



**SOUTH**

# 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

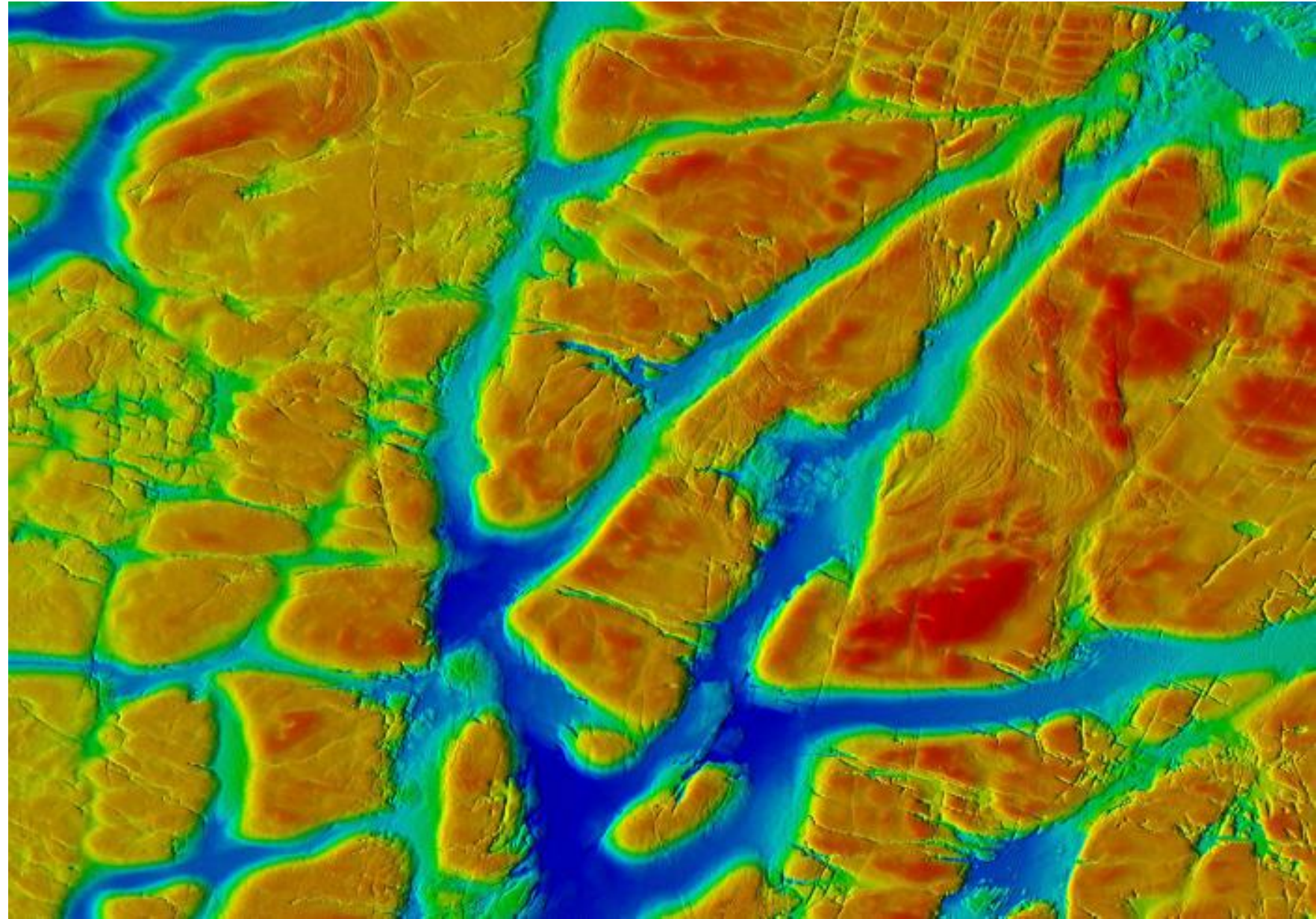
## Specifications

700 – 800 kHz:

$0.25^{\circ} \times 0.5^{\circ}$

350 – 430 kHz:

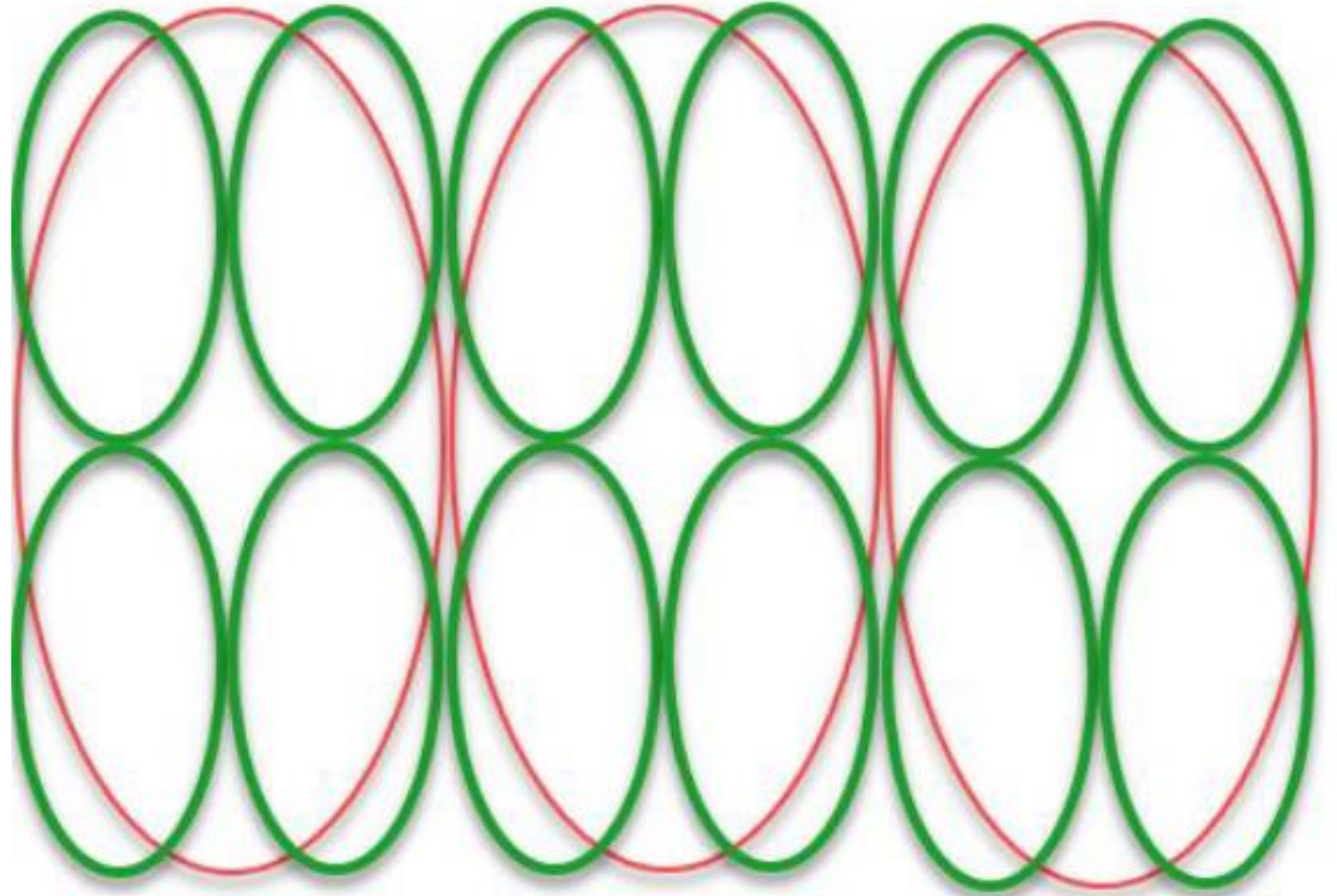
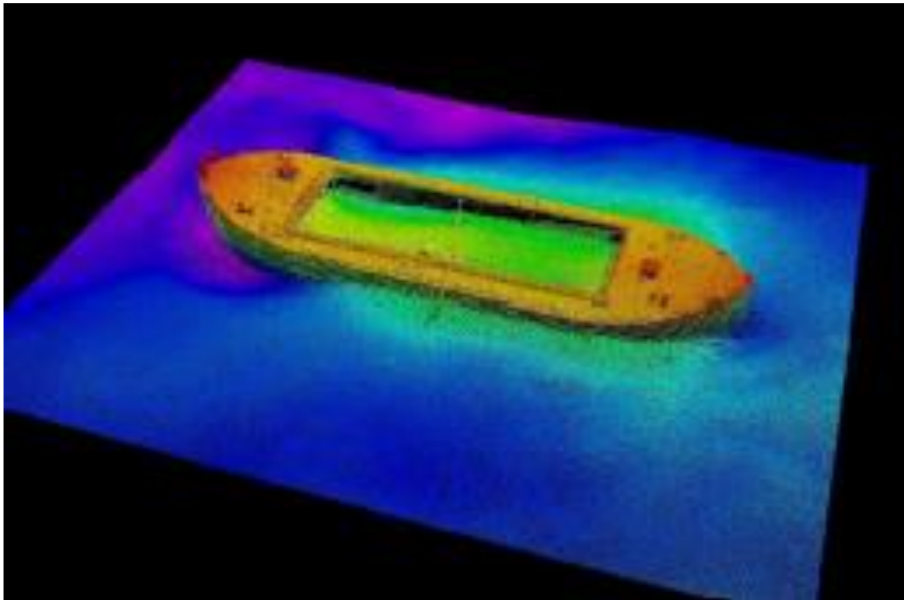
$0.5^{\circ} \times 1^{\circ}$



