Samundra Spirit

QUARTERLY IN-HOUSE MAGAZINE FOR SAMUNDRA INSTITUTE OF MARITIME STUDIES (SIMS), MUMBAI & LONAVALA

APR 2010 . ISSUE 09

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SAMUNDRA INSTITUTE OF MARITIME STUDIES (SIMS)

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  Approved under Indian Maritime University (IMU), Directorate General of Shipping Govt. of India & Maritime Port Authority (MPA), Singapore
- **GRADUATE MARINE ENGINEERS (SEP 2010 BATCH)**
  Approved under Directorate General of Shipping Govt. of India & Maritime Port Authority (MPA), Singapore

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- Minimum 18 months of practical shipboard training before 2nd Mate's examination.

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ELIGIBILITY	DECK CADETS (DNS)	GRADUATE MARINE ENGINEERS (GME)
Age (as on date of joining) & Marital Status	• not more than 20 years for **10+2** candidates 22 years for **B.Sc** candidates 25 years for **B.E/B.Tech** candidates • Unmarried	• not more than 25 years • Unmarried
Academic	Results must be obtained at 1st attempt **All Board (Class XII):** Minimum Av Score - 60%, PCM Minimum - 60% **OR** **B.Sc** – Physics / Chemistry / Maths / Electronics with min of 55% in final year along with min of 55% in PCM during Class XII **OR** **B.E/B.Tech** - Any stream from an **AICTE/UGC** approved institute	Degree in **B.E / B.Tech (Mechanical / Naval Architecture)** from an **AICTE** approved institute, **Deemed University** with min marks of 55% in final year
Language	English shall be one of the subjects with min marks scored of 50% in Class X or XII	English shall be one of the subjects with min marks scored of 50% in Class X or XII or degree
Eyesight	6/6 vision, no colour blindness, no use of corrective lenses allowed	no colour blindness, use of corrective lenses permitted

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Background of cover picture -
By artist: CDT Uttam Dutta (DNS-09) from SIMS, Lonavala

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SAMUNDRA SPIRIT is a quarterly in-house magazine produced by Samundra Institute of Maritime Studies (SIMS) for private circulation.

Our Editorial Team wants to hear from you!

If you wish to submit any feedbacks and/or contributions, feel free to write to the Editor at: samundraspirit@samundra.com

**Please note we reserve the right to publish your letters/articles or an edited version of it in all print & electronic media.*

EDITORIAL NOTE

The World Teachers never etched their words
On paper or stone
For all to obey;
They knew people would only split hairs, bicker,
Compel others to follow their folly.
The more you listen to preachers,
The more you'll moralise and judge,
So go learn on your own.
Everything is written inside:
You are The Book!

- Chinese sage Lao-Tzu, a contemporary of Confucius in 600 B.C.

This issue of Samundra Spirit contains an array of life's practical lessons and experiences from our veteran masters in ESM and SIMS that will share invaluable nuggets of professional wisdom for the future navigators and seafarers. The stories of ships stuck in ice and encountering icebergs from nowhere indeed interesting but were nerve wrecking and life threatening experiences for those who watched in horror and suffered apprehensions for their lives!

The environment is an issue we cannot and must not forget. Squeezing the SOx out of Ship Emissions and Electricity from Trees are two articles which will definitely provide urgency to the issue and food for thoughts for all of us and more so to the vibrant and inquisitive young minds.

We would like to dedicate this issue to the teachers, the "gurus" without whom the life will remain untaught and unlearned. Gurus are not the ones who deliver the lecture and walk off without turning back to the one limping at the side because he/she could not keep pace, neither is he the one who does not only possess vast knowledge but has the wisdom to deliver, he is the source of ample patience and love for those coming to him/her for guidance and direction in life. "Guru" in the ancient Sanskrit language means one who leads from darkness to light. As per Hindu religion, Guru is the ultimate teacher and equivalent to God and parents. We do hope SIMS is fortunate to have "gurus" and not just teachers on board.

This issue also highlights the changing of time and the change of leadership in SIMS, Lonavala from Prof. DVB Swamy to Mr. S. Viswanathan. From an Indian navy veteran and scholar to a merchant navy seasoned engineer with decades of teaching and mentoring experience. The regular awards and accolades continue to occupy the designated pages as they are, very rightly the source of encouragement and motivation for all involved in the institute.

Finally, heartfelt thanks for the team which worked behind the scene with both passion and patience, in addition to their regular day jobs. We are indeed pleased to have them named in our new editorial team.

Wishing you adieu with the words from the sage again:

When one asks to be your student
Don't waste your time on theory or style
Teach them to respond like a master,
Love like a child.
From this the rest will follow.

Why is this way great?
Because when you ask, you receive
When you seek, you find
When you err, you're forgiven;
Endlessly and forever
No one's condemned or excluded.
Take heart!

Be safe and happy reading!!

Sikha Singh

From the Principal's Desk

It is indeed a satisfying experience to step once again into SIMS, Lonavala - which literally grew in front of my eyes as I recall vividly the time I shunted back and forth from SIMS, Mumbai and Lonavala in the initial years of the latter starting in October, 2004. The challenge was tremendous - to realise the dream of establishing a world ranking maritime institute not just in terms of infra-structure but in terms of its value proposition. It is meant to be not just a nursery of future officers of ESM but in fact, producing the maritime world leaders of tomorrow.

As I look around now, barely five years later, what a great place to be in. Whether it is the greenery, ambience, architecture or the facilities, the most important of all, the sight of our young and bubbling cadets in their smart uniforms and the hunger for knowledge in their eyes!

To feel the pulse, I delivered two lectures soon after joining and could see and feel their insatiable cravings as I interacted with them at length. What an exhilarating experience indeed!

As a teacher and mentor in this campus, everything one would wish in terms of infrastructure and equipments have been well thought out and provided for. Now is the time for us, the faculty and staff of this great institute to put in the effort to take the Institute further to its glory by providing the shipping industry with the finest cadets ever produced. We are happy that visitors representing various international maritime organisations applaud and appreciate the vision and mission of our Management. But that does not sound sufficient as we have yet to reach the summit.

There are many more hurdles and challenges to produce the finest cadets and to get the world shipping fraternity stand up and watch the innovation and pioneering concepts of our teaching. We would like to see our cadets rise to the ranks, to become Master Mariners, Chief Engineers, Superintendents, Ship Managers and Ship Builders, in short - populating the entire shipping industry with the Samundra Stamp. When the captains of the Industry think of manpower, Maritime Training/Shipping Industry, SIMS must come to their minds first.

Let us join hands in our endeavour to produce the best of cadets from this region. Let the cadet never forget his learning and living experience with us in the campus when he goes out in to the world - because he would then get the opportunity to utilise the learning and living experiences in his practical life on board.

Wishing all the cadets, faculty and staff of SIMS a bright future.

S.Viswanathan
Principal
SIMS, Lonavala

Beset in Ice!

"Our experience in Baltic Ice with sections being 0.5m thick or more and about 1.0m in way of 'ridges' was the most unnerving and humbling experience and opened our eyes to another facet of the power of nature. It is when you have no idea what is happening, which is most unnerving, when you hear and feel the ship shuddering and vibrating as if the main engine was working. When you realise that the compaction of the surrounding ice is taking place, you wonder whether the ship's hull is hurt or if the ship is in danger and if so, when is the 'right time' to call for assistance. In short, all I can say is that I have NOT had such an EXPERIENCE in my nearly 39 years out at sea.

Capt. Indraneel Ghosh
An ESM master, sharing his experiences while the vessel was beset (stuck) in ice in the Baltic during the peak season of ice.

Samraa Alkhaleej in ice

Most mariners, particularly those in the worldwide trade at some time in their career can expect to encounter ice in one form or the other. In order to navigate through an ice-bound region, it would seem prudent therefore to have knowledge of what might become an expected professional hazard. We have here a real life challenging story from the ESM fleet about a tanker that gets reset in ice and how the master and the crew go through the ice cold experience and finally extricate the ship and got on their voyage successfully.

The Season of Ice

The Baltic Sea, a brackish inland sea, is bounded by the Scandinavian Peninsula, the mainland of Europe, and the Danish islands. On the long-term average, the Baltic Sea is ice covered at about 45% of its maximum surface area annually. The ice reaches its maximum extent in February or March; typical ice thickness in the northernmost areas in the Bothnian Bay, the northern basin of the Gulf of Bothnia, is about 70 cm (28 inches) for landfast sea ice. The thickness decreases farther south.

Freezing begins in the northern coast of Gulf of Bothnia typically in middle of November, reaching the open waters of Bothnian Bay in early January. The Bothnian Sea, the basin south of it, freezes on average in late February. The Gulf of Finland and the Gulf of Riga typically freeze in late January. The ice extent depends on whether the winter is mild, moderate or severe. Severe winters can lead to ice formation around Denmark and southern Sweden.

Different Ice in Different Regions

During winter, fast ice, which is attached to the shoreline, develops first, rendering the ports unusable without the services of icebreakers. Level ice, ice sludge, pancake ice or rafter ice form in the more open regions. The gleaming expanse of ice is similar to the Arctic, with wind-driven pack ice and ridges up to 15 m as was noted by the ancients. Offshore of the land, the ice remains very dynamic all year and because of its thickness, it is relatively easily moved around by winds and therefore makes up large ridges and piles up against the land fast ice and shores.

Precautions for Master

While trading the vessel in winter months, the master of the ship needs to be aware of the Time Charter Party (TCP) clauses for his vessel. The TCP clauses for a non-ice class ship usually do not permit the vessel to enter waters bound by ice or waters having possibility of presence of ice or to follow ice breakers. Ice classification of the vessel may vary to different grades depending on the construction of the vessel. The categorisation of the ice classification will determine the extent of sea ice the vessel can endure during her call to the icy waters.

Upon receiving orders to proceed to waters where the ice may possibly be encountered (as established from the sailing directions), the master must obtain the latest ice charts through charterers, local agents or ESM operations. The internet is a valuable source of information and should be used to obtain current information for various areas.

The winter and ice precautions should be taken prior to the vessel entering icy weather conditions with regarding blowing lines, clearing strainers, arranging winter gear for the ship's crew, etc. as per relevant ESM company forms. A number of precautions will need to be taken on the deck and in the engine room as during these times, air temperature as low as minus 350 degree celsius may be encountered.

Usually the ports in these icy regions continue to operate even in the winter months. There are various agencies monitoring and transmitting information regarding current ice conditions prevalent in these areas. In many of these places, it may be a standard practice for vessels to become beset in ice and remain beset until they are required to berth at the terminals. Ice breaker escorts are provided for vessels to proceed in an orderly convoy to the port.

One of our managed ice class vessel has been a regular visitor in the Baltic Sea during this winter season. We would like to share its experience with our other seafarers for their knowledge.

The tanker had arrived on 25th January 2010 off Gogland Island to load at Primorsk and since laycan were commencing on 26th midnight, she had anchored amidst 15-20 cm thick close pack ice at 0830 LT. On 26th January morning however, the ship experienced anchor dragging. The master picked up the anchor to find a suitable place to re-anchor thereafter. However, he found that in the process of moving, the ship had become beset in ice.

Call for Help

From the information, the operation department mariners in the shore Office knew that in Primorsk port it was quite normal for vessels to be beset in ice during this season. In fact, the port was also known to take no action regarding such a situation till the vessel was due for berthing. Nevertheless, they were

Continued on page 6

Art and Science of Troubleshooting

A ship's staff often have to perform "troubleshooting" to set right machineries and equipment on board the ship. Equipment may malfunction or fail due to various reasons. These could be classified under wear and tear, misuse, design faults, etc. Troubleshooting a malfunctioning equipment or system requires thorough knowledge of the concerned equipment or system in the first place.

