



# END VOYAGE PERFORMANCE REPORT

## **MV Jag Anand**

**Prepared Basis : CP Speed**

madras to cbe

Dep.Date: 25-11-2023 03:00 UTC

Arrival.Date: 05-12-2023 16:30 UTC

Condition : Laden

**Report Date : 15-Feb-24**

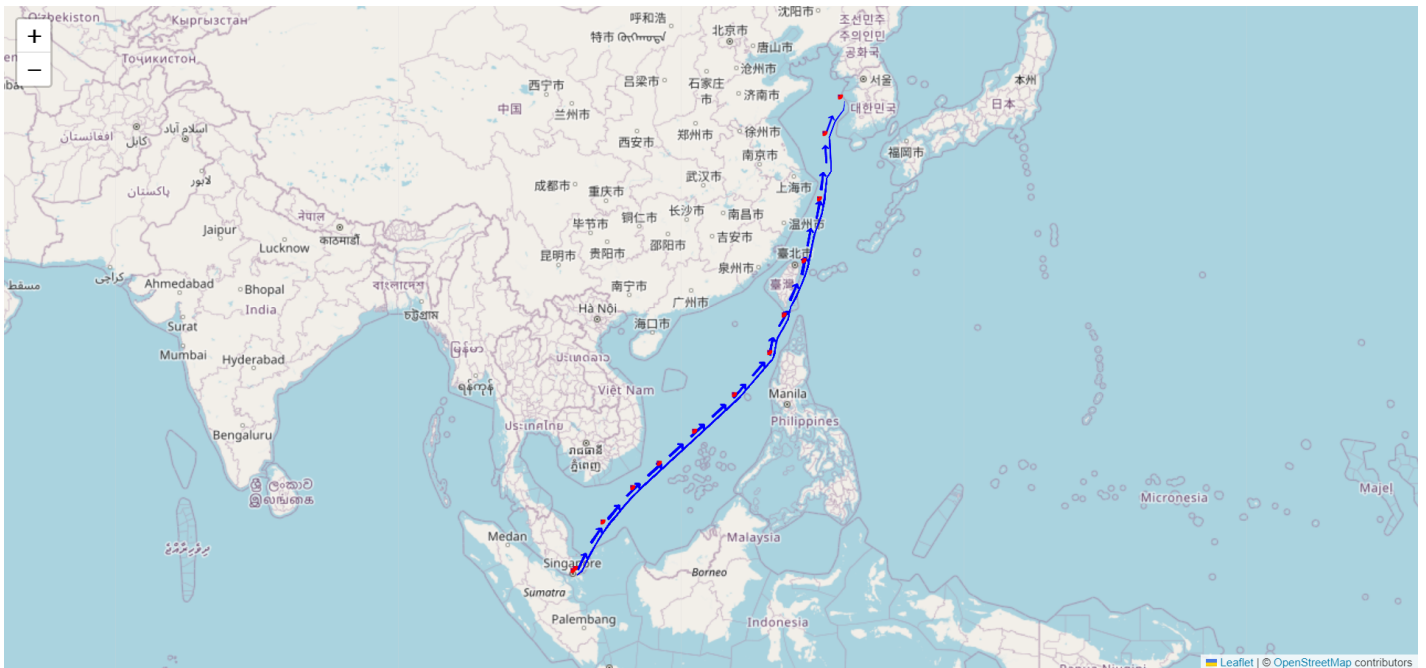
**Reference No. :**

## VOYAGE MAP

Itinerary : madras - cbe

Voyage Leg Date(UTC) : 25-11-2023 03:00 - 05-12-2023 16:30

CP Warranties : About 11.75 Kts on About 39.6 Mts Fuel



## Report Analysis Summary

Itinerary : madras - cbe

Voyage Leg Date(UTC) : 25-11-2023 03:00 - 05-12-2023 16:30

ATD(Z)	Time gain/loss	V/U/L SFO gain/loss	HSFO gain/loss	MGO gain/loss	MDO gain/loss
madras - cbe 25-11-2023 03:00	10.01 hours(Loss)	Nil	3.14 mt(Loss)	Nil	NA

