OSPR/Chevron Oil Spill Response Technology Workshop

Albert H. DeWitt Officers' Club, Alameda, CA

February 23-26, 2015

ABSTRACTS, SPEAKER BIOGRAPHIES AND CONTACT INFORMATION

Speaker name: **Yvonne Najah Addassi**

Presentation title: **A Comprehensive Oil Spill Prevention and Response Program for California: The Office of Spill Prevention and Response (OSPR) Expands to Cover Non-Marine Waters of the State**

Abstract:

The Office of Spill Prevention and Response (OSPR) within the California Department of Fish and Wildlife was created in 1990 to address all aspects of marine oil spills, including prevention, preparedness, planning, response, and natural resource damage assessment. With the recent advent of enhanced shale oil production in interior parts of the US, the state recognized an increased risk to natural resources in inland areas from spills arising from rail and other overland transport of oil. As a result, OSPR's authority and budget was expanded through SB 861 to address inland oil spills that threaten state waters, making OSPR a statewide spill program. Specifically, SB 861 expanded OSPR's responsibility to ensure inland producers and transporters of oil are prepared for spills, and provided increased administrative funding, including funding for the Oiled Wildlife Care Network, as well as access to the state's Oil Spill Response Trust Fund to pay for inland oil spill responses.

This presentation will provide an overview of OSPR's current implementation plan for program expansion with a focus on developing and strengthen partnerships with local, state and federal agencies to avoid redundancy.

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Speaker biography:

Yvonne Addassi is the current Deputy Administrator for the Office of Spill Prevention and Response (OSPR). She's been with OSPR since 1991 where she worked on the landmark vessel and facilities contingency plan regulations, coordinated statewide evaluation and licensing of oil spill clean-up, developed the State's policies on the use of chemical dispersants and *in-situ* burning and supervised the northern California scientific field response team. Ms. Addassi has extensive oil spill response experience and has published internationally on topics related to decision making and oil spill response. She currently serves on Governor Brown's Task Force on Railway Safety.

Speaker name: **Jamie Aderhold/Lea Ann Chapman**

Presentation title: **Oil Solidifiers Used to Prevent and Clean Up Spills**

Abstract:

This presentation will show real examples of how oil solidifier technology has been used to clean up spills. The presentation will go through several specific applications where oil solidifiers have enhanced traditional methods to create innovative approaches to mitigate the effects of a spill. The presentation will then go on to demonstrate prevention techniques to keep hydrocarbons out of the water where the ability to solidify hydrocarbons while not reacting with water offers specific advantages.

Speaker contact information: **Jamie Aderhold**
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Speaker biography:

Jamie Aderhold is a partner in C.I.Agent Storm*Water Solutions. He oversees many of the sales and marketing needs of the company and also participates in engineering review of projects and product development. He has over 25 years of diverse professional experience that has always been customer service oriented.

Jamie has a Bachelor of Mechanical and Materials Engineering degree from Vanderbilt University in Nashville, Tennessee. In his spare time, Jamie is an avid outdoorsman who enjoys hiking, backpacking, fly fishing, biking and skiing.

Speaker name: **Tom Allik** (Active EO)
(Collaborators: Roberta Dixon (CACI), Len Ramboyong, Mark Roberts, Phil Zinser and Thomas J. Soyka (US Army RDECOM NVESD))

Presentation title: **Enhanced Oil Spill Detection Sensors in Low-Light Environments**

Abstract:

The goal of this collaborative effort between the Department of the Interior (DOI), Bureau of Safety and Environment (BSEE) and the US Army Night Vision and Electronic Sensors Directorate (NVESD) is to enhance the methods currently in place to detect oil in a marine environment. Methods currently in place are not conducive to oil spill recovery operations during periods of low light and rely heavily on time-delayed aerial remote sensing technologies, or visual observation. This project leverages the knowledge and expertise of NVESD personnel to assist BSEE in the identification and documentation of existing capability gaps; identification and assessment of technology gaps; test and evaluate potential new or alternative hardware; and support the design, development and demonstration of new technologies to meet identified needs.

We will provide a program overview on remote imaging techniques for the quantification of oil spill thickness and measurement of oil in low light levels. Spectral characteristics of various crude and emulsified oils in the visible and IR will be presented. Analysis of laboratory data and Deepwater Horizon hyperspectral imagery showed the utility of the SWIR region to detect crude oil and emulsions and we have evaluated various wavelengths for thickness assessment. Field test results will be presented from BSEE's Ohmsett test facility, Santa Barbara California oil seeps and low light level detection of oil on water at other locations.

Speaker contact information:

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Speaker biography:

Toomas H. Allik received his BS in chemistry from Hofstra University and his PhD from Columbia University. From 1983 to 2007 he was chief scientist and engineer for SAIC at Fort Belvoir, Virginia. Presently he is founder and president of Active EO Inc., a consulting corporation that specializes in providing high technology solutions in the areas of electro-optics and material science. He has more than 100 publications ranging from basic R&D to the development of system prototypes.

Speaker name: **David M. Anderson**

Presentation title: **Observations and Forecasts of Surface Currents on the California Coast**

Abstract:

Surface currents observed by high frequency radar sites located along the California Coast provide a valuable asset in oil spill response. Maps of surface currents, nowcasts, and short-term forecasts (72 hours) are based on the radar observations and on computer circulation models. Drop-a-drifter, trajectory maps, and other tools also enable spill movement to be forecast. This presentation will review the strengths and weaknesses of information derived from radar, and describe new products available from the Southern California Coastal Ocean Observing System (SCCOOS) the Central and Northern California Ocean Observing System (CeNCOOS), and other data providers. The California radar sites contribute to a national and global high frequency radar network. In addition to radar, regional ocean observing associations around the United States provide real-time access to many different observations relevant to oil spill response, including web-cams, moored instrumentation (water quality, temperature, salinity), and biological parameters. Radar-derived currents, winds, and models were all used in the Horizon spill response in 2010.

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Speaker biography:

David Anderson is the Director of the Central and Northern California Ocean Observing System (CeNCOOS). CeNCOOS is a collaborative that enables sustained and coordinated measurements, model nowcasts and forecasts, and integrated products to inform decisions about our regional ocean. CeNCOOS collaborators include experts in coastal oceanography, biology, GIS, satellite remote sensing, modeling, and high frequency radar.

