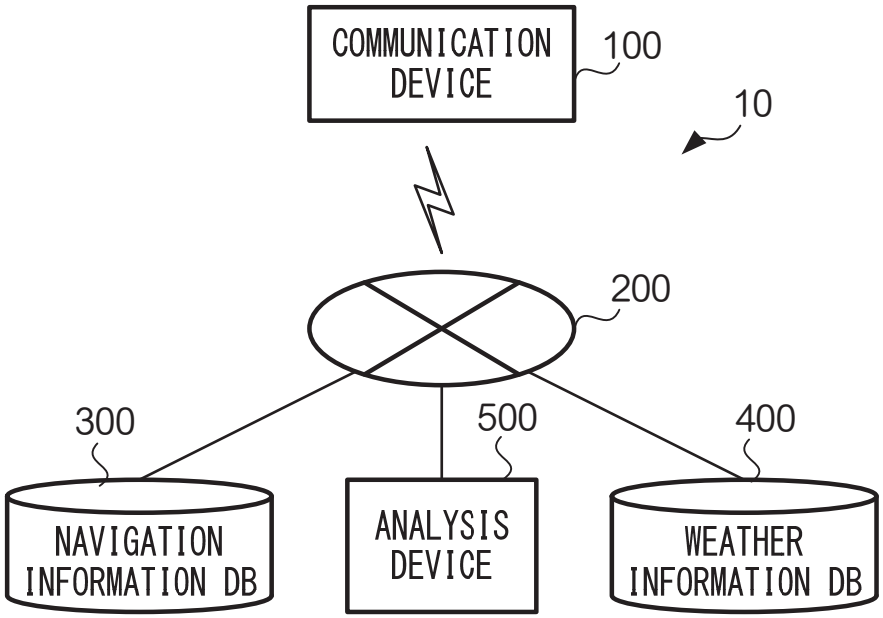
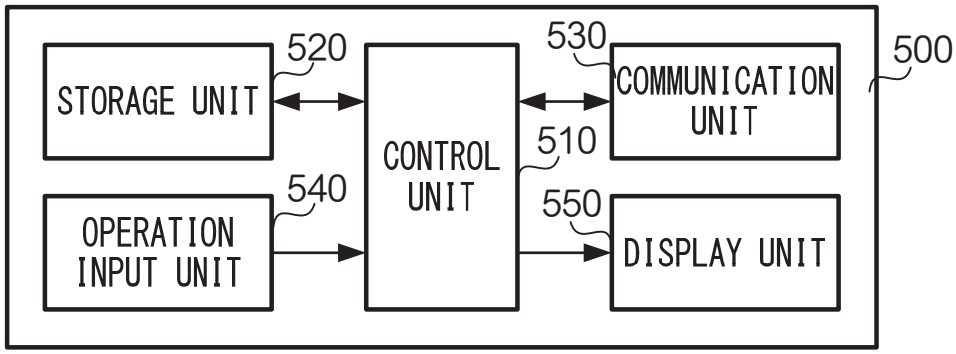
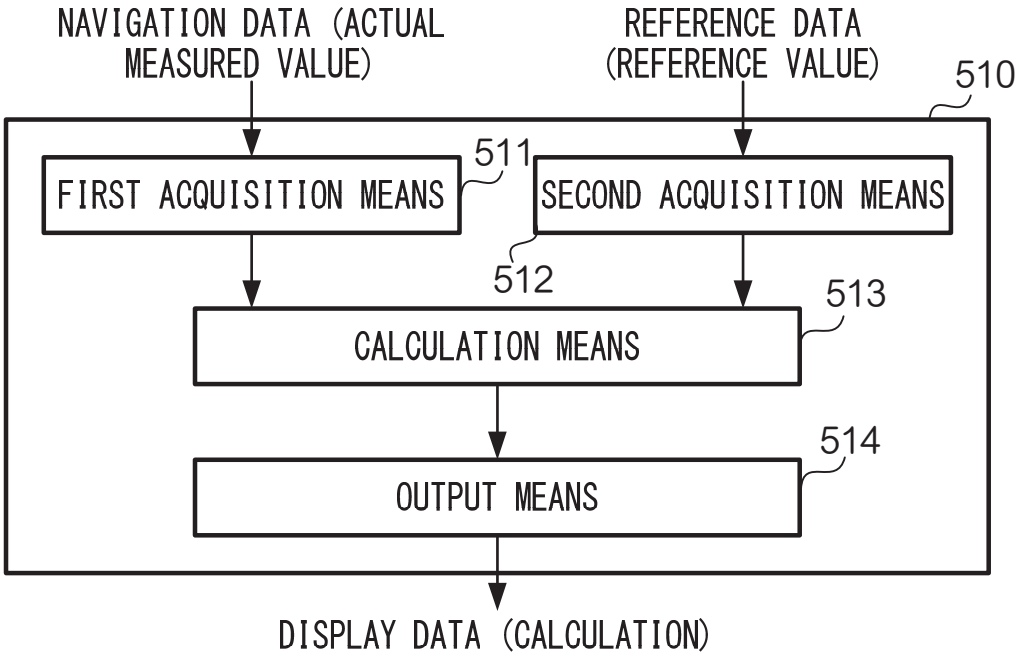
[FIG. 1]


