

# WA RESEARCH NIGHT

## Report on SUT Perth Branch Evening Technical Meeting

Wednesday, 9 October 2013

*By Brian D. Lamb, Perth Branch Committee Member*



Western Australian academia were provided with a platform to present their research projects in Subsea Engineering and Coastal Sciences. The event was attended by approximately 70 curious participants at the Swan room of the Parmelia Hilton Perth.

The evening was opened by SUT chairman, Ray Farrier and chaired by Brian Lamb, Senior Open Water Well Engineer, Shell Australia. The presentations are available online at the SUT WA Perth events archive website.

The opening presentation titled "Towards a Geostatistical Approach for Improving the Resolution Publicly Available Bathymetry Grid for the Kimberley Region, North-West Australia" was provided by Elizabeth Mair, Student, Bachelor Science Honours (GIS), Curtin University. The project's aim is to provide a cost-effective method for mapping Bathymetry, Seafloor substrate and Water Column biomass. Single beam echosounders are mounted on fishing vessels to provide broad-scale monitoring of the seabed across the offshore Kimberley region. The resulting data has to be pre-processed and interpolated using various methods/analysis, including Kriging!

Vanessa Bullock, Mechanical Engineering Student, Curtin University presented "Vortex Induced Vibration in Subsea Pipelines" next. The basics of pipeline free spans, VIV prediction and the history of VIV in design for subsea pipelines was presented. VIV has been implicated in several subsea pipeline failures therefore demonstrating the importance of understanding VIV and designing to mitigate this failure mode. A scaled testing apparatus was designed to model VIV for various pipeline types. The experimental results from this apparatus demonstrated some differences with the DNV RP-F105 code with respect to predicted gap ratios.

The final presentation "The Effects of Wind Forces on Surface Currents on the Continental Shelf Surrounding Rottnest Island" was delivered by an enthusiastic Jennifer Penton, Student: PhD in Engineering Science, Coastal Engineering, UWA. Surface currents are driven by wind on the ocean. Jen linked the understanding/prediction of surface current with many Ocean elements including algal blooms, debris tracking, pollutant tracking and navigation. Surface currents are measured via HF Radar along the WA coast. The project is working to correlate the measured surface currents with measured wind speeds taking into account local bathymetry, coastal currents and wind patterns. Preliminary results indicated surface currents respond to wind (both speed and direction) and that the response of currents depends on the strength of the wind.

The presentations concluded at about 7:30 pm at which time, Ray Farrier, SUT Chairman, thanked the presenters and chairperson for their efforts. The participants then enjoyed networking over drinks and nibbles provided by the evening's sponsors: AMC Management, Curtin University and the Shell-EMI Chair, the Centre for Offshore Foundation Systems, and the CEED program at University of Western Australia.