S.Viswanathan, Principal
SIMS, Lonavala

Troubleshooting is not a pure science, rather it is a combination of art and science. We may find that different people tackle the same problem in different ways and achieve the same desired result. A problem can have many solutions. The question, therefore, is to judge these solutions by the time and effort taken, spares and stores consumed and people involved to achieve the same result. Sometimes, the ship suffers commercially due to the inefficient method adopted in terms of time and money.

Steps to follow in troubleshooting:

- Decipher the problem correctly - This is the most important phase in troubleshooting. One requires thorough knowledge of the equipment or system and cannot afford to bark on the wrong tree.
- Have a first look at the site, not in the cabin or control room, unless the equipment itself is located in that room. - Sometimes a single glance at the site close to the equipment reveals the problem. One can use all the five senses such as smell, touch, hearing, taste and sight. Take safety precautions and use your senses judiciously. If used carelessly and without anticipating the worst scenario, one can get hurt. Use measuring instruments to augment senses.
- Analyse parameter records, log books to pin point variations in normal behaviour of the equipment - It is very rare for an equipment to malfunction all of a sudden, without manifesting the ongoing deterioration of its health or in other words, showing any symptom. Remember, there is no fire without smoke.
- Check associated equipments for trouble - sometimes, in an inter-connected system, a malfunctioning piece of equipment may not manifest but cause some other subsystem in the up/down stream to malfunction.
- Finally, start checking from the very basic working of the equipment - do not conclude with assumptions or presumptions. Remember, time is money. One should not go in circles and by analysing correctly, one can hit the bull's eye.

It can be seen now that troubleshooting is actually a combination of science, art, and logic. One has to be methodical and maintain records. It will be a very satisfying and rewarding experience for the person who achieves the desired result. One must keep a record of the method followed in the ship's record books. This is important for two reasons:

1. If the same problem occurs again on the ship, the ship staff can access the record and set right the problem quickly. They need not reinvent the wheel.
2. If the problem is not solved by the ship staff and finally the shipping company decides to send the technician on board, the records will help the technician to by pass the items already checked by the ship staff. Technicians are expensive and they are hired on a per day or per hour basis.

One can practice and fine tune troubleshooting skills with simulated conditions or tackle a hypothetical problem. For example, an automatic boiler may not fire in auto mode or a main engine may not reverse in the correct direction. An air compressor may be taking too long to press up the air bottles or a bilge pump may not take suction. The problem that an engineer on board faces could be from a large spectrum of machineries and systems.

Conclusion: Only thorough knowledge and skill can lead a person to set right the problem. When problems occur and troubleshooting is carried out, even those not directly connected with the problem can be present and gain valuable experience. Problems don't occur often, so we should not miss out on the opportunity. Senior staff must involve juniors in troubleshooting as they will one day become the torch bearers. After the equipment has been set right, a debriefing session could be held informally to analyse the course of events and find out if any improvements can be made in troubleshooting.

Continued from page 5 (Beset in Ice!)

forthcoming with providing information and assistance with one of their 4 or 5 operational ice breakers, should any vessel require it. Of course, the master needed to assess the condition of his vessel to judge whether he was in any kind of danger. Being beset in ice, as such, posed no real danger to the vessel since Samraa was ICE CLASSED with notation 1A. Such vessels can take 'severe ice conditions' of upto 0.8m thick ice. However, the master should be aware if the vessel is drifting on to shallower water or against an island, which can cause substantial increase of ice pressure on the ship's hull. Under these circumstances, the master has to call for ice breaker assistance. Once beset, there is no point using engines to the keep the propeller clear, however this may be done in forming ice.

Safety Rules

A few things were agreed with the master to ensure the safety of the vessel, while the ship also used deck check list DCL12 for conducting detailed ice checks:

1. Keep ballast tank slack (60%) to prevent clogging of air vents and structural damage to the ballast tanks.
2. Even if a clear patch of water is seen, do not attempt to drop the anchor when beset in ice. This will only cause snapping of the cable.
3. Once a day, list the ship about 2 degrees port to stbd and back to loosen the ice around the vessel.

The vessel, of course, thereafter moved back with the ice breaker's assistance to the convoy starting point on 26th January evening and berthed safely at the Primorsk berth on 27th January morning. She then loaded its cargo of crude oil and sailed out on 28th January evening. The incident of the ship getting beset in ice was repeated again on 30th January morning. The vessel had to wait for the ice breaker. Finally the ice breaker arrived some 9.5 hours later to escort her and some other ships out of the ice line. The ship was finally out of the ice line on 30th January at noon time and proceeded safely to her discharge port of Brofjorden.

Note: SIMS, Mumbai runs a comprehensive and customised "Ice Navigation" course on the full mission simulator to educate ESM navigators on the intricacies of the navigation through ice-bound regions. This course is of immense value for our seafarers who may be required to navigate through such areas. Armed with this knowledge, navigators will also gain experience from every real ice encounter. They will gain confidence in the ship and respect the dangers that ice can present.

Be A Safe Navigator:
Learn Your Basics

Capt. D Kishore
Nautical Faculty
SIMS, Mumbai

We have seen a spike in the number of navigation related incidents in the last few years. Analysis of marine accident trends from various sources indicates between 15-20% increase in collisions and groundings over the last two years. Regrettably, some have resulted in loss of the vessel or worse still, loss of life.

I remember in the early eighties, ships were fitted with basic radars and some hyperbolic navigational aids like DECCA or LORAN unlike the array of gadgets available on modern vessels. However, there were fewer accidents than those today. There are many reasons like increased traffic density, extended fishing area to some hundred miles offshore and even inadequate experience and competence of navigators, to cite a few. Even so, the modern navigator has ARPA, GPS, ECDIS and other such aids which should be able to assist him in operating more efficiently.

To strike a comparison, an air craft takes off or lands every 3 minutes from London airport, whilst in the Singapore Straits, the distance between two vessels is at least half an hour. It is therefore startling that when aircrafts do not collide or crash while achieving speeds in excess of 200 knots, ships manage to do so at speeds less than 15 knots!

There may be a number of reasons and causes but for a fresh young cadet, the following are some simple pointers which will provide a firm base for building on safe navigational practices:

Safe speed: What is safe speed? To give an astern movement, the vessels speed must be less than about 3-5 knots depending on characteristics, time is also required for inertial reduction of the speed of the vessel. Assume that your vessel is crossing a precautionary area at a speed of 10 knots (full ahead maneuvering speed), if the telegraph is brought to 'stop engine', it will take about 6-7 minutes for the speed to reduce to sufficiently enough for an astern movement to be effective. The vessel would have traversed a distance of about 2-3 Nm before it comes to a stop.

It therefore follows that in the above case, any action to avoid collision must be taken at a distance of at least 3 Nm from the other vessel. Needless to say, at higher speeds the avoiding action must be initiated at a proportionally greater distance to be effective. The safe speed therefore must be relative to the prevalent conditions of traffic density and other conditions based on which the manoeuvre can be initiated for the avoiding action to be effective. In all cases, a lesser speed allows more time to take effective avoiding action.

Look out: Look out does not simply mean having an Able Seaman with binoculars keeping a watch. One must use the RADAR, AIS, VTIS intructions and traffic warning on VHF as additional means of advance warning.

Sometimes, the bridge team is preoccupied with large targets on the radar and hence small boats are overlooked. There may be situations where a give way vessel may alter course to take avoiding action and approach perilously close to shallows or buoys or to another vessel in the vicinity. In such situations, a simple trial maneuver function on ARPA could give an advance warning on the dangers associated with a particular avoiding action.

During heavy showers or conditions where the radar displays are affected by clutter, the AIS can be of help in tracking targets.

Navigational equipment and its limitations: Some navigators completely rely on GPS, ARPA, ECDIS, AIS and VHF, whilst there may those who tend not to use them enough. Both positions have their drawbacks and it is essential to make appropriate use of what is available to avoid a grounding, collision or a close quarter situation.

ARPA mapping: Most ARPA sets are provided with mapping functions which allows the navigator to map a TSS or positions of fixed object such as buoys etc.This is invaluable in giving the observer an instant overview of the vessel's position relative to fixed targets and boundaries of TSS, Channels. Whilst it does not replace position plotting and passage monitoring, it can be a very useful tool in conditions of high traffic density and restricted waterways.

GPS: Although GPS does provide very high accuracy in absolute terms, it is not to be used as the sole means of position fixing for coastal navigation. Amongst other reasons, errors can result from the geodetic reference for charts being used, signal interference by other device operating in close proximity of GPS antenna, etc.

A simple check on the accuracy of the GPS can be made by using the radar cursor on a fixed object such as a lighthouse and then comparing it with the position of the lighthouse on the chart. Once this is done, the position of the buoys can also be verified on the radar.

VHF and AIS: VHF is primarily meant for distress and ship to shore communication. There have been numerous cases of VHF assisted collision. The main hazard is positive identification of the vessel and misunderstanding due to lingual barriers. Use of the VHF is to be avoided at sea and action must be taken early enough to avoid any such need.

In congested waters, it may be necessary to alert a vessel in the vicinity about your own action on the VHF, in which case positive identification of the vessel must be made by using the AIS and confirming the track and position of the vessel both on radar and visually. Any such VHF conversations must be short , to the point and clear without the use of ambiguous terms.

ECDIS: This is perhaps the most versatile of the equipment onboard. The biggest advantage is that it not only provides the vessel's position in a chart layout in real time, it also displays all selected targets on the same chart, making monitoring very easy. One of the disadvantages is that the position is GPS derived, and therefore the accuracy of GPS has to be checked frequently. It is recommended that the display is used in the North up, day time mode to avoid confusion. Presentation should be\traditional. Case to point is that the Cosco Busan's ECDIS was on simplified presentation, where symbols were different from that on the paper chart.

ECHO sounder: The depths are the most important feature on the chart. It is not uncommon that the soundings on the chart may not be the most accurate and therefore echo sounder should be used to compare the charted depth with observed depths. As a thumb rule, if after allowing for tide, the difference is more than 10%, there is good reason to doubt the vessels position.The role of the echo sounder as a means to ascertain the position should not be underestimated.

Familiarity with the limitations and functions of navigational aids is of paramount importance and all fresh cadets must spend sufficient time understanding the same before they are ready to take up their roles as officers of the watch.

Parametric Roll in Longitudinal Sea

Parametric roll resonance in longitudinal (head and following) sea is a significant amplification of roll motions that may become dangerous for a ship, its crew and cargo. Roll motion in regime of parametric resonance is called parametric roll. In this phenomenon, ship stability changes periodically when the encounter frequency of wave equals twice the rolling natural frequency of the ship as it moves in longitudinal waves at a certain speed and therefore the damping of the ship is insufficient to dissipate the parametric roll energy, leading to the onset of roll resonance.

Ship stability in longitudinal waves

As shown in Fig1 below, for a ship located in wave trough, the width of average water plane increases compared to that in calm water since the flare of the bow and stern are more deeply immersed than the wall sided parallel body, with the result that the metacentric height (GM) is increased as compared to the calm water value. In contrast, when the ship located in a wave crest (Fig 2), the width of average water plane decreases and consequently the GM is lesser than the calm water value.

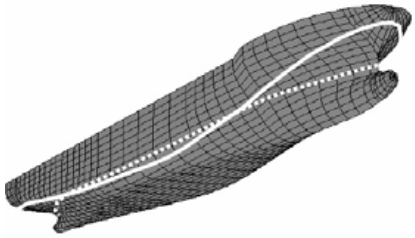


Fig. 1 Mid-ship at wave trough

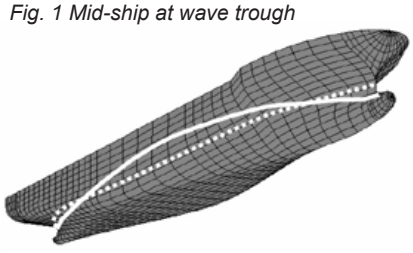


Fig.2 Mid-ship at wave crest

Undamped small roll motion in clam water

When a ship is in calm water, a small disturbance in transversal (say from wind gust) will lead to a roll motion from its upright position. Consequently, a hydrostatic restoring moment tends to bring the ship back to an equilibrium state. Due to inertia, the ship cannot stop at equilibrium point and thus the motion cycle is repeated. The period of such roll oscillation is called natural period of roll (T) and the corresponding frequency (1/T) is called natural frequency of ship.