## Voyage Details

Leg Details	ATD(Z)	ETA(Z)	Good Weather				Performance		Overall Weather			
			Distance	Steaming Hours	Speed	Total Cons	Distance (Exc currents)	Speed	Distance	Steaming Hours	Speed	Total Cons.
madras to cbe	2023-11-25	2023-12-05	524	48.0	10.95	80.2	524	10.95	2516	253.5	9.93	438.07
			524	48.0	10.95	80.2	524	10.95	2516	253.5	9.93	438.07

## Warranted Consumption

Leg Details	CP Speed	Total Cons.
madras to cbe	About 11.75 kts	About 39.6 MT

## Report Analysis Summary

Interpretation of good weather criteria as per CP:

### **Weather Definition:**

A noon report is counted as fair weather if majority of the noon period is good weather basis analyzed weather

- Wind Force  $\leq 3$  Bf
- Adverse Currents are excluded

### **Noon Report excluded from evaluation :**

Weather Source : Analyzed

Speed used for Analysis : Performed speed

All comparisons are done against CP Speed

### **“About” Tolerance:**

- For speed :  $-0.5 / +0.5$  Kts
- For consumption :  $-5.0 / +5.0$  %

Good weather performance is extrapolated to overall voyage

\*\*\*Note: The calculations for the report are done on the performed speed by adjusting the effect of currents (If applicable).

## Speed Summary

Itinerary : madras - cbe

Voyage Leg Date(UTC) : 25-11-2023 03:00 - 05-12-2023 16:30

CP Warranties : About 11.75 Kts on About 39.6 Mts Fuel

## Overall

Total Distance Sailed	2516 NM
Time at Sea	253.5 hrs
Average Speed	9.93 kts

## Good Weather

Total Distance Sailed	524 NM
Time at Sea	48.0 hrs
Average Speed	10.92 kts
Current Factor	N/A
Performance Speed	10.92 kts
Adjusted Time in Good weather	48.7 hrs
C/P Min.Allowable Time	42.17 hrs
C/P Max.Allowable Time	45.91 hrs
Track Time Loss	2.09 hrs
Applied to Overall Track Time Loss	10.01 hrs

## Fuel Consumption Summary

Itinerary : madras - cbe

Voyage Leg Date(UTC) : 25-11-2023 03:00 - 05-12-2023 16:30

CP Warranties : About 11.75 Kts on About 39.6 Mts Fuel

### Overall

Average Daily Consumption	39.66 mts
Total Bunkers Consumed at Sea	418.89 mts
Gradewise Distribution of Bunkers consumed at sea	
HSFO	399.67 mts
IFO	0.0 mts
GO	19.22 mts

### Good Weather

Actual Usage in Good Weather	80.2 mts
Average Daily Consumption	40.1 mts
Min.Allowable Usage	71.97 mts
Max Allowable Usage	79.55 mts
Fuel Loss	0.65 mts
Fuel Loss applied to overall track	3.14 mts

### CO2 Emissions Summary

Overall

Total CO2 produced at sea (MT)	1306.19 mts
--------------------------------	-------------

