



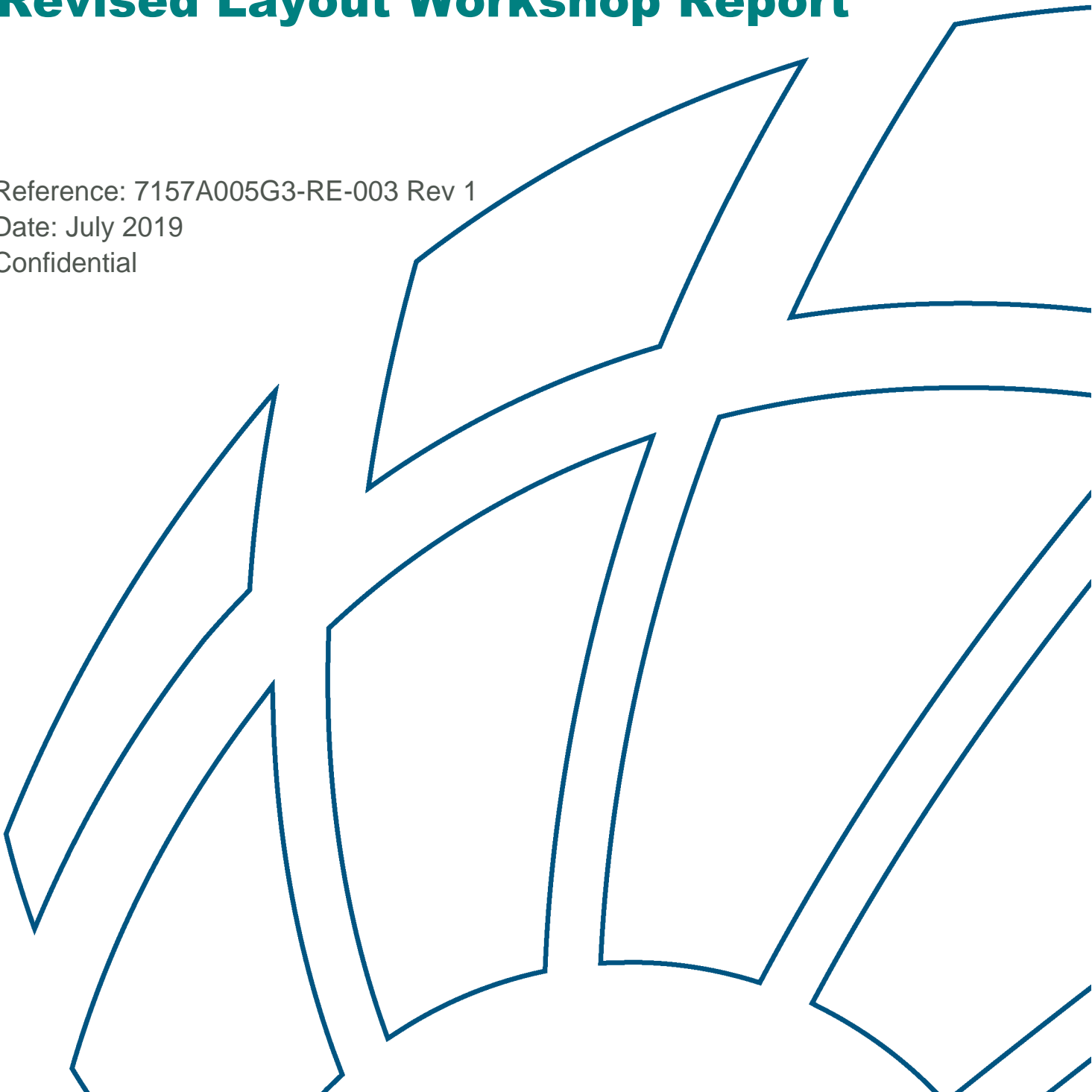
# Port Planning Consultancy for the Conceptual Master Plan of the Proposed Westports Expansion

## Revised Layout Workshop Report

Reference: 7157A005G3-RE-003 Rev 1

Date: July 2019

Confidential





# **Port Planning Consultancy for the Conceptual Master Plan of the Proposed Westports Expansion**

## **Revised Layout Workshop Report**

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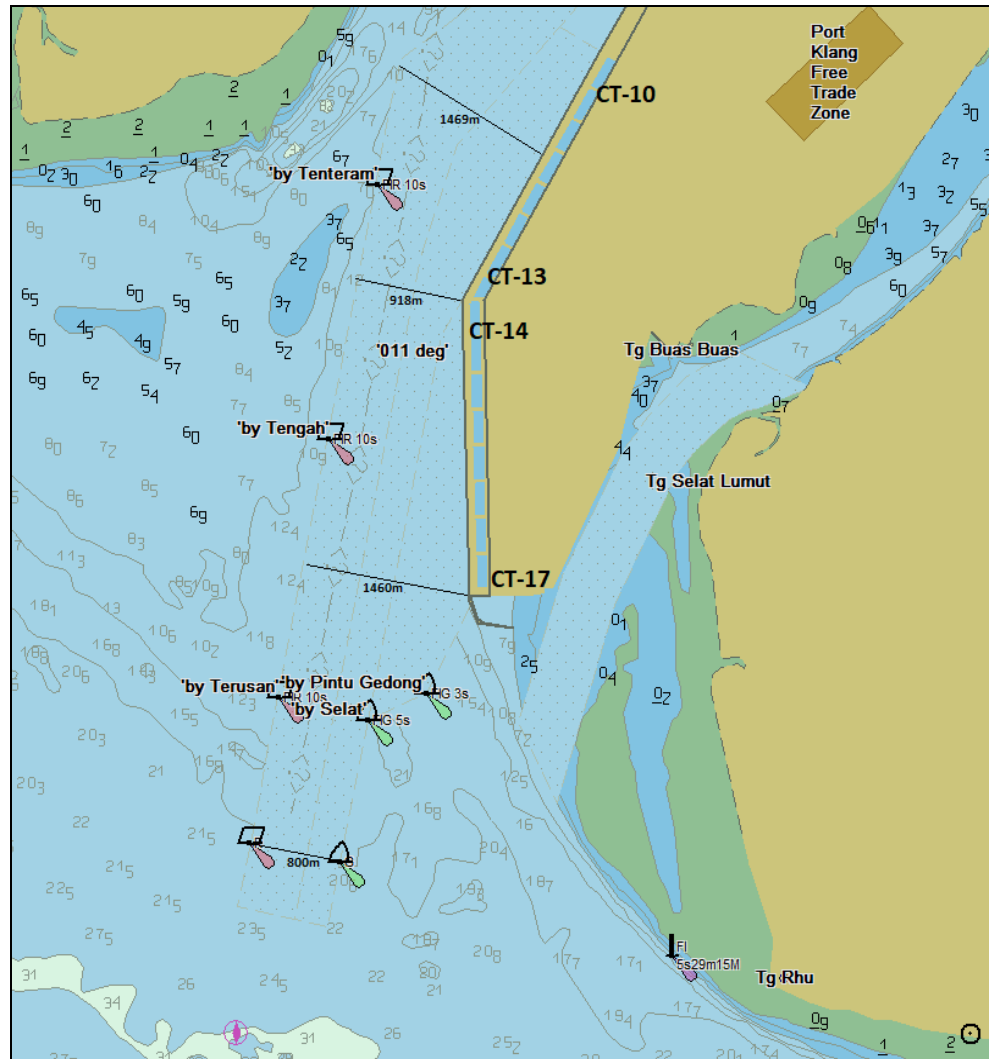
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## 1

## Introduction

Figure 1-1 Proposed buoy layout and width at different parts of the channel



After completion of the desktop simulation runs for the Alternative 2 Layout, a workshop was conducted from 20<sup>th</sup> June 2019 to 21<sup>st</sup> June 2019 at BMT's office in Kuala Lumpur, Malaysia. The workshop was to provide an introduction to PC Rembrandt, BMT's desktop simulator used in the studies conducted to date and to provide feedback on the simulation runs completed. A copy of the 66 simulation runs conducted for the Alternative 2 Layout was made available at the workshop for perusal and clarification. The completed runs also provide guidance on the conditions to be tested during the workshop.

**Figure 1-2 Rembrandt Workshop Set-Up**



## 2

### Conduct of Workshop

The participants at the workshop were the following pilots from Westports:

1. Capt Mazhazli
2. Capt Azman
3. Capt Mohd Fitri
4. Capt Nor Sad.
5. Capt Mohd Fareez
6. Capt Mahendran
7. Capt Mohd Salman

Encik Ahmad Damanhury from Westports and Ir. Murthi Silvarajin from HSSI attended a session of the workshop.



The pilots conducted selected simulation runs to assess the approaches, the transit through the channel, and berthing and unberthing situations. A debrief was conducted after each run and all run information was recorded. The runs helped the pilots assess the adequacy of the manoeuvring room available upon

completion of the full development as planned and the tug requirements. They also experimented with different techniques to manage the adverse environmental conditions that the runs were conducted in. These conditions were combinations of peak flood and ebb currents with 20 knots NE and SW winds.

### 3 Findings and Observations

Several runs were conducted during the simulation workshop to explore different techniques. Information on nine of these runs and the run reports is attached below in Section 5.

In general, the findings agreed with that of the simulation report produced earlier. These were that:

- At least two 60 tons bollard pull tugs are required for the 347m LOA, 8100 TEUs containership.
- At least four 60 tons bollard pull tugs are required for the 400m LOA, 22,000 TEUs containership.
- In addition to pilot to pilot communication, port traffic must be regulated with the Traffic Control co-ordinating and informing of vessel movements in the port.
- The pilot boarding ground will need to be shifted seaward to provide more manoeuvring room for the pilot to prepare the large vessel for a safe entry in to the South Channel.
- More runs will need to be conducted in a Full Mission Ship Simulator at a later stage.

In addition, the following were recommended:

- An AIS beacon will be useful to mark the edge of the channel off CT-13 (Run No.3)
- The dredging of the channel must be completed at the initial stage.



## 4

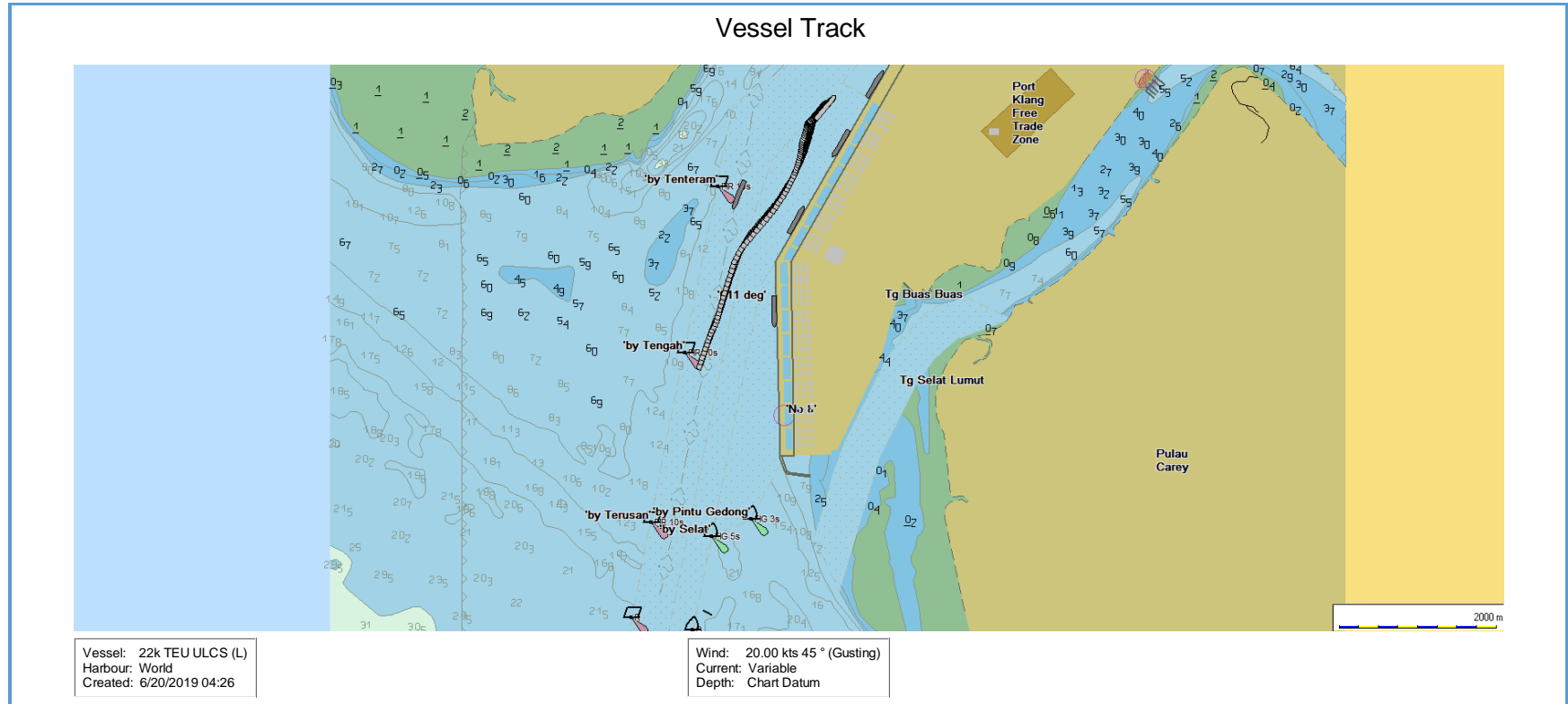
### Conclusion

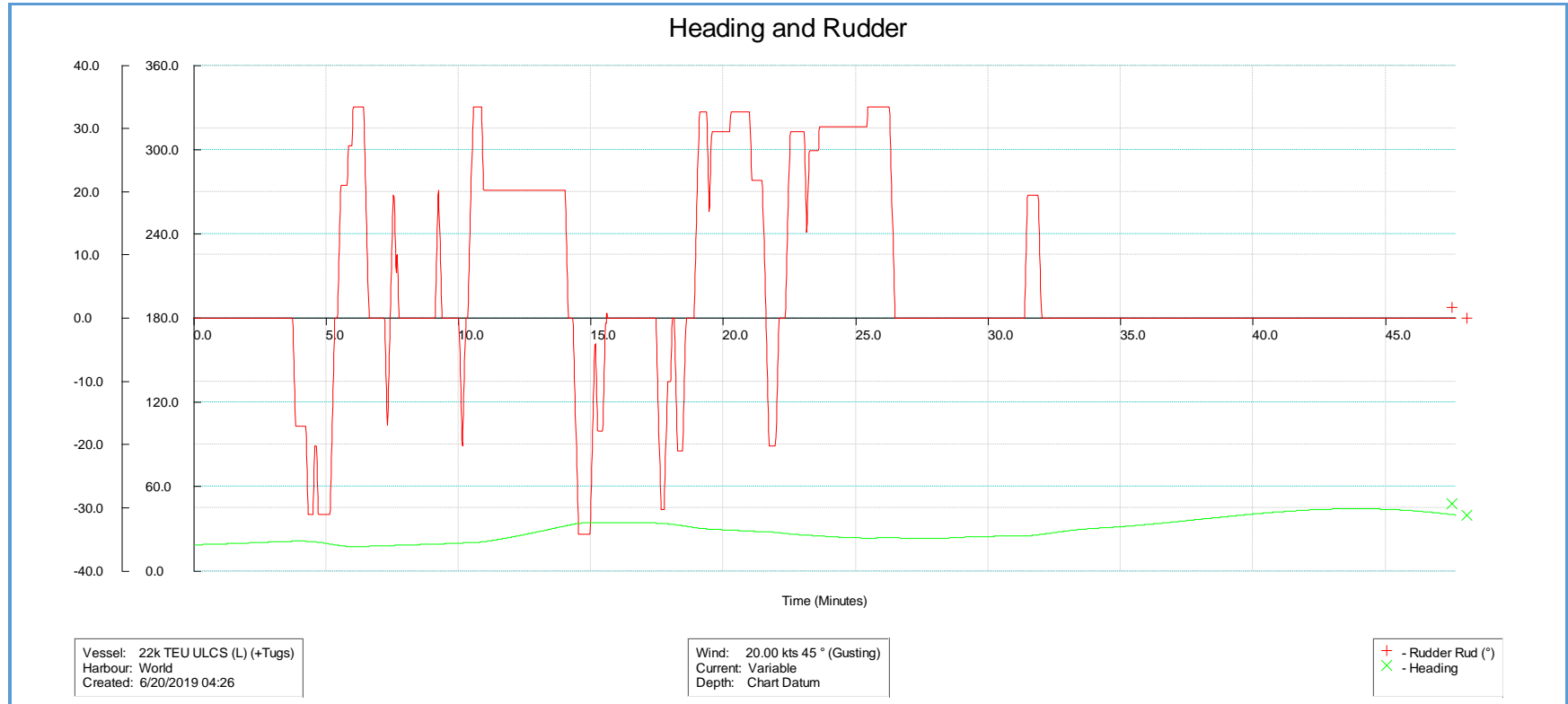
The participants at the workshop concluded that there is sufficient room in the layout of the future development for the approach, transit through the channel and for berthing and unberthing of the design vessels.

