

# マンガングラストの高精度厚さ 計測技術の研究開発



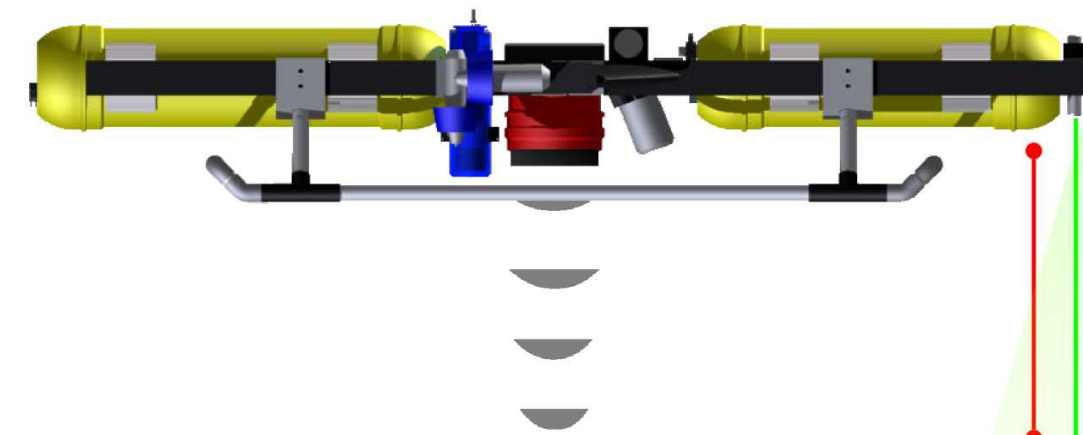
---

代表: 浦環  
浅田昭, Blair Thornton

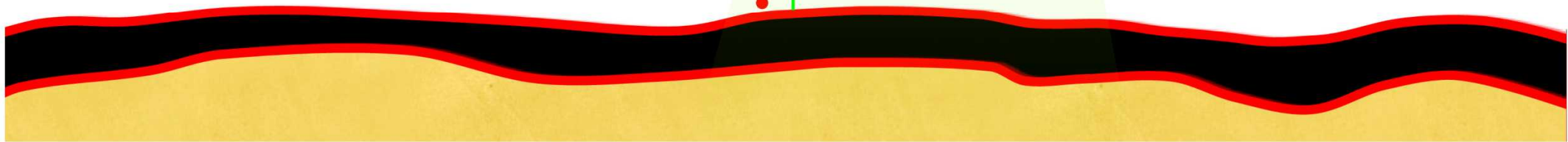
東京大学生産技術研究所  
海中工学国際研究センター

# Crust surveys

- Acoustic and visual mapping
  - | remote measurement of crust thickness
  - | visual confirmation of exposed crusts
- Continuous mobile measurements
  - | AUV, ROV platform
  - | low altitude operation ~2m



