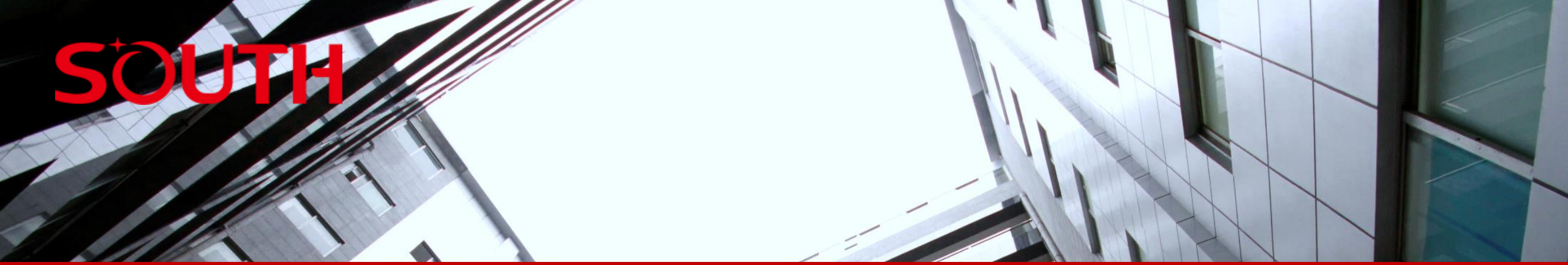


New Technology in Hydrographic Survey and Application

Content

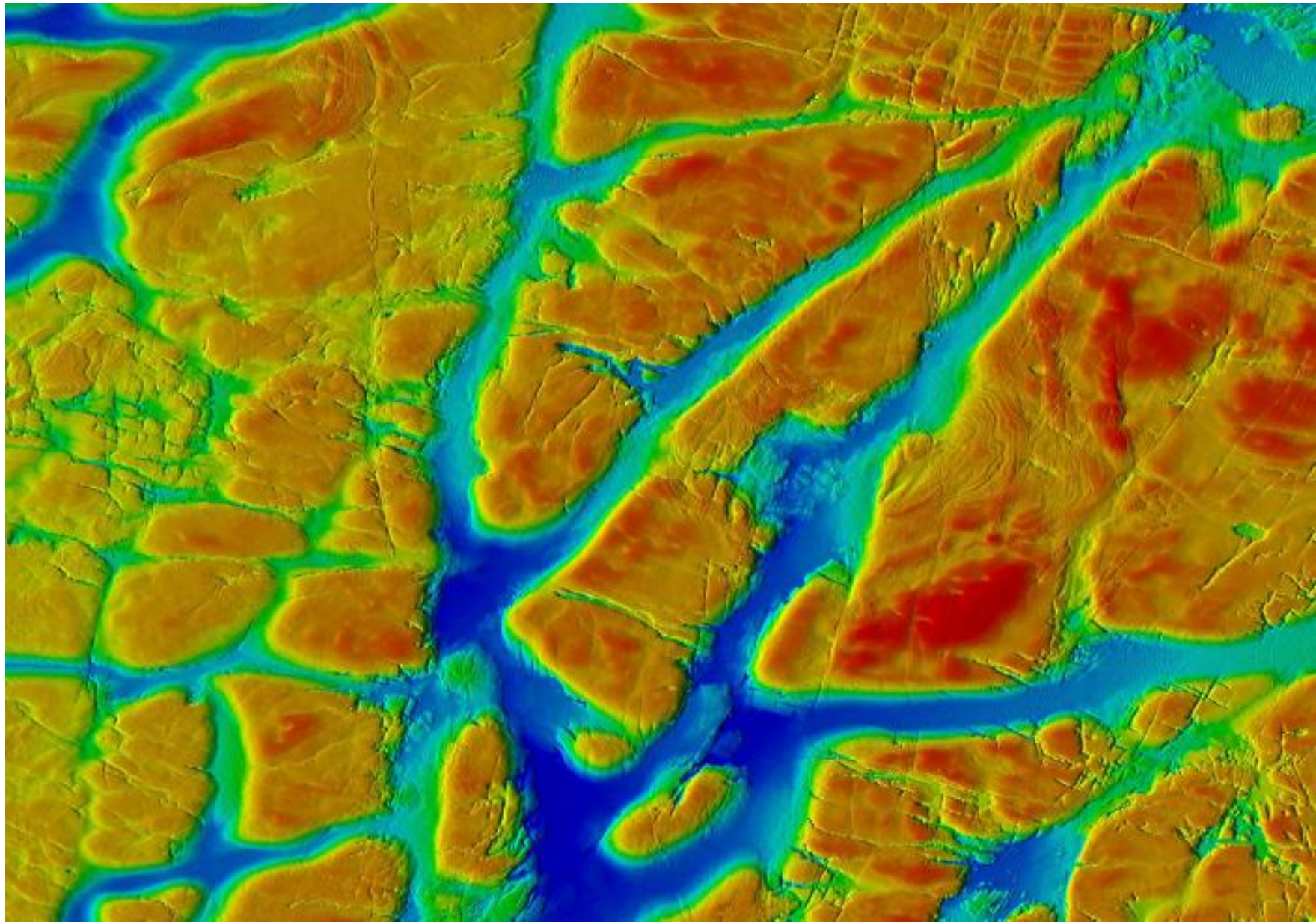
1. Hydrographic devices introduction

2. Cases share

1. Hydrographic devices introduction - What's new about RESON T51

Specifications
700 – 800 kHz:
0.25° x 0.5°

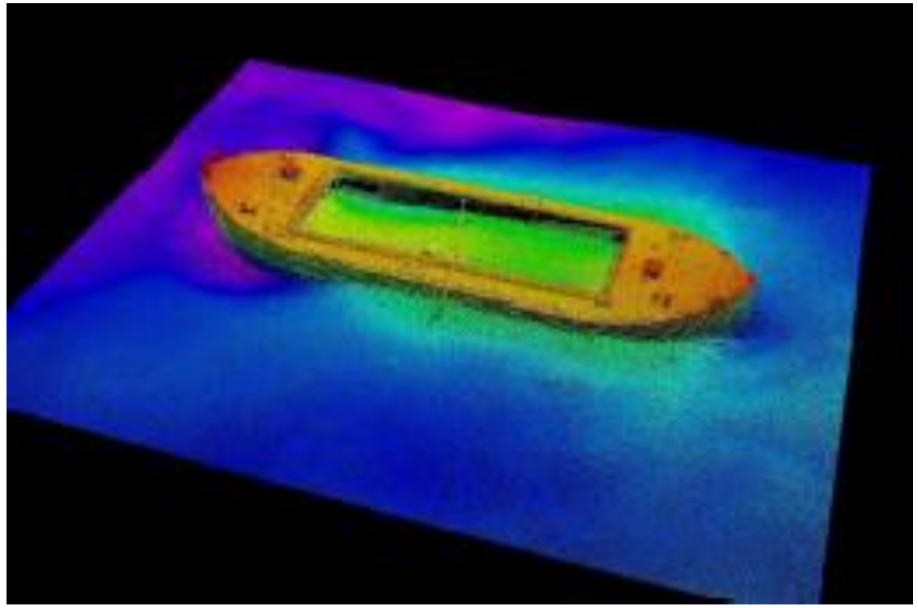
350 – 430 kHz:
0.5° x 1°

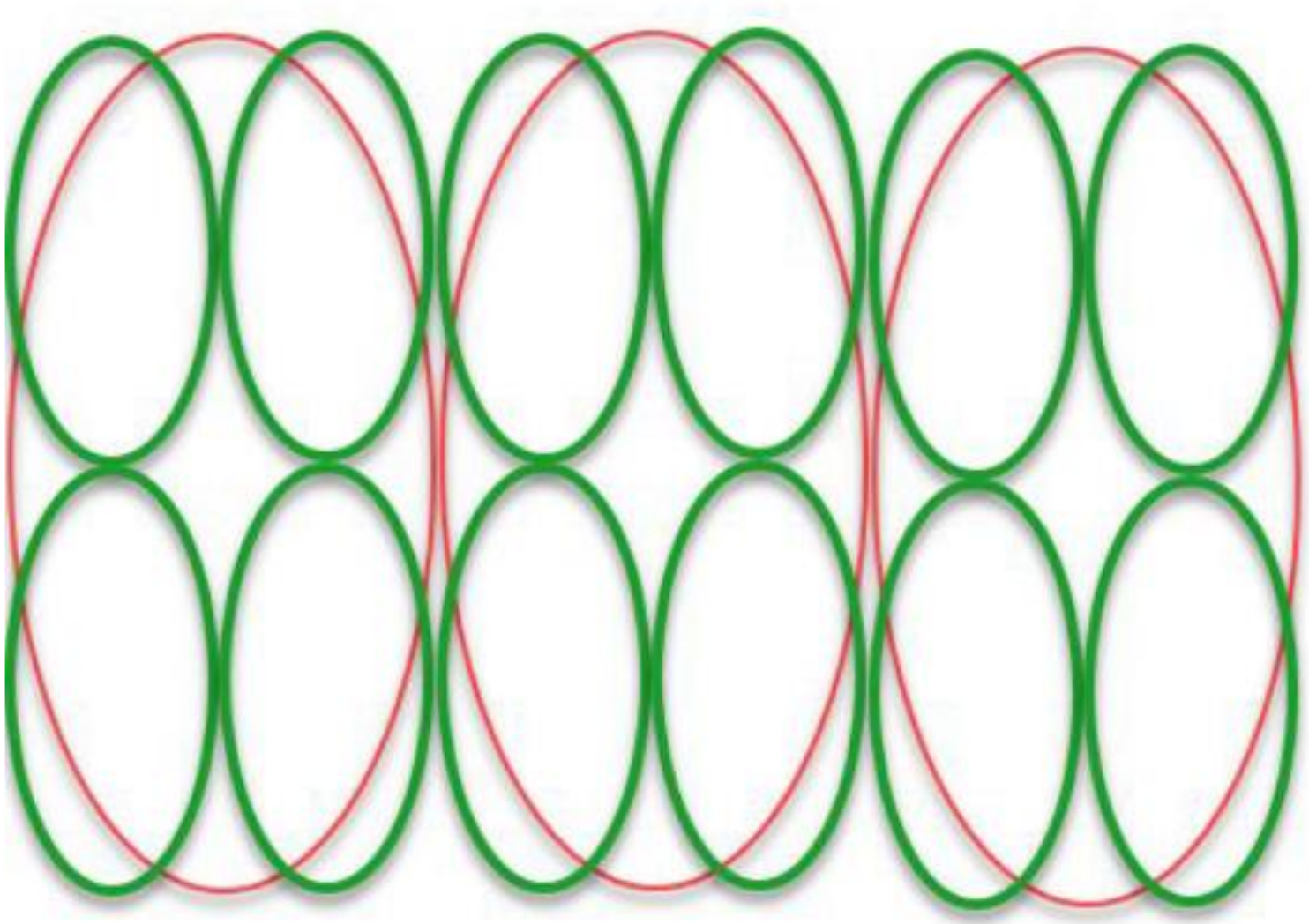


1. Hydrographic devices introduction - What's new about RESON T51

Four times better resolution

Outstanding performance

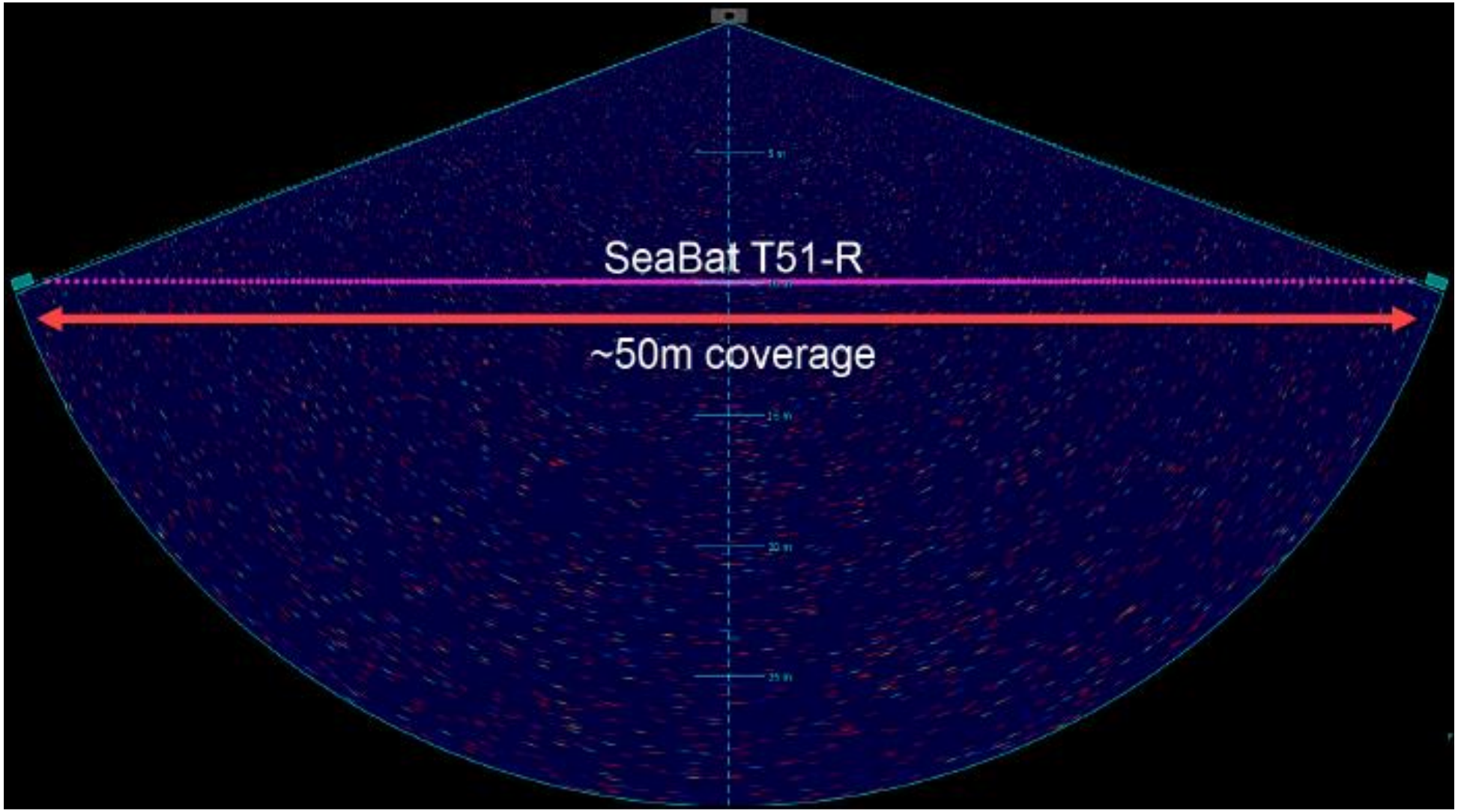




1. Hydrographic devices introduction - What's new about RESON T51

