

3.2 多音束水深探測

依據多音束測深成果如圖 3-2 所示，船體水深最淺處位於「緯度 23 度 55 分 34.69 秒，經度 119 度 59 分 08.43 秒，深度 24.645 公尺(最低天文潮)」。其他點位資訊如表 3-1 所示。

表 3-1、點位彙整表

點號	緯度(WGS84)	經度(WGS84)	水深(m)(LAT)
最淺水深點	23-55-34.69	119-59-08.43	24.645
船尾	23-55-36.56	119-59-10.03	33.355
船頭	23-55-33.46	119-59-07.67	32.697

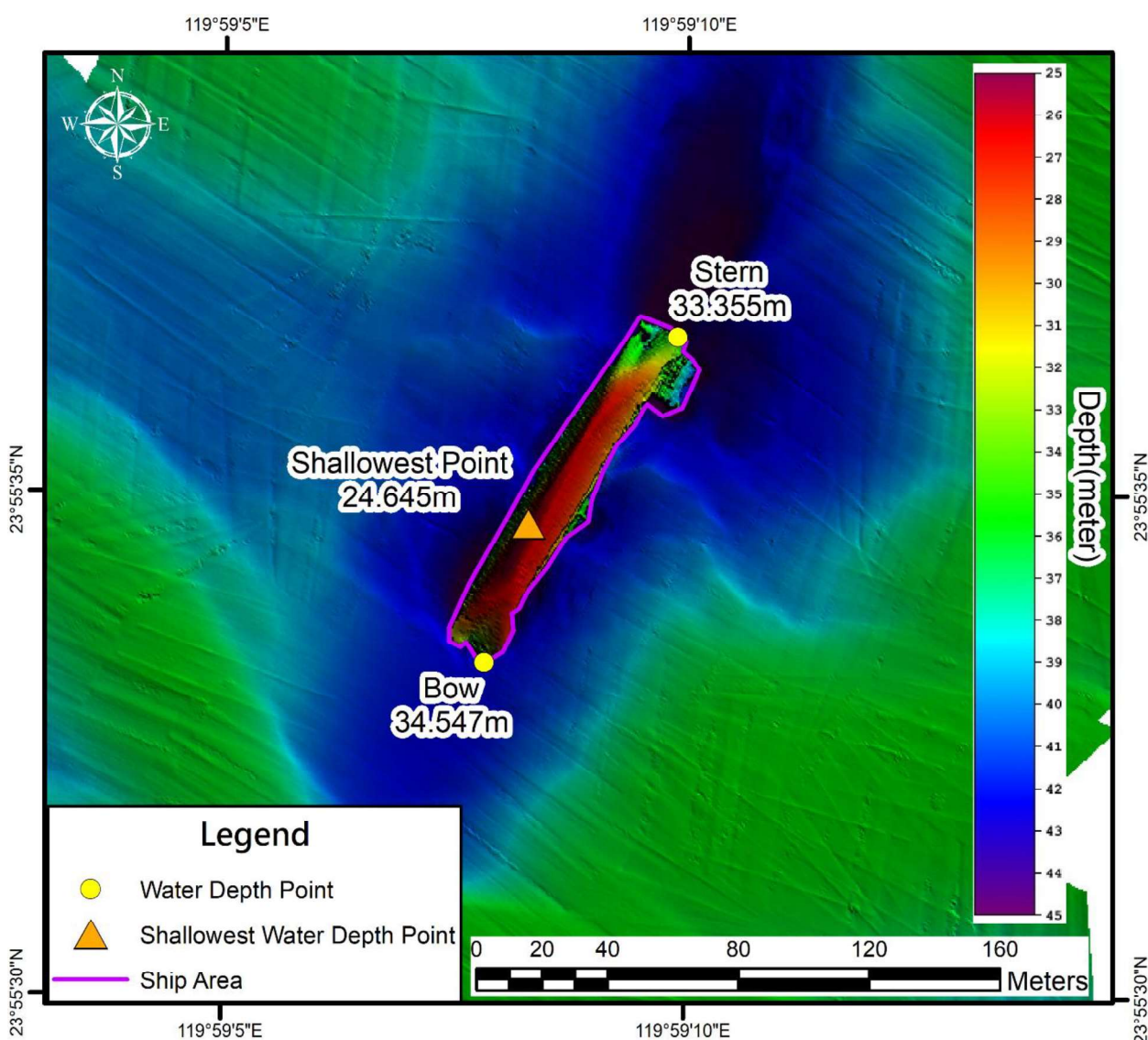
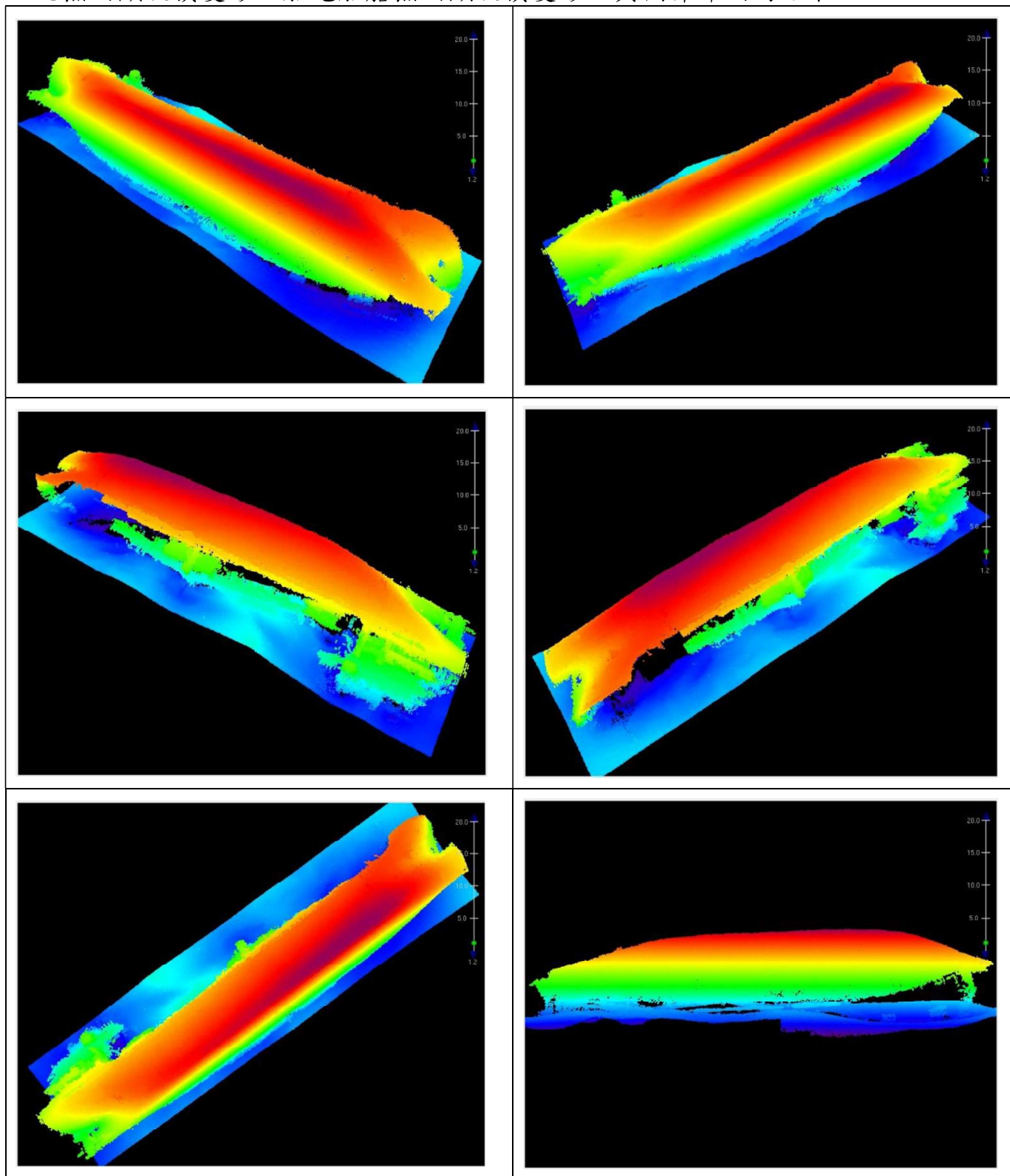