## Detailed Weather Analysis

Itinerary : madras - cbe

Voyage Leg Date(UTC) : 25-11-2023 03:00 - 05-12-2023 16:30

CP Warranties : About 11.75 Kts on About 39.6 Mts Fuel

Date/Time	Lat	Lon	Wind		SWH	Wind Wave		Swell		Current factor	Bad Weather Details	Report Data by Ship								
			BFT	Dir.(rel.)		Hgt(m)	(m)	Hgt (m)	Dir. (rel.)			Kts	Steaming Hours	Distance (NM)	Wind (Bft)	Current Factor (Kts)	Ordered Speed (Kts)	Avg. Speed (Kts)	RPM	Slip (%)
25th Nov 2023 03:00	1.27	104.28	3	282.99	0.30	0.09	0.29	34.5	-0.78			0.00	0.00	3.00	0.00	11.75	0.00	0.00	0.00	83.00
25th Nov 2023 04:00	1.38	104.43	3	274.17	0.73	0.33	0.71	22.46	-0.26			1.00	12.00	3.00	0.00	11.75	12.00	61.80	0.00	52.00
25th Nov 2023 07:00			4	286.12	0.91	0.37	0.86	16.83	-0.42	WLCU										
25th Nov 2023 10:00			4	265.3	1.14	0.62	0.95	20.83	-0.65	WLCU										
25th Nov 2023 13:00			3	303.78	1.09	0.43	0.08	148.51	-1.13	CU										
25th Nov 2023 16:00			3	289.66	1.28	0.18	1.28	14.68	-0.51	CU										
25th Nov 2023 19:00			4	231.08	1.41	0.57	1.35	26.16	-0.35	WLCU										
25th Nov 2023 22:00			3	296.6	1.46	0.41	1.46	30.02	-0.32	CU										
26th Nov 2023 01:00			4	21.95	1.49	0.82	1.46	32.82	-0.84	WLCU										
26th Nov 2023 04:00	5.08	106.62	4	30.22	1.63	1.62	0.17	266.58	-1.08			24.00	259.00	5.00	0.00	11.75	10.80	65.56	0.00	39.00
26th Nov 2023 07:00			5	55.02	1.68	1.68	0.65	291.54	-0.97	WLCU										
26th Nov 2023 10:00			5	70.07	1.63	1.63	1.62	44.81	-1.53	WLCU										
26th Nov 2023 13:00			3	47.99	1.48	1.30	1.48	36.61	-1.52	CU										
26th Nov 2023 16:00			4	40.65	1.52	0.71	1.55	36.77	-1.15	WLCU										
26th Nov 2023 19:00			5	37.47	1.75	1.75	1.75	36.64	-1.63	WLCU										
26th Nov 2023 22:00			5	38.68	2.20	2.20	2.11	31.8	-1.32	WLCU										
27th Nov 2023 01:00			6	55.79	2.48	2.48	0.78	296.7	-1.38	WLCU										
27th Nov 2023 04:00	7.82	108.97	6	60.04	2.71	2.71	2.25	23.11	-1.53			24.00	216.00	6.00	0.00	11.75	9.00	65.88	0.00	54.00
27th Nov 2023 07:00			6	53.4	2.84	2.84	2.26	23.2	-1.66	WLCU										
27th Nov 2023 10:00			6	45.36	2.95	2.95	2.15	24.21	-1.27	WLCU										
27th Nov 2023 13:00			6	43.35	3.13	3.13	2.26	23.7	-1.06	WLCU										
27th Nov 2023 16:00			6	35.3	3.28	3.28	2.60	20.61	-0.90	WLCU										