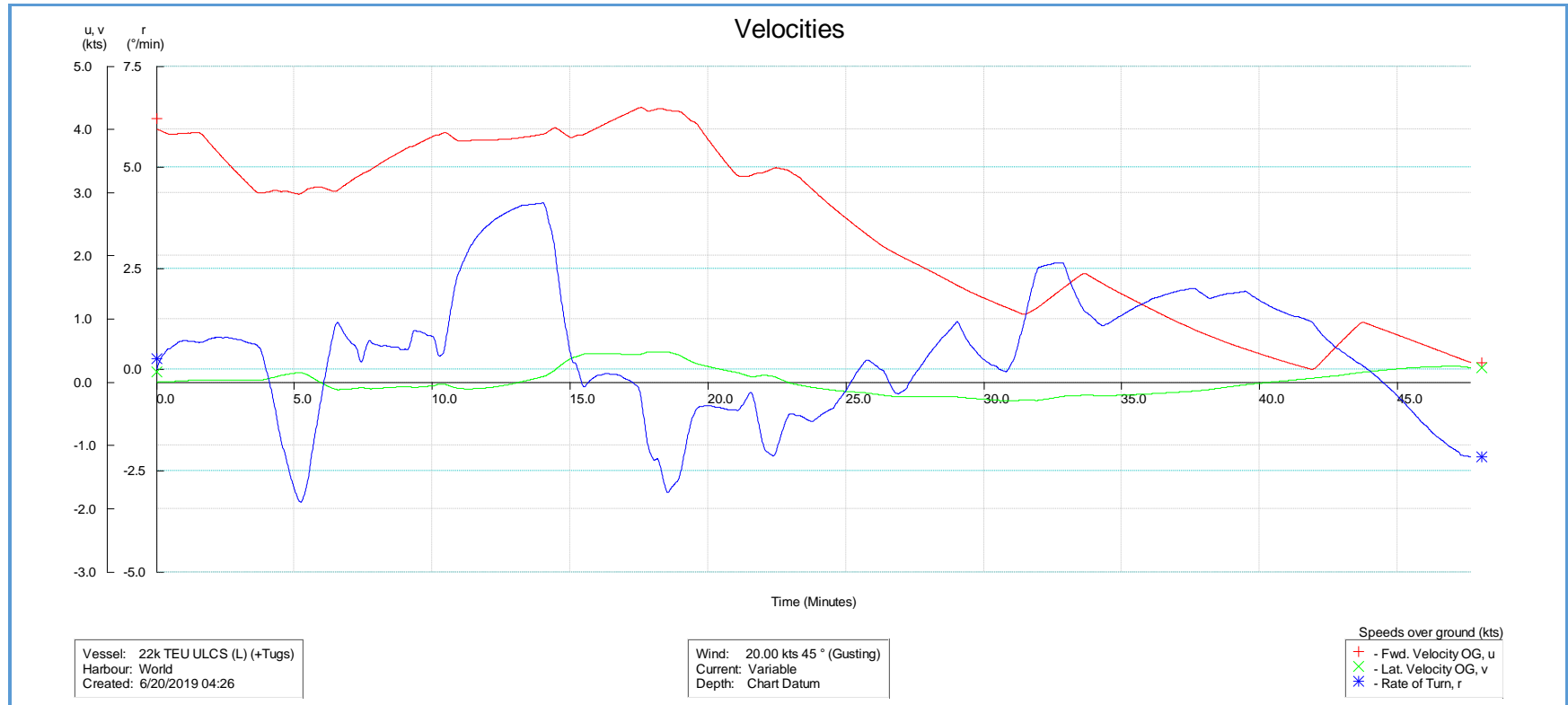
## 5

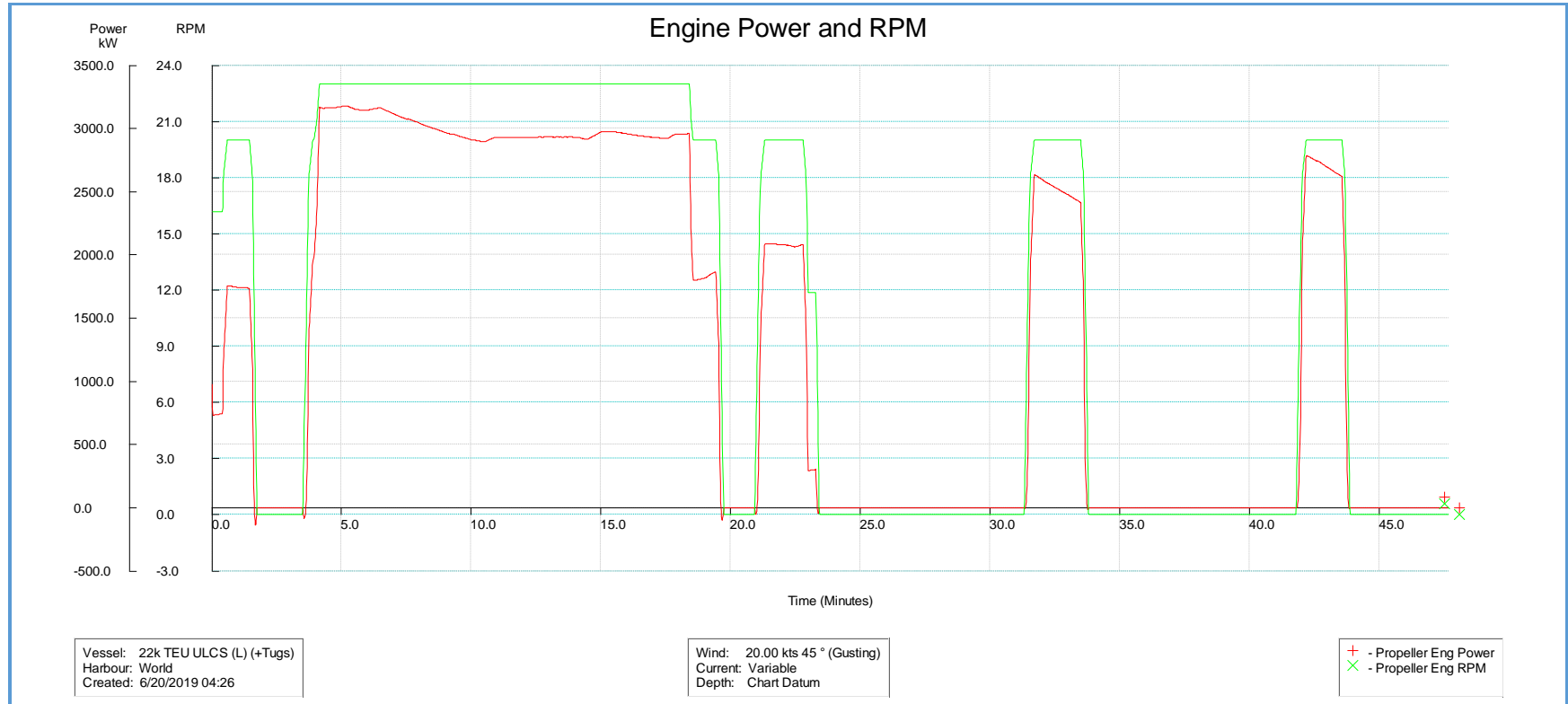
**Run Report**

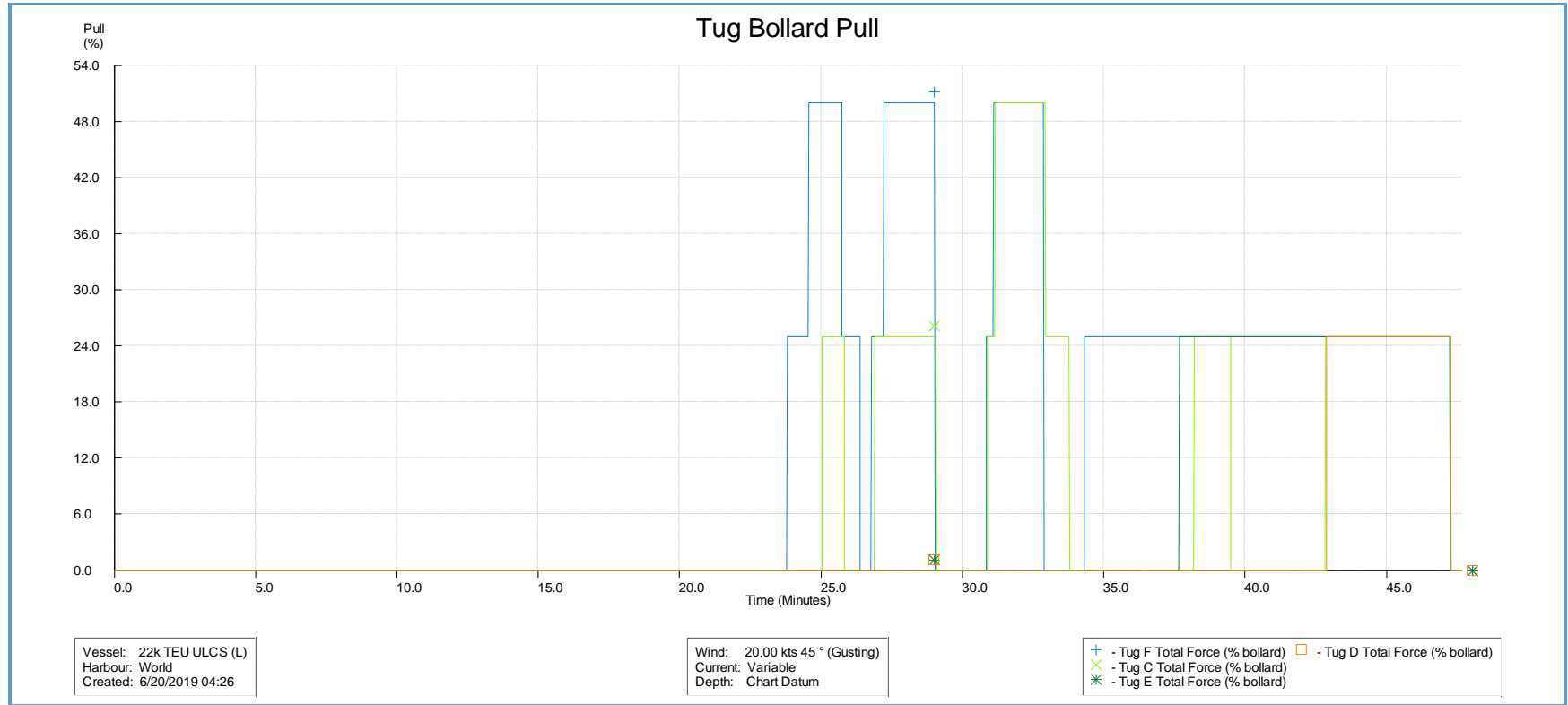
Run No. 1	NE Ebb	20 k NE Flood	SW Ebb	SW Flood	
<b>BERTH CT-10</b>					
Vessel: 22k Cont.	Green	Amber	Red		
APPROACH	X				
TRANSIT	X				
BERTHING/ <del>UNBERTHING</del>	X				
Comments	Use 4 tugs (60tons) Make fast at CT17. Tugs max. ½ Power used.				







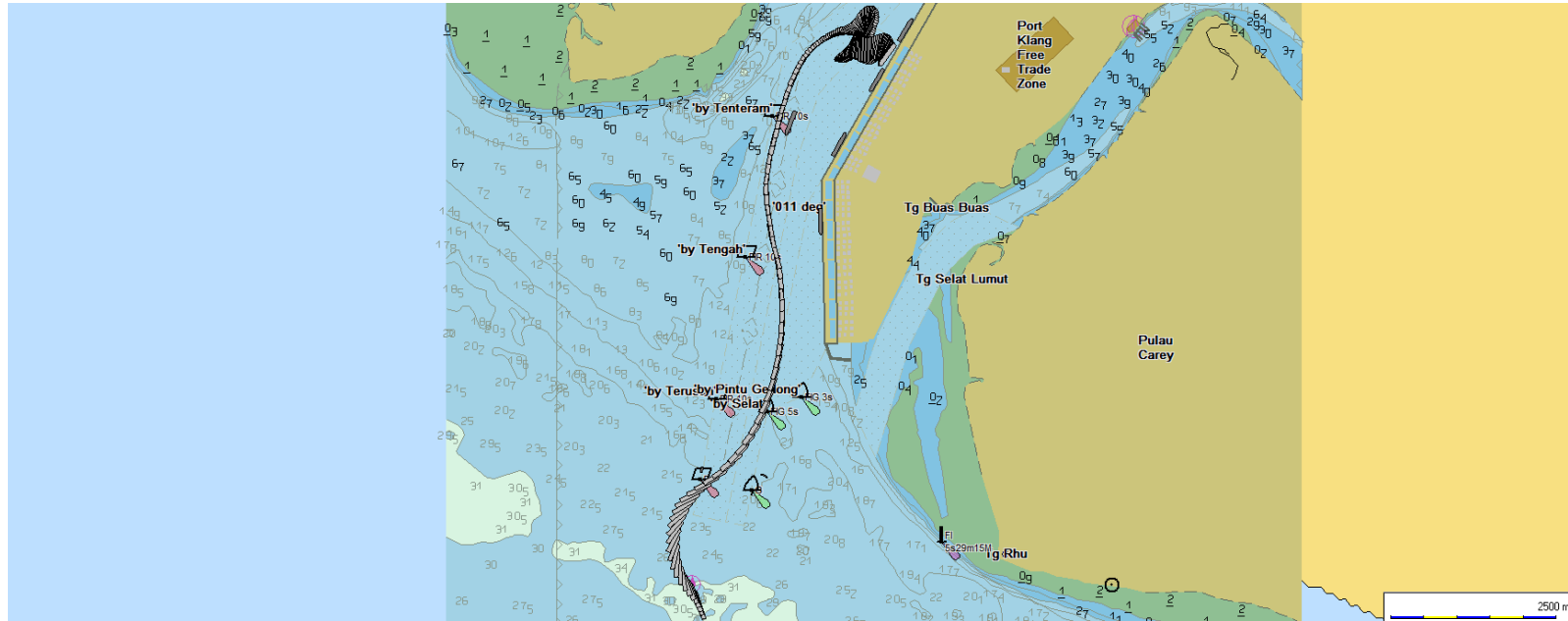




Run No. 2	20 k NE Ebb	NE Flood	SW Ebb	SW Flood	
<b>BERTH CT-10</b>					
Vessel: 22k Cont.	Green	Amber	Red		
APPROACH	X				
TRANSIT	X				
BERTHING/ <del>UNBERTHING</del>	X				
Comments	<p>Used <b>3 tugs</b>. Initially <b>two 45tons</b> and <b>one 30ton</b> tug. Found difficulty on swinging, due to strong NE winds and strong ebbing current vessel had difficulties berthing without angle (Parallel). Took total of 25 min to complete swing with two <b>60tons</b> tugs and two <b>70ton</b> tugs. (Require minimum of 60tons tug for safe operation)</p> <p>Used <b>3 x 45ton</b> tugs. Vessel was under control and able to bring alongside smoothly. (Highly recommended <b>60tons</b> tugs and above for safe berthing)</p>				

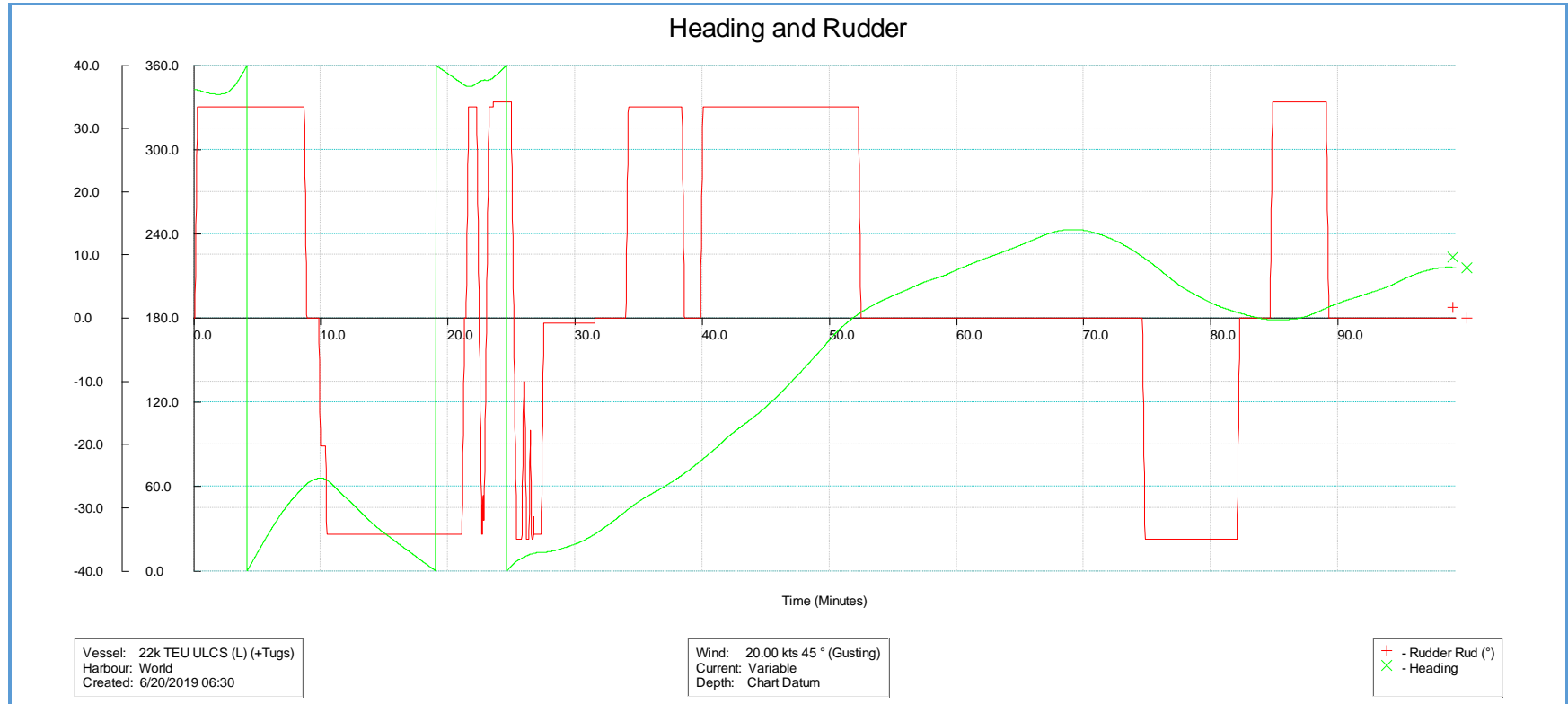


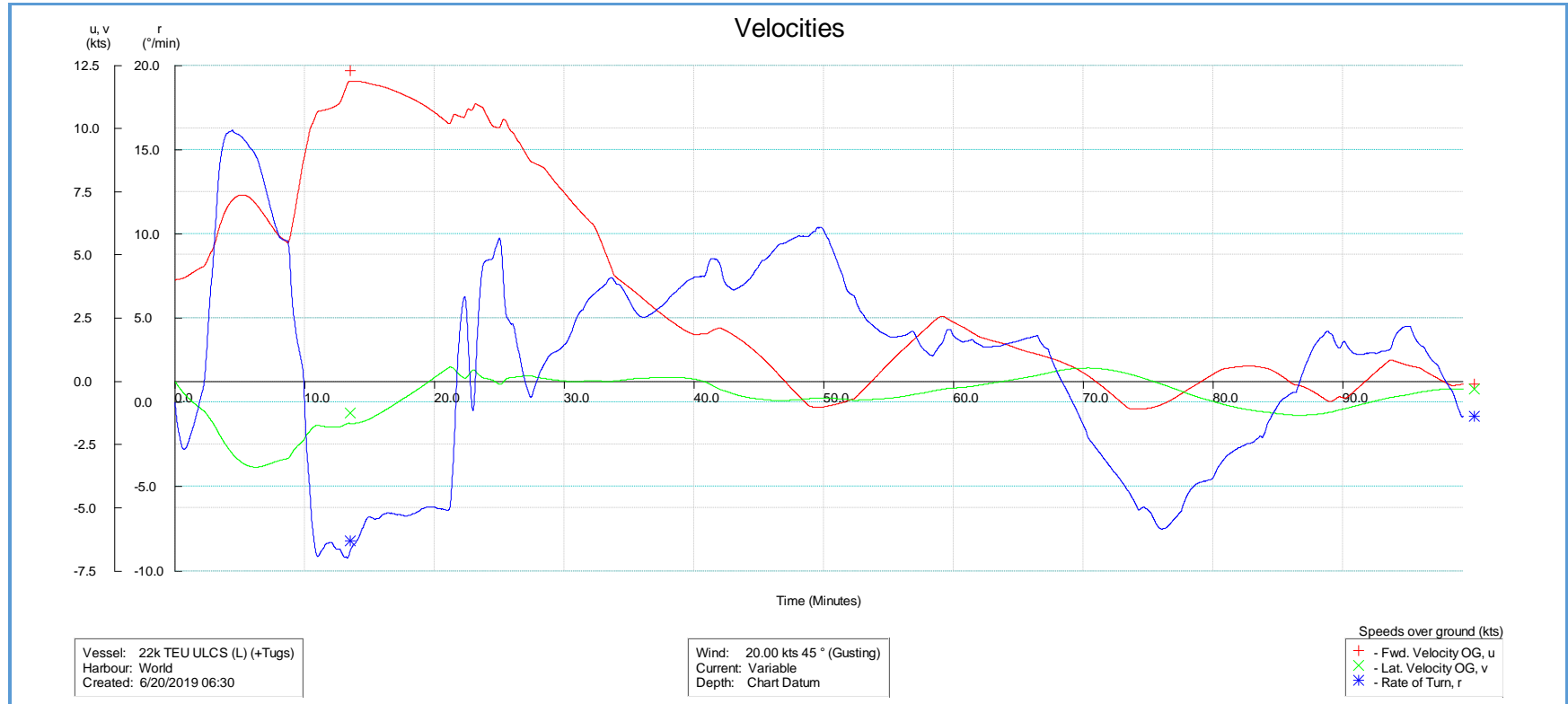
### Vessel Track

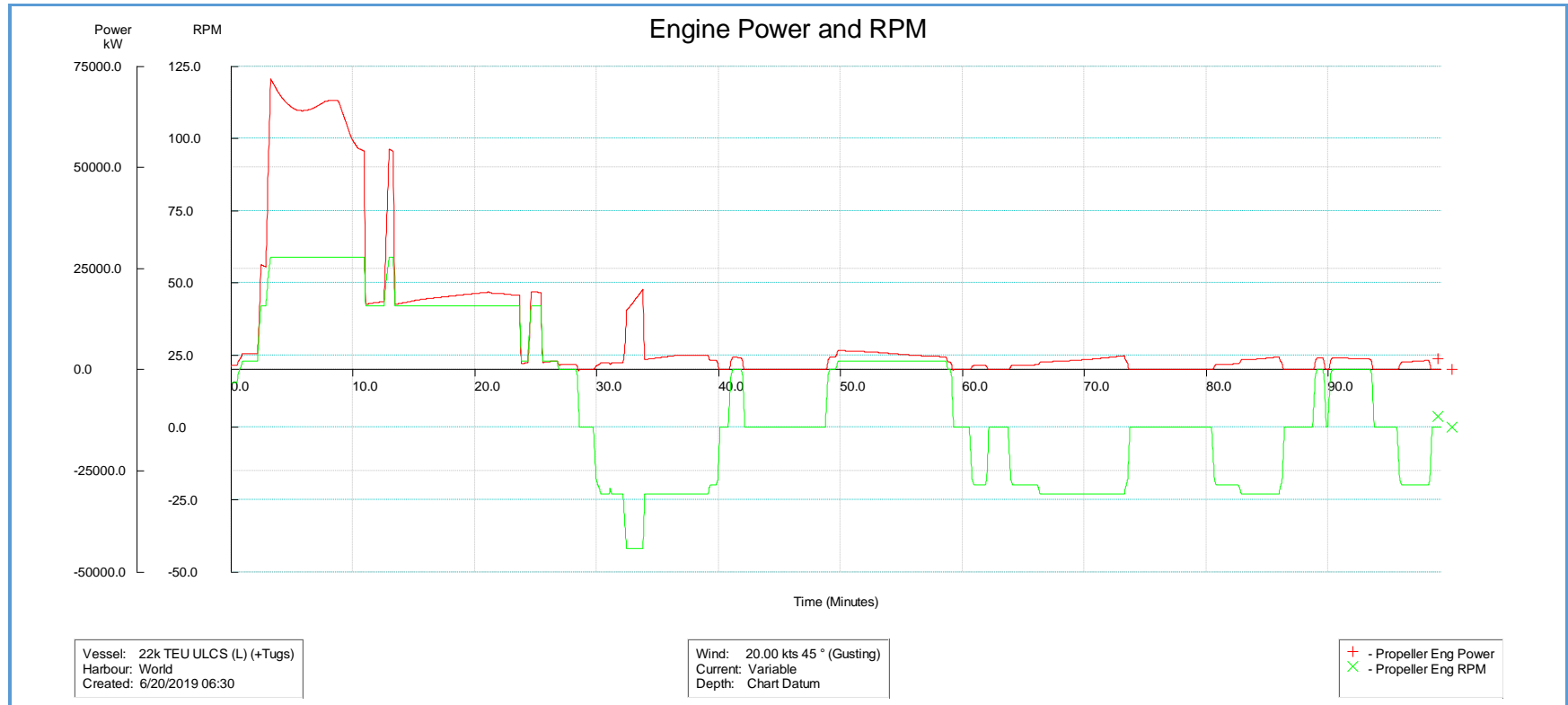


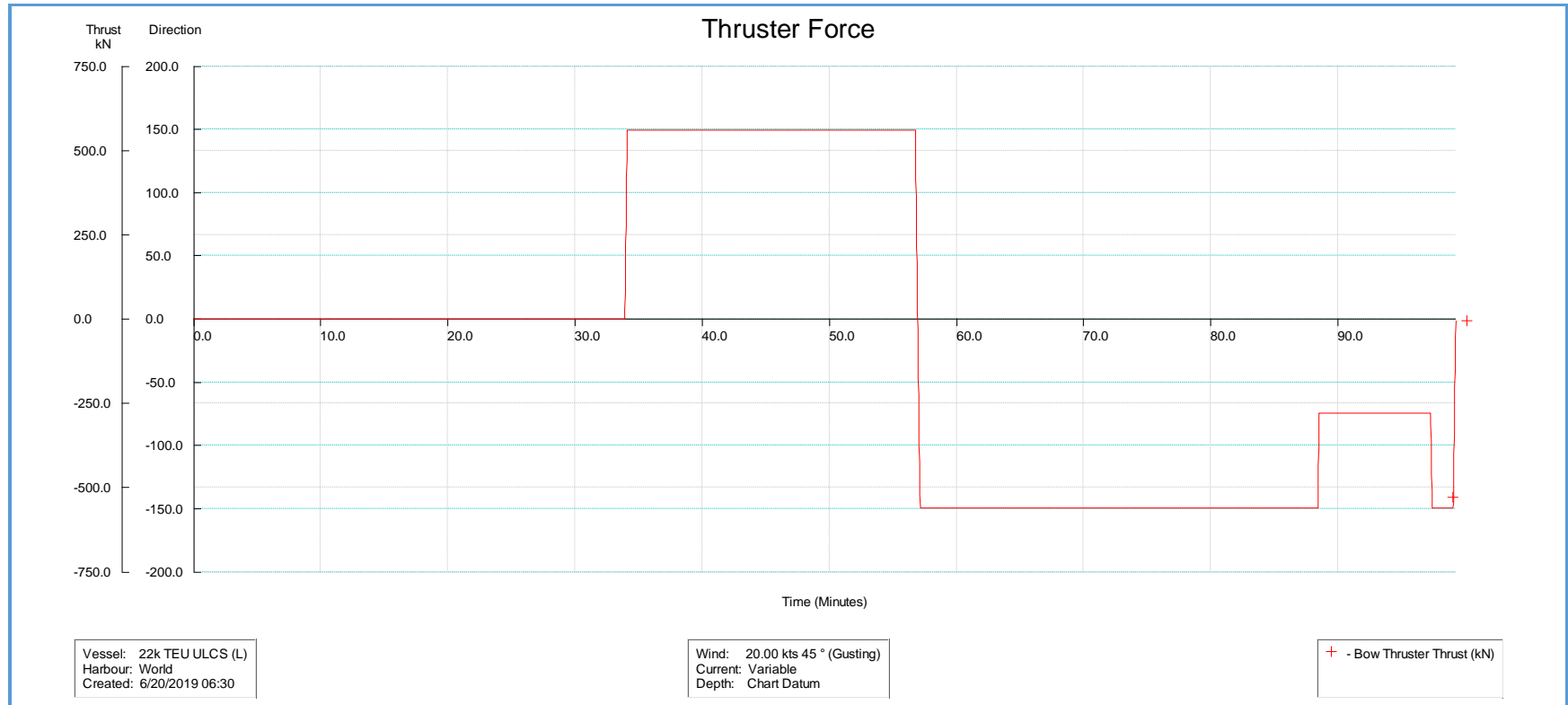
Vessel: 22k TEU ULCS (L)  
Harbour: World  
Created: 6/20/2019 06:30