Physics of parametric roll

As described earlier, when a ship is sailing in longitudinal (head or following) or nearly longitudinal seas, its stability increases in the wave trough and decreases on the wave crest. If this oscillatory change in stability occurs at approximately twice the natural roll period, roll motions may increase to a significant, possibly unacceptable angle as a result of parametric roll resonance. A typical sample time history is shown in Fig. 3.

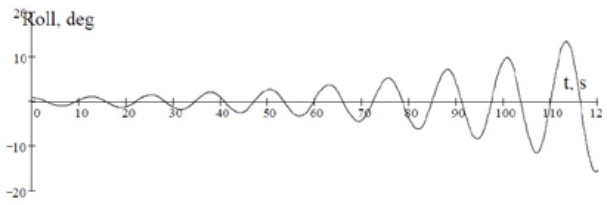


Fig.3 A typical sample of parametric roll-time history

Sajal Sengupta
R & D Engineer/Naval Architect
SIMS, Lonavala

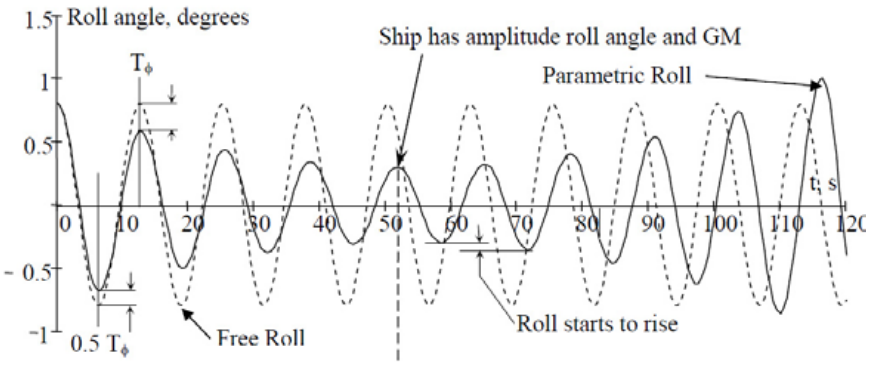


Fig. 4 Development of parametric roll resonance

The most rapid increase of parametric roll motion could be observed when the ship experiences an external roll disturbance at the time when the wave crest is moving away from amidships, i.e., the condition of improving or increasing stability, in combination with an encounter frequency (the frequency with which ship passes through the wave crests and troughs, normally associated with pitching period) approximately twice that of the natural roll frequency. In this situation, the restoring moment tends to accelerate the ship back to equilibrium with a larger-than-calm-water moment because the ship is entering the wave trough where stability is improved. As a result, at the end of the first quarter of the period T, the roll angle is slightly larger than what it would be in calm water.

During the second quarter of the period, the ship encounters a wave crest and its stability is decreased. Meanwhile, the roll motion inertia makes the ship continue to roll. The restoring moment now resists further motion, but with a less-than-calm-water value, since ship stability is lessened on the wave crest. As a result, the ship rolls more than it would in calm water with the same roll disturbance. Consequently, after the second quarter, the increase in roll angle is even greater than after the first quarter.

In the third quarter, the ship enters the wave trough and an increased restoring moment pushes it back with an increased force. The situation is analogous to that observed during the first quarter. The observations in the fourth quarter are similar to those in the second quarter, and the roll angle continues to increase.

With no further change in wave amplitude and ship speed, this combination of restoring (with a larger-than-calm-water) and resisting the roll (with less-than-calm-water) can cause the roll angle to progressively increase to a large and possibly dangerous level. This constitutes the parametric roll resonance phenomenon as shown in Fig 4.

Finally, the phenomenon of parametric roll includes a large number of factors like effect of GZ curve on roll amplitude, influence of ahead speed and wave direction, the threshold parameters, controlling aspects etc.

Damage or loss of cargo due to parametric roll

Introduction to Load (Plimsoll) Lines

The main purpose of **load lines** on ships is to put a limitation on the maximum draft of the ship to which it may be loaded, i.e. to prevent it from being overloaded with cargo, which would make the voyage unsafe for the crew. There are similar rules for road transportation, where trucks and containers are not allowed to be overloaded to prevent collapse as well as to ensure their safe road transportation. The risks for marine transportation are much greater in view of the heavy and rough weather conditions. All assigned load lines are marked amidships on each side of the ship, together with the deck line.

The limits imposed by different load lines are given in the form of minimum "freeboards", measuring the distance between the submerged load line to the "deck line", which is cut at the side of the upper deck, also referred to as freeboard deck. This in turn ensures external water tightness and integrity, which are the main objective of load line rules.

The regulations take into account the potential hazards present in different zones (tropical, summer and winter, etc.) and different seasons (summer and winter). The technical annex contains several additional safety measures concerning doors, freeing ports, hatchways and other items. The main purpose of these measures is to ensure the watertight integrity of the ships' hulls below the freeboard deck. Ships intended for the carriage of timber deck cargo are assigned a smaller freeboard as the deck cargo provides protection against the impact of waves.

History:

The history dates back to 1836, when public outcry about the safety of ships and crew had forced the British Lawmakers to appoint a committee to investigate the growing number of loss of ships. In 1850, legislation was passed to create the Marine Department of the Board of Trade in order to enforce a plethora of laws governing manning, crew competence, and operation of merchant vessels. However, in spite of the clamour for regulation, the British government did not interfere directly with ship operators until 1870, when Samuel Plimsoll, a Member of Parliament from the industrial Midlands, demanded creation of "load line" to limit the weight of cargo loaded on board the merchant ships. However, a reform bill introduced in 1875 was defeated. In the aftermath of its defeat, public awareness of unethical practices and abuse by unscrupulous shipowners had spread widely. In 1876, the first load line regulations were legislated. In view of his pioneering work, the load lines are also referred to as "Plimsoll mark "or "Plimsoll lines".

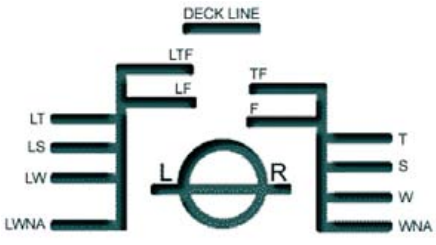
Work of IMO in Rule Making:

The first International Convention on Load Lines, adopted in 1930, was based on the principle of reserve buoyancy, although it was recognised then that the freeboard should also ensure adequate stability and avoid excessive stress on the ship's hull as a result of overloading. In the 1966 Load Lines convention, adopted by IMO, provisions are made determining the freeboard of ships by subdivision and damage stability calculations.

Various annexes and amendments to the original Load Line conventions have been made and can be referred to at the IMO website.

The amendments to Annex B to the 1988 Load Lines Protocol include a number of important revisions, in particular to regulations concerning strength and intact stability of ships; definitions; superstructure and bulkheads; doors; position of hatchways; doorways and ventilators; hatchway coamings; hatch covers; machinery space openings; miscellaneous openings in freeboard and superstructure decks; cargo ports and other similar openings; spurling pipes and cable lockers; side scuttles; windows and skylights; calculation of freeing ports; protection of the crew and means of safe passage for crew; calculation of freeboard; sheer; minimum bow height and reserve buoyancy; and others.

The amendments, which amount to a comprehensive revision of the technical regulations of the original Load Lines (LL) Convention, do not affect the 1966 LL Convention and only apply to approximately those ships flying the flags of States Party to the 1988 LL Protocol. Currently, only 90 countries representing 94.25% of ships worldwide are signatory to the 1988 LL Protocol.



The deck line is shown here for illustration only. Usually the distance between the deck line and the Plimsoll mark is greater than shown here. The distance between the deck line and the mark to which the vessel is loaded is the **Freeboard**. The mark is required to be permanently fixed to the vessel amidships on both sides of the hull and painted in a colour that contrasts with the hull colour.

- TF (Tropical, Fresh) - This is the draft to which the vessel can load when in the Tropical Fresh designated zone
- F (Fresh) - This is the draft to which the vessel can load when in the Fresh designated zone
- T (Tropical) - This is the draft to which the vessel can load when in the Tropical designated zone
- S (Summer) - This is the draft to which the vessel can load when in the Summer designated zone
- W (Winter) - This is the draft to which the vessel can load when in the Winter designated zone
- WNA (Winter North Atlantic) - This is the draft to which the vessel can load when in the Winter North Atlantic designated zone.
- LR (Lloyds Register) - The initials of the Classification Society which assigns the marks.

Other possible initials are: NK – ClassNK , BV - Bureau Veritas, GL – Germanischer Lloyd, AB - American Bureau of shipping, IR – Indian Registry, etc.

These marks are used in conjunction with the load line chart, which clearly shows the designated areas and the dates which apply to these zones.

A vessel loading in a summer zone for a port in another zone with a higher freeboard requirement may, for instance, load to the summer mark, provided that she has lightened enough due to fuel and water consumption by the time that zone is reached that she is in compliance.

All vessels must, in addition to having the load line permanently marked on both sides of the hull, carry a load line certificate, issued by a classification society, this certificate stipulates the various freeboards from deck line and distances from summer loadline, required for that particular vessel. Some ships may also be assigned multiple sets of loadlines, but at any given time, only one set of them will remain valid.

Capt. Sandesh Arora
Dy. Marine Superintendent
ESM, Singapore

Squeezing the SOx Out of Ship Emissions

It has been established over the last decade that emissions from ships have at least as much effect on the environment as emissions from other sources. This is especially true in areas of high shipping traffic such as ports and coastal waters where emissions from ships contribute significantly to the formation of ground level ozone and acidification.

Sulphur dioxide and nitrogen oxide commonly referred to as SOx and NOx are identified as the main pollutants from marine engine emissions which can have a detrimental effect on the climate and the environment as a whole. Acid rain is one of the damaging consequences of these gases.

Whilst the IMO has implemented measures and formulated a timetable for regulatory control of SOX emissions for global implementation, the European Union (EU) identified a need to hasten the control of SOx emission whilst the ships were in ports and brought about a more stringent requirement for implementation in EU ports recently.

EU introduces tighter controls on SOx:

From 1st January 2010, the EU directive on Low Sulphur Fuels came into force for all EU member countries requiring all member states to ensure that ships at the berth in EU ports do not use marine fuels with a sulphur content exceeding 0.1%.

This requirement is only applicable when the vessel is within port limits and in particular when the vessel is at berth in order to alleviate the direct and immediate effect of the emissions on the local environment. Since Marine Fuel Oil cannot satisfy the requirements of such low sulphur content, it became necessary for all vessels to use Low Sulphur Marine Gas Oil (LSMGO) with sulphur content less than 0.1% at all EU member states.

Whilst the above regulation is aimed at ensuring a SOx free environment in ports and areas in the vicinity, it poses an appreciable challenge to vessels and operators to be able to run the boilers and machinery plant on the lighter Gas oil after continuous regular service on Marine Fuel Oil.

Additional measures such as modifications of existing machinery and use of additives had to be implemented to be able to operate the machinery safely with Gas oil. Another consideration was the risks involved in effecting this change over for engines and boilers which were sometimes elevated enough to pose a significant hazard to vessels and personnel.