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

**Four times better  
resolution**

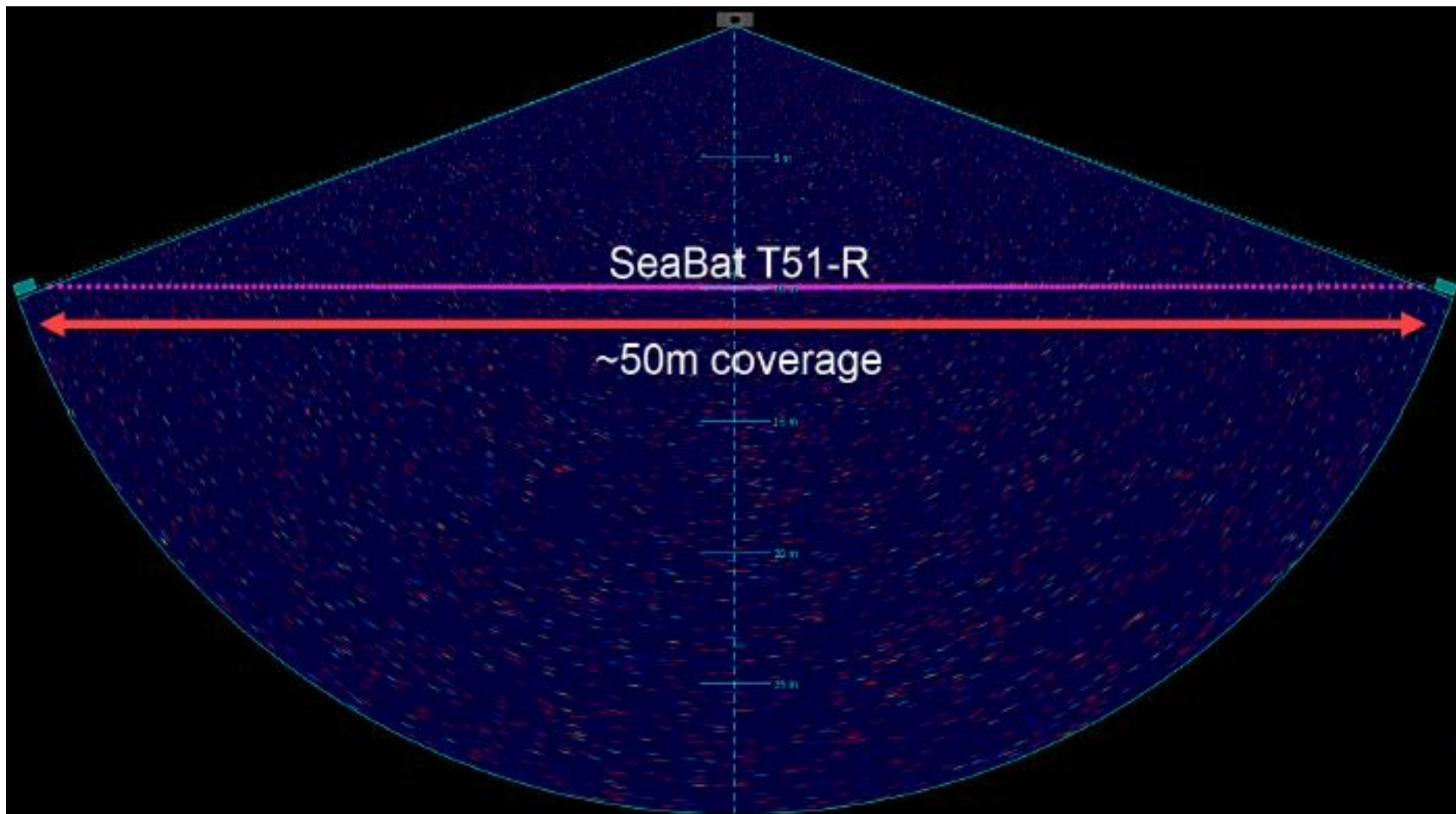
**Outstanding  
performance**



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

True 800K Hz

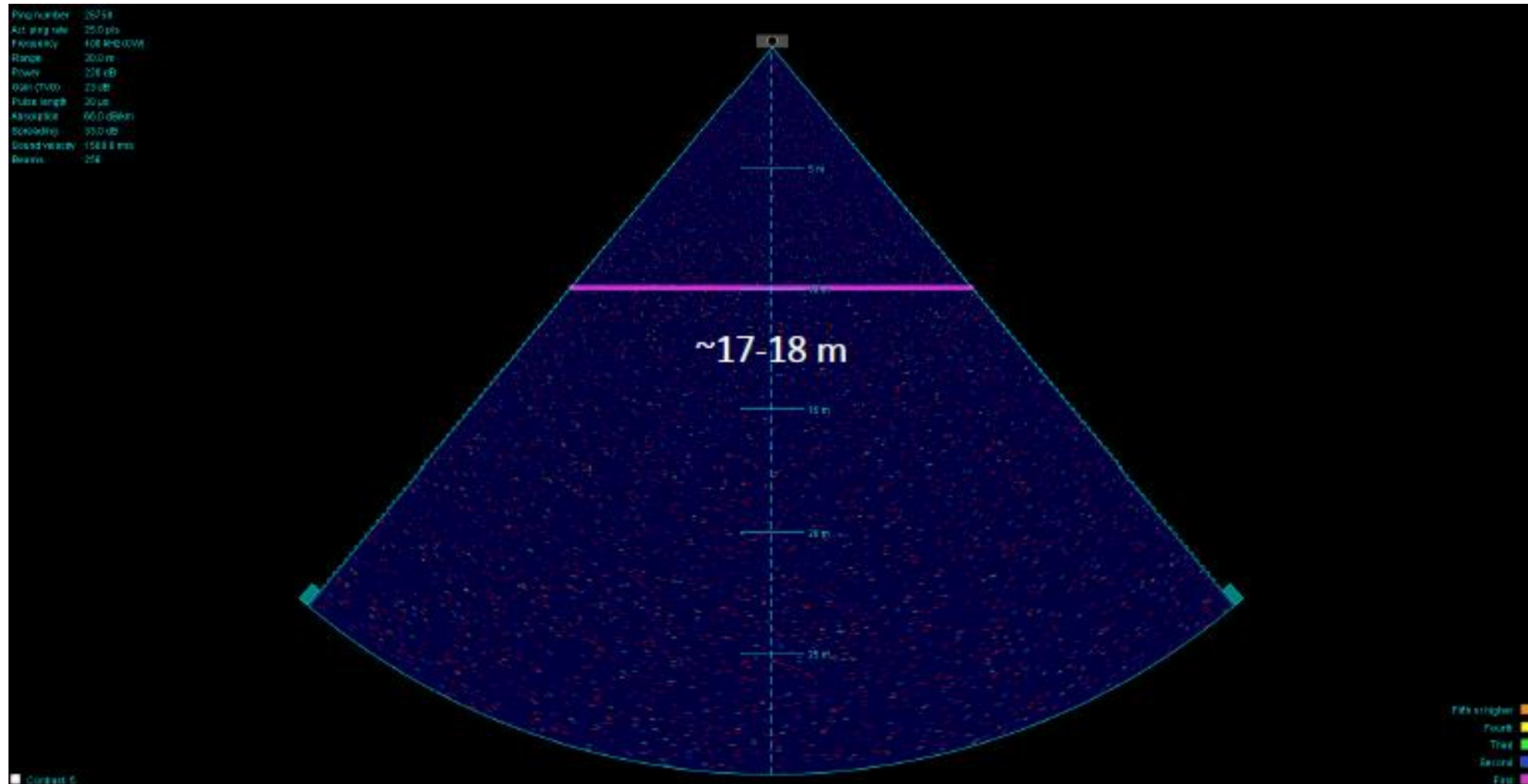
T51 performance



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

800K Hz?

Some other MBES performance



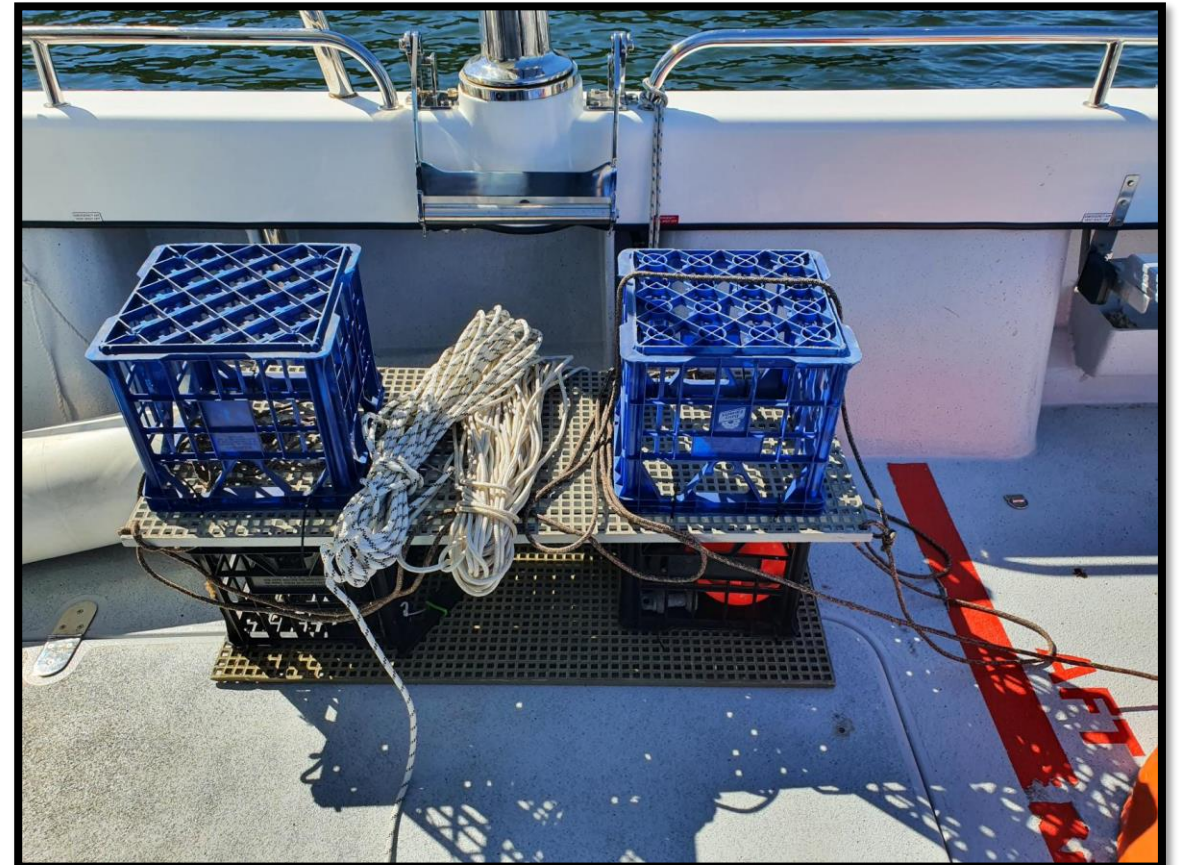
# 1. Hydrographic devices introduction - RESON T51 test

Targets Deployed

Manta Replica



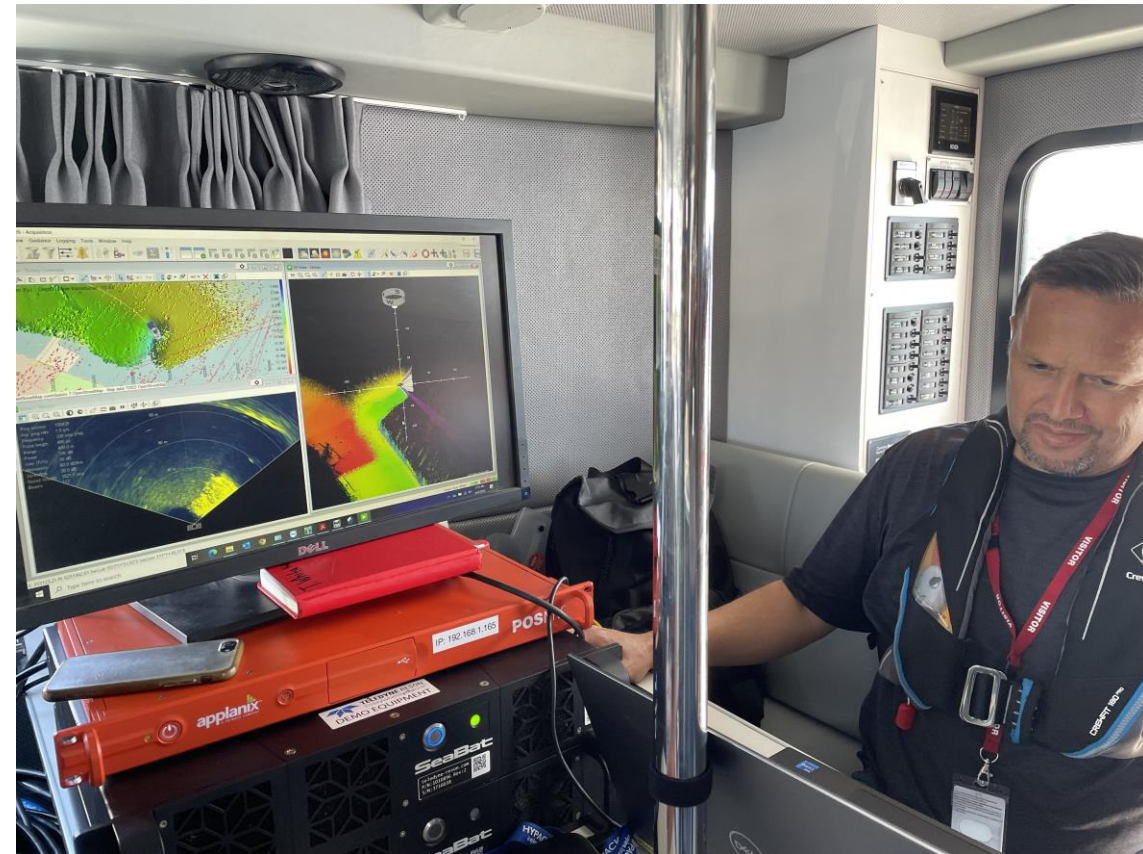
2 x Crate targets



# 1. Hydrographic devices introduction - RESON T51 test

## Mobilization and Deployment

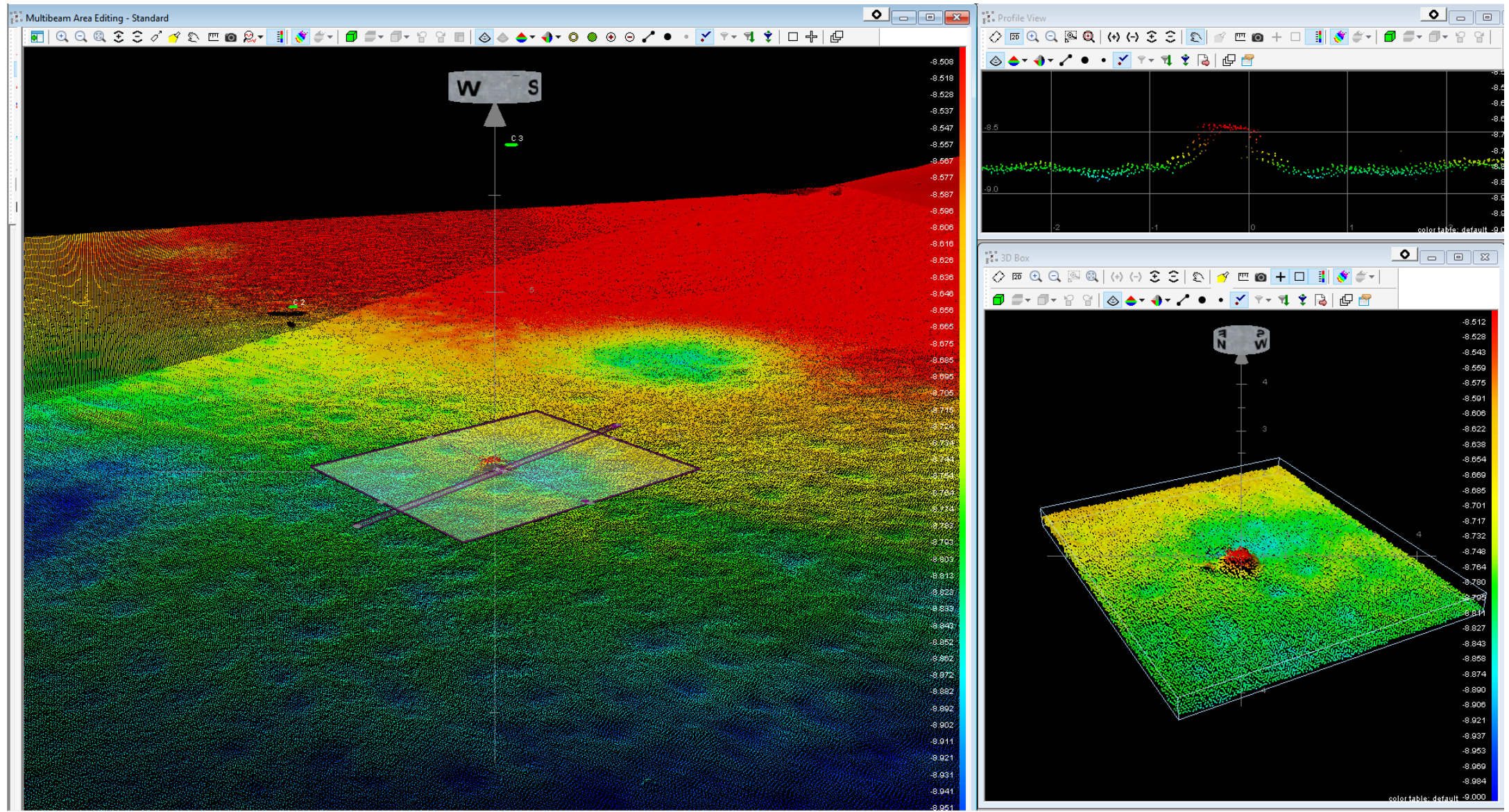
T51 projector and receiver, Sonar Processors, 1 x POSmv Wavemaster INS, Laptop PC with PDS software