27th Nov 2023 19:00			6	35.42	3.32	3.32	2.66	18.47	-0.73	WLCU										
27th Nov 2023 22:00			6	37.88	3.22	3.22	2.71	15.69	-0.44	WLCU										
28th Nov 2023 01:00			5	43.49	2.91	2.91	2.56	17.64	-0.60	WLCU										
28th Nov 2023 04:00	9.68	111.07	5	47.74	2.63	2.19	1.73	348.35	-0.67			24.00	168.00	6.00	0.00	11.75	7.00	61.13	0.00	47.00
28th Nov 2023 07:00			5	51.02	2.32	2.32	2.46	22.13	-0.60	WLCU										
28th Nov 2023 10:00			4	54.28	2.20	2.20	2.15	27.26	-0.59	WLCU										
28th Nov 2023 13:00			4	50.78	2.14	2.14	2.36	23.8	-0.73	WLCU										
28th Nov 2023 16:00			4	43.5	2.01	2.08	2.01	25.31	-0.54	WLCU										
28th Nov 2023 19:00			4	43.43	2.00	2.00	2.04	27.49	-0.39	WLCU										
28th Nov 2023 22:00			4	50.72	1.89	1.88	1.49	0.53	-0.05	WLCU										
29th Nov 2023 01:00			4	64.88	1.76	1.81	1.81	29.69	0.19	WI										
29th Nov 2023 03:00	12.22	113.88	4	67.03	1.65	1.79	1.65	30.65	0.50			23.00	224.00	6.00	0.00	11.75	9.70	64.14	0.00	47.00
29th Nov 2023 06:00			4	67.55	1.79	2.00	1.79	28.92	0.57	WI										
29th Nov 2023 09:00			4	73.72	2.08	0.86	1.89	27.9	0.78	WI										
29th Nov 2023 12:00			4	68.51	2.17	1.14	1.85	28.02	0.76	WI										
29th Nov 2023 15:00			4	56.96	2.09	1.15	1.75	28.26	0.27	WI										
29th Nov 2023 18:00			4	44.38	1.91	1.90	0.13	324.73	0.32	WI										
29th Nov 2023 21:00			4	29.2	1.74	1.69	0.77	110.98	0.36	WI										
30th Nov 2023 00:00			4	42.7	1.50	1.43	0.96	64.72	-0.50	WLCU										
30th Nov 2023 03:00	15.05	117.05	3	47.54	1.41	3.93	1.33	15.33	-0.43			24.00	250.00	6.00	0.00	11.75	10.40	64.03	0.00	47.00
30th Nov 2023 06:00			3	35.1	1.42	4.29	1.37	14.25	0.00											
30th Nov 2023 09:00			3	1.71	1.43	2.51	1.38	13.63	0.27											
30th Nov 2023 12:00			3	15.11	1.59	1.42	1.56	15.16	0.31											
30th Nov 2023 15:00			3	9.02	1.84	2.18	1.83	17.87	0.12											
30th Nov 2023 18:00			2	57.4	2.28	2.81	2.28	22.19	-0.05	CU										
30th Nov 2023 21:00			6	45.19	2.37	2.37	2.33	19.78	0.40	WI										
01st Dec 2023 00:00			7	49.29	2.67	2.67	1.68	13.16	0.46	WI										
01st Dec 2023 03:00	18.22	119.90	6	39.36	3.15	3.15	1.46	15.3	0.83			24.00	254.00	7.00	0.00	11.75	10.60	63.80	0.00	18.00