True 800K Hz

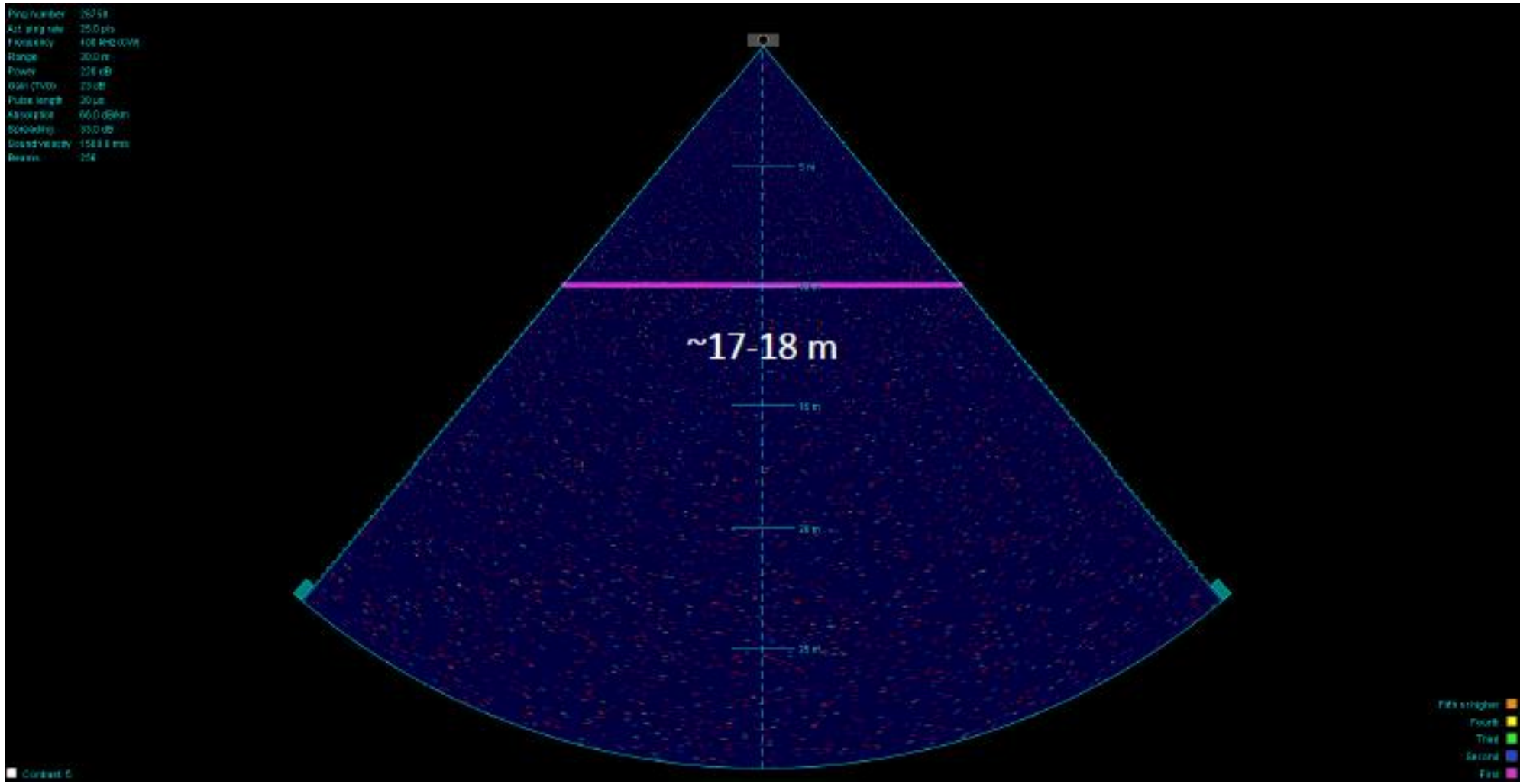
T51 performance



1. Hydrographic devices introduction - What's new about RESON T51

800K Hz?

Some other MBES performance

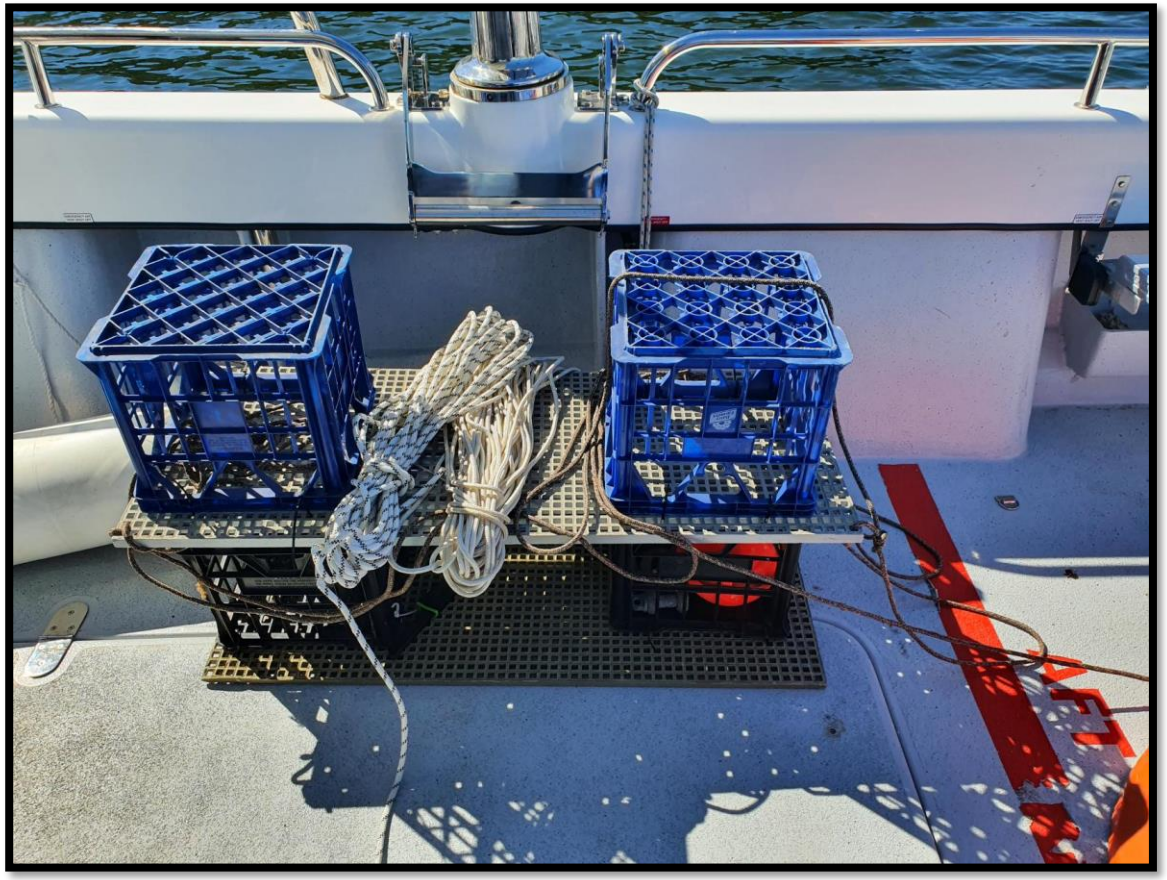


1. Hydrographic devices introduction - RESON T51 test

Targets Deployed

Manta Replica

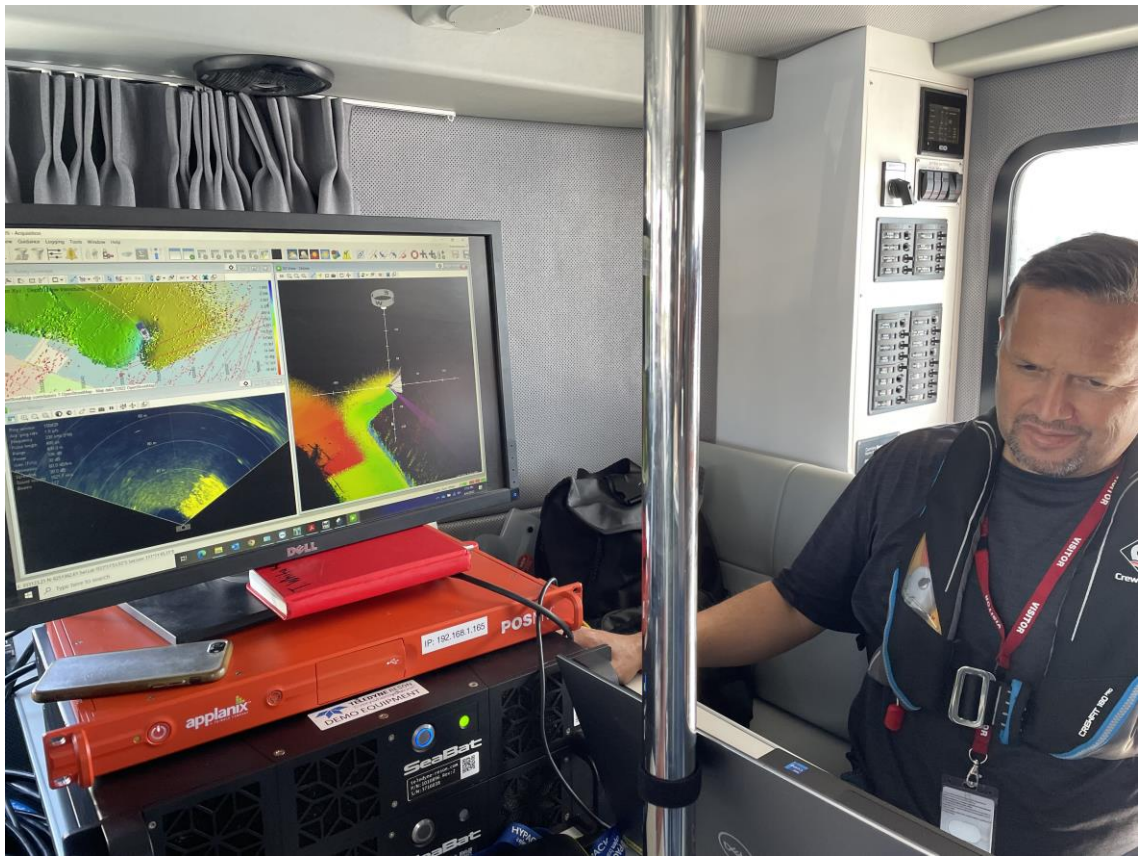
2 x Crate targets



1. Hydrographic devices introduction - RESON T51 test

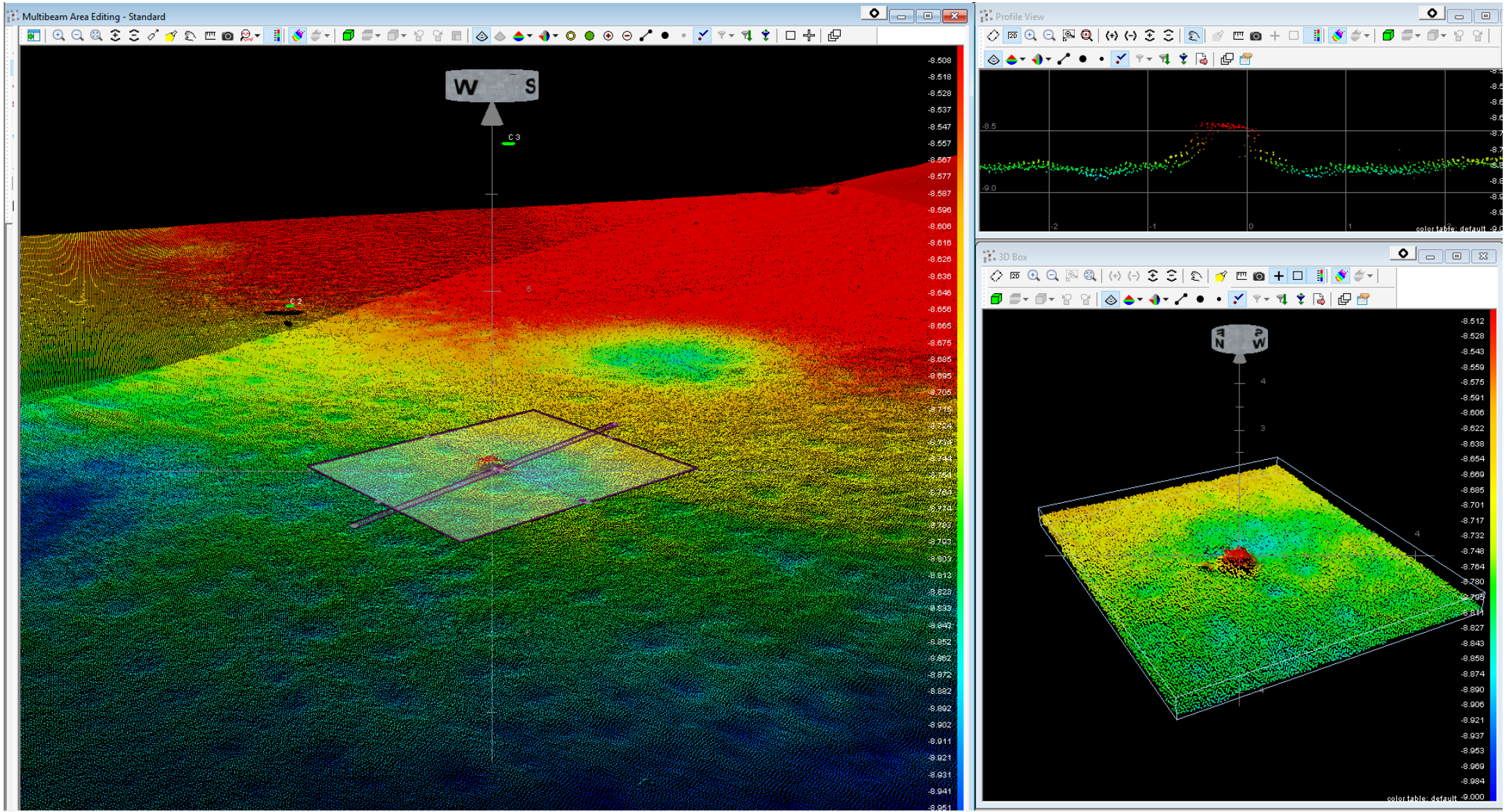
Mobilization and Deployment

T51 projector and receiver, Sonar Processors, 1 x POSmv Wavemaster INS, Laptop PC with PDS software