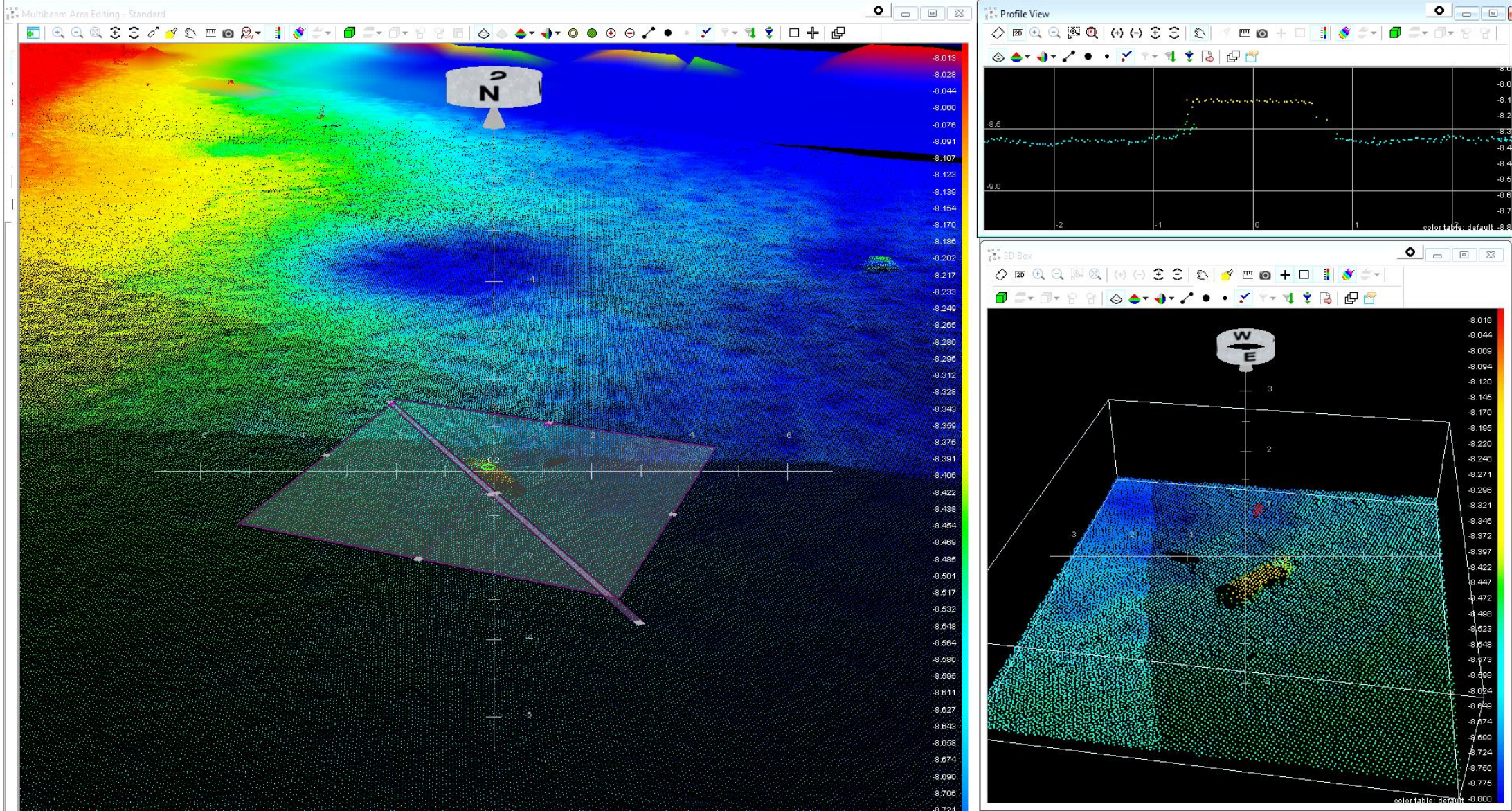
# 1. hydrographic devices introduction - RESON T51 test

Manta Replica Detected



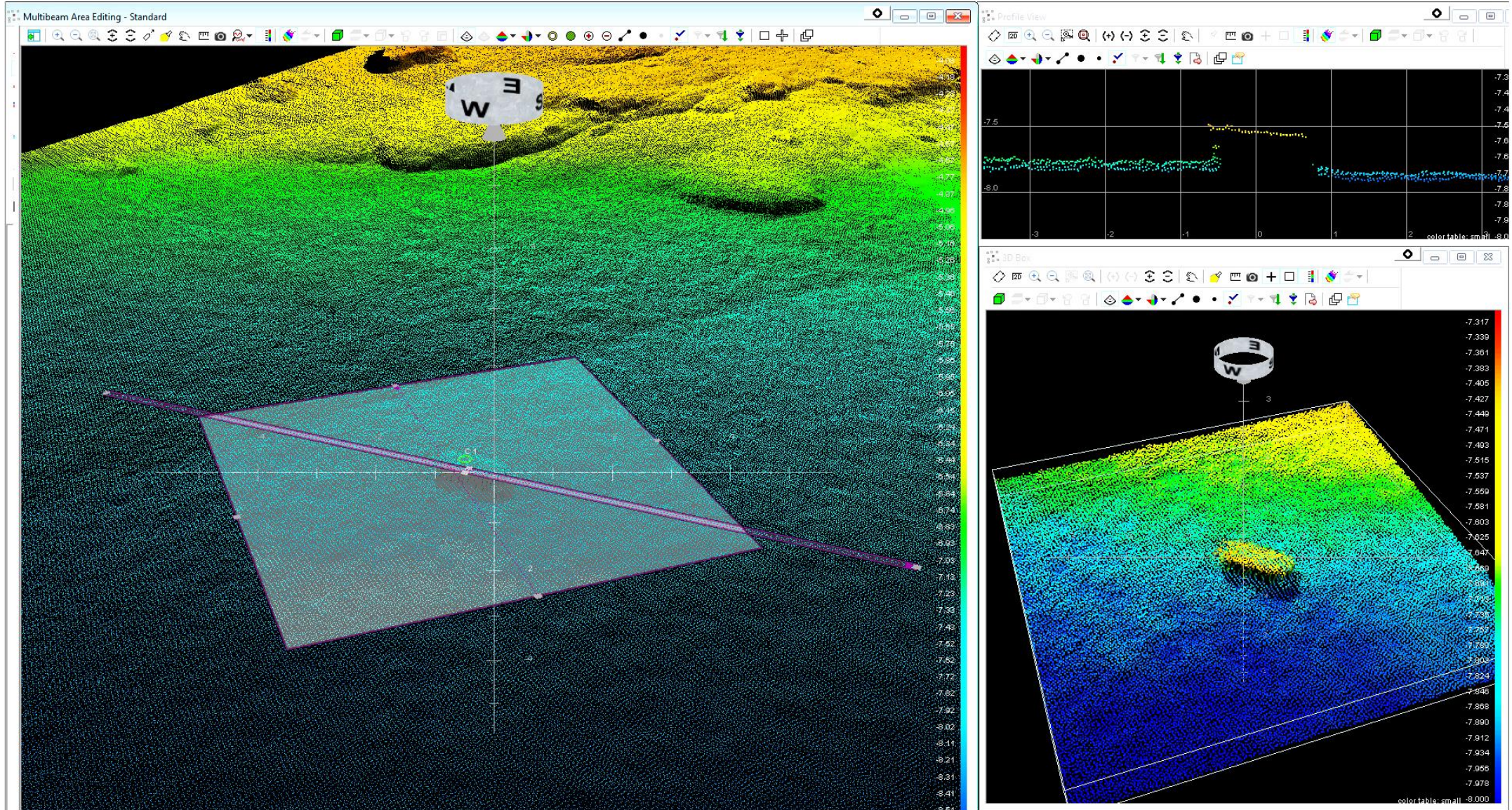
# 1. Hydrographic devices introduction - RESON T51 test

Crate Target 1 Detected



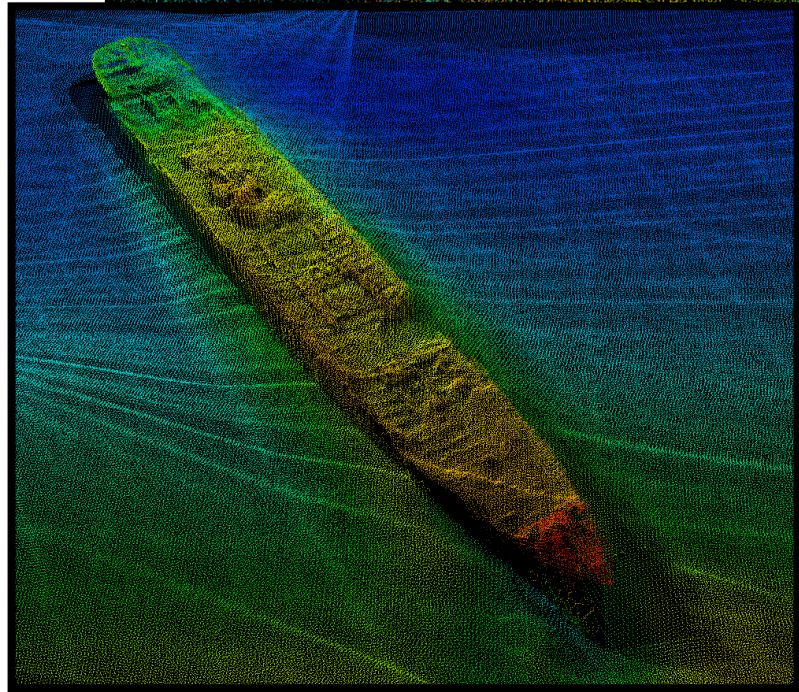
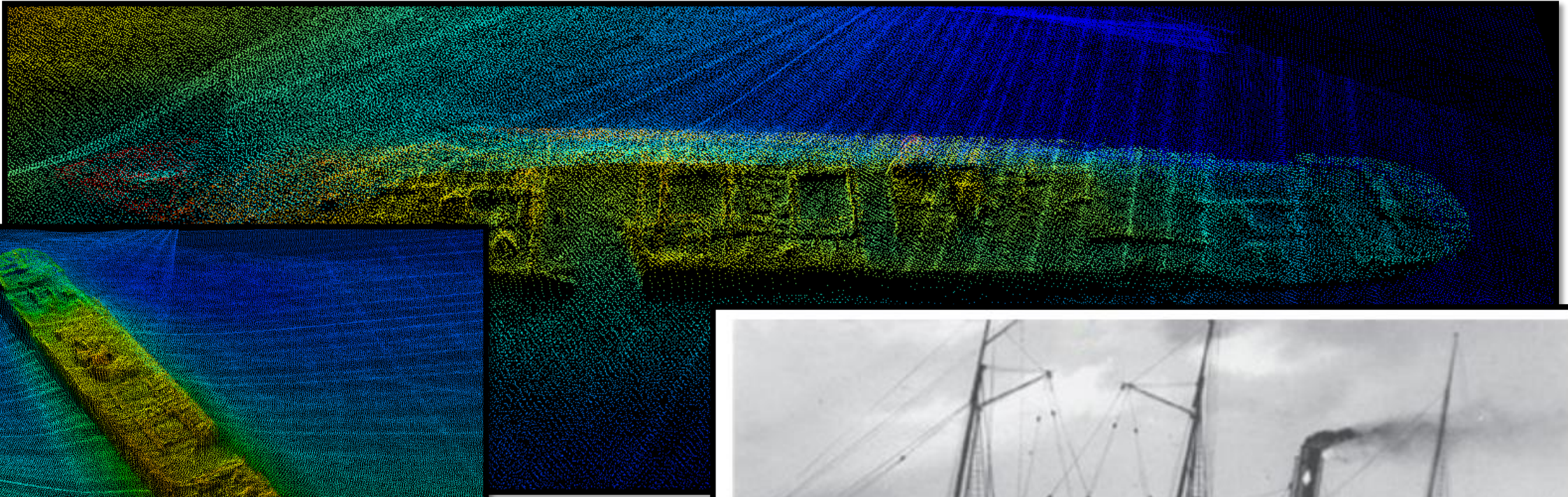
# 1. Hydrographic devices introduction - RESON T51 test