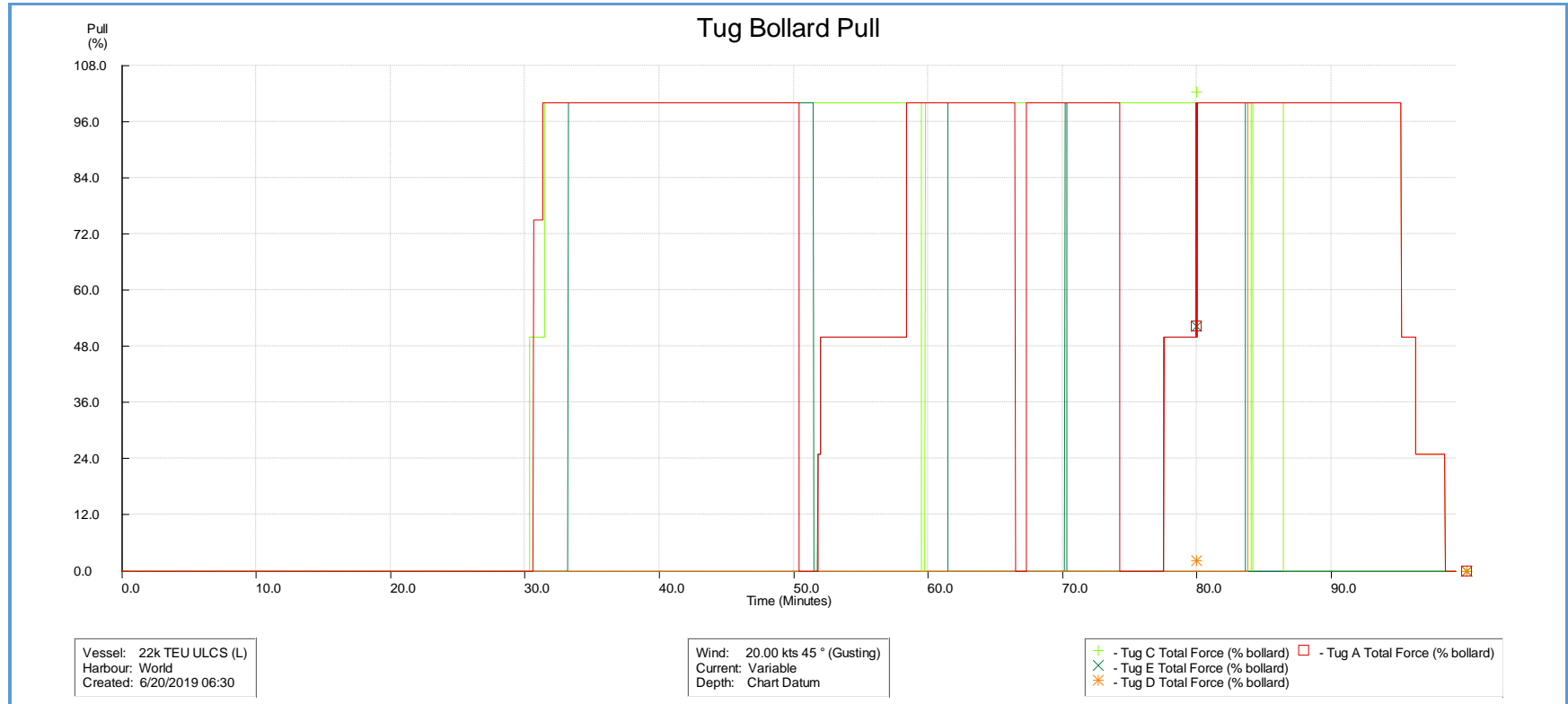
Wind: 20.00 kts 45 ° (Gusting)  
Current: Variable  
Depth: Chart Datum





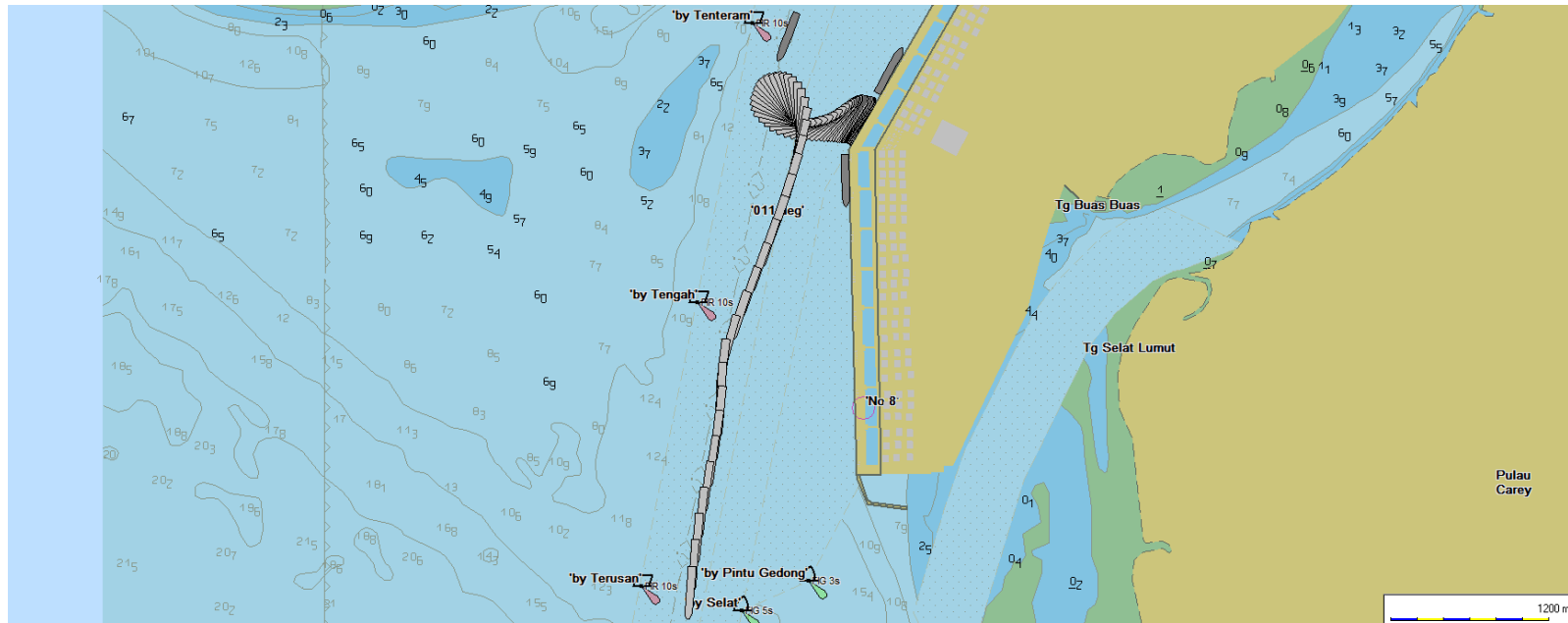






Run No.3	NE Ebb	NE Flood	SW20 Ebb	SW Flood	
<b>BERTH CT-13</b>					
Vessel: 22k Cont.	Green	Amber	Red		
APPROACH	X				
TRANSIT	X				
<del>BERTHING</del> /UNBERTHING	X				
Comments	<p>To take precaution on coming to the channel limit.(Extra caution when vsl going sternway) If vessel of above 250m arrive or depart, no other vessel movement shall be in the vicinity.</p> <p>AIS beacon to be available to warn as to coming close to channel limit.</p> <p>Vessel used four 60tons tug. Found the rate of turn to be slow. Suggestion would be to increase the tug power. A combination of 2x60 tons tugs and 2x75 tons tugs.</p>				

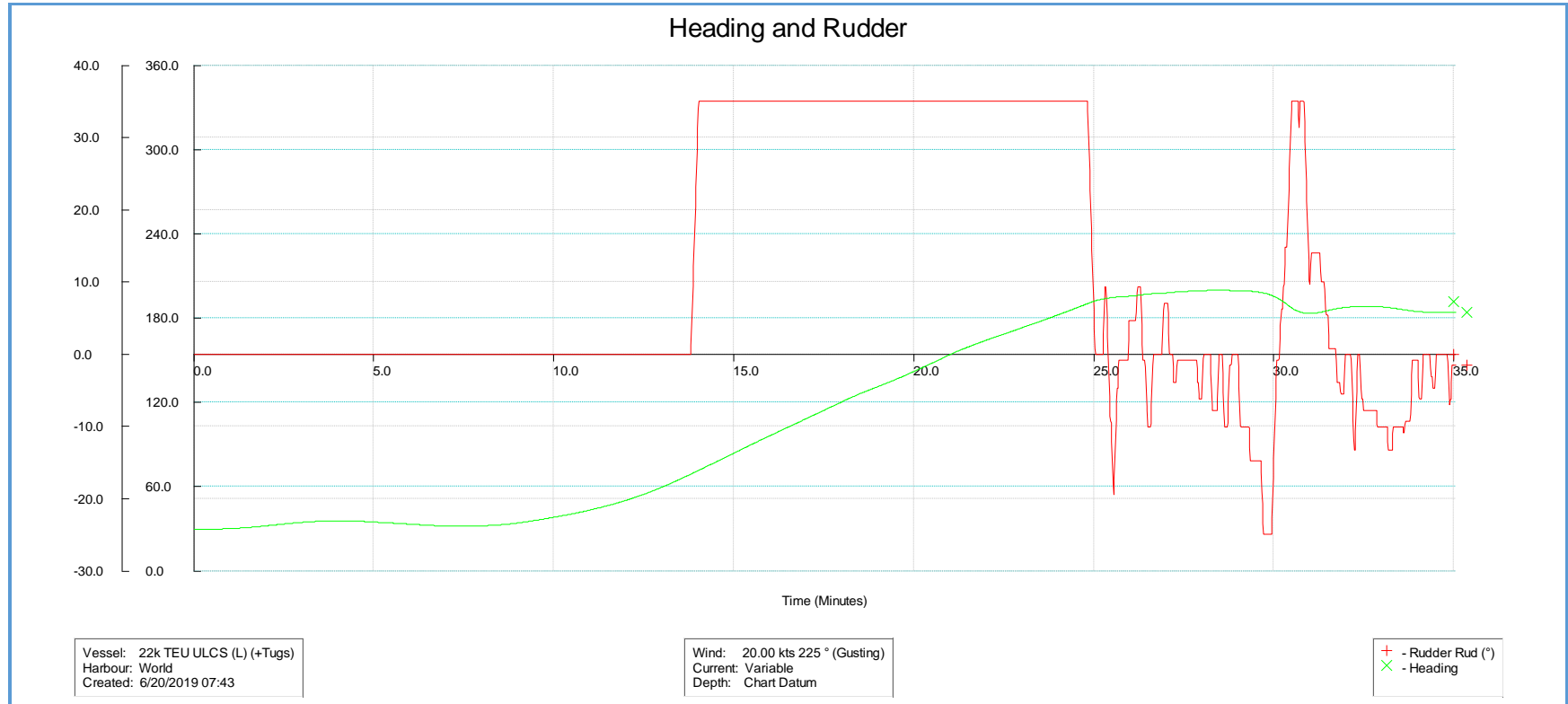
### Vessel Track

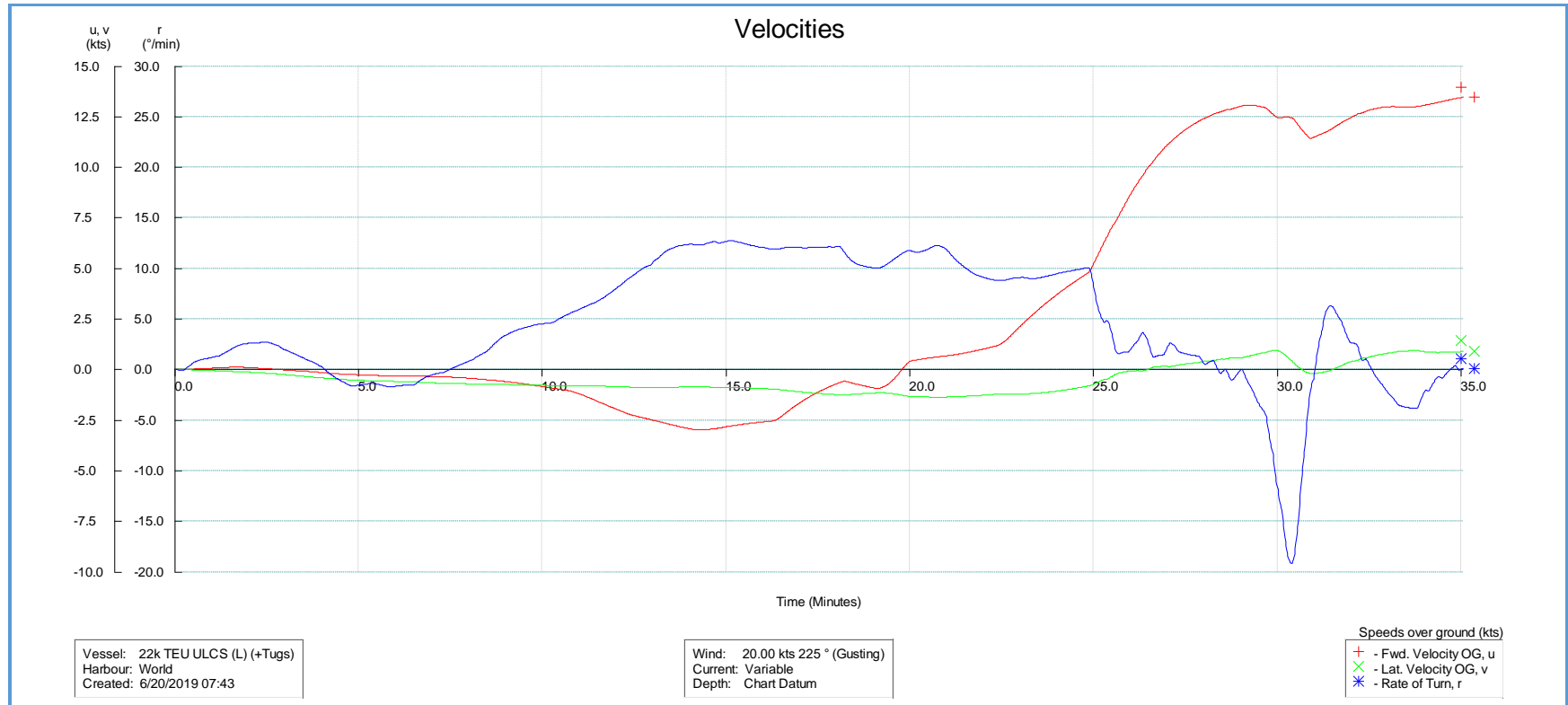


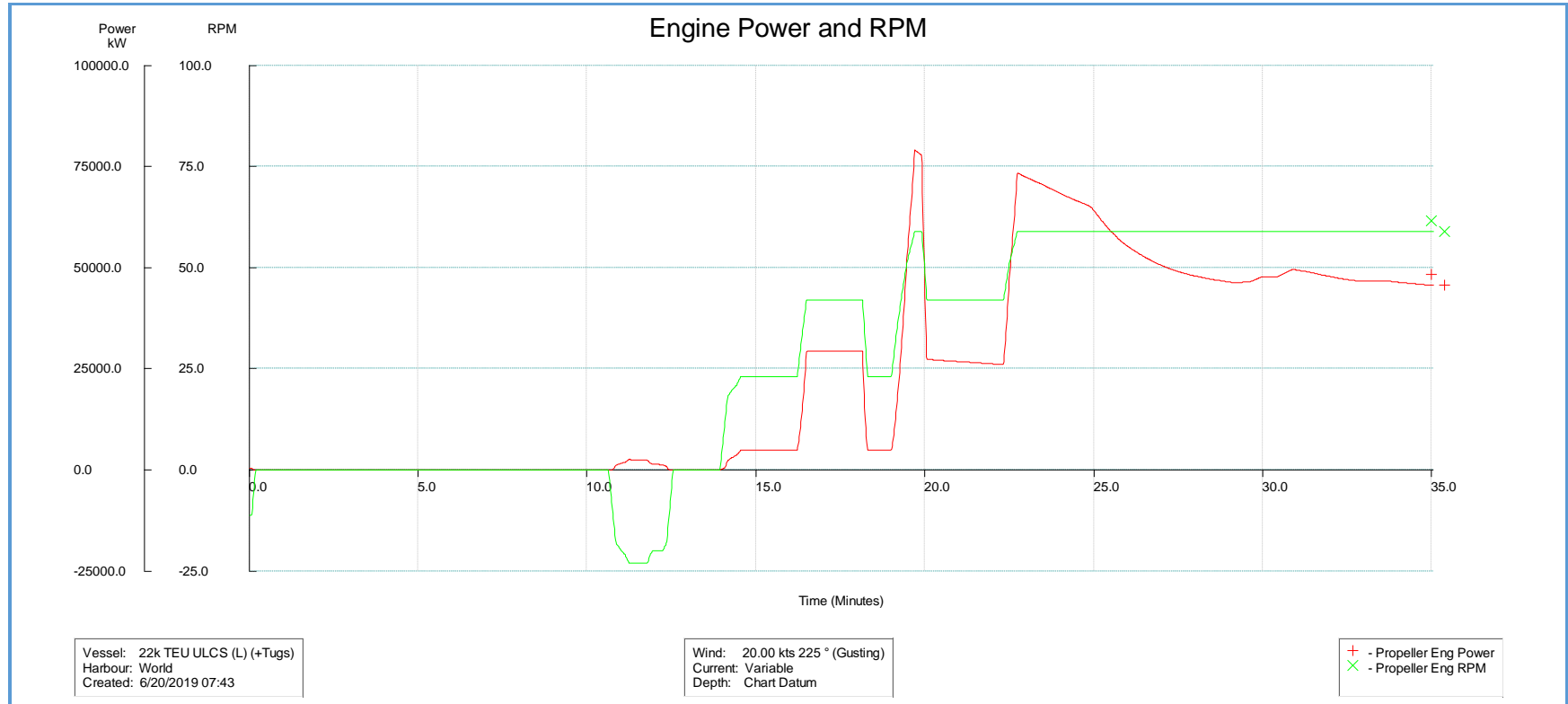
Vessel: 22k TEU ULCS (L)  
Harbour: World  
Created: 6/20/2019 07:43

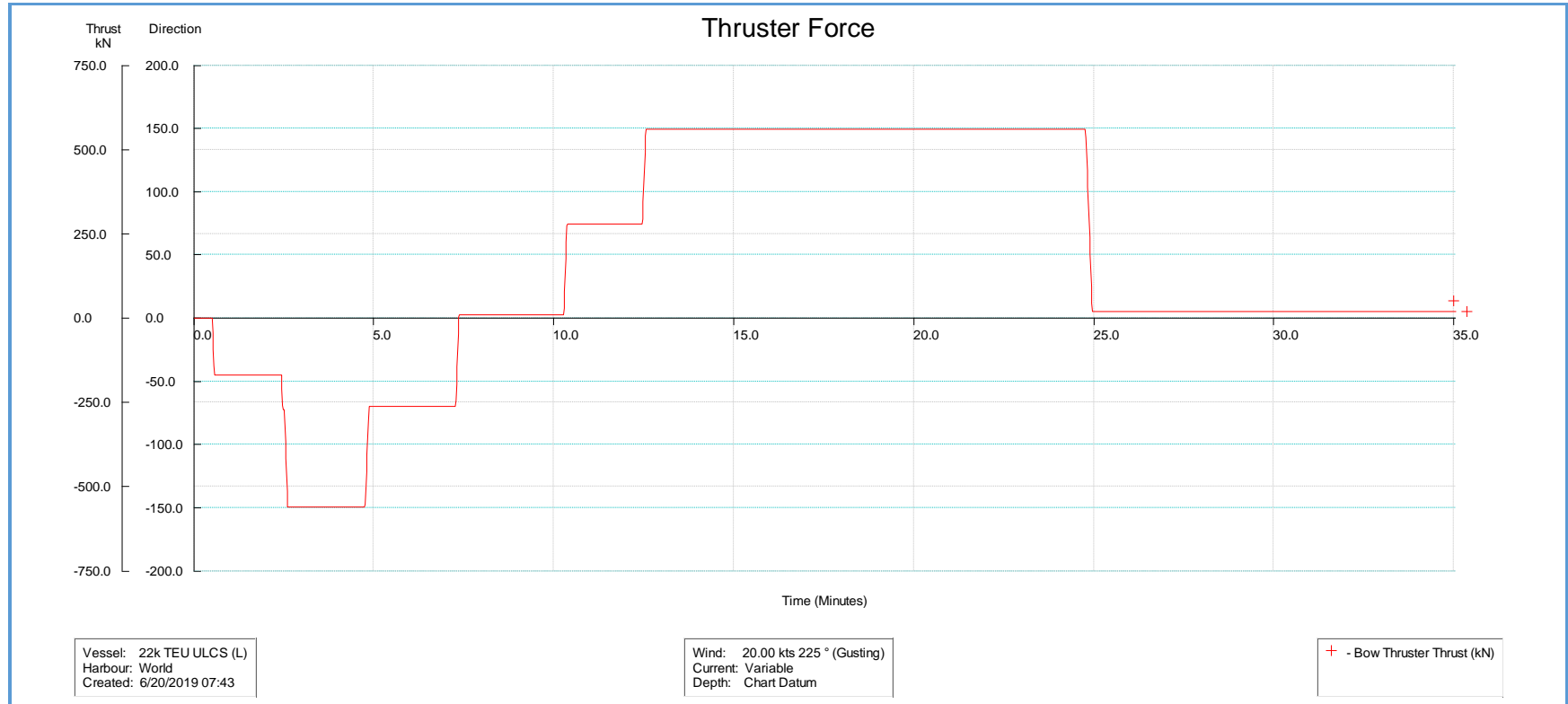
Wind: 20.00 kts 225 ° (Gusting)  
Current: Variable  
Depth: Chart Datum