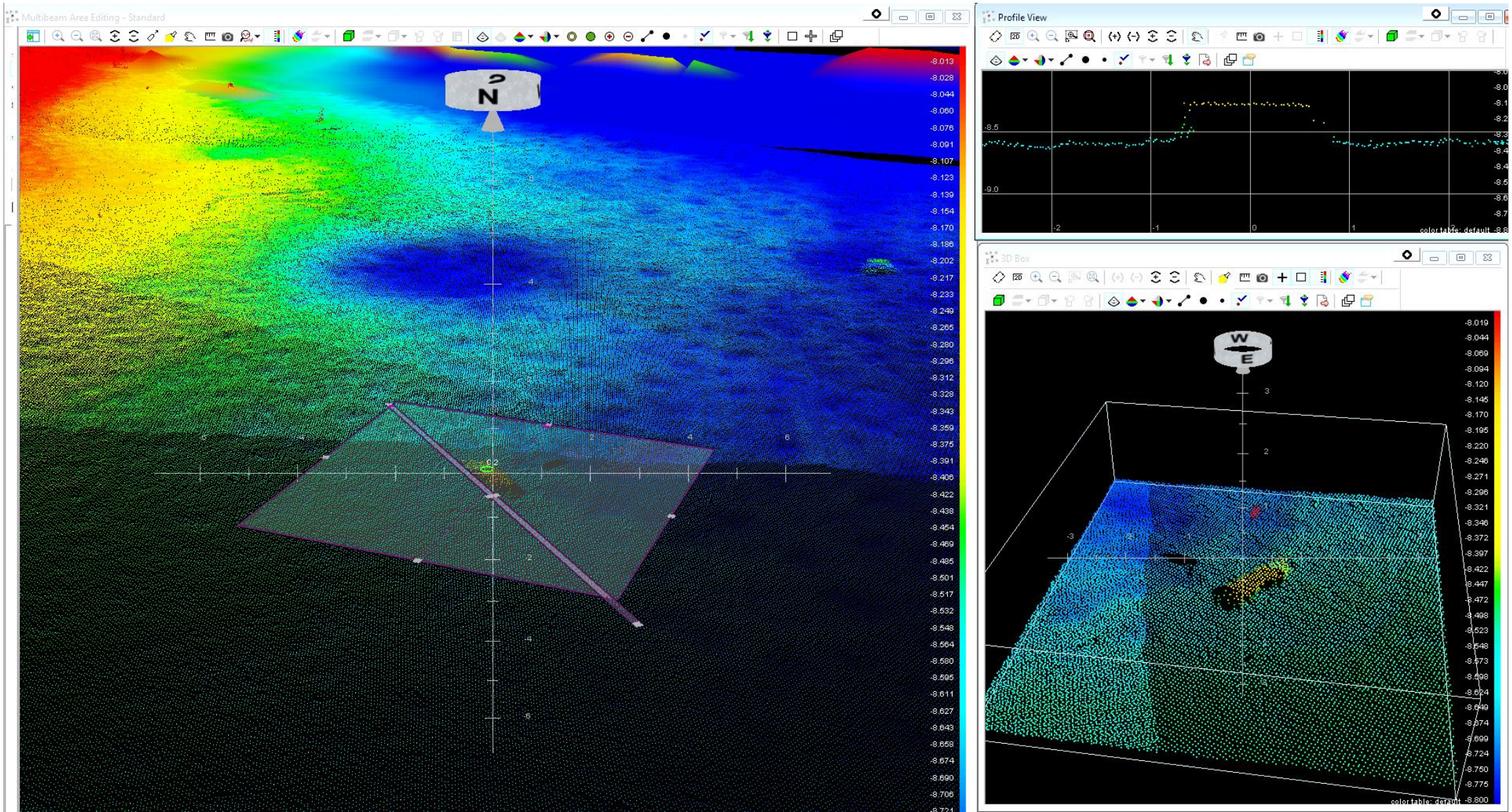
1. hydrographic devices introduction - RESON T51 test

Manta Replica Detected



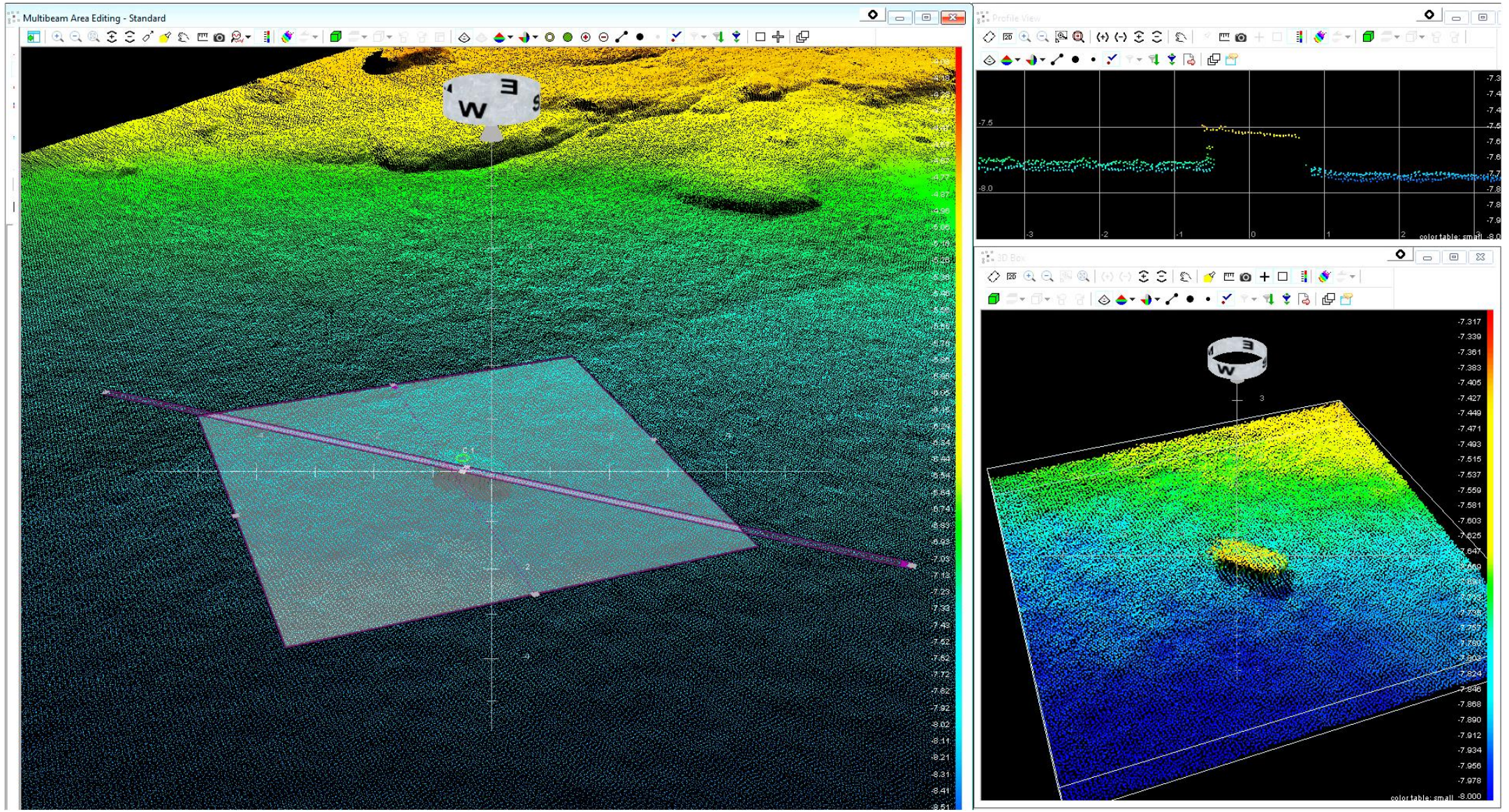
1. Hydrographic devices introduction - RESON T51 test

Crate Target 1 Detected



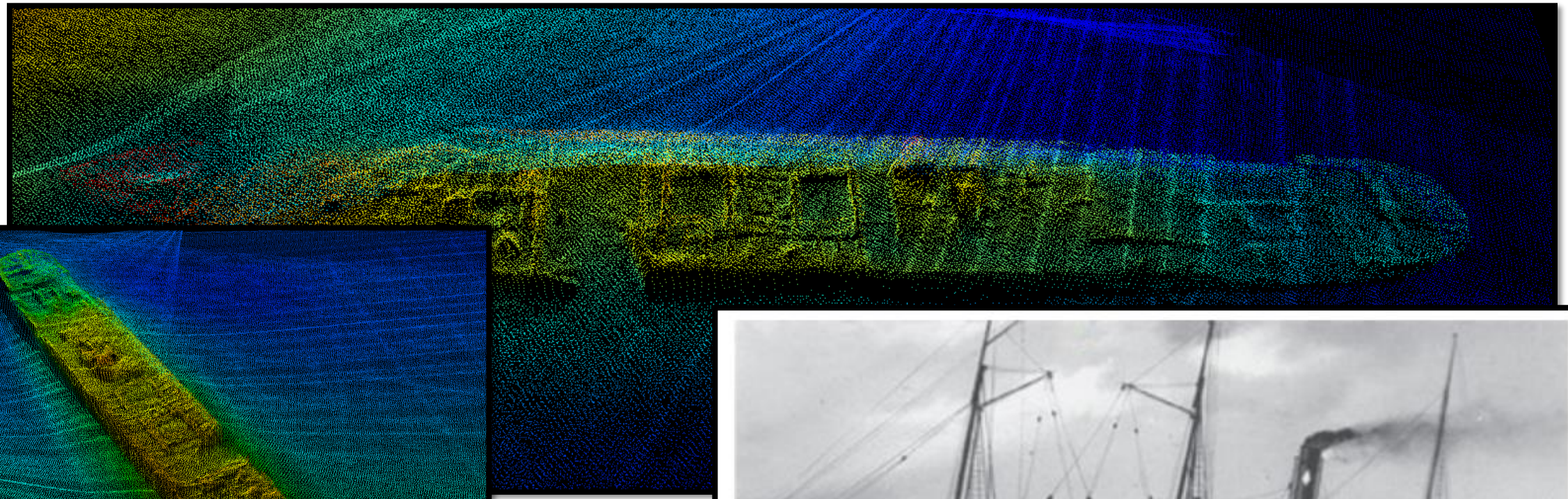
1. Hydrographic devices introduction - RESON T51 test