Crate Target 2 Detected



# 1. Hydrographic devices introduction - RESON T51 test

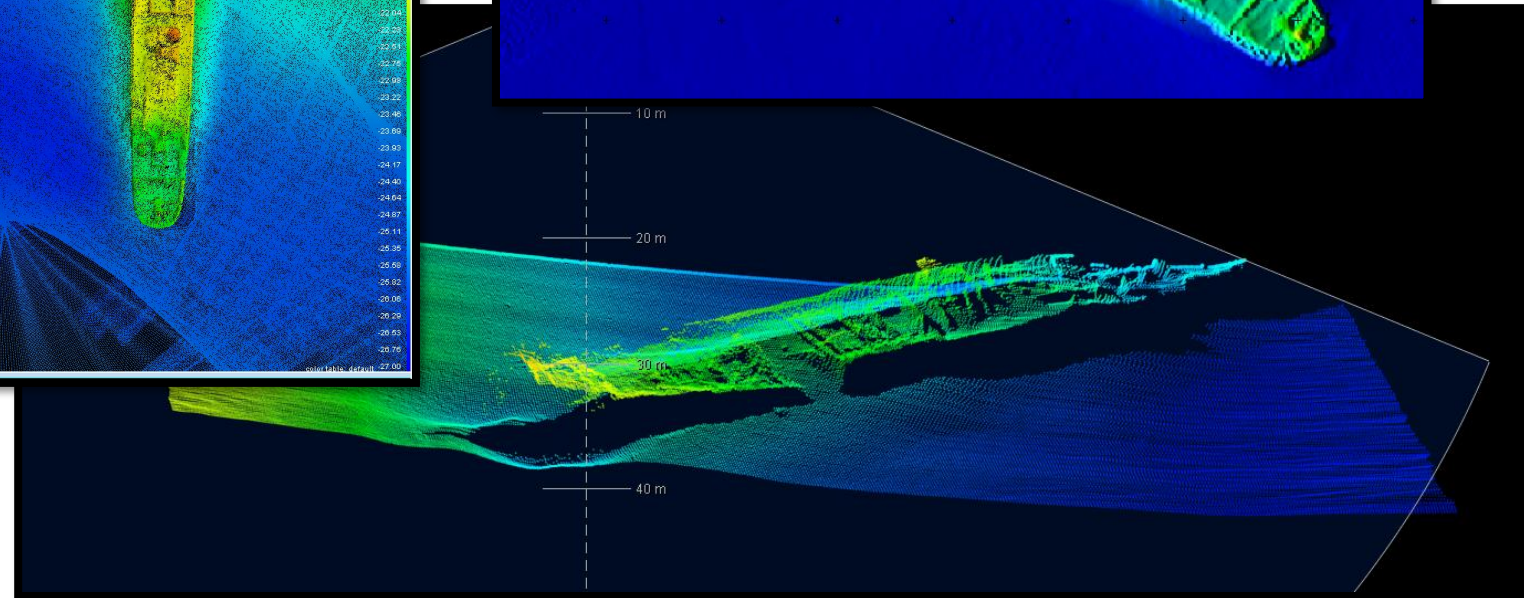
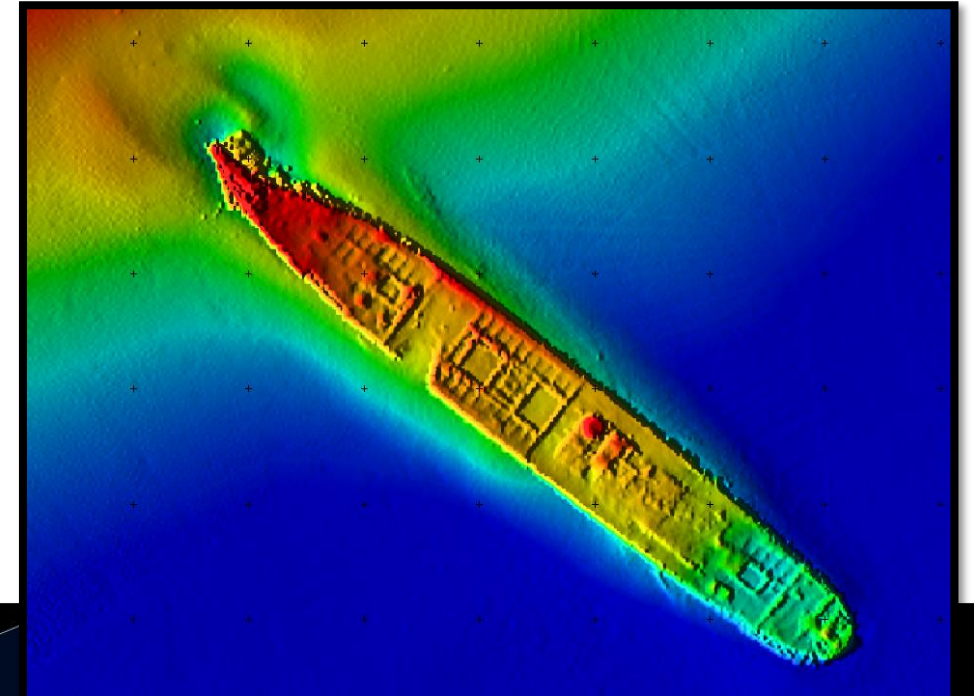
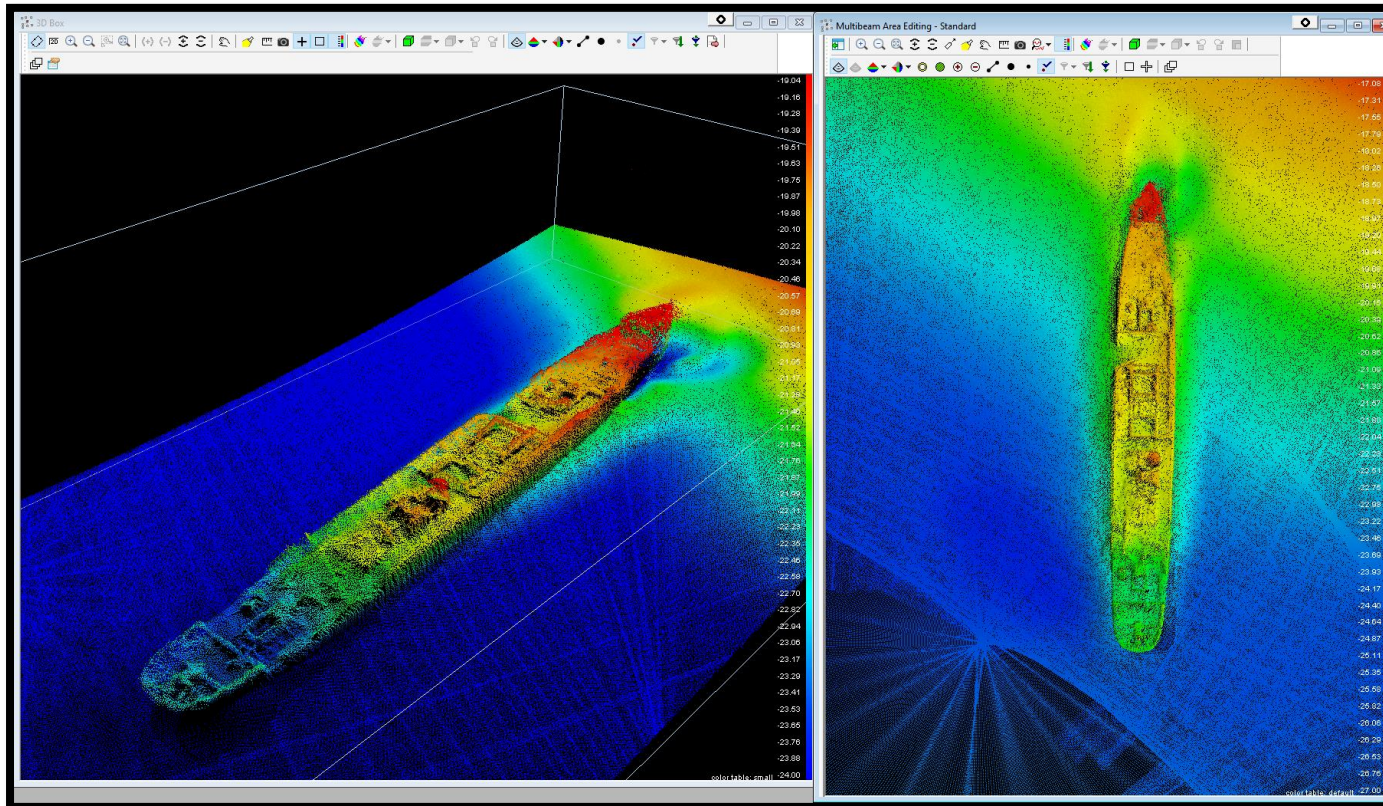
Shipwrecks – T51 at 800K Hz



*TSS Currajong*

# 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.

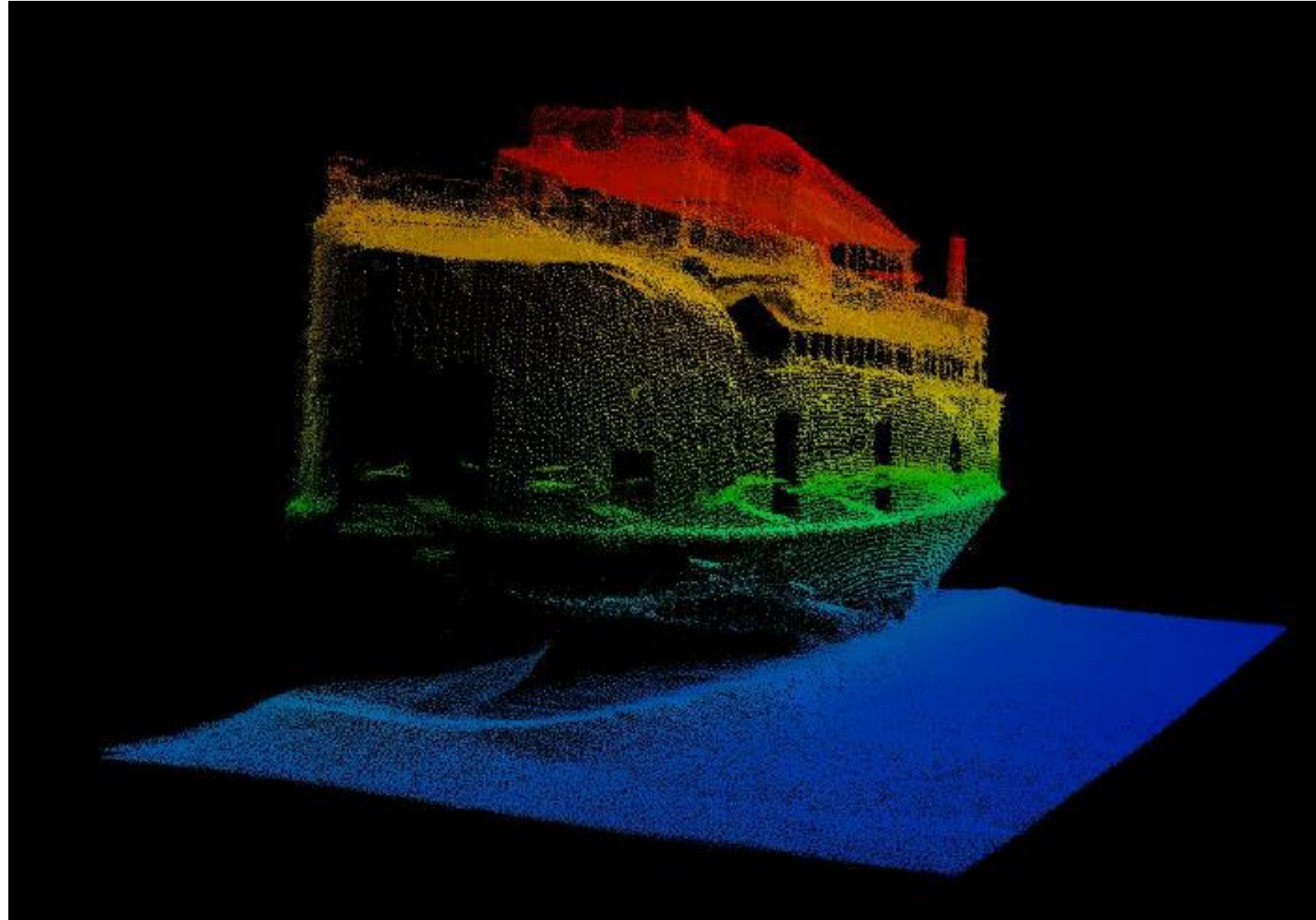
# 1. Hydrographic devices introduction - RESON T51 test

Sunk in 2014



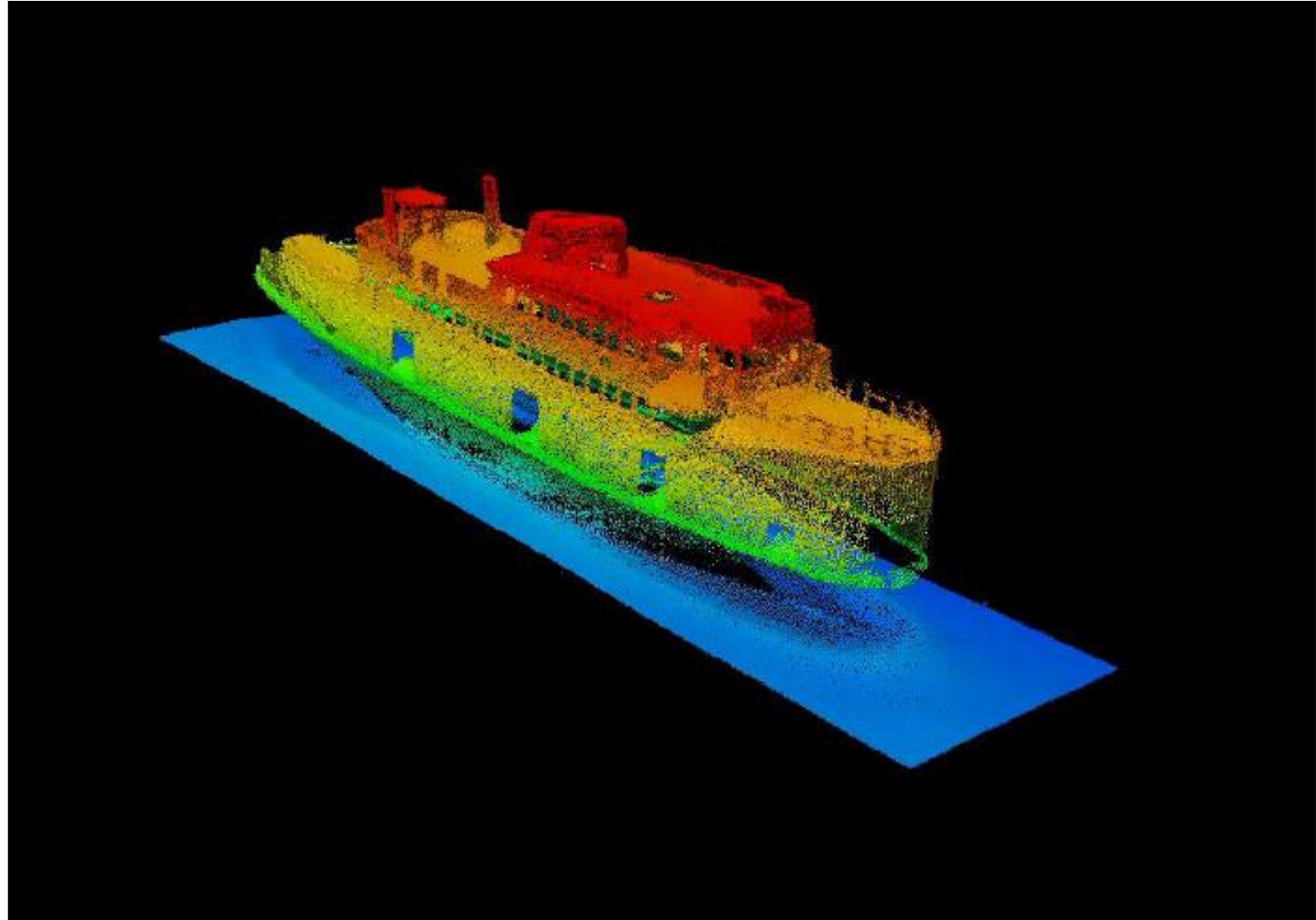
# 1. Hydrographic devices introduction - RESON T51 test