COMMUNICATION DEVICE
100
10
200
300
500
400
NAVIGATION INFORMATION DB
ANALYSIS DEVICE
WEATHER INFORMATION DB

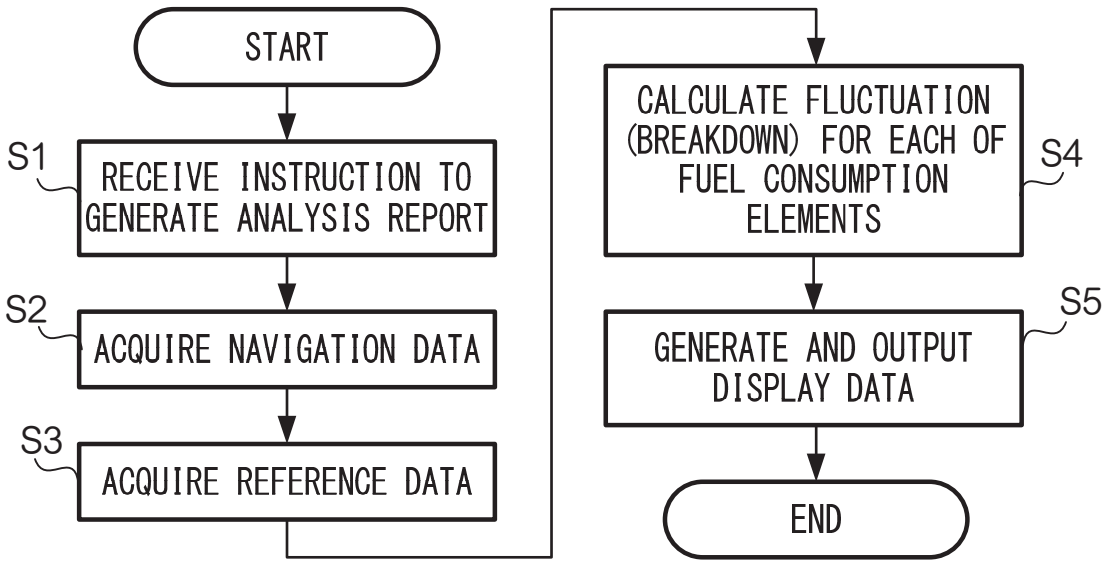
[FIG. 2]


