



MARINE ENVIRONMENTAL NEWSLETTER

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NEWS FROM AROUND THE WORLD

NEWS FROM AUSTRALIA

SIMAP Makes a Mark



Recent discoveries of oil reservoirs off the northwest corner of Australia have prompted a flurry of oil and gas exploration activity. But the area is also environmentally sensitive. Large tracts of the North West Shelf and Timor Sea regions are made up of shoal areas and island chains with wide fringing reefs, and the area also supports rich benthic and demersal fisheries. Because oil spills and leaks from drilling and production pose a potential risk to local biology and habitats, Australian regulations require oil and gas companies to perform quantitative risk-assessment studies prior to drilling or planning new facilities. In the past, studies have focused on risks to shorelines from surface slicks. However, oil companies and their government regulators are now increasingly focusing on the risks presented to the subsurface environment by dissolved and entrained components of oil slicks.

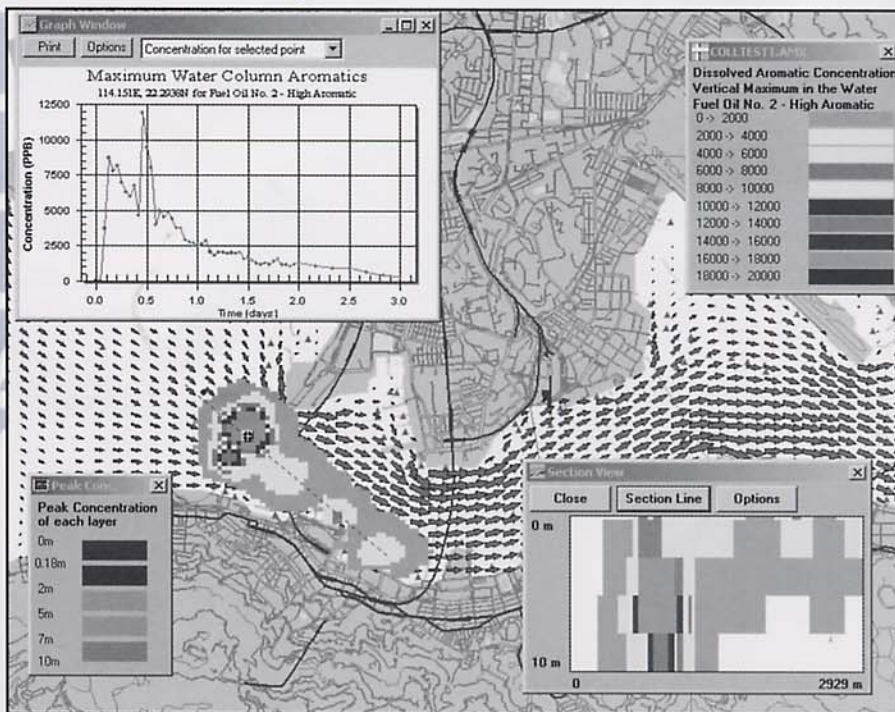
Recently, Asia-Pacific ASA have been commissioned by a number of clients, including BHPP, Chevron, Apache Energy and Woodside Energy, to quantify potential risks to sub-tidal habitats using ASA's three-dimensional oil spill fates and biological effects model, SIMAP. SIMAP's physical fate model is being applied to estimate potential concentrations of dissolved and entrained components of spills within the water column and to estimate rates of sedimentation to the seabed. SIMAP's sub-surface release capabilities have also been used to quantify risks to submerged habitats generated by blowouts at the seabed and corrosion leaks from submerged pipelines.

SIMAP's ability to separately predict the path of submerged and surface-bound spill components and to estimate hydrocarbon dosage rates as a product of concentration and duration of exposure has proven to be particularly helpful to resource companies aiming to better understand and describe environmental risks associated with their activities.

For more information, please contact Scott Langtry at Asia-Pacific ASA (slangtry@apasa.com.au).

THE INSIDE STORY

- Brazil and SIMAP
- Singapore and CHEMMAP
- CHEMMAP and ChemWatch
- Upcoming Conferences



Sample SIMAP output showing dissolved aromatic concentrations in the water column.

NEWS FROM SINGAPORE

Crisis Management Simulator



ASA's Crisis Management Simulator (CMS) is an integrated client-server software application for handling a variety of emergencies including:

- Chemical atmospheric releases
- Nuclear releases
- Marine Search & Rescue
- Oil and chemical response
- Ship stability and general marine emergency response

The system also incorporates a comprehensive resource management system based on the ICS system that ASA originally developed for the U.S. Coast Guard. The system

NEWS FROM SINGAPORE

Crisis Management Simulator Continued

manages deployment and cleanup costs, provides estimates on damages to the environment, and simulates evacuation for minimizing the impacts on the population from toxic releases.

ASA's project manager for the CMS, Eoin Howlett, is very pleased with the progress, "The development schedule has been on a fast track, and the integration of these components with the resource deployment and management system represents the first application of this type in the world."