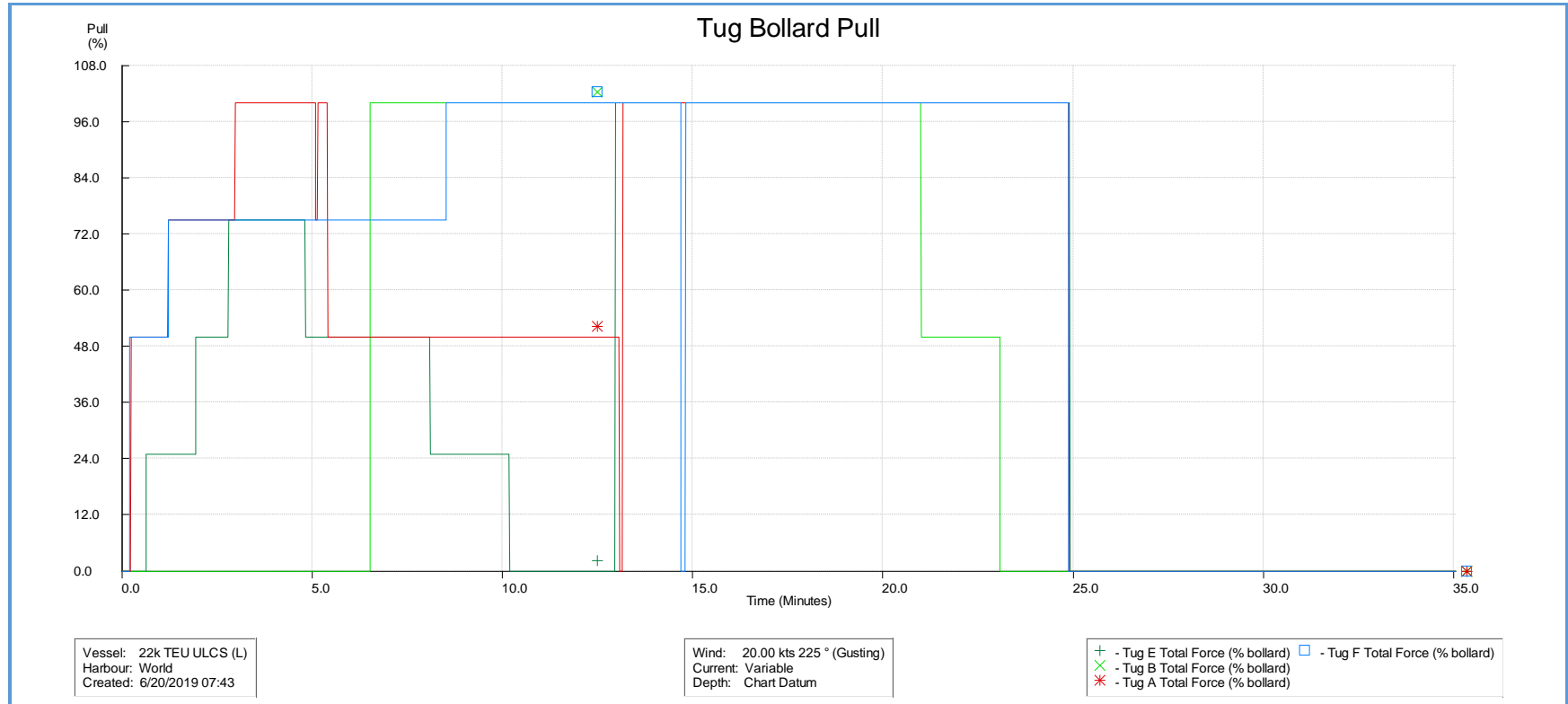




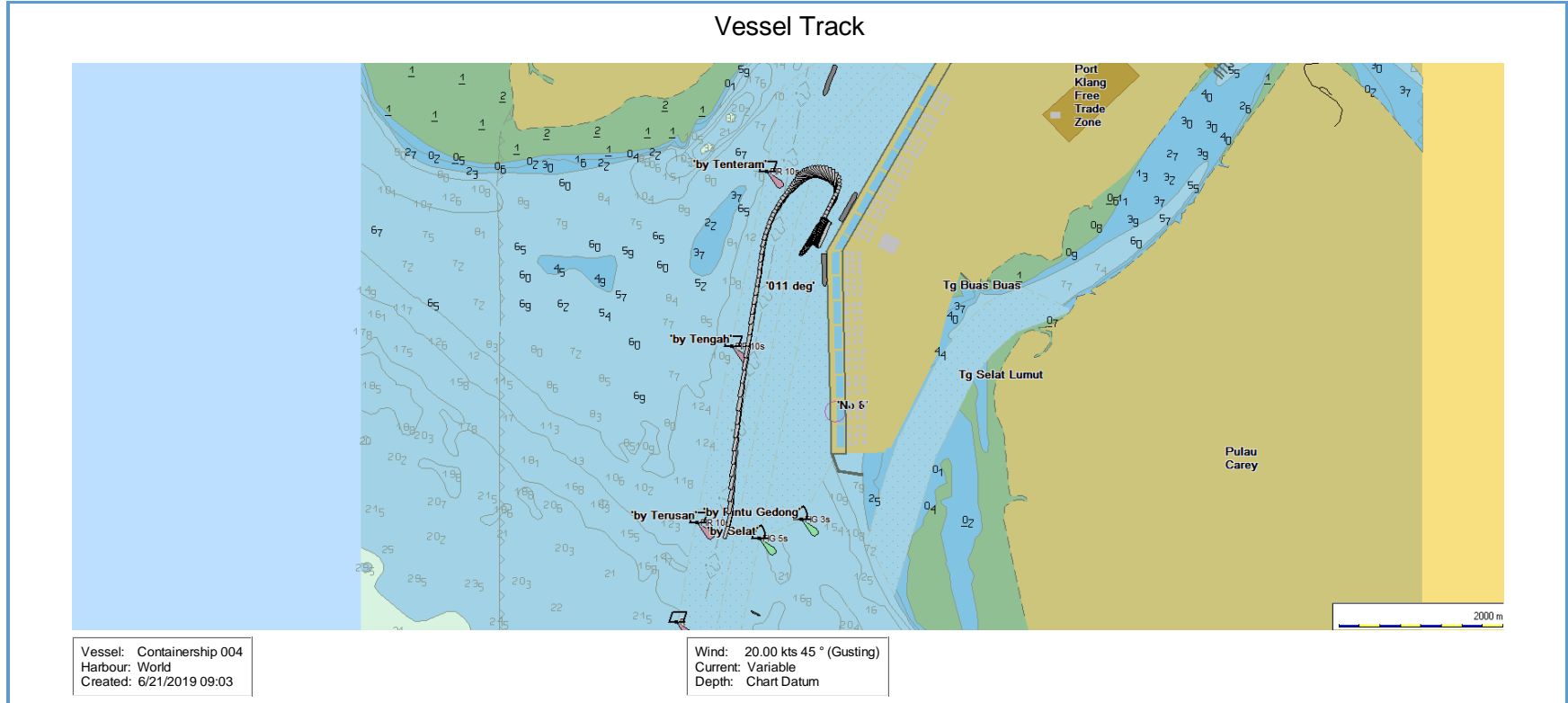


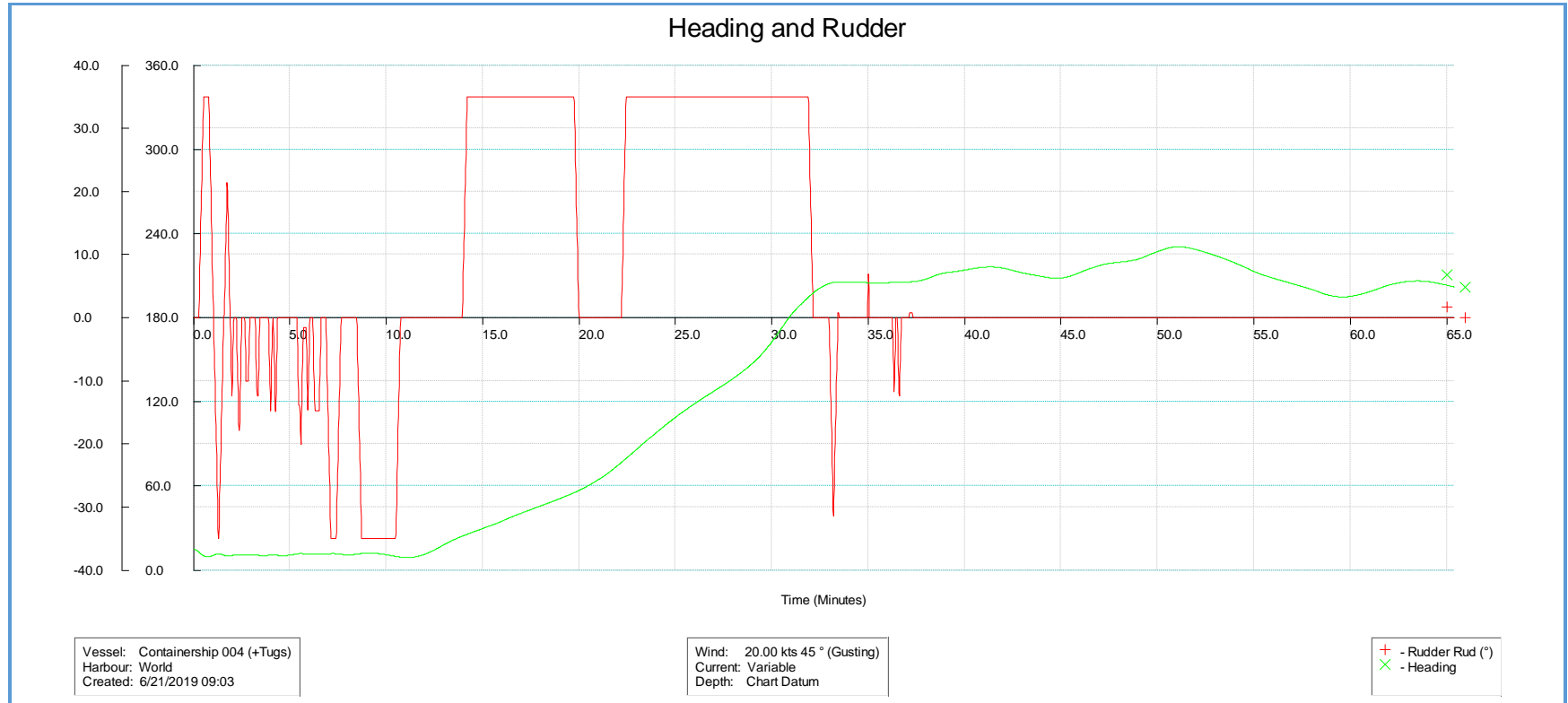




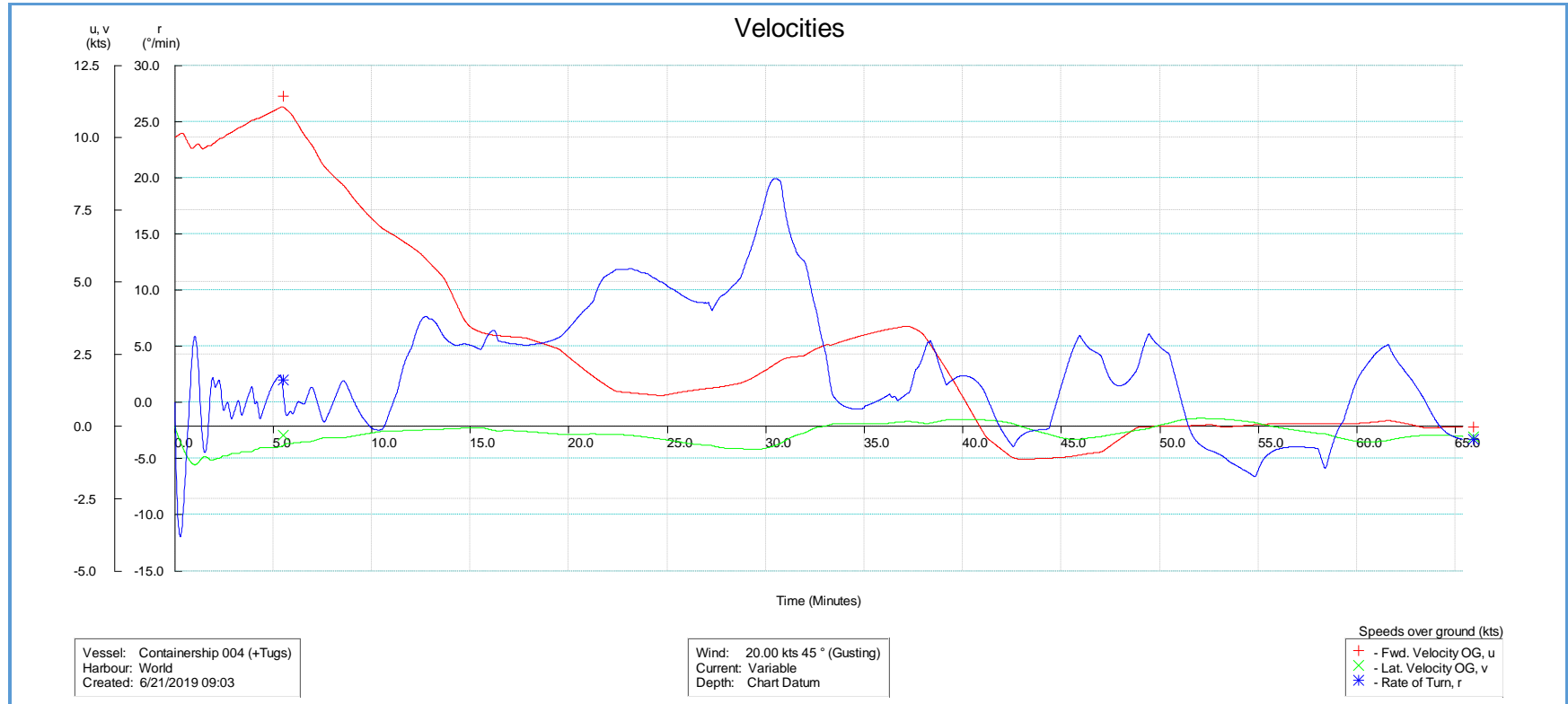


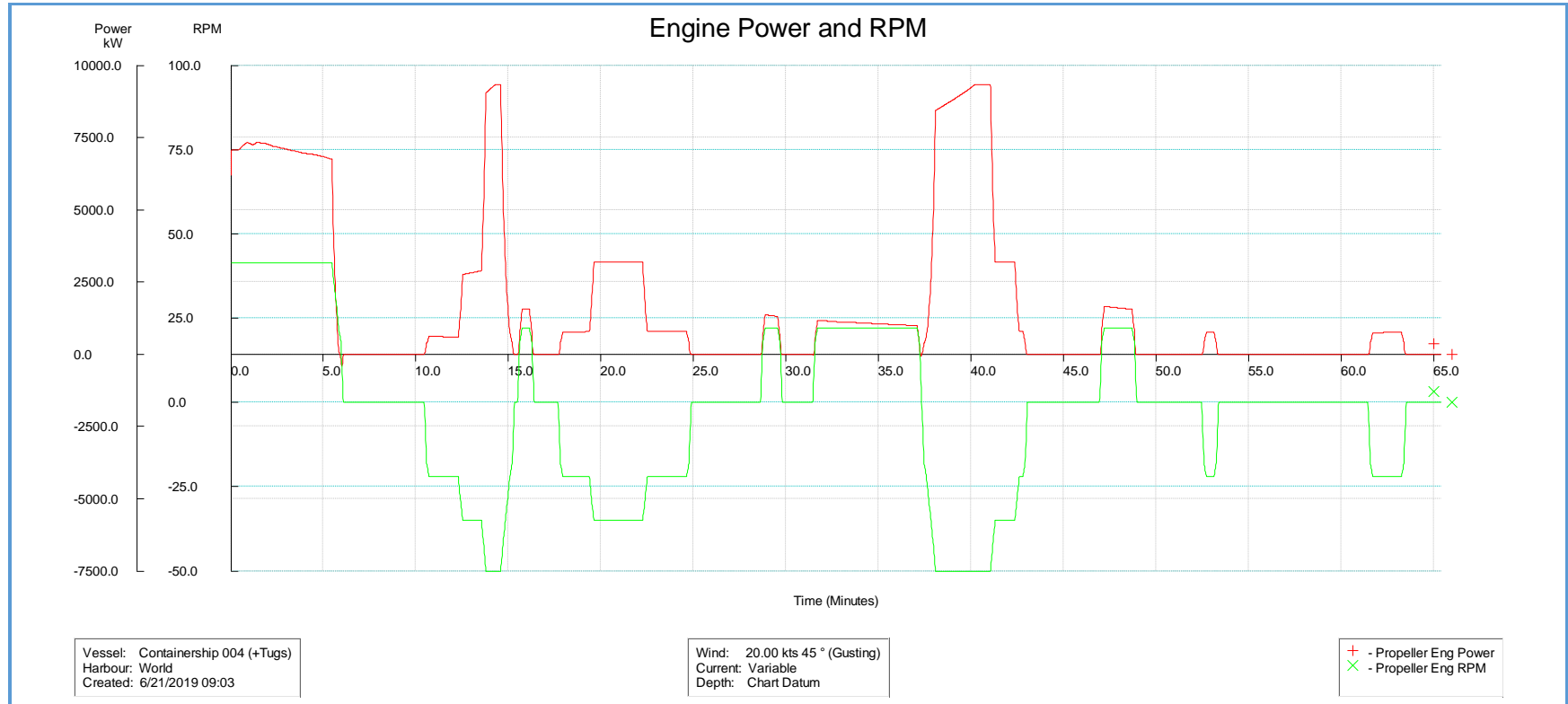
Run No. 4	20 k NE Ebb	NE Flood	SW Ebb	SW Flood	
<b>BERTH CT-13</b>					
Vessel: 347m Cont.	Green	Amber	Red		
APPROACH	X				
TRANSIT	X				
BERTHING/ <del>UNBERTHING</del>	X				
Comments	<p>Use of 1 x 45ton tug and 1 x 60ton tug. Not advisable due to strong current and wind. Able to swing with two 60tons tug. Unable to berth parallel. Need an angle until about 50metres from wharf, once 50m able to bring in parallel.</p> <p>If any movement in and out for a vessel at the knuckle, not advisable to berth or unberth.</p>				