Speaker name: **Louis Armstrong**

Presentation title: **Surveillance and Reconnaissance Optimizing the Use of TC Assets to Gain Public Confidence and Interdepartmental Recognition**

Abstract:

Transport Canada monitors Canadian waters through its National Aerial Surveillance Program (NASP). Transport Canada has augmented program effectiveness since assuming the NASP program in 2003. The program uses three dedicated aircraft (2 Dash-8 and 1 Dash-7) strategically placed across Canada to enforce the pollution prevention regulations of the *Canada Shipping Act 2001*.

NASP capability has an integrated suite of remote sensing equipment, NASP program scope has expanded rapidly over the past few years to include not only routine monitoring of shipping lanes, but engagement during spill events as well. This includes many National events where NASP aircraft and crew were crucial in bringing the events to successful conclusions. The same technology on these aircraft proved very effective in the Deepwater Horizon Response, when TC assistance to BP in the Gulf of Mexico resulted in almost 300 hours flown over the course of 11 weeks.

The presentation will discuss Transport Canada's mandate, evolution of the NASP program, improvements made to the aircraft since the response to the Deepwater Horizon, and TC's intended future work.

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Speaker biography:

Louis Armstrong is the Chief of Intelligence, Surveillance and Reconnaissance for Transport Canada and is the Manager of the National Aerial Surveillance Program (NASP). He has been in the Program since 1999 and was transferred to Transport Canada in 2003 from the Canadian Coast Guard. He has acquired acquiring new remote sensing technology for the three Transport Canada pollution surveillance aircraft. The NASP aircraft are used in Pollution Patrol, Ice Reconnaissance, Fisheries Surveillance and Sovereignty patrols.

Speaker name: **Steve Benz**

Presentation title: **MSRC Remote Sensing Program**

Abstract:

The presentation will cover the MSRC Remote Sensing Program. MSRC designed and implemented its Remote Sensing Program to enhance its ability to effectively position our response assets during future spill responses. The presentation will also include the lessons learned from MSRC's Deepwater Horizon experience and the tactical objectives that drove the selection of the various components of the MSRC Remote Sensing Program.

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Speaker biography:

Steve Benz is President & CEO of the Marine Spill Response Corporation (MSRC). MSRC is the largest oil spill response company in the United States (and world-wide). Mr. Benz joined MSRC in 1996 after spending 16 years with BP in a variety of managerial and executive assignments. Mr. Benz is 1973 graduate of Case Western Reserve University with a degree in Chemical Engineering. He also earned his Master's Degree in Management Science from Stanford University Business School as a Sloan Fellow in 1989.

Speaker name: **William Bernard**

Presentation title: **Emerging Remote Sensing Technologies for Detecting, Monitoring, and Mitigating Oil Spills**

Abstract:

The need for a compact, user friendly oil spill surveillance system is overdue. The remote sensing industry has been actively researching, testing, and developing a wide range of sensors to address the issue, however, many of the deployed technologies during a spill are difficult to operate, require special expertise, and lack the ability to share information across the response organization.

There is new generation of extended spectral range cameras that could solve these issues through detection, monitoring, and sharing data in near real time with decision makers. The systems are so small that they can be mounted in manned or unmanned aircraft, can easily be transported to the incident site by hand, and could be operated by anyone with the response organization. These new systems include self-contained flight planning, camera operation, and cloud processing of the final navigated and mosaiced pictures.

Finally, there are now commercially available suites of analysis tools that can be automatically applied to almost any type of mapped image that dramatically increases the ability to differentiate oil from almost any background and under less than ideal lighting and weather conditions.

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Speaker biography:

Bill Bernard has assisted in the development of numerous remote sensing systems for use in the monitoring of biological systems, and identifying and locating oil on the land and water. His background is marine science and integration of technologies for commercial purposes.

Speaker name: **Carl E. Brown**

Presentation title: **Initial Diluted Bitumen Studies**

Abstract:

This presentation will report on the results of early research simulating spills of diluted bitumen products at sea. This work was undertaken by the Government of Canada as part of the first phase of a strategy to implement a world class prevention, preparedness and response regime for oil spills from ships.

The behaviour of two diluted bitumen products was studied under laboratory conditions in three phases. First, the properties and composition of two samples representative of products currently being shipped in Canada were measured before and after exposure to environmental conditions. Secondly, the potential for evaporation, exposure to light, mixing with saltwater, and sediments to affect the buoyancy of diluted bitumen products was examined. Finally, the effectiveness of chemical dispersants on the diluted bitumen products was evaluated.

Results of initial shoreline characterization studies, diluted bitumen weathering and implications for spill countermeasures will also be presented.

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Speaker biography:

Dr. Carl E. Brown is the Manager of the Emergencies Science and Technology Section, Environment Canada. His specialties include airborne oil spill sensor development, and the application of laser technologies to environmental problems. Dr. Brown is a graduate (March 2009) of the Government of Canada's Scientists as Leaders program (1 of 25 scientists selected across Canada). Dr. Brown is the Chemical Community of Practice Leader, for the Canadian Safety and Security Program. Dr. Brown has a doctorate degree in Physical Chemistry from McMaster University and a Bachelor of Technology degree in Laboratory Science from Ryerson Polytechnical University. He has authored or co-authored over two hundred and sixty scientific papers and publications.

Speaker name: **David Brunning**

Presentation title: **Utilization of Reclaimed Clean Post Manufacturing Waste.**

Abstract:

Absorbent manufacturers struggle to meet year-end projected sales in a market that uses highly-volatile and price-driven polypropylene as a prime component in its finished goods. Manufacturing companies currently struggle to find “homes” for their scrap. Sustainability has dictated that companies must divert waste from land fill.

In the last two years Carlo Fascio, VP of Engineering at First Defense Absorbents, has patented three absorbent products which use clean, reclaimed material as approximately 90% of its construction.

At a fraction of the cost of virgin polypropylene, recycled scrap is purchased for less per pound than virgin material and transformed into original, new technology spill containment products.

First Defense turned this material into the new Flat-Woven Sock, Pleated-Flat Sock and Vertex Boom.

Carlo Fascio, a developer of over 10 patented products, leads our on-going product development. Previously Carlo developed a way of taking municipal plastic waste and converting it into synthetic aggregate to be used as aggregate in manufacturing cement.

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Speaker biography:

David worked for the past 17 years in a Canadian startup company specializing in rapid prototyping and product development. David’s participation as a technical project manager provided him with exposure to several technologies involving medical, scientific, aerospace, commercial, and industrial and consumer products. David worked with Carlo Fascio to design several new products for the spill industry, including the Vertex boom.