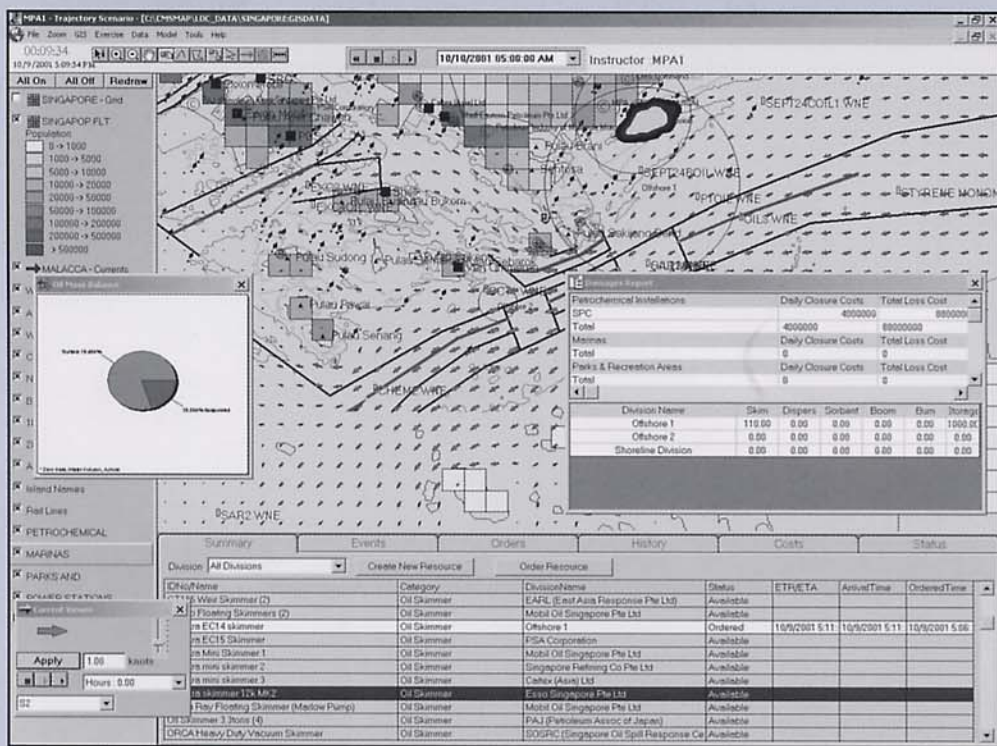
The Crisis Management Simulator is being delivered in December to MPA's new Integrated Simulation Centre (ISC) building in Singapore. The ISC also contains a full mission bridge simulator from Kongsberg Norcontrol. This simulator is fully integrated with the CMS so that students in the bridge simulator will see data such as oil slicks and booms.

ICOPCE

Roddy Thomas from ASA's UK office and Sasha Zigic from Asia-Pacific ASA attended the *International Chemical and Oil Pollution Conference & Exhibition (ICOPCE)* in Singapore on 3 – 4 September. In addition to exhibiting CHEMMAP, ASA's updated chemical dispersion model, and other model systems, Sasha presented a paper entitled "Crisis Management Simulator - An Effective Tool to Preparing for Emergency Response", at this increasingly popular and important regional conference and exhibition.

Roddy Thomas also participated in the Day 3 Joint MPA-Shell Eastern Petroleum Spill Exercise, where he demonstrated how to model spilled Styrene and produce dispersion outputs for both the marine environment and atmosphere to exercise participants at MPA's Emergency Response Centre.

The photograph shows Dr. John Chen, Minister of State for the Ministry of Communications and Information Technology and Development, Singapore, who made the opening address at the conference and is seen here visiting ASA's stand.



NEWS FROM BRAZIL

Eduardo Yassuda delivered SIMAP to PETROBRAS (Petróleo Brasileiro S.A.) as part of the research and training project to provide the Brazilian oil company with the modeling capabilities and computational tools to determine ecological risk and damage assessment. This first presentation focused on the use of the SIMAP interface and GIS for managing the natural resources database. During this 18-month project, ASA will provide technical support and training for a group of 10 professionals from CENPES (Petrobras Research Center), including biologists, chemists, toxicologists, physical oceanographers, and GIS experts. The initial training will be completed in November (6-8) when Deborah French McCay introduces the technical features of SIMAP.



Petrobras Research Team at initial training

CHEMMAP and ChemWatch

Applied Science Associates recently concluded an agreement with The ChemWatch Chemical Management System. As a result, a software link is available between ASA's chemical spill modeling system, CHEMMAP, and ChemWatch's large database of Material Safety Data Sheets (MSDS) for more than 40,000 pure substances and 75,000 common mixtures.

