aberdeen



This project will quantify key petrophysical properties of faulted carbonate reservoirs, such as seismic velocities and porosity. A key output will be a quantitative understanding of how extrinsic damage around faults combines with intrinsic lithological variation of different carbonate facies, and their expression in petrophysical attributes.

4.

Integrated structural, sedimentological and diagenetic evaluation of hydrothermal dolomite, Cretaceous-Eocene, Hamman Faraun Fault Block, Gulf of Suez

Dr Cathy Hollis,
University of Manchester



This study involves integration of classical field techniques, quantitative surveying, petrographical and geochemical methodologies and modelling. Geological outcrops such as the Hamman Faraun fault block provide a crucial source of data for subsurface modelling. The project will ultimately aid accurate calculation of in-place hydrocarbon volumes and well planning, as well as delivering data for scenario-modelling in mature fields.



Our 2011 programme of Technology Challenge Workshops kicked-off in Kuwait, with a workshop on enhanced oil recovery (EOR) technologies, attended by more than 40 EOR specialists.

Our workshops allow experts from operators, service companies, SMEs and research and academic organisations to sample and be

involved in the ITF process, which encourages interaction between industry end users and the technology development community.

We were delighted with the attendance at this workshop, which was the first we have held in the Middle East. Output from the workshop has been used to develop a call for proposals.

2011 Technology Challenges

Subsurface	Production	Wells
Enhanced Oil Recovery (EOR)	Ageing Assets (Facilities)	Drilling
Unconventional Reservoirs (Oil)	Ageing Assets (Wells)	Well Intervention
Fractured Reservoirs	Subsea Technologies	

ITF Diary

If you would like to be kept up to date with ITF's Technology Challenge Workshops, calls for proposals and events, you can register at <http://oil-itf.com/index/register>

Event	Location	Date
OTC – ITF Exhibiting on the Scottish Pavilion Stand No 2363-13	Reliant Center, Houston, TX	2-5 May 2011
Technology Challenge Workshop: Drilling	Crowne Plaza, City Centre, Amsterdam	25 May 2011
Technology Challenge Workshop: Well Intervention	Crowne Plaza, City Centre, Amsterdam	26 May 2011
Technology Challenge Workshop: Fractured Reservoirs	Kuala Lumpur, venue tbc	8 June 2011
Technology Challenge Workshop: Subsea Technologies	Hyatt Regency, Perth (WA)	14 June 2011
Offshore Europe – ITF Exhibiting	AECC, Aberdeen	6-8 September 2011
20th World Petroleum Congress – ITF exhibiting on UK Pavilion	Doha, Qatar	4-8 December 2011

PennWell Diary

www.pennwell.com

Event	Location	Date
Oil Sands and Heavy Oil Technologies	Calgary, Canada	19-21 July 2011
Offshore India	Mumbai, India	12-14 September 2011
Unconventional Gas India	Mumbai, India	12-14 September 2011
Deep Offshore Technology International	New Orleans, USA	11-13 October 2011
Deepwater Operations	Galveston, USA	1-3 November 2011
Offshore West Africa	Abuja, Nigeria	24-26 January 2012
Topsides, Platforms & Hulls	New Orleans, USA	31 Jan-2 February 2012
Offshore Asia	Kuala Lumpur, Malaysia	21-23 February 2012
Subsea Tieback Forum	Galveston, USA	6-8 March 2012



The ITF process

ITF facilitates the research, development and deployment of technological innovation within the upstream oil and gas industry. Effective engagement with key industry sources to identify technology needs and potential solutions is central to this function. ITF's collaborative process endeavours to bridge the gap between the industry's large global players and the development community with the ultimate aim of implementing new technology solutions.

STEP 1

Understand and Identify Technology Needs

STEP 2

Engage the Development Community / Invite Proposals

STEP 3

Evaluate Proposal Submissions

STEP 4

Secure Funding

STEP 5

Assist the Launch of Joint Industry Projects

STEP 6

Facilitate the Implementation of Technologies



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