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Shipwreck survey

Budapest



In November 2019, a NORBIT team completed a bathymetric and FLS sonar survey around the barge wreck.

- System used: NORBIT iWBMS and WBMS FLS
- Systems were mounted parallel on one pole
- Platform: RHIB vessel
- RTK used during the survey via cell phone





Liberty (former Ferenc József) Bridge during reconstruction

Image credit: welovebudapest.hu

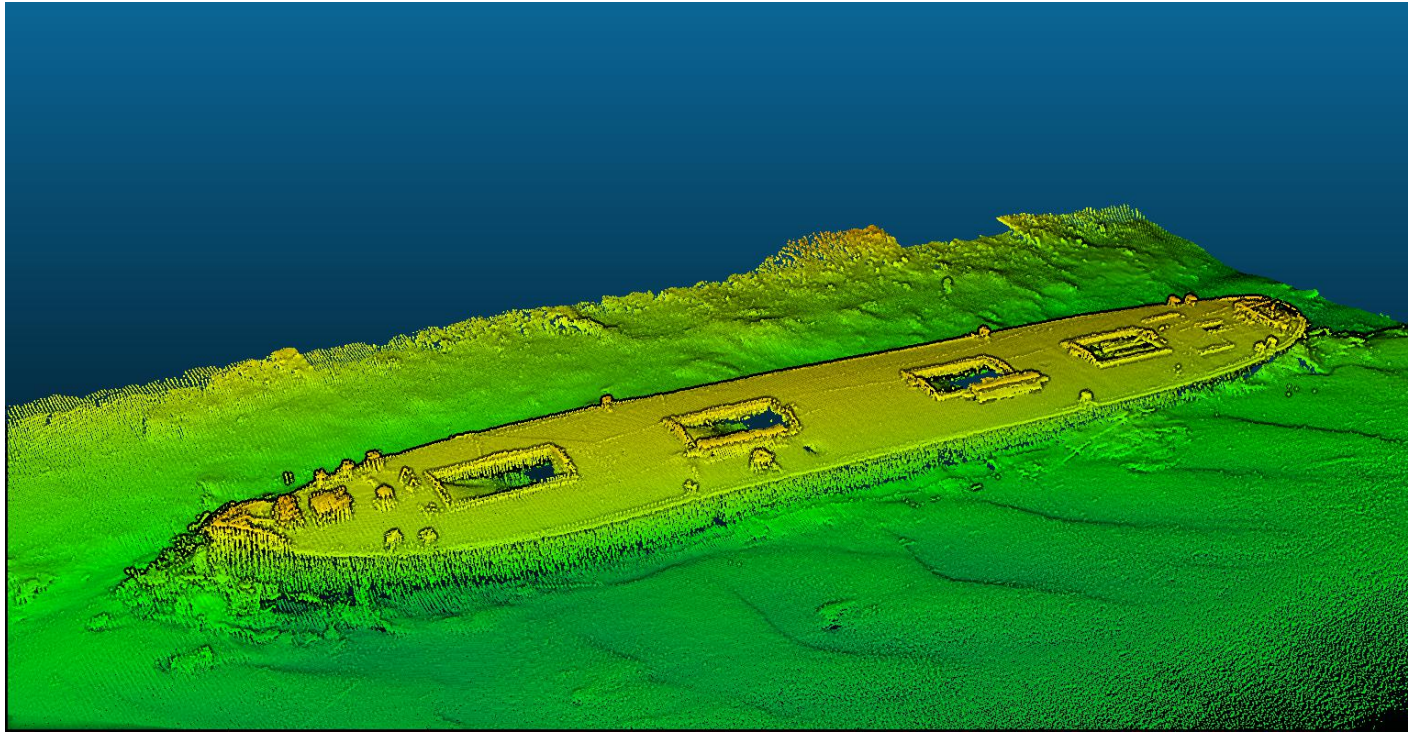
Ferenc József bridge was blown up by retreating German troops in 1945. The central section of the bridge which had been blown up, was rebuilt and reopened in August 1946, with the new name Liberty bridge. Barges were used to bring in logs for the construction. A barge sank during the construction period and was left on the riverbed.