Gearing the vessels for compliance:

After a slew of clarifications and safety considerations, it has been established that the change over to LSMGO need only be effected 2 hours after arrival at the berth and the vessel may change back to Heavy Fuel Oil (HFO) 2 hours prior to the vessels departure.

All vessels are required to have a plan to effect the changeover procedure in a safe and effective manner taking due consideration of the ship specific factors such as machinery specifications, fuel tank configuration and manufacturers recommendations for boilers and engines etc.

A risk assessment adequately addressing all areas of onboard compliance, identifying the hazards and their mitigation measures will form an integral part of the changeover plan.

The ship staff will also be required to be trained on the fresh requirements and ship specific procedures for effective compliance.

Consequences of non-compliance:

Enforcement of the directive has already commenced with fines being proposed for non-compliance with the requirements. Whilst a few ports in the EU have accorded some leeway on the time frame for effective implementation date to allow vessels to carry out the necessary modifications, there are others who have taken a more hard line stance by announcing fines and penalties for non-compliance. The Port of Trieste for example, has announced a fine anywhere between 15,000 to 150,000 Euros for vessels which are unable to satisfy the sulphur requirement for the fuel being used in port. At this juncture, the implementation and enforcement by individual member states and their ports is not uniform across the EU and it is expected that there will be more consistency in the above aspect in the coming months.

Background to international marine emission regulation:

The advent of 'emission norms' on ocean going ships was initiated with the introduction of Marpol Annex VI which addressed many forms of emissions from

vessels including those from marine engine exhausts. The Annex stipulated limits on SOx and NOx emissions from ship exhausts by capping the sulphur content of fuel oil at 4.5%. While SOx is dependent on the sulphur content of the marine fuel, NOx is controlled by improving combustion in the engine which has been dealt with by the introduction of design specifications for marine engines.

SECA or Sulphur Emission Control Areas was established, covering sensitive areas of Northern Europe, where the sulphur content of the fuel used is not to exceed 1.5%. Marine Fuel Oil satisfying the above criteria is called Low Sulpur Fuel Oil (LSFO) and vessels are required to stock LSFO and use the same upon entering SECA .The above regulations entered into force in 2005.

The progressive reduction of SOx emission being aimed at is 3.5% from 1st January 2012 down to 0.5% from 1st January 2020. For SECAs, the limits will be reduced to 1.0% from 1st July 2010 and further brought down to 0.10% from 1st January 2015.

The road ahead for shipping:

The strict implementation of the 0.1% sulphur requirements by the European Commission (EC) exemplifies the seriousness with which the world community views the threat of emissions from ocean going vessels. The measures on the other hand impose a larger burden for vessel operators and charterers in terms of higher fuel costs, machinery modifications, spares and additives etc. With an increasingly environment-conscious marine community, it is likely that many countries will follow suit (the US has already announced its own set of requirements) and enforce stricter norms on emissions from ships regardless of its effect on the economics of vessel operation. Ships on their part will need to be geared to operate in a cleaner and greener manner.

Capt. Rajesh Subramanian
Marine Superintendent
ESM, Singapore

Inadequate Monitoring of Moorings in Port:
Lessons Learnt

Capt. Deepak Tamras
Nautical Faculty
SIMS, Lonavala

It was a mooring incident which neither caused death nor personal injury. However, it did lead to an appreciable 'process loss' with financial implications apart from other possible damage and loss to persons and property, which is always an undesirable event in the shipping industry.

I was the Chief Officer on a Panamax bulk carrier calling the Port of Liverpool for discharging a cargo of coal. The sailing directions mentions Liverpool as a tidal port and with strong currents. The above fact was also intimated by the agent prior to arrival and confirmed by the pilot during the berthing operations.

The vessel berthed port side alongside with 4 headlines, 2 breast lines and 2 springs forward and aft. Since it was a tidal port and the vessel was loaded to its summer marks, the accommodation ladder could not be used for ship shore access. Hence, a shore gangway was provided to the vessel and landed on the life boat deck railing. All the crew were on their regular watch schedules with the AB's and duty officer attending to moorings and gangway during cargo work throughout the day.

Before the master retired for the night, he wrote his instructions to the officers in the deck night order book highlighting the need to ensure effective management of moorings and tending of the gangway. He also included a note requesting the officers to call additional crew on deck should it be necessary for handling the moorings.

At around 0115 hrs, the 2nd officer called me on the deck urgently as the vessel had moved out of berth at the stern. Almost half sleep, I rushed to the deck and saw that the vessel's stern had moved away from the jetty by almost 50 metres and the bow by around 10 metres. The ropes were however intact, taut and appeared to be bearing equal load. Inspite of the efforts by the deck crew to heave the vessel in, the flood tide and strong current was preventing the vessel from coming alongside to the berth. By now, the Master who had been called to the bridge was attempting to raise the port control to seek tug assistance. In the meantime, all ship personnel were called on deck and sent to man the mooring stations and the engines were requested to be kept in readiness for manoeuvring.

Two of the cargo stevedores who were present on deck during this time called the port control on their mobile phone and conveyed the vessel's request for a tug. The tugs arrived in a few minutes and the vessel was quickly pushed alongside the jetty. During the entire episode the gangway which had been connected to the railings on the vessel's lifeboat deck was completely forgotten. The gangway had remained suspended from the port side railings when the vessel drifted away from the jetty and a part of it was subsequently caught between the vessel's hull and jetty when she was brought alongside with tug assistance. The railings of the shore gangway sustained impact damage for a length of about 5 metres. The vessel's stern had to be pulled off the jetty sufficiently enough to allow the gangway to be freed and landed on the jetty. The moorings were eventually tightened and the vessel securely tied up alongside.

The incident lasted about 2.5 hours, resulting in a loss of discharging time, damage to the shore gangway and incurring tug and port charges for use of tugs. The P&I correspondent was called to attend to the vessel to assist the master and safeguard the owner's interests.

Having been aware of the current and tide concerns in the port, the vessel had taken the necessary precautions and employed additional watch keepers to tend to the moorings.

An investigation was conducted into the incident and the following were the contributory factors identified:

1. A passenger vessel had passed along the channel past own vessel setting up a surge which pushed the vessel out of the jetty.
2. Mooring winch brakes had not been set tight enough to prevent the ropes from paying out when they were subjected to higher loads.

Lessons Learnt:

1. Mooring ropes should be kept tight at all times to keep the vessel securely moored
2. Winch brakes must be tightened sufficiently enough to prevent the ropes from paying out when subjected to higher loads.
3. In tidal ports, the ship's staff must exercise particular caution and monitor the moorings closely. Additional personnel must be available to assist in the process.
4. Gangways need to be tended to as much as moorings, especially in such ports.

Whilst the above incident could have been entirely avoided, we were indeed lucky that there was no injury to personnel and that the vessel was safely brought back alongside.

Port of Liverpool

Grounding in Suez Canal:

An Eye-witness Account

Capt. Vivek Tyagi
Nautical Faculty
SIMS, Lonavala

A few miles north of Great Bitter Lake on a lazy afternoon of 6th November 2004, between markings of kilometres (KM) 73 and 74, when everything seemed to be going smoothly, suddenly our pilot started jumping in panic and shouted at me, "Captain, your steering has failed!" Startled, I looked towards the helmsman, who was equally shocked at the pilot's sudden outburst. I knew instantly that this was news to him as well. After a few quick checks, I confirmed that there was nothing wrong with the ship's steering. In the meanwhile, we had taken contingency steps like reducing speed, forward anchor party standby and emergency steering standby, etc. When I asked the pilot, he advised me that he had heard Suez authorities announcing on VHF in Arabic "Northbound # 12 lost steering! Escort tugs to proceed immediately."

We had been allotted # 12 by the Suez Canal authorities as part of the northbound convoy on the morning of 6th November 2004. That meant we were # 12 in the convoy and were scheduled to follow # 11, a loaded Suezmax, MT Tropical Brilliance.

In the early hours of the day and still some time away before sunlight would grace the part of world that we were in, the northbound convoy began from Suez; one by one the vessels heaved anchor and started proceeding towards the pilot boarding ground for picking up the pilot. We overheard on VHF that due to some technical glitch, MT Tropical Brilliance was unable to join the convoy as scheduled. To wait for her would have meant delaying the convoy, hence Suez authorities advised us to proceed to pilot station after # 10. By the time we were lined up for picking up pilot, Tropical Brilliance had also sorted out her problem and was just behind us, thus interchanging our number in the convoy - we were # 11 and she was # 12.

Hence after hearing "Northbound # 12 lost steering!", I knew that it was the vessel behind us, MT Tropical Brilliance, which may have had a steering problem. We then noticed two tugs rushing past us towards her.

The next announcement on VHF, which was again in Arabic but was promptly translated by the pilot to educate us on the proceedings, stated that the master and pilot of MT Tropical Brilliance had decided to beach her in the soft mud. In a flash, all the binoculars on bridge were occupied to witness the event. Just half a mile behind us, we saw MT Tropical Brilliance being swung to starboard and beached; a mountain of mud rising on the shore as the bow of the vessel shoved its way into shallow banks of the canal.

MT Tropical Brilliance had formed a literal bridge between the two banks of the canal, blocking the entire passage for remaining traffic. We were the last vessel to clear Suez Canal, which would then remain closed for next three days – the longest closure since the canal re-opened after the Arab-Israel war in January 1975.

Aftermath: About 135 vessels (90 northbound and 45 southbound) were caught in the area. The Suez Canal Authority (SCA) tried to re-float the vessel, though initially without success. Subsequently, a lightering operation was conducted on the ship and about 23,000 tonnes of crude oil was pumped out into lighter ships to allow the tug boats to pull her out of the sand. Finally, Tropical Brilliance was refloated on 9th November 2004 at 08.20 LT, towed to KM 61 and anchored.

Traffic in the Suez Canal resumed on 9th November 2004, after a 3 days' shutdown due to the grounding. The closure of the Suez Canal bears an extremely big commercial impact for the entire shipping world. On an average 1.3 million barrels of oil pass through the Canal every day. A three day closure meant delayed ships to Europe, US and Asia, which in turn, could result in the increase of global oil prices. The closure of Suez Canal was also a big commercial loss for Egypt, as it is the third largest revenue generator for the country.

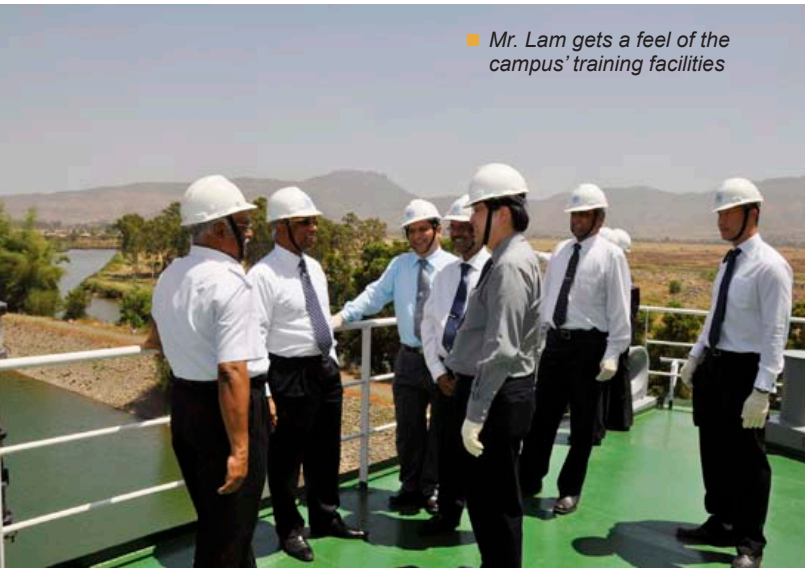
Precautions: Apart from routine procedures that we follow when arriving at a port, there are a few additional smaller tips that may help us when transiting Suez, or for that matter, any Canal:

- Ensure that proper control testing is conducted prior to picking up the pilot and the vessel does not enter unless all equipment including main engine, generators and steering, etc. are in good working order.
- Some pilots boast about their skill or experience and then often indirectly (sometimes even directly) advise the captain to relax and not to worry about navigation. The master should himself decide judiciously about his relaxation time, depending on the various factors as advised or suggested in the company's procedures. He should be relieved properly by the Chief Officer.
- The attention of bridge team should be on the safe navigation, irrespective of the pilot's presence. The Company's procedures for navigation with the pilot on board must be scrupulously followed as per the Bridge Management Manual.
- SCA may impose carriage of an escort tug in case of any perceived operational problems on the ship. During the entire transit, the tug remains in the close vicinity of the vessel. However, the cost of the tug on the owner's account will be about US$ 26,000 for the transit.

