



Scientific use of 3D visual seafloor reconstructions

Half-day Workshop

- Date:** 12th March 2015
- Time:** 13:00~17:30
- Venue:** JAMSTEC Yokosuka headquarters
Main Conference Room (Ocean side)
Main Building 1F
2-15, Natsushima-cho, Yokosuka-city, Kanagawa, 237-0061
- Organizers:** IIS, The University of Tokyo
ACFR (Australian Centre for Field Robotics) University of Sydney
JAMSTEC
- Convener:** Blair Thornton (IIS)
Stefan Williams (ACFR)
Dhugal Lindsay (JAMSTEC)
- Language:** English

Overview:

The generation of dimensionally accurate, geo-referenced 3D visual maps of the seafloor using underwater robots can now be considered routine. However, while the generation of these primary data products can be automated, interpretation of the data to extract scientifically useful information is typically application specific and requires detailed inspection and analysis by experts. In order to make 3D visual data more accessible to the scientific community, it is necessary to develop the appropriate tools to help interpret these maps in an efficient manner.

The aim of this workshop is to identify the key scientific goals for benthic habitat mapping in hydrothermally active areas and regions affected by tsunami debris following the 2011 Tohoku disaster. The results of habitat mapping surveys performed using 3D visual mapping technology in these areas will be discussed together with the workflows currently used to interpret the information obtained. Researchers from the ACFR (University of Sydney) will introduce the technology and software that they have developed to survey coral reefs off the coast of Australia and share their experience of over 10 years of applied research in this area.

During the workshop, we will form study groups to discuss key technologies necessary to apply these technologies effectively to the major goals of the scientific community looking at habitat mapping in these areas. At the end of the workshop, short presentations of scenarios to apply the technologies, or develop new technology to answer specific scientific questions will be made. The workshop will allow scientists and engineers to interact and hopefully achieve a better understanding of the goals and limitations faced by each other, with the intention of using the ideas and suggestions to form the basis of realistic and rewarding proposals and opportunities for collaboration.

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Program:

Welcome address

1. Talks (Total ~2 hrs)

- Scientific objective 1 (~15min)
Benthic habitats in the Tohoku Region following the Great East Japan Earthquake
Takehisa Yamakita (JAMSTEC)
- Scientific objective 2 (~15min)
Post-drilling analysis of chemosynthetic ecosystems in the Iheya North Field
Ryota Nakajima (JAMSTEC)
- Technology application 1 (~25min)
Habitat mapping using multi-resolution 3D visual seafloor reconstructions
Blair Thornton (IIS, The University of Tokyo)
- Technology application 2 (~60min)
Monitoring changes in benthic ecosystems off the Australian coast using robotic platforms
Stefan William (ACFR, University of Sydney)

Short break

2. Group discussions (Total ~2hrs)

- Group discussion (~40min)
Participants split into small groups to discuss the application and technology and gaps that need to be filled to effectively address the scientific goals identified in the first 2 talks

Short break

- Executive summary (~40min)
Representative of each group presents a 1 slide summary of the ideas discussed in their group to the remaining participants

Closing remarks