The dismantling of the sunken barge was planned as early as 1948, however, the authorities never considered the issue to be important, especially since no one had ever been able to prove that the cargo of the barge sitting outside the main river fairway, was dangerous, hence the wreck was left alone.



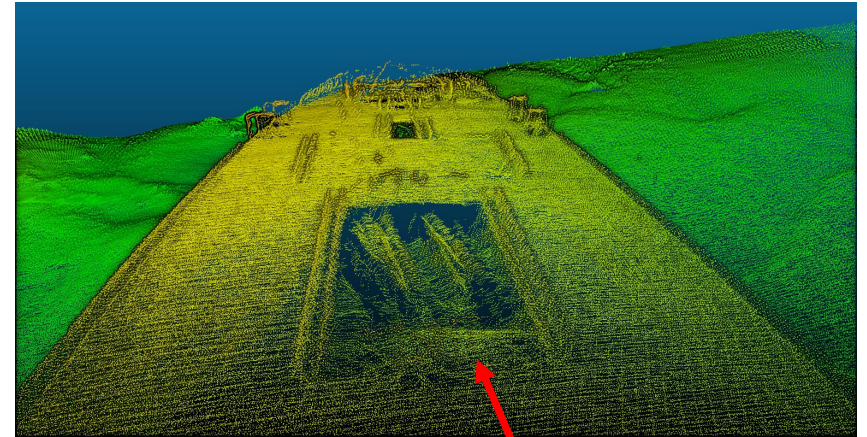
Liberty (former Ferenc József) Bridge with the sunken barge

In 2004 a diver claims that a barge is under water at Belgrade Quay, with up to seven hundred tons of ammunition aboard.



iWBMS multibeam bathymetry - sonar data – 400kHz

- The Hungarian Defense Forces, with fifty people, including twenty divers, and two de-mining boats, took part in an action organized by the Defense Forces, to investigate the barge.
- Divers found mud in the middle of the barge and thought it might contain bombs or ammunition.
- The underwater investigation also included photos and video footage of the Army divers, who also exposed a large wooden pole from the ship. From what the divers saw, it was easy to imagine that the first diver might have looked at logs and debris, which could have resembled ammunition in the muddy water.