STORAGE UNIT
520
530
COMMUNICATION UNIT
500
CONTROL UNIT
510
OPERATION INPUT UNIT
540
550
DISPLAY UNIT

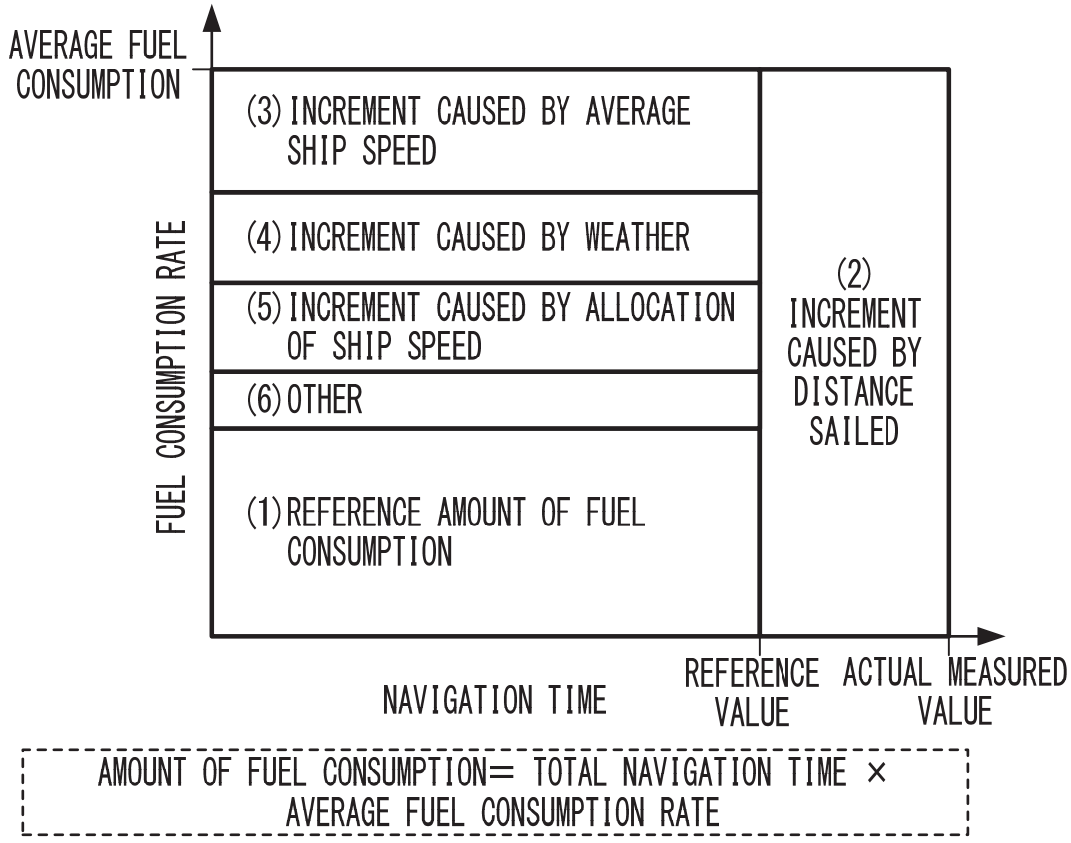
[FIG. 3]


NAVIGATION DATA (ACTUAL MEASURED VALUE)
REFERENCE DATA (REFERENCE VALUE)
510
511
FIRST ACQUISITION MEANS
SECOND ACQUISITION MEANS
512
513
CALCULATION MEANS
514
OUTPUT MEANS
DISPLAY DATA (CALCULATION)