Speaker name: **Chris Chase**

Presentation title: **Risk Reduction *vis-à-vis* Early Warning Detection of Oil Leaks & Spills**

Abstract:

Technology for early detection of oil spills is used for a wide range of applications today. Early detection enables automated containment and/or early response, thereby *preventing or minimizing the adverse effects of oil releases* such as oiled wildlife, environmental damage, response/remediation costs, and negative publicity for corporations and public agencies. "Slick Sleuth" is an industry-leading provider of automated oil spill detection systems. These detectors use UV-fluorimitry, the same optical technique used for lab analysis of hydrocarbons, but housed in a ruggedized package for remote field deployment. *Non-contact* detection translates to low maintenance and the flexibility to install sensors almost anywhere there is benefit in early warning detection. Typical applications include marine terminals, industrial facilities (refineries and power plants), municipal water facilities, and environmental monitoring. Spill detectors are analogous to smoke alarms or security cameras, but for remote oil detection in marine (buoys, piers, terminals), freshwater (rivers, sewers, industrial ponds and discharges), ground and variable wet/dry environments. Interestingly there are very few users in California and relatively few in the USA, whereas the vast majority of users to date are located in China, Korea, Indonesia, Brazil, etc.

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Speaker biography:

Chris is the Environmental Systems Division Manager for InterOcean Systems, located in San Diego, California. Chris graduated San Diego State University with International Business and MBA degrees. He has been with InterOcean for 14 years and is currently focused on developing and commercializing new environmental sensor technologies for marine, energy, and industrial sector applications - with particular focus on pollution abatement and oil spill prevention. Chris overseas InterOcean's "Slick Sleuth" oil spill detection product line, with nearly 1,000 real-time spill monitoring systems supplied for operation worldwide.

Speaker name: **Robert Chickering and Vladimir Goren**

Presentation title: **Multifunctional Protein-Surfactant Surface Washing Agent**

Abstract:

Advanced BioCatalytics Corp. (ABC) has developed the technology for making efficient water-soluble products for oil cleanup without harmful solvents or caustic ingredients. ABC's environmentally safe cleaners are based on complexes of common surfactants with non-enzymatic proteins obtained from baker's yeast. This combination enhances the cleaning power of surfactants and allows to formulate efficient agents for specific spill-cleanup applications, including oil dispersion, oil herding, and shoreline cleanup. In addition, the yeast-derived proteins in these products stimulate the activity of native oil-consuming bacteria in water and soil, accelerating natural microbial biodegradation of residual petroleum contamination.

ABC's surface washing agent, Accell Clean® SWA is listed in the US EPA NCP product schedule and licensed for oil spill cleanup in California. It has a variety of applications for oil cleanup at shoreline, including rocks, piers, plants, sand and soil, as well as equipment decontamination. Accell Clean® SWA showed an excellent performance for onshore decontamination of booms, skimmers, pumps, boats, and other response equipment in the Deepwater Horizon spill cleanup. For cleaning of oiled sand at the beach, ABC has partnered with Proven Technologies LLC in the development of the mobile machine for washing oil off sand with the use of Accell Clean® SWA.

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Speaker biography:

Robert Chickering has been with Advanced BioCatalytics Corp. (ABC) since 2004. He has been involved with field sales and training in the oil and gas, wastewater, agriculture, shipping, and industrial cleaning applications for ABC's products. He was past owner of an aerospace maintenance and overhaul company, a retail diaper manufacturer and a cotton swab manufacturer. He holds a BA and an MBA from Michigan State University.

Vladimir Goren has been working with ABC since 2012. He has been involved with the application, development and marketing for ABC's oil-cleanup products. He work includes several R&D projects for the US Dept. of Energy, NASA and DoD. He holds a degree in Analytical Physics from Academy of Sciences of Ukraine.

Speaker name: **Tom Coolbaugh**

Presentation title: **Dispersant Fundamentals and Related Research**

Abstract:

The presentation will provide an overview of the basics of the use of dispersants in the event of an oil spill with emphasis on a Net Environmental Benefit Analysis (NEBA) approach to oil spill response in general. There will also be a brief discussion on a variety of industry's current research activities focused on the science and effective use of dispersants.

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Speaker biography:

Tom Coolbaugh is a Distinguished Scientific Associate and leads the OSR Technology group of ExxonMobil Research & Engineering. Focus areas include dispersants, in-situ burning, remote sensing, and training. He's been with ExxonMobil since 1988. He has BA &PhD degrees in chemistry and an MS in the Management of Technology. He has experience in a variety of research settings as a research scientist. He chairs IPIECA's Oil Spill Working Group, and is a member of the API Spills Advisory Group, the Marine Preservation Association Dispersant Advisory Committee, and the NRC committee that prepared the report on Responding to Oil Spills in the U.S. Arctic Marine Environment.

Speaker name: **Cory Davis**

Presentation title: **Principles of Air Monitoring for In Situ Burn Operations**

Abstract:

(Not available at time of printing)

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Speaker biography:

Cory Davis joined CTEH in 2000 as an Industrial Hygienist after receiving a Bachelor of Science degree in Environmental Health Sciences at University of Arkansas - Little Rock. In 2003, he was named Manager of the Toxicology Emergency Response Program (TERP) where he managed a program responsible for providing high level scientific consulting in extreme situations usually related to a catastrophic release of hazardous materials. During his eight years as Manager of TERP, Mr. Davis has responded to and managed hundreds of projects and developed staff to respond to our customer's unique needs during and after a release of hazardous materials to the environment.

In 2010, Mr. Davis was promoted to Vice President of Operations at CTEH. As Vice President of operations, Mr. Davis worked closely with the Directors of CTEH's Environmental, Emergency Response, and Health and Safety programs. In 2011, Mr. Davis became a partner and currently leads CTEH's Major Projects Team, working to ensure outstanding service, and a constant state of readiness and availability for CTEH's customers and the communities that they serve.

Speaker name: **Mathew Dorsey**

Presentation title: **Evaluating Unmanned Aerial Systems for use in Natural Resources Damage Assessments**

Abstract:

As a joint effort to understand and gauge the capabilities of using Unmanned Aerial Systems (UAS) for oil spill damage assessments several Federal agencies and industry partners created a simulation designed to reflect the types of information that are collected when conducting a Natural Resources Damage Assessment (NRDA). NOAA's unmanned aerial system (UAS) was used to collect information on simulated birds, oiling, wrack and human use. This presentation will recap the simulation and demonstrate that UAS can be a useful tool for collecting oil spill related information.