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

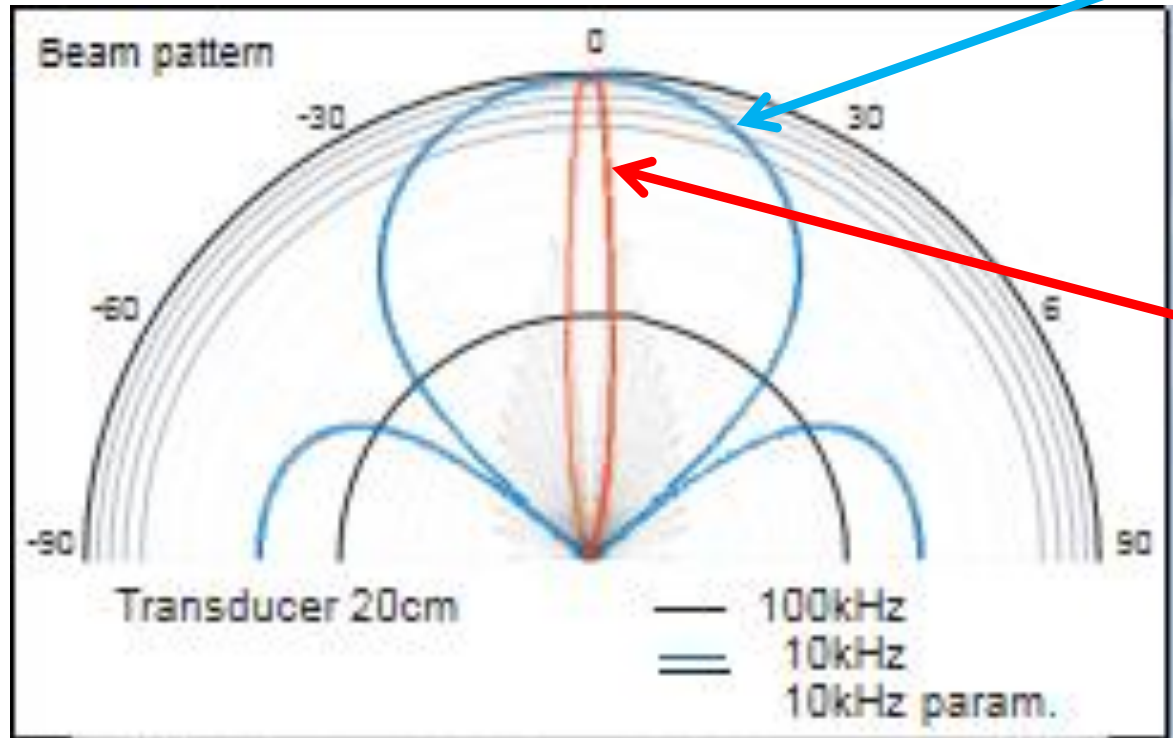
Secondary Frequency: 10 ~ 35 kHz

Transmit angle: less than 4°

Output Power: > 3 kW

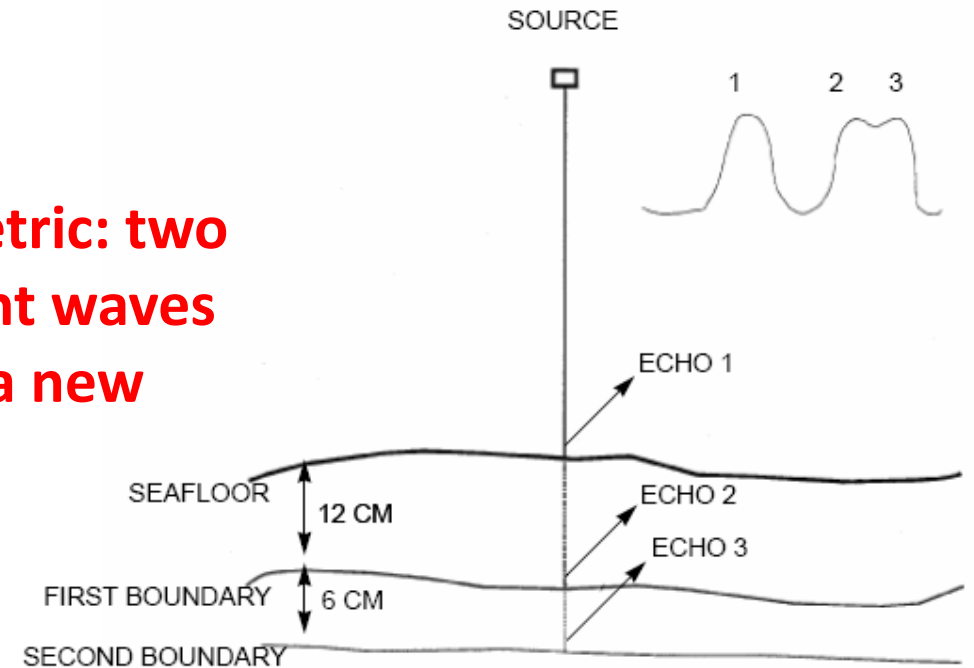
Power supply: 24VDC / 220V AC to 240VAC

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



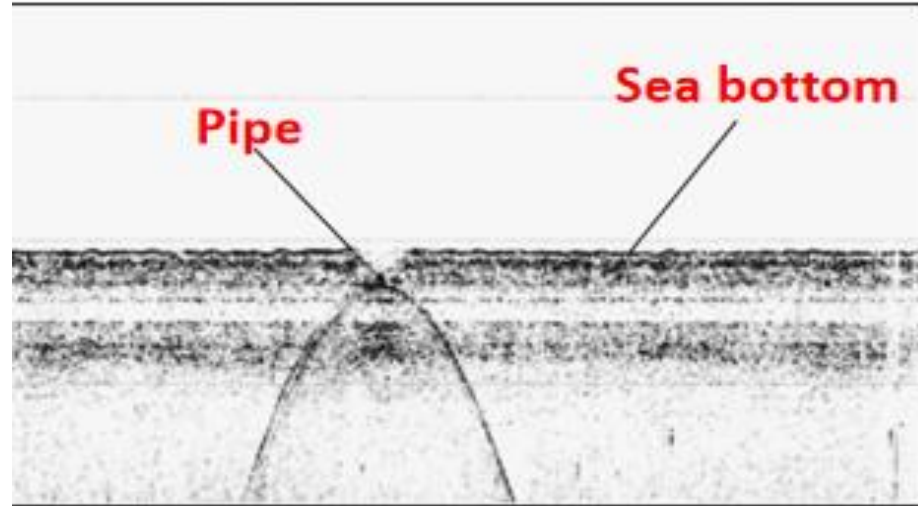
Classical: directly create the sound

Parametric: two different waves create a new sound

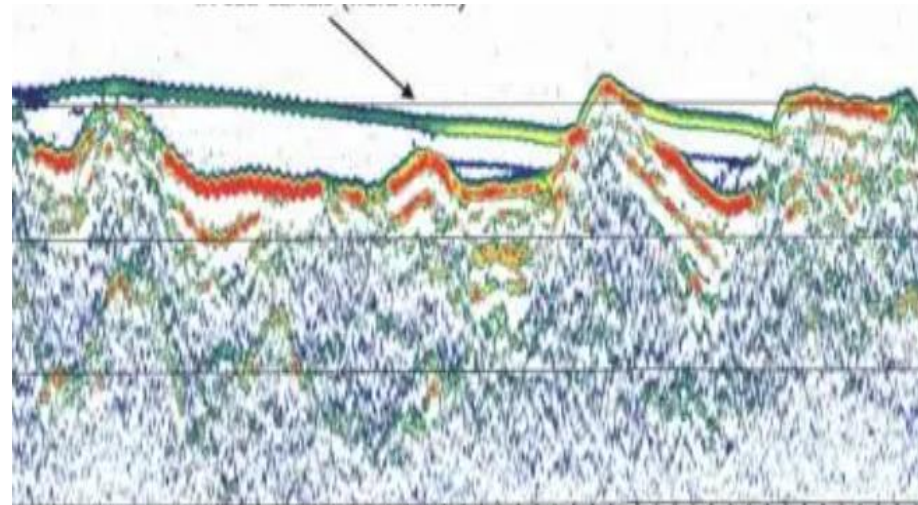


**Advantage: Parametric type, higher resolution and accuracy(real 6cm), can use in shallow water(minimum 0.5m depth), much less weight**

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



**Under ground Pipe or other objects detection**



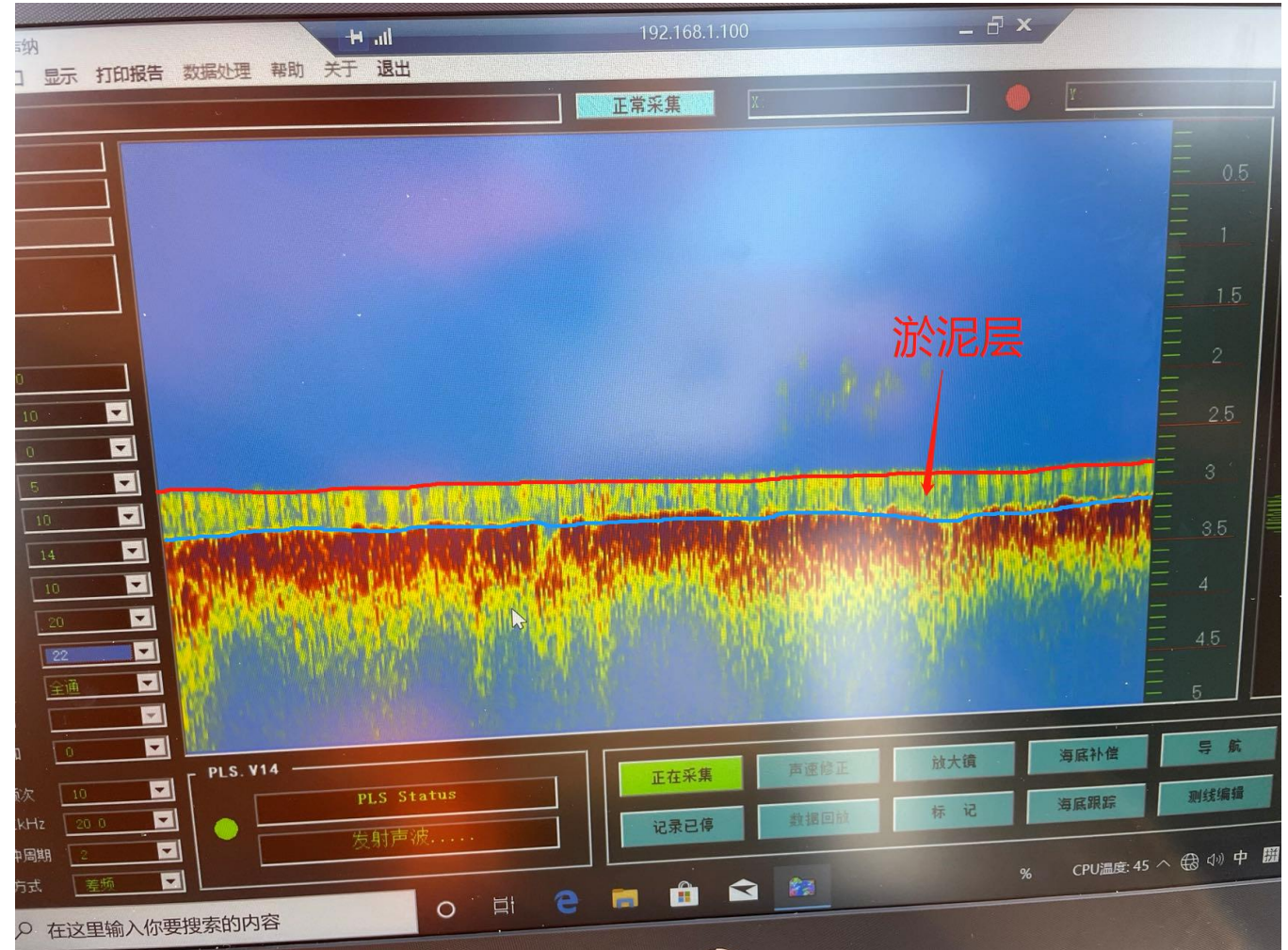
**Geological exploration, volume calculation**