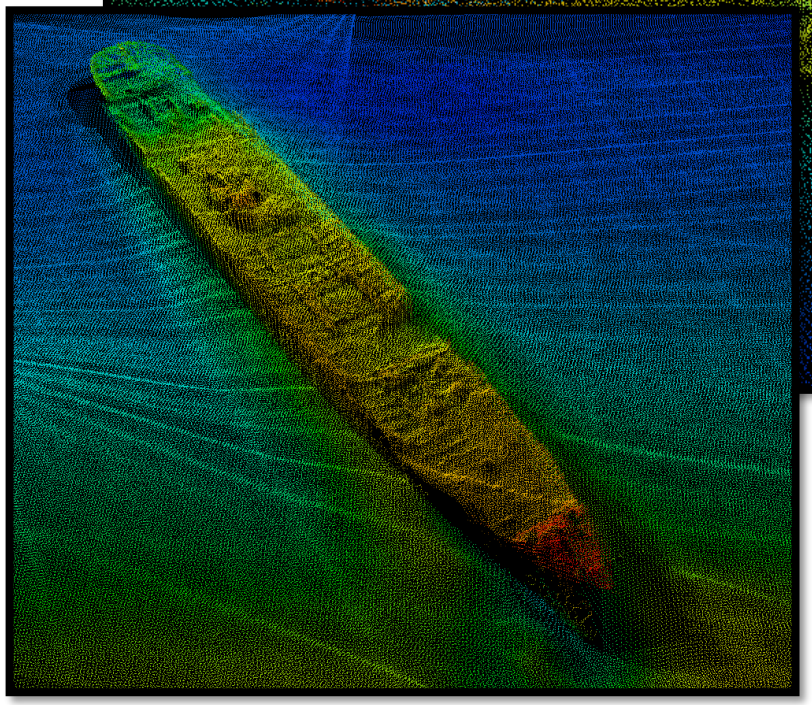
Crate Target 2 Detected

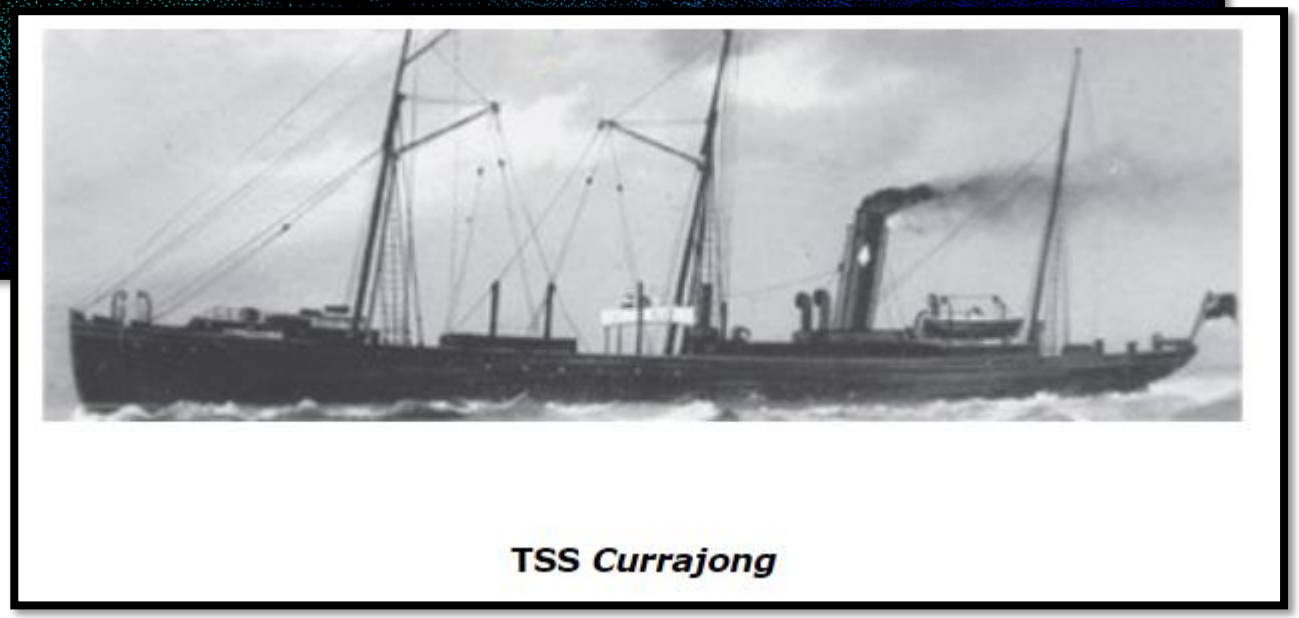


1. Hydrographic devices introduction - RESON T51 test

Shipwrecks – T51 at 800K Hz

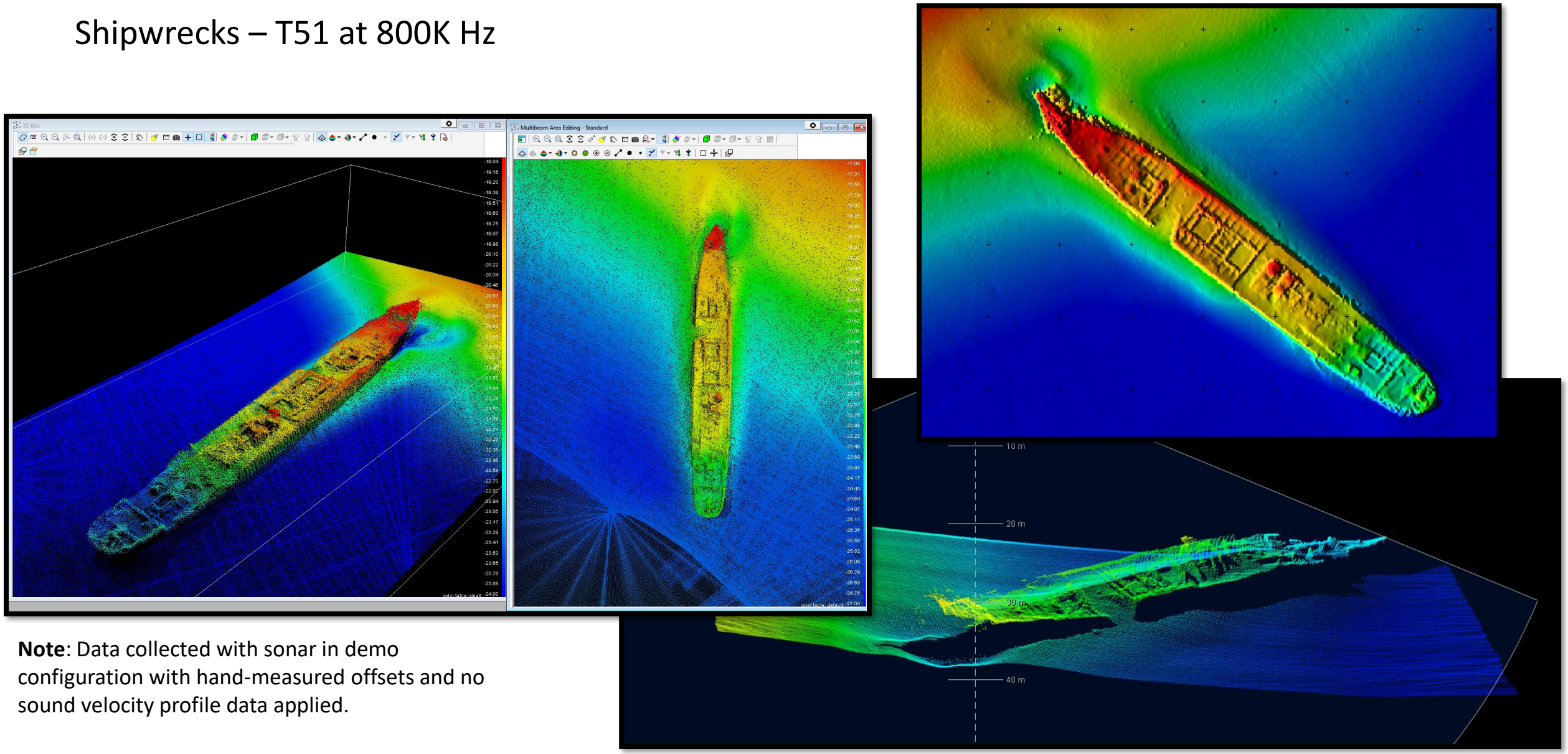






1. Hydrographic devices introduction - RESON T51 test

Shipwrecks – T51 at 800K Hz



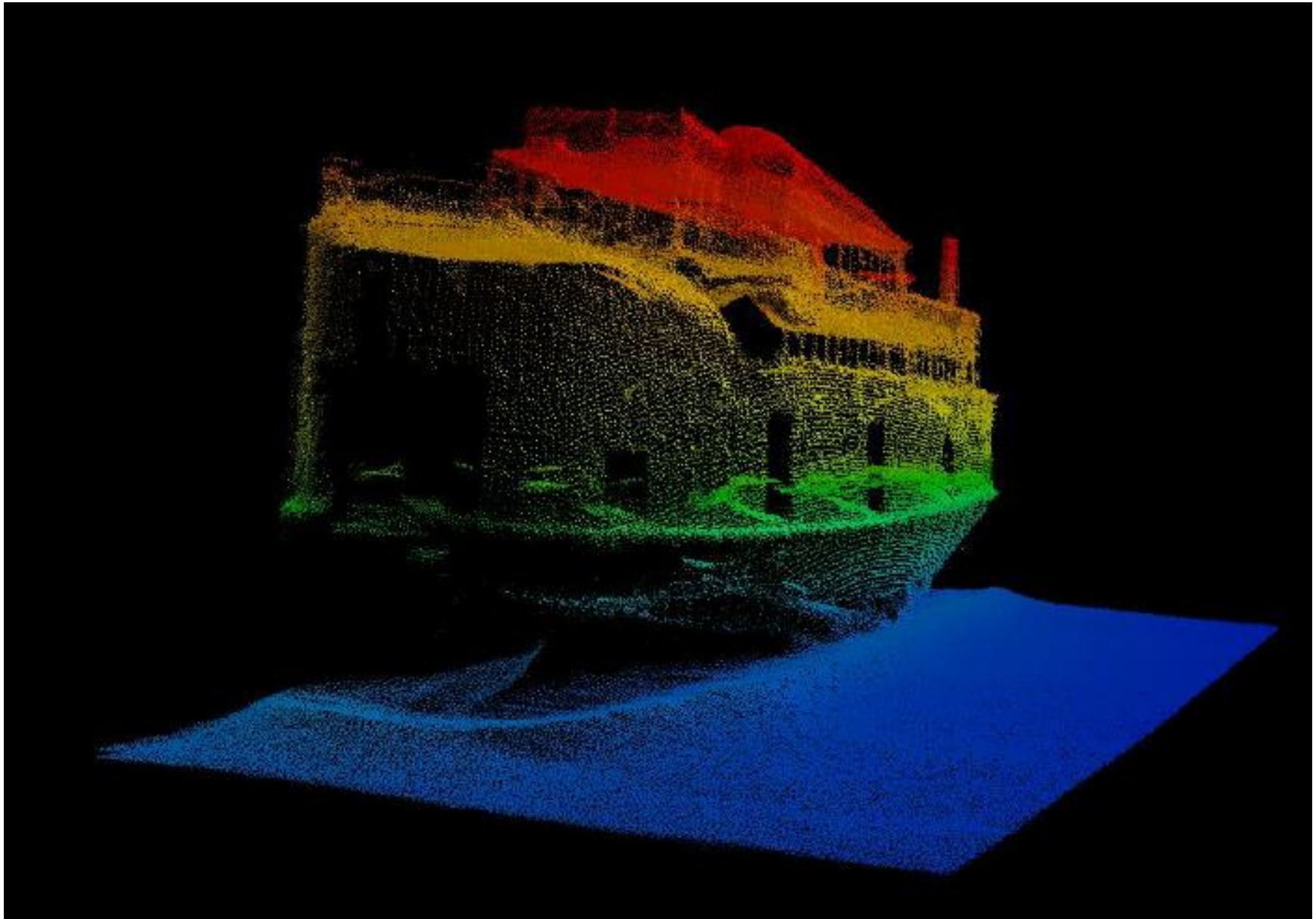
Note: Data collected with sonar in demo configuration with hand-measured offsets and no sound velocity profile data applied.

1. Hydrographic devices introduction - RESON T51 test

Sunk in 2014

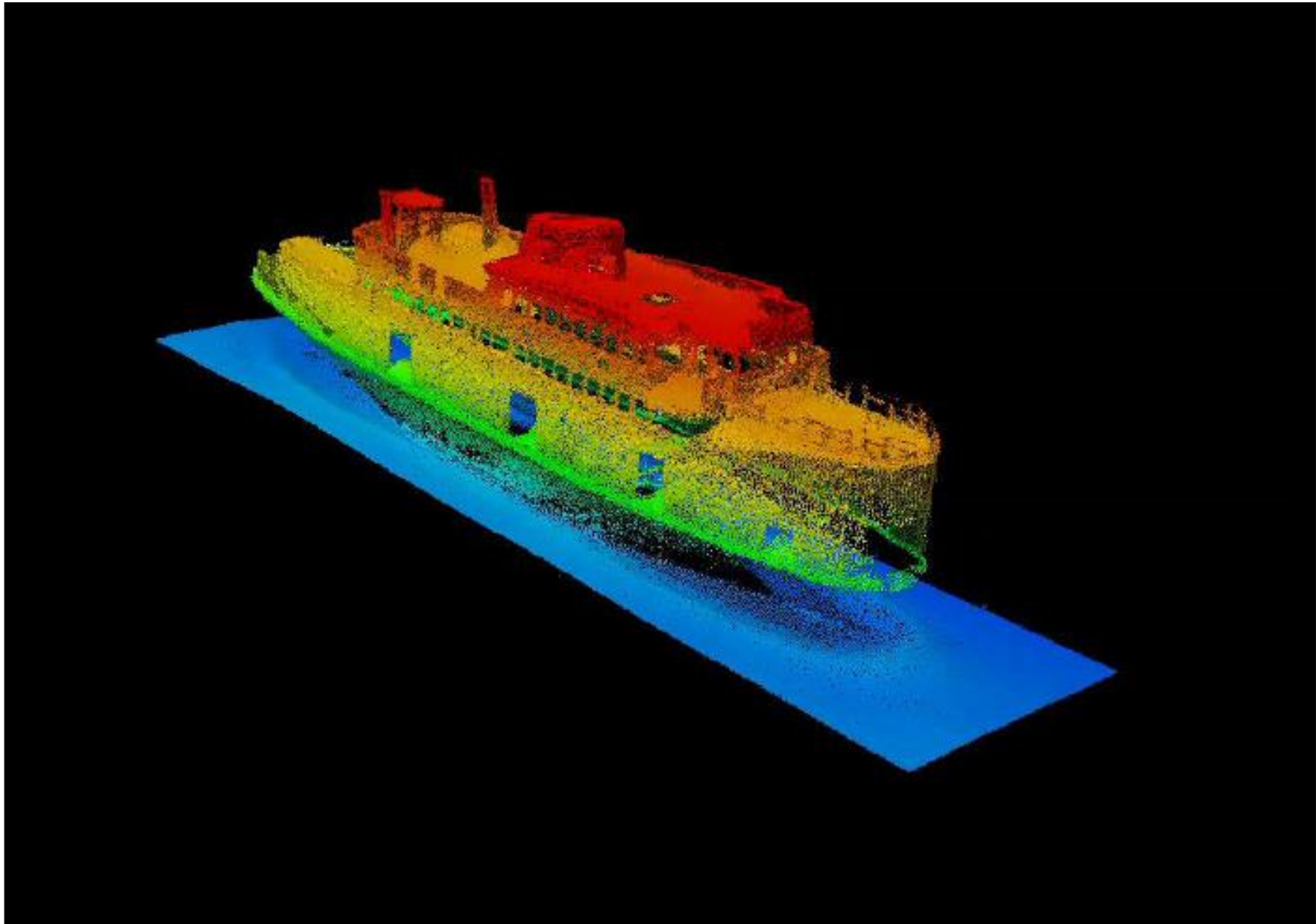
1. Hydrographic devices introduction - RESON T51 test