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Speaker biography:

Matt is a GIS Specialist for NOAA's Office of Response and Restoration (ORR) Assessment and Restoration Division (ARD) and has worked in the GIS field for over 15 years. Since joining NOAA in 2008 Matt worked with the National Marine Fisheries Service (NMFS) in Long Beach CA for 2 years and then moved to ORR in 2010 to work on the Deepwater Horizon oil spill. Matt is currently the Southwest ERMA regional lead and is working to help improve field data collection techniques using UAS and electronic data capture methods.

Speaker name: **Oscar Garcia**

Presentation title: **Fingerprinting Oil Emulsions in Satellite Remote Sensing Imagery**

Abstract:

Monitoring oil spills with remote sensing is a well-established task. Recently, by combining hyperspectral and microwave satellite images, we have learned that features associated with oil emulsions can be detected with synthetic aperture radar (SAR) and optical-infrared sensors. This is of great importance because during oil spill events thick patches of hydrocarbons are the most toxic for the marine environment, and it is these patches of thick oil that can be most effectively recovered or treated during response operations by burning, skimming, or use of aerial dispersants. In this talk, we present our ongoing work and our latest results, including the development of an algorithm that delineates thick oil signatures in satellite imagery. This technique is validated in a recent field campaign where oil samples were collected. The chemical and spectral properties of oil samples recovered in the field are used to fingerprint their signatures in the satellite imagery. Our results have proven once again the importance of remote sensing support for detecting oil spills and the potential use of SAR imagery to detect floating thick oil.

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Speaker biography:

Oscar Garcia-Pineda received the B.S. degree in electrical engineering from the Instituto Tecnologico de Ciudad Madero, Mexico, in 1996. He received a graduate certificate from a NASA Goddard Space Flight Center educational program in 2006, and then completed the Ph.D. degree in coastal and marine system science from Texas A&M University, Corpus Christi, TX, USA. His main research has focused on the development of semi-automated image processing algorithms to map coastal and oceanographic processes. As a geoscientist he has been working to integrate satellite remote sensing data with geophysical data for exploration of hydrocarbons and energy resources in the deep marine environment. He participates with NOAA as a member of the Sea Surface Roughness Science Team applying Synthetic Aperture Radar (SAR) imagery to derive floating oil properties. He participates with NASA as part of the applications-science team for the new American SAR satellite NISAR.

Speaker name: **George Graettinger**

Presentation title: **Good COP, Bad COP: Do You Know ERMA®?**

Abstract:

The Environmental Response Management Application® (ERMA) is an online mapping tool offering access to localized environmental response information. ERMA integrates both static and real-time data, such as Environmental Sensitivity Index (ESI) maps, ship locations, weather, and ocean currents, in a centralized and standardized format. It provides environmental responders and decision-makers with data for incident planning, response, assessment, and restoration. ERMA incorporates data into a convenient GIS mapping platform that can be accessed via the Internet. Users in command posts, field locations, or agency headquarters can all view the same information simultaneously. ERMA has been the primary government COP supporting response operations for the Deepwater Horizon spill and data regarding this incident has been managed and updated daily since May 2010. ERMA is also assisting in resource management decisions in support of Deepwater Natural Resource Damage Assessment. ERMA has most recently been used as the US Coast Guard COP for the Texas City Y response and for numerous response drills in the Arctic, California and across the Gulf Coast.

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Speaker biography:

George Graettinger is an environmental scientist for the NOAA Office of Response and Restoration (OR&R) in Seattle, WA. George is a Senior GIS Project Manager for the Assessment and Restoration Division and has experience in remediation, natural resource damage assessment, data analysis, remote sensing, and the development of GIS based decision support systems. George is the Gulf of Mexico Regional lead for the Environmental Response Management Application (ERMA) and coordinates training and drills for ERMA and related tools. ERMA sites have been deployed across the US and the Gulf site has and continues as the Common Operational Picture (COP) for the Deepwater Horizon spill.

Speaker name: **Alá A. Hamdan**

Presentation title: **Environmental & Operational Monitoring Technologies for In-Situ Burning**

Abstract:

One of the main lessons learned from conducting over 300 burns during the Deepwater Horizon Incident was to improve the environmental and operational monitoring technologies to help decision makers, the response community, and academia better understand the effects of in-situ burning on the environment. The ability to collect intelligent data before, during, and after a burn is crucial to understanding the net environmental benefit, and to measure the response effectiveness.

Over the course of the past 4 years, a few monitoring equipment ideas have been researched, developed and tested. This presentation will cover the most promising technologies to be utilized in in-situ burning in future incidents.

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Speaker biography:

Alá is a project management professional with extensive experience in the local and international markets. He is the founder of MidLinX Inc., a technical oil spill preparedness and response company. Alá earned a BS degree in Civil & Environmental Engineering from the University of Houston. His expertise encompasses technical evaluation of spill response equipment, in-situ burning, oil spill surveillance and data management. During his career, Ala has been responsible for initiating, planning, and executing research and development projects to mitigate oil spills and to increase the company's ability to respond to spills.

Speaker name: **Kurt Hansen**

Presentation title: **Update on USCG R&D Center (RDC) Projects**

Abstract:

This presentation will summarize the completed projects over the past two years and provide an update on ongoing projects. RDC is partnering with the EPA Great lakes Restoration Initiative (GLRI), the Bureau of Safety and Environmental Enforcement (BSEE) and Oil Spill Recovery Institute (OSRI) over the past several years to address topics including response to oil in ice, in-situ burning and response to submerged oil.

Speaker contact information: **Kurt Hansen**
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Speaker biography:

Kurt Hansen has worked at the US Coast Guard (USCG) Research and Development Center in New London since 1993, working on projects dealing with oil spill prevention and response since 1998. He has an MS in Ocean Engineering from the University of Rhode Island and a BS in Mechanical Engineering from the University of Delaware. He is a member of ASTM Committee F-20 on Hazardous Substances and Oil Spill Response and one of the USCG Representatives to the National Response Team (NRT) Science and Technology Committee.

Speaker name: **Paul Hastings**

Presentation title: **Integrating the Incident Command System (ICS) with a Common Operating Picture (COP)**

Abstract:

A COP is a single situational display of operational and planning information that is shared by numerous response stakeholders. A COP presents an overview of an incident and provides incident information that enables the Incident Commander/Unified Command and supporting agencies/organizations to make effective, and timely decisions. Additionally, a COP facilitates mutual planning across geographic and organizational boundaries and provides situational awareness across the complete response enterprise. This presentation will demonstrate the use of an automated ICS system that integrates ICS forms and the ICS planning process into the ArcGIS Online Platform.