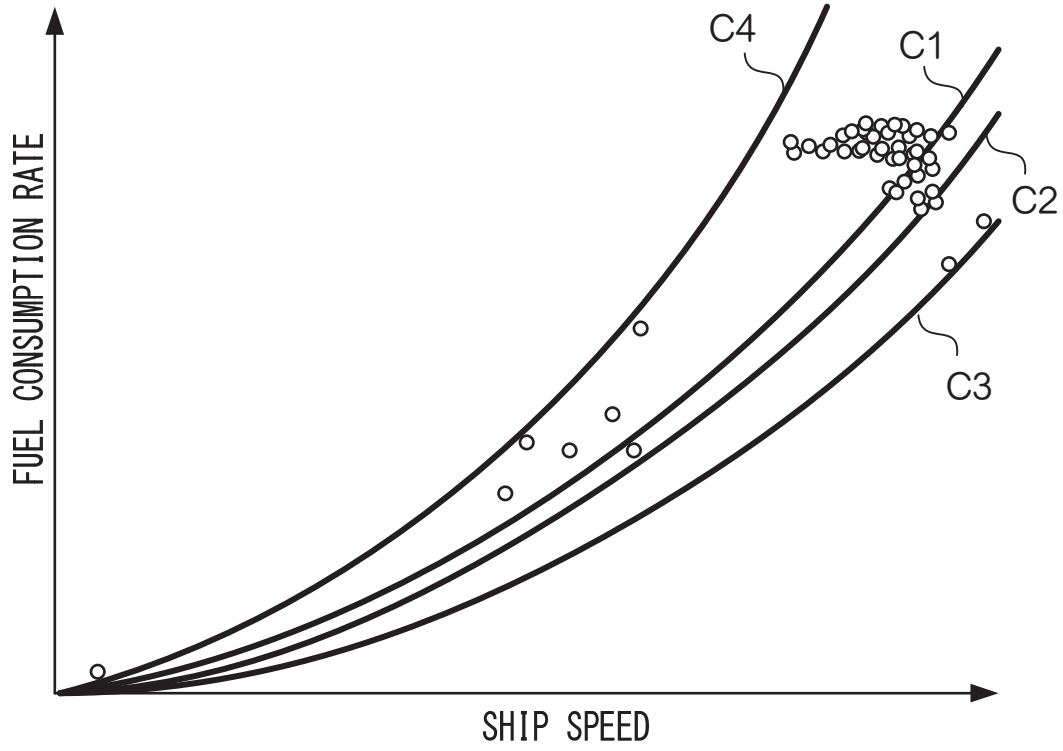
[FIG. 4]


START
S1
RECEIVE INSTRUCTION TO GENERATE ANALYSIS REPORT
S2
ACQUIRE NAVIGATION DATA
S3
ACQUIRE REFERENCE DATA
CALCULATE FLUCTUATION (BREAKDOWN) FOR EACH OF FUEL CONSUMPTION ELEMENTS
S4
GENERATE AND OUTPUT DISPLAY DATA
S5
END