T51 with 800K Hz performance



1. Hydrographic devices introduction - RESON T51 test

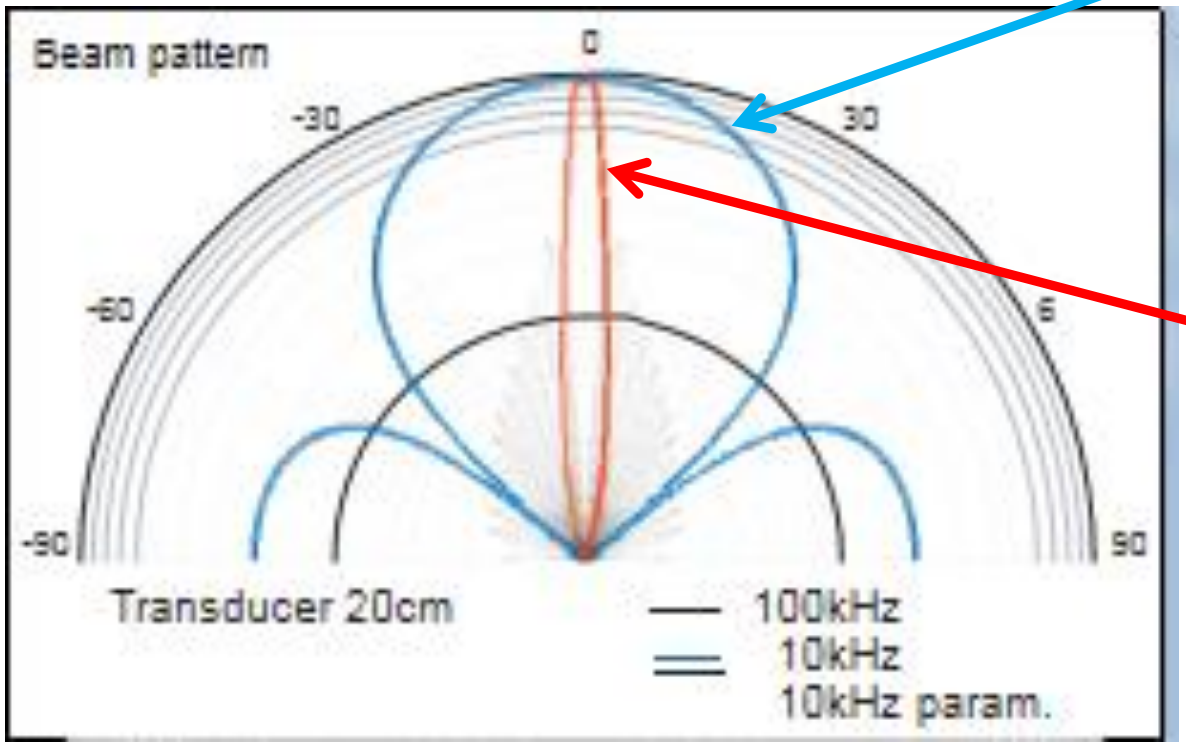
T51 with 800K Hz performance



1. Hydrographic devices introduction - SOUTH Sub Bottom Profiler SE-3

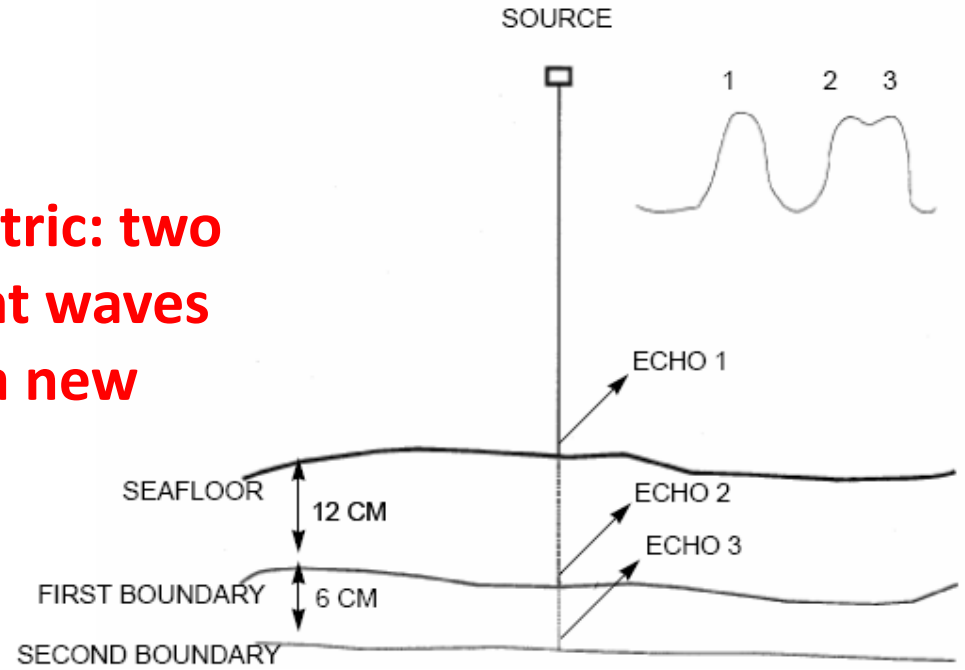
Weight: 8 kg in air, 4 kg in water
Size: 415mm(Length)*110mm(Diameter)
Penetration Capability： <15m (depends on the sediment and noise)
Maximum water depth: 50m
Primary Frequency: 270 ~ 330 kHz
Secondary Frequency: 10 ~ 35 kHz
Transmit anlgle: less than 4°
Output Power: > 3 kW
Power supply: 24VDC / 220V AC to 240VAC

1. Hydrographic devices introduction - SOUTH Sub Bottom Profiler SE-3



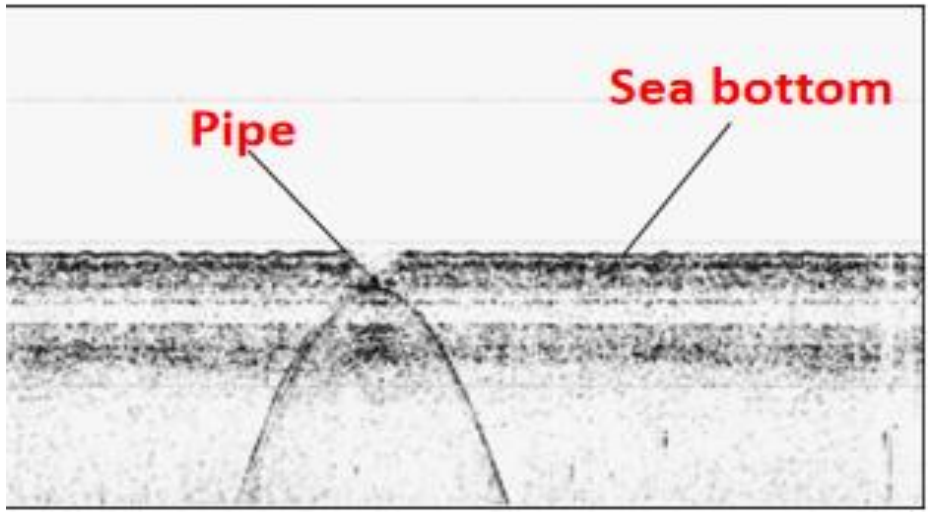
Classical: directly create the sound

Parametric: two different waves create a new sound

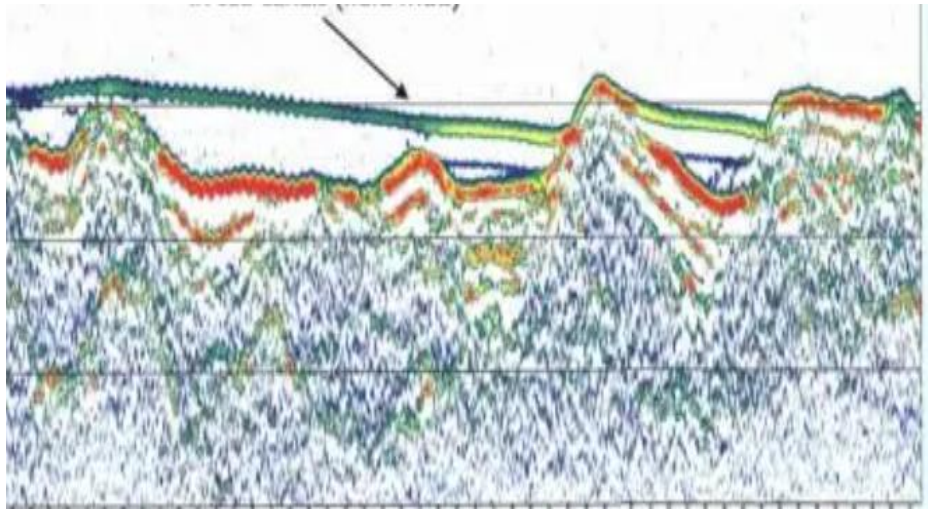


Advantage: Parametric type, higher resolution and accuracy(real 6cm), can use in shallow water(minimum 0.5m depth), much less weight

1. Hydrographic devices introduction - SOUTH Sub Bottom Profiler SE-3



Under ground Pipe or other objects detection

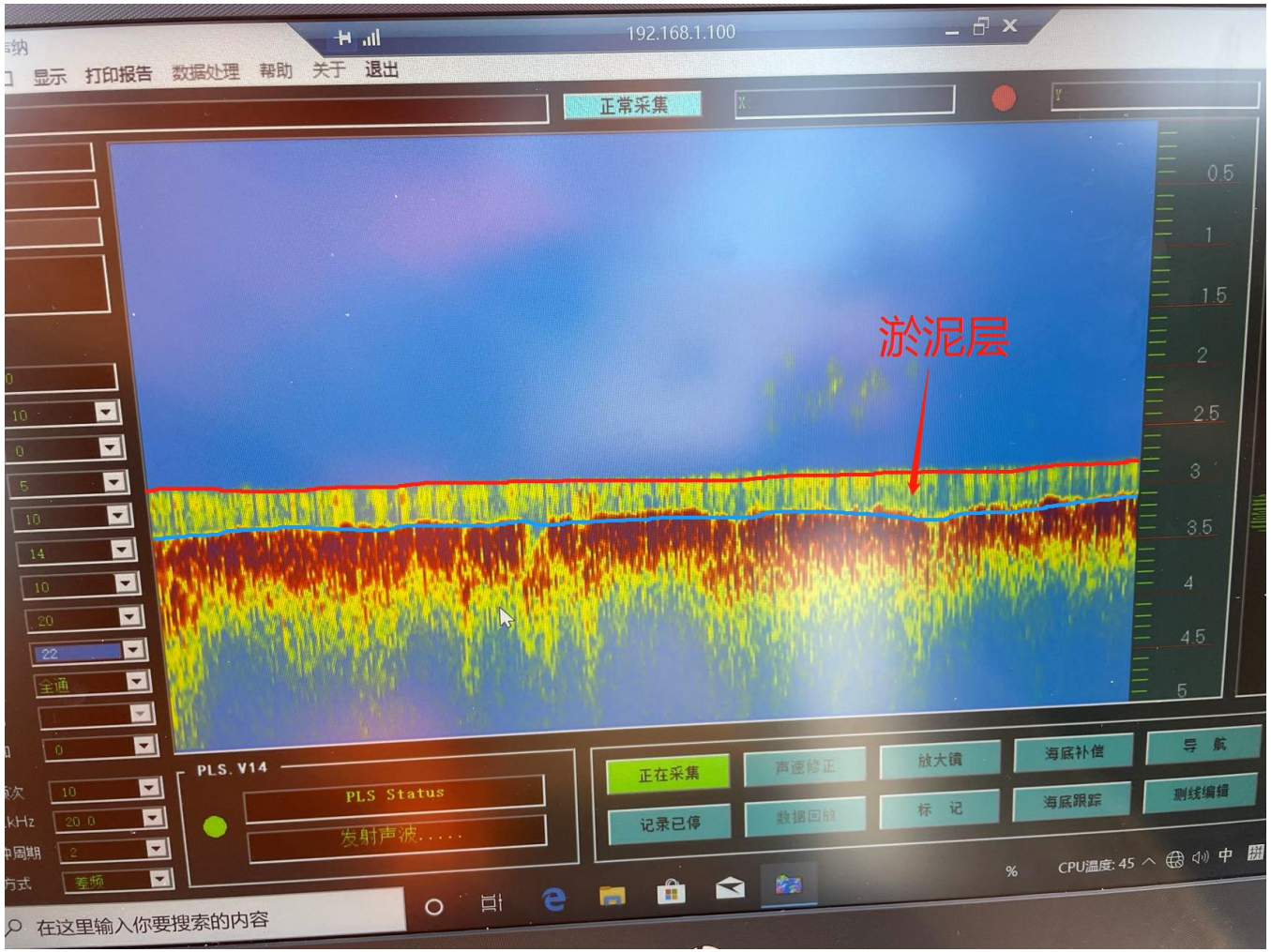


Geological exploration, volume calculation

1. Hydrographic devices introduction - SOUTH Sub Bottom Profiler SE-3

USV combine with SOUTH SBP

1. Hydrographic devices introduction - SOUTH Sub Bottom Profiler SE-3



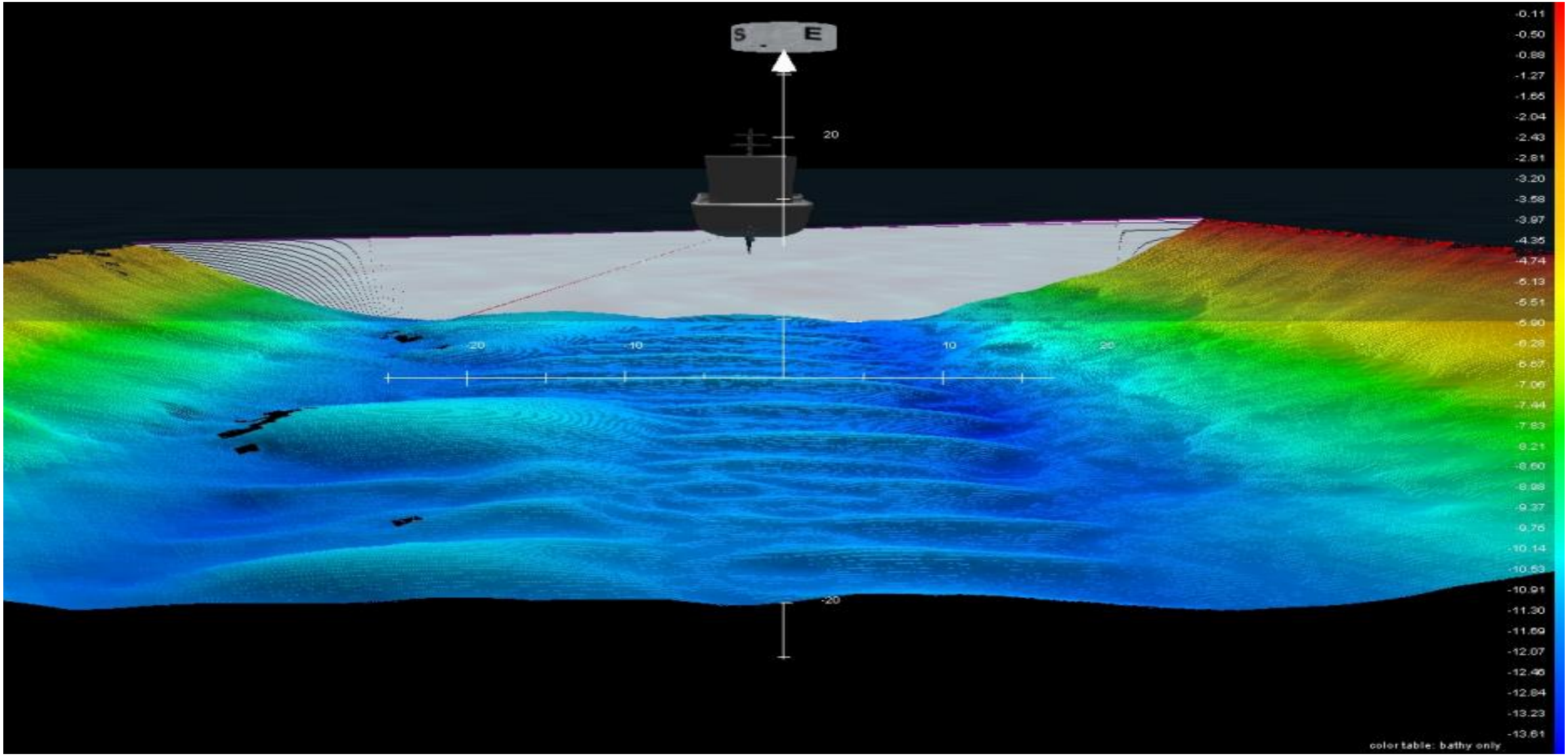
2. Cases share - Channel details and safety survey in the JiangSu province