The Suez Canal
Source: http://earth.imagico.de/

CEO, MPA, Singapore Visits SIMS, Lonavala

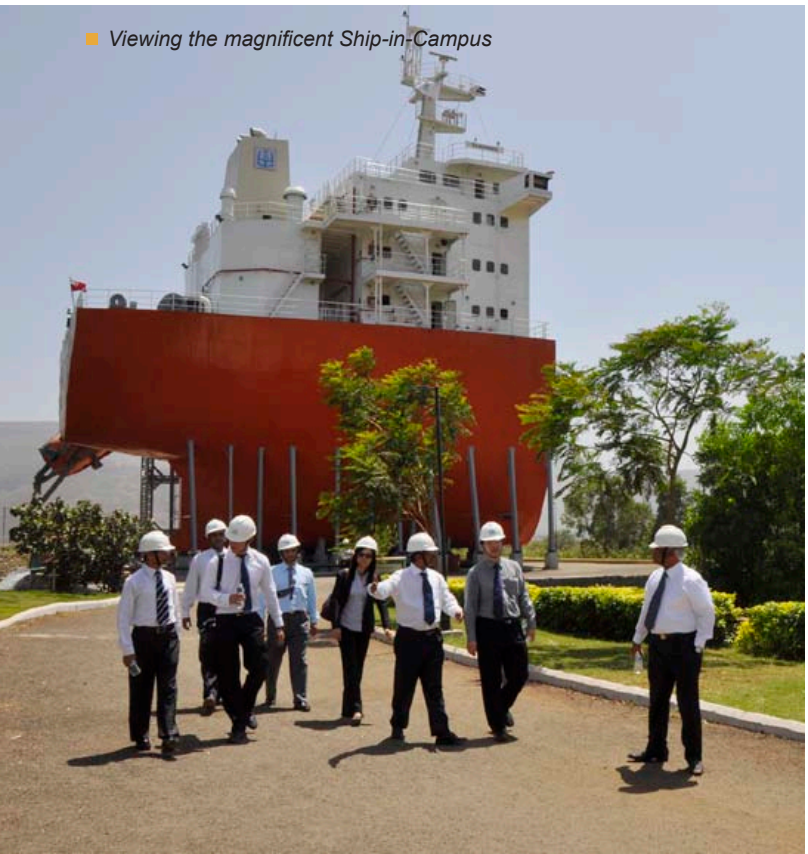
Presenting a smart guard of honour for the chief guest, Mr. Lam Yi Young, CEO, MPA, Singapore



Mr. Lam gets a feel of the campus' training facilities

Mr. Lam, accompanied by then Principal, Prof. D.V.B Swamy, into the auditorium

Mr. Lam presenting a token of appreciation to Prof. D.V.B. Swamy



Viewing the magnificent Ship-in-Campus

Mr. Lam paying keen attention to the briefing

Mr. Teeka and Mr. Lam enjoying a casual stroll across the campus

A short session in the meeting room

Mr. Lam addressing the cadets by giving a heartfelt speech

Touring the beautiful campus

Surveying the workshop

CEO, MPA Singapore and His Delegation Paid Official Visit to SIMS, Lonavala

Mr. Lam Expressed Great Appreciation of the High Level of Maritime Training Facilities in the Campus

Mr. Lam Yi Young, Chief Executive Officer, Maritime and Port Authority (MPA), Singapore accompanied by two senior colleagues paid a day long visit to SIMS, Lonavala on 31st March and expressed his deep appreciation for human resource initiatives that provided the high level of training infrastructure and professionalism in imparting maritime training to the pre-sea cadets in the institute.

Mr. Lam and his colleagues Mr. Yujin Chia, Manager, MPA and Ms. Lena Han, Manager, Corporate Communication, MPA were accompanied to the institute by Mr. B.S.Teeka, Managing Director, Executive Ship Managment (ESM) and Mr. S.M. Iyer, Head of ESM, India operation, Mumbai and Mr. S.S. Gadkar, Engineer & Ship Suveyor-cum-Deputy General(Tech), Directorate General of Shipping, Mumbai.

Mr. Lam was given a warm welcome and a smart guard of honour by the cadets on his arrival at the campus. Mr. Lam and his colleagues were then shown around the training facilities in the campus including the Ship-In-Campus, FFLB, Workshop & the Maritime Science Building as well as the cadets' academic and accommodation blocks. During the walk around, Mr. Lam keenly observed all the training facilities.

The MPA CEO later addressed the cadets at a short function at the auditorium and congratulated them for choosing the career of seafaring which requires a high level of professionalism. He emphasised to the cadets that the maritime transportation was the bedrock of strong international commerce and that the business and growth of nations were dependent on it.

Principal Prof Swamy welcomed the MPA delegation to SIMS Lonavala. He introduced the accomplishments of Mr. Lam to the audience and emphasised the long association between SIMS and MPA Singapore as both the cadets programmes have been recognised by MPA apart from the DG Shipping, India. Mr. Lam was also deeply appreciative of Mr. Teeka for facilitating the visit and commented that this is indeed a "very beautiful and comprehensive campus."

Commenting on the visit, Mr. Chia said that SIMS was built with a "noble vision" and a decade from now, alumni of SIMS were sure to play leading roles at sea and ashore. Ms. Han in her comment noted that she was inspired by the state-of-the-art facilities and the vision for the seafaring career in India.

Steam Burns to Motorman

On board a tanker vessel, in engine room, it was decided to carry out routine overhaul of the boiler feed water pump. The work was done under the supervision of the second engineer.

It was a normal practice on board to check if any cargo/ oil was coming into the hotwell. As this check was done quite frequently the hotwell manhole door was left open. During this particular maintenance of the feed pump also, the manhole door was open. The boiler water feed pump was located just beside the hotwell.

At 1200 hrs, the engineers stopped work for lunch. During the lunch break, the Chief Officer indicated to the Second Engineer that he wanted to carry out Tank cleaning. He requested the second engineer to open the steam to the Butterworth heater after the lunch break.

The Second Engineer returned to the engine room at 1300 hrs after lunch. He spent the next 10 minutes supervising the job progress of other personnel working in the engine room and issued new instructions and assigned tasks as necessary. After lunch, the Motorman came to the engine room to assist in maintenance work. He was instructed to clean the area near the boiler feed pump that was dismantled for maintenance in the morning.

The Second Engineer then remembered that the Chief Officer had requested steam on deck to the Butterworth heater for tank cleaning. Around 1315 hrs, he started opening the steam to the Butterworth heater.

A little while later, water hammering started. At 1320 hrs, the level of water in the hot well was increasing due to the water from the steam pipeline coming to the hot well as the steam was opened. As a result, the boiling water from the hot well came out through the open manhole door and fell on the Motorman who was working in that area.

He sustained burn injuries of varying degrees on his face, i.e. the forehead and temple region, the back of his neck, his hands, his torso, his back, from the shoulders down to the lumbar region, left thigh above the knee and his left ankle.

He was immediately administered first aid and shifted to the ship's hospital where he was treated on board under shore medical advice until he could be transferred to a hospital when the vessel would call port a couple of days later.

How could such an incident have been prevented?

Responses for Bunker - How Much is Safe Margin: Issue 08 (Jan 2010)

We have received an overwhelming number of Feed backs and comments from our enthusiastic readers on the case study on **Bunker - How Much is Safe Margin?** in the January issue. We have compiled the response and expertly edited by Capt. Arun Sundaram, General Manager, and ESM.

What part did the charterer play in the above incident?

The charterer requested the vessel to take maximum bunkers basis reachable ports in a rather large US Gulf - Japan discharge range. Vessel was also informed that no bunkers would be available at the load port. Until this point, there is no mistake on charterer's part.

However, later on given that the agent had informed them regarding the bunker barge situation; they could have been more proactive at Honolulu in berthing the vessel on the day of the arrival rather than waiting outside for good weather.

What part did the vessel/owners play in the above scenario?

Owners are not involved in the bunkering process. However, there was no clear guidance to the ship about commingling on a case by case, tight tank capacity and emergency basis. Chief Engineer could have been instructed to consult the office and a compatibility test could have been arranged. An open dialogue with charterers could then have taken place regarding the possible issues involved.

The owners did not have a policy on the minimum reserve to be kept onboard prior vessel taking up a long voyage. It was also stated later that since the vessel had not done any transpacific voyage at all, master had assumed that ship will sail back to the US Gulf as she had done during previous trips and thus did not insist on taking full bunkers as needed for cross-pacific voyage.

On his part, the Chief Engineer did not consider all the options of maximising the bunker intake and just calculated the maximum bunkers vessel could take. The Chief Engineer did not allow for sufficient reserve for the intended voyage. The 3 days reserve as calculated in the scenario was on the assumption that there will be no unpumpable, which is impractical. In fact the oil distributed in 4 bunker tanks would have at least 15~20m3 of unpumpable, thereby reducing the effective reserve to approximately 90MT only (which is less than 3 days reserves).

Bunker requirements (especially for such long voyages) should be discussed between the Master and the chief engineer, however it appears that even the master did not double check how much reserve the vessel had for the intended voyage. Either there was no discussion between the Master and the Chief Engineer or they were too complacent about the whole issue.

It was possible that the ship could have used gas oil, in case required on the voyage, which could have been replenished upon arrival at the destined port. This would have prevented her diversion to Hawaii for bunkering.

Action taken was to remove the CE - what possible role could he have played to deserve this treatment?

Chief Engineer is relied upon for correct calculations and for ensuring that the bunkers are sufficient at any stage of the voyage.

There was 30MT of bunker in 2S and this bunker could have been spread into all tanks, which would be very negligible quantity to cause any trouble. Chief Engineer should have brought this proposal to the owners for their approval. He should have also confirmed the safety margin for the voyage from the previous voyages data and used this figure.

Even though harsh, his removal seemed to be the right action to be taken (just culture with zero allowance for gross negligence). He should also have been re-educated

and trained on this aspect, if considered for another chance by management. He had made a major mistake in calculation and then not informing the company and seeking their suggestion and approval.

On hindsight what should the CE have done to prevent this outcome?

There were various options open to CE to have prevented this from occurring:

1. The CE should have suggested to the office that he can transfer 10MT each to 1p and 1s bunker tanks to have only 10MTs in each tank thereby reducing the commingling ratio to much less than acceptable levels and increased his maximum intake by approx. 230MTs. Total maximum intake then would have been 880MTs. A compatibility test between the bunkers in 2P tank and the fresh bunkers should also have been done.
2. He should have then discussed with the Master and requested the charterers for at least 4 days of reserve plus the unpumpables (basis his experience on this vessel).
3. By reducing the load on the engine slightly, he could have conserved fuel and could have completed the voyage. Of course there would be a delayed ETA.
4. By taking in bunkers upto 95 percent of tank capacity. Risk assessment could have been carried out with office guidance full bunkers were taken safely.
5. Secondly, once the vessel had proceeded on the voyage, the vessel could have suggested use of gas oil to avoid diversion of the vessel.