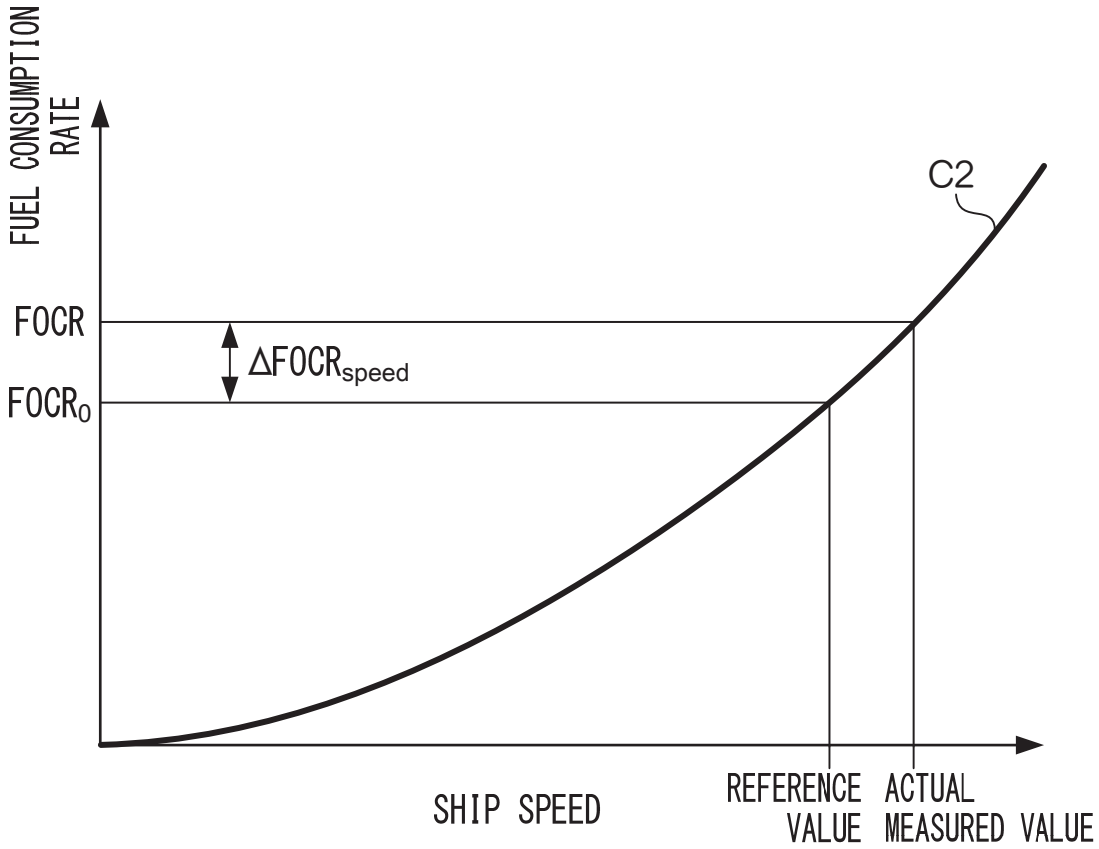
[FIG. 5]


AVERAGE FUEL CONSUMPTION
FUEL CONSUMPTION RATE
(3) INCREMENT CAUSED BY AVERAGE SHIP SPEED
(4) INCREMENT CAUSED BY WEATHER
(5) INCREMENT CAUSED BY ALLOCATION OF SHIP SPEED
(6) OTHER
(1) REFERENCE AMOUNT OF FUEL CONSUMPTION
(2) INCREMENT CAUSED BY DISTANCE SAILED
NAVIGATION TIME
REFERENCE VALUE
ACTUAL MEASURED VALUE
AMOUNT OF FUEL CONSUMPTION= TOTAL NAVIGATION TIME × AVERAGE FUEL CONSUMPTION RATE

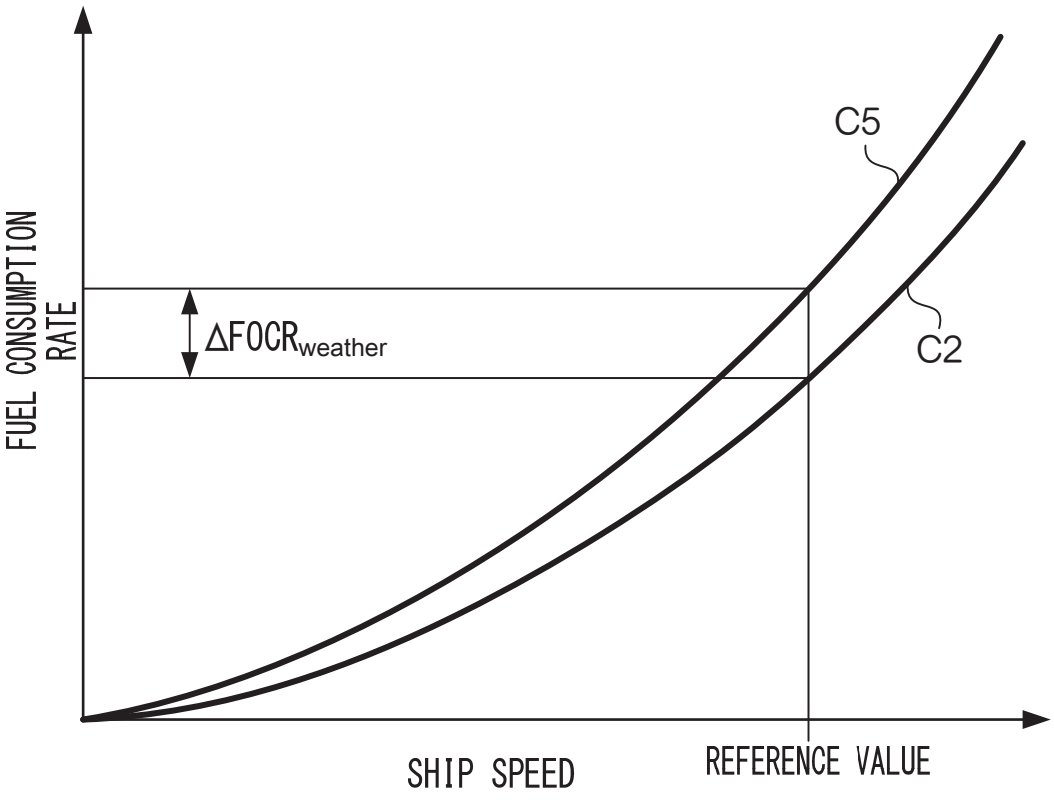
[FIG. 6]