Date/Time	Lat	Lon	Wind		SWH	Wind Wave		Swell		Current factor	Bad Weather Details	Report Data by Ship								
			BFT	Dir.(rel.)	Hgt(m)	(m)	Hgt (m)	Dir. (rel.)	Kts			Steaming Hours	Distance (NM)	Wind (Bft)	Current Factor (Kts)	Ordered Speed (Kts)	Avg. Speed (Kts)	RPM	Slip (%)	Course
01st Dec 2023 06:00			7	48.29	3.28	3.28	1.34	10.21	1.13	WI										
01st Dec 2023 09:00			7	55.35	3.04	3.04	1.17	357.99	0.64	WI										
01st Dec 2023 12:00			7	53.29	3.22	3.22	0.76	338.43	0.51	WI										
01st Dec 2023 15:00			6	57.79	4.20	4.20	0.73	341.52	0.29	WI										
01st Dec 2023 18:00			7	49.7	4.39	4.39	0.43	328.19	-0.28	WLCU										
01st Dec 2023 21:00			7	50.99	4.38	4.38	0.85	95.37	-0.62	WLCU										
02nd Dec 2023 00:00			7	46.54	3.94	3.94	0.31	344.95	0.01	WI										
02nd Dec 2023 03:00	21.08	121.02	7	45.21	3.79	3.79	1.70	86.43	0.13			24.00	183.00	8.00	0.00	11.75	7.60	60.61	0.00	18.00
02nd Dec 2023 06:00			7	42.08	3.40	3.40	1.68	89.24	0.21	WI										
02nd Dec 2023 09:00			6	35.78	2.57	2.57	0.70	104.03	1.52	WI										
02nd Dec 2023 12:00			6	27.08	2.56	2.10	1.47	96.7	0.43	WI										
02nd Dec 2023 15:00			5	26.04	2.29	1.77	1.46	100.98	0.52	WI										
02nd Dec 2023 18:00			4	34.22	2.12	1.38	1.60	105.56	1.38	WI										
02nd Dec 2023 21:00			4	77.64	2.02	1.24	1.49	111.68	1.58	WI										
03rd Dec 2023 00:00			5	58.95	1.86	1.62	0.91	120.28	1.67	WI										
03rd Dec 2023 03:00	25.02	122.65	5	46.94	2.04	1.99	0.41	135.07	0.73			24.00	257.00	7.00	0.00	11.75	10.70	62.67	0.00	13.00
03rd Dec 2023 06:00			5	44.53	1.90	1.90	0.44	126.39	0.35	WI										
03rd Dec 2023 09:00			5	47.92	1.56	1.48	0.49	115.82	0.20	WI										
03rd Dec 2023 12:00			5	58.04	1.45	1.36	0.49	114.06	-0.02	WLCU										
03rd Dec 2023 15:00			5	54.15	1.15	1.04	0.47	121.27	0.26	WI										
03rd Dec 2023 18:00			4	58.62	0.89	0.74	0.45	123.73	0.32	WI										
03rd Dec 2023 21:00			3	81.89	0.74	0.56	0.19	93.65	0.18											
04th Dec 2023 00:00			4	73.44	0.64	0.46	0.36	121.76	0.23	WI										
04th Dec 2023 03:00	29.38	123.87	4	85.32	0.62	0.49	0.12	359.82	0.16			24.00	270.00	5.00	0.00	11.75	11.30	66.37	0.00	6.00
04th Dec 2023 06:00			3	96.29	0.55	0.40	0.27	114.28	0.09											
04th Dec 2023 09:00			3	47.94	0.50	0.30	0.31	357.31	0.01											
04th Dec 2023 12:00			3	79.7	0.43	0.16	0.33	358.44	-0.13	CU										
04th Dec 2023 15:00			2	133.64	0.38	0.12	0.28	351.89	0.03											
04th Dec 2023 18:00			1	350.4	0.27	0.55	0.20	350.22	0.10											
04th Dec 2023 21:00			2	336.29	0.22	0.15	0.16	125.36	-0.05	CU										
05th Dec 2023 00:00			1	260.77	0.23	0.41	0.08	358.84	0.09											
05th Dec 2023 03:00	33.83	124.32	3	230.5	0.33	0.31	0.16	149.73	0.02			24.00	270.00	4.00	0.00	11.75	11.30	66.17	0.00	1.00
05th Dec 2023 06:00			3	249.29	0.45	0.45	0.07	143.53	0.22											
05th Dec 2023 09:00			3	251.9	0.48	0.46	0.13	87.66	-0.03	CU										
05th Dec 2023 12:00			3	180.86	0.43	0.18	0.41	246.19	-0.15	CU										
05th Dec 2023 16:30	36.17	125.52	3	196.37	0.46	0.41	0.37	247.86	-0.15			13.50	153.00	3.00	0.00	11.75	11.30	66.28	0.00	40.00