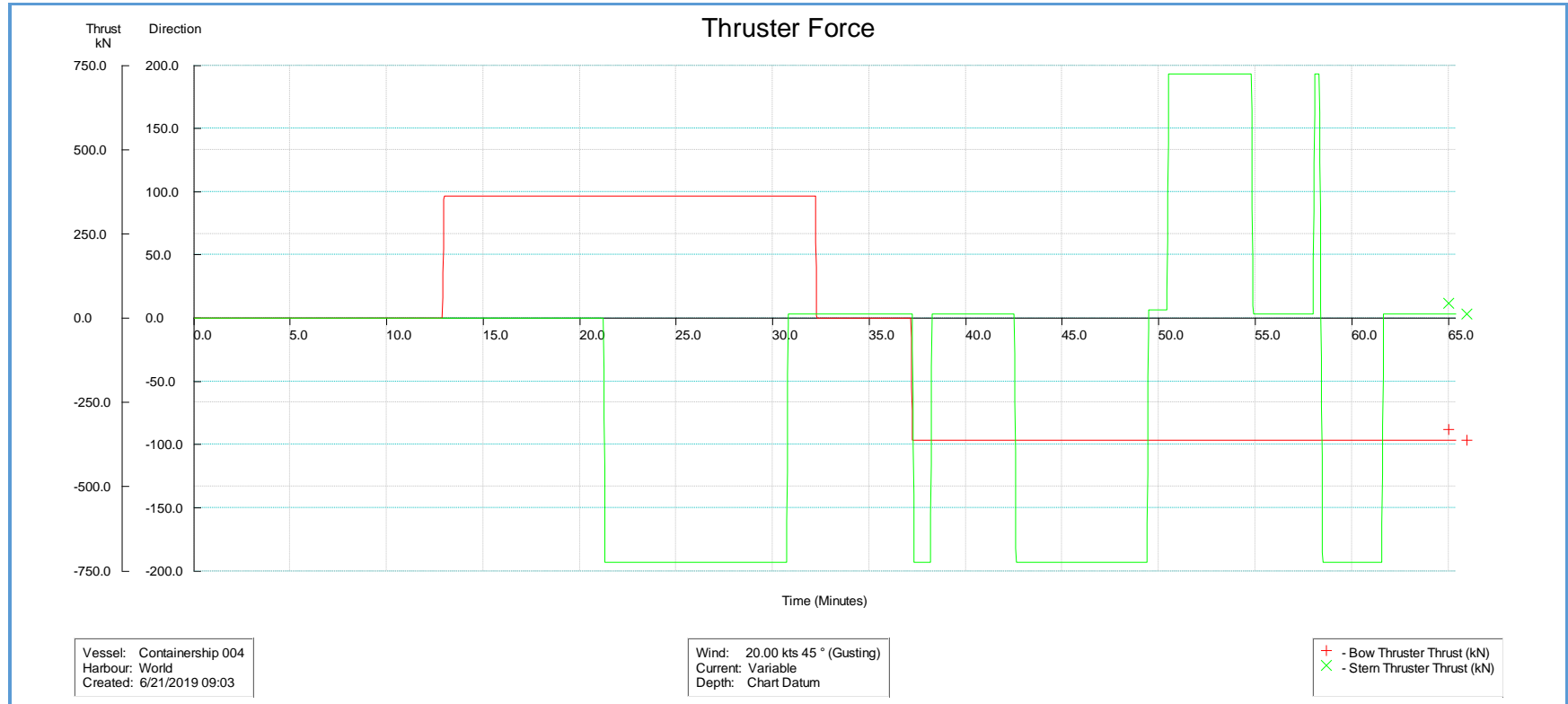


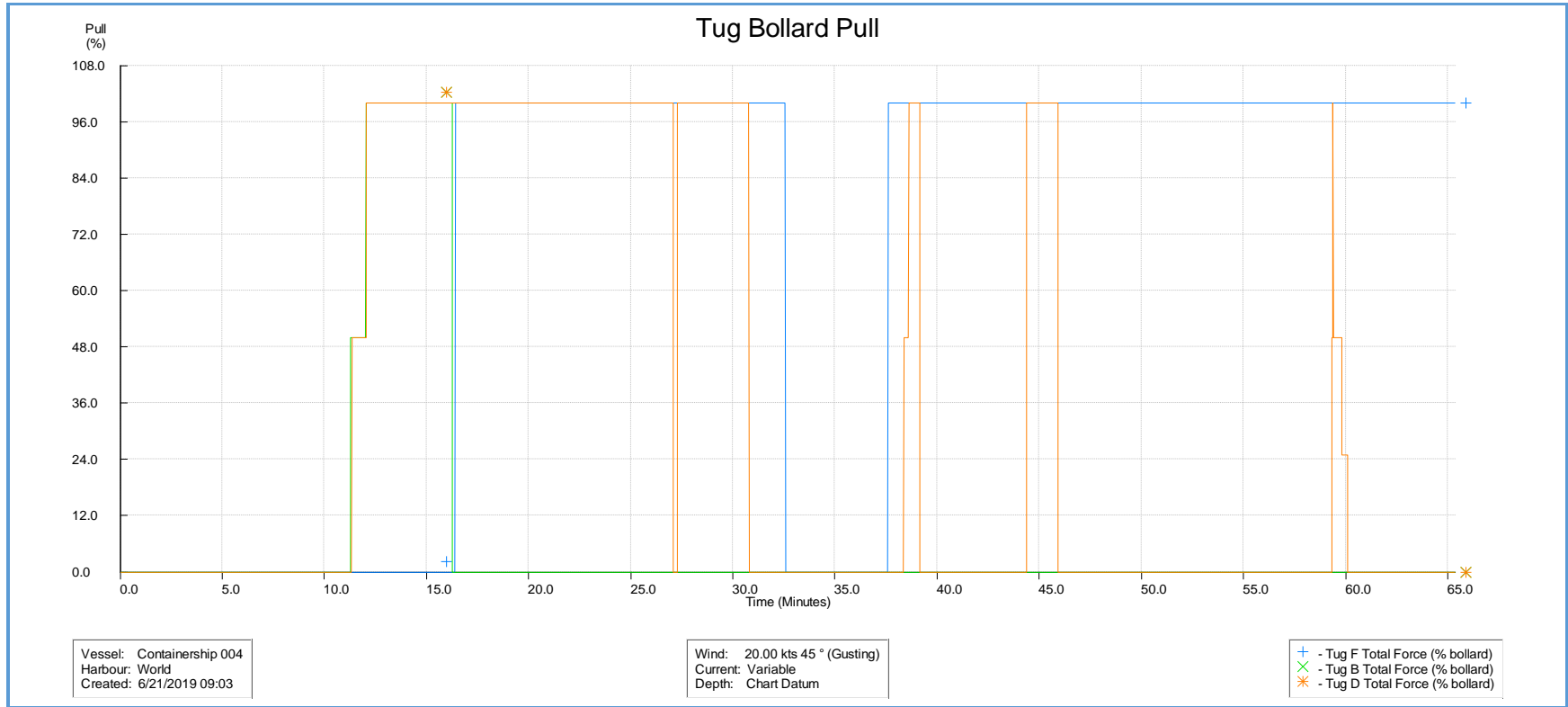






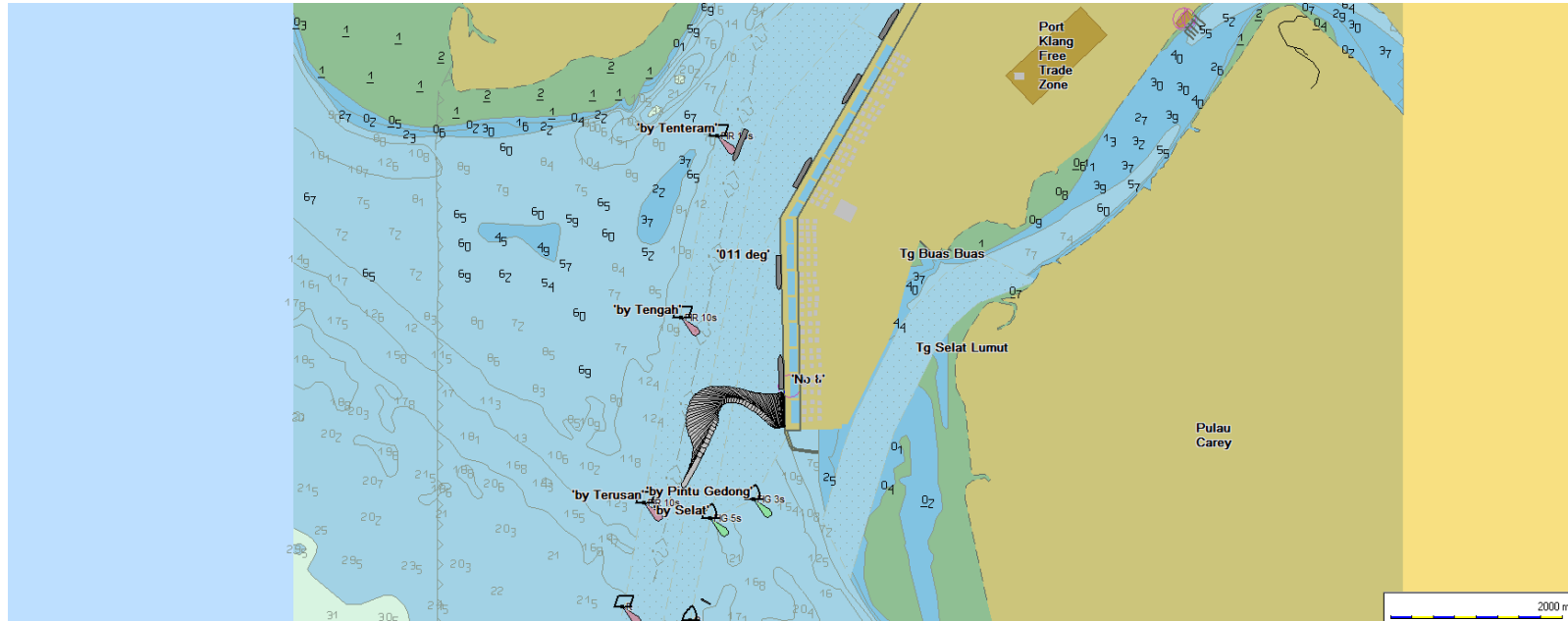






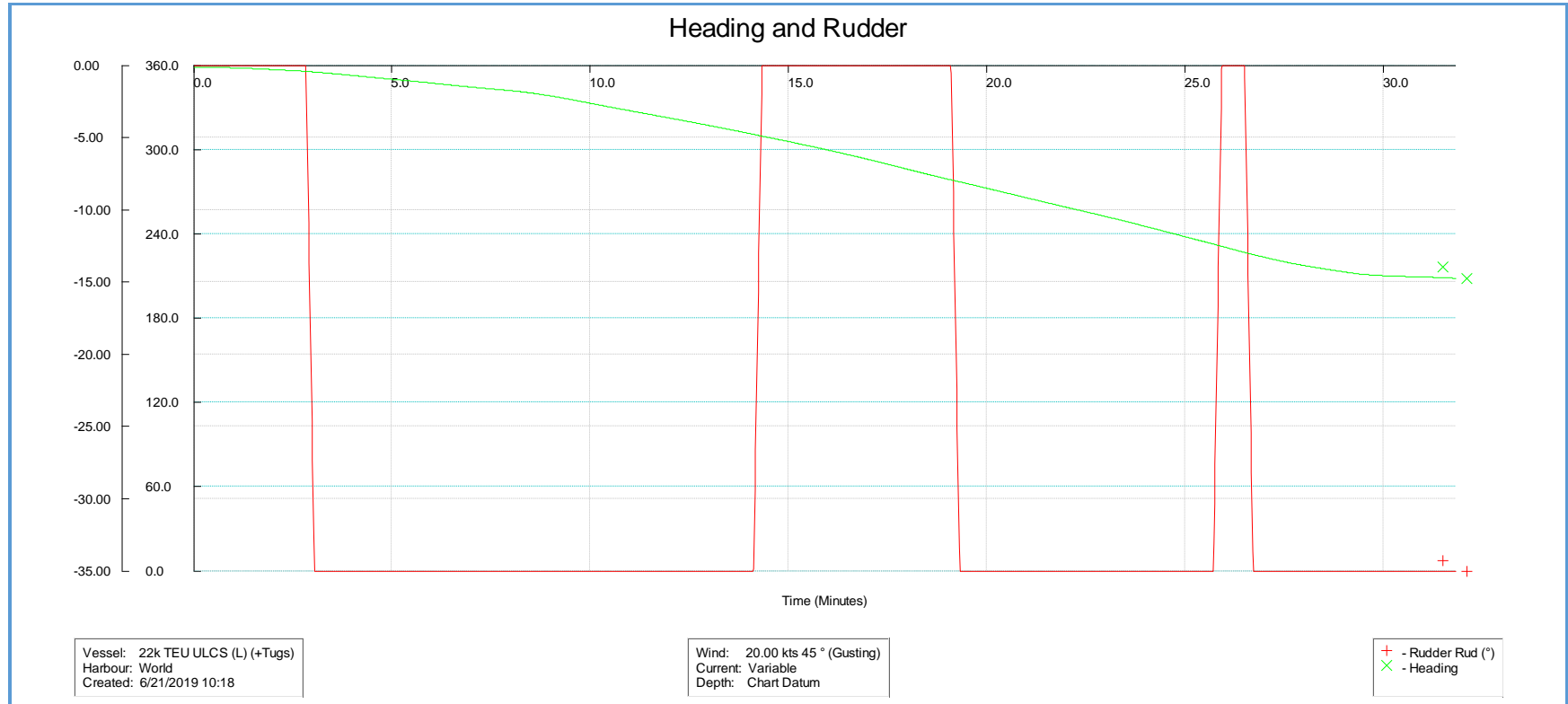
Run No. 5	NE Ebb	20k NE Flood	SW Ebb	SW Flood	
<b>BERTH CT-17</b>					
Vessel: 22K TEU ULCS	Green	Amber	Red		
APPROACH	X				
TRANSIT	X				
<del>BERTHING</del> /UNBERTHING	X				
Comments	To turn within channel limits astern movement is required. Total 20min taken for completing the turn. Tugs to be used minimum of four 60tons tugs.				

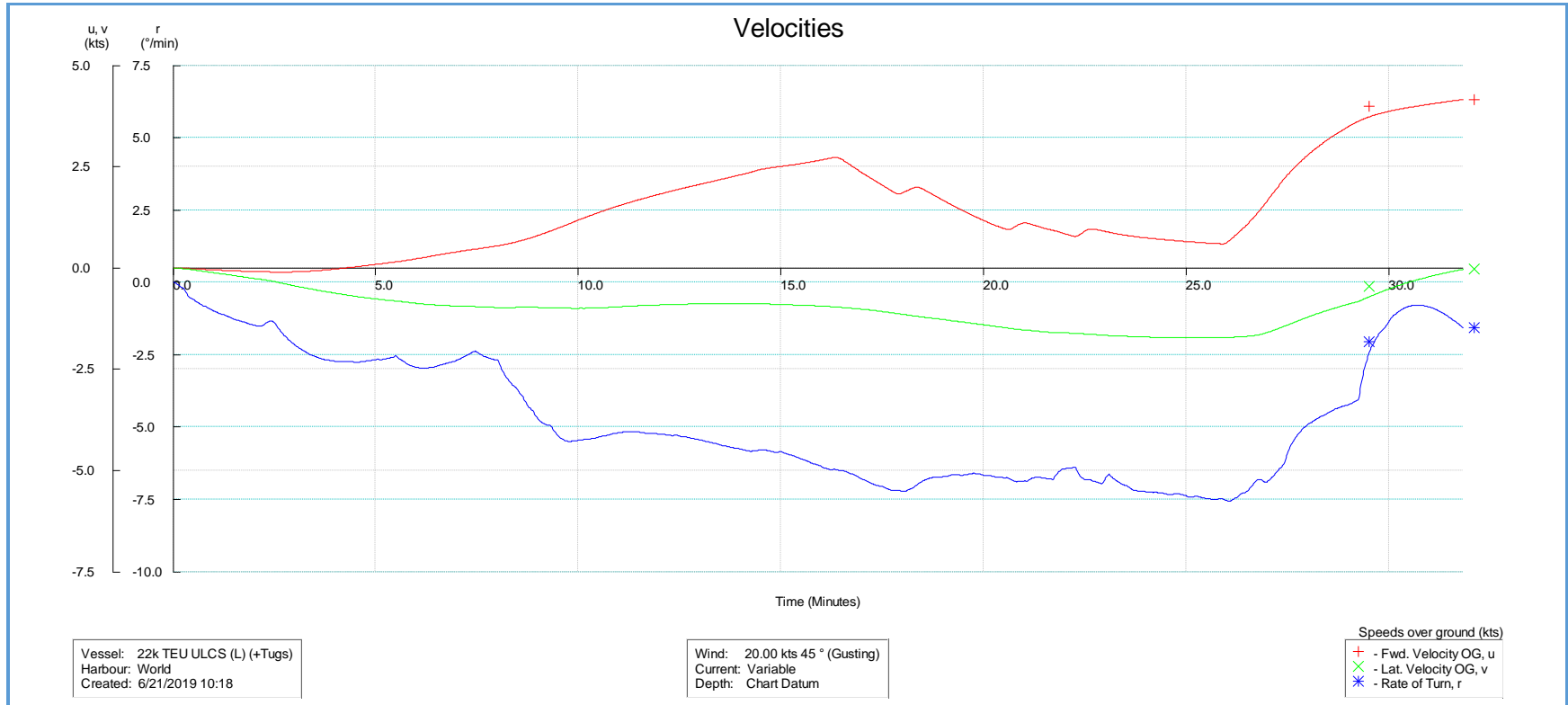
### Vessel Track



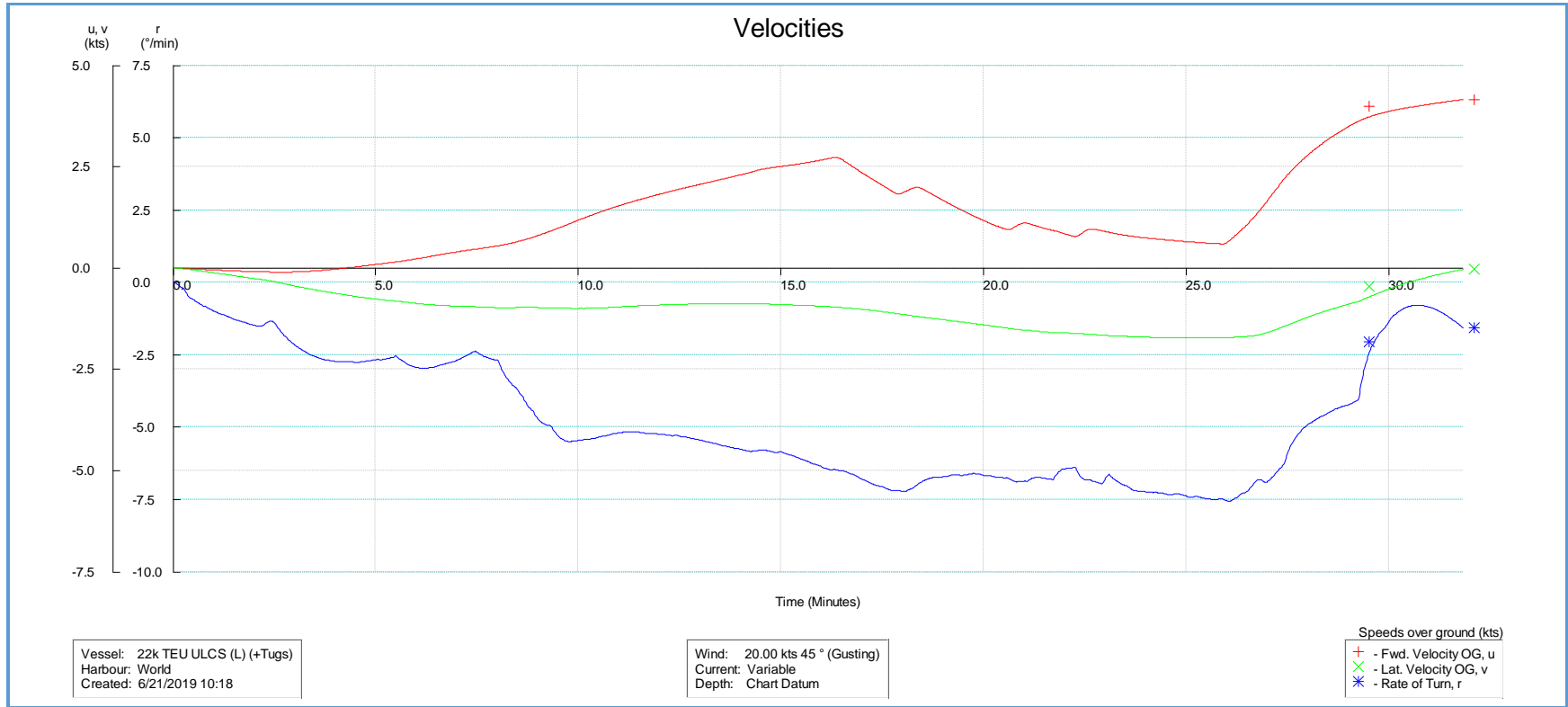
Vessel: 22k TEU ULCS (L)  
Harbour: World  
Created: 6/21/2019 10:18

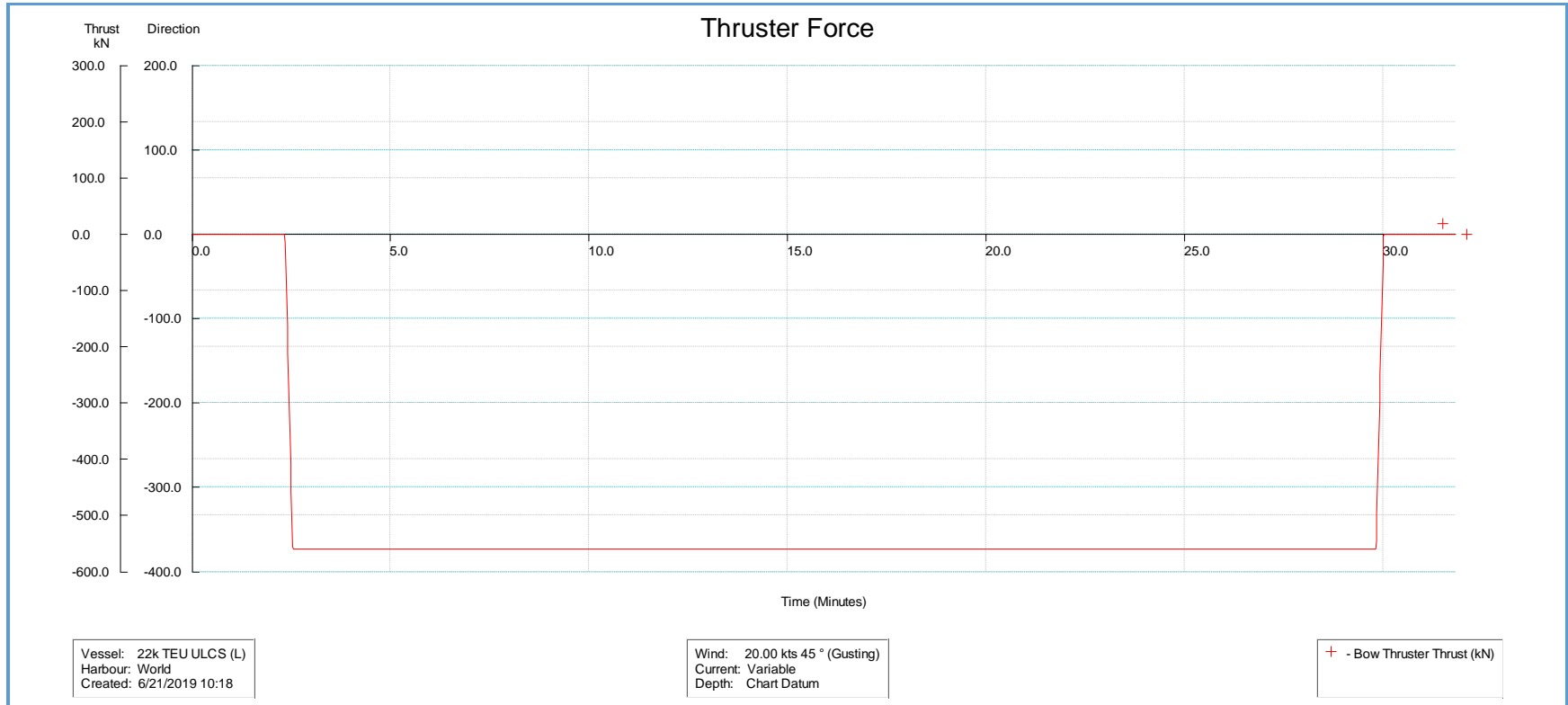
Wind: 20.00 kts 45 ° (Gusting)  
Current: Variable  
Depth: Chart Datum