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Speaker biography:

Paul Hastings has over 15 years of leadership experience within the risk management & disaster preparedness industry with extensive knowledge and experience working with Oil and Gas Exploration & Production companies, Electric & Gas Utilities, Financial Services, Hospitality, Healthcare Industry and Emergency Management.

Paul's professional background consists of direct sales and marketing, business development, channel partner development, strategic leadership and executive sales management.

Speaker name: **Todd Jacobs**

Presentation title: **Considerations for Operating Small UAS in Remote Locations and from Ships at Sea in Support of Early Phase Oil Spill Quantification and Assessment, Skimming Operations and Living Marine Resource Surveys**

Abstract:

The presenter will outline NOAA's experience over the past six years in planning and executing small unmanned aircraft systems (sUAS) in support of oil spill drills and simulations on five separate occasions. Work in California, Hawaii and the Arctic will be discussed. The current realities of using UAS technology in a rapid response mode will be covered. The timeliness and dissemination of data into common operating pictures, such as NOAA's ERMA system will be addressed. The presentation will conclude with a presentation of a current initiative in NOAA to build out a rapid response capability for UAS in disaster response.

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Speaker biography:

Todd Jacobs has been with NOAA in a variety of management and operational positions since 1989. He is currently Project Manager with the NOAA Unmanned Aircraft Systems (UAS) Program. His area of focus is marine monitoring with UAS in NOAA. This includes biological surveys, oil spills & emergency response, locating & removing lost fishing gear, and enforcement & surveillance of fisheries and MPAs. His operational background includes facilitating and conducting research projects using ships, manned submersibles, aircraft and UAS. He has worked extensively with DoD, state and federal agencies. He has been involved with the NOAA UAS Program since its inception in 2004.

Speaker name: **Jason Langteau**

Presentation title: **BSEE Agency Update – Oil Spill Response Research**

Abstract:

For more than 25 years, BSEE (and former organizations) have aggressively maintained a comprehensive, long-term research program dedicated to improving oil spill response options. The major focus of the program is to improve the methods and technologies used for oil spill detection, containment, treatment, recovery and cleanup. The Oil Spill Response Research (OSRR) Program is a cooperative effort bringing together funding and expertise from research partners in government agencies, industry and the international community.

This presentation will provide a look at the activities of the OSRR program over the past year and exciting new research projects currently underway. During FY 2014 BSEE OSRR completed 15 projects and funded 30 new projects.

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Speaker biography:

Jason Langteau is a Preparedness Analyst with the Oil Spill Preparedness Division in the Bureau of Safety and Environmental Enforcement Pacific Region. He holds a BS in Environmental Biology and previous to his employment with BSEE worked with the Bureau of Land Management overseeing environmental compliance with large scale renewable energy facilities in the Mojave Desert. Jason also spent time with the US Navy traveling about the world's oceans in various submarines.

Speaker name: **Ira Leifer**

Presentation title: **Enabling Effective Interagency Oil Spill Remote Sensing - The FOSTERRS Working Group**

Abstract:

Oil spills cause significant to devastating ecological, economic, and societal damage, requiring years to decades for recovery. Disasters demand the best available technology for response, damage mitigation, and remediation efforts. Disaster response remote sensing (airborne and spaceborne) can play an important role by greatly leveraging available resources and assets and in mitigating consequences.
To facilitate the sharing of remote sensing capabilities and to discuss improvements in disaster response, the Federal Ocean Spill Team for Emergency Response Remote Sensing (FOSTERRS) interagency working group was created. Specifically FOSTERRS seeks to connect agency information on airborne and space borne asset's availability, limitations, capabilities and performance, and ancillary data needs to stake holders and responders. FOSTERRS comprises members from agencies with remote sensing assets and key end users, while outreaching to the larger community involved in marine disaster response and the development and implementation of remote sensing best practices.

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Speaker biography:

Dr. Leifer is a professional active researcher at the University of California, and has authored 88 peer-reviewed articles. Dr. Leifer was the lead of the NASA DWH remote sensing, and was on the DWH Flow Team. Dr. Leifer now runs a small technology company, Bubbleology Research International that has developed an automobile platform for gas leak detection and airborne campaign validation. Research spans air quality, Arctic and deepsea bubbles, satellite methane and oil spill detection. Dr. Leifer is a central member of the FOSTERRS interagency working group.

Speaker name: **Robert Y. Lochhead**

Presentation title: **A Stimuli-Responsive Spontaneous Emulsifier that Prevents Oil Adherence to Keratin**

Abstract:

A functional prototype of a smart spontaneous emulsifier has been developed. What sets this technology apart:

♦ Available as an easily distributed powder ♦ Spontaneously disperses the oil into small droplets ♦ Encapsulates the dispersed oil droplets ♦ Provides optional buoyancy to the encapsulated droplets to facilitate collection from the surface ♦ Optionally contains nutrients to initiate microbial biodegradation of the encapsulated oil ♦ Confers anti-deposition properties to inhibit fouling and penetration of keratin substrates ♦ Comprises natural, biodegradable components

Steric stabilization and lamellar liquid crystal stabilization of emulsions are separately both well-known phenomena. The novel approach of combining of these two mechanisms to provide spontaneous dispersion by a lamellar phase, and then anchoring of the sterically-stabilizing polymer within the lamellar phase has now been demonstrated. While mechanical and chemical treatments can be used for spills at sea, it is not appropriate to use the existing treatments on spills near coastal shorelines or inland waters. The product is designed to prevent treated oil from sticking to coastal wildlife (such as bird feathers). Environmental impact of the anti-deposition agent should be minimal, because the ingredients in the formulation are generally recognized as safe as food. Commodity ingredients allow for rapid response to oil spills, helping limit the affected area.

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Speaker biography:

Dr Lochhead is a professor of Polymer Science; he was Chair and Director from 1993 -2013. The first twenty five years of his career were in industrial research that ranged from polymer and silicone synthesis to colloid and surface science and hydrophilic polymers. He is the author of more than a hundred scientific papers, and a named inventor on 22 patents. His inventions have enabled technologies with beneficial societal and environmental impact. He has received many awards for his contributions including The SCC's Maison G. DeNavarre medal; The American Institute of Chemists' 'Chemical Pioneer Award', and the Education Award from the Society of Plastics Engineers.