Devices: T50-R, INS-30, SVP-70

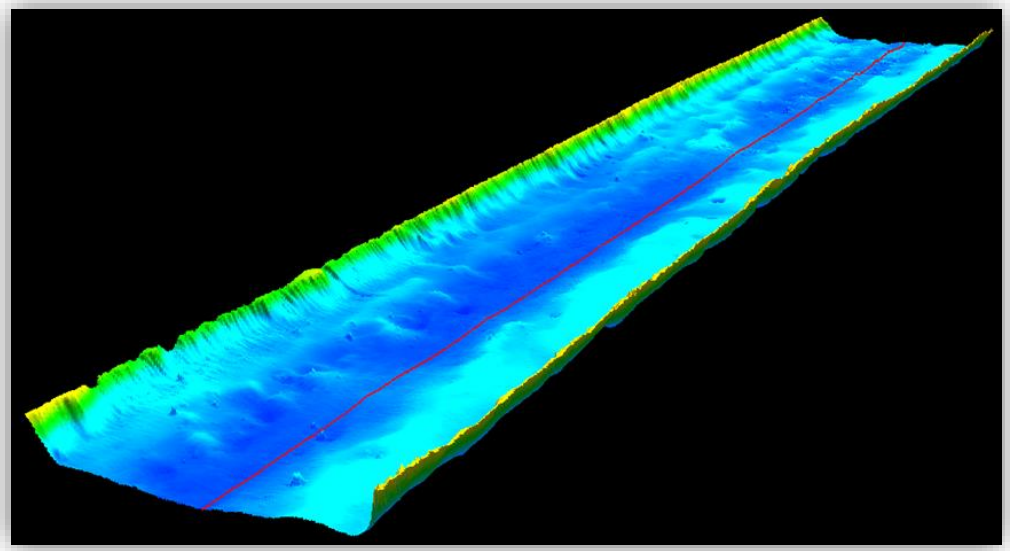
Software: PDS

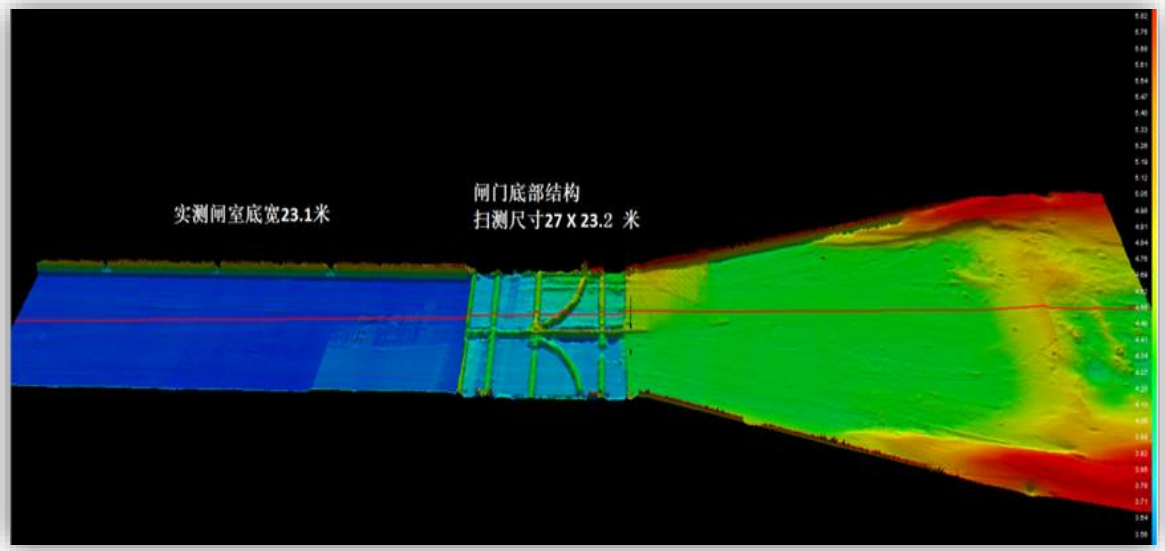
This project got the Second price of Application of Intelligent Transportation Innovative Technology form Ministry of Transport

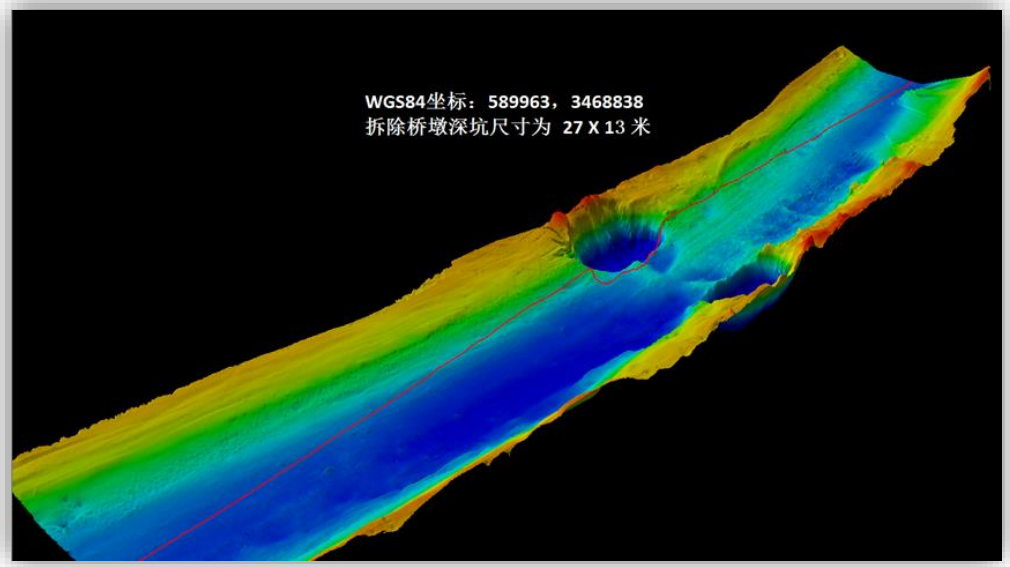
2. Cases share - Channel details and safety survey in the JiangSu province

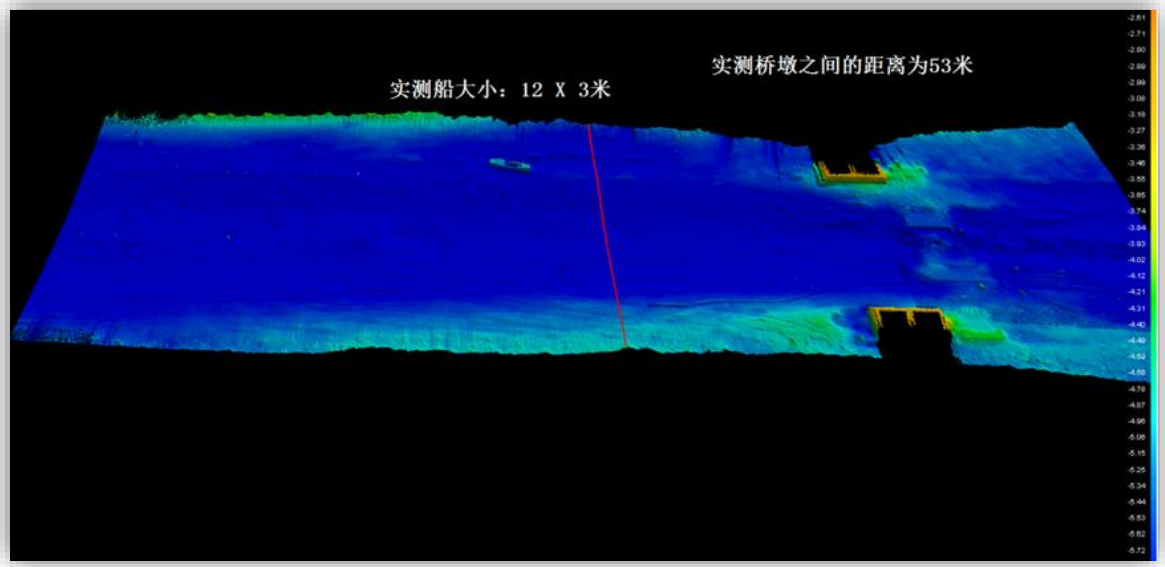


2. Cases share - Channel details and safety survey in the JiangSu province









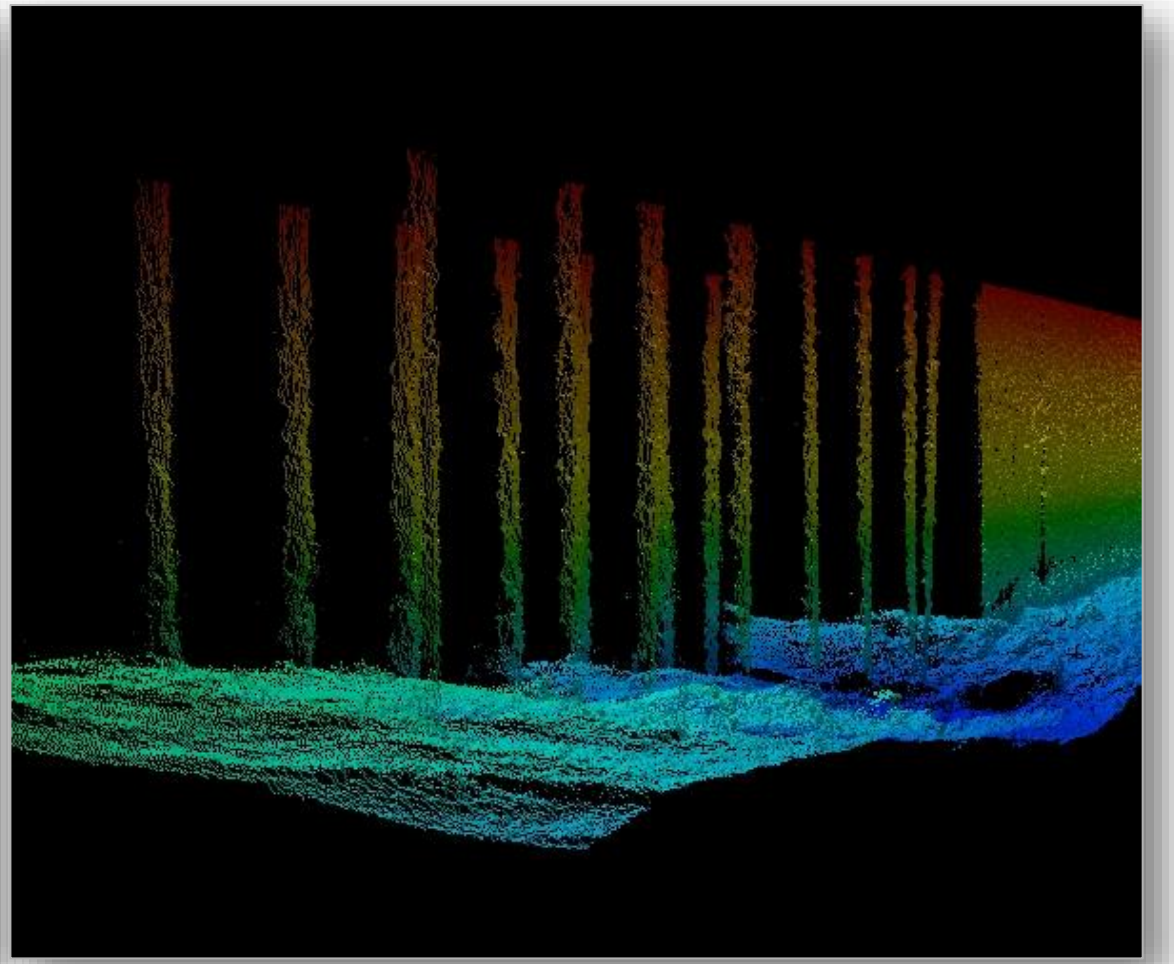
2. Cases share - ship lock inspection in Zhongshan city

Underwater construture inspection

Devices:

2. Cases share - ship lock inspection in Zhongshan city

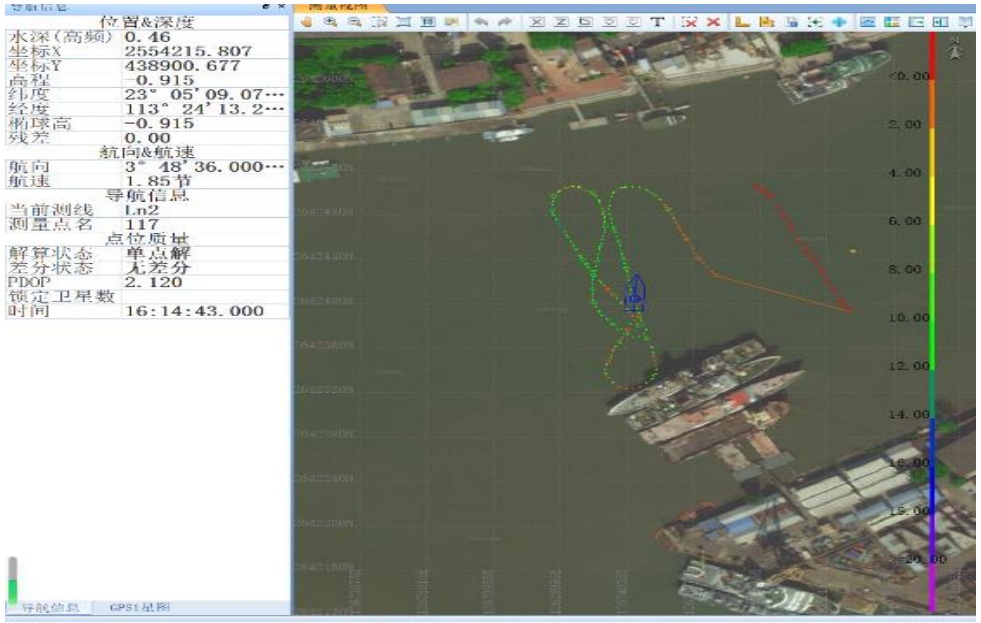
2. Cases share - ship lock inspection in Zhongshan city