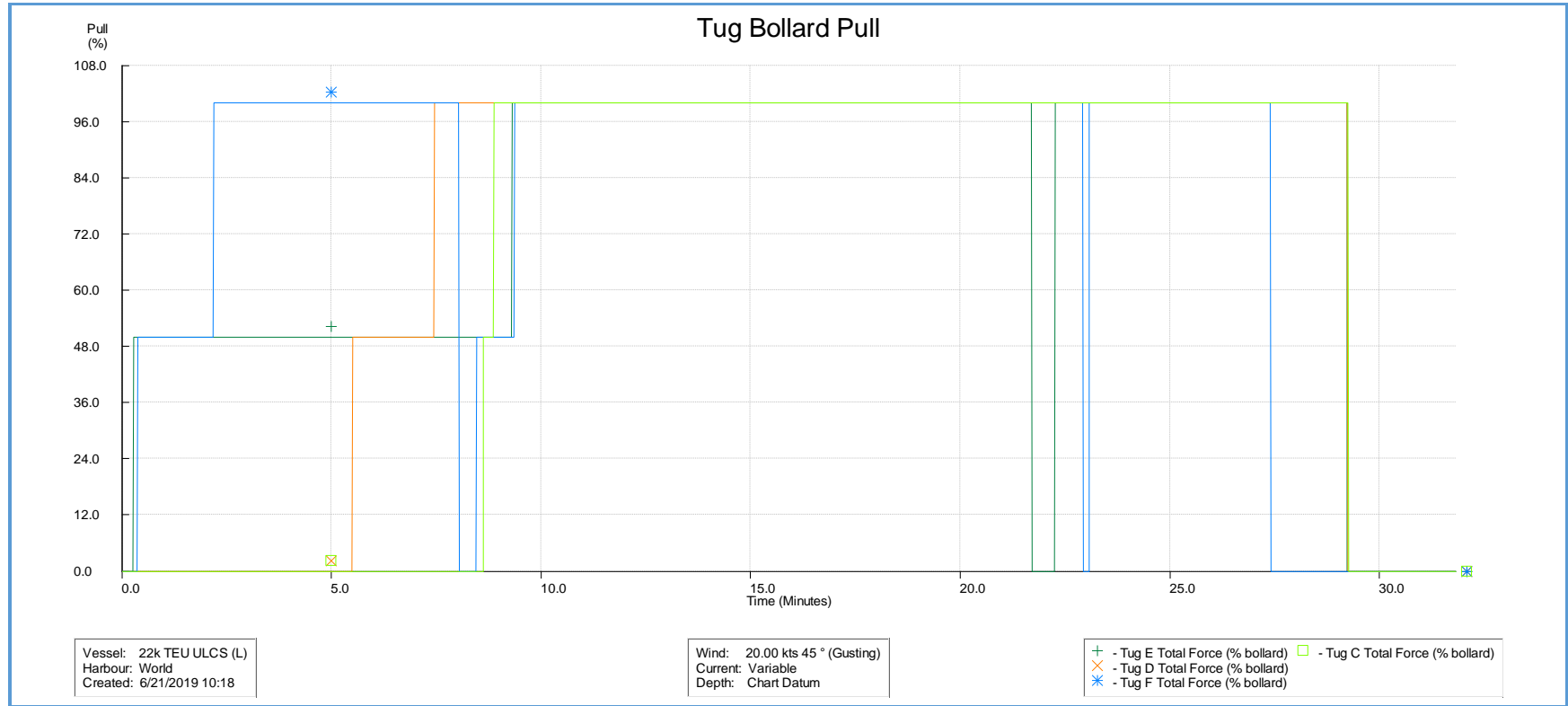






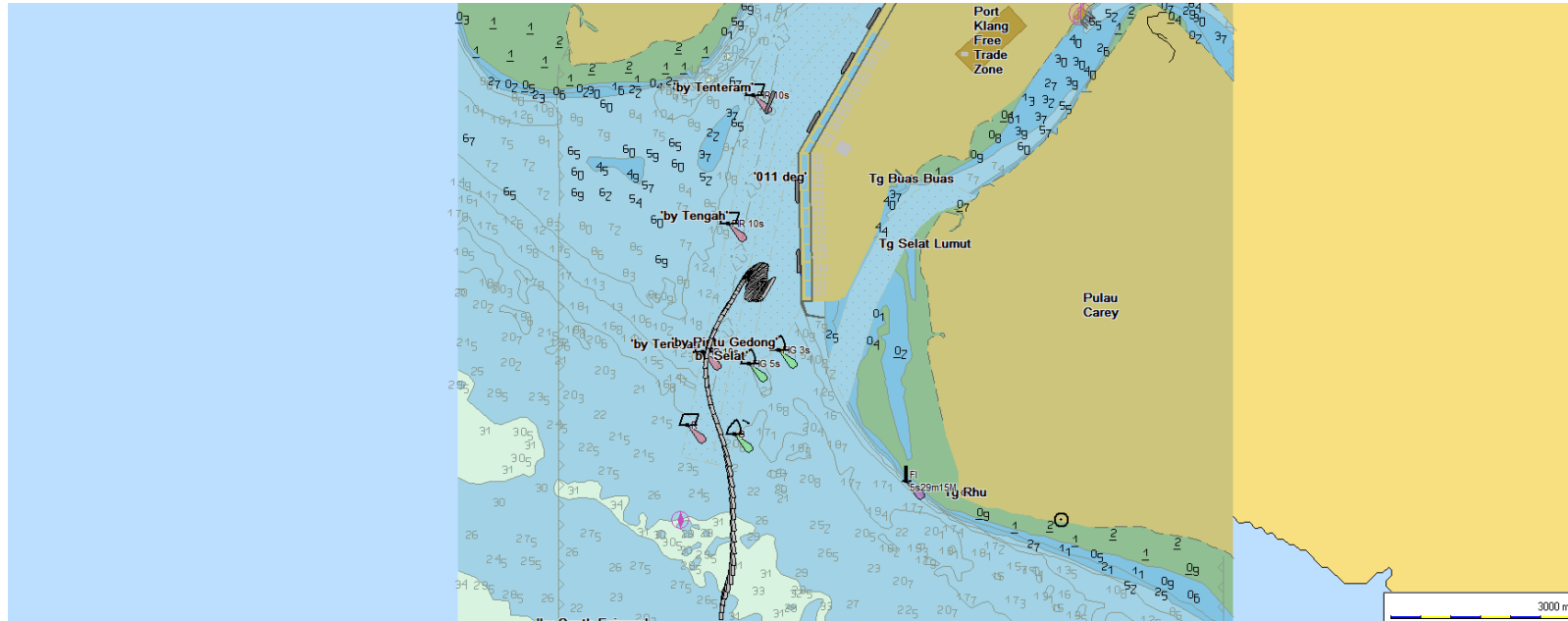






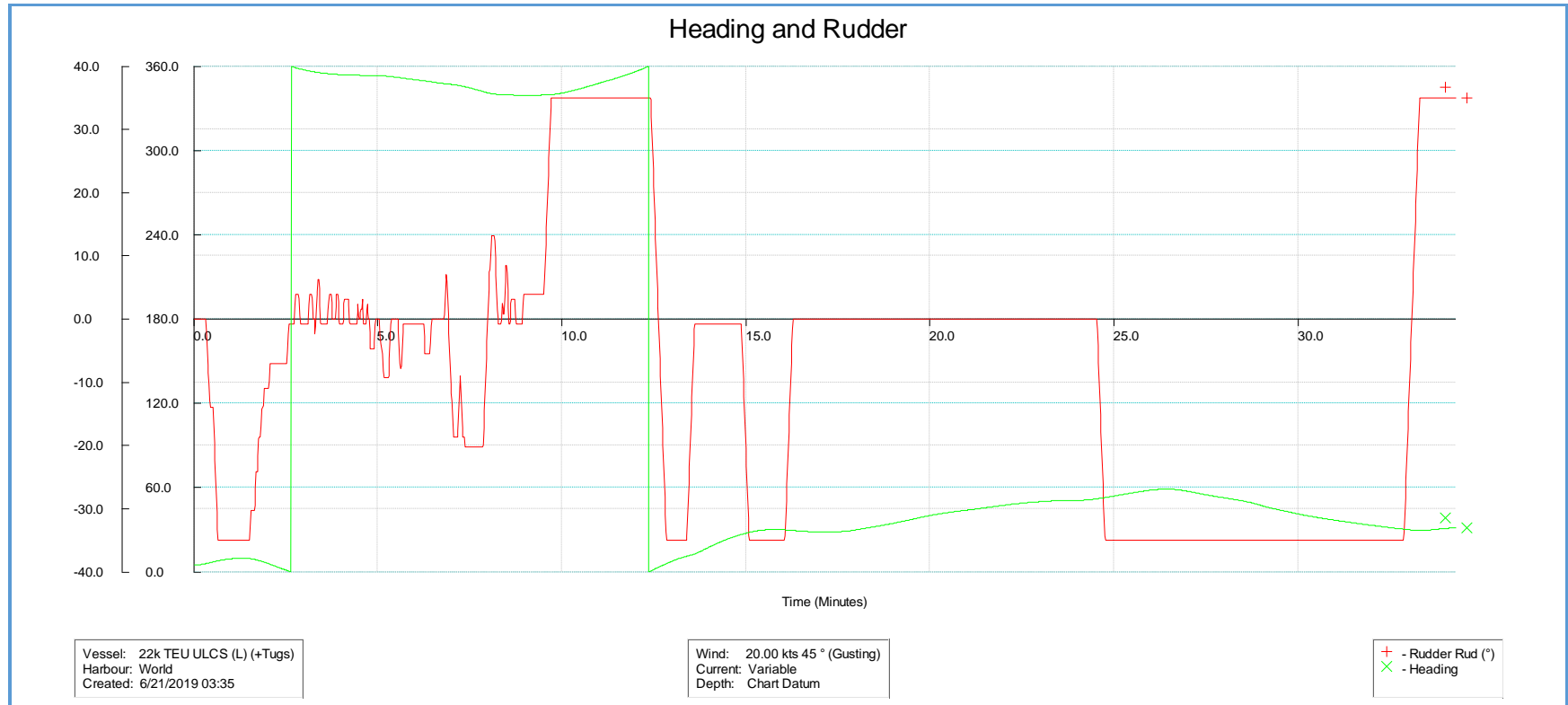
Run No. 6	NE Ebb	20k NE Flood	SW Ebb	SW Flood	
<b>BERTH : CT17</b>					
Vessel: 22K TEU ULCS	Green	Amber	Red		
APPROACH	X				
TRANSIT	X				
BERTHING/UNBERTHING	X				
Comments	<p>Four 60tons tug to be used.</p> <p>Approach at right angle from fairway buoy is important so the approach to CT17 will be smooth</p>				

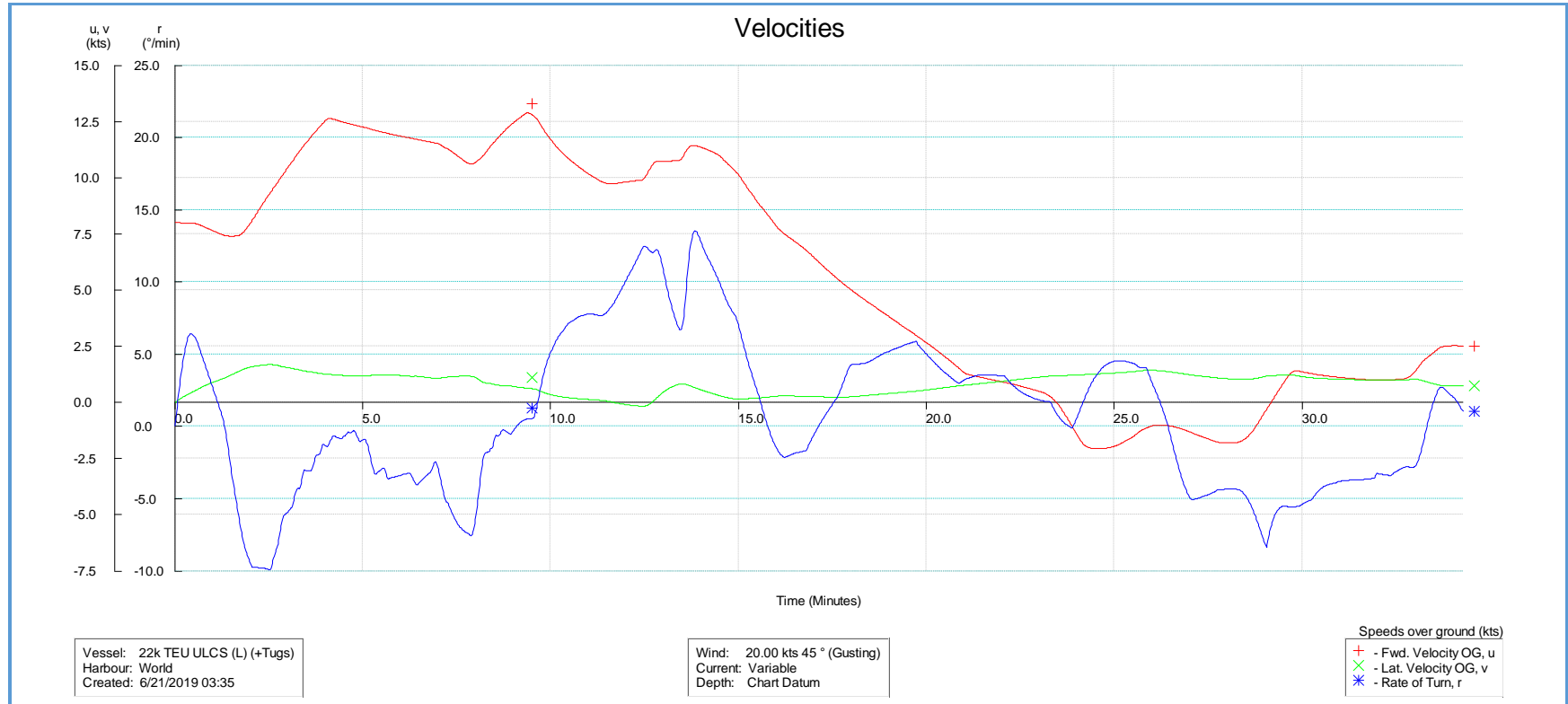
### Vessel Track

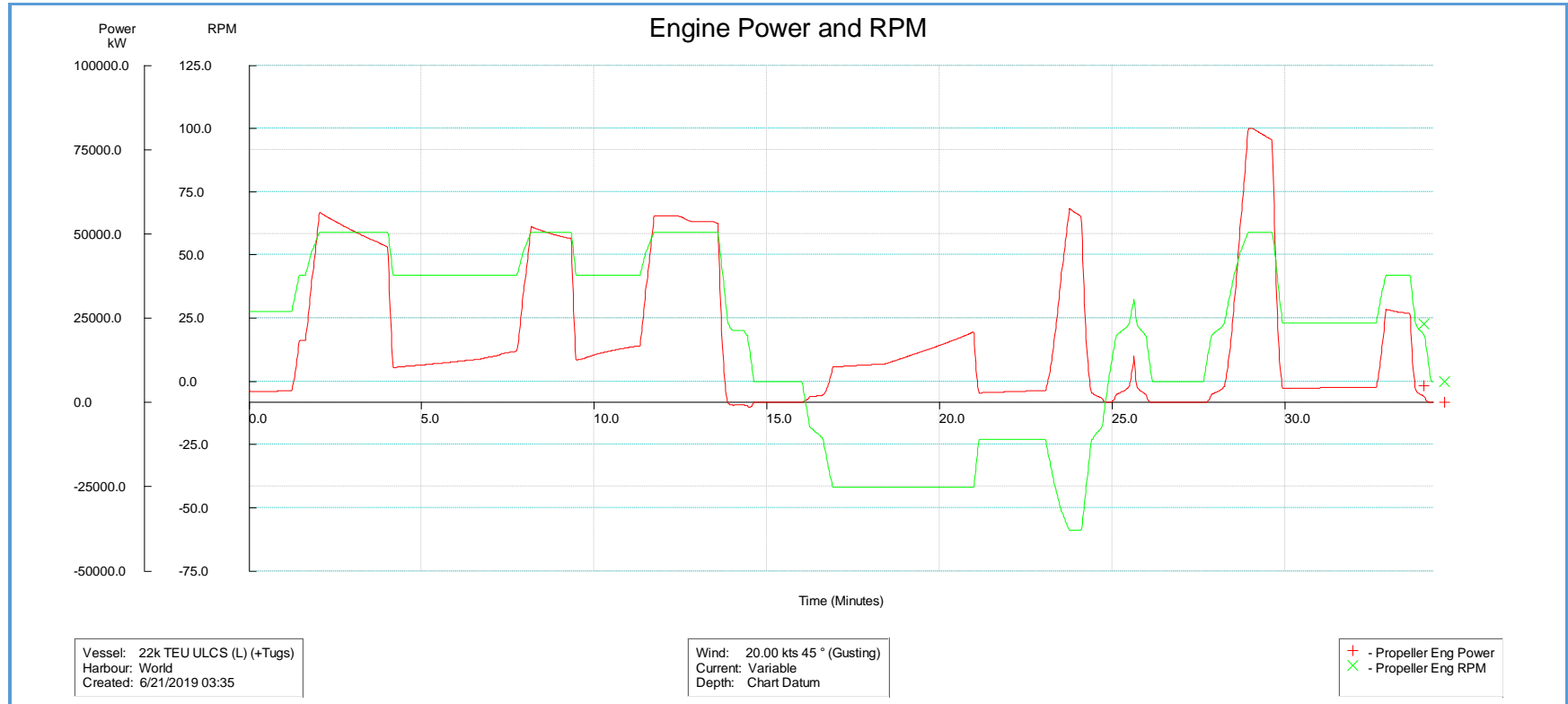


Vessel: 22k TEU ULCS (L)  
Harbour: World  
Created: 6/21/2019 10:57

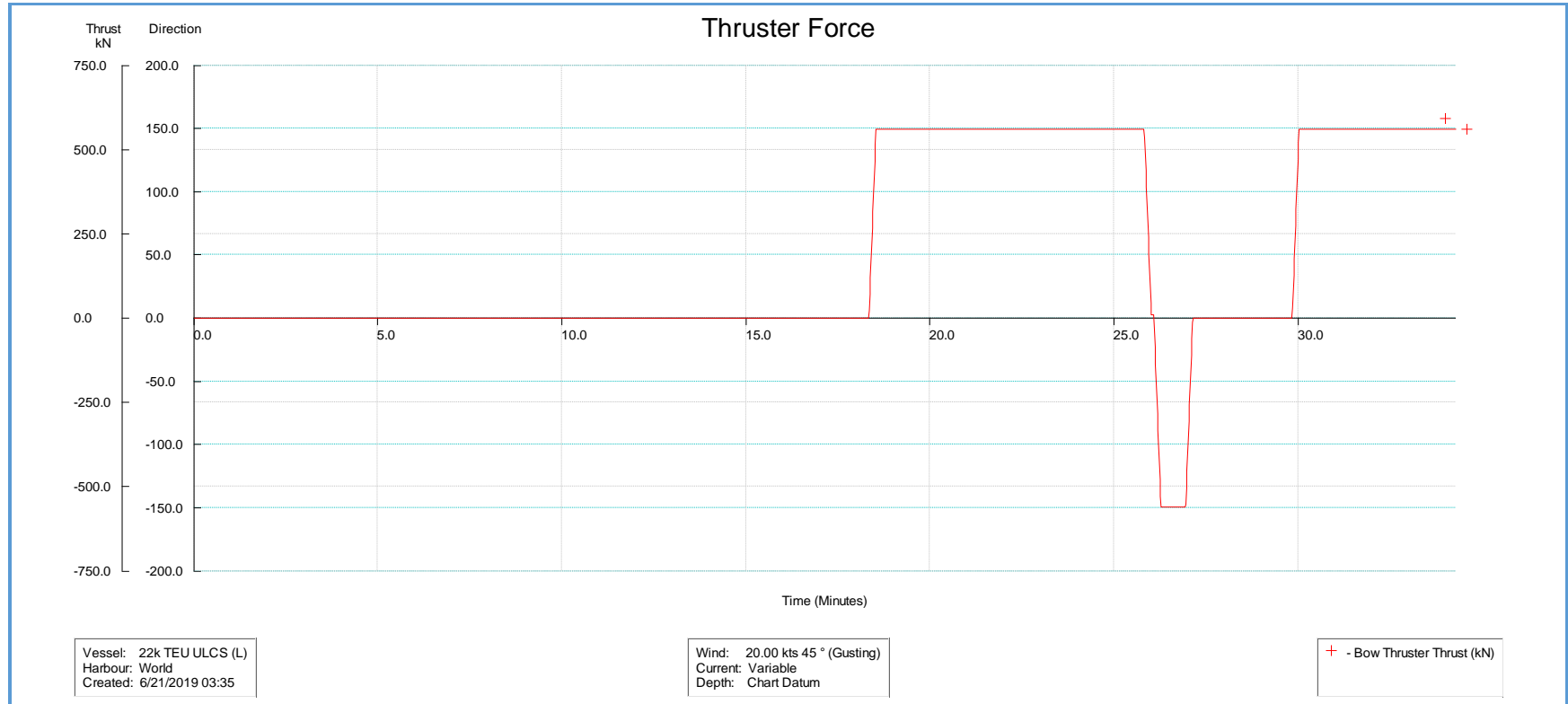
Wind: 20.00 kts 45 ° (Gusting)  
Current: Variable  
Depth: Chart Datum