~2m

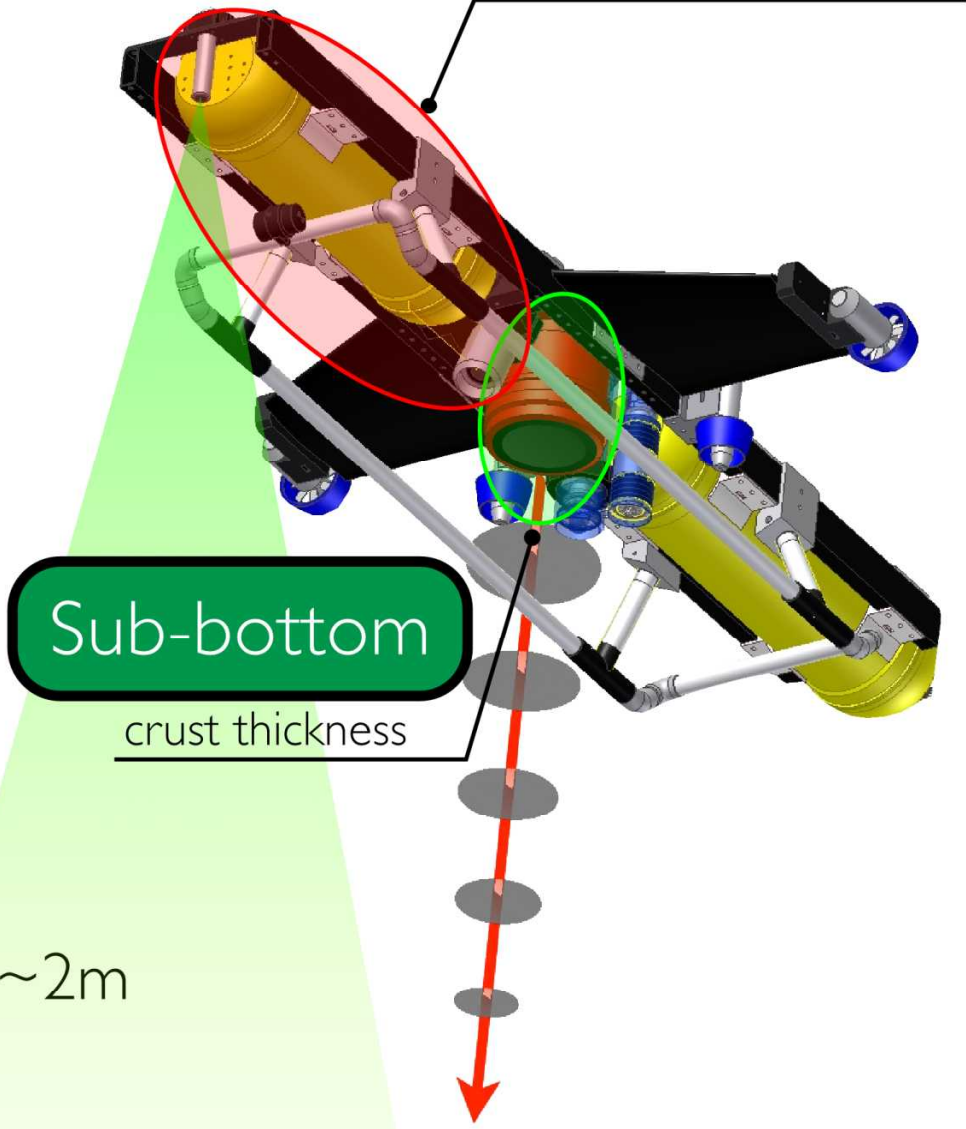


Visual mapping

confirm exposed crusts

Sub-bottom

crust thickness



- Acoustic probe

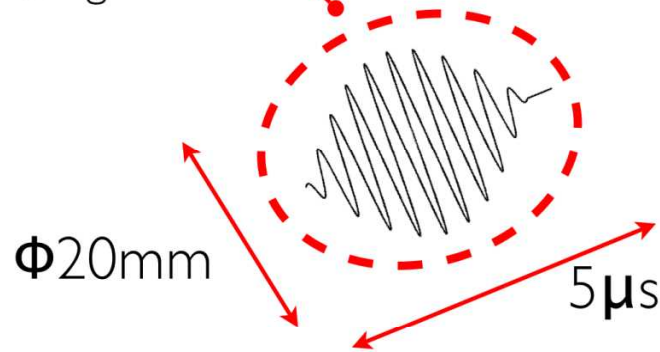
$\Phi 220\text{mm}$ , L200mm, R1500mm  
3000m depth rated