CHEMMAP, which predicts the trajectory and fate of spilled chemical products, currently has its own database of 900 chemicals with physical and chemical data properties. The extensive suite of Health and Safety information contained within the ChemWatch MSDS's complement and expand upon the data in the CHEMMAP database. A sampling of the information available through the ChemWatch MSDS's includes descriptions of essential personal protective equipment, exposure standards, health hazards, biological exposure indices and possible First Aid requirements. The ChemWatch MSDS's also provide guidelines for how to determine the severity of the risk to health, how to handle a spill, how to store and transport chemicals, how to dispose of chemicals, what to do if a chemical catches fire and how to plan for an emergency response. The wide variety of information in ChemWatch's MSDS's will enhance CHEMMAP's role as both a contingency planning and real-time response tool.

To learn more about ChemWatch visit their website at <http://www.chemwatch.net>.

Personnel

Jiganesh Patel joined ASA as a Scientist in August 2001. Jiganesh received a Master of Science from the Massachusetts Institute of Technology in June 2001 and a Bachelor of Science in Geology-Physics/Mathematics from Brown University in May 2000. His Master's thesis investigated the use of satellite remote sensing to determine land water runoff. Since joining ASA, Jiganesh has been working on thermal plume modeling for Narragansett Bay and on integrating the latest IMO regulations for search and rescue planning into ASA software.



On 14-17 August, **Deborah French McCay** attended and presented at the *First International Congress on Petroleum Contaminated Soils, Sediments & Water* in London, UK. She presented a half-day workshop titled: "The Role of Modeling in Natural Resource Damage Assessment for Oil Spills". This workshop focused on the usefulness of computer modeling, in conjunction with field data, in assessing impacts. The *North Cape* oil spill provided a good example case study. The workshop was well attended and there was a lively and interesting discussion on the topic.

Matthew Ward, Craig Swanson and Malcolm Spaulding traveled to Philadelphia for the semi-annual meeting of the Drexel University/ University of Rhode Island/ ASA/ NOAA/ Brown University National Ocean Partnership Program project held on 10 September 2001. The project is focused on the development and application of an Internet-based monitoring and forecasting system for Narragansett Bay.

Eric Anderson and Eoin Howlett have been traveling to Singapore monthly as part of ASA's Crisis Management Simulator (CMS) Project for the Maritime Port Authority of Singapore. The CMS will be delivered in December of this year and will be linked directly with a full mission bridge simulator from Kongsberg Norcontol.

ASA Software Being Used in WTC Response

The US Coast Guard is using software developed by ASA to help coordinate its response to the World Trade Center disaster in New York City. Members of the Coast Guard National Strike Force responded to the scene to apply their expertise in emergency response and deal with the dangerous conditions at the site of the recent terrorist attack. USCG personnel working around-the-clock use the prototype of the On-Scene Command and Control (OSC²) application to help manage people deployed to contain hazardous materials, including phosgene, methane, PCB's and asbestos, from the massive debris pile created by the collapse of the Trade Center towers. **Chris Galagan** traveled to US EPA district offices in Edison, New Jersey in September to support the Coast Guard's use of OSC² in response to the deadliest terrorist attack in U.S. history.

The ChemWatch MSDS database complements the CHEMMAP chemical database.

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UPCOMING CONFERENCES

The following is a list of conferences that ASA will be participating in over the next few months. More information about these and other conferences can be found at ASA's website, <http://www.appsci.com/>.

Society of Environmental Toxicology and Chemistry (SETAC)

11 – 15 November 2001
Baltimore Convention Center, Baltimore, Maryland

ASA's Bill Saunders will be providing instruction in spatial interpolation techniques and non-point source pollutant load estimation as part of the "Application of Geographic Information System (GIS) Technology to Water Quality Problems" short course at the SETAC 22nd Annual Meeting. The short course will be presented on Sunday, 11 November 2001 and includes a basic introduction to GIS technology, a demonstration of EPA's BASINS water quality modeling tool, and an introduction to GISTOX, a model for the fate, transport, and bioaccumulation of toxic chemicals. Other instructors include Ferdinand Hellweger from HydroQual, Inc. and Gail Carter from Rutgers University.

International Conference on Port and Maritime R&D and Technology

29 – 31 October 2001
Shangri-La Hotel, Singapore

Eoin Howlett, Brian King, and Roddy Thomas will be presenting 3 papers at this meeting. Jointly organized by the Maritime and Port Authority of Singapore and the National University of Singapore, this year's theme is "R&D and Technology for Port and Maritime Excellence". It aims to bring together researchers in the academic and research institutes, consultants and engineers and scientists in the port and maritime industries to share new and innovative developments, concepts and practices and exchange views and experiences. ASA's papers will cover oil spill modeling, re-suspension of sediment from dredging activities, and the Crisis Management Simulator.

International Conference on Estuarine and Coastal Modeling (ECM7)

5 – 7 November 2001
Tradewinds Sirata Beach Resort Hotel, St. Pete Beach, Florida

Tatsu Isaji, Dan Mendelsohn, Sankar Subbaya, Craig Swanson, Matt Ward and Eduardo Yassuda of ASA will all be presenting papers at the meeting. ECM7's focus is on the application of models to solve engineering and environmental assessment problems.

ASA homepage: Visit us at <http://www.appsci.com>



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