

Fig. 28

Looking closely at 233 accidents due to the typhoons in 2004 “by type of case”, the main aspects of typhoon maritime accidents will follow. The ratio of those accidents will be shown in Fig 29.

Detailed Breakdown of Marine Accidents

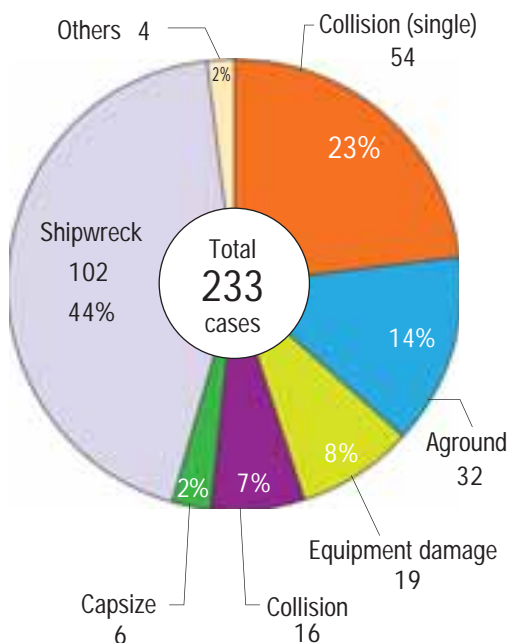


Fig. 29

* Collision (single)

While moored at a pier, the hull collided with the quay due to strong winds.
While berthing was in progress using the anchor, it collided with the quay because the strong winds did not allow for anchorage.

* Aground

While anchored, grounded on a rocky stretch due to a dragging anchor and sinking.
While turning round in the harbour, pressed by strong winds and therefore grounded in a swash.

* Equipment damage

Due to the strong wind, the antenna at the top of the mast was lost.
Because there was a danger of collision with another vessel due to dragging anchor, the anchor chain was cut off.

* Collision

Pressed by dragging anchor, ships collide with other ships while anchored.

* Capsize

Very stormy weather (at sea) was brought by typhoons approaching and fishing boats that were sailing out were discovered capsized.

* Shipwreck

Propellers which made contact and were damaged by floating matter such as driftwood due to heavy rain.
Towed objects drifting and being grounded in shallows due to a severed tow rope was cutted.
A loss of a lamp door due to a direct hit from a high wave.

§ 3 Dragging Anchor Cases

(From the Maritime Casualty Analysis Report [Vol. 6]: Typhoons and marine accidents issued by the Marine Accident Inquiry Agency [MAIA] in 2006)

3 - 1 The Aomori - Hakodate ferry “ Touya Maru ” accident

Touya Maru :

The Aomori - Hakodate ferry, 4,337 tons

Date, time and the point/location of occurrence:

22:45 JST on the 26th of September in 1954 in Hakodate Bay (during harbourage from the typhoon)

Weather at the time of sinking :

Rain, southwest wind, wind speed at 20m/s, wave height at 3m and 1 hour had passed since low tide had begun.

Accident summary

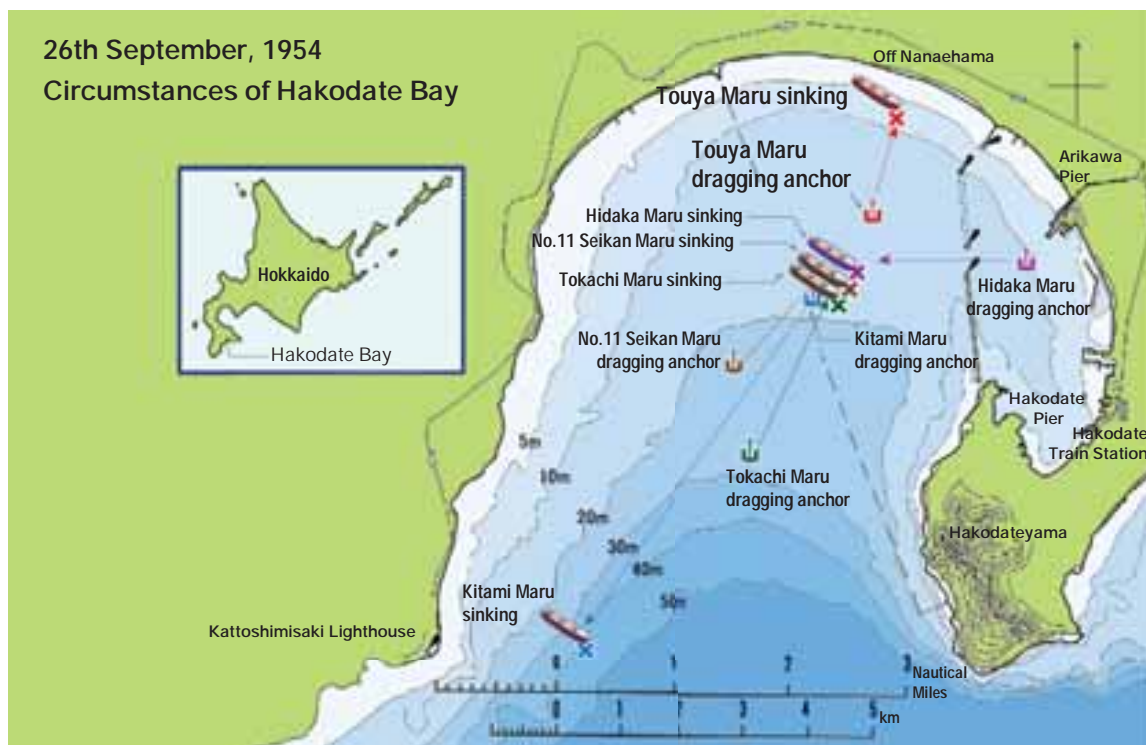


Fig. 30

Regarding the Aomori - Hakodate ferry, Touya Maru, the total number of persons on board was 1,314, (crew members: 111, passengers and so on: 1,203) with 12 freight cars loaded. While Typhoon No. 15 was approaching, Touya Maru

departed Hakodate Pier from within the Port of Hakodate bound for the Port of Aomori. She was to take refuge at the Hakodate Bay because outside the Port of Hakodate had already been seeing very stormy weather (at sea), however, she dragged anchor due to a gale and high waves. Touya Maru therefore grounded in the shallows of Nanaehama in Hakodate Bay. She then capsized and sank which caused a total number of 1,155 deceased or missing persons including passengers etc.