C4
C1
C2
C3
FUEL CONSUMPTION RATE
SHIP SPEED

[FIG. 7]


FUEL CONSUMPTION RATE
C2
FOCR
ΔFOCR$_{speed}$
FOCR$_0$
SHIP SPEED
REFERENCE VALUE
ACTUAL MEASURED VALUE

[FIG. 8]


FUEL CONSUMPTION RATE
C5
C2
ΔFOCR$_{weather}$
SHIP SPEED
REFERENCE VALUE

[FIG. 9]

ANALYSIS REPORT

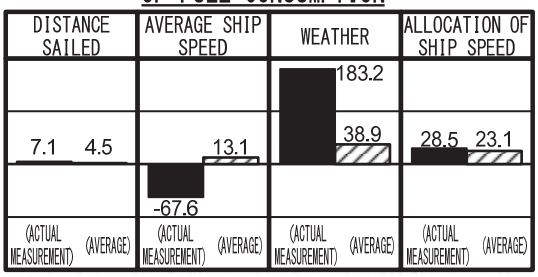
NAVIGATION INFORMATION

NAME OF SHIP	NYK XXX
PORT OF DEPARTURE	TOKYO
PORT OF ARRIVAL	LOS ANGELES
TOTAL AMOUNT OF FUEL CONSUMPTION (TON)	1280
MAIN ENGINE	1230
POWER GENERATOR AND SO FORTH	50
TARGET AMOUNT OF FUEL CONSUMPTION (TON)	1200
PAST AVERAGE VALUE (TON)	1190