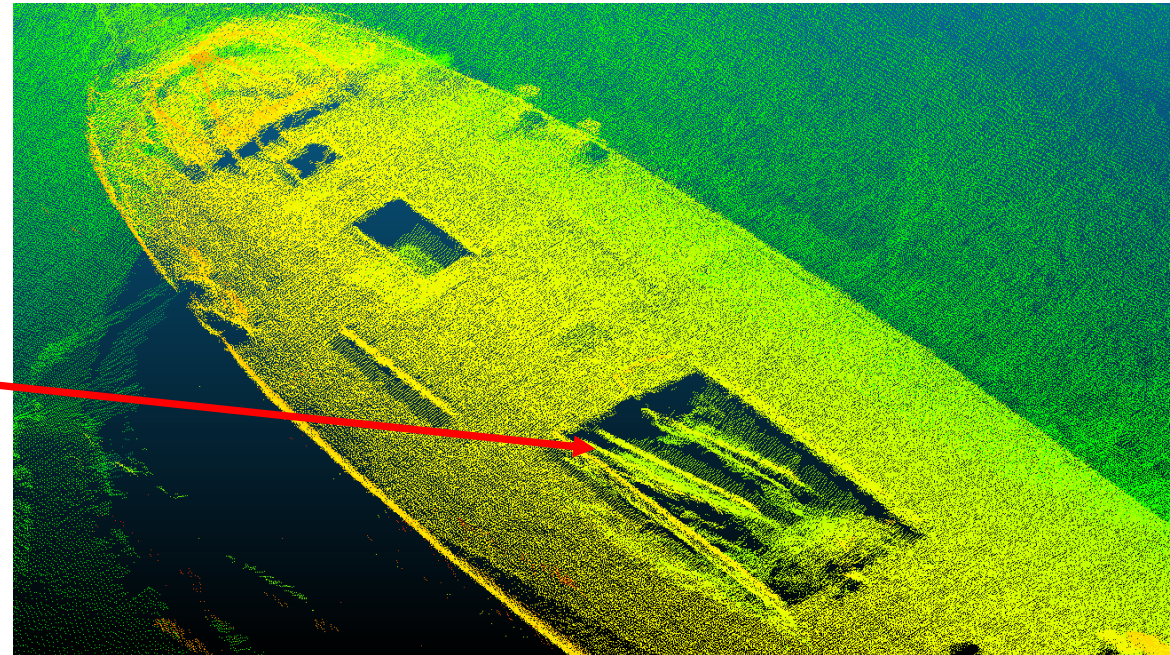
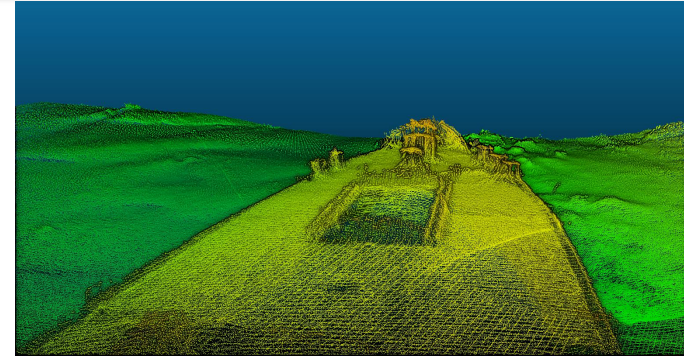
Logs inside the hull are visible on the bathymetric image

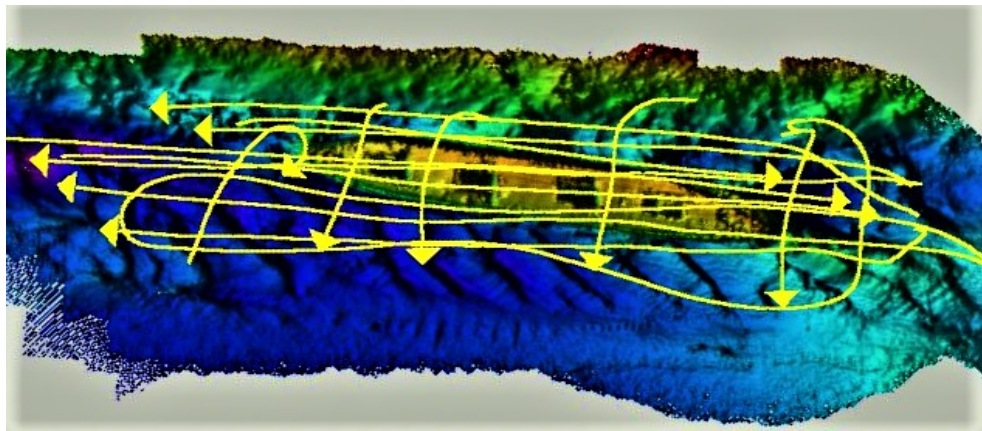
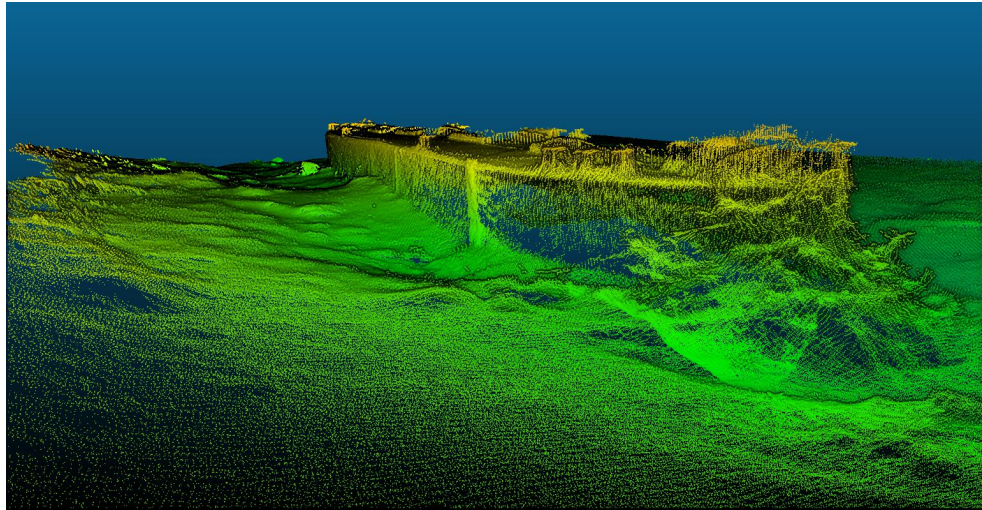