Also, four other vessels from the Aomori - Hakodate ferry, namely, No. 11 Seikan Maru, Kitami Maru, Tokachi Maru and Hidaka Maru capsized and sank in Hakodate Bay in succession. The total number of deceased and missing passengers etc. came to be 275.

The state of affairs at Hakodate Bay on the 26th of September in 1954 is shown in Fig. 30. Hakodate Bay has a land shape that makes it less influenced by wind and waves because it is shielded by high mountains, when there is a northwest wind.

“However, the bay mouth is open widely towards the direction of the ‘south-southwest’. Thus, because of the long fetch, in the event that a southerly wind blows continuously, high waves are thrust into the bay as time goes by”.

Typhoon No.15 (International name: Marie)

Typhoon No.15, Marie, formed at the north of the Yap Islands on the 21st of September and hit the Northern Osumi Peninsula from Kagoshima Bay on the 26th at around 14:00 JST at a very fast speed. Afterwards, she cut across the eastern part of Kyushu and passed through the region of Chugoku, at a speed of 100km/h.

On the 26th at approximately 08:00 she moved off of Sanin to the Japan Sea and grew as she headed north to Hokkaido. At 21:00 on the same day, she reached her peak then she passed off Suttu in Hokkaido. She reached nearby Wakkanai City at around 0:00 on the 27th. Regarding the precipitation of this typhoon, there are some areas which exceeded 200mm like the regions of Kyushu and Chugoku, however,

there were lesser amounts in other areas. Because the typhoon continued developing even after entering the Sea of Japan, a violent storm of more than 30m/s was blowing in each area of western Japan, Tohoku and Hokkaido.

Normally we rarely think that typhoons develop in the Sea of Japan at the end of September when the seawater temperature is lower. Therefore, **it can be considered that the typhoon had in fact changed into an extratropical cyclone (a so-called “bomb low pressure” cyclone) from approximately 3:00 on the 26th of September when she landed in Kyushu.**

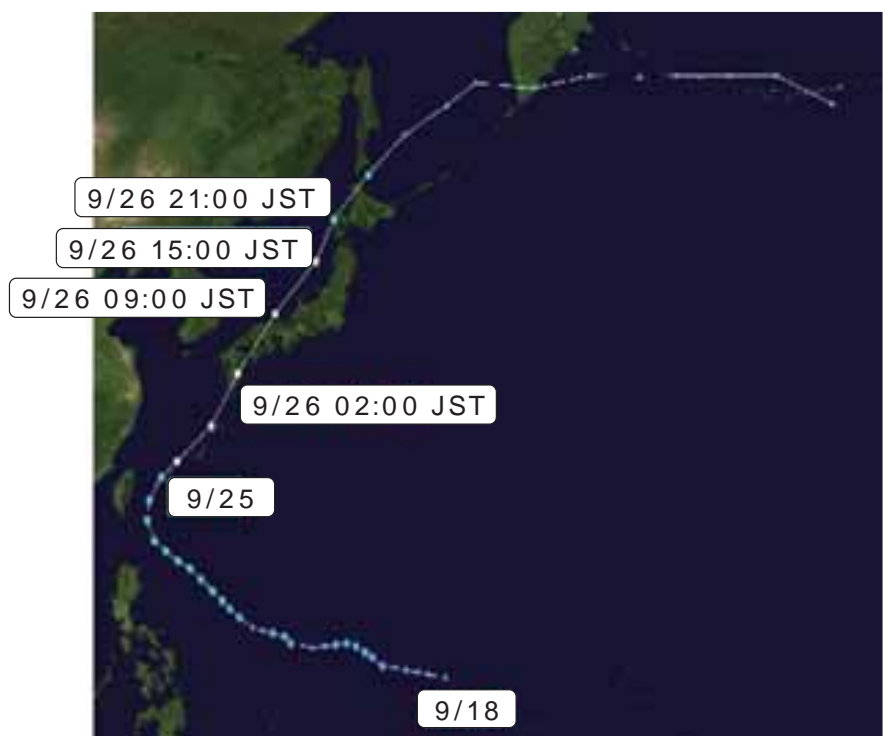
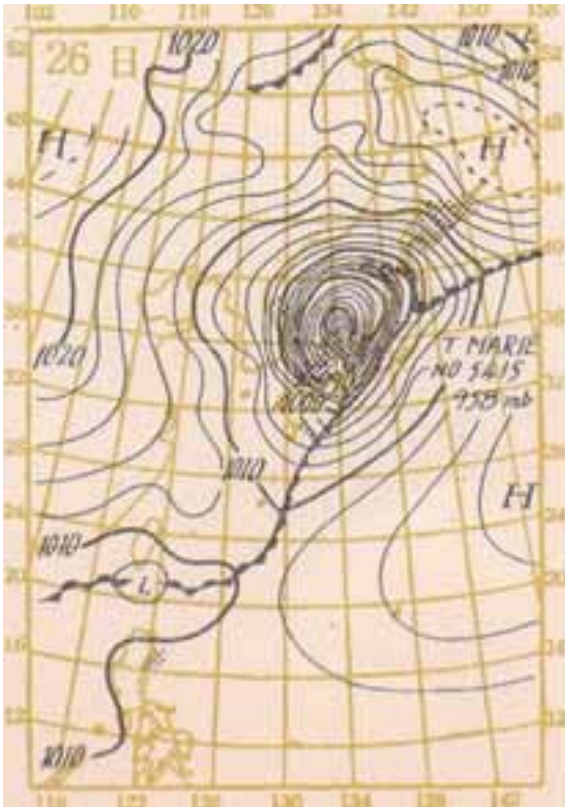
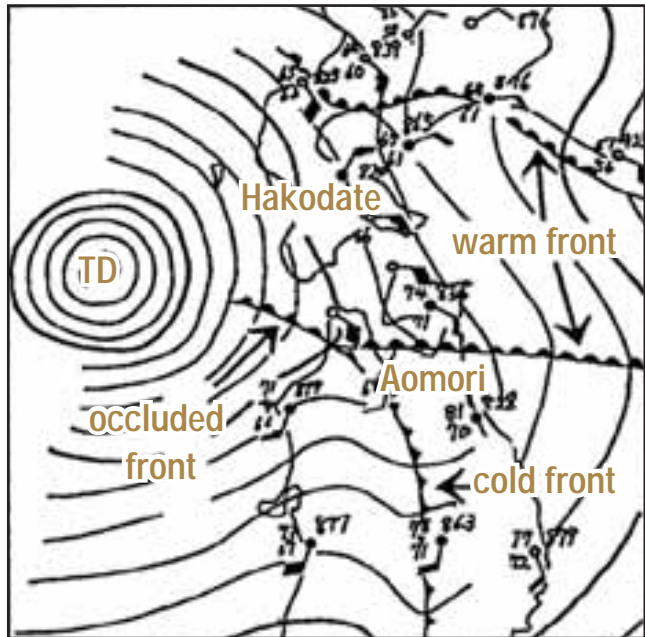


