Underwater Robots displayed at Test Tank (De-103)

URA LAB.

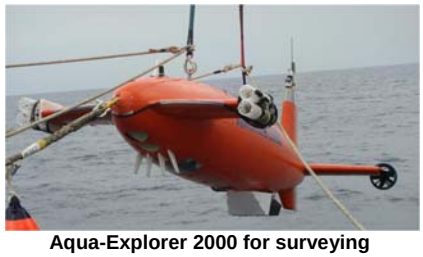
[Abyssal Sea Adventure with Underwater Robots !]

Underwater Technology Research Center
IIS, The University of Tokyo
http://underwater.iis.u-tokyo.ac.jp/
Underwater Robotics
Department of Ocean Technology, Policy and Environment

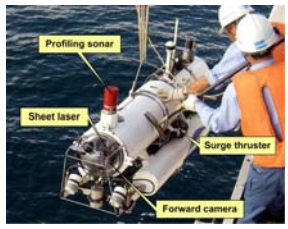
Research, Development, and Application of Underwater Robots

Underwater Robotics and Application

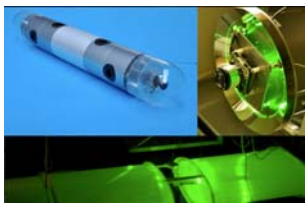
In URA Lab., we research, design, and develop Autonomous Underwater Vehicles (AUVs) as an unmanned platform for the survey and development of sea areas. By deploying our AUVs in several sea areas in the world, we have achieved undersea survey missions of various purposes. We are also developing underwater robots working in pipelines.

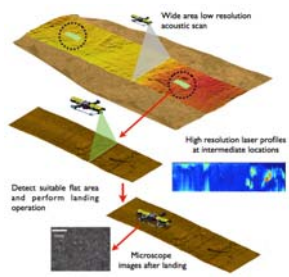

Aqua-Explorer 2000 for surveying hydrothermal vents

- **[Benthic Resource] Hydrothermal Vents, Cobalt-rich Crust**
- **[Undersea Navigation] Terrain-based Localization, Landing**
- **[Undersea Sensing] Acoustic Measurement of Cobalt-rich Crust Layer**
- **[Undersea Sensing] In-situ Elemental Analysis by LIBS**
- **AUVs for Surveying and Catching Deep-sea Organism**
- **Pipeline Inspection**
- **Underwater Robot Contest**

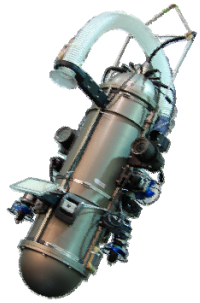


Hovering AUV Tri-dog1

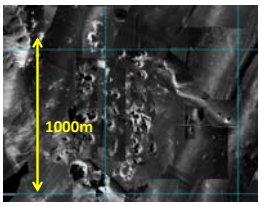

Pipeline inspection (PICTAN)



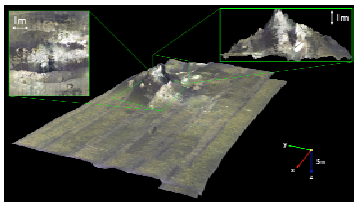
Landing AUV Bottom Skimmer


Jellyfish catcher T-pod

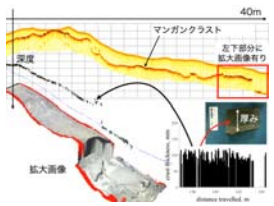

AUVs for underwater robot contest (YebisUra , HAL-urabo)



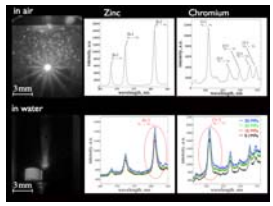
Acoustic image of a hydrothermal vent (r2D4)


Hydrothermal chimney in Kagoshima Bay (Tuna-Sand)


Visual survey of marine benthos (Tuna-Sand)



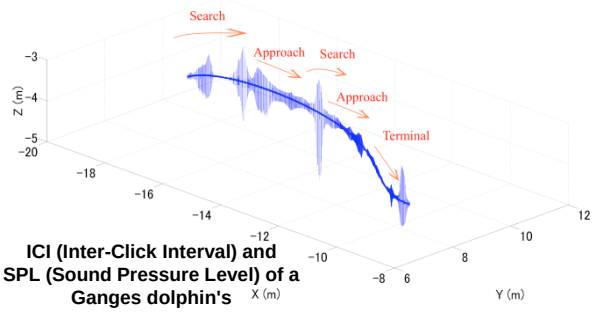
Acoustic measurement of cobalt-rich crust layer thickness



In-situ elemental analysis by LIBS

Acoustic Monitoring of Cetaceans

On the basis of the acoustic technology and the signal processing method, we developed a device and methodology for monitoring ecosystem of the cetaceans. By receiving and analyzing the click sounds emitted by cetaceans, our system has enabled long-term, precise monitoring of their ecosystem.



ICI (Inter-Click Interval) and SPL (Sound Pressure Level) of a Ganges dolphin's echolocation click