Speaker name: **Alan J. Mearns**

Presentation title: **Bioremediation and Biodegradation**

Abstract:

Bioremediation attempts to accelerate a natural process: biodegradation. Recent "genomics" studies confirm what we have long suspected: it takes a "village" of natural marine micro-organisms to break down the large suite of compounds in petroleum. Oil-degrading microbes, always present in the ocean, "bloom" in the presence of oil, each species attacking specific compounds or their metabolites. The degraders require nutrients (at least nitrogen and phosphorous) and oxygen. Degradation rates increase with temperature. Dispersed oil offers more surface area.

In the laboratory, a wide range of additives can accelerate the degradation of alkanes and PAHs in aqueous solutions (compared to untreated controls). Additives include nutrients, microbial consortia and enzymes. In the field, on oiled shorelines, attempts have been made to accelerate biodegradation by adding nutrients, consortia of oil-degrading microbes and other materials, as well as physically exposing contaminated sediments to oxygen. The majority of shoreline field studies indicate that nutrient addition and physical aeration accelerate breakdown of alkanes and PAHs by a factor of 2 over untreated controls: addition of prepared consortia does not.

Few commercial products have been tested on shorelines during oil spills. NOAA encourages more field testing opportunities during spills. The US EPA has revised the National Product Schedule, now available for public review.

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Speaker biography:

Ecologist and Senior Staff Scientist, NOAA Emergency Response Division. PhD in Fisheries, MA and BA in marine ecology. 45 years in marine pollution assessment and management, including 26 years responding to oil spills nationally and internationally. Areas of expertise include fisheries, sea food safety, benthic ecology, ecotoxicology, field sampling, and long-term monitoring. Author/co-author of nearly 200 papers and technical reports, a lead author of annual literature review of marine pollution research.

Speaker name: **Guillaume Napveu**

Presentation title: **Mobile SCAT Data Management and Mapping System to Support Oil Spill Response Teams**

Abstract:

Gathering field data using the Shoreline Cleanup Assessment Techniques (SCAT) approach is now an essential process when oil impacts the shoreline, as these data provide field data that informs correct response decisions. This project explores the recent breakthrough in mobile device technology to improve the “SCAT to decision” process to save time, reduce the amount of equipment needed, increase data security and lower the likelihood of errors.

Our all-in-one mobile tablet application (called CORAL) fits on one pocket-sized device that SCAT teams can use to reduce (or even eliminate) the need for paper forms and maps, GPS units and cameras. The system uses internet connectivity of mobile devices to synchronize relay of field data to a central server, making the field information available to the decision makers in the command center almost as soon as it is gathered. This also eliminates manual transfer of data from a field notebook to an official form and then importation into a computer system, reducing data transcription errors. All data are encrypted.

This application was field tested by Environment Canada personnel in Fogo Island (Newfoundland) with satisfactory results. The field test also identified various aspects that need to be addressed, such as use in areas without internet,, and how to allow data structure modifications to accommodate local standards and to ensure compatibility with other GIS systems.

Even though challenges remain, we believe that our approach has the potential to revolutionize the way field data are gathered, used and distributed in major environmental responses.

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Speaker biography:

Guillaume Nepveu is president and R&D director at Chaac Technologies, a company providing mobile computerized tools to support the decision process and information management needs of environmental response operations. Guillaume is an electrical engineer and he holds a master in Applied Mathematics. He was a GIS Specialist and database manager at the BP Deepwater Horizon response (2010-11), Enbridge oil spill in Alberta (2013) and MMA rail accident in Lac-Mégantic (2013).

Speaker name: **Craig Ogawa**

Presentation title: **Recent Testing and Research Conducted at Ohmsett and Future Upgrades**

Abstract:

Ohmsett, the National Oil Spill Response Research & Renewable Energy Test Facility plays a critical role in developing the most effective response technologies enabling a rapid and efficient response to an actual spill. Located in Leonardo New Jersey, the facility, which is operated by the U.S. Department of Interior, Bureau of Safety and Environmental Enforcement (BSEE), provides a crucial intermediate step between small-scale bench testing and open water testing of equipment by allowing testing of full scale equipment in a controlled environment. The information gathered at Ohmsett plays an essential role in the development of new technology and in the creation of more effective procedures for responding to future oil spills.

Recent tests and research conducted at Ohmsett will be presented and includes cold water dispersant testing and research, mechanical recovery tests, subsea dispersant effectiveness including monitoring and droplet size detection research and testing, and remote sensing technology research. Upgrades to the Ohmsett facility will also be discussed.

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Speaker Biography:

Craig Ogawa is the Senior Preparedness Analyst for the BSEE Oil Spill Preparedness Division, Pacific Oil Spill Preparedness Section. He began his career in the Oil and Gas Industry as a technician with the International Division of Getty Oil Company and later as a staff geologist with a small marine geotechnical company. He has been with the MMS (now BSEE) since 1986 and involved in the oil spill program since 1991. He is responsible for ensuring that offshore oil and gas operators in the Pacific Region have properly planned for and are prepared to respond to spills from their facilities. He is a graduate of the CSU Long Beach where he received a BS in Marine Biology with a Minor in Geology, and CSU Northridge where he received a MS in Geology.

Speaker name: **Kenny Rhame**

Presentation #1 title: **TRG -- Field Data Collection**

Abstract #1:

With the expanding role of the Common Operating Picture (COP) throughout the response industry, field data collection is at the forefront of emerging technologies. A fully functional COP must have precise, relevant information provided from the field. The integration of the collected data, photos and videos into a COP provides a comprehensive look at the response and leaves little room for interpretation errors. Traditionally, data from the field has taken valuable time to add to maps and resulted in little time to make effective decisions. Data involving wildlife observations, SCAT, overflights and operational status updates are some of these examples. While the incoming field data must still be reviewed and approved prior to display in the COP, the advent of field data will greatly enhance situational awareness for any response.

Presentation #2 title: **TRG -- Common Operating Picture**

Abstract #2:

The Common Operating Picture (COP) is a command and control tool that provides situational awareness in any emergency response. It enables users to make accurate, informed decisions based on current or planned activities and is enhanced with Incident Command System (ICS) integration.

The collection of GIS information in the field using mobile devices is a critical aspect of establishing a functional COP. Data must be reviewed and approved prior to dissemination. The COP should support all functions of a response and keep stakeholders informed with comprehensive map views created for a specific purpose.