Fig. 31



Sept. 26th 09:00 JST
Fig. 32



Sept. 26th 16:00 JST
Fig. 33

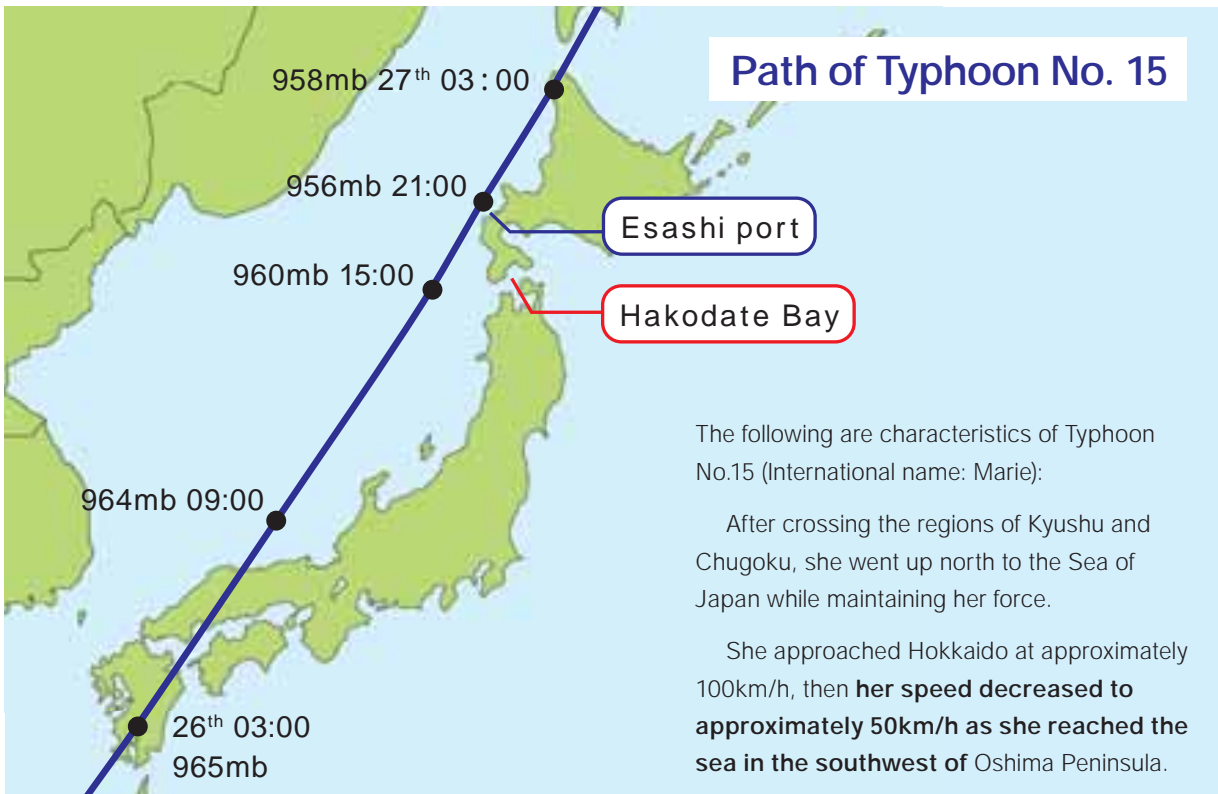


Fig. 34



Photograph 35
"Capsized Touya Maru"




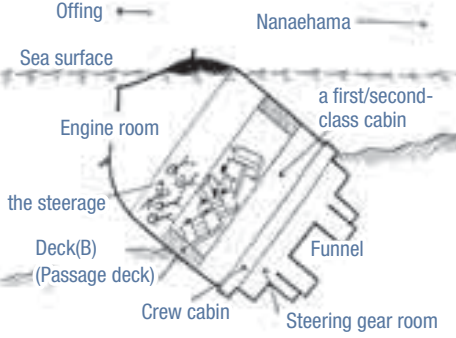

Photograph 36
"Bygone days of Touya Maru"

Movement of Touya Maru

The movement of Touya Maru on the 26th of September is as follows.

11 : 05	<p>She moored Hakodate Pier (Aomori Hakodate Port). "Typhoon No. 15 proceeded northeast 100km northwest of Noto Peninsula. According to the weather information, it was highly possible that it would pass to the south of Hakodate in the evening".</p>
14 : 40	<p>Station for leaving port. (Leaving the Hakodate Pier bound for the Port of Aomori)</p>
15 : 00	<p>Because it was not possible to remove a movable bridge between the railway track and the ship due to a blackout, the Master decided to delay departure for the time being. Touya Maru was awaiting with passengers on board, while mooring. "Weather information: the typhoon passed the northern part of the Ou region or the southern part of Hokkaido in the evening and proceeded to the Kuril Islands at night".</p>
17 : 00	<p>The wind suddenly weakened, sunny spells were observed in the sky and it would have seemed as if they had been swallowed up and had reached the centre of the typhoon. "At Hakodate Pier, there were no changes in wind direction for over one hour from 17:30. Then, the winds became stronger, but there were no changes in atmospheric pressure".</p>
17 : 40	<p>It was decided that the ship depart at "18:30".</p>
17 : 59	<p>"Weather information: the typhoon proceeded 100km northeast or north-northeast off Esashi Port offing".</p>
18 : 39	<p>Departed Hakodate Pier from the port of Hakodate. While being blown by a south-southeast gale from her astern port side, she manoeuvred the normal route in the breakwater at full speed.</p>
18 : 53	<p>Passed the breakwater entrance nearby. It was confirmed that the port side bow took gale force winds and that the waves were also high.</p>