Cargo material and divers during recovery Image credit: index.hu

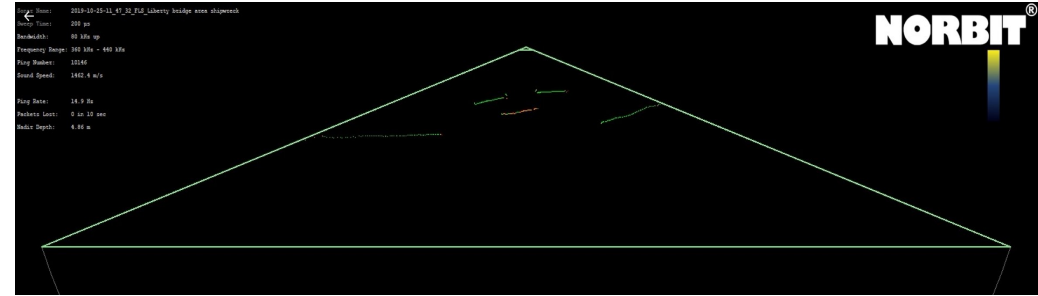


Logs visible in bathy data

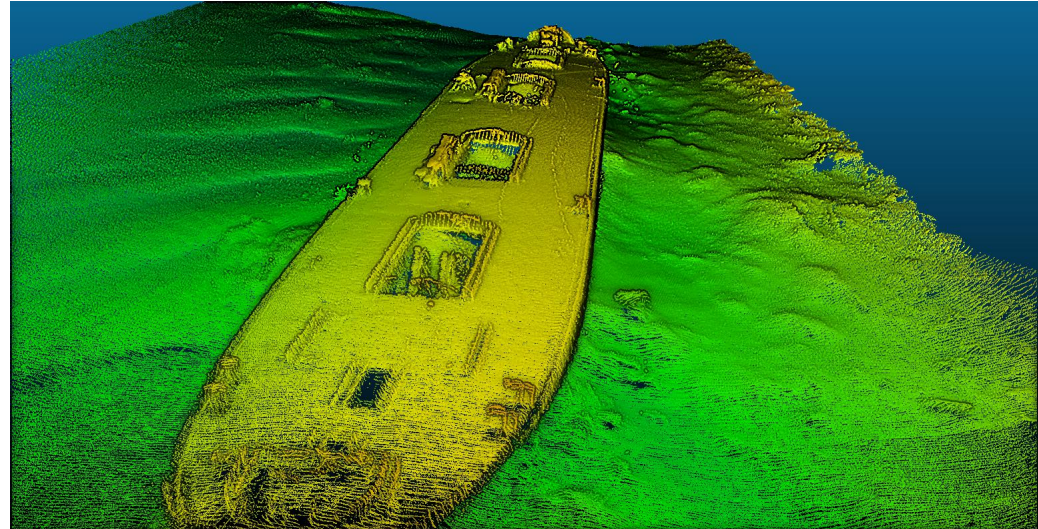




Survey was conducted along parallel and perpendicular lines



GUI – bottom detections on cargo door openings



Advanced Settings

Start Range: 5 m

Stop Range: 20 m

Opening Angle: 120.0°

Direction: 0°

Focus Distance: 13 m

Sound Speed: 1500.0 m/s

Sonar Orientation: 0.0°

Resolution: High

Grid: Arcs And Radial

Flip Image:

Temporal Median:

Set Recording Area ...