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Speaker biography:

Mr. Rhame is the Chief Information Officer at The Response Group and possesses more than 20 years of experience in Geographic Information Systems (GIS) specializing in information management and emergency response. Kenny provides technical leadership and is responsible for all software development, data management and information systems within The Response Group. His background includes delivering enterprise software solutions for geographic information systems and emergency response.

Speaker name: **Glenn Rink**

Presentation title: **AbTech Spill Response and Hydrocarbon Harvesting Technologies**

Abstract:

AbTech is a full-service environmental technologies and engineering firm and the developer and manufacturer of Smart Sponge® and Smart Sponge Plus® technology. AbTech provides an effective, low-cost solution that solidifies, separates and removes contaminants, including hydrocarbons, sediment and other foreign elements, from stormwater, produced water and industrial waste water. The AbTech solution can also be used to recycle water for re-use.

SmartSponge, an oleophilic polymer-blend with high porosity to maximize oil absorption, on average, 3.5 times its weight in oil, has positive buoyancy when saturated, is non-toxic and non-time sensitive as to recovery. The technology has 17 domestic and 16 international patents and, isregistered with the EPA as an antimicrobial product (EPA Registration # 86256-1) for outdoor use to reduce coliform bacteria, a pathogen. An added benefit of SmartSponge is its sustainable end-of-life use. Once saturated with contaminants, the spent sponge is a significant energy source as it has a very high BTU value and can be burned as fuel.

Oil Spill Recovery Stats

- 10-minute absorption rate of 8.6:1 (Light Crude)
- Extensive research since 1993 – U.S. Department of the Interior's National Oil Spill Response Test facility
- Certified for Oil Spill Recover since 1996 under Oil Aquatic Recovery Systems
- Registered with Deep Horizon Command Center
- Recognized by the U.S. Coast Guard
- Registered vendor in LA, MS, AL, GA, FL

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Speaker biography:

Glenn R. Rink, Founder, President and C.E.O. of AbTech Industries, Inc.
AbTech Industries, Inc. is committed to Green Tech innovation, and is a 2007 & 2008 AlwaysOn GoingGreen Top-100 winner. Glenn oversaw AbTech's growth from a startup R&D venture to an over 20-million-dollar-invested environmental company by engineering his patented Smart Sponge® technology, into innovative applications to target the multiple avenues of water contamination including storm water runoff. Smart Sponge® is currently installed in over 15,000 locations across America and in 8 countries. Glenn is chairman of the Board of Trustees for Waterkeeper Alliance.

Speaker name: **William Robberson**

Presentation title: **US EPA Data Collection and COP Tools**

Abstract:

One of the largest challenges in emergency response and even within our proven Incident Command and Unified Command Systems is providing the right information to the right people in the right format at the right time: EPA will present a snapshot of its data collection and response support tools and demonstrate how they are used in combination with today's geospatial platforms to collect, analyze and provide better, faster and more accurate information to emergency responders at all levels of a response.

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Speaker biography:

CDR Bill Robberson is the US EPA Region IX Coordinator of the Oceania Regional Response Team (Oceania RRT), a response support and coordinating body comprised of federal, state and territory representatives and participants from industry and local agencies. Bill has been with EPA for 29 years; he is a Commissioned Officer in the US Public Health Service (US PHS) and a Licensed Civil Engineer (P.E.) in CA. Bill is the seasoned Liaison Officer of the EPA Region IX Incident Management Team, an ICS 300/400 instructor and the Executive Officer of Rapid Deployment Force Five (RDF-5), a US PHS Emergency Health Care Response Team. Previously, Bill was a member of the EPA Region IX Oil Team; in 1996 he assembled and led the Region's cross-media workgroup on MTBE; he managed EPA's State of California Drinking Water Program for 9 years; and he was the program manager for EPA's Waste Water Treatment Construction Grants projects in the SF Bay and Los Angeles Areas. Bill also flew for the Navy for 18 years both operationally and as a flight test pilot; he is also a licensed Airline Transport Pilot (ATP).

Speaker name: **Paul S. Smith**

Presentation title: **Recent Developments in Conventional Oil Spill Response and Remote Sensing at Elastec/American Marine**

Abstract:

While there have been no groundbreaking developments in the field of oil spill cleanup equipment at Elastec since the XChallenge, there have been some interesting incremental improvements to existing equipment in the product line and the addition of a few new pieces of ancillary equipment.

1. The most interesting of the new ancillary equipment is the launch & retrieval system for the X-150. It solves a few problems associated with handling heavier systems over the side of a vessel of opportunity. It also incorporates some unique features – like wireless remote operation and synthetic lifting lines.
2. The Coast Guard R&D Center funded the construction of a prototype of an easily stored and transported tank for temporary storage **on the deck of a vessel of opportunity,** when towable bladders are not practical – such as when working in ice.
3. In 2013, Elastec acquired the marketing rights to the Norwegian ***OceanEye*™** aerostat-based surveillance system. This presentation provides an overview of its capabilities as another tool for remote sensing, command and control in oil spill response.

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Speaker biography:

Paul Smith is a naval architect and ocean engineer with almost 40 years of experience in marine salvage, oil spill response and deep ocean operations. He founded OceanSmith Services in 2014 to provide excellence in planning and engineering to the marine community.

Speaker name: **Gordon Staples**

Presentation title: **Oil Spill Preparedness and Response Using Space-Based Radar**

Abstract:

Space-based radar remote sensing is recognized as an essential tool for emergency response in the event of an offshore oil spill. Synthetic Aperture Radar (SAR) is capable of identifying the extents of oil on water over very broad offshore regions. The capabilities of SAR are complementary to other well established remote sensing technologies including aerial surveillance. The correct combination and implementation of remote sensing technologies is critical to effective surveillance operations. A better understanding of the technology, events such as the Macondo incident in 2010, industry efforts by the API and OGP, and MDA interactions with offshore operators are leading to the development and adoption of practices pertaining to space-based remote sensing in emergency planning and response activities.

This presentation will be divided into two parts. Part 1 will introduce the basics of space-based radar monitoring for oil spills and will discuss integrating space-based monitoring into emergency preparedness and response activities. Using examples and case studies, the role of spaceborne SAR for routine monitoring before an incident occurs, multiple sensors to address coverage and revisit, integration of SAR into emergency preparedness, and the integration of SAR in a common operating picture will be discussed. Part 2 will briefly outline MDA research into the use of RADARSAT-2 quad-polarized data for oil type discrimination. Results of this research suggest that discrimination of plant oil, emulsion, and crude oil is possible**.**

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Speaker biography:

Gordon Staples received the M.Sc. degree in ocean physics and the B.Sc. degree in honours physics and oceanography from the University of British Columbia. He joined MDA in 1993 and is currently Senior Analyst/Manager, Maritime Services for the Geospatial Group. In this role, he oversees the geospatial services group, manages research projects, develops and delivers radar training, and is active in business development. Mr. Staples is the Vice President of the Canadian Remote Sensing Society. He is a member of the IEEE, AGU, and the CRSS.

