



Under the patronage of

Dr. Naji Al-Mutairi

Director General

Kuwait Institute for Scientific Research

**IAHR Kuwait International
Summit on Advances in Oil Spill
Modeling**

Deepwater Horizon – one year on

November 15-16, 2011

Petroleum Research & Studies Center, KISR

Al-Ahmadi, Kuwait

Scientific Program & Abstracts

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IAHR Kuwait International Summit on Advances in Oil Spill Modeling

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November 15 - 16, 2011

**Petroleum Research & Studies Center, KISR
Al-Ahmadi, Kuwait**



Organized by the IAHR Working Group on Oil Spill Modeling, the IAHR-MENA Collaboration Committee, KISR and KOC.

The Summit will present and discuss the state-of-the-art in oil spill modeling and identify key needs for future research from a multi-disciplinary standpoint to satisfy the requirements of the oil industry when preparing emergency oil spill contingency plans. The meeting will also serve as the initial meeting of the interdisciplinary working group with the clear goal to create a roadmap for the Oil Spill Modeling Working Group.



Opening Ceremony

Dr. Najj Al-Mutairi

Director General of K.I.S.R.

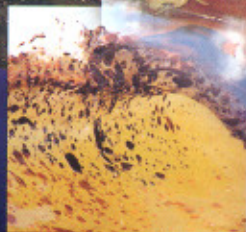
Dr. Christopher George

IAHR Executive Director

Prof. Poojitha Yapa

Chair IAHR Working Group on Oil Spill Modeling





Background

IAHR, the International Association for Hydro-Environment Engineering and Research, founded in 1935 is a global network of specialists involved in all aspects of the hydro-environment. Through publication of scientific journals, monographs and the organizing of specialist conferences IAHR foments the exchange of scientific ideas and the dissemination of scientific research into practice.

Following a special meeting convened during the IAHR Symposium on Environmental Fluid Mechanics on the Deepwater Horizon oil spill incident in the Gulf of Mexico in 2010 IAHR has established a multi-disciplinary Working Group on Oil Spill Modelling to address short-comings in the models currently available. The WG is chaired by Prof Poojitha Yapa of Clarkson University, USA and the Vice Chair Dr. Khaled Al-Banaa of KISR, Kuwait.

IAHR-MENA Middle East and North Africa Collaboration Committee was established by the IAHR Council in 2010 to facilitate greater collaboration in hydro-environment engineering and research in the region. The Secretariat of IAHR-MENA is hosted by KISR.

Kuwait Institute for Scientific Research (KISR) was established in 1967 by the Arabian Oil Company Limited (Japan) in fulfillment of its obligations under the oil concession agreement with the Government of the State of Kuwait. The Institute was established to carry out applied scientific research that helps the advancement of national industry and to undertake studies relating to the preservation of the environment, resources of natural wealth and their discovery, sources of water and energy, methods of agricultural exploitation and promotion of water wealth.



Program

Tuesday November 15th

09:00 Opening remarks:

Dr. Naji Al-Mutairi, *Director General of K.I.S.R.*

Dr. Christopher George, *IAHR Executive Director*

Prof. Poojitha Yapa, *Chair IAHR Working Group on Oil Spill Modeling*

09:30 Overview of oil spill modeling (Current state of the art)

Prof. Poojitha Yapa

Chair, IAHR Working Group on Oil Spill Modeling

Professor of Civil and Environmental Engineering.

Clarkson University, USA

10:00 Modeling ocean/coastal hydrodynamics for oil spill simulations

Prof. Peter Sheng

Department of Civil and Coastal Engineering

University of Florida, USA

10:30 *Coffee/Tea Break*

10:50 The effects of oil weathering on the properties and behavior of oil

Dr. Bruce Hollebone

Oil Research Laboratory, Emergencies Science and Technology

Section, Environment Canada. Canada



11:20 Oil spill modeling and risk management systems in the Atlantic

Rodrigo Fernandes

MARETEC, Marine Environment and Technology Center, Lisbon, Portugal

11:50 Model uses during oil spill emergency response

Dr. Bill Lehr

*Office of Response and Restoration
National Oceanic and Atmospheric Administration (NOAA), USA*

12:20 – 13:30 Lunch

13:30 Using marine environmental risk concepts to evaluate alternative spill response strategies

Dr. Mark Reed

SINTEF, Norway

14:00 An application of oil spill modeling on smart phones

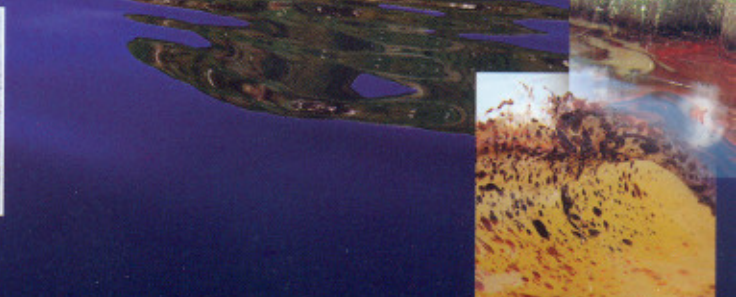
Dr. Khaled Al-Banaa

*Coastal Management Program
KISR, Kuwait*

14:30 PM Computational-based decision support systems for risk assessment and management of sea oil spills

Dr. Augusto Maidana

*International Center for Numerical Methods in Engineering
(CIMNE) UPC, Spain*



15:00 *Coffee/Tea Break*

15:20 Panel discussion (1): Modeling needs and data availability

Moderator: *Prof. Poojitha Yapa*

16:15 Panel discussion (2): What needs to be done to improve our current practices?