Who should be liable in the above scenario for the additional costs involved - owners or charterers?

The major blame for this incident is attributable to the ship's officers; hence owners should be liable for the additional costs involved. Owners should also have suggested use of gas oil to prevent the deviation to Hawaii. Charterers could be faulted for delay at Hawaii, which may be a small percentage of the overall costs.

What role could the charterers and/ or managers (owners) have played in preventing the incident?

Owners/managers should've provided guidance to the Master/CE regarding prompt communications concerning such a situation and for seeking guidance from the office in case of close call situations like this. Such matters if discussed in advance could have minimised the costs to a large extent.

Proper guidance regarding commingling, optimising the intake of bunkers, reserve bunkers, use of gas oil for emergency and in general instructions for ship's Master/ CE to contact office for any doubtful situations should have been provided.

Considering that the diversion was only 100 miles, it was a prudent decision to bunker the vessel at Honolulu, however waiting the vessel at anchorage for the weather to improve was not a viable decision when there was a risk of losing the bunker to any other vessel.

What factors should the CE in general take into consideration when requesting for bunkers in similar situations?

The CE should always try to find means to optimising bunker intake, especially when he gets instructions to take maximum bunkers. The idea is to maximize the intake and if not meeting the company policy, special case like 90% filling ratio, small % of commingling etc should be considered in extreme cases where charterers are unable to arrange for bunkers on passage.

When there is a tank with such a small quantity, he should always look for a means to transfer the bunker to another tank or use it up at the first opportunity before bunkering or minimise the quantity further.

In the absence of any company guidance on reserve, the CE could have reviewed several previous voyages consumptions and ascertain from actual experience what should have been the reserve.

Most importantly, he should keep all the concerned parties (such as owners, charterers, managers, etc.) sufficiently informed regarding the situation. At times the charterers/ owners have better ideas to manage and/ or at least can take a well planned decision instead of such last minute mess.

What percentage of bunker commingling can be considered safe?

There is no thumb rule to this and must be ascertained by a compatibility test that can be elaborately carried out ashore in the labs. A compatibility test can also be conducted by the CE onboard. None of these tests give any 100% confirmation that the mixing is compatible - they only give an indication. So there is no percentage that can be mentioned as safe.

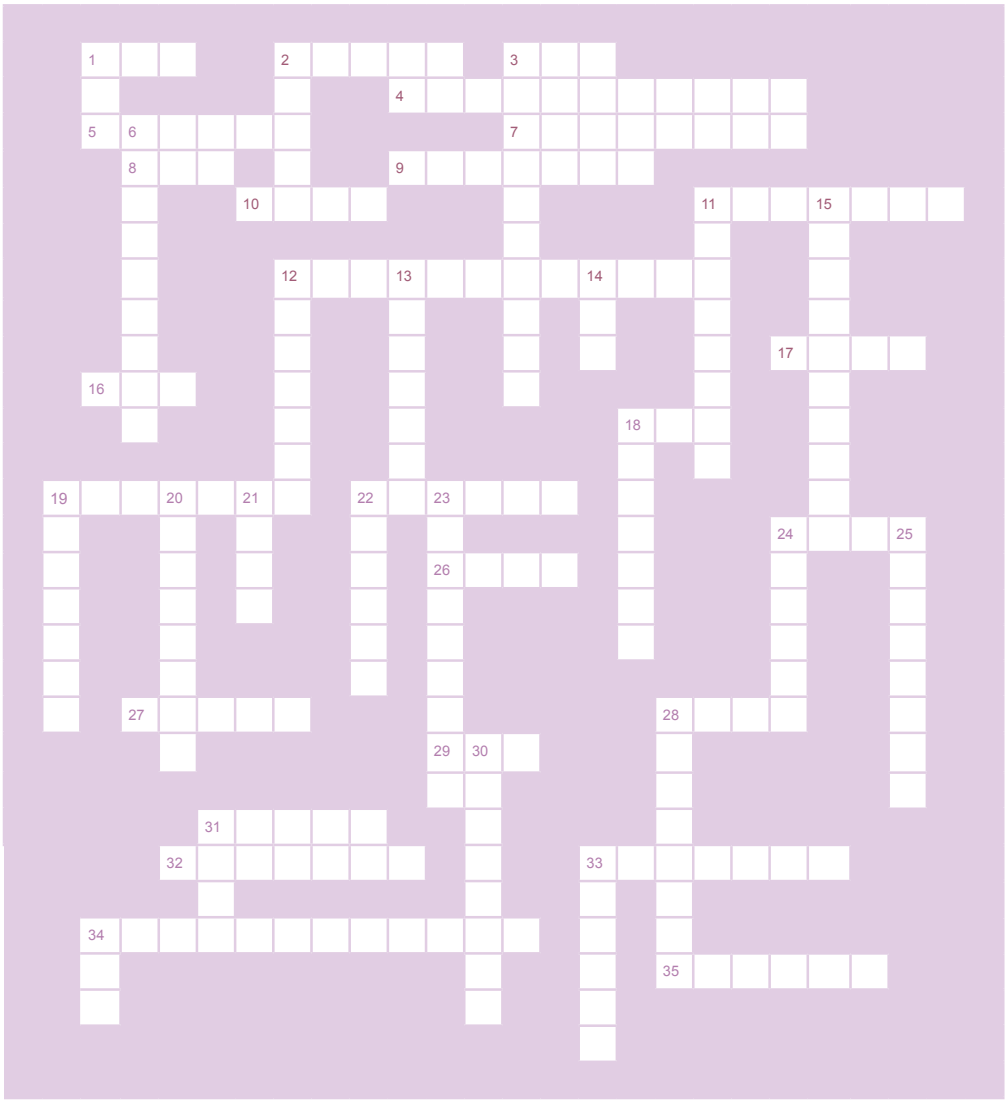
Though no expert likes to commit himself, in practical terms a safe mixing % ratio of 10:90 may be acceptable. Beyond this, guidance on a case by case basis should be sought by the ships.

What should be the safe margin for bunkers when vessel sails on a cross-ocean sea passage?

For increased safety, it could be taken as either 20% of the voyage consumption or 4 days reserve for HFO whichever is higher, in case of a cross-ocean voyage. Many vessels are now running AE on HFO and hence a minimum quantity of DO, i.e. at least 1 day of ME running and 4 days of DG running should be maintained onboard as reserve. These figures are excluding the unpumpable quantities in the bunker tanks.

Artist: CDT Uttam Dutta, DNS-09, SIMS, Lonavala

Crossword Puzzle



Across

1. World's largest developer of standards
2. _____and tube heat exchanger
3. Modern type of fuel pump
4. Device used to measure salinity of fresh water
5. International convention for prevention of pollution by ships
7. _____pipe are fitted on tanks to enable ullages to be taken
8. Classification society from norway
9. Another name for hotwell tank
10. Security alert system in ship
11. Another name for floating lever
12. _____ tripping is provided for generator protection to avoid overload
16. _____ ejector is used to create vacuum
17. _____ graph gives size of gravity disc of purifier
18. Person ashore having direct access to highest level of management
19. _____ clearance should be as small as possible in air compressor
22. When centre of gravity is below metacentre, the ship is said to be in _____ equilibrium
24. Difference between forward and aft draft
26. Information regarding chemicals is provided in this sheet
27. Diode used as safety barrier
28. Self priming pump
29. _____ is a measure of lubricant's reserve alkalinity
31. Another name for tank stabiliser
32. _____ rule is used for calculating area and volume of ship
33. _____ gear should not be engaged while starting the engine
34. Device used to control superheated steam temperature in boiler
35. Used for changing the direction of ship

Down

1. Provides an international standard for safe management and operation of ship
2. It provides convention for safety of ship and persons at sea
3. It measures viscosity of fuel oil
6. _____ compression consumes more work
11. Variable delivery pump used in steering system
12. Removing of explosive gases before starting the boiler
13. Consideration payable to the carrier for carriage of goods
14. Load required to change ships mean draft by 1 cm
15. Device used for measuring speed in r.p.m
18. Ratio of mass to volume
19. While unloading we _____ sea water on ship
20. Used for purifying fuel oil
21. _____ available should be greater than _____ required to avoid cavitation in pumps
22. Annexure iv of marpol is related to pollution by _____
23 By using this coefficient, shaft power of ship can be calculated
24. Lever attached to rudder post
25. _____ protocol on substances that deplete the ozone layer
28. Device which regulates the quantity of fuel supply
30. This is carried out to remove settled particles from boiler water
31. _____ tube boiler has smoke inside the tubes
33. _____ power is developed by propeller
34. This unit in air conditioning system conditions the air as required

Answers:

Across	Down
1.ISO	1.ISM
2.shell	2.solas
3.vit	3.viscometer
4.sallinometer	6.adiabatic
5.marpol	11.heleshaw
7.sounding	12.purging
8.DNV	13.freight
9.cascade	14.tpc
10.SSAS	15.tachometer
11.hunting	18.density
12.preferential	19.ballast
16.air	20.purifier
17.nomo	21.npsh
18.DPA	22.sewage
19.bumping	23.admiralty
22.stable	24.tiller
24.trim	25.montreal
26.msds	28.governer
27.zener	30.blowdown
28.gear	31.fire
29.tbn	33.thrust
31.flume	34.ahu
32.simpson	
33.turning	
34.attemperator	
35.rudder	

CDT Deepak Gupta &
CDT Pritesh Shetty
GME-08
SIMS, Lonavala

Electricity from Trees:
A Revolutionary Way of Generating Energy

Based on idea from
CDT Sunny Arya
GME-09
SIMS, Lonavala


source: www.interweb.in

Life without energy on this planet is unimaginable.

It is the critical force that empowers everything from business, manufacturing, and the transportation of goods and services around the world today. The most common energy sources are acquired from nature while some are generated from nature through the ingenuity of the scientists' brain:

1. fossil fuels such as coal, petroleum and natural gas
2. renewable sources such as solar, wind, hydroelectric, biomass, and geothermal power
3. nuclear sources

Most likely, many of us would have heard of these techniques of harnessing energy before. Let us focus on producing energy from biomass, which is actually one of the oldest and most well-established energy sources in the world.

Burning wood from trees is a method of producing biomass energy. In this way, stored energy from plants is converted to energy that we can use. However, when trees are burned to produce biomass energy, the result is an increase in global warming and pollution.

Hence, scientists have discovered a more eco-friendly way to generate electrical energy from trees. Scientists at the University of Washington have created nano circuits that use a very tiny bit of electrical power. They successfully ran a circuit solely off tree power for the first time. We can tap the electrical energy from trees using these nano circuits because plants generate electricity internally, producing a small amount of voltage.

A study done in 2008 from the Massachusetts Institute of Technology (MIT) found that plants generate a voltage of up to 200 millivolts when one electrode is placed in a plant and the other in the surrounding soil. Those researchers have since started a company developing forest sensors that utilise this new power source.

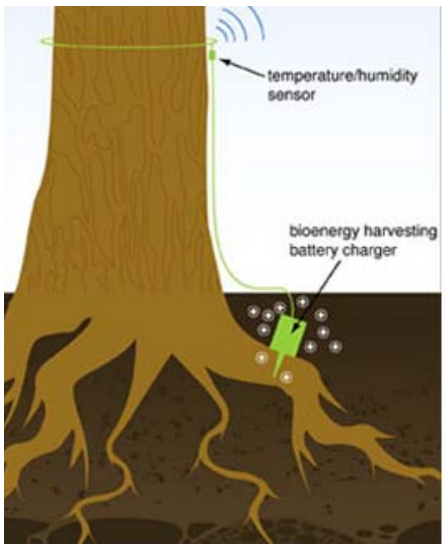
The tapping of free energy from trees is done by using tailored "boost converters" which turns each tree's 200 millivolt voltage into very usable 1.1 volts of electricity (which is close to that of a rechargeable AA battery). The current capacity of electricity is a lot lower in a tree. But circuitry is designed to allow the electricity to accumulate until enough electricity is built up in order to operate an electrical device for a short period of time.