- Measurement range

1.5 meters  
beam diameter  $\Phi 20\text{mm}$

Amplitude modulation

✓ 2000kHz primary  
✓ 200kHz penetrating



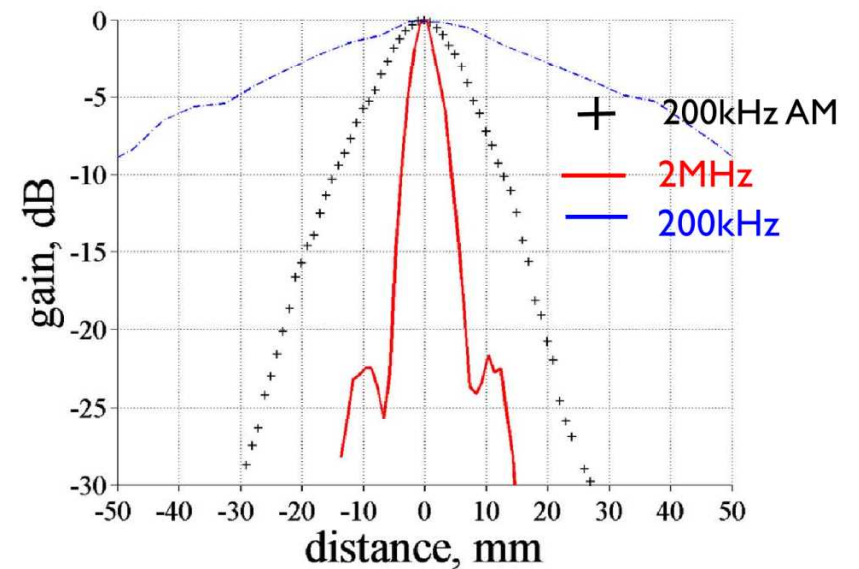
On-axis receiver

✓ 200kHz receiver



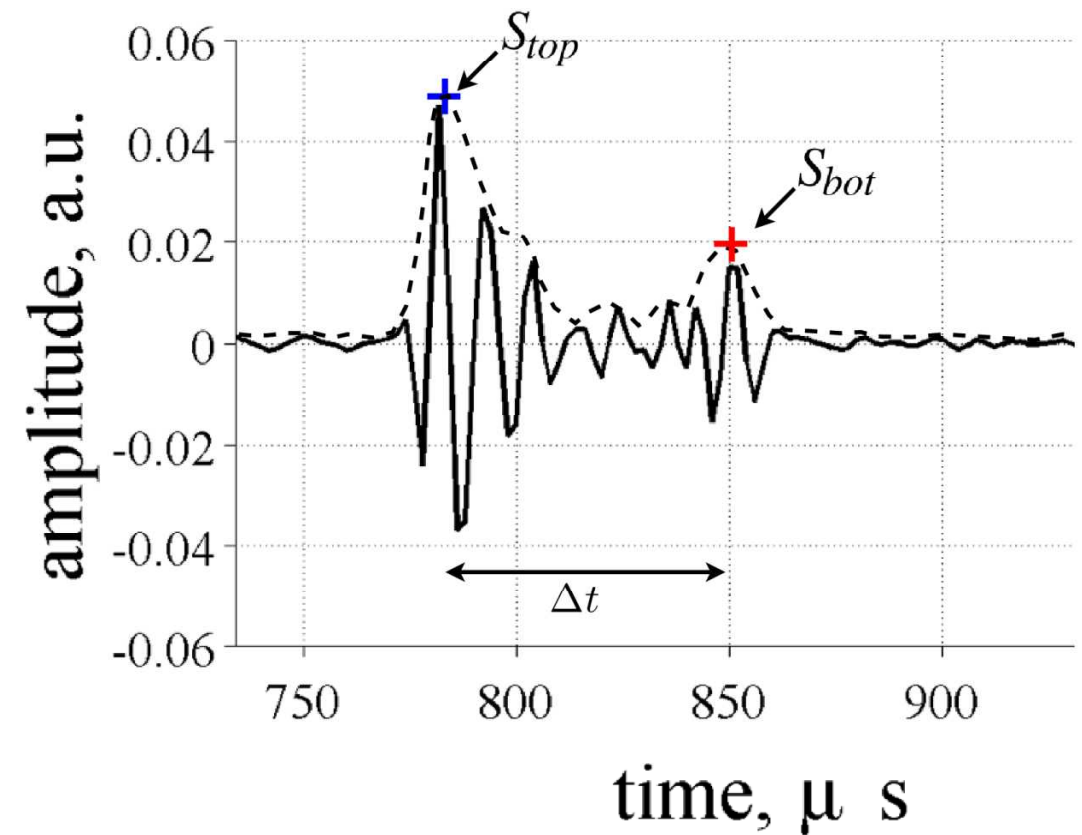
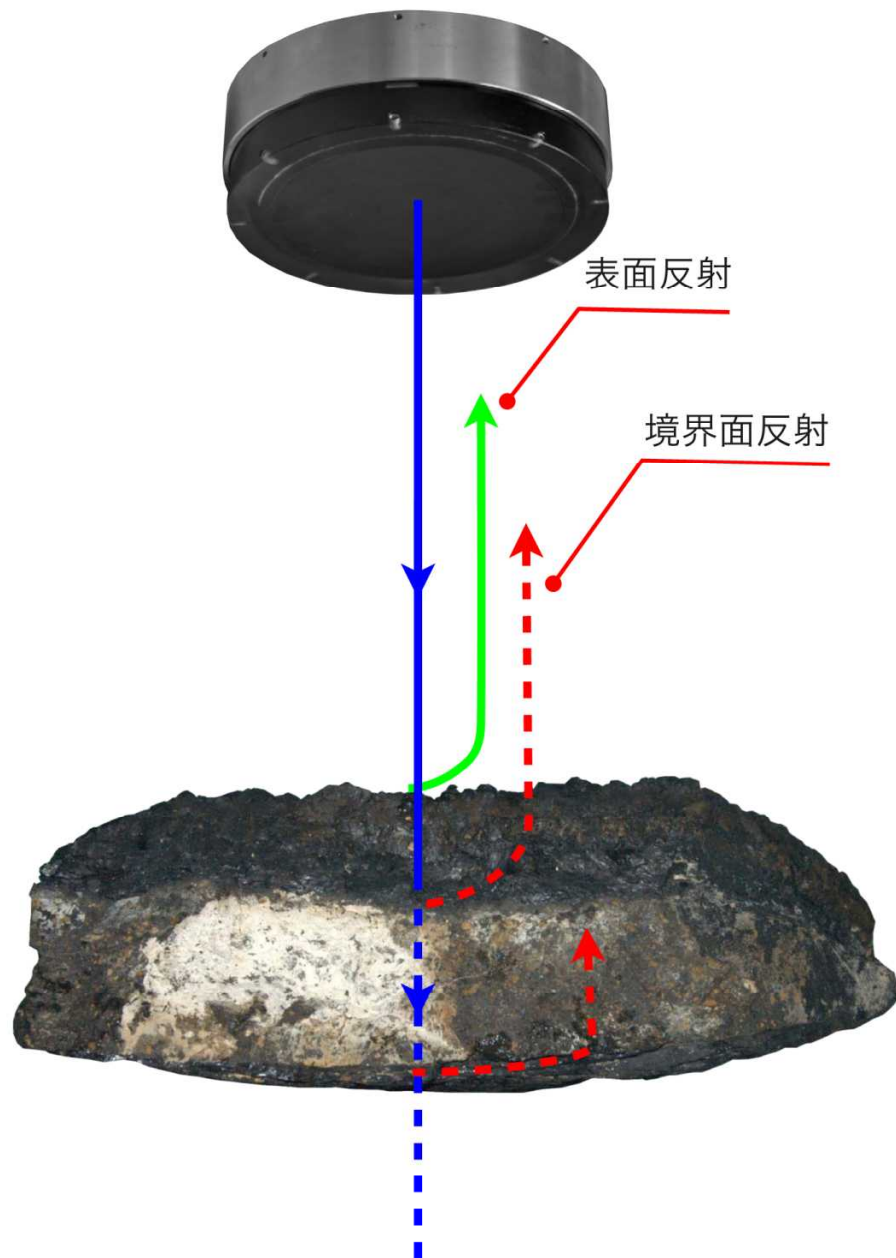
$\Phi 220\text{mm}$