18 : 55	She passed the breakwater lighthouse which was on her port side.
19 : 01	<p>Anchored due to a violent storm and waves (two-anchor mooring with 8 shackles on her starboard side and 7 shackles on her port side).</p> <p>“There was a south-southwest wind at 25 - 30m/s, a gust at 40m/s and there were no changes in atmospheric pressure”.</p>
19 : 30	<p>Along with pitching of the hull, car deck flooded from the opening of the stern.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div data-bbox="279 633 746 976" style="text-align: center;">  <p>Photograph 37</p> </div> <div data-bbox="767 633 1385 976" style="text-align: center;">  <p>Fig. 38</p> </div> </div>
19 : 50	The 7 shackles at port side were extended by 1 shackle to become 8 shackles on both sides. Flooding started in the engine room (machinery room).
20 : 00	Anchor dragging started. Flooding started in the boiler room.
20 : 10	Initial accident report was made to JCG via radio communications.
20 : 30	Operated the ballast pump, but shortly it became in vain. Flooding started in the steerage.
20 : 40	<p>“The anemometer on the ship was recording gusts of 57m/s and a wave height of 6m”.</p> <div style="text-align: right; margin-top: 20px;">  <p>Photograph 39</p> </div>
21 : 00	<p>Ship heeled to the port side.</p> <div style="text-align: right; margin-top: 20px;">  <p>Photograph 40</p> </div>

21 : 40	Further heeled to the port side.
21 : 50	Main engine on the port side became inoperable, and the bilge could not be discharged. Ship's heel started shifting from port side to starboard side.
22 : 05	Main engine on the starboard side became inoperable and the vessel became trim by the stern due to flooding.
22 : 15	Passengers were instructed to wear life vests.
22 : 26	<p>Grounded in the shallow off Nanaehama, with a 45 degree inclination to the starboard side.</p> 
22 : 42	Blackout on board with a deluge of water flowing in.
22 : 45	<p>Sinking after rolling over to the starboard side.</p>   <p style="text-align: center;">Fig. 42 Photograph 43</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p style="text-align: center;">Sinking circumstances: location at a depth of 8.3m</p> <p>The hull was parallel with the coast with a 135 degree inclination on her starboard side. The starboard side was buried in the seabed under mud with the port side bilge keel visible on the sea surface.</p> <p>Later the Japan Meteorological Agency concluded that "the reason why the wind had weakened for a moment near the Hakodate Bay was because a cold air current, accompanying the cold front, offset the wind of field, and therefore, the cold front rapidly disappeared when it interacted with the wind field". Regarding the "wind becoming weak along with a mysterious westering sun", they announced that this was not caused by the typhoon as the centre of the typhoon passed the vicinity of the port of Hakodate.</p> <p>Also, the four Aomori - Hakodate ferries, including Touya Maru, experienced groundings and capsized as a result of a dragging anchor.</p> </div>

Registered name of ship	No.11 Seikan Maru	Kitami Maru	Touya Maru	Tokachi Maru	Hidaka Maru
G/T	3,142 tons	2,928 tons	4,337 tons	2,911 tons	2,923 tons
Length	113.8 meters	113.7 meters	113.7 meters	113.6 meters	113.7 meters
No. of Crew	90	76	111	76	77
No. of Passengers	None	None	1,203	None	None
Loaded freight cars	45	46	12	35	43
Route	Hakodate (Anchored in heavy weather)	Hakodate (Anchored in heavy weather)	Hakodate Aomori	Aomori Hakodate	Aomori Hakodate
Between 13:00 and 14:00: East-southeast 8-12m/s 999.2mb	13:20 Left port of Hakodate bound for port of Aomori Departed (Hakodate Pier)				11:20 Departed port of Aomori)
Between 14:00 and 15:00: East 15-17m/s 989.2mb	14:48 Because the waves rose could no longer sail and returned to port		14:40 Bound for port of Aomori S/B Station for departure	14:20 Departed port of Aomori	
Between 15:00 and 16:00: East 15-17m/s 986.6mb		15:17 Left wharf to shelter from stormy weather(Arikawa Pier) 15:30 Anchored (starboard anchor with 8 shackles)	15:00 Due to black out, adjustable shore ramp could not be removed. This caused a delay, and departure was suspended.		
Between 16:00 and 17:00: East 10-15m/s 985.2mb	16:02 Left wharf to shelter from stormy weather (Hakodate Pier) 16:25 Anchored				16:33 Anchored in the break water (starboard anchor with 5 shackles and port anchor with 5 shackles)
Between 17:00 and 18:00: South 12-15m/s 982.6mb	Details are unknown because all crew deceased		17:40 Departed and bound for port of Aomori		17:30 Commenced anchoring watch
Between 18:00 and 19:00: South 15-20m/s 982.6mb		18:40 Commenced anchoring watch Engine ready	18:38 Departed Port of Hakodate (Hakodate Pier)	18:50 Anchored (starboard anchor with 8 shackles and port anchor with 4 shackles)	
Between 19:00 and 20:00: South 15-20m/s 982.6mb		19:00 Used engine 19:30 Flood in engine room and boiler room	19:01 Anchored (starboard anchor with 8 shackles and port anchor with 7 shackles) 19:30 Flooded in car deck 19:50 Laid down both anchors with 8 shackles Flood in boiler room	19:30 Used engine Flooded in car deck	19:30 Used engine Laid down both anchors with 8 shackles

Registered name of ship	No.11 Seikan Maru	Kitami Maru	Touya Maru	Tokachi Maru	Hidaka Maru
Between 20:00 and 21:00: South 20-30m/s 979.9mb	20:00 Sinking from astern	20:20 Dragging anchor 20:45 Weighing anchor commences in order to heave-to	20:00 Dragging anchor Flood in boiler room	20:00 Dragging anchor Flood in boiler room 20:40 Drifted 1 nautical mile northeasterly by wind pressure and oscillates violently	
Between 21:00 and 22:00: South 15-20m/s 979.9mb		21:15 Heaved cable to 3 shackles and full speed ahead Heeled 10 degrees to port side	21:40 Heel increased on port side 21:50 Main engine on port side inoperable	21:50 Heel increased on starboard side	21:15 Weighing anchor commences in order to shift outside of breakwater 21:45 Weighing of the anchor completed and full speed ahead
Between 22:00 and 23:00: Southwest 15-20m/s 979.9mb		22:00 Heeled at 15 degrees starboard side 22:30 Engine inoperable, rolled over to starboard side, sinking	22:05 Main engine on starboard side inoperable 22:15 Instructed passengers to wear life vests 22:26 Grounding in shallows and heeled at 45 degrees starboard side 22:42 Blackout, large amount of seawater encroached 22:45 Rolled over to starboard side, sinking	22:20 Engine inoperable 22:30 Generator stopped (Blackout)	22:00 Flooded to car deck 22:10 Flooded in engine room and boiler room 22:25 After lowering anchor (starboard anchor with 4 shackles), entire anchor cable (10 shackles) was laid down
Between 23:00 and 24:00: Southwest 20-250m/s 981.2mb				23:41 Loaded cars were rolled over 23:42 Capsized on starboard side	23:00 Heeled at 10 degrees starboard side 23:35 Discarded anchor, but engine inoperable. Engine stopped 23:43 Capsized
Time of marine accident occurrence	20:00	22:30	22:45	23:42	23:43
Point of marine accident occurrence	257 degrees and 1,785m from Hakodate Port breakwater lighthouse	89 degrees and 2,900m from Kattoshimisaki lighthouse	257 degrees and 1,785m from Hakodate Port breakwater lighthouse	257 degrees and 1,785m from Hakodate Port breakwater lighthouse	257 degrees and 1,785m from Hakodate Port breakwater lighthouse
No. of deceased and missing	90	70	1,155	59	56