There is also another interesting way to tap this energy. First, we take a small stick of silver about 6 to 7 inches long. Then, we insert the stick in the tree and after 15 to 30 minutes, there will be a charge on the silver stick that can be measured by an ammeter. Every tree gives us minimum of 0.6 volt and a maximum of 1.2 or 1.3 volt. We can do this with all trees and keep them in series and add all the voltage. Then, we can get some amount of voltage without cutting any trees. But the problem is that we cannot do this for all trees in series.

The electricity generated might also provide a low-cost option for powering tree sensors that might be used to detect environmental conditions or forest fires and eventually protect trees. The batteries would recharge themselves from the electricity released from the trees. Researchers at MIT are looking into the idea of putting such data-gathering instruments on trees. In this way, scientists can find out the risk of forest fires at any particular moment.

The electricity derived would run low-power transmitters and trees would transmit information from one tree to another until the data piles up in a hub. Finally, at the hub of that database, a more powerful transmitter would send the data to a specific forestry command headquarters. Furthermore, the electronic output might even be used to gauge a tree's health in the future.

To promote environmental conservation and reduce the effects of global warming and pollution around the world, we might finally be able to stop cutting down trees for the purpose of generating biomass energy. Instead, we could let them give off their internal electricity just by thriving, and in that way, the voltage released is not wasted into the atmosphere, creating a revolutionary power generation technique – through trees.



Advantages of tapping electricity from trees

source: www.thefutureisawesome.com

Sailing Through SIMS

CDT Ashit Deb
DNS-09
SIMS, Lonavala

On the 29th of July 2009, as I sat on the SIMS chariot (bus) with 40 other sea cadets, I could not help but be filled with excitement as I thought about how my dreams were actually coming true. As we entered our magnificent training castle (SIMS), my first words were, "Wow!! Jaisa internet may tha, waisa he hai." When I alighted from the bus, I realised that my somehow bleak looking future had been revived just like the beautiful mythical bird, the phoenix, that rises from its ashes and lives through another cycle of years.

My Pre-Sea Training commenced and eventually my "left and right" orientation changed to "port and starboard" and my 12-hr body clock was transformed into a 24-hr one. My HMT turned into GMT. On the first day of training, I was given the charge of Cadet Captain (CC) as I had a very good NCC (National Cadet Crops) background. This position provided me with valuable leadership experience. I was a dedicated trainee and carried out my tasks sincerely, upholding my stance of impartiality.

Then came my first ship excursion, which thrilled me and I felt privileged to traverse a ship floating on land with 80 crew (GME), along with some other fellow trainees from around the country.

The phrase "unity in diversity" rang so true in my ears as I saw how a multitude of different people, all Indian, lived together harmoniously under one roof in SIMS. We also protected ourselves from the HINI virus (swine flu) which had consumed many of our fellow Indian brothers and sisters in and around the campus by observing stringent health and safety rules. It seemed as though the unity at SIMS strengthened us for a time like this as we worked together to keep the virus away from our campus. We also sacrificed our off-shore leave during this period but it was all worthwhile as we successfully kept the virus at bay.

We all know the adage, "time and tide waits for none" and I got the opportunity to experience the truth of this saying at SIMS when I was punished by the faculty for coming in to class just 3 seconds late. My time management skills also improved tremendously when for the first time, I attended night classes besides a day's busy schedule.

We worked hard but we also played hard, as the saying goes, "all work and no play makes Jack a dull boy." The SIMS curriculum surely did not turn me into a dull boy as it aroused in me athletic enthusiasm, that propelled me to become a proficient swimmer from a non-swimmer, a marathon runner and it also further honed my skill in outdoor sports such as cricket, football and basketball. In addition, SIMS added more spice to my life by giving me an opportunity to project my cultural talent before eminent sea officers from ESM.

SIMS in fact nurtured and transformed me from an inexperienced boy to a "man in white", from being carefree to being responsible, from a follower to a leader and from a commoner to a seafarer. Now, the time has come for me to graduate from "Home Sweet Home SIMS" and to bravely face the high seas, using the skills I acquired during my training in SIMS. But the beautiful memories of SIMS will always remain my heart and I believe I will never be the same again.

SIMS Cadets Join as ESM Officers During the Last Quarter Ending 15th April, 2010


3/O YADAV ASHOK KUMAR


3/O SHYAM


3/O ROY KAMLESH SADANAND


3/O SHARMA SHASHANK


3/O SAGAR ROHAN


4/E SINGH GURBINDER


4/E SAHADEVAN RAJARAM


4/E SELVARAJ AMUDHAN


4/E SINGH MOHIT KUMAR


4/E CHEERAN PHILIP JACOB


4/E JAYARAJ SUJEETH


4/E YERRA PAWAN KUMAR


4/E SOUMYA MAHANTY


4/E NITIN YADAV


4/E DURAIRAJ SENTHIL KUMAR


4/E KRISHNASAMY MANOJ


4/E PUTHYAPARAMBIL SCARIA MATHEWS


4/E ANOOP THUMARAKALAYIL


4/E RADHAKRISHNAN ROHIT

Learning with SIMS

I have now passed halfway through our course at SIMS and what an exhilarating experience to be able to look forward to the next six months in the Ship-in-Campus!

CDT Prateek Shukla
GME-08
SIMS, Lonavala

This is a one of its kind ship-in-campus in the entire world with a real life ship stern anchored permanently on solid ground and we, the graduate marine engineering cadets of SIMS have this unique opportunity to be trained here.

Looking back at the past six months, the memory of my first day at SIMS, Lonavala is still very fresh and sparkling. It was Monday, 31st of August 2009 – a special day in my entire life. I was curious, maybe also a bit of apprehensive of the life ahead!

However, as days passed, I started relishing each moment of the training. One of the first few things I learnt here is "safety first". This is not only applicable in a mariner's life but also in our day to day life. I learnt that before doing anything or taking any step forward, you should think twice about the circumstances and the resulting consequences of your decision.

When faced with any type of problem, I have learnt that we should analyse the situation in detail, identify the root of the problem and channel our thinking process to start from the basics itself. However, we should not make our problem seem too complicated by analysing something in too much detail either. Marine engineering basically makes use of a lot of logical thinking strategies instead of excessive technicalities.

I went through many different theory subjects and practical hours, making sure my fundamentals were in place. As we learnt about seamanship, we also realised the importance of teamwork and mutually beneficial interdepartmental relationships.

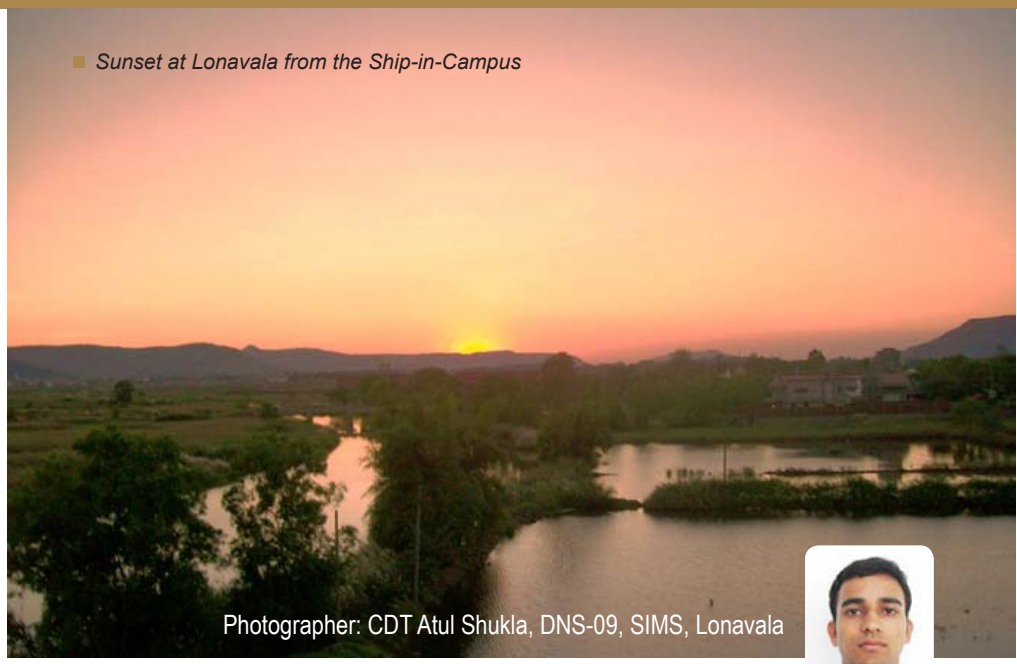
At SIMS, we are trained both mentally and physically. Apart from being trained to clear part 4-B for being a marine engineer, we are undergoing training to be a good mariner first. Also, I enjoyed learning swimming here and now I am a swimmer. It truly feels great and I am so happy with my accomplishment.

A typical day here starts with physical training in the morning, attending classes, which trains us mentally and finally, physical training in the form of sports in the evening. We also study at night, so we are mentally active just before we knock off to go to bed. Furthermore, we trained for watch-keeping too in our hostel as we are allotted various different duties.

SIMS prepares us to be able to stand on our own feet, to understand responsibilities and to be effective and independent watch-keepers. Hence, many positive changes can be observed in my life and I am eagerly waiting to go home and watch the reaction on faces of my parents, friends and all others. I bet all will be (pleasantly) surprised to see such a drastic change in the boy who was thought to be a foregone case!

No doubt I now look forward to a great SIC experience in the second semester and I heartily thank SIMS for bringing out the best in me.

Thank you SIMS!



Sunset at Lonavala from the Ship-in-Campus

Photographer: CDT Atul Shukla, DNS-09, SIMS, Lonavala

Helmet

Whole world says "Safety First",
But for that, Helmet is a must.
Do not take Helmet, Just for Granted.
For everyone's safety, Helmet is most wanted.
When Government enforces rule to use Helmet,
Please accept and implement without a curse or a fret.
Maximum deaths are due to road accidents,
Helmet can be used to avoid these incidents.
I don't know why people avoid wearing a helmet,
Even though everyone knows, it saves us from an accident.
In SIMS I see helmets everywhere,
Because we know, Safety is compromised without a Helmet.
If everyone understands importance of Helmets,
We would not be a long way to implement,
"SAFETY FIRST AND FOREMOST"

CDT Pankaj Bansal, GME-09
SIMS, Lonavala

What is Life?

Life is only a four lettered word,
Simple to spell, but difficult to know well.
Life is like arithmetic,
Where you can add new things,
Subtract old ones,
Multiply your joys and
Divide your sorrows.
Life is like history,
A record of events,
Try to correlate
Past with present
Life is like statistics,
A process of calculations and measurements
Calculate your successes and failures and
Find the average score,
Life is like economics,
A way of earning love and
Spending it among wisely
Life is like a teacher
Teaches us a lot
It is real, it is honest,
Like a rose bush
So rejoice it!

CDT Hrishikesh Swain
GME-09
SIMS, Lonavala

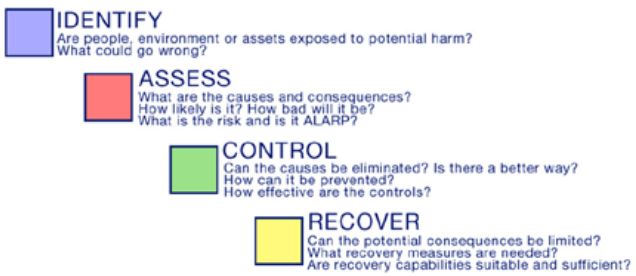
Risk Management Tool: BowTie!

