



# Asada LAB.

## [ Advanced acoustic measurements for seafloor based on underwater platforms ]

Underwater Technology Research Center

<http://unac.iis.u-tokyo.ac.jp>

**Underwater Acoustic System Engineering**

Department of Ocean Technology, Policy, and Environment, Graduate School of Frontier Sciences

## Advanced acoustic measurements for seafloor based on underwater platforms

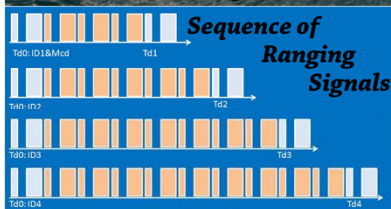
Utilizations of Autonomous underwater vehicle (AUV) and Remotely operated vehicle (ROV) are absolutely necessary when we explore and develop submarine resources. Development of submarine resource begins with a bathymetric survey based on AUV or ROV. Accuracy of the bathymetric survey has a decisive influence on assessment of reserve resource and development planning.

We have launched a three-year long project to develop new bathymetric survey system supported by MEXT. Combination of multibeam echo sounder technology and newly developed sonar based on techniques of interferometry and synthetic aperture ( Interferometric SAS ) realizes a seamless full-swath bathymetric survey system. This bathymetric survey system will have the specifications listed below.

- Depth rating: 3,000m
- Platform: AUV or ROV
- Positioning accuracy: 5cm
- Bathymetric resolution: 5cm
- Swath width: -90 to 90 ° (Full swath)
- Coverage: 400m swath (Cruise altitude at 50m)



Underwater Platform : AUV



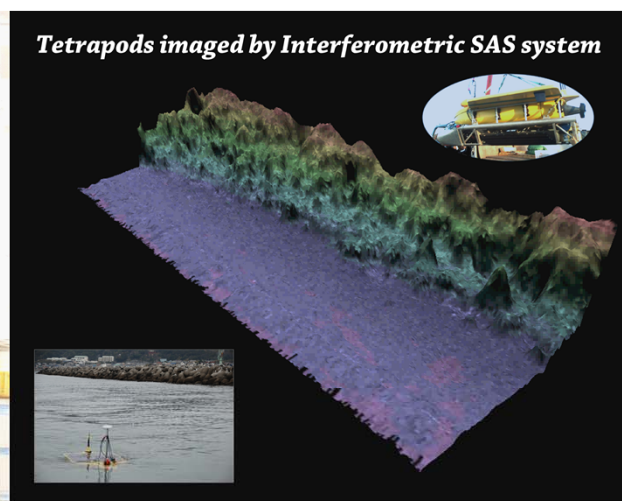
Sequence of Ranging Signals



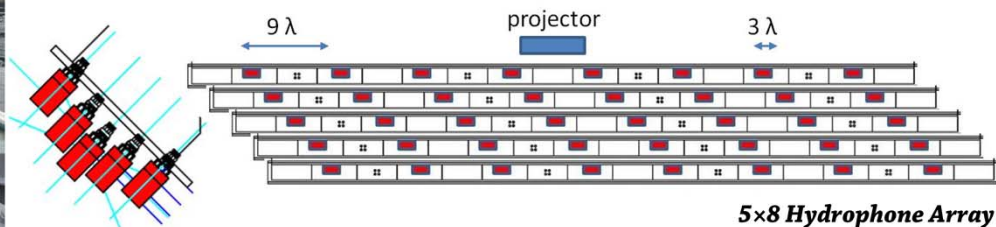
Seafloor Acoustic Reference Stations



5x8 Hydrophone Array



Tetrapods imaged by Interferometric SAS system



5x8 Hydrophone Array