Note: The wind direction, wind speed and pressure are figures that are read at Hakodate Pier every hour on the hour.

Table 44

It is presumed that it was difficult to grasp the actual changes of the typhoon's state, because there was no means of observation via weather satellite, bar that of weather forecasts based on the information available from weather stations located in each region.

= Quoted from the Marine Accident Inquiry Agency (MAIA) determination =
Provisional translation Courtesy of the Marine Accident Inquiry Agency (MAIA) homepage

The Marine Accident Inquiry Commissioner's Office completed their survey in a short period of only 62 days following the occurrence of the accident. Appointing the 2nd navigation officer and the 2nd engineer of Touya Maru as examinees, appointing also the president of the Japanese National Railways (JNR), the chief of Aomori - Hakodate Railway Bureau, the chief of the Central Meteorological Observatory and chief of the Marine Meteorological Observatory in Hakodate as designated persons regarding the marine accident, filed an application for a trial to commence on the 27th November, 1954 at the Marine Accident Inquiry Agency in Hakodate. The first trial was concluded on the 15th of July, 1955. The decision regarding the second trial was concluded on the 9th of February, 1959.

Main text of judgement:

Although this accident occurred because the Master of Touya Maru neglected to carry out his duty, other factors include inappropriate operation management of the Aomori - Hakodate ferry company along with a general lack of understanding regarding the vessel's hull construction.

Master's negligence of duty regarding shipping operation

Even though the vessels are structured and equipped to the standards stipulated in the convention and law, it is necessary for the Master to pay extra attention to the safety of the vessel and lives of those on board, because it should be anticipated that navigating will be dangerous, in the event of encountering a typhoon.

The Master should have departed as usual once the danger of the typhoon had passed.

In the vicinity of the port of Hakodate, the wind veered and gradually increased from the southwest west between 22 - 25m/s, and turned into a squall at 32m/s. Thus, it could not be accepted that the typhoon had passed, as the barometric height decreased and stagnated. This accident was caused by the Master's negligence, who proceeded to set sail from the port of Hakodate bound for the port of Aomori while carrying a large number of passengers and cargo, under rough sea conditions.

Hull construction

Because there was a vessel that encountered such weather and sea conditions whereby sea waves flowed deep into the car deck of the vessel, whose hull structure was similar to this one, in the past, this hull structure was not appropriate, taking into consideration the actual operation to be carried out on this sea route.

Regarding the accident, having not being able to have prevented flooding from the various openings on the cargo deck would have caused the subsequent sinking after rolling over. Thus, the inappropriateness of the hull construction is one of the factors concerning this accident.

Inappropriate operation management

Despite such rough seas that could be expected to bring about great danger when navigating, the vessel continued operating on a fixed schedule and the operation continued as long as possible, without evacuating at an early phase, as would have normally been the case.

The management department were of the opinion that it was enough to leave the safe operation of ferries to the Masters and that they should not intervene.

There was no arrangement of personnel or personnel charged with authority in order take necessary care

and measures for the safe operation of the ship in the organization. In addition, there was no provision regarding emergency personnel arrangement and authority of management, in time of an emergency such as this.

The management mechanism and policy for ferries had been properly carried out over the years, from when the government started managing this sea route until this accident occurred. It is not however appropriate for it to be managed by a shipping management company, when considering how dangerous this route is.

3 2 Cargo Vessel B Dragging anchor and grounding accident

Cargo Vessel B:

General cargo vessel with 2 cargo holds of 5,552 G/T

Date, time and location of occurrence:

30th of August 2004, 12:25 Japan time (JST), Yura-misaki offing of Ehime Prefecture

Weather at time of sinking:

rain, southeast wind: wind force 12, wave height 8m, end of ebb tide

Accident summary

Twenty Vietnamese crew were on board Vessel B, which departed the Port of Pohang of the Republic of Korea and arrived at the Port of Ohita via the Kanmon Straits on the 26th of August. Anchored in order to await berthing. The Master (Vietnamese) was at the age of 42 with 18 years of sea experience and 4 years as Master.

In the morning of the 28th, the Master knew that Typhoon No.16 was approaching Oita, between the 29th and the 30th, via weather information provided by NAVTEX and telex from the local agent. He decided to shelter from the typhoon by moving to another sea area. The vessel heaved up anchor in the afternoon, and the Master made a plan to start operating southward toward the Bungo Suido (Channel), while searching for an appropriate place to anchor.

The vessel heaved up anchor on the 29th of August at 09:55 JST, the Master started sailing southward along the Bungo Suido (Channel) as planned. However, due to the deep depth of the water that was also present in Uwakai etc. she continued southward and conducted single anchor mooring at a location of 92 meters depth of water in the bay of the southeast part of Yura-misaki offing of Ehime Prefecture at 14:40 on the same day. Afterwards, the wind direction changed to the southeast and sea waves encroached from the bay mouth that was exposed to the south. However, the Master continued to anchor without shifting from an early stage.

At 17:40 on the 29th, noticing that the anchor was dragging, the Master attempted to heave up the anchor in order to evacuate offshore. However, the vessel had no choice but shift off while dragging the anchor, and anchored again at 20:40, because it was not possible to weigh the anchor due to the extremely deep depth of water. At 11:30 on the 30th of August, the anchor was dragging again and Vessel B was grounded on the shore of Yurajima at 12:25 on the same day.

Four crew members who panicked and climbed down the stern deck and were carried away by the waves (one was deceased and three missing). The remaining 16 crew members including the Master were rescued by the helicopters of

the Japan Coast Guard and the Self-Defense Force. Photograph 45, Figs. 46 and 47 show the path of Vessel B and its anchor being dragged.



