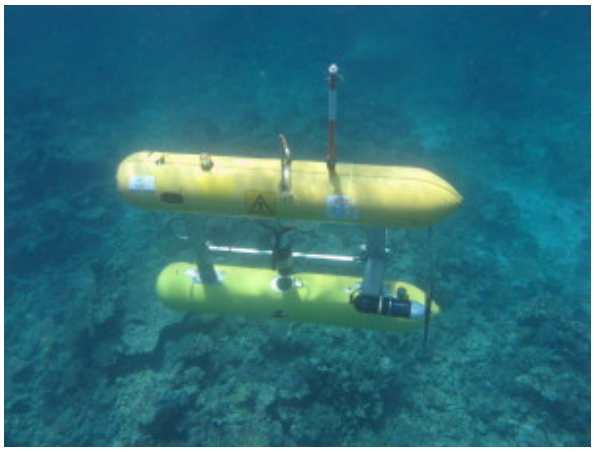
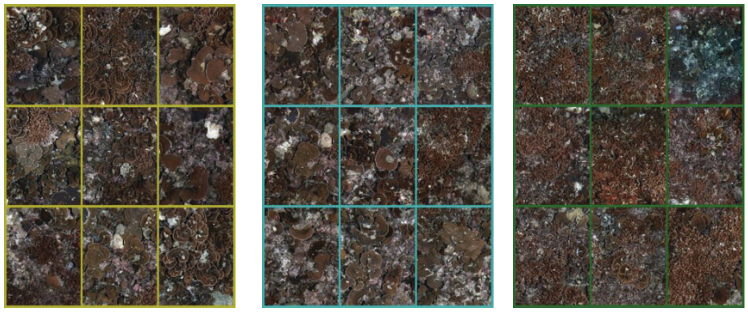
Seminar Announcement

On the 28th of July 2015 at 14h00
In Sesoko Station

Dr. Oscar Pizarro from the University of Sydney (Australia)

Advanced coral reef mapping and monitoring with divers and robotic platforms.





Access: Lecture room, 1F of Administration building, Sesoko Station, University of the Ryukyus, 3422 Sesoko, Motobu, Okinawa.

Contact: Dr. Frederic Sinniger, fredsinniger@hotmail.com

Abstract

Advanced coral reef mapping and monitoring with divers and robotic platforms.

Dr. Oscar Pizarro

Oscar Pizarro is a research fellow at the Australian Centre for Field Robotics (ACFR) at the University of Sydney. Over the last ten years he has been involved in establishing underwater robotics as a useful tool for marine scientists in disciplines such as ecology, geology and archeology. He is also one of the co-founders of the Autonomous Underwater Vehicle (AUV) Facility of Australia's Integrated Marine Observing System (IMOS), charged with monitoring benthic reference sites across the country. Much of the research at the ACFR has focused on mapping, visualisation and automated interpretation of sensor data to assist scientists.

3D visual reconstructions of coral reefs are allowing scientists to study these habitats in new ways and at large extents and multiple scales. The implications for ecology and for future directions in marine robotics are only beginning to become clear. We present results from AUV and diver based surveys in Australia, including large scale 3D mosaics, estimates of terrain complexity and automated image clustering. We also discuss the new types of questions being enabled by these approaches.

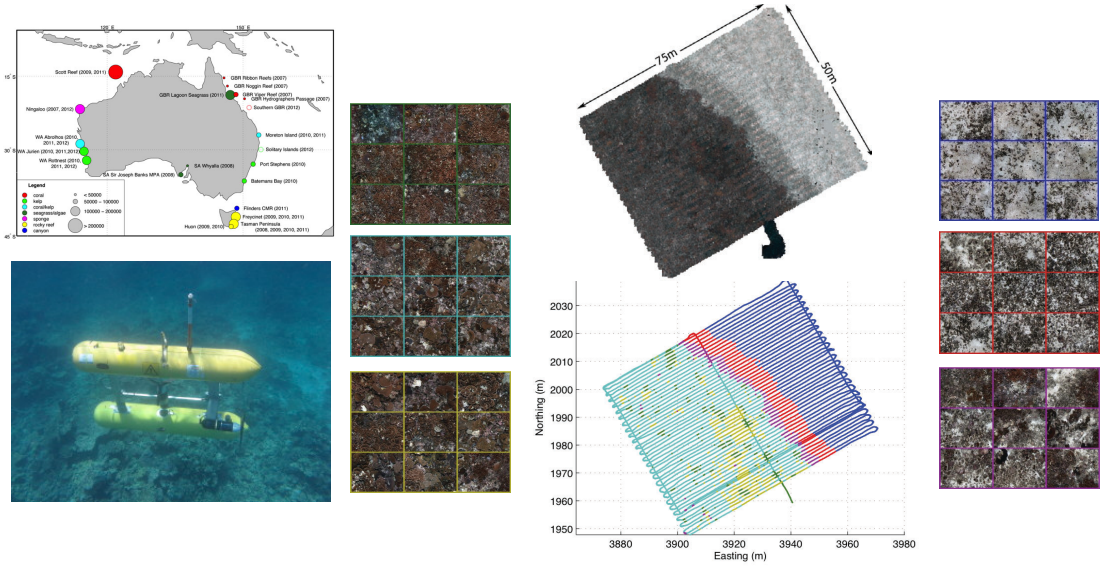


Figure – Example of data obtained from an AUV coral reef survey as part of the IMOS program. The 75 by 50 m 3D reconstruction shown was taken over a coral reef at Scott Reef in Western Australia. The objective was to target the interface between coral and sand. Below this is a figure showing the cluster label assigned to each image based on colour, texture and structural cues automatically extracted from stereo imagery. Corresponding examples from each cluster are shown in the thumbnails in the columns on the side, with the border corresponding to the cluster labels. There is clear spatial correlation in this data suggesting that the clustering algorithm is identifying examples corresponding to distinct habitats – in this case sand, rubble and various species of coral.

For more details about Oscar and his group's work, please visit the following link.
http://marine.acfr.usyd.edu.au