

SEASCAPES

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2001 Engineering Excellence Award



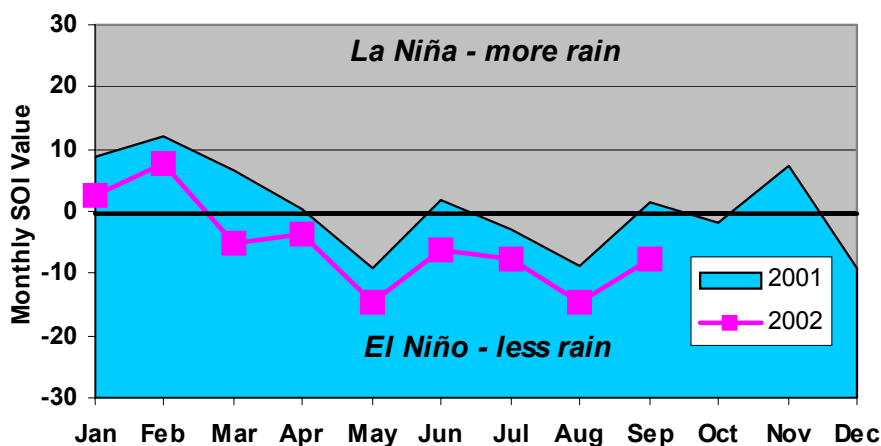
Systems Engineering Australia Pty Ltd was recognised by the Queensland Division of the Institution of Engineers Australia in their Annual Excellence Awards on August 30. The award was made for the adjudged very high quality of work in the study *Queensland Climate Change and Community Vulnerability to Tropical Cyclones, Ocean Hazards Assessment - Stage 1*, completed in 2001.

The Bureau of Meteorology, in conjunction with a number of Queensland Government agencies and with financial support from the Queensland Greenhouse Taskforce, commissioned the study to assess the magnitude of the ocean threat from tropical cyclones in Queensland. The project is intended to update and extend the present understanding of the threat of state-wide storm tide inundation, including the effects of

Photo: Dr Bruce Harper (right) is presented with the Excellence Award for Small Business Ventures / Projects by The Honourable Rod Welford, Queensland Attorney General, at the Gala Awards Night in Brisbane.

El Nino Loosening its Grip for 2003?

Although 2002 predictions started off in near-neutral mode, the climate indicators in late Autumn began to set the scene for another El Nino event. This suggests lower than average summer rainfall in Northern Australia and, normally, fewer tropical cyclones. However, as the year has progressed, the trend has begun to relax and the majority of numerical climate models now show declining ocean temperatures in the mid-Pacific by the early months of 2003, with only five of the twelve models favouring warm conditions by next May. [Data and comments based on Bureau of Meteorology sources.]



SEASCAPES

SEASCAPES features the developing risk assessment capabilities of Systems Engineering Australia Pty Ltd (SEA).

Our services include coastal, ocean and offshore engineering, statistical analysis of tropical cyclone data, quantitative estimation of insurance losses, cyclone wind, wave and storm surge modelling, flood risk assessment and severe thunderstorm downbursts, hail and tornadoes. We do investigations, analysis, consulting, peer review and research.

Visit us on the web:
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10⁻⁴ Waves Study continues for Woodside Energy Ltd

As outlined in previous *SEASCAPES*, Systems Engineering Australia Pty Ltd is providing technical management and specialist consulting to Woodside Energy Ltd in support of the "10⁻⁴ Waves Study". The work involves developing technical specifications and coordinating numerical and statistical modelling between a number of Australian and overseas consultants.

The 10⁻⁴ Waves Study refers to the requirement to develop environmental risk criteria (winds, waves and ultimately currents) which will be reliable to the 0.01% risk per annum (or 1 in 10,000 y return period). The risk criteria will be used to design new generations of offshore oil and gas production systems servicing Woodside's ex-

tensive identified marine based reserves in North West Australia.

The 10⁻⁴ p.a. risk level has been adopted worldwide by the oil and gas industry as the new reference for ensuring the safety of offshore personnel, minimising financial risk, and also reducing environmental impacts due to leaks and spills resulting from structural system failures of fixed and floating production systems.

With the cooperation of the Bureau of Meteorology, the study has been instrumental in undertaking a review of the historical tropical cyclone database in the Timor Sea and North Western Australia.

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storm wave conditions in selected areas, and estimates of potential Greenhouse impacts.

The study was awarded on the basis of competitive tender to SEA in association with the Marine Modelling Unit of James Cook University and involved a number of other eminent ocean modellers within Australia. A Project Steering Committee comprised representatives from the Dept of Natural Resources and Mines, Environmental Protection Agency and Dept of Emergency Services as well as the Bureau of Meteorology. The overall community vulnerability project will consist of a number of elements,

including storm surge modelling, extreme wave analysis and statistical modelling of storm tide along the entire Queensland coast. The Stage 1 study comprised a comprehensive review of all technical requirements of the project, and installation of a numerical storm surge model at the Bureau of Meteorology in Brisbane.

Stage 2 of the study is currently underway, addressing specific storm surge and wave modelling for the Hervey Bay and SE Qld regions, leading to extreme water level statistics. The Stage 2 work is being managed by the James Cook University Marine Modelling Unit, with continued SEA involvement.



Significant research has also been conducted into means for improving the estimation of cyclone intensity from satellite images and in the numerical representation of cyclone wind fields used in numerous ocean models and for risk assessment.

The study is expected to be completed in early 2003.

Some of the SEA Clients Since 1996

Tropical Cyclone Risks:

- RACQ Insurance
- CGU Insurance
- Suncorp Metway Insurance
- Aon Group Australia Limited
- Powerlink Queensland
- Australian Geological Survey

Severe Thunderstorm Risks:

- Suncorp Metway Insurance
- Macquarie University, Natural Hazards Research Centre
- Powerlink Queensland

Flood Risks:

- RACQ Insurance, Qld.

Coastal and Ocean Hazards:

- Woodside Offshore Petroleum, WA.
- Dept Natural Resources, Vic.
- Environmental Protection Agency, Qld.
- Dept Transport and Regional Services
- GHD Pty Ltd
- Bureau of Meteorology
- Kvaerner E&C Australia

Multi-Hazard Studies:

- Dept Emergency Services, Qld.
- Bureau of Meteorology / AGSO

Research:

- The Risk Prediction Initiative, Bermuda.

"After WTC – Terrorism as a Risk"

Dr Bruce Harper of SEA was invited to join a distinguished group of presenters at a seminar organised by the Reinsurance Discussion Group of New South Wales in September. The seminar, held at the American Club in Sydney, was designed to explore the future impacts of global terrorism on the insurance and reinsurance industries.

Dr Harper's topic "Can Terrorism Risk be Quantitatively Modelled?" examined the differences between natural hazards risk analysis and the demands imposed by the complex nature of deliberate terrorist acts.



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Real risk management decision - making tools for your business.

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