Department of Biological Sciences
Seminar Announcement

(Biodiversity and Ecology Journal Club)

NUS National University of Singapore

Abiss (Autonomous Benthic Image Scaling System): a new tool for benthic surveys

Almost since the invention of the first camera, photographic techniques have been used to observe and record benthic artefacts and biota. Usually, these images are obtained from ROVs (remotely operated vehicles), diver-held cameras, dip cameras or landers. The major problem in the most fundamental interpretation of images is their unknown scale and perspective, this latter producing an unknown variation in scale over the image. This problem may be solved by the use of structured lighting, produced by an array of laser diodes attached to the underwater camera. The diodes project a pattern of spots onto the recorded seabed image, and this pattern is clearly distorted in a systematic way which depends upon the image range and oblique angle of perspective. Subsequent computer analysis of the spot positions allows calculation of range and perspective angle, and this information may be used to scale any part of the image and/or reconstruct the image in 'plan view'. Abiss (Autonomous Benthic Image Scaling System), a simple and inexpensive 5-spot system, has been developed at the University of Plymouth, UK, and has already been used successfully in a detailed PhD study of megafauna distribution at two UK sites. Abiss is now marketed as ISS by Tritech International Ltd, and a modified version has been produced for use in the inspection of oil tanks. A 16-spot version, Abiss3D, capable of scaling curved surfaces is currently under development for use by the Royal Navy in mine clearance.

Derek Pilgrim

Principal Lecturer
Underwater Science at the Institute of Marine Studies, University of Plymouth, UK

Date: 2 April 03 Wednesday
Time: 10.00 -11.00am
Venue: DBS LS Lab 7C
Blk S2 Level 2, Dept. Biological Sciences, Science Drive 4, NUS
Host: Prof Chou Loke Ming

Visitors may park at Carpark 10
See map:http://rmbr.nus.edu.sg/RMBR.JPG

All are welcome

Designed by Yong Ann Nee, Dept of Biological Sciences, NUS