# 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



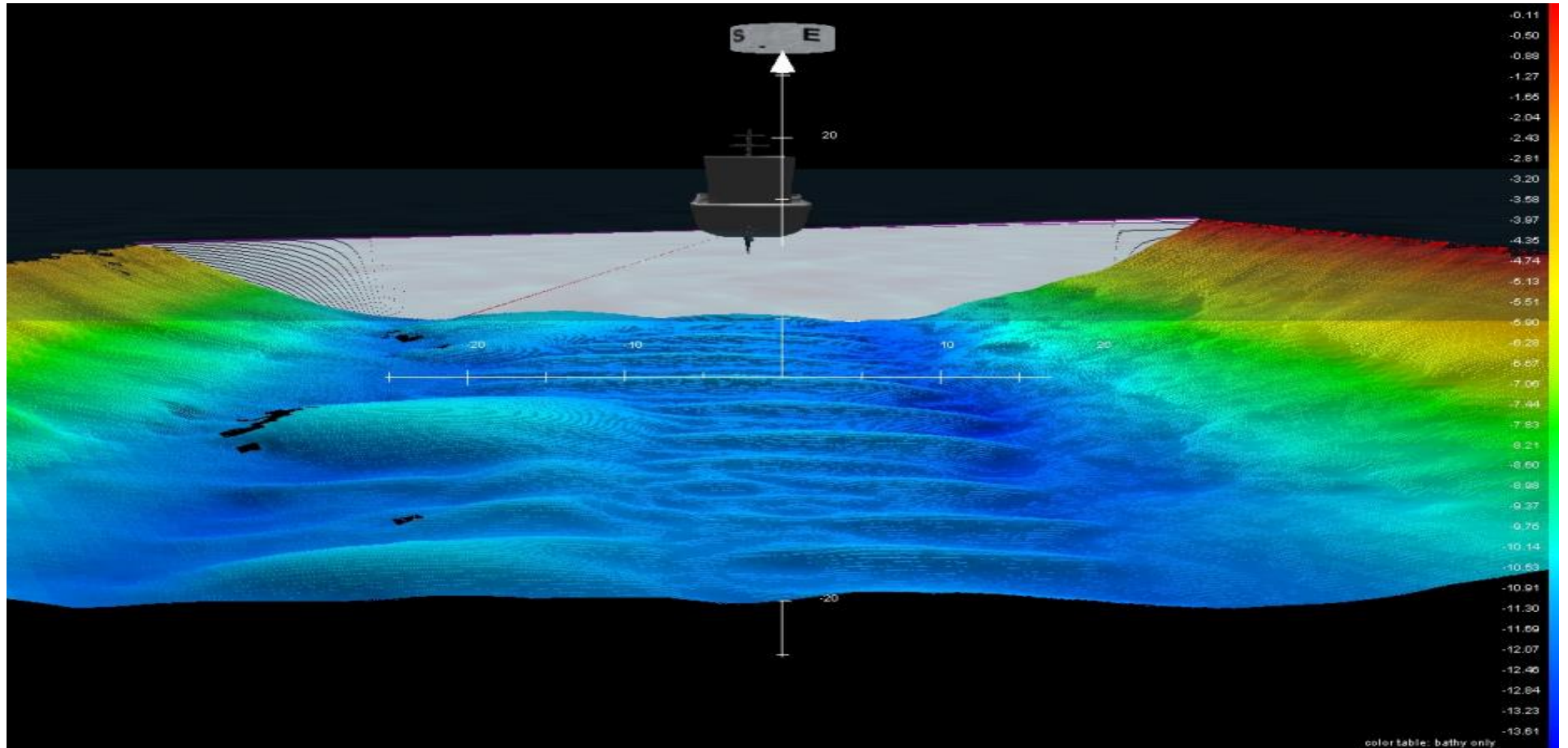
Devices: T50-R, INS-30, SVP-70

Software: PDS

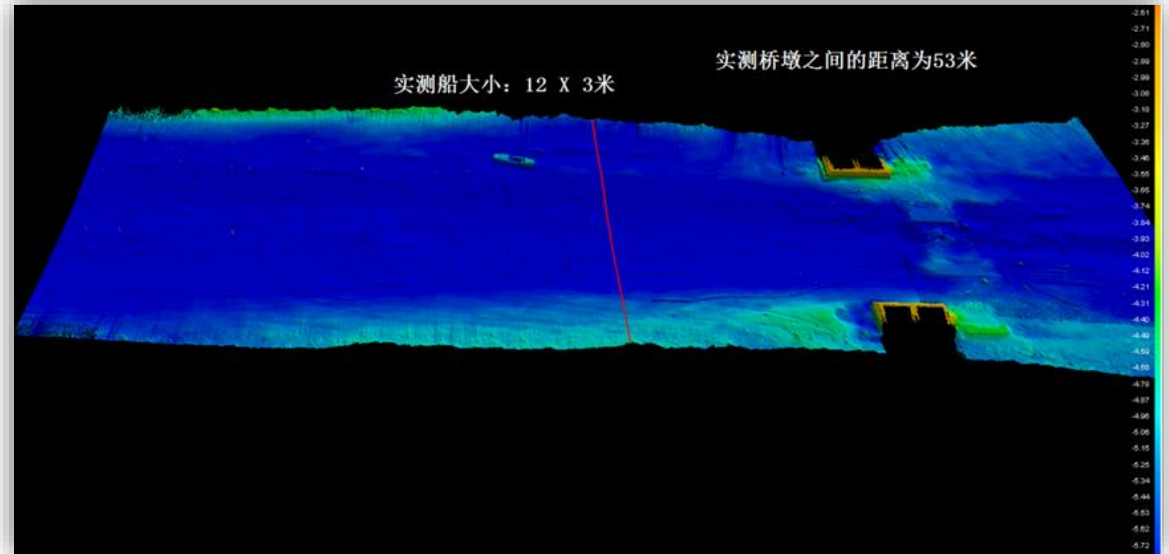
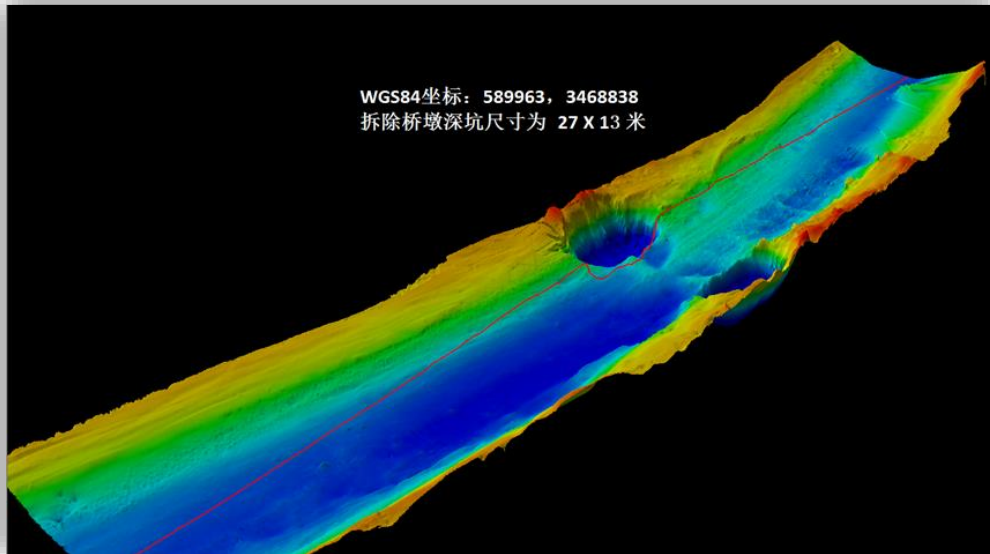
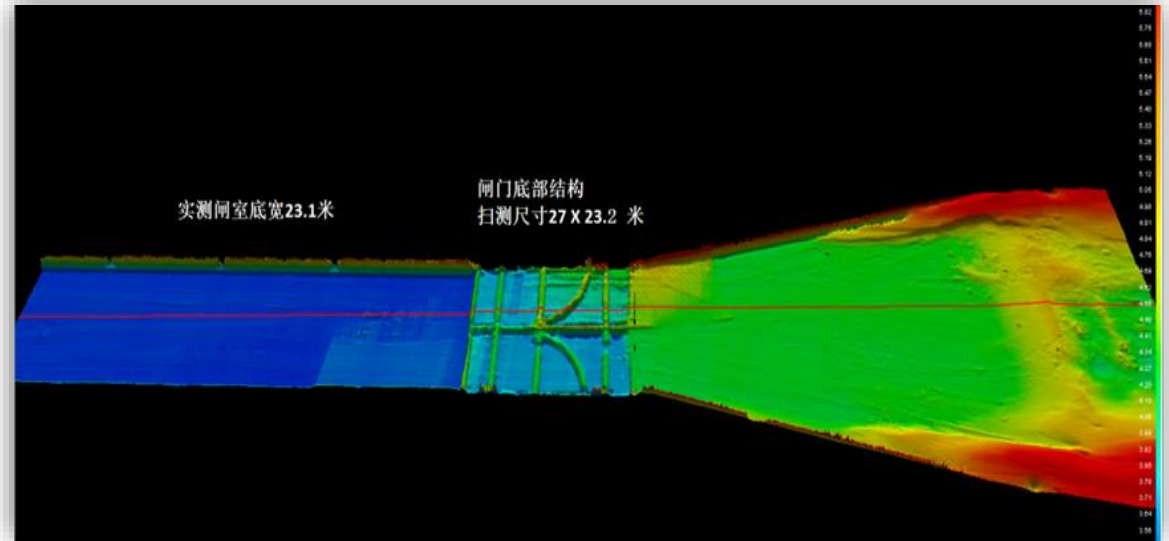
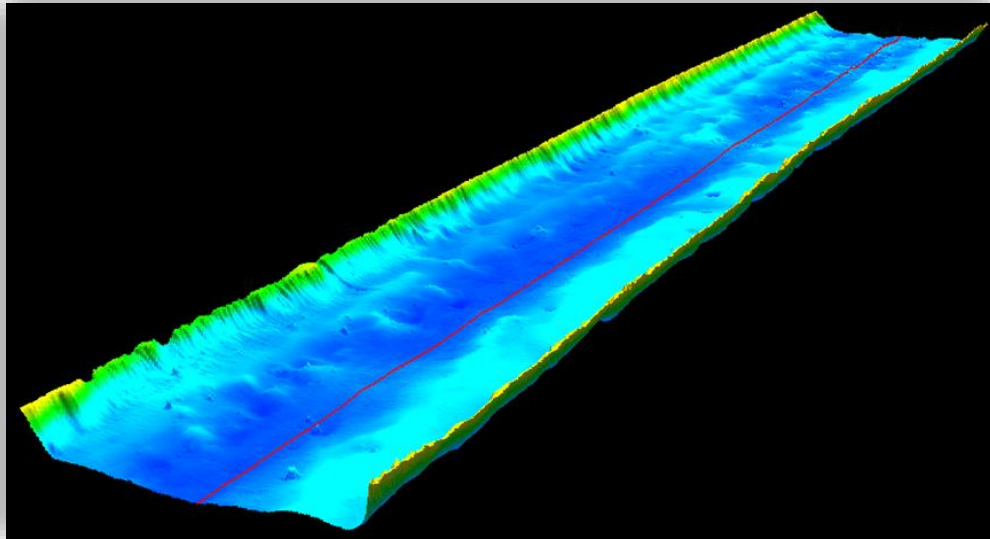


This project got the **Second price** of **Application of Intelligent Transportation Innovative Technology form Ministry of Transport**

## 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

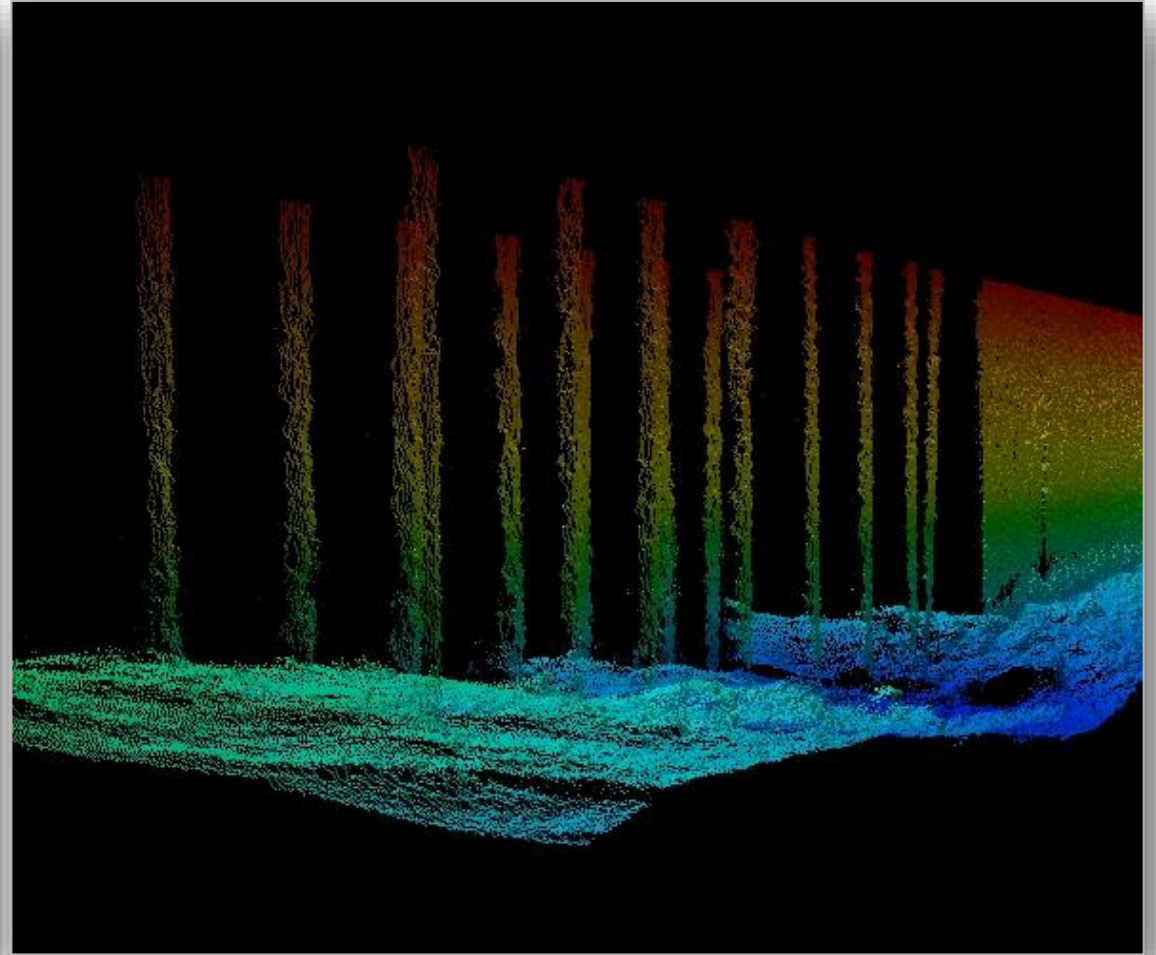
Devices:



