May 2009

CMST News

The Newsletter of the Centre for Marine Science & Technology

#12

Naval Architecture on the Move

A naval architecture road show was taken around WA to over 600 high school students in January. The road show was developed by Curtin's Innovator-in-residence Nigel Gee and was designed to introduce naval architecture to students in a fun and interesting way. The road show was organised with support from Curtin's Science and Computing outreach team, which includes CMST PhD student Daniel Veen. Part of the road show included the use of possibly the world's smallest suite of transportable towing tanks, built at CMST. It comprised four tanks, each 1500mm long and 150mm diameter with a semicircular cross section. Cardboard boats were built by the students and tested using falling-weight dynamometers. Thin and fat ships of the same displacement were compared at different speeds, as were catamarans, trimarans and some more exotic hull forms (e.g. dragon boat, space shuttle, drinks bottle…). The enthusiastic response of the students indicates we can expect to see many keen naval architecture graduates over the next decade.

PHOTO BY SUSAN GEE

Daniel Veen supervises a towing tank trial at Albany Senior High School

International Activities

CMST welcomed Chinese visiting researcher, Dr Bingwen Sun in April. He is the sixth visitor from China in two years, building up a strong alliance with the Chinese underwater acoustics community.

CMST staff have also participated in several international events:

➤ Sasha Gavrilov was an invited attendee at the Hydroacoustics Workshop of the Comprehensive Test Ban Treaty Organisation in Vienna during March. The workshop reviewed hydroacoustic processing of the CTBTO and made recommendations on future scientific needs.

➤ Chandra Salgado has recently completed a two month visit to the University of St Andrews, Scotland, as a visiting researcher studying new techniques for assessing the current status of the humpback whale population off Western Australia.

➤ Alec Duncan was an invited attendee at the Gray Whale Advisory Panel of the International Union for Conservation of Nature in Vancouver during February and also attended a workshop on Petroleum Industry Impacts on Marine Turtles in Canberra in March, organised by DEWHA.

➤ Andrew Woods gave an invited short course on stereoscopic 3D displays at the 3D Systems and Applications conference held in Taiwan in April.

Marine Innovation

Nigel Gee completed his four month stay at CMST with a presentation on his findings at the *International Conference on Innovation in High Speed Marine Vessels* at Fremantle in January. The presentation's findings pinpointed the areas of misunderstanding between industry and academia, defined a series of goals to address the shortfall in science and engineering students, and proposed a new model for government funding of R&D.

Dr Nigel Gee

The conference was organised by the Royal Institution of Naval Architects in association with Curtin.

First National Acoustic Stations Installed

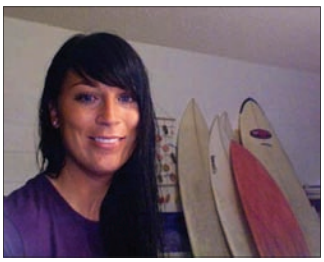
CMST is the lead organisation for the one million dollar program to build and deploy three acoustic observation stations in Australian coastal waters. The work is being funded under the National Collaborative Research Infrastructure Scheme (NCRIS). Design work and construction of the first two stations is complete. The first station, in the Perth canyon off Rottnest Island, was successfully installed on 20th February and the second station, off South Australia, will be installed in May. The third station is planned for deployment off NSW later in the year. Once installed, the stations will become a source of data that will attract major regional, national and international research programs. The stations will collect sound recordings of ambient ocean noise, whales and other marine life, ships, and possibly other mysteries from the deep.

PHOTO BY ROB McCAULEY

Deployment of the NCRIS Acoustic Observation Station off Rottnest Island

New Research Students

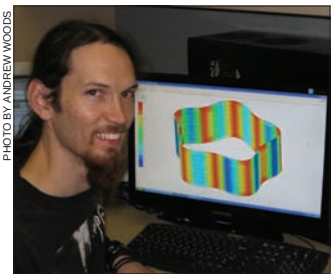
CMST has two new postgraduate students so far this year:



Nina Ribbat

Nina Ribbat completed a Bachelors double degree in applied maths and oceanography at the Hawaii-Pacific University, USA. She has enrolled in a Masters degree at Curtin, and will be analysing meteorological effects on tidal heights and streams in Torres Strait. The aim of the project is to develop methods for predicting tidal height and stream residuals in the short term, which will increase the accuracy of the overall tidal predictions, helping to ensure sufficient under-keel clearance for ships transiting the Strait. These methods will be built into CMST's "KeelClear" software currently being used by Australian Reef Pilots to plan ship transits through Torres Strait.

PHOTO BY ANDREW WOODS

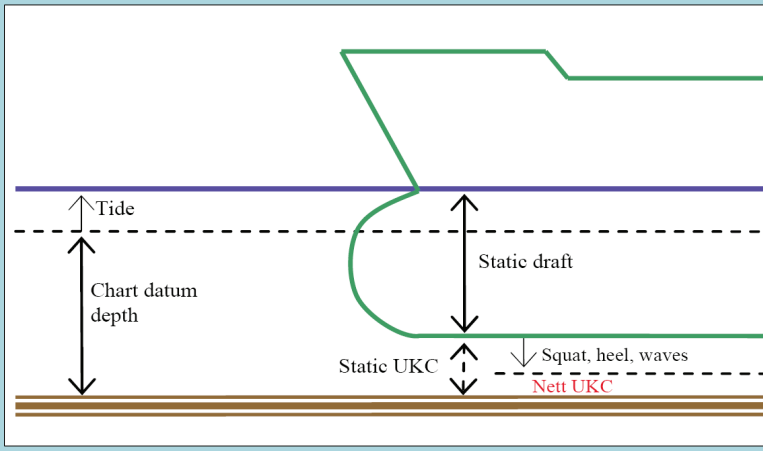


Daniel Wilkes

Daniel Wilkes completed his undergraduate degree in the Department of Imaging and Applied Physics at Curtin with first class honours. He is studying for a PhD on fluid-structure acoustic interaction using coupled finite element and boundary element methods. His project is supported by DSTO and he holds an Australian Postgraduate Award.

Ships in Shallow Water

The Centre for Marine Science and Technology, in conjunction with the Australian Maritime College (AMC), presented a one-day course on ship under-keel clearance on 30th March. The course was hosted by the Western Australian Energy Research Alliance, and was attended by ship pilots and port engineers from around Australia. Tim Gourlay (CMST) and Jonathan Duffy (AMC) presented topics covering recent ship groundings and the state of the art in squat prediction, wave-induced motions, model tests and full-scale trials. It is planned to run the course again in New Zealand during September.



Definition of Ship Under-Keel Clearance (UKC)

The Centre for Marine Science & Technology (CMST) conducts world-class consulting, research, development and education for the marine industry and for government agencies.

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CMST Lunchbox Seminars

CMST holds weekly seminars, with speakers from interstate and overseas, as well as CMST staff.

The schedule of seminars is listed on our website:
www.cmst.curtin.edu.au/seminars

If you would like to receive email updates regarding CMST seminars, simply send an email to the following address:
seminars@cmst.curtin.edu.au