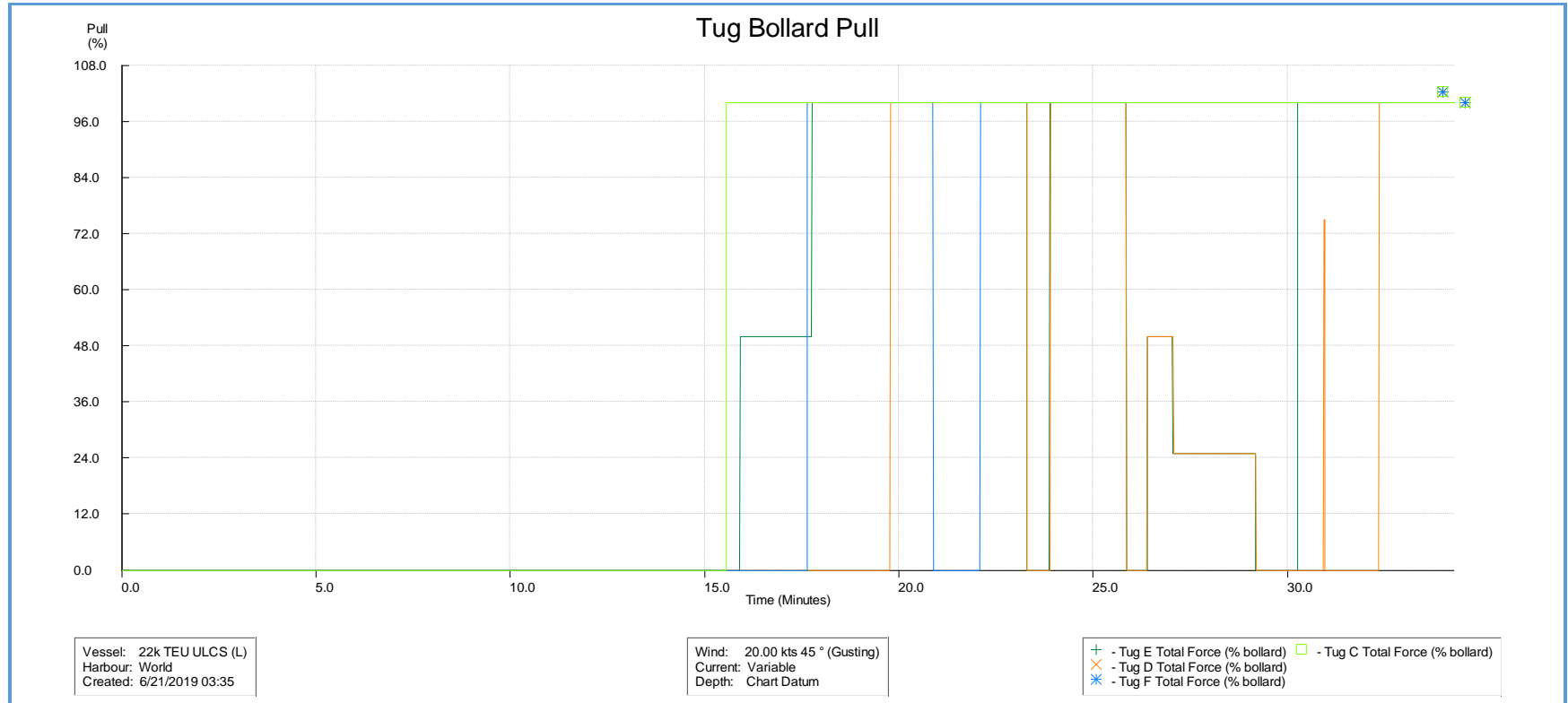






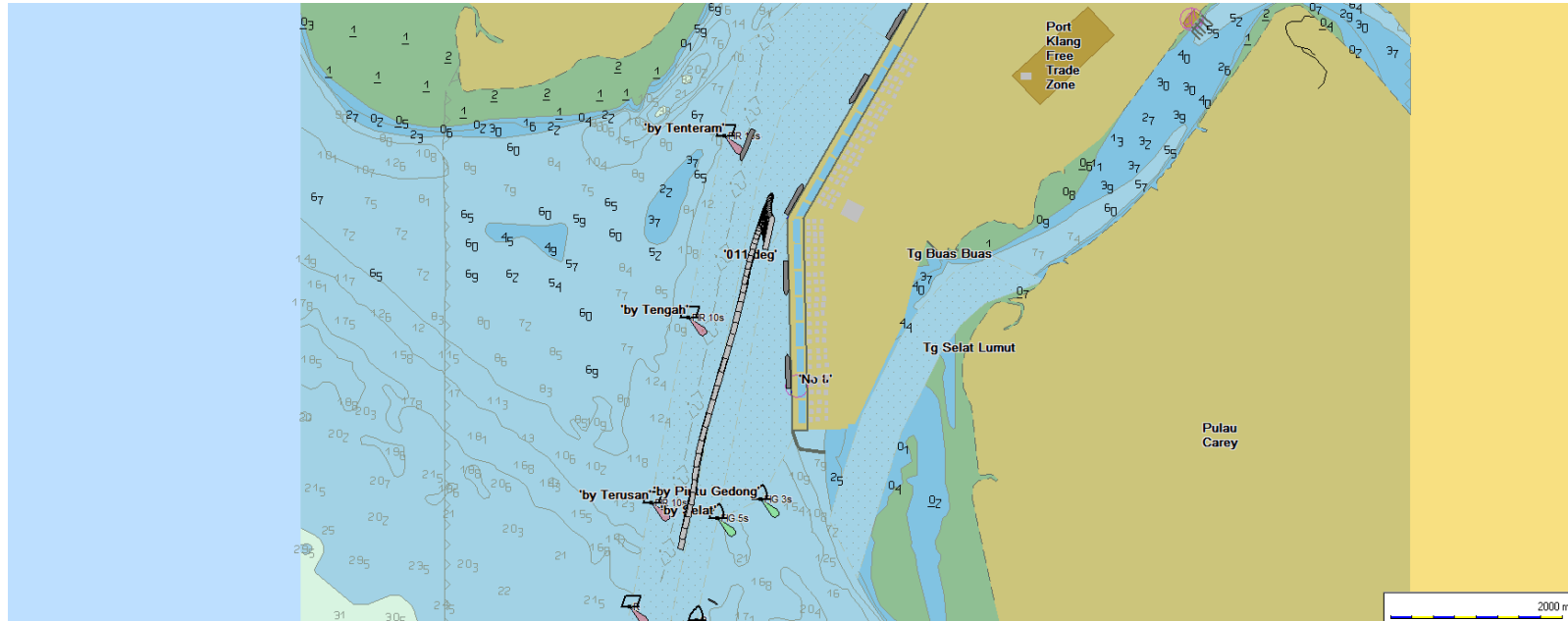






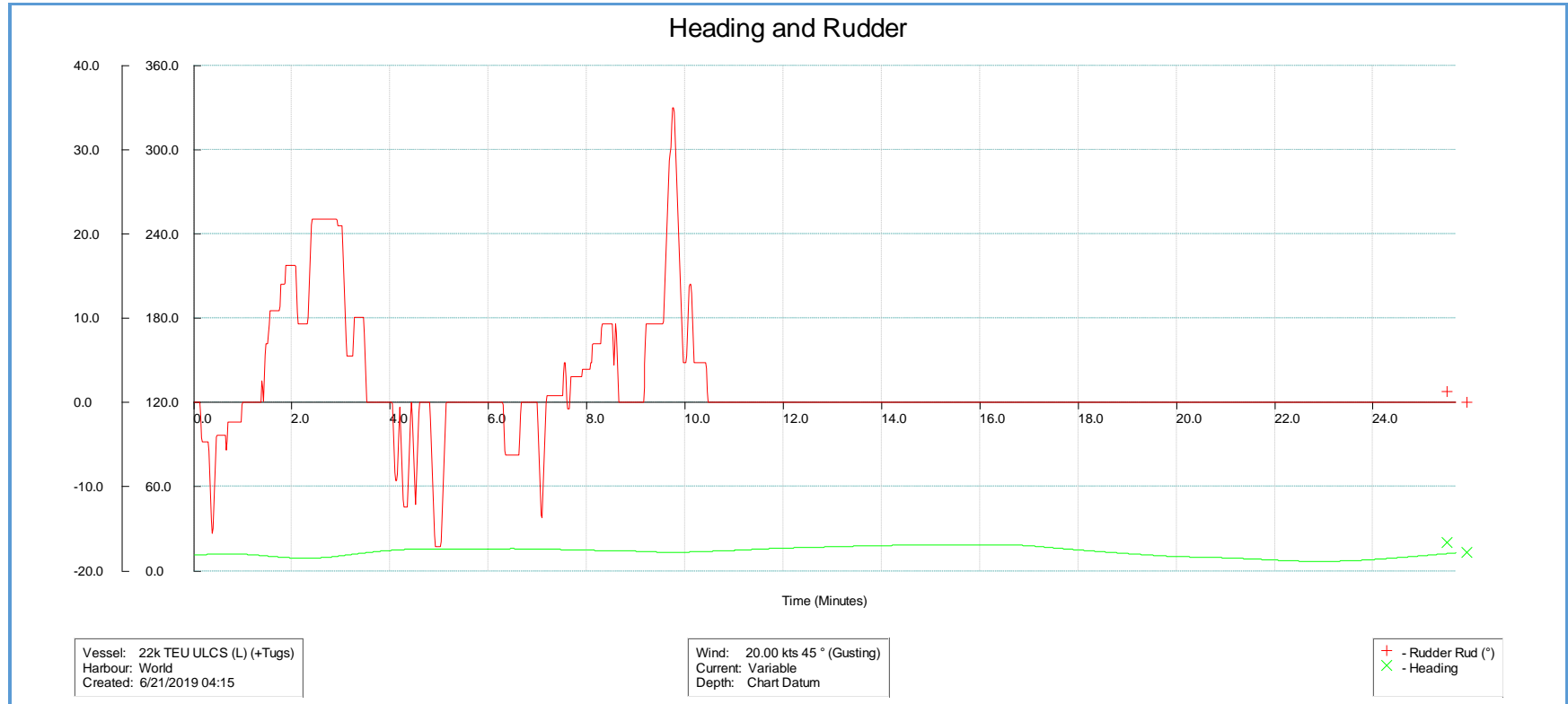
Run No. 7	NE Ebb	NE Flood	SW Ebb	SW Flood	
<b>BERTH : CT14</b>					
Vessel: 22K TEU ULCS	Green	Amber	Red		
APPROACH	X				
TRANSIT	X				
BERTHING/UNBERTHING	X				
Comments	<p>Used two 60ton tugs with a bit of difficulty of approach. Recommend to use 3/4 60ton tugs for safe and efficient berthing.</p> <p>Approach with a parallel berthing will be impossible. Have to approach with the right angle due to the current and wind.</p>				

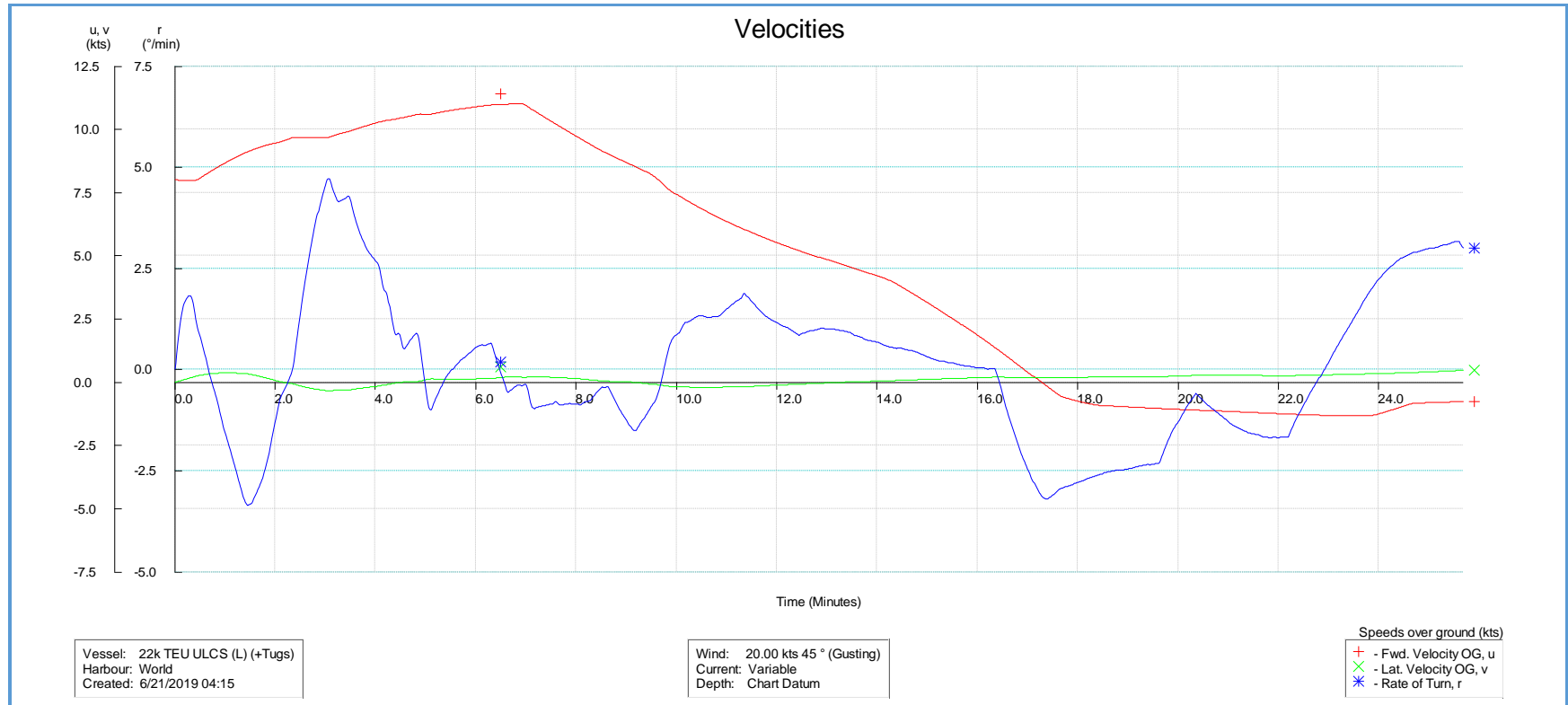
### Vessel Track

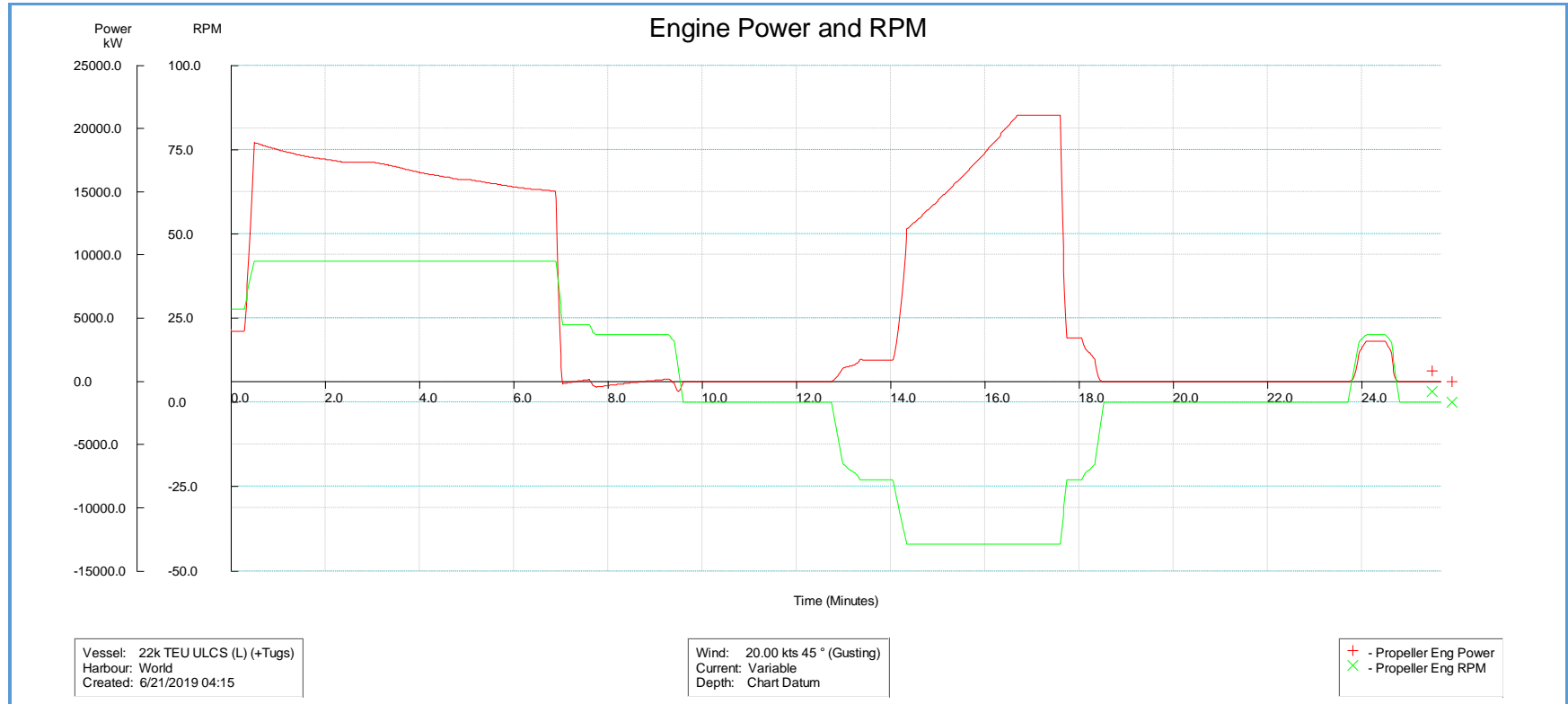


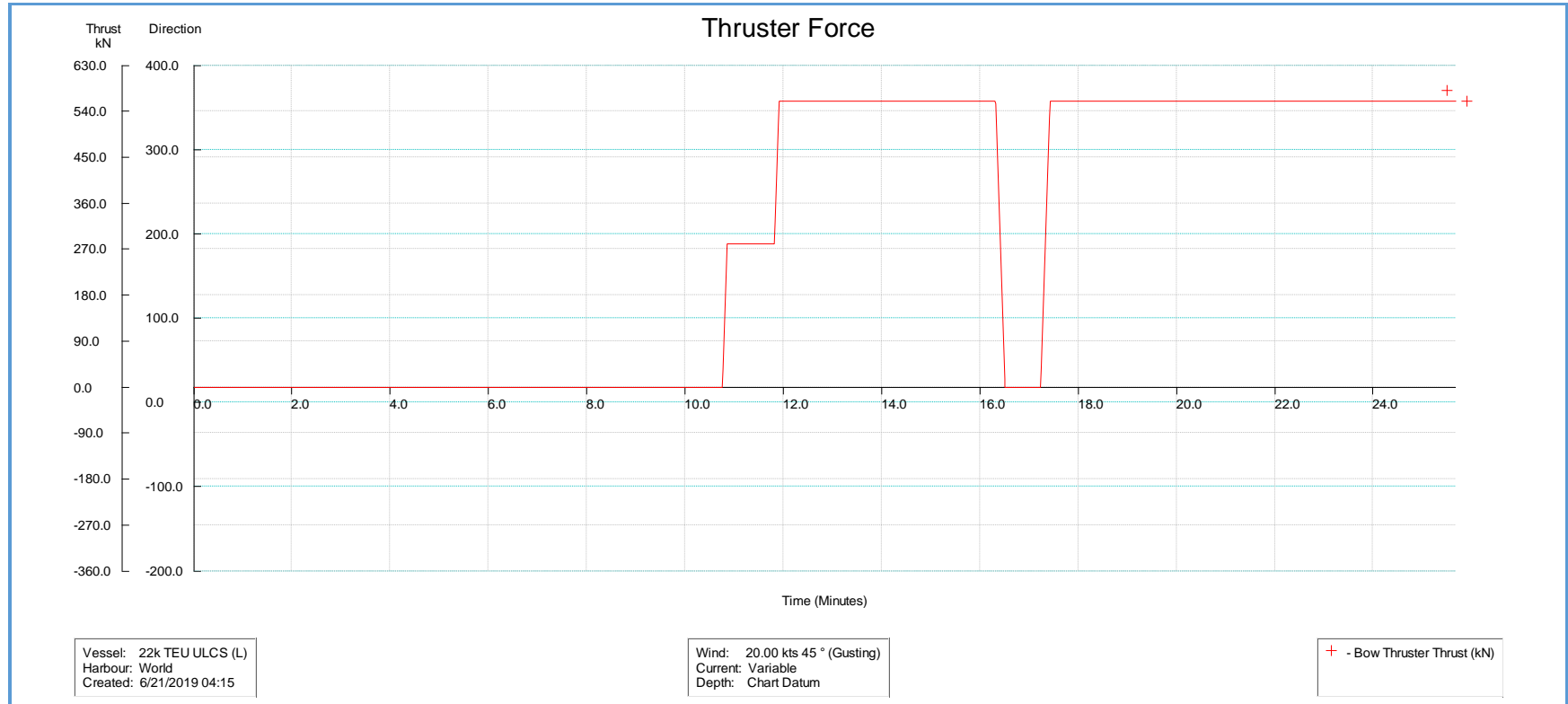
Vessel: 22k TEU ULCS (L)  
Harbour: World  
Created: 6/21/2019 11:46