Speaker name: **Jordan Stout**

Presentation title: **Evaluating the Pollution Potential of the Shipwreck M/V FERNSTREAM**

Abstract:

After colliding with the SS HAWIIAN RANCHER in the busy shipping lanes of San Francisco Bay on the morning of December 11, 1952, the M/V FERNSTREAM sank within minutes. She was fully loaded with cargo and fuel for a long trip across the Pacific, but no substantial spill has ever been reported from her location. Did she still hold over half a million gallons of diesel fuel on-board? Was she structurally sound? Was she a catastrophe waiting to happen? These were all big questions when NOAA's RULET (Remediation of Undersea Legacy Environmental Threats) report came out in 2013 and yet the information available on the shipwreck at the time was sketchy. The local Area Committee convened the FERNSTREAM Task Force to identify key questions and data gaps and to determine the best path forward. This non-emergency effort resulted in an informative pollution assessment because there was: 1) time to plan, 2) excellent & open inter-agency cooperation, and 3) useful technology.

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Speaker biography:

Currently serving as NOAA's Scientific Support Coordinator (SSC) here in California, Jordan provides scientific & technical support to USCG & EPA for oil spills & hazmat releases. Jordan has been involved in supporting many significant incidents in California and throughout the nation, including: *SS Montebello*, XOM Silvertip pipeline, Japanese Tsunami response, *MODU Deepwater Horizon* (MC-252), *T/V Dubai Star*, *T/B DM932*, *M/V Selendang Ayu*, *M/V Cosco Busan*, Hurricane Katrina, Hurricane Isaac, *T/B DBL-152* and numerous smaller incidents. He also serves as NOAA's representative on Regional Response Team 9 and the MEXUS-PAC Joint Response Team.

Speaker name: **Julie Thomas**

Presentation title: **How Surface Currents and Wave Information Can Assist with Oil Spill Response**

Abstract:

Recent spills have resulted in renewed evaluation of current response capabilities in California and elsewhere. The ocean observing systems within California (Southern California Ocean Observing systems (SCCOOS) and the Central and Northern Coastal Ocean Observing System (CeNCOOS) work with federal, state and local agencies to integrate high frequency radar derived surface current data and products into statewide prevention and response applications. Additionally, Coastal Data Information Program (CDIP) wave measurements help support planning and response for oil spill exercises, drills, and incidents.

HF radar measures ocean surface currents during the night, in fog or when conditions prevent direct observation of the spill. Surface current data are also available to help show the past and future spill path. HF radar capabilities continue to be further integrated into improved trajectory maps of spill movement, decreasing response time and allowing for better protection of critical habitats and resources both on land and at sea.

This presentation will review surface current and wave applications within oil spill response and provide current and future initiatives for community accessibility and involvement.

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Speaker biography:

Julie Thomas has been with Scripps Institution of Oceanography in La Jolla, CA for more than 38 years. She has been Program Manager and Principal Investigator for the Coastal Data Information Program (CDIP) since 2001. Julie became Executive Director of the Southern California Coastal Ocean Observing System (SCCOOS) in 2008, and focuses on the development of the Ocean Observing Systems all levels, and promoting inter-agency collaboration, data interoperability and data standards. Julie serves on many national committees advocating for high quality data and data standards.

Speaker name: **Ron Tjeerdema**

Presentation title: **Oil Dispersants: To Use or Not to Use**

Abstract:

The toxic actions of naturally dispersed and chemically dispersed oil cannot easily be summarized, as they depend on the types of oil and dispersants involved and the conditions under which they are generated. In addition, their actions will vary according to the types of organisms impacted and the life stages involved. However, it can be noted that how exposures are analytically characterized can also have a significant impact. In our recent research we have discovered that the metabolic actions of both naturally dispersed and chemically dispersed oil can be quite similar when characterized using cutting-edge NMR metabolomic approaches. This implies that for many organisms the actions may ultimately depend on dissolved hydrocarbon concentrations, or in essence the bioavailable fraction. This finding suggests that comparing toxicological data from the historical literature may be difficult, if not nearly impossible, due to the analytical methods employed in past studies. The use of simple nominal loadings or total hydrocarbon measurements will inevitably overestimate the quantity of petroleum truly in the dissolved phase, as they tend to also include bulk and particulate hydrocarbons.

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Speaker biography:

Ron Tjeerdema has conducted research on the fate and toxic actions of dispersants and petroleum hydrocarbons in collaboration with the California Office of Spill Prevention & Response and Chevron for over 25 years. He has published some 600 peer-reviewed research articles and abstracts. He holds a PhD in Pharmacology & Toxicology from UC Davis, where he currently serves as both the Associate Dean for Environmental Sciences and Professor of Environmental Toxicology.

Speaker name: **William T. Vocke**

Presentation title: **Interagency Coordinating Committee on Oil Pollution Research Update**

Abstract:

The Interagency Coordinating Committee on Oil Pollution Research (ICCOPR) was created by the Oil Pollution Act of 1990 (OPA 90) as the lead federal entity to develop federal oil pollution research and technology (R&T) planning and coordinating with states, industries, academia, and international organizations. In 2009, ICCOPR began an effort to revitalize itself and develop a new baseline R&T Plan. The new plan will be the first of a series of periodic updates. This presentation describes ICCOPR's current efforts to ensure continued interest in oil pollution research. It also provides a status update on the R&T Plan and the oil spill categorization framework being used to identify and track research initiatives. It will also summarize the approved federal research priorities.

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Bill Vocke serves as the Executive Director of the ICCOPR. He manages the day-to-day operations of the 15-agency committee. He represents the ICCOPR in collaboration with industry, academia, and international partners in oil spill research programs. He is currently leading efforts to develop an updated federal Oil Spill Research and Technology Plan for ICCOPR. His experience includes 40 years environmental protection programs including six years with EPA's water quality and hazardous waste programs. Mr. Vocke has a M.S. in Environmental Engineering and a B.S. in Environmental Resource Management.