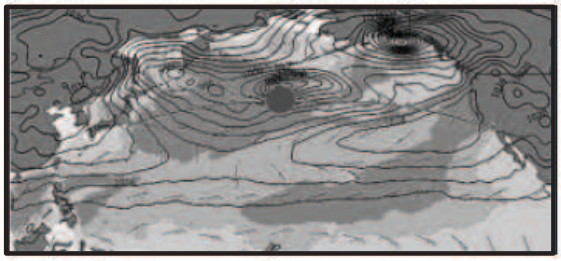
DIFFERENCE FROM PLAN

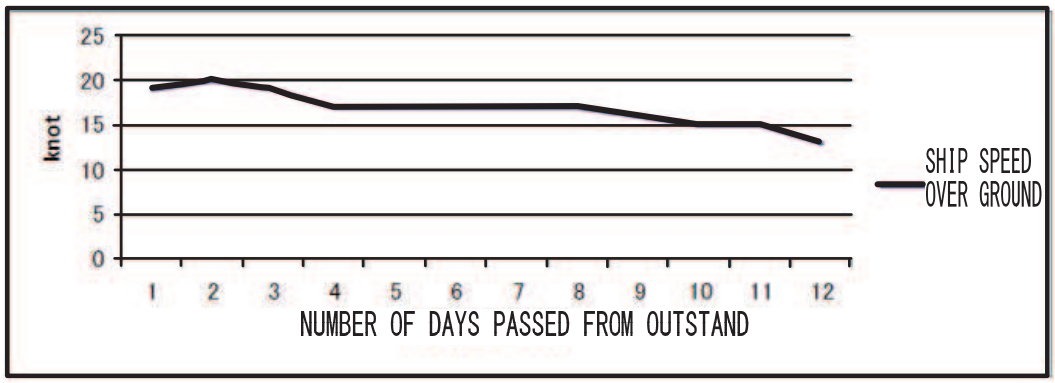
		(DIFFERENCE)
DEPARTURE TIME(UTC)	2012/2/8 12:00	−6
ARRIVAL TIME(UTC)	2012/2/20 4:00	±0
NAVIGATION TIME	280	+4
DISTANCE SAILED(mile)	4620	+30
AVERAGE SHIP SPEED OVER GROUND(knot)	16.5	−0.4
AVERAGE SHIP SPEED OVER WATER(knot)	16.7	
PORT STAY HOURS	10	−6