## Good Weather Summary

Itinerary : madras - cbe

Voyage Leg Date(UTC) : 25-11-2023 03:00 - 05-12-2023 16:30

CP Warranties : About 11.75 Kts on About 39.6 Mts Fuel

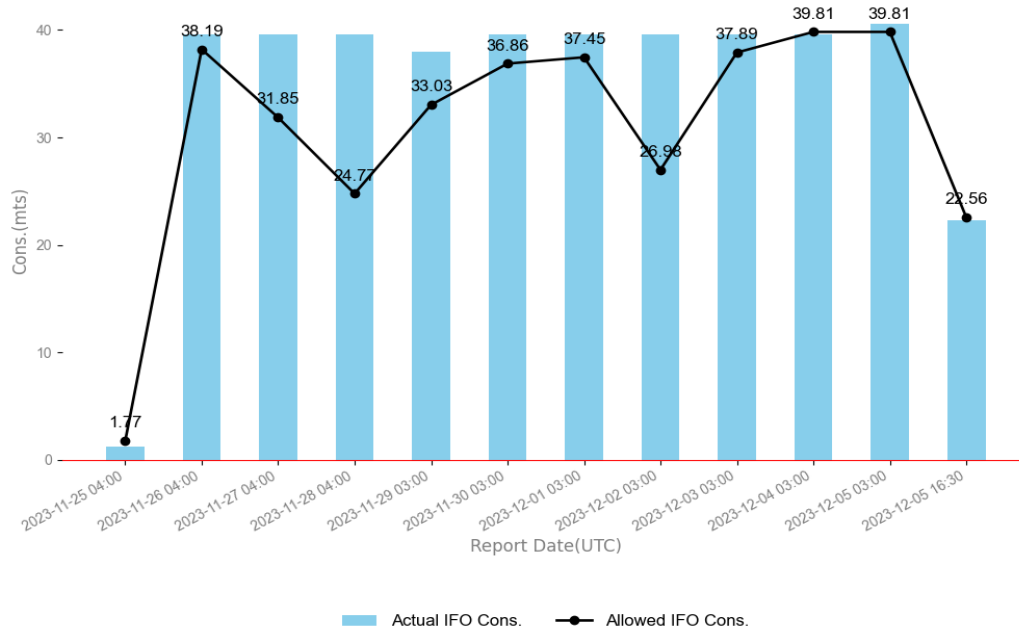
Date	Lat	Log	Steaming Hours	Allowed Steaming Hours	Distance (NM)	Avg - RPM	Slip (%)	Course	Bunker ROB (MT)				Bunker Cons. (MT)				Allowed Cons. MT	Exclusion	Good Weather
									HSFO	VULSFO	MGO	MDO	HSFO	VULSFO	MGO	MDO			
25th Nov 2023 03:00	COSP	madras	0.00	0.00	0	0.00	0	83	2056.80	0.00	342.35	0.00	0.00	0.00	0.00	0.00	0.00	YES	NO
25th Nov 2023 04:00	1.38	104.43	1.00	1.07	12	61.80	0	52	2055.78	0.00	342.10	0.00	1.02	0.00	0.25	0.00	1.77	YES	NO
26th Nov 2023 04:00	5.08	106.62	24.00	23.02	259	65.56	0	39	2016.18	0.00	342.10	0.00	39.60	0.00	0.00	0.00	38.19	YES	NO
27th Nov 2023 04:00	7.82	108.97	24.00	19.20	216	65.88	0	54	1976.58	0.00	342.10	0.00	39.60	0.00	0.00	0.00	31.85	YES	NO
28th Nov 2023 04:00	9.68	111.07	24.00	14.93	168	61.13	0	47	1936.98	0.00	342.10	0.00	39.60	0.00	0.00	0.00	24.77	YES	NO
29th Nov 2023 03:00	12.22	113.88	23.00	19.91	224	64.14	0	47	1899.03	0.00	342.10	0.00	37.95	0.00	0.00	0.00	33.03	YES	NO
30th Nov 2023 03:00	15.05	117.05	24.00	22.22	250	64.03	0	47	1859.43	0.00	342.10	0.00	39.60	0.00	0.00	0.00	36.86	YES	NO
01st Dec 2023 03:00	18.22	119.90	24.00	22.58	254	63.80	0	18	1819.83	0.00	342.10	0.00	39.60	0.00	0.00	0.00	37.45	YES	YES
02nd Dec 2023 03:00	21.08	121.02	24.00	16.27	183	60.61	0	18	1780.23	0.00	342.10	0.00	39.60	0.00	0.00	0.00	26.98	YES	NO
03rd Dec 2023 03:00	25.02	122.65	24.00	22.84	257	62.67	0	13	1740.63	0.00	342.10	0.00	39.60	0.00	0.00	0.00	37.89	YES	NO
04th Dec 2023 03:00	29.38	123.87	24.00	24.00	270	66.37	0	6	1701.03	0.00	342.10	0.00	39.60	0.00	0.00	0.00	39.81	YES	NO
05th Dec 2023 03:00	33.83	124.32	24.00	24.00	270	66.17	0	1	1660.43	0.00	342.10	0.00	40.60	0.00	0.00	0.00	39.81	YES	YES
05th Dec 2023 16:30	EOSP	cbe	13.50	13.60	153	66.28	0	40	1657.13	0.00	323.13	0.00	3.30	0.00	18.97	0.00	22.56	YES	NO