Photograph 45

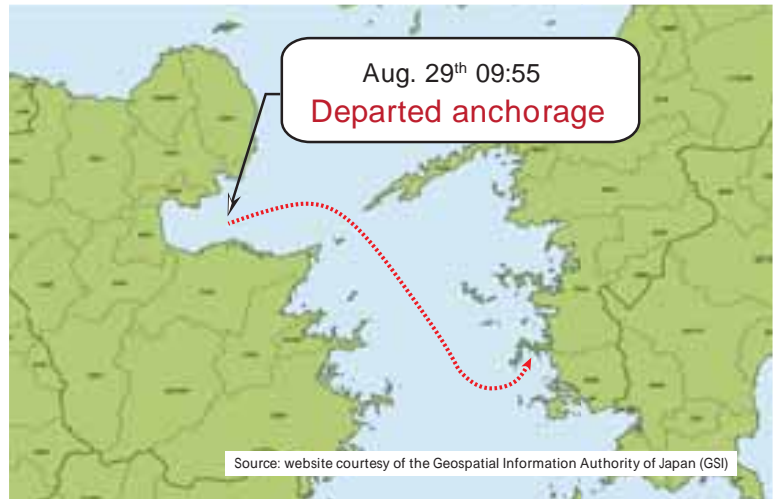


Fig. 46

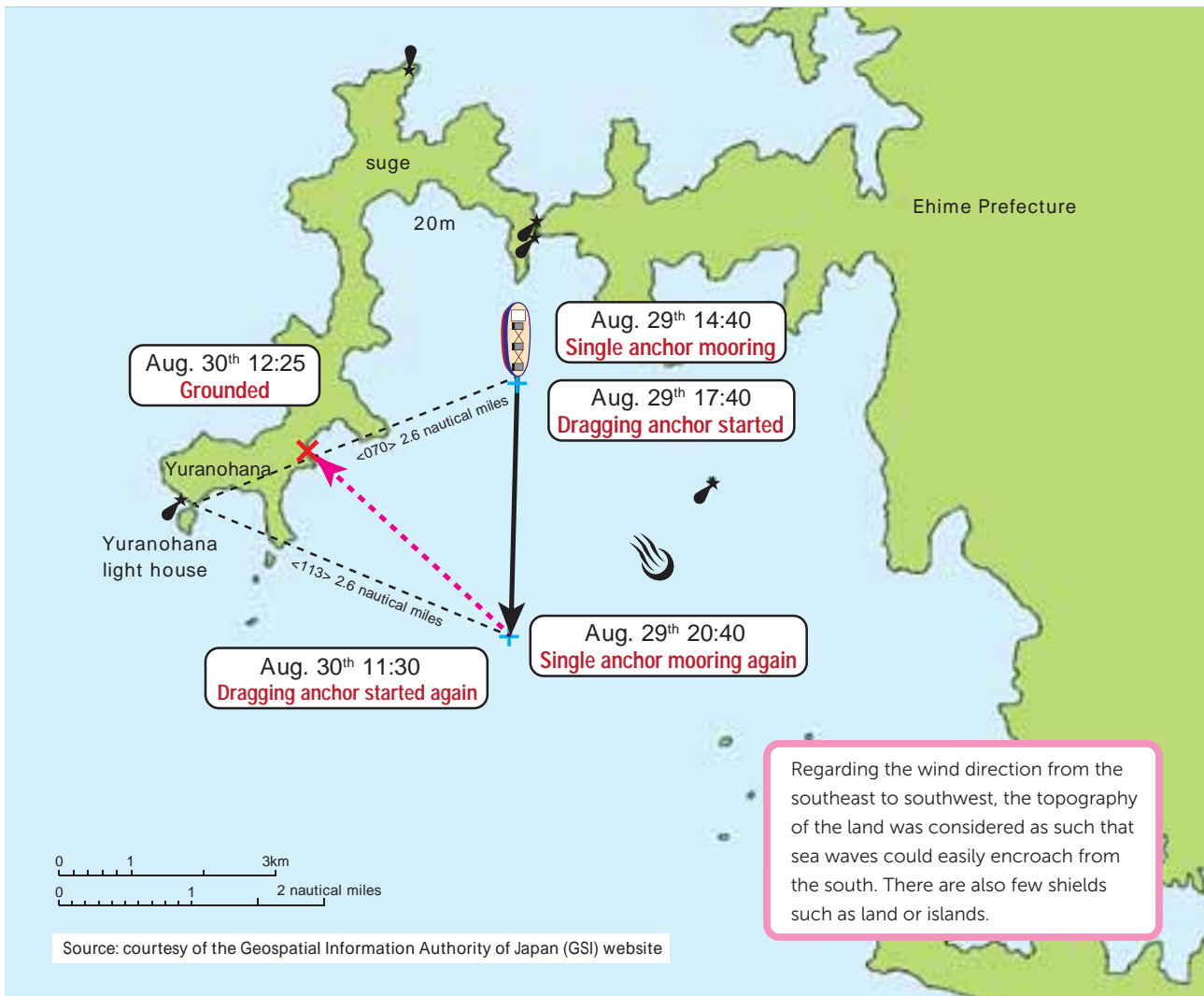


Fig. 47

Typhoon No.16 in 2004 (Asian name: Chaba)

[Chaba: Naming country: Thailand, Meaning: Hibiscus]

