

China-U.S. Relations: Trade Diplomacy, and Research
November 14-17, 2005
Beijing, China

Research Roundtable Summary

Session Title: Deepwater Offshore Technology Research Roundtable

Co-Chairs (name and affiliation):

U.S.:

Dr. John M. Niedzwecki

Texas A&M University

Dr. Jun Zhang

Texas A&M University

Dr. Runpei Li

Shanghai Jiao Tong University

Dr. Shiyi Chen, (Honorary Co-Chair)

Peking University

Other Collaborators:

Dr. Ove T. Gudmestad, Statoil Norway; Mr. Roy Krzywosinski, Chevron Energy Technology Company; Mr. Mark Verm, Kerr McGee China; Dr. Wanhong Li, National Natural Science Foundation of China; Dr. Yingxiang Wu, Chinese Academy of Sciences; Mr. Shi Lin & Mr. Jerry Sun, China National Petroleum Offshore Engineering Co., Lt; Mr. Shouwei Zhou & Mr. Hengyi Zeng, China National Offshore Oil Corporation; Mr. Jiang Xizhao, Offshore Oil Engineering Co., Ltd.(CNOOC Engineering); Dr. Yucheng Li, Dalian University of Technology; Dr. Guoyou Yu, Tianjin University; Dr. Guihua Xia & Dr. Xiongliang Yao, Harbin University; Dr. Hua Jun Li, Ocean University of China; Dr. Shan Shi, Houston Offshore Engineering; Ms. Chen Xie, Texas A&M University

Session Summary:

The search for additional petroleum and gas reserves in the US and now China has lead to deepwater exploration and development activities that require extending existing technologies to their limit and the development of new concepts and technologies to meet the challenges. The development of deepwater facilities and transport of the petroleum products to onshore or nearshore facilities, and then on to the consumer requires application of state-of-the-art technologies and the careful management of risk and safety considerations.

The intent of this roundtable session was to identify specific technical opportunities for collaboration and the exchange of views in order to discover a way forward. This included discussions concerning mutually beneficial exchanges of engineers and scientists, student internship, collaborative short courses on critical technologies, the development of consortia and funding through joint industry and government supported projects. The idea of establishing an office for Texas A&M University in China that would be used to facilitate technical exchanges was also discussed.

The invited presentations included: three companies already working in China (Statoil, ChevronTexaco and Kerr McGee), two of the three major Chinese oil companies, the Chinese Academy of Sciences, three Chinese universities and TAMU's Offshore Technology Research Center. In addition, two other Chinese universities took part in the discussion as well as a representative from the National Natural Science Foundation of China. Thus, the focus of the discussions was as intended, deepwater offshore China.

Findings/Recommendations:

“Do we need deepwater platforms or should we focus on sub-sea completions and tie-backs?”
“Are there any unique deepwater or nearshore design challenges in offshore China?”
“How do we identify and fund mutually beneficial research?”
“How do we accelerate offshore technology beyond a few of the leading Chinese universities?”

The two Chinese universities leading in research and technology on offshore studies are Shanghai Jiao Tong University (SJTU) for deepwater ocean and naval architecture, and Dalian University of Technology for coastal engineering. They both have State Key Laboratories but SJTU is constructing a new campus that will house the largest model basin in the world (tentatively opening 2007). The other universities have a variety of expertise, with Harbin University being the most aggressive in hiring skilled Chinese engineers from Houston to be part of their faculty. These specialized faculty provide distance learning courses and regularly visit the Harbin campus.

The conclusion regarding deepwater platforms and sub-sea completions was that some optimal combination, depending on the field, needs to be determined and this could lead to some research. Offshore China has high current regions and regions susceptible to typhoons and ice, so ships with quick disconnect systems and sub-sea systems are of great interest, as well as variations of other world-wide platform designs.

Future Collaborations and Justification:

Both NSF and the National Natural Science Foundation of China were approached on the issue of funding a follow-on workshop to be held at Shanghai Jiao Tong University. Dr. Jun Zhang and I have begun to work on the proposal details with Professor Runpei Li. The workshop focus would be on novel offshore structures and systems for offshore China.

Other Information:

As a result of the meeting, my doctoral student Ms. Xie Chen has compiled an initial list of existing laboratory capabilities based on meeting input, and the appropriate websites to help me evaluate where I could encourage our faculty to pursue collaborations. Dr. Guan Qin was very helpful in developing contacts and he will be an integral part of our future efforts.