Based on a joint contribution from Capt. Arun Sundaram, General Manager, ESM, Singapore and J.K.M. Nair, Principal, SIMS, Mumbai

A 'Risk' is the chance of something adverse happening, whereas 'Hazard' is a source of potential harm or damage or a situation with the potential of creating harm or damage.

During our daily life ashore, we carry out risk management without consciously thinking about the hazards around us. For example, at the pedestrian crossing, we'll not begin to cross unless the signal shows a green human sign or risk being hit by the ongoing traffic. We usually wait patiently till the red pedestrian signal changes to green. In case the green pedestrian signal starts blinking, we hasten our walking pace to reach the other end before it changes to red again. There are many such risk assessment tasks we conduct routinely and ensure we are leading a safe life.

In order to ensure job safety on board ships, we are required to manage risks arising out of the hazards around us. A simple flow chart for achieving this is provided below:



***ALARP** in above flowchart simply means – As Low As Reasonably Practical.

A simple tool such as BOWTIE allows us to do risk assessment in a manner that also allows for continuous improvement as required by any proactive Quality Management System.

In such assessment systems, a formal evaluation is done on likelihood and consequences of something adverse happening as a result of exposure to hazards. A hazard does not result in a 'harm' unless it happens. Let us call this happening as an 'event'. Each hazard may give rise to different events that may result in different kinds of harm. A consequence will be the resultant of the event.

The knot of the bowtie represents the threat or risk in the system. On the left side are the causes of that hazard and on the right side is the impact or consequence of that hazard, thereby giving us a visual representation of a cause-effect-consequence situation. In an extended interpretation, the knot could also represent the event that took place, and left flap indicating the hazards and the right flap indicating the results of such an event, i.e., cause-event-effect.

The bowtie methodology can be used for any type of hazard analysis from minor to major accidents, in occupational and environmental areas of business, in information technology, medical diagnosis, and research or even in security issues. In shipping, we can use them very effectively on:

- Identification or demonstration of risk
- Understanding of the dangers and consequences
- Creating a better understanding of specific risks
- Maintaining hazard situations under control or mitigating them
- Creating safety and security improvements on board, and
- Inspection, audit and certification systems

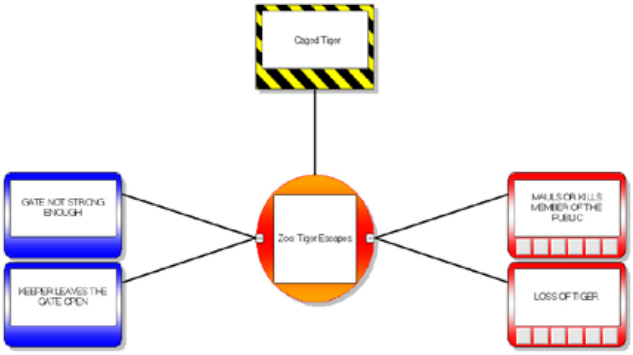
Let's take the scenario of a caged live tiger. Though the situation now looks risk-free, there is a risk - if the tiger escapes. If we look at the cause and effect of such an event, we can see the cause could be:

1. Weak cage, and/ or
2. Door left open by error.

And the effect of such an event could be:

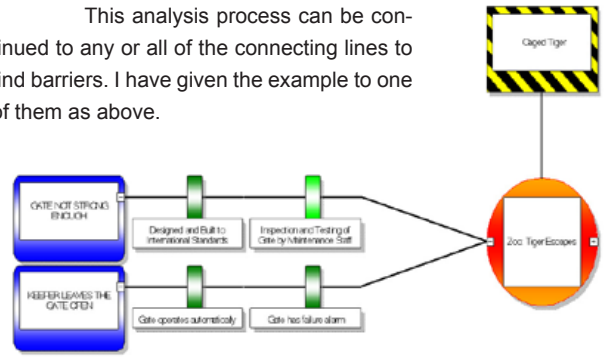
1. Tiger mauls some one, and/or
2. We loose the tiger.

If we insert this information into our bowtie matrix, it will look like this:



Let us now analyse the risk this particular situation presents. That will help us find a solution and provide an action to avoid such situations. After we get a full picture of such a situation, we can put a 'barrier' in the logical connection in order to prevent or stop such events. For example, 'door left open', can we put an alarm if the door is opened, or can we have self-closing device for the door? This gives us a chance to put two barriers that could prevent the door from being left open, and hence the 'tiger escapes event' can be avoided.

This analysis process can be continued to any or all of the connecting lines to find barriers. I have given the example to one of them as above.



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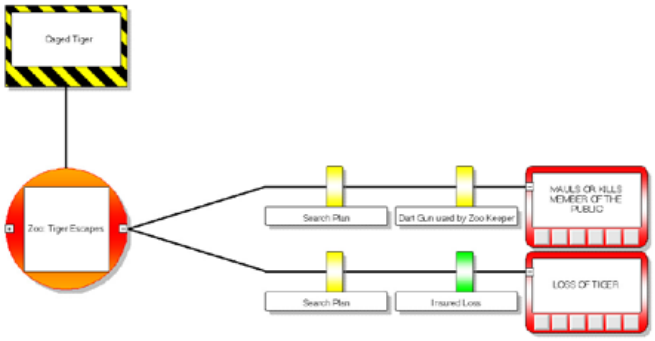
The centre of the Bowtie is the accident or incident area sometimes called the top event or Hazard release. The far left hand side of the diagram is the THREATS such as slips, trips and falls.

To prevent these threats, we need to have controls in place – let's call these 'Preventive controls' or 'Barriers'. Now if all of our controls or barriers fail, then we will have an accident or hazard released. In order to reduce the effect of this hazard, we need to have recovery measures. If we don't have recovery measures, the consequences could be serious.

In simple terms, we have 'Threat' on the left side, which need controls to contain and to prevent incident. At the centre we have 'Hazard' interlinked with 'Incident'. After the 'Incident', we would require controls to reduce 'Consequence', which is on the right side of the diagram. In our 'tiger escape' incident example, in order to reduce the consequences, we can have recovery measures such as 'search plan', 'dart gun' for subduing the tiger or perhaps have 'insurance' to cover the loss of the tiger:



The best bowties are built by seafarers involved in activities - they are in the best position to assess the effectiveness of controls and identify areas for improvement, and involving them helps to foster ownership of risk management measures. These are not computer models – they are brought forth by BRAINSTORMING sessions.

The Bowtie diagrams should be kept simple and any detail in the task description basic. There are no concrete rules about the level of detail, but in general tasks should be pitched at such a level that they are verified at a supervisor level. Similarly, if tasks are assigned at too low a level, the number of individual tasks to be documented becomes unmanageable.

We need to create OWNERSHIP amongst the crew on board for their own Q&S system rather than the strict adherence to the manuals which will lead only to a 'tick box' mentality. The mentality of seafarers has to change. Presently, there may be an over-reliance on checklists resulting in them not being used properly as we have seen in many instances during inspections. (Example –enclosed space entry permits and hot work permits produced in computers rather than at the site of the work)

To summarise, preparation of the Bowtie involves 5 simple steps:

1. Identify the Hazard and the Top Event to be prevented
2. Enter the Threats that could cause the event to occur.
3. Enter the Consequences, if the event occurs.
4. Enter Controls to prevent the event from occurring
5. Enter the recovery measure to mitigate the Consequences.

(All diagrams by kind permission of Capt Les Hesketh, UK P&I Club)

SHARING EXPERIENCE

Watch Out - We Are Crossing an Iceberg!

Grab hold of an old mariner and ask him what he thinks are the progresses made in the seafaring field, he would definitely come up with many that have made life easier for them to sail across the seven oceans around the globe. However, he is also likely to point out couple of them which have added more value than the rest. One such progress is the service of weather forecast and the sea route readily available to the vessels at any given time and point. However, this still cannot guarantee a smooth ride and the life still remains as challenging and unpredictable for the seafarers traversing across the seas.

Capt. Sunyil Pada, a faculty member of SIMS, Lonavala has been in a few situations during his years at sea and he recounts the one which caught him and many others completely off guard! Here is his story:

I was in command of a Gearless Bulk carrier of 228 m in length, 32 m in breadth with a summer draft of 14.0 m and summer deadweight of 76800 MT.

The vessel was on a voyage from Australia to Brazil through the South Pacific Ocean. We had loaded a part cargo of 46000 MT of coal at the Port of Gladstone and about 30000 MT at Port Kemble up to the vessels summer marks. The vessel sailed for the port of Vitoria Brazil, to discharge the cargo on 24th October 2007.

The vessels Charterers had arranged for weather routing by a reputed routing firm based in the United States. A day prior to sailing out from Port Kemble, the following guidance was received from them: "Taking various ice limits in to consideration, recommend rhumb line to south of Stewart Island, then rhumb line to South of Cape Horn and then shortest to Port Vitoria Brazil, as safe navigation permitting."

Weather expected en route was stated as "most of the lows develop and pass south of recommended route. Keeping the winds mostly around the quarter and maximum northerly limit of reported ice bergs is about south of 60 degree South latitude."

After the vessel sailed from Port Kemble, very rough sea was experienced from the port bow and the vessel was able to achieve only about 9 knots, struggling to counter the heavy sea and swell. After 2 days into the voyage, the sea calmed down to force 5 and below with a following sea. We passed south of Stewart Island (south of New Zealand) and headed towards Cape Horn on a rhumb line course for a distance of 6000 Nm.

A couple of days after passing Stewart Island, at about 1700 hrs in the evening, the duty officer reported sighting one huge mountain like mass on the starboard bow. On being summoned to the bridge, I immediately checked the navigation chart and realised that there was no charted island or structures in this part of the ocean. The Radar also painted a very faint echo of this target, and as the vessel drew nearer, the glint of the suns rays reflecting from it confirmed that what we were seeing was a huge iceberg. Needless to say neither was the vessel expecting to sight one nor was the presence of ice bergs reported for the region.

Nearly all the ships crew congregated on the bridge to watch in awe as the vessel passed this massive chunk of ice (About 75 m of it was visible above sea level) at a distance of 14 miles off.

I immediately informed the charterers, owners and the routing service about the sighting of the iceberg and requested the routing service to review and recommend an alternative route based on the latest reported positions of icebergs.

Within about 2 hours, the routing service replied that they had no information at all of any icebergs in these regions and in fact, made an ironical statement "we have ships following the same route and none have reported sighting any iceberg and hence the original route proposed is valid."

I called for an emergency safety meeting with all officers and discussed the safety measures which were necessary in view of this development. Additional lookouts were posted, both radars were kept on at all times and the main engines were requested to be in a state of readiness for immediate manoeuvring in case of an emergency.

Continued on page 24

Farewell Function for Prof. D.V.B. Swamy

After over two years of illustrious leadership, Prof. DVB Swamy was given a warm farewell by the institute at a function held at the campus on 01st April, 2010. The function was attended by Mr. B.S.Teeka, Managing Director of Executive Ship Management, Singapore and Principal Trustee of SIMS along all faculties, staff and the cadets.

Prof. Swamy, a veteran academician and research scholar from the Indian Navy provided a new flavour and dimension to the teaching and training of the future merchant navy officers at SIMS.

Mr. Teeka, in his speech on the occasion, made a special mention about the contributions made by Prof. Swamy towards the growth of SIMS, Lonavala and further stated that Prof. Swamy would continue to be associated with the SIMS fraternity in an advisory role.

Prof. Swamy delivered a poignant farewell speech in which he thanked the management for having given him an opportunity to lead one of the finest maritime institutes. He also expressed his deep gratitude to Mr. B.S. