

RIGSS, DIGs and Safely Engineering Around Geohazards

Report on SUT Perth Branch Evening Technical Meeting
Wednesday 12th October 2016

By Kevin Day, Perth OSIGp Committee Member

The October 2016 SUT technical evening at the Parmelia Hilton was opened by SUT Perth Branch Chair, Julie Morgan and chaired by SUT OSIGp Committee Member Kevin Day (standing in for the OSIGp Chair, Fiona Chow, who was offshore). The evening included three presentations: i) **“Remote Intelligent Geotechnical Seabed Surveys – technology emerging from the RIGSS JIP”**, ii) **“DIG: Diagnostic Integrated Geosciences. Blending wholesome cocktails of geoscience data to confidently diagnose what's actually going on with the seabed”** and iii) **“Mitigating the consequences of geohazards on subsea infrastructure”**. The talks and their subject matter were structured to provide a linked sequence through the evening covering; site investigation – data assessment – use and mitigation of the results.

First to present were **Sam Stanier, Research Fellow and David White, Shell EMI Professor of Offshore Engineering, both from UWA**. Sam and David presented a review of the innovations and results from the **“RIGSS JIP”**, which is developing new tools and interpretation methods for offshore Site Investigations, particularly near-surface characterisations. Following a short review of ‘conventional’ penetrometers, the presentation covered the latest developments with ‘Hemiball’ and ‘Toroidal’ intelligent penetrometers and rapid use free fall penetrometers. The results are comparable with the more traditional equipment and the intelligent penetrometers are able to be utilized as part of a box core package for easy deployment.

Next to present were **Stella Kortekaas, Senior Geologist and Sam Ingarfield, Geotechnical Engineer, both from Fugro AG**. Stella commenced the presentation of **“Diagnostic Integrated Geosciences”**, or, DIGs, with a review of how data gathered, such as from the first presentation, may be incorporated as part of a wider data gathering exercise, where all the information is integrated to build a full geological model for a particular site being investigated. This model may then highlight potential risks from a range of geohazards and Stella gave case study examples of Mass Transport Events and Bedform/sediment mobility aspects. Sam expanded on the former with results from hypothetical flow modelling results which help to predict range and thickness of debris flows and turbidity currents.

Completing the series of presentations was **Alex Bandini-Maeder, Senior Geologist, NGI Perth** who gave the audience a summary of typical geohazards that the type of work from the first two presentations may highlight and followed this with methods of mitigating the risk from such potential threats to Subsea Infrastructures. Alex then illustrated the use of these methods with two case studies from development and production projects and finished up with how these techniques have also been applied to mitigating the risk from significant amounts of mercury within a World War II submarine wreck lying on an area of seabed with potential for slope failure.

The capacity audience enjoyed a related series of interesting talks that reviewed current and future techniques for site investigation and analysis, and we thank the Presenters for their time to make this possible. The talks were then followed by a lively and well-attended networking session outside on the terrace, making the most of a warm Spring evening.

On behalf of the SUT and the evening's audience I would also like to thank the sponsors for this evening, Fugro AG and the University of Western Australia. As ever, the SUT's Perth staff provided their consistently high standard of event planning which made this ETM another successful evening.