FACTOR ANALYSIS OF FLUCTUATION IN AMOUNT OF FUEL CONSUMPTION



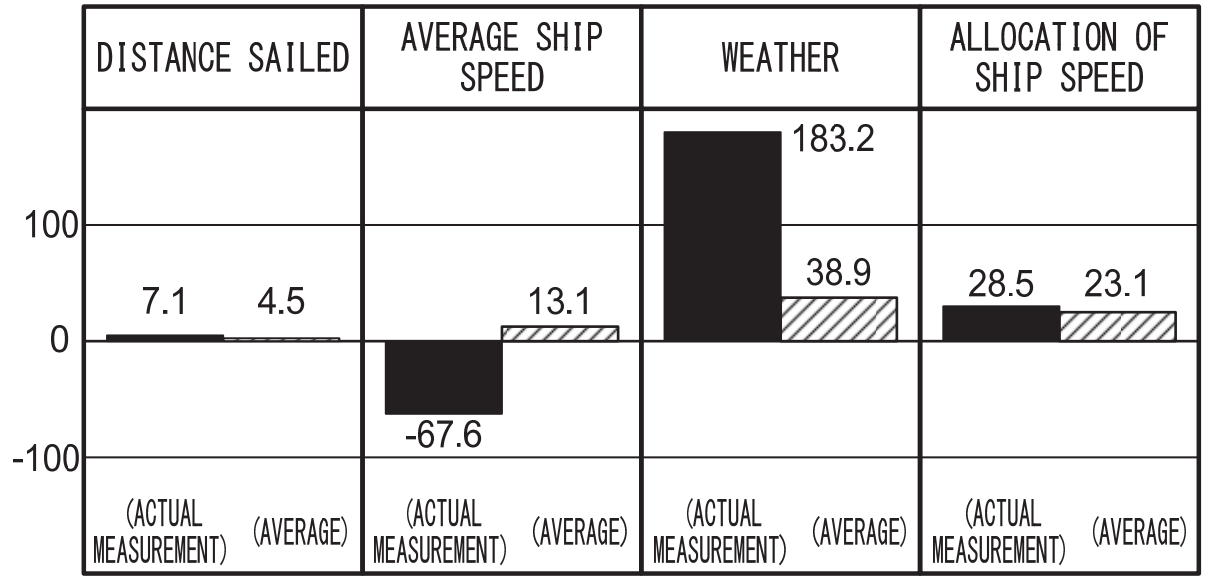
WEATHER CHART AND POSITION OF SHIP



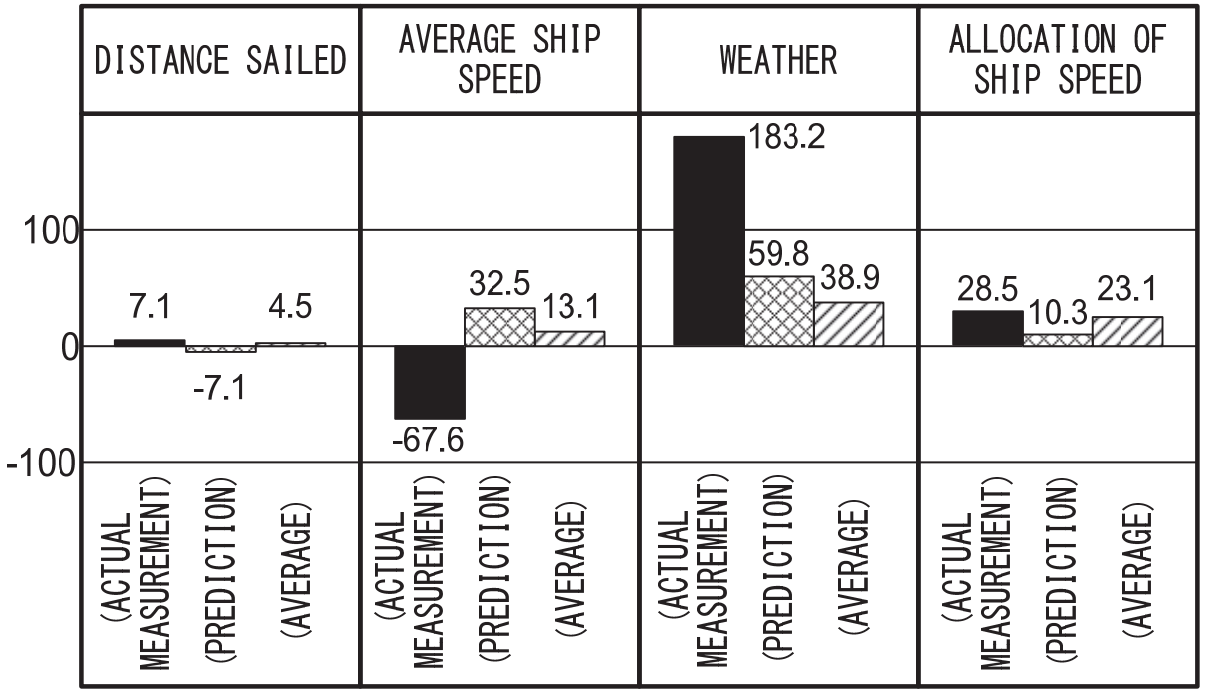


COMMENTS: IN THIS NAVIGATION, AN AMOUNT OF FUEL CONSUMPTION REACHES A TARGET AMOUNT OF FUEL CONSUMPTION + 80 TON AT PRESENT TIME. MAIN CAUSE OF INCREASE IN FUEL CONSUMPTION IS WEATHER CONDITIONS. ON THE OTHER HAND, SINCE A SHIP COULD SET SAIL FROM TOKYO SIX HOURS EARLIER THAN A PLANNED TIME, AN AVERAGE SHIP SPEED COULD BE REDUCED BY 0.4 KNOT. AS A RESULT, INCREMENT OF FUEL CONSUMPTION CAUSED BY WEATHER COULD BE REDUCED TO SOME EXTENT.

[FIG. 10]


DISTANCE SAILED
AVERAGE SHIP SPEED
WEATHER
ALLOCATION OF SHIP SPEED
100
0
-100
7.1
4.5
-67.6
13.1
183.2
38.9
28.5
23.1
(ACTUAL MEASUREMENT)
(AVERAGE)

[FIG. 11]


DISTANCE SAILED
AVERAGE SHIP SPEED
WEATHER
ALLOCATION OF SHIP SPEED
100
0
-100
7.1
-7.1
4.5
-67.6
32.5
13.1
183.2
59.8
38.9
28.5
10.3
23.1
(ACTUAL MEASUREMENT)
(PREDICTION)
(AVERAGE)