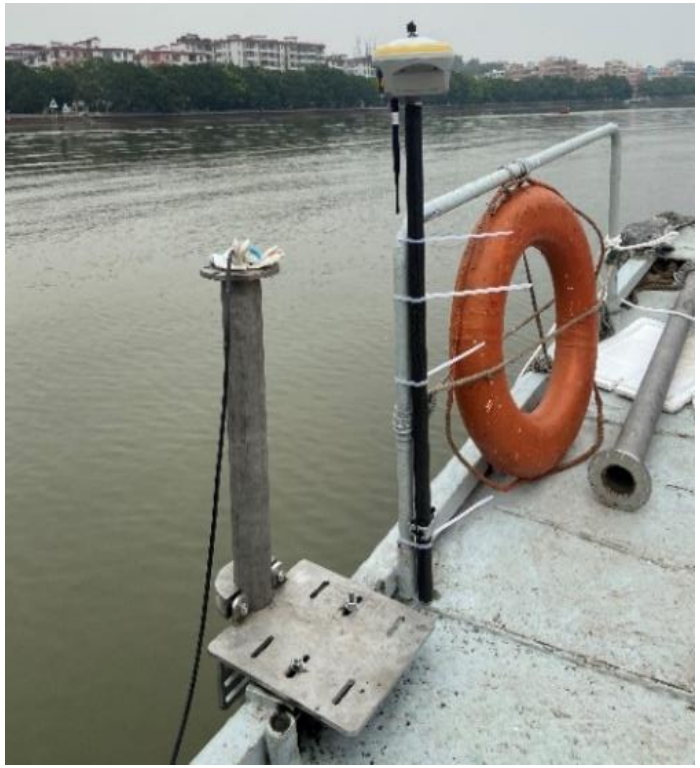


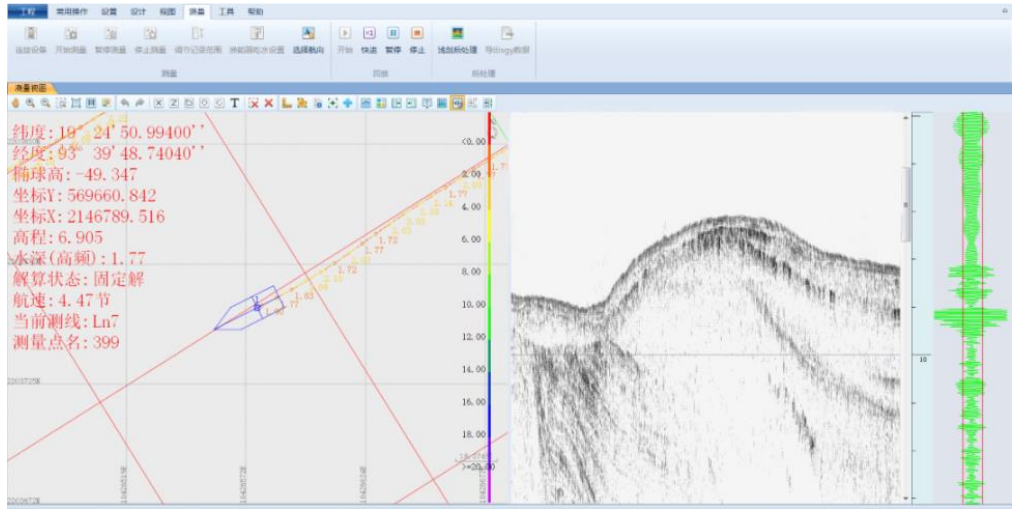
2. Cases share - Geological survey in Zhujiang River

Devices: SOUTH SBP SE-2, Inno 7 GNSS receiver

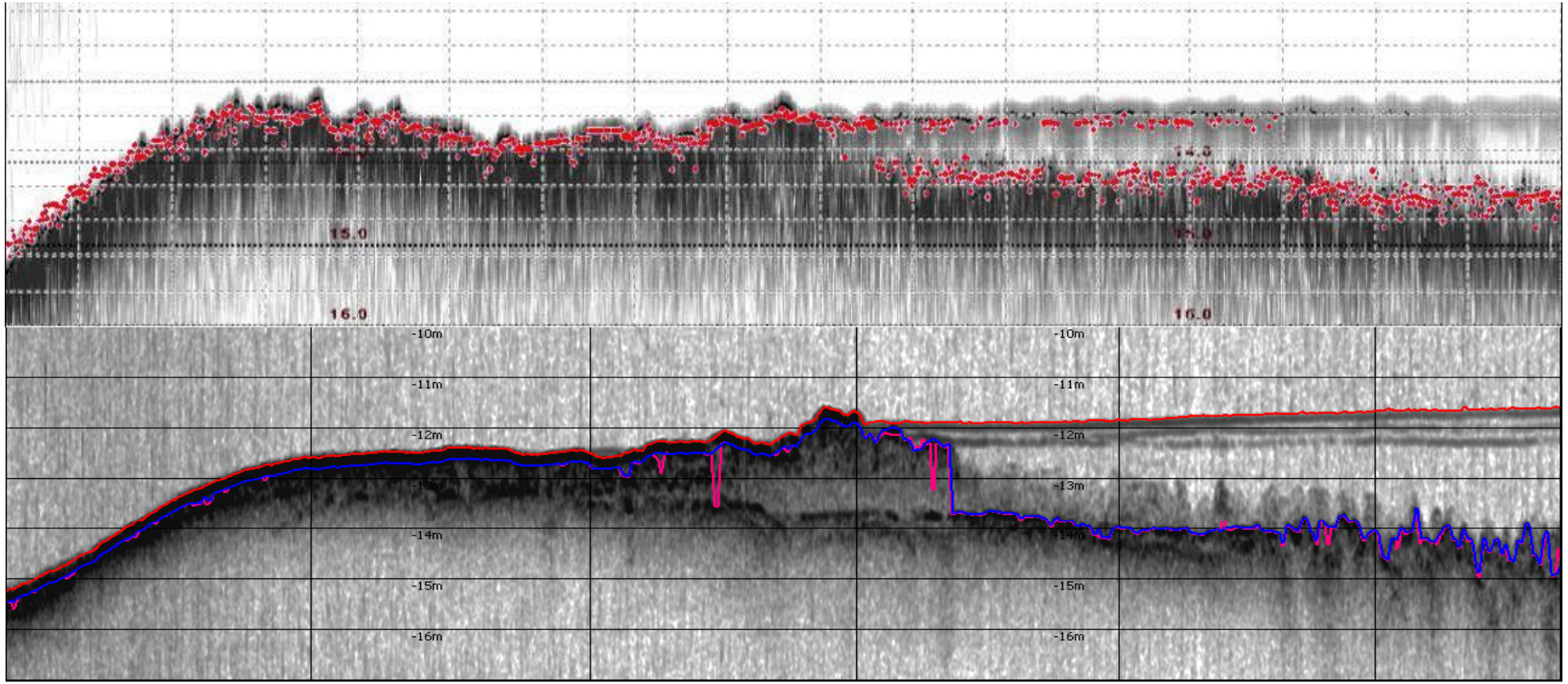
Software: SOUTH Geo-Master







2. Cases share - Geological survey in Zhujiang River



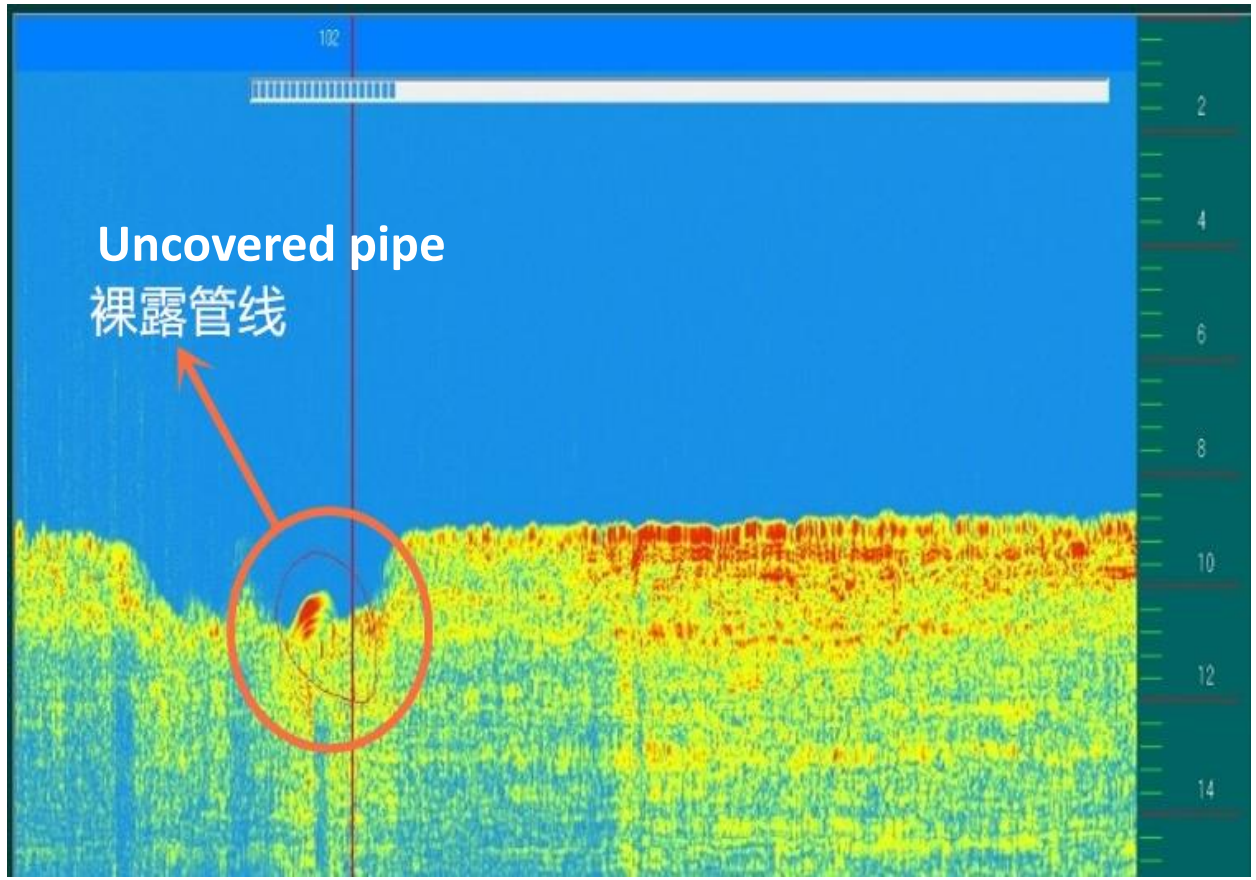
Mud thickness

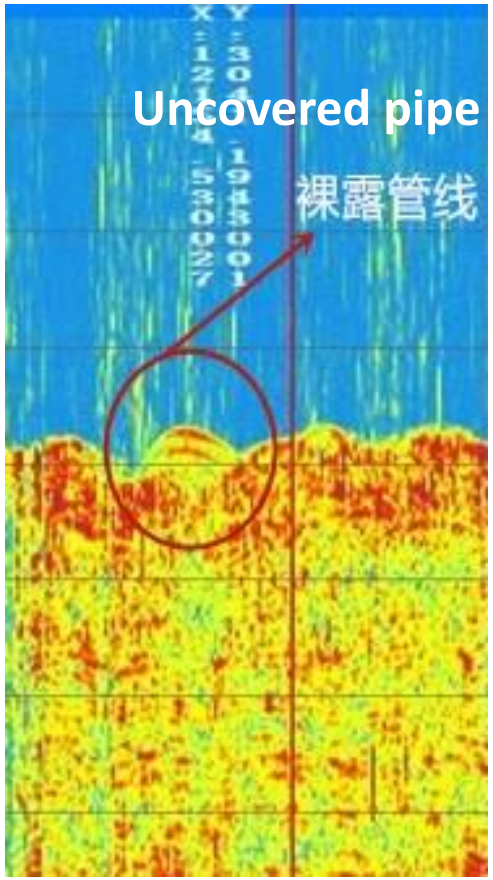
Mud thickness

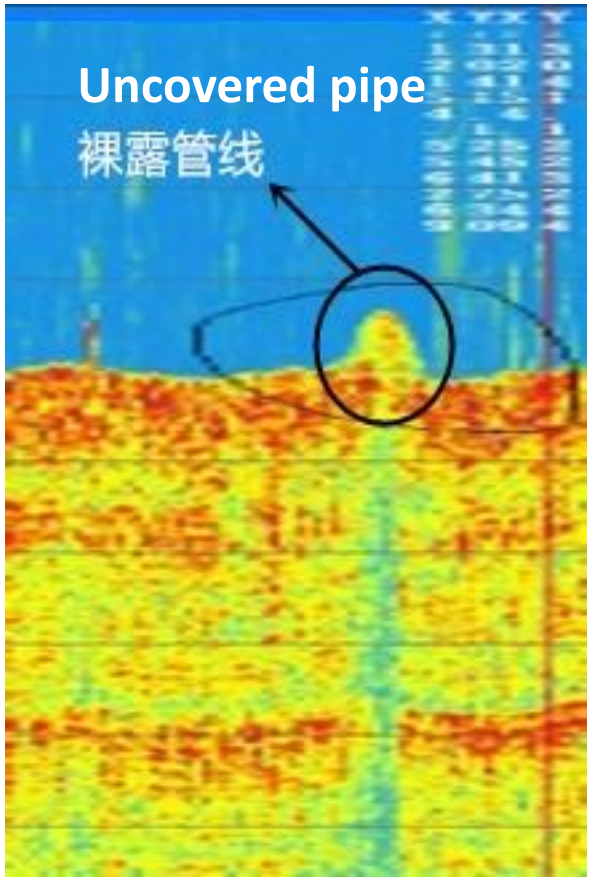
2. Cases share - Underwater Pipes inspection in Zhoushan City