Options ... Connection ...

Tx Pulse Settings

Frequency: 400 kHz

Mode: FM Short range

Resolution: 0.9 cm

Ping Rate: Ext. Trigger

Pulse Amplitude: 10

Motion Detection

TVG Controls

Apply TVG:

Static Gain: 91.0 dB

Spreading: 0

Absorption: 126 dB/km

Presets

Sonar: Bathymetry SS WK SN Roll Sta Version: 10.4 FW: 5.2

INS: Status Health Fault Logging Air At Isk Re GN Pri Becor NTRIP Cls

Sonar Name: #24003-4-abdboa_#1927

Sweep Time: 200 µs

Bandwidth: 80 kHz up

Frequency Range: 360 kHz - 440 kHz

Ping Number: 16278

Sound Speed: 1462.4 m/s

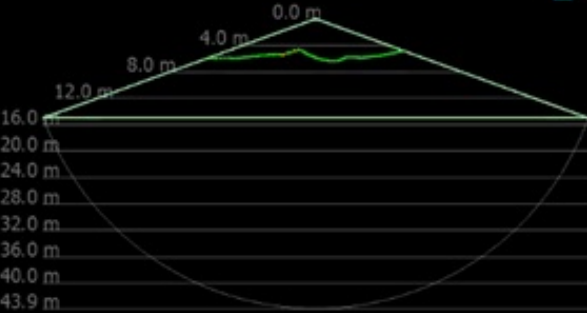
Fri, 25.10.2019 09:55:44

Ping Rate: 14.9 Hz

Packets Lost: 0 in 10 sec

Nadir Depth: 5.88 m

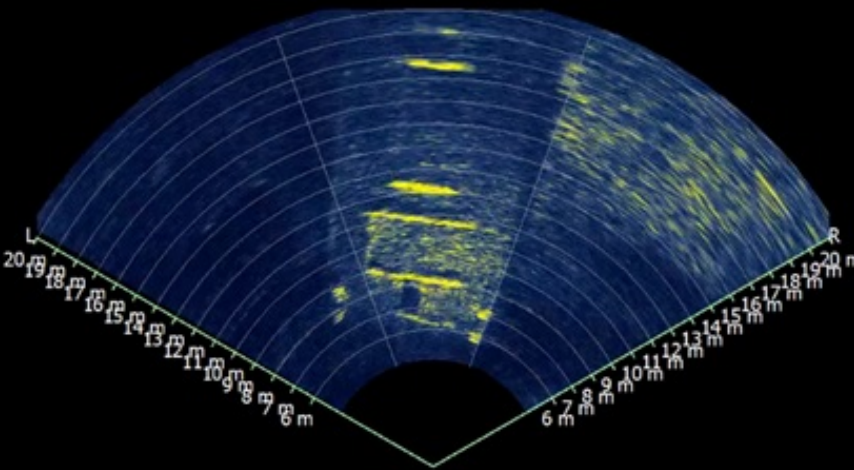
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[RECORDING]

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Sonar Name: #24002-5-AGDAFF_#1773