圖 3-2、最淺點水深位置圖

根據多音束水深點雲影像如圖 3-3 所示，可以判斷出船左傾斜橫躺於海床上，船艙處微微向上翹起，概略計算船體左傾約 108.1 度，後傾約 1.5 度。由點雲影像判斷，船體右舷結構完整無明顯破損或變形處，隱約可見主甲板上設

施無明顯破損變形，船尾船艙無明顯破損變形，與側掃聲納的結果一致。



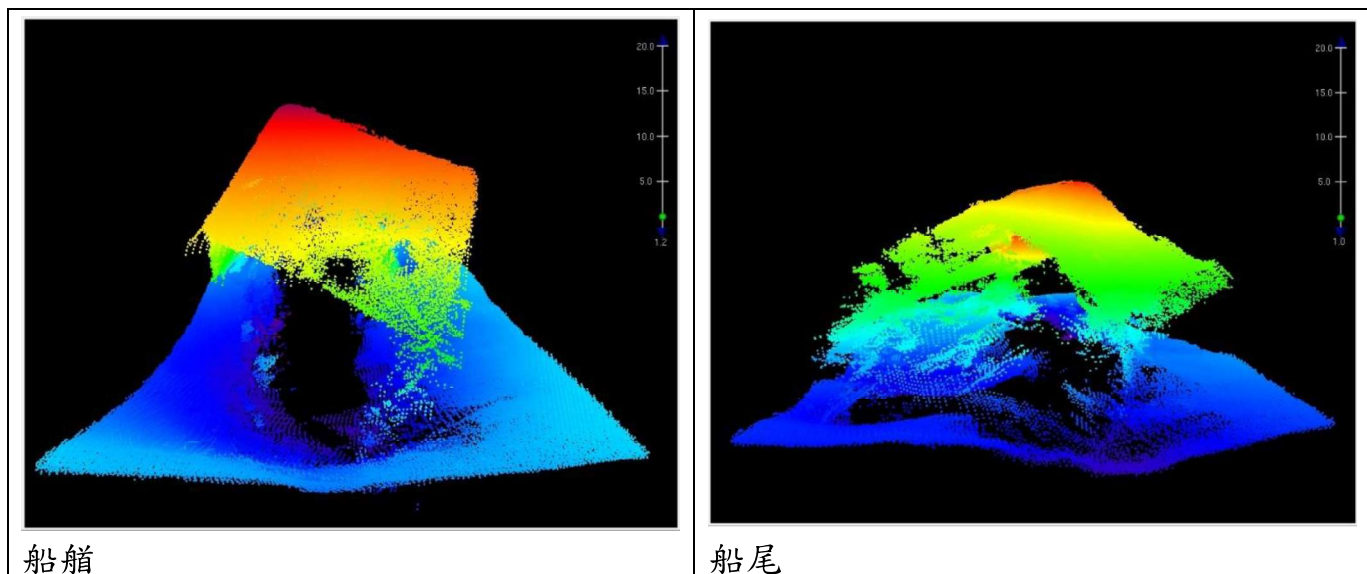


圖 3-3、多音束水深點雲影像

3.3 結論

相較行航港局公布之最淺水深約 15.393 公尺，此次測量結果顯示最淺水深約 24.645 公尺，最淺深度明顯增加，結合船體周遭地形的明顯下陷，可能代表船體隨時間有明顯的下沉。探測成果顯示船體向左傾斜超過 108 度，左舷朝下橫臥於海床上，船體整體結構完整並無明顯破損處，可以清楚辨識出船艙與主甲板上設施。船隻整體位置與公布之位置基本一致，並無移動跡象。船體周圍地貌上皆為一般地貌特徵，並無發現其他脫落的船隻殘骸。

第四章、作業日期

本次多音束測深工作於 112 年 4 月 29 日施測並完成，側掃聲納探測工作於 112 年 4 月 29 日施測並完成，主要工作時程詳表 4-1 所列

表 4-1、工作日期一覽表

項次	工作項目	工作日期	備註
1	多音束水深測量作業	112/04/29	
2	側掃聲納探測作業	112/04/29	
3	各項資料處理、分析及成果報告編撰	112/05/2~112/05/8	側掃聲納探測影像分析判讀 多音束水深資料處理 各項資料彙整撰寫測量報告

3.2 Multi-beam bathymetry surveying

According to the results of the multi-beam depth measurement shown in Figure 3-2, the shallowest point of the ship's depth is located at "latitude 23 degrees 55 minutes 34.69 seconds, longitude 119 degrees 59 minutes 08.43 seconds, depth 24.645 meters(LAT)". Other points detail show in Table 3-1.