Moderator: *Dr. Bruce Hollebhone*

17:10 *Closing remarks*

Prof. Poojitha Yapa and Dr. Khaled Al-Banaa

17:20 *Close of day*

Wednesday November 16th

08:00 KOC Field Trip

*KOC display center
Emergency headquarters.*

10.30 *Coffee Break*

10:50 Oil spill modeling activities in Japan

Hiroshi Yamada

*Environment, Natural Resources and Energy Division
Mizuho Information and Research Institute, Inc., Japan*



11:20 Oil shoreline interaction

Dr. Erich Gundlach

ETech International, USA

11:50 Environmental Risk Management Policy in Kuwait

Dr. Cyrus Rezaei

Kuwait Oil Company (KOC), Kuwait

12:20 Discussion on Next Steps in International Co-operation

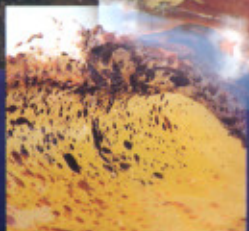
Dr. Christopher George, *IAHR Executive Director*

Prof. Poojitha Yapa, *Chair, IAHR Working Group on Oil Spill Modeling*

Dr. Khaled Al-Banaa, *Vice-Chair, IAHR Working Group on Oil Spill Modeling*

12:40 – 13:40 Lunch

13:40 Close meeting for “IAHR Working Group on Oil Spill Modeling”



Invited Speakers



Prof. Poojitha Yapa

Chair, *IAHR Working Group on Oil Spill Modeling*
Professor of Civil and Environmental Engineering.
Clarkson University, USA

Prof. Yapa has over 25 years of research experience on oil spill modeling. This includes not only trajectory modeling, but modeling physico-chemical processes oil undergo when spilled in the ocean or rivers. In the last 15 years his modeling has been on deepwater oil, gas, and hydrates, studying the complex processes they undergo during the travel from deepwater to the surface.



Dr. Khaled Al-Banaa

Vice-Chair, *IAHR Working Group on Oil Spill Modeling*
Secretary General, *IAHR-MENA Collaboration Committee*

Dr. Al-Banaa has over 10 years of research experience on coastal processes and wave hydrodynamics. He has experience in the development in application of computational methods for nearshore wave modeling and sediment transport. He is a Vice Chair of the Oil Spill Modeling Working Group and Secretary-General of the IAHR-MENA Collaboration Committee.



Dr. Bill Lehr

Senior Scientist, Office of Response and Restoration
National Oceanic and Atmospheric Administration (NOAA), USA

Dr. Lehr is an oceanographer and oil spill expert working in government administration. He has extensive experience in modeling of spills and dealing with real time emergencies.



Dr. Bruce Hollebhone

Oil Research Laboratory, Emergencies Science and Technology Section of Environment, Canada

Dr. Hollebhone is a Chemist and his research interests include: the fate and behavior of oil and petroleum products in the environment; developing new methods for spills studies; environmental forensics for oil spill suspect-source identification; and development and assessment of environmental emergencies response technologies.



Dr. Mark Reed

Senior Scientist & Research Manager of Marine Environmental Modeling, SINTEF Norway

Dr. Reed is a civil engineer by training. His fields of competence include numerical model development for decision support applications, coupled physical, biological and chemical processes, with particular focus on fates and effects of pollutants, including oil, chemicals in the marine environment.



Prof. Peter Sheng

Department of Civil and Coastal Engineering
University of Florida,
USA

Prof. Sheng is trained as a mechanical engineer specializing in fluid and thermal sciences; Prof. Sheng has vast experience in coastal hydrodynamic modeling and its application to environmental problems. He is the developer of the well-known CH3D model.



Dr. Erich Gundlach

ETech International,
USA

Dr. Gundlach has over 25 years international experience in pollution assessment, environmental impact analyses, environmental audits using international standards, and the use of integrated databases and mapping systems for the analysis, display, and storage of technical information.



Dr. Augusto Maidana

International Center for Numerical Methods in Engineering (CIMNE)
UPC, Spain

Dr. Maidana is a civil engineer with 10 years experience in the development and application of computational methods for surface hydraulics and harbor and marine engineering problems.



Rodrigo Fernandes

MARETEC, Instituto Superior Técnico
Lisbon, Portugal

Rodrigo Fernandes has been a researcher and an oil spill and hydrodynamic modeler since at MARETEC Research Center, Instituto Superior Técnico, Portugal since 2001. He developed the oil spill module present in the MOHID Water Modeling System and was directly involved in now cast simulations for Prestige accident with MOHID model.



Hiroshi Yamada

Environment, Natural Resources and Energy Division
Mizuho Information and Research Institute, Inc.,
Tokyo, Japan

Hiroshi Yamada works on the research and development of models to forecast the transport of spilled oil at the time of crisis on the Japanese coast. The model is currently used by oil facilities for training and response to oil spill accidents.