Devices: SOUTH SBP SE-2, G2 GNSS receiver

Software: SOUTH Geo-Master

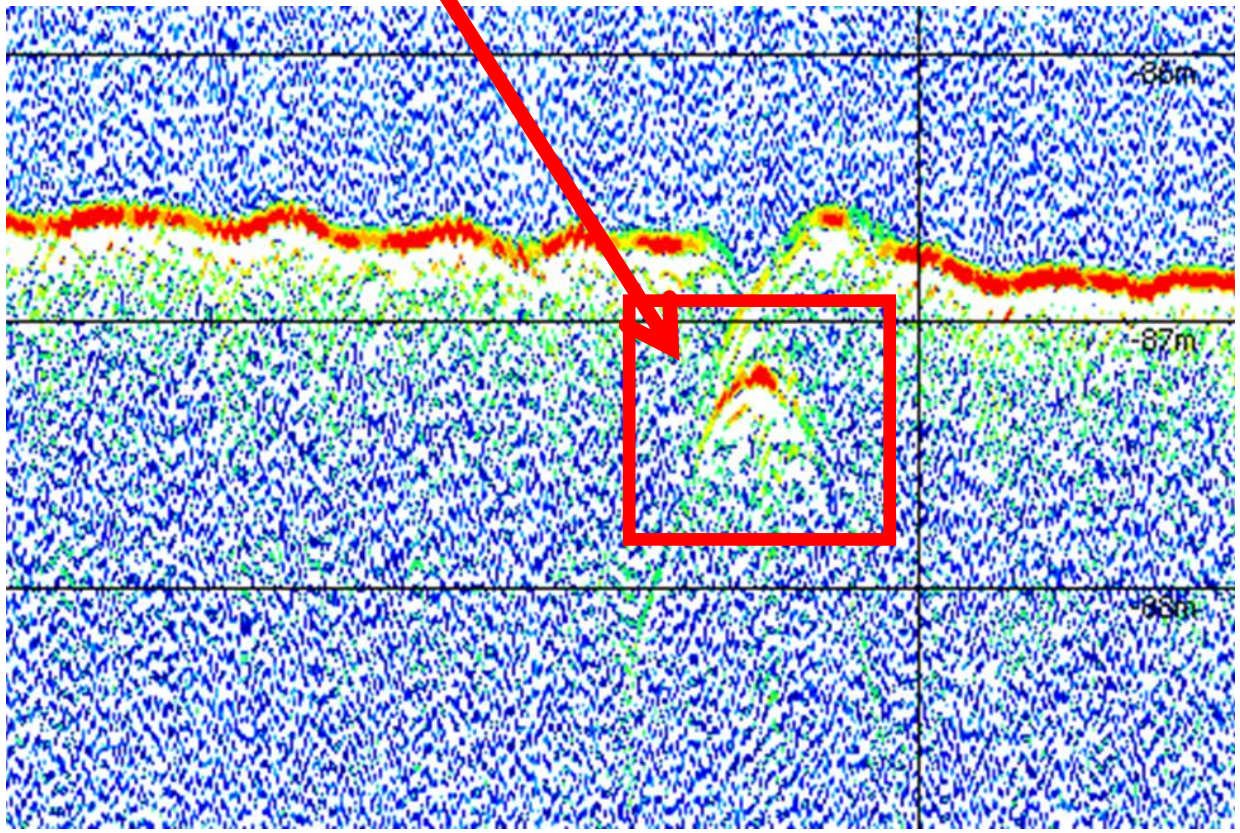


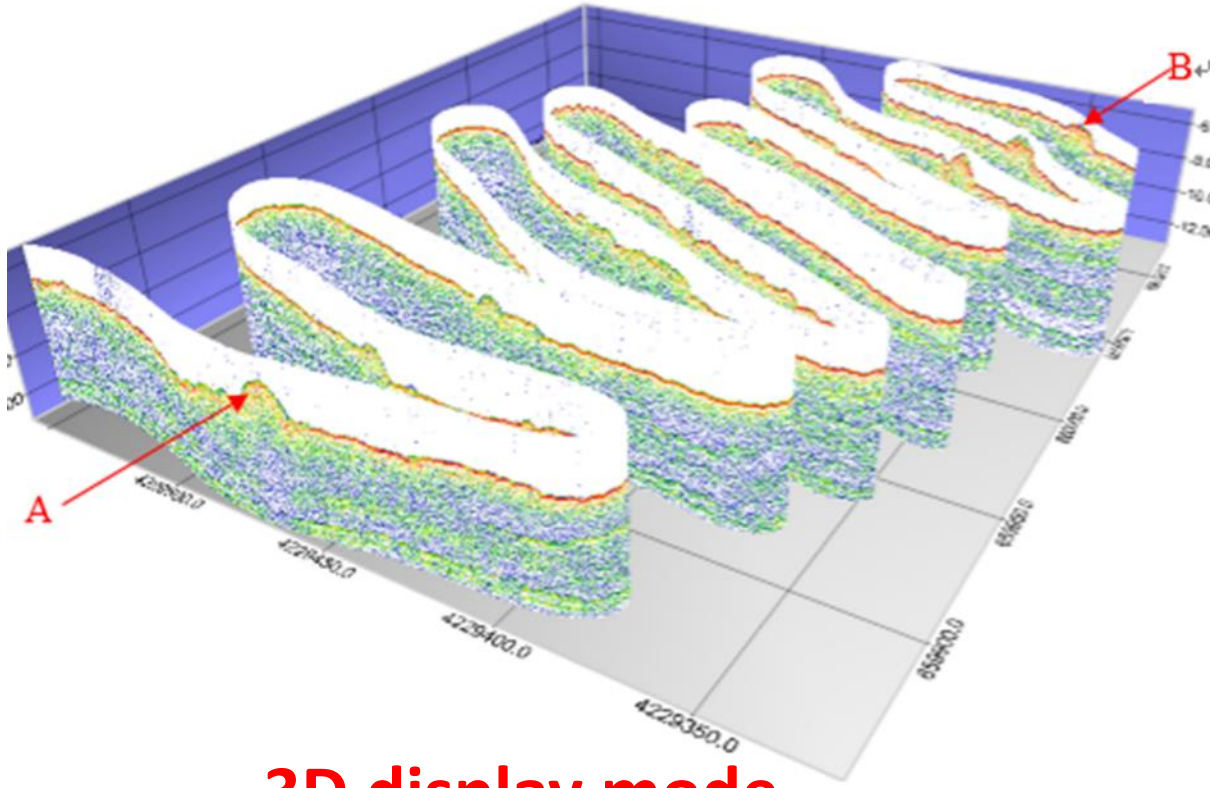




2. Cases share - Underwater Pipes inspection in Zhoushan City

covered pipe





3D display mode

2. Cases share - Water flow monitoring in River channels in Guangxi

Devices: ADCP, Radar type water level devices, DTU, Solar power system

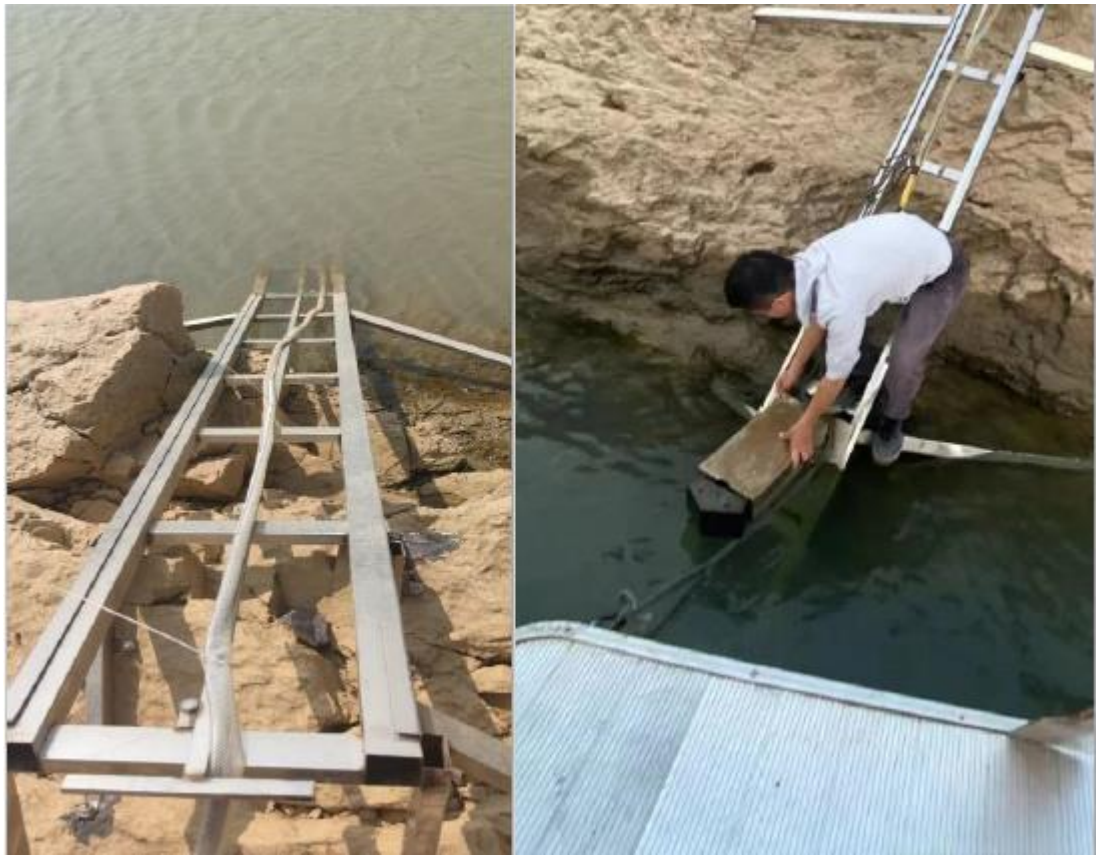
Software: SOUTH SMOS and Guangxi Hydrographic Bureau monitoring system

2. Cases share - Water flow monitoring in River channels in Guangxi

Site installation work

2. Cases share - Water flow monitoring in River channels in Guangxi

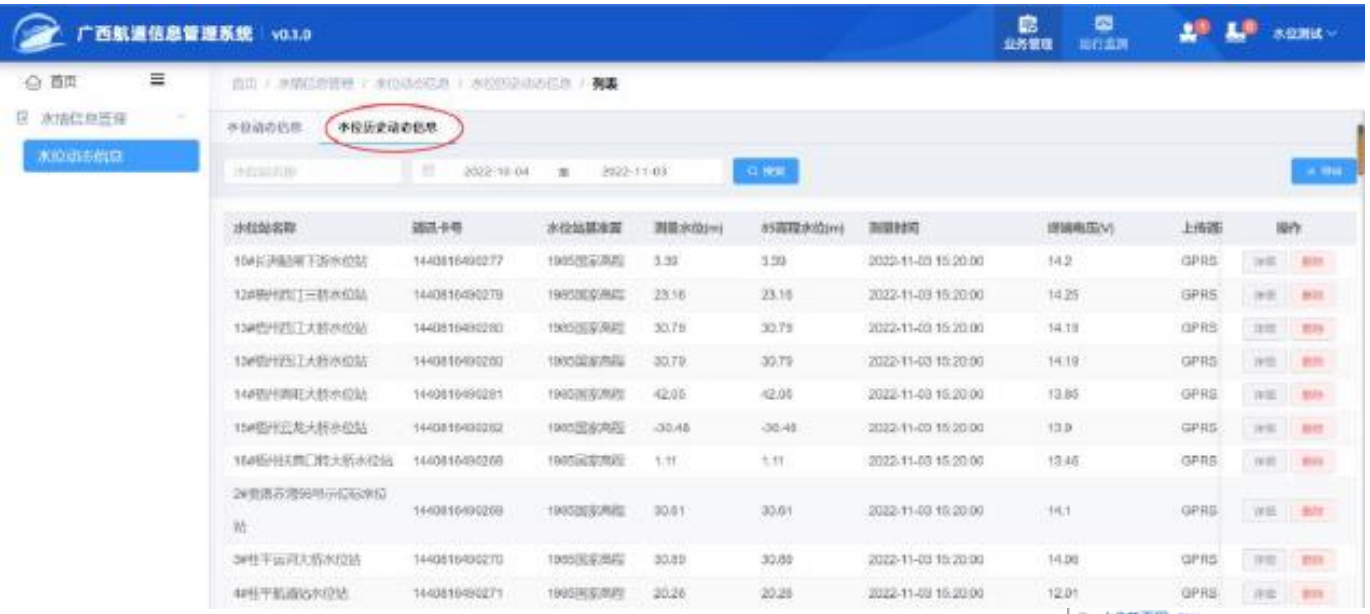
ADCP installation pictures



2. Cases share - Water flow monitoring in River channels in Guangxi

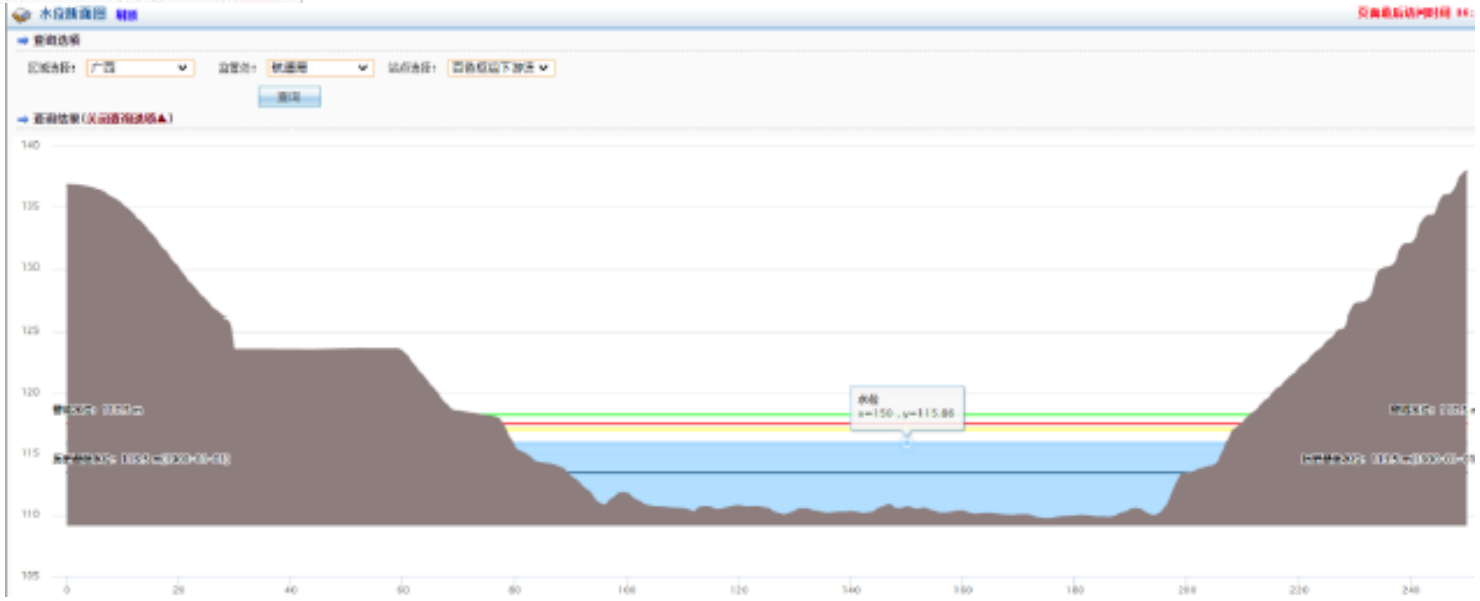
Radar type Water elevation devices installation

2. Cases share - Water flow monitoring in River channels in Guangxi



Water level table

Water level diagram



THANK YOU !