Table 3-1 、 Point summary table

	Latitude(WGS84)	longitude(WGS84)	Depth(m)(LAT)
Shallowest point	23-55-34.69	119-59-08.43	24.645
Bow	23-55-36.56	119-59-10.03	33.355
Stern	23-55-33.46	119-59-07.67	32.697

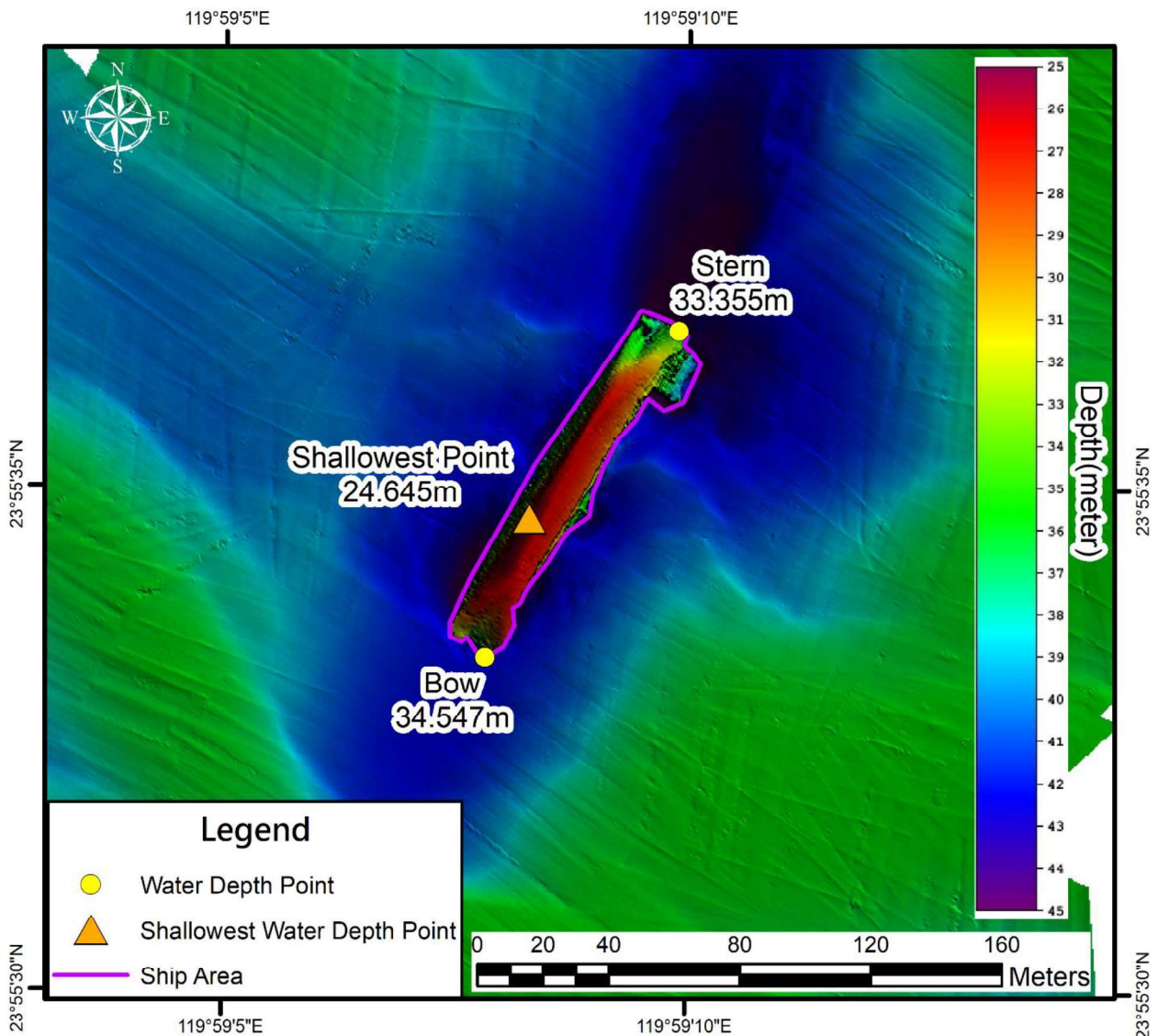
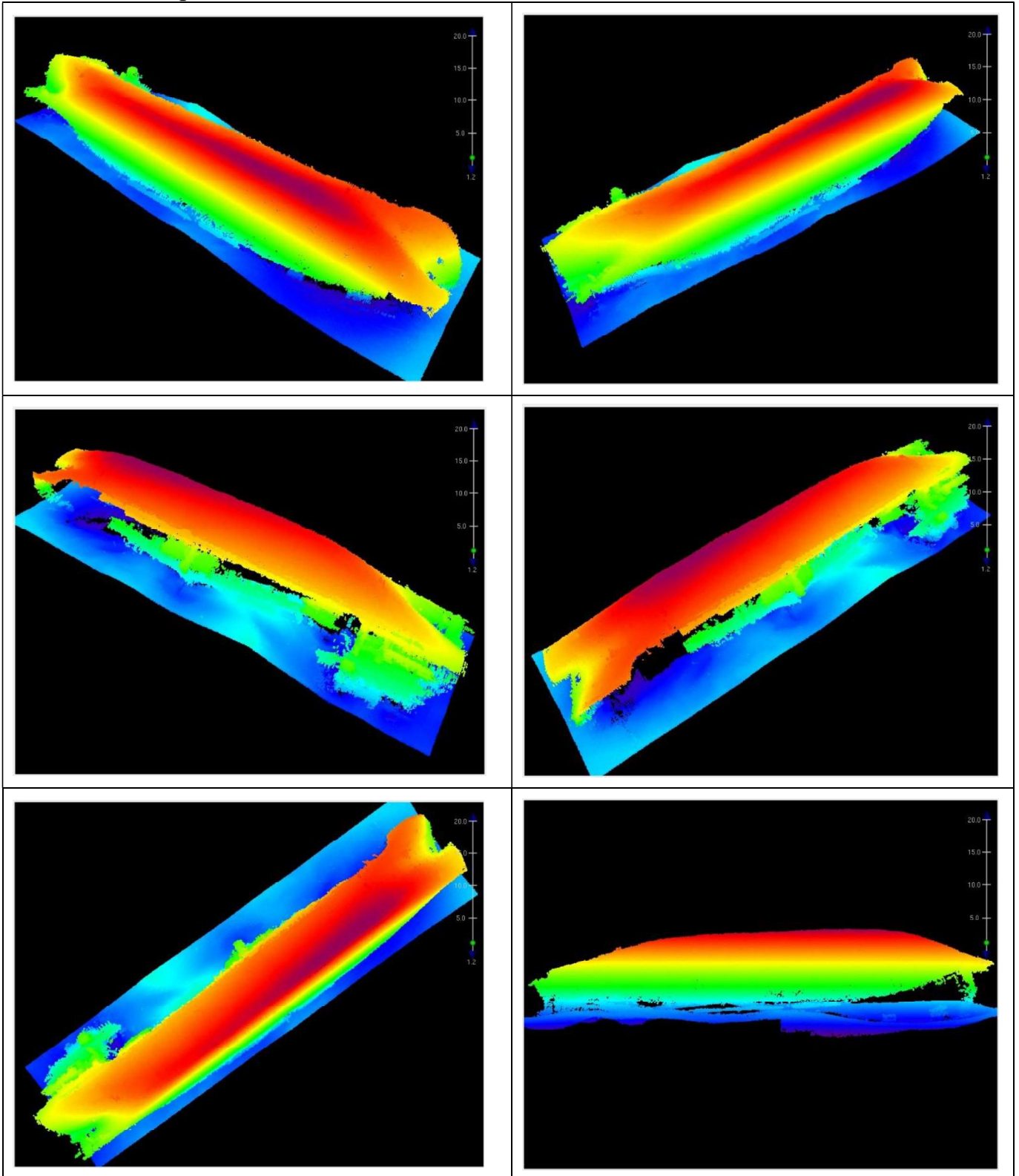


Figure 3-2 、 Shallowest Water Depth Location

According to the multi-beam depth point cloud image shown in Figure 3-3, it can be determined that the ship is tilted to the left and lying on the seabed, with the

bow slightly raised. The approximate calculation shows that the ship is tilted about 108.1 degrees to the left and about 1.5 degrees to the rear. Judging from the point cloud image, the structure on the starboard side of the ship is intact without obvious damage or deformation. The facilities on the main deck are slightly visible without obvious damage or deformation, and there is no obvious damage or deformation in the stern compartment, which is consistent with the results of the side-scan sonar.