## Message Traffic

Report Type	Position		Date/ Time (GMT)	Since last report								DTG (NM)	ETA (LT)	BROB(MT)				Remarks
	Lat	Log		Avg Wind (Dir. x Bft)	Avg Sea (Dir. x Height)	Ordered Speed (Kts)	Avg. Speed (Kts)	Course	RPM	Slip (%)	Distance Sailed (NM)			HSFO	V/ULSFO	MGO	MDO	
Departure-madras	1.27	104.28	25th Nov 2023 03:00	315 x 3	315 x 0.2	11.75	0.00	83	0.00	0	0	0	0	2056.80	0	342.35	0	
Noon	1.38	104.43	25th Nov 2023 04:00	315 x 3	315 x 0.5	11.75	12.00	52	61.80	0	12	0	0	2055.78	0	342.10	0	
Noon	5.08	106.62	26th Nov 2023 04:00	45 x 5	45 x 1.5	11.75	10.80	39	65.56	0	259	0	0	2016.18	0	342.10	0	
Noon	7.82	108.97	27th Nov 2023 04:00	45 x 6	45 x 2.0	11.75	9.00	54	65.88	0	216	0	0	1976.58	0	342.10	0	
Noon	9.68	111.07	28th Nov 2023 04:00	0 x 6	0 x 2.0	11.75	7.00	47	61.13	0	168	0	0	1936.98	0	342.10	0	
Noon	12.22	113.88	29th Nov 2023 03:00	45 x 6	45 x 2.0	11.75	9.70	47	64.14	0	224	0	0	1899.03	0	342.10	0	
Noon	15.05	117.05	30th Nov 2023 03:00	45 x 6	45 x 2.0	11.75	10.40	47	64.03	0	250	0	0	1859.43	0	342.10	0	
Noon	18.22	119.90	01st Dec 2023 03:00	45 x 7	45 x 2.5	11.75	10.60	18	63.80	0	254	0	0	1819.83	0	342.10	0	
Noon	21.08	121.02	02nd Dec 2023 03:00	45 x 8	45 x 3.5	11.75	7.60	18	60.61	0	183	0	0	1780.23	0	342.10	0	
Noon	25.02	122.65	03rd Dec 2023 03:00	45 x 7	45 x 2.5	11.75	10.70	13	62.67	0	257	0	0	1740.63	0	342.10	0	
Noon	29.38	123.87	04th Dec 2023 03:00	90 x 5	90 x 1.5	11.75	11.30	6	66.37	0	270	0	0	1701.03	0	342.10	0	
Noon	33.83	124.32	05th Dec 2023 03:00	225 x 4	225 x 0.5	11.75	11.30	1	66.17	0	270	0	0	1660.43	0	342.10	0	
Arrival-cbe	36.17	125.52	05th Dec 2023 16:30	90 x 3	90 x 0.2	11.75	11.30	40	66.28	0	153	0	0	1657.13	0	323.13	0	

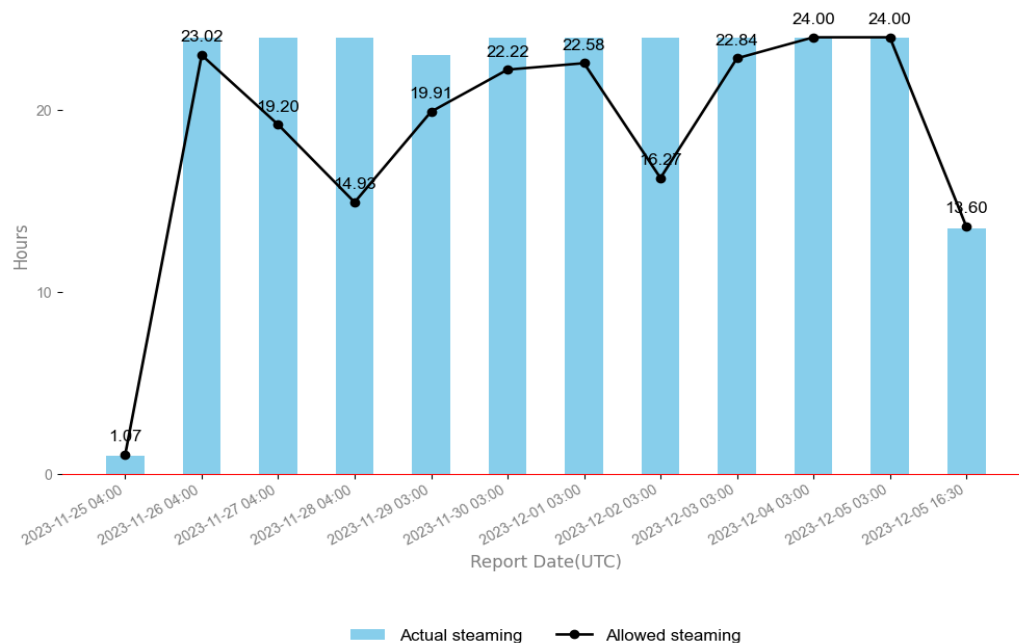
## Fuel Graph

Comparison between Actual vs Allowed IFO Cons.