Wind: 20.00 kts 45 ° (Gusting)  
Current: Variable  
Depth: Chart Datum

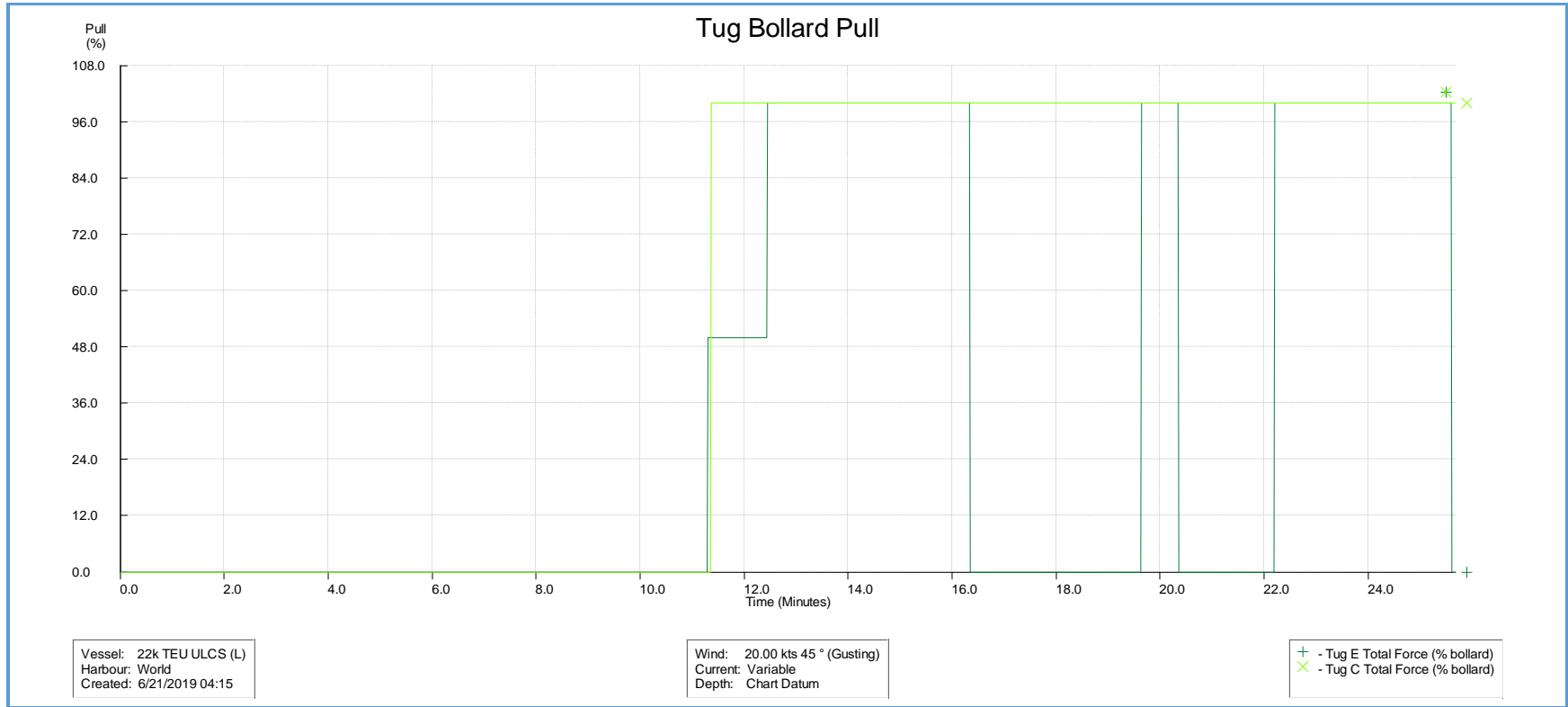






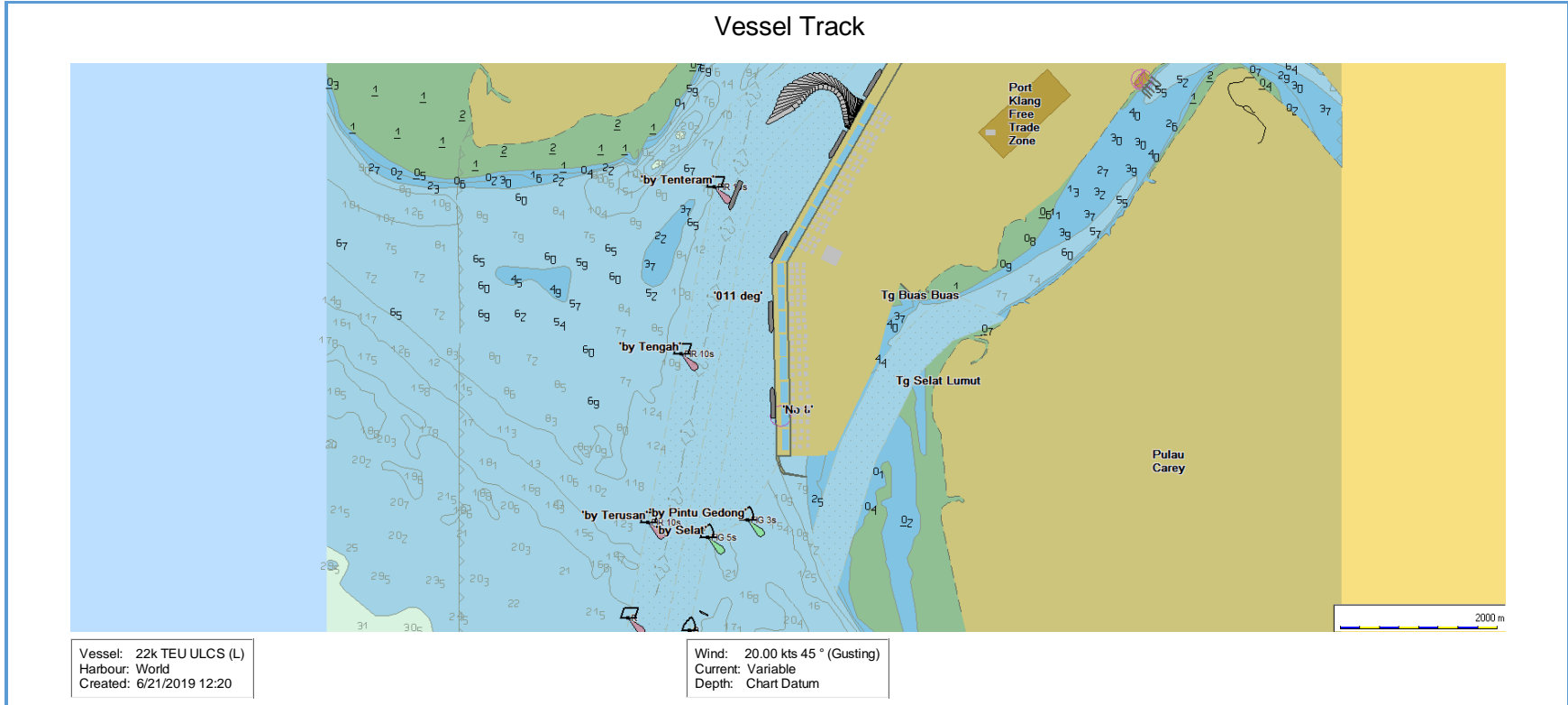


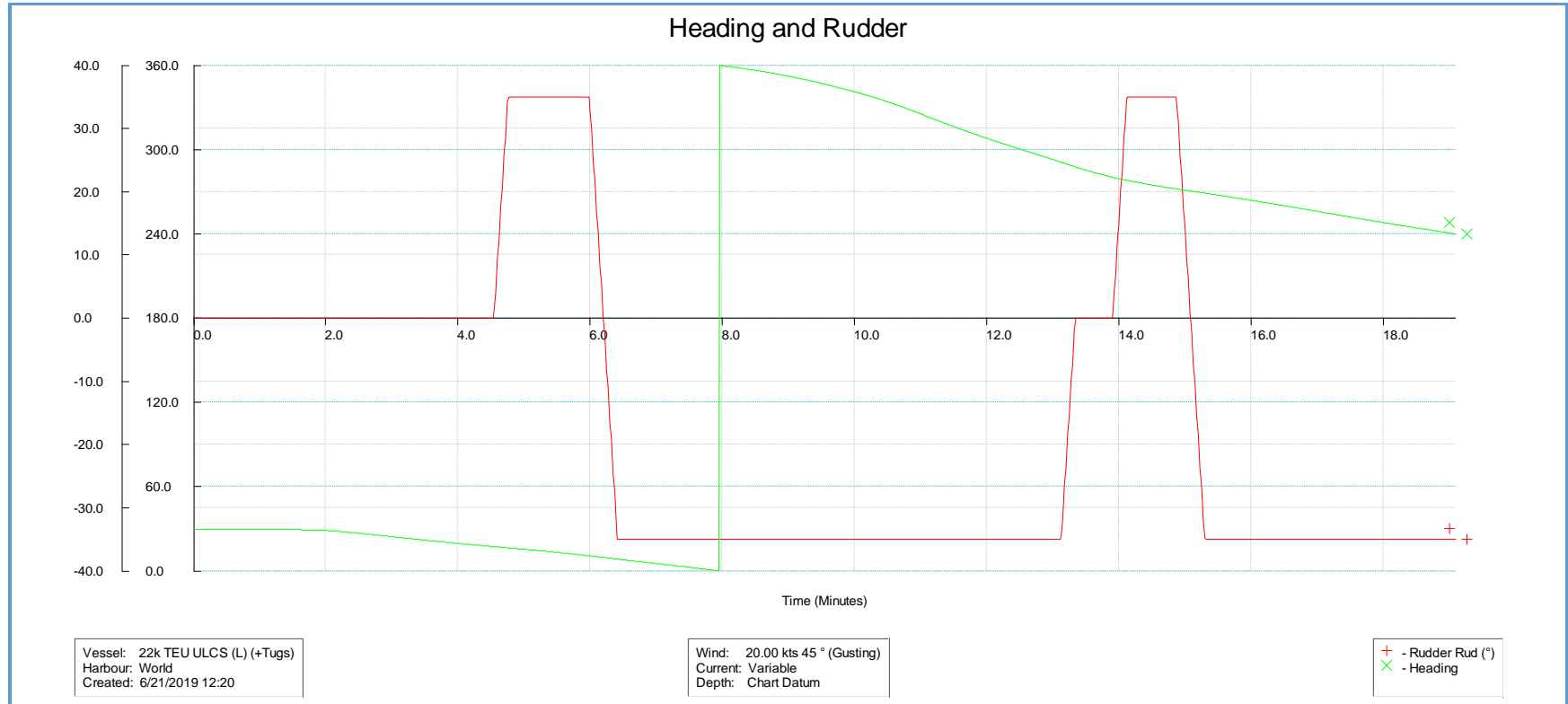


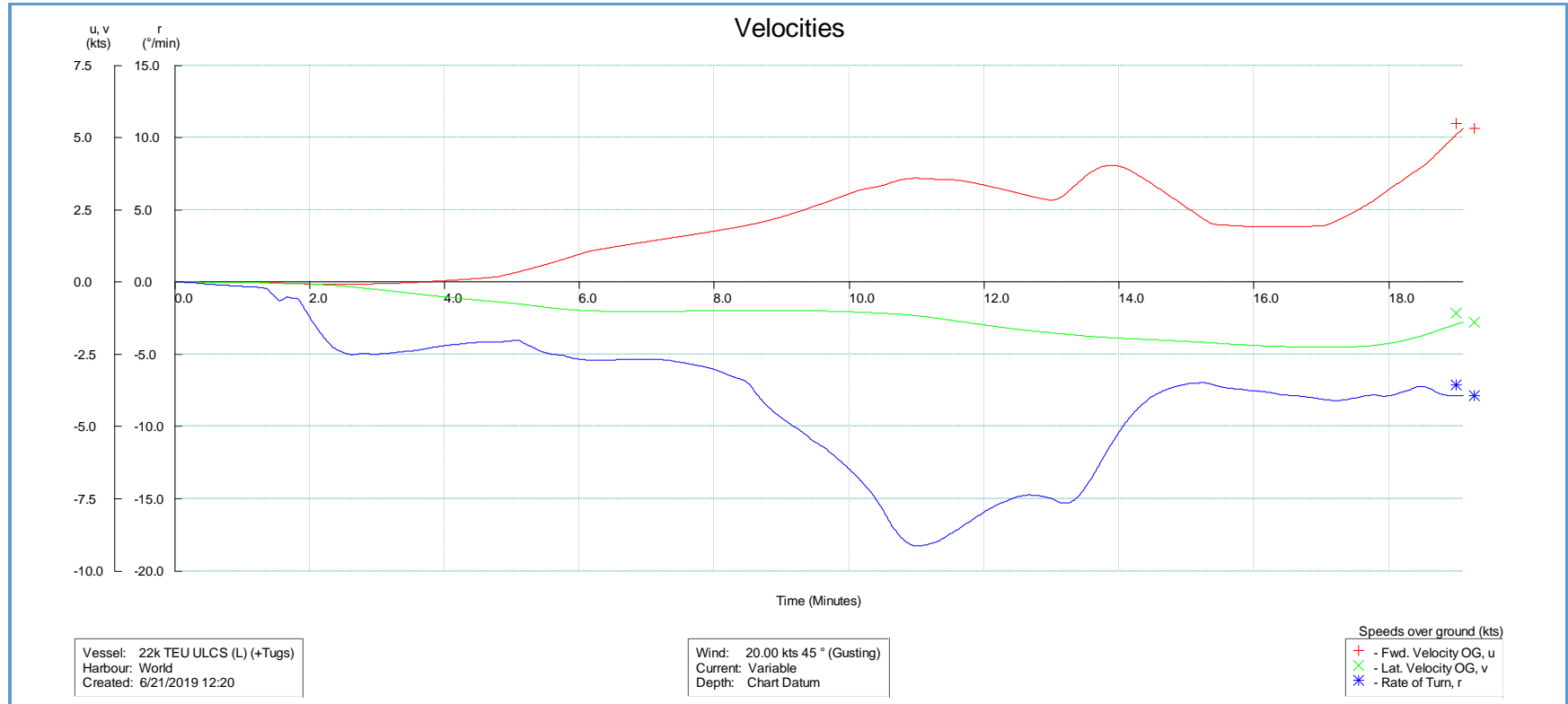


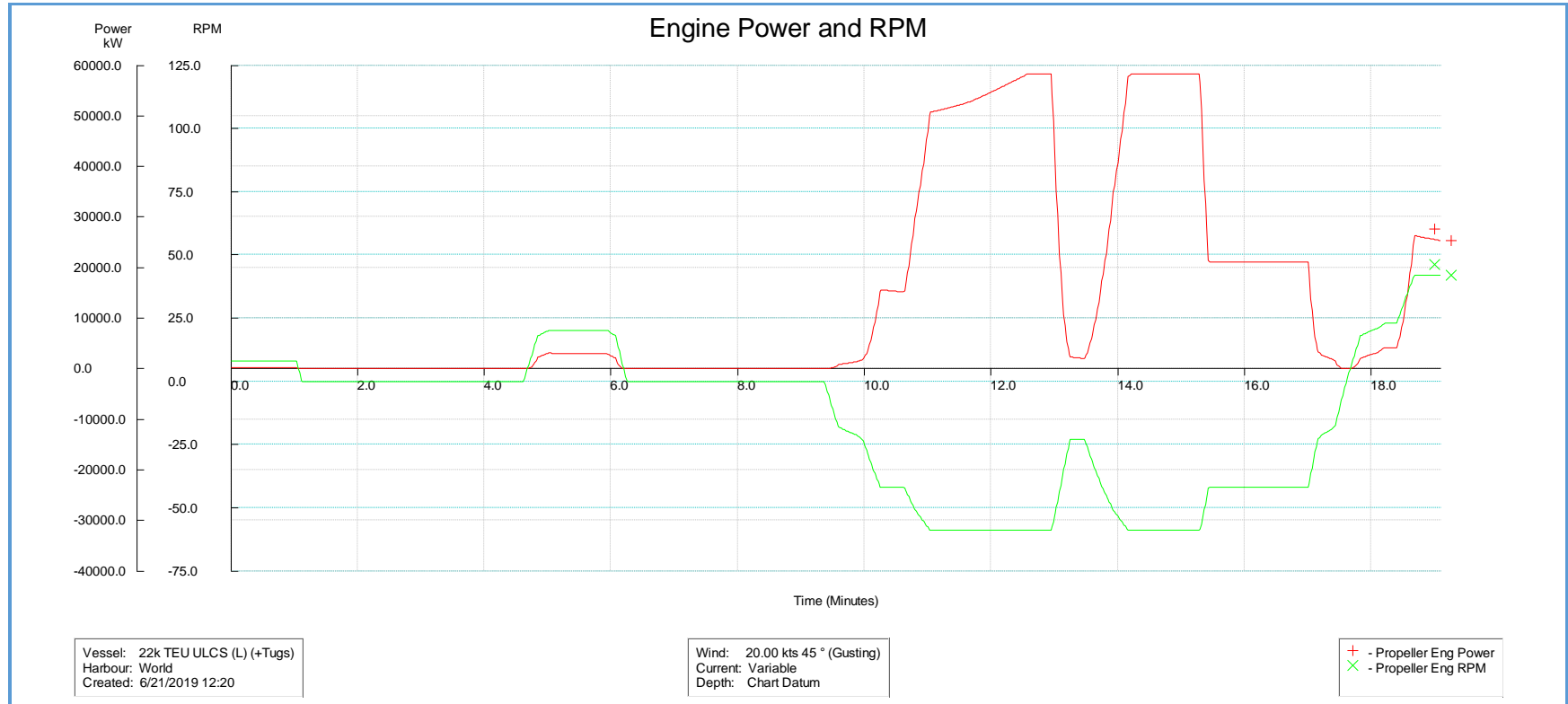
Run No. 8	NE Ebb	20k NE Flood	SW Ebb	SW Flood	
<b>BERTH CT-10</b>					
Vessel: 22K TEU ULCS	Green	Amber	Red		
APPROACH	X				
TRANSIT	X				
BERTHING/UNBERTHING	X				
Comments	A lot of astern movement required to avoid headway from exceeding channel limit. All four tugs required at 60ton capacity.				

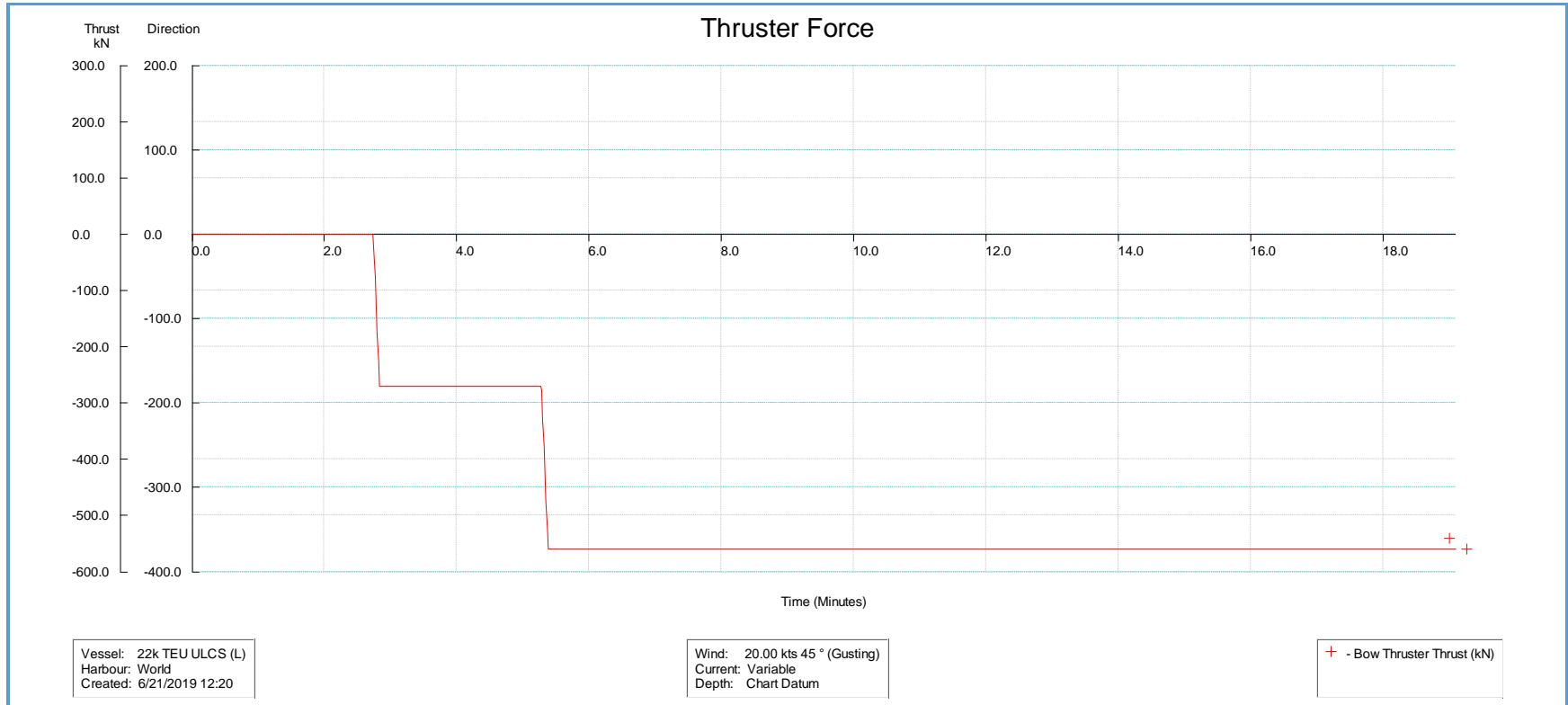
### Vessel Track

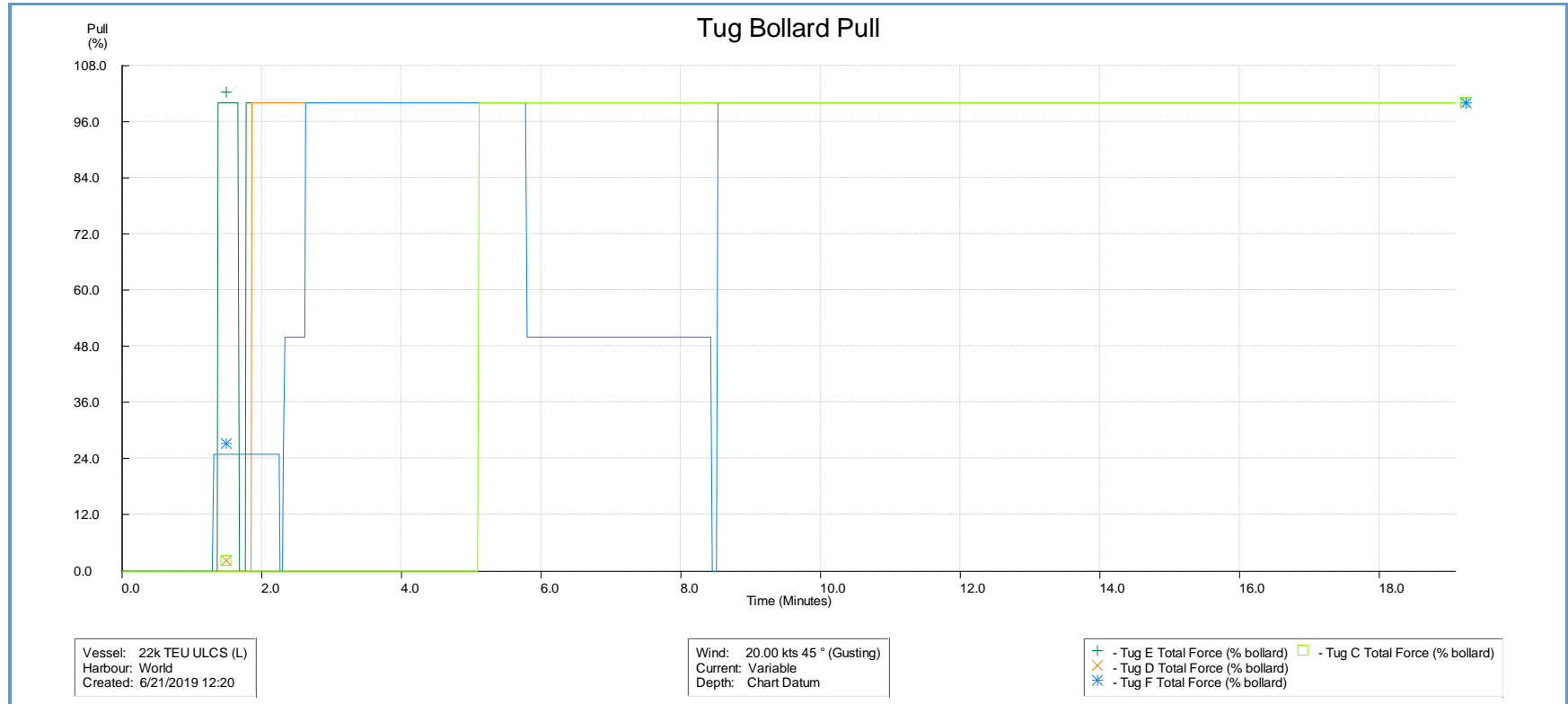














Run No. 9	20k NE Ebb	<del>NE Flood</del>	<del>SW Ebb</del>	<del>SW Flood</del>	
<b>BERTH CT-17</b>					
Vessel: 22K TEU ULCS	Green	Amber	Red		
APPROACH	X				
TRANSIT	X				
BERTHING/UNBERTHING	X				
Comments	<p>Use of two 60ton tugs is not possible due to the strong winds. Require four 60ton tugs.</p> <p>Not advisable to use astern movement due to NE strong wind.</p> <p>Swing with the tide and the power of the tugs until sufficient room (80m from bow to wharf) is available .</p>				

### Vessel Track