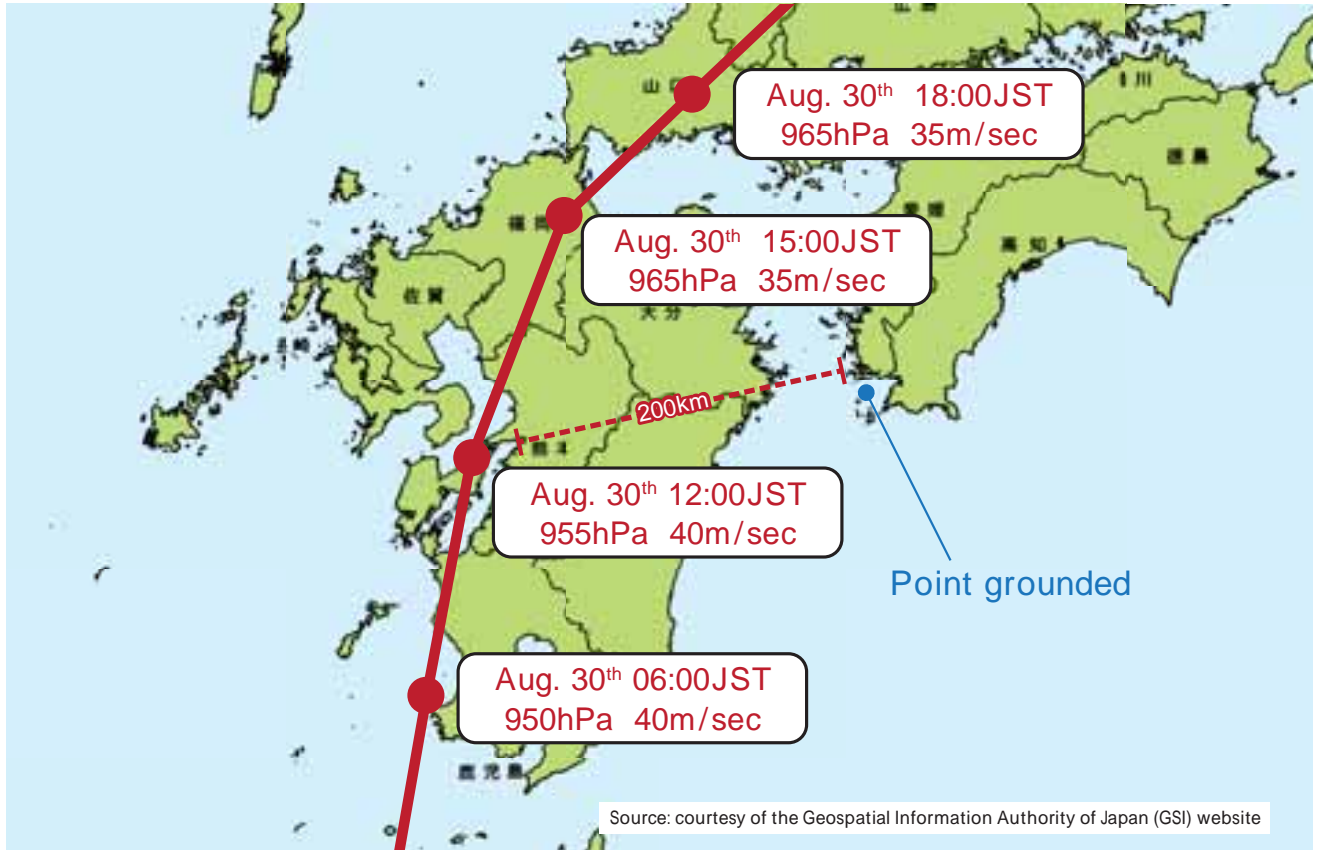


Fig. 48

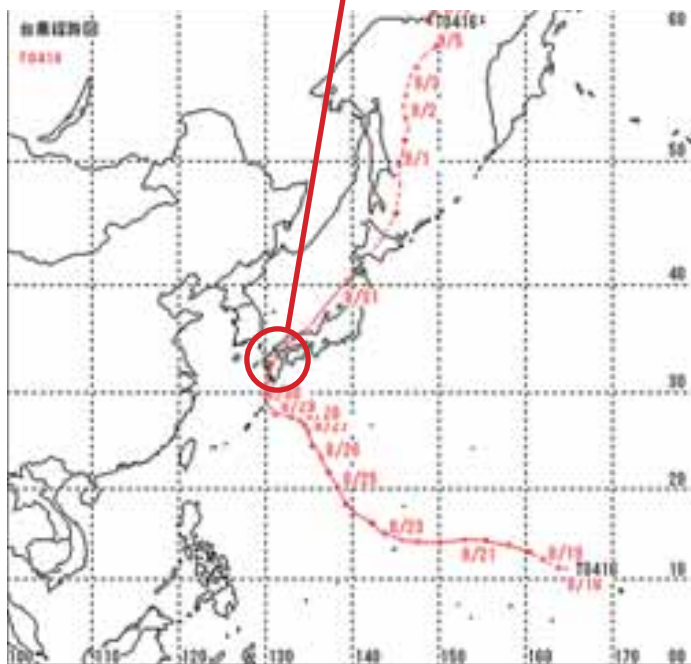


Fig. 49



Photograph 50

Typhoon No.16 at her peak (August 23rd)
910hp Maximum wind speed 155kts (80m/s)

Figs. 48 and 49 show the route of Typhoon No. 16 in 2004, which caused a case of dragging anchor.

On the 19th of August 2004, approximately 21:00 JST, the tropical cyclone in the sea around the Marshall Islands formed Typhoon No.16. Afterwards, the typhoon proceeded to the west while developing gradually. Then on August 23rd, she became 910hPa and 110knots (55m/s) at her peak and the strong wind area broadened. In Saipan, a maximum wind speed of 65m/s and a maximum instantaneous wind speed of 75m/s was observed.

At approximately 10:00 on the 30th of August, she landed as a “large and strong force” in the vicinity of Kushikino-city of Kagoshima Prefecture (Currently Ichikikushikino-city). Central pressure upon landing was 950hPa. Afterwards, she crossed Kyushu. The central location of the typhoon was in the vicinity of Amakusa of Kumamoto Prefecture at 12:00 on the 30th when Vessel B experienced a dragging anchor and grounding accident. Where it was located was approximately 200km from Yurajima, within the storm area and the wind speed was greater than 25m/s.

After that, typhoon No.16 landed again in the vicinity of Hofu-city of Yamaguchi Prefecture at approximately 17:30 on the 30th. It then increased in speed but later decayed and landed again near Hakodate-city of Hokkaido at around 12:00 on the 31st. Then, at 15:00 on the 31st, she changed into an extratropical cyclone in the eastern part of Hokkaido. She was the largest typhoon both in terms of force and size among the typhoons that landed in 2004.