## Steaming Graph

Comparison between Actual vs Allowed Steaming



## Annex A - Speed Calculation Detail

1 Min. C/P allowable time (hrs)

$$= \frac{\text{Distance in Good Weather (NM)} - (+/- \text{ Current Factor} \times \text{Actual Time in Good Weather (NM)})}{(\text{Warranted Speed (kts)} + \text{About (kts)})}$$

2 Max. C/P allowable time (hrs)

$$= \frac{\text{Distance in Good Weather (NM)} - (+/- \text{ Current Factor} \times \text{Actual Time in Good Weather (NM)})}{(\text{Warranted Speed (kts)} - \text{About (kts)})}$$

3 Adjusted Time in Good weather

$$= \frac{\text{Distance Sailed in Good Weather}}{(\text{Average Speed in Good Weather} - \text{Current Factor})}$$

4 Track Time Gain = Min. C/P allowable time (hrs) - Adjusted Time in Good weather

5 Track Time Loss = Max. C/P allowable time (hrs) - Adjusted Time in Good weather

6 Track Time is applied to Overall Track Time

$$= \left[ \frac{\text{Good Weather gain/Loss track time(hrs)}}{\text{Good Weather Distance (NM)}} \right] \times \text{Total Voyage Distance (NM)}$$

## Annex B - Fuel Consumption Calculation Detail

Distance adjusted for current (NM)

$$= \text{Distance in Good Weather (NM)} - (+/- \text{Current Factor} \times \text{Actual Time in Good Weather})(\text{NM})$$

1 Min. Allowable Usage (mts)

$$= \left[ \frac{\text{Distance adjusted for current (NM)}}{(\text{C/P Speed} - \text{About (Kts)}) * 24} \right] \times \text{Daily C/P allowable Consumption} \times (1 - \text{About \%})$$

2 Max Allowable Usage (mts)

$$= \left[ \frac{\text{Distance adjusted for current (NM)}}{(\text{C/P Speed} - \text{About (Kts)}) * 24} \right] \times \text{Daily C/P allowable Consumption} \times (1 + \text{About \%})$$

3 Good Weather Fuel Gain

$$= \text{Min. Allowable Usage (mts)} - \text{Actual Usage in Good Weather (mts)}$$

4 Good Weather Fuel Loss

$$= \text{Max. Allowable Usage (mts)} - \text{Actual Usage in Good Weather (mts)}$$

5 Good Weather Fuel Gain/Loss Consumption applied to overall track

$$= \left[ \frac{\text{Good Weather Fuel gain/Loss Consumption (mts)}}{\text{Good Weather Distance (NM)}} \right] \times \text{Total Voyage Distance (NM)}$$

## Annex C - CO2 Emission Calculation Detail

Total CO2 produced at sea (MT) =  $\Sigma(\text{bunker consumed} \times \text{CO2 factor for particular grade})$

\*all CO2 factors are considered as mentioned in IMO GHG Study 2020 (pg.74; Table 21)

## Weather DataSources

Our weather forecast is based on data from several sources including NOAA server along with two other agencies. The weather projection model consists of 05 days accurate weather forecast along with 09 days extended forecast. For subsequent days, information from historical weather database is used.

### **WAVEWATCH III for Wind/Waves/Swell**

WAVEWATCH III is a third generation multi-grid wave model at NOAA/NCEP in the spirit of WAM model.

Update Interval : 6 Hours

Average Resolution Time : 3 Hours

Time Period : 5 Days

Provider : NOAA (National Oceanic & Atmospheric Administration)

### **GEFS (Global Ensemble Forecast System) for Wind/Waves/Swell**

The Global Ensemble Forecast System (GEFS) is a weather forecast model made up of 21 separate forecast or ensemble members.

Update Interval : 6 Hours

Average Resolution Time : 3 Hours

Time Period : 16 Days

Provider : NOAA (National Oceanic & Atmospheric Administration)

### **Copernicus Marine Environment Monitoring Service- for Sea Currents**

The Copernicus Marine Environment Monitoring Service is part of the Copernicus Programme, which is an EU Programme managed by the European Commission (EC) and implemented in partnership with the Member States, the European Space Agency (ESA), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), the European Centre for medium-range Weather Forecasts (ECMWF), EU Agencies and Mercator Ocean. The Programme is aimed at developing a set of European information services based on satellite Earth Observation and in-situ (non-space) data.

Spatial Resolution : 0.08 degree (Lat) x 0.08 degree (Lon)

Temporal Resolution : Hourly mean

Time Period : 7 Days

Provider : Copernicus