Sweep Time: 200 µs

Bandwidth: 80 kHz up

Frequency Range: 360 kHz - 440 kHz

Ping Number: 15505

Frame Rate: 24.4 fps

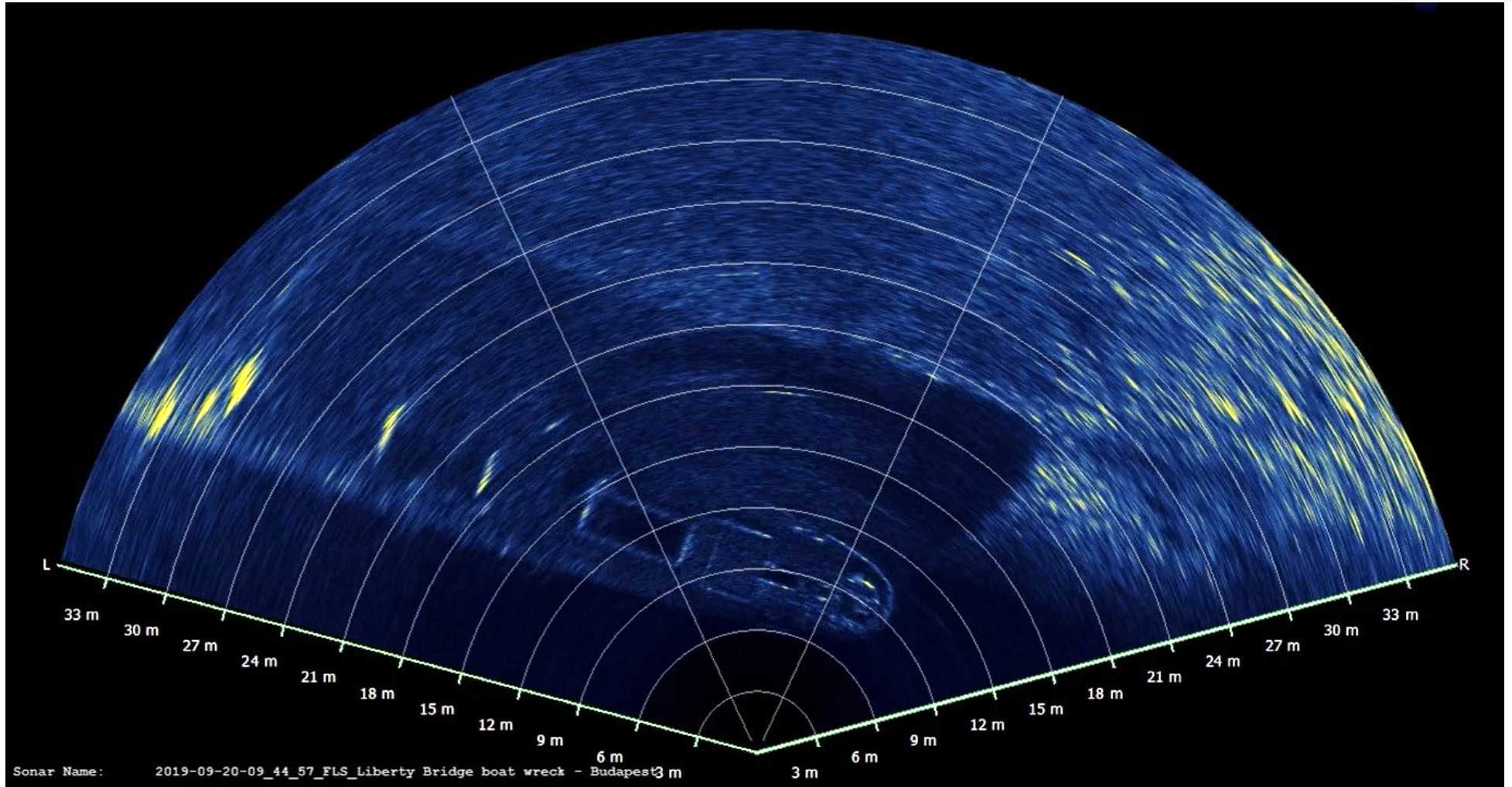
Resolution: 0.96 cm

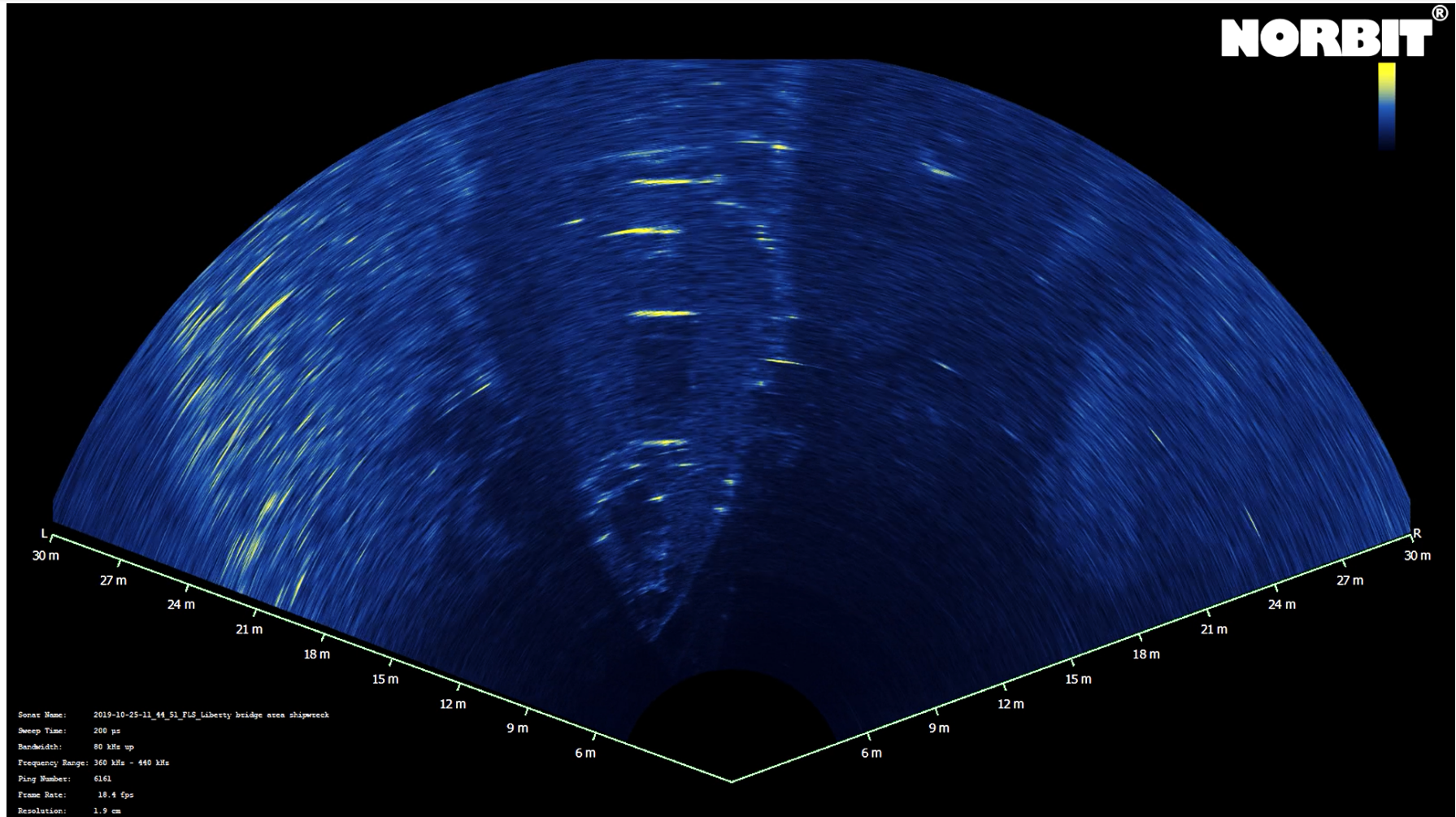
Ping Distance: 13.0 m

[RECORDING]

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NORBIT GUI in parallel usage of Bathymetry and FLS sonar





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