Movement of Vessel B

<p>August 26th 12 : 40</p>	<p>Entered into the outside port of Ohita from the Port of Pohang of the Republic of Korea. Lowered anchor at the point of anchorage in order to wait for berthing.</p>
<p>August 28th 22 : 00</p>	<p>In the morning of the 28th, the Master knew that Typhoon No.16 was approaching Ohita, between the 29th and the 30th, via weather information provided by NAVTEX and telex from the local agent. He decided to shelter from the typhoon by moving to another sea area. In the afternoon or on the following morning they heaved up the anchor and the Master decided to sail southward to the Bungo Suido (Channel), while searching for appropriate anchorage.</p> <p>The first warning was issued by the harbour master of Ohita. “Regarding the ships at harbour, they must take measures that allow the ship’s personnel to be able to operate immediately if necessary. On top of that they must wait while paying attention to the movement of the typhoon while keeping in close contact with organizations on shore such as shipping agencies. They must also prepare for countermeasure of rough sea.</p>
<p>August 29th 9 : 55</p>	<p>Departed anchorage in the Port of Ohita and sailed southward to the Bungo Suido (Channel).</p>
<p>14 : 40</p>	<p>Started anchoring at 6.5 shackles on the port side at a point of 92 meters of water depth at <070>, 2.6 nautical miles from Yuranohama-Misaki Lighthouse.</p>
<p>16 : 00</p>	<p>The second warning was issued by the harbour master of Ohita.“Regarding the large vessels in the harbour, immediately evacuate to a safe area outside port in principle”.</p>
<p>17 : 00 (Approx.)</p>	<p>The wind direction changed from north east to south east and reached a wind force of 8. In addition, the waves from the south increased in height to 7 meters. Anchor cable was extended by one shackle.</p>

17 : 40	Dragging anchor started. Tried weighing the anchor, but it was not possible to heave up it. Gave up weighing the anchor and started shifting to the south while using the engine under dragging the anchor.
20 : 40	Started anchoring at 8 shackles of the anchor cable at the point <113>, 2.6 nautical miles from Yuramisaki Lighthouse. Using the engine, countermeasures were taken to prevent anchor dragging against the wind.
<div style="background-color: #8B4513; color: white; border-radius: 10px; padding: 2px 5px; display: inline-block;">August 30th</div> 11 : 30	Wind force reached 12 due to the increase of southeast wind, and dragging anchor started in a leeward direction.
11 : 57	Distress alarm was activated via Emergency Position Indicating Radio Beacon (EPIRB) and Digital Selective Calling (DSC). Instructed the crew to wear life vests and muster at the bridge.
12 : 25	Grounded at the point of <066> 1,750m from Yuranohana Cape Lighthouse. At approximately 13:00, four panicked crew members left the bridge. When they climbed down the stern deck they were carried away with the waves and fell into the sea.



Photograph 51

The 16 crew members were rescued by the helicopters of the Japan Coast Guard and the Self-Defense Force. Among the four who fell into the sea, one was confirmed as deceased and three as missing.

= Quoted from the Marine Accident Inquiry Agency (MAIA) determination =
Provisional translation

Cause

The selection of the anchorage was not conducted appropriately.

If appropriate anchorage; where the depth of water is shallow and she was shielded from gale force winds and waves, was chosen, it was thought that the accident could have been avoided.

Obtaining information on the typhoon and taking shelter by anchoring was insufficient.

There were facts related to the process leading to the accident such as not obtaining the information about anchoring from the agency and only obtaining weather information by means of NAVEX. Also, not being able to use the anchor on the starboard side due to windlass failure was one of the causes of the accident.

The anchor and anchor cable outfitted on the ship were as follows:

Anchor:	JIS type Weight 3,300kgs
Anchor cable:	1 shackle was at 27.5m × 9 shackles per side 248m



Photograph 52
JIS type anchor

When tentatively calculating the minimum required length for an anchor chain, in 92m of water, an anchor chain with 513m (19 shackles) of length is required (at times of rough seas: $4 \times d + 145m$). Sheltering from stormy weather in a location which exceeds 50m in water depth is thought of as unsuitable.

3 3 Cargo Vessel C Dragging anchor and grounding accident

Cargo Vessel C :

Panamax bulker with cargo holds 36,080 tons

Loa : 224.0m

Date, time and point of occurrence :

On the 25th of July 2002, at 21:11 JST Shibushi Bay of Kagoshima Prefecture

Weather at the time of grounding :

Rain, east-northeasterly wind, wind force of 10, wave height at 5m and end of ebb tide



A c c i d e n t s u m m a r y

Regarding dry bulk, Vessel C, the total number of crew members on board was 23 (four Indian nationals and 19 Filipino nationals) and 57, 474 tons of corn was loaded at the Port of New Orleans in North America. She entered into the Port of Shibushi, Kagoshima Prefecture, on the 23rd of July, 2002 in order to unload. At the Port, among the people disembarking were: 9 crew members (a chief officer [Indian national] and 8 others [Filipino nationals]) that disembarked and a total number of 5 crew members (the successor, a chief officer [(Indian national)] and 4 other crew members) relieved them and boarded. The crew arrangement at the time when the accident occurred was 4 Indian nationals made up of the Master, the chief officer, the chief engineer and the 1st engineer and 15 other Filipino nationals. (The number of crew members decreased by 4)



Photograph 53

The Master boarded Vessel C as the Master at the Port of New Orleans on June 4th, after serving as a Master of several large cargo ships. The Master had a boarding history of 7 years as a Master in his 27 years of sea-service. During this period of time, the Master had experience calling at many different ports in Japan, however, it was the first time for him to enter the Port of Shibushi.

At Shibushi Port, the Shibushi Port Typhoon Response Committee was established with the purpose of preventing any accidents due to a typhoon at the port and the sea area in the vicinity.

This Typhoon Response Committee consisted of the Chairman of the Kagoshima Coast Guard Director who was the harbour master of Shibushi Port, governmental organizations such as Kagoshima Local Meteorological Observatory and Kyushu Regional Development Bureau Shibushi Port and Harbour Construction Office, regional organizations such as Shibushi Town, Police Station, Fire Station, Shibushi Port and Harbour Office etc, Kagoshima Licensed Pilot's Association and 43 other organizations and groups such as harbour related companies engaged in various businesses in the port. The committee used to hold a regular annual committee meeting in early July before the typhoon season came and attempted to inform all members on the typhoon countermeasure guidelines thoroughly regarding the warning issue and the communication system to ensure that the procedure for sending information to the ships in the harbour when a typhoon approaches was well known.

Regarding the warning system and recommendations to be issued by the Typhoon Response Committee, in the event that a possible accident is predicted to occur due to an approach of a typhoon to Shibushi Port, they are to hold a policy committee meeting, if necessary, in order to discuss how to spread typhoon information, prediction of the typhoon's path and its impact, grasp of the ships in the port, preparation for rough seas regarding ships, timing of evacuation recommendations and how to relay the information thoroughly and so on. Then, based on the outcome of the discussion and typhoon countermeasure guidelines, before it would become difficult to navigate the ships, the chairman would issue the warning and contact the ships in the port via each member.

Because the strong wind area of typhoon No. 9 was predicted to reach Shibushi Port within 48 hours, on the 23rd