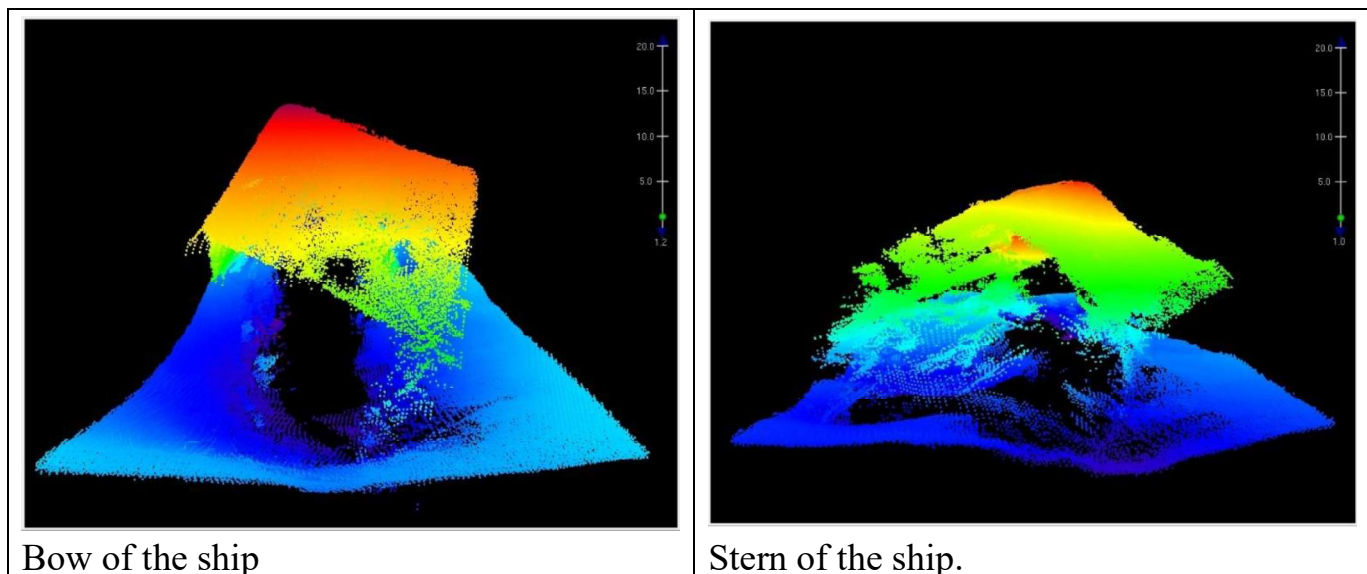


Figure 3-3 、 Multibeam bathymetric point cloud image

3.3 Conclusion

Compared to the shallowest depth of approximately 15.393 meters published by the Maritime and Port Bureau, the measurement results of this survey show a shallowest depth of approximately 24.645 meters. The shallowest depth has significantly increased, and combined with the obvious sinking of the surrounding terrain, it may indicate that the ship has significantly sunk over time. The survey results show that the ship is tilted to the left by more than 108 degrees, lying horizontally on the seabed with the port side facing downwards. The overall structure of the ship is intact without any obvious damage, and the facilities on the cabin and main deck can be clearly identified. The position of the ship as a whole is basically consistent with the published position, and there is no sign of movement. The surrounding terrain of the ship is characterized by typical features, and no other wreckage of ships has been found.

Chapter 4 Work Dates.

The multi-beam echo sounder survey work was conducted and completed on April 29, 2023. The side-scan sonar detection work was also conducted and completed on April 29, 2023. The detailed work schedule is listed in Table 4-1.

Table 4-1 、 Work Date Overview

	Work item	Work date	Remarks
1	Multibeam bathymetry survey	04/29/2023	
2	Side-scan sonar survey	04/29/2023	
3	Data processing, analysis, and report writing	05/02/2023~ 05/08/2023	Analysis and interpretation of side-scan sonar images Processing of multibeam bathymetry data Compilation and writing of survey report for all data gathered.