## 2. Cases share - ship lock inspection in Zhongshan city



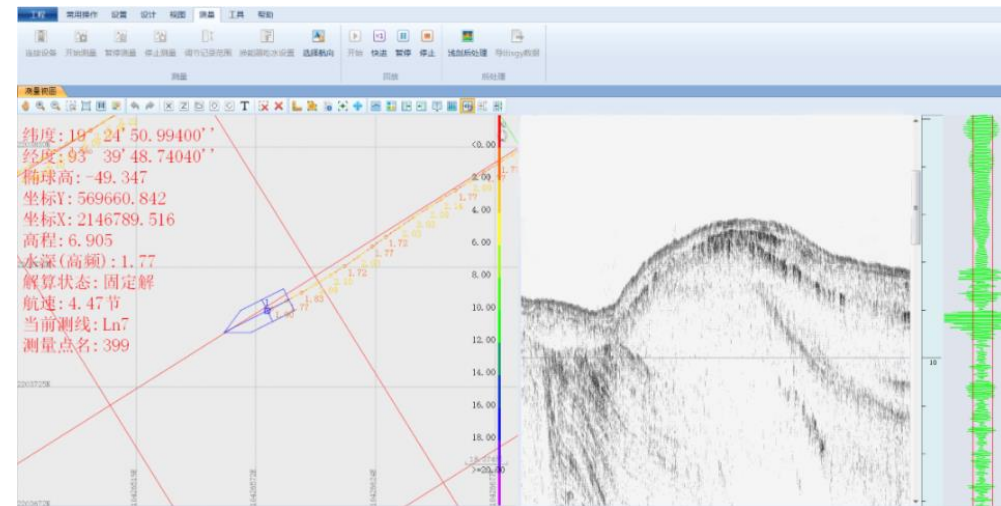
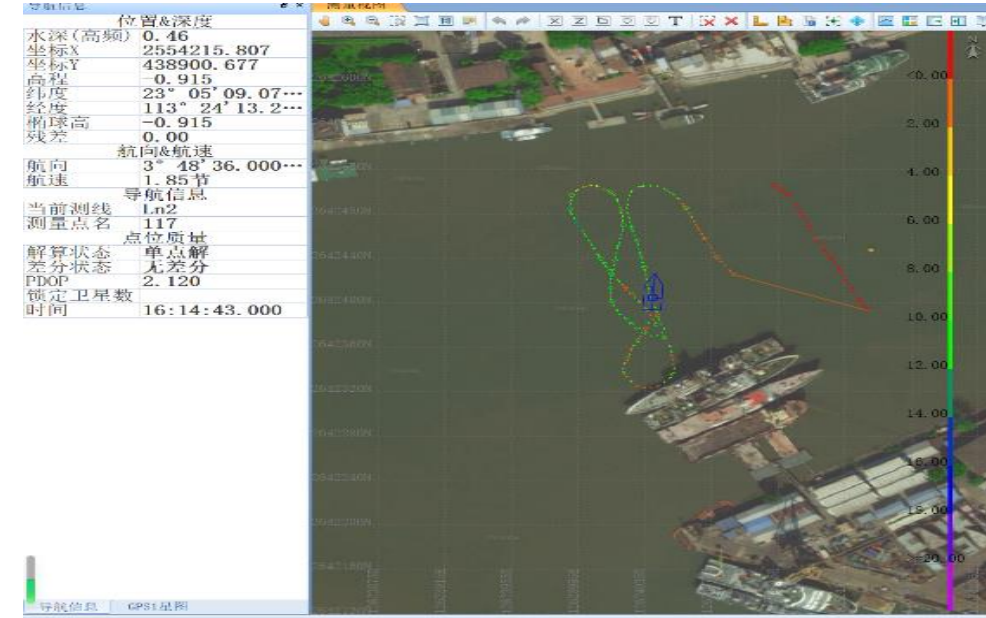
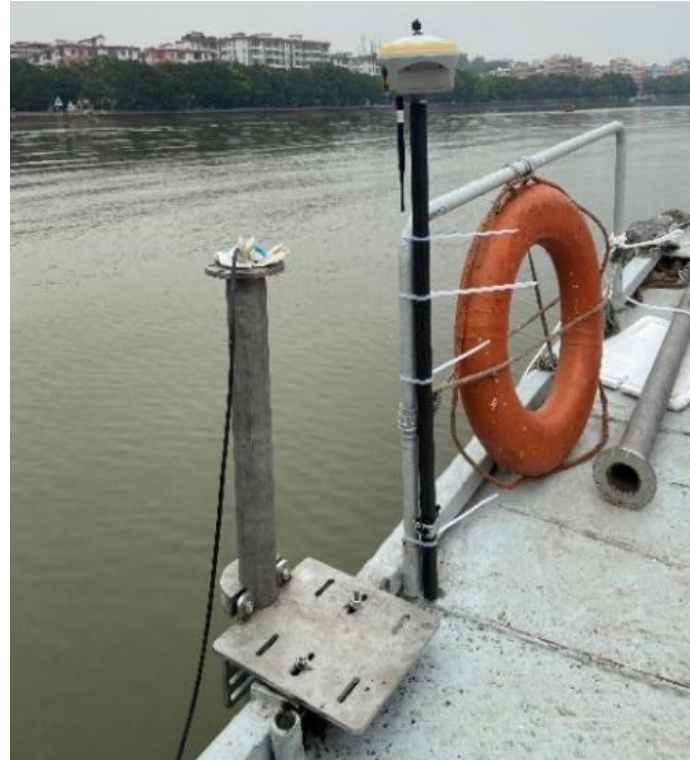
## 2. Cases share - ship lock inspection in Zhongshan city



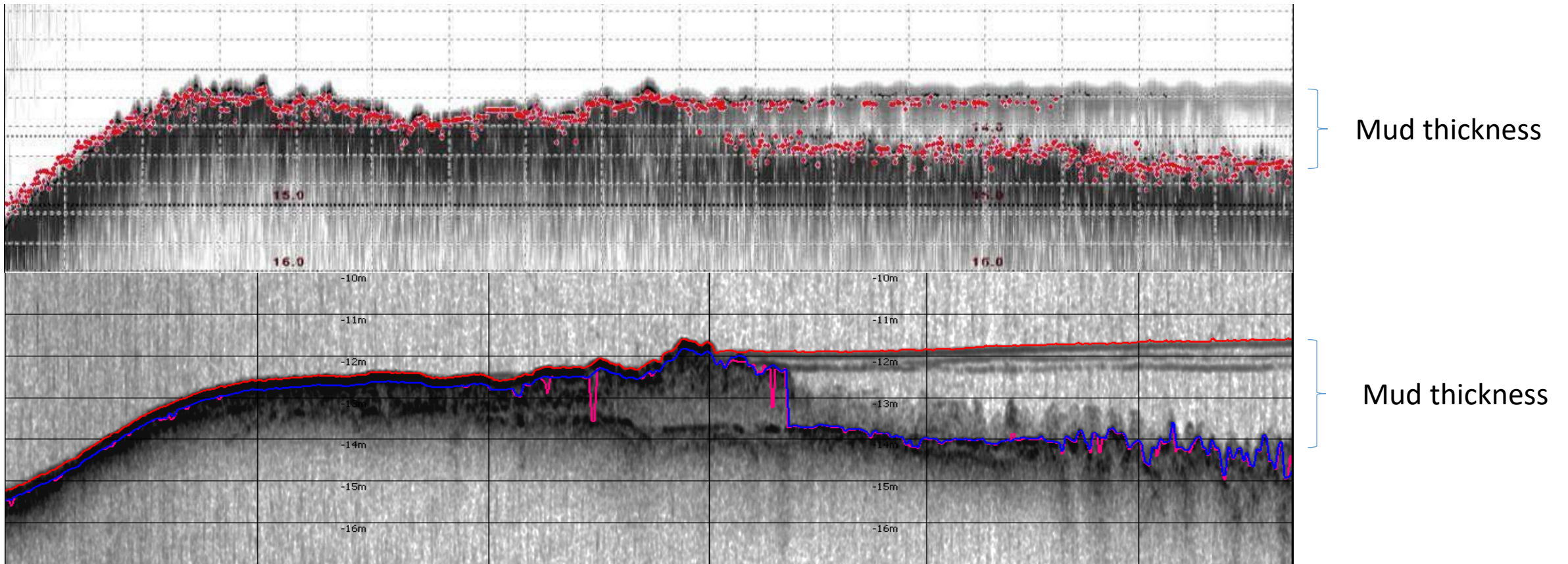
## 2. Cases share - Geological survey in Zhujiang River

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

Software: SOUTH Geo-Master



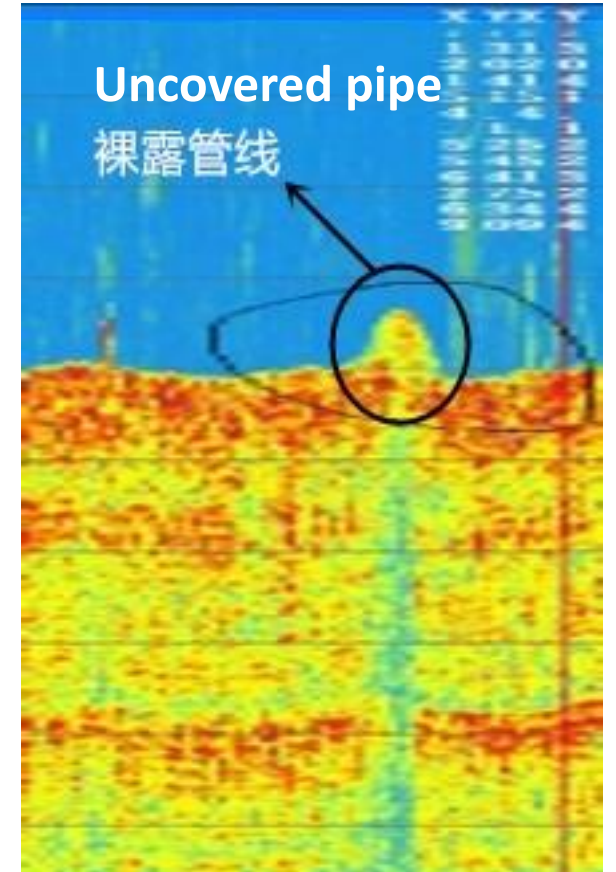
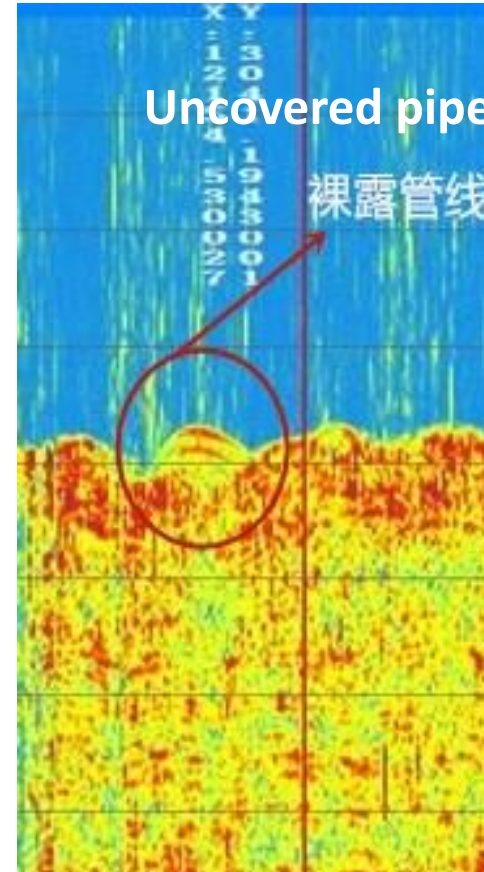
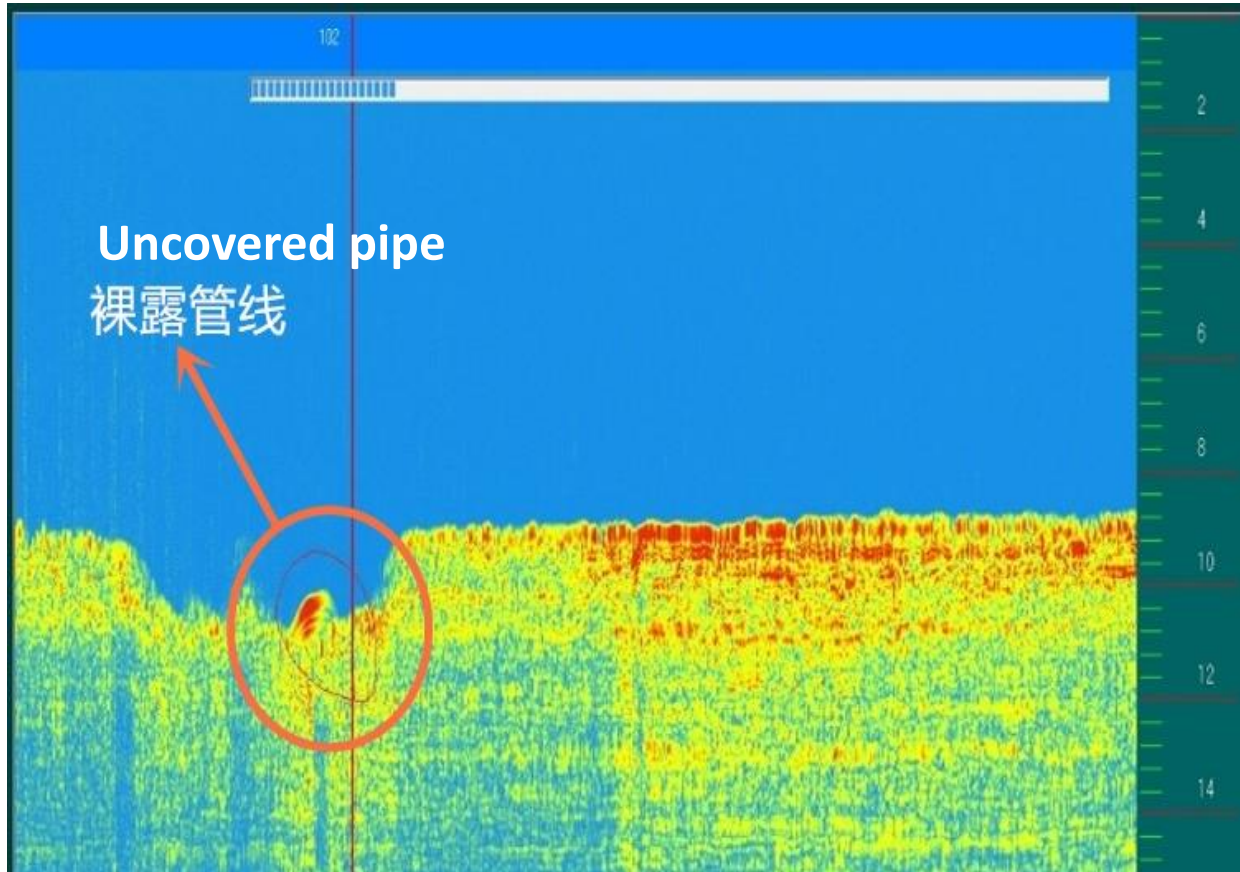
## 2. Cases share - Geological survey in Zhujiang River