L200mm





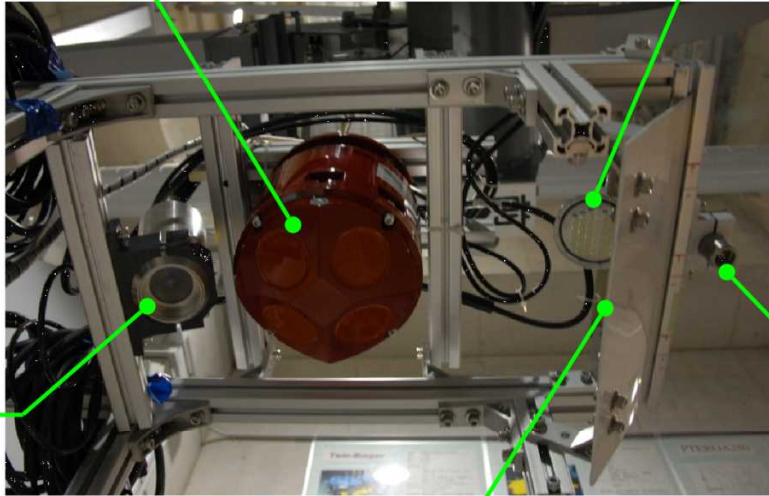
# Acoustic measurement



# 3D visual mapping

Doppler velocity log

LED array



Camera

Sheet laser

Shade

Baseline between sheet laser and camera	570~800mm
Angle of the camera with the vertical	20°
scanning altitude	1.0~2.5m
camera opening angle in water	61° × 50.3°
camera resolution	1280 × 960



# Mount Ryusei