## 2. Cases share - Underwater Pipes inspection in Zhoushan City

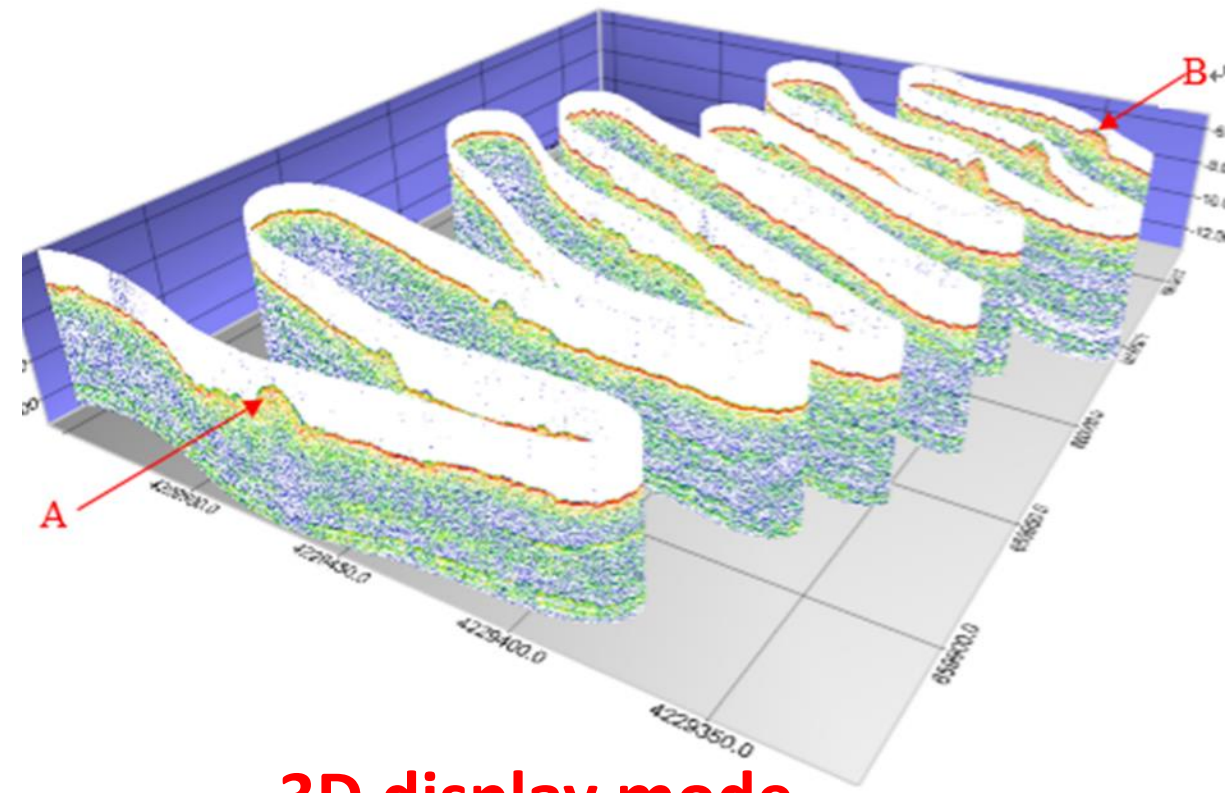
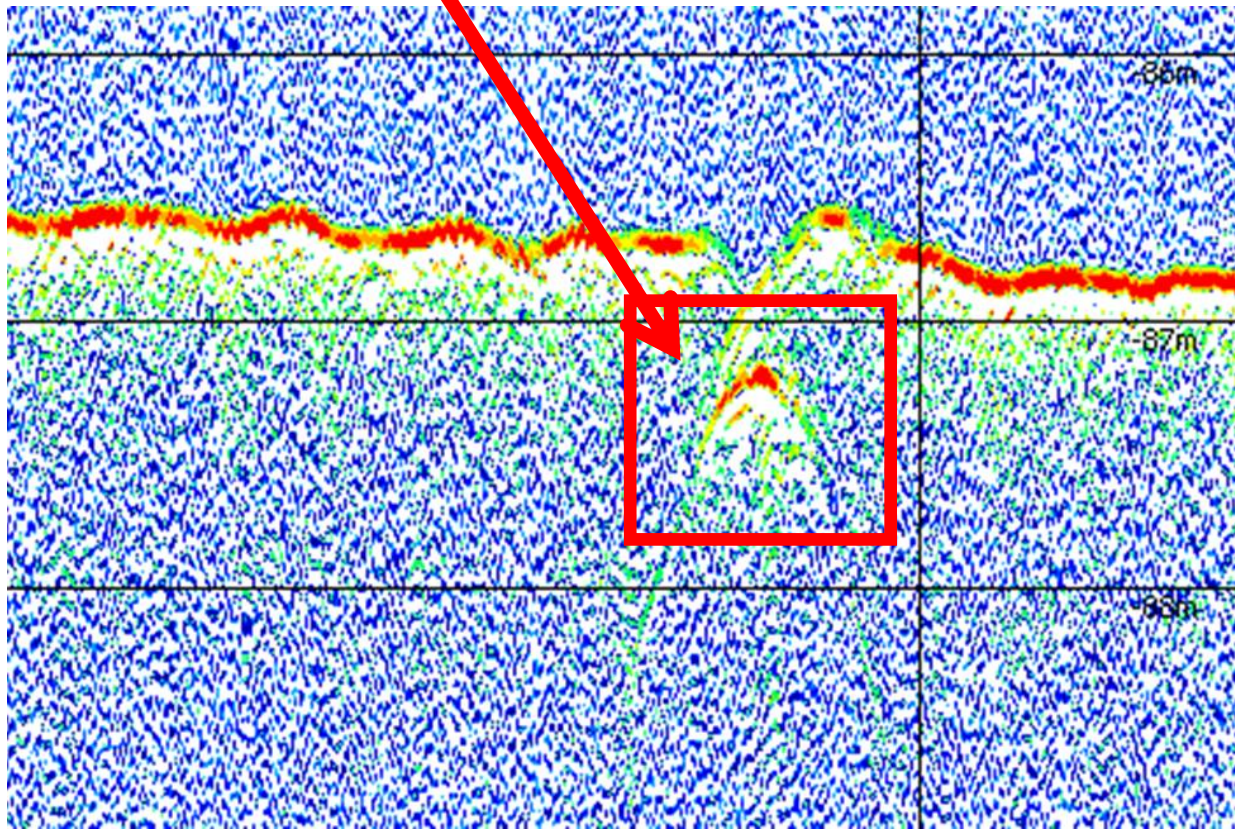
Devices: SOUTH SBP SE-2, G2 GNSS receiver

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**





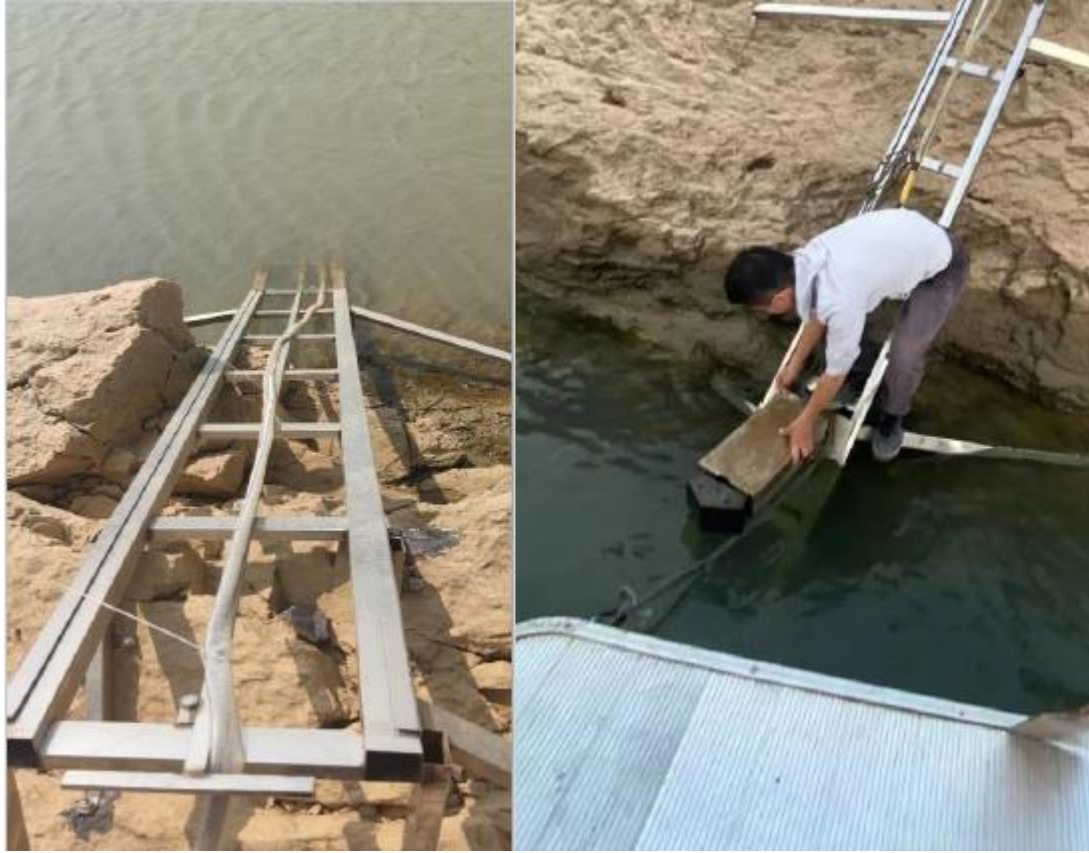
## 2. Cases share - Water flow monitoring in River channels in Guangxi

Site installation work



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

ADCP installation pictures

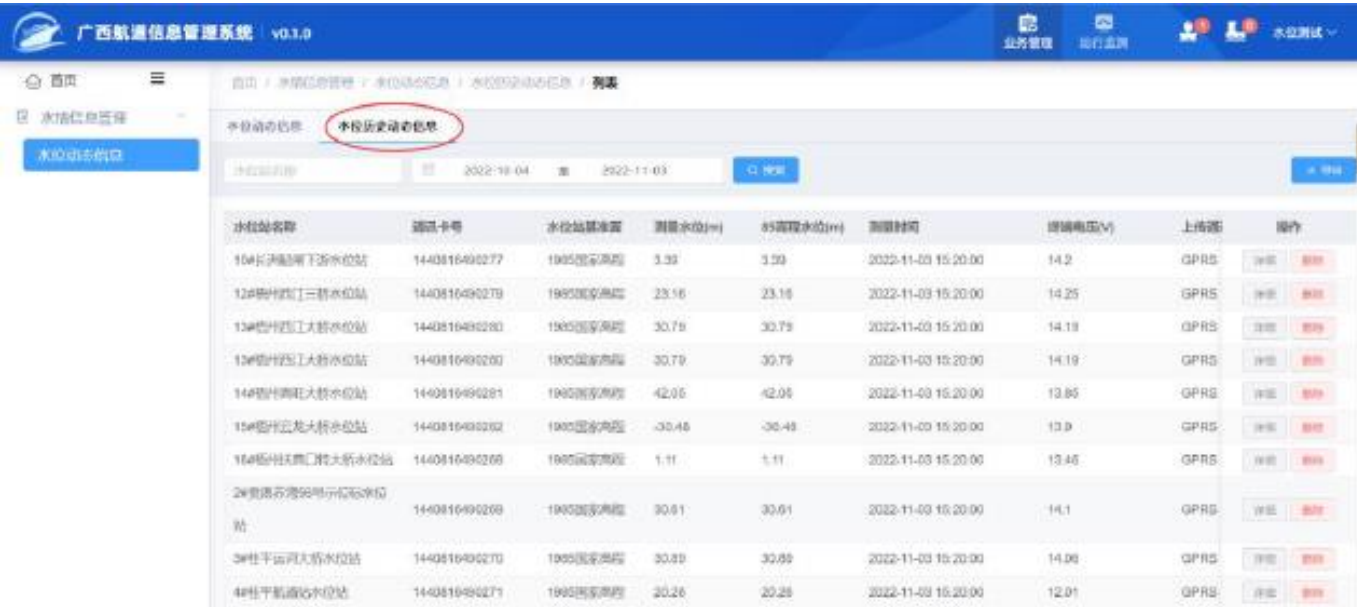


## 2. Cases share - Water flow monitoring in River channels in Guangxi

Radar type Water elevation devices installation



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



广西航道信息管理系统 v0.1.0

水位历史数据表

水位站名称	站号	水位站基准面	测量水位(m)	85高程水位(m)	测量时间	传输电压(V)	上传设备	操作
10#长洲船闸下泄水位站	1440816490277	1985国家高程	3.39	3.39	2022-11-03 15:20:00	14.2	GPRS	详细 删除
12#柳州三江水位站	1440816490278	1985国家高程	23.16	23.16	2022-11-03 15:20:00	14.25	GPRS	详细 删除
13#柳州三江大桥水位站	1440816490280	1985国家高程	30.79	30.79	2022-11-03 15:20:00	14.18	GPRS	详细 删除
15#柳州三江大桥水位站	1440816490280	1985国家高程	30.79	30.79	2022-11-03 15:20:00	14.19	GPRS	详细 删除
14#柳州柳江大桥水位站	1440816490281	1985国家高程	-42.05	-42.05	2022-11-03 15:20:00	13.85	GPRS	详细 删除
15#柳州江龙大桥水位站	1440816490282	1985国家高程	-30.48	-30.48	2022-11-03 15:20:00	13.9	GPRS	详细 删除
16#柳州江龙大桥水位站	1440816490288	1985国家高程	1.11	1.11	2022-11-03 15:20:00	13.45	GPRS	详细 删除
2#贵港石塘岭水位站	1440816490289	1985国家高程	30.81	30.81	2022-11-03 15:20:00	14.1	GPRS	详细 删除
3#桂平运河大桥水位站	1440816490270	1985国家高程	30.89	30.89	2022-11-03 15:20:00	14.06	GPRS	详细 删除
4#桂平航运大桥水位站	1440816490271	1985国家高程	20.26	20.26	2022-11-03 15:20:00	12.01	GPRS	详细 删除

Water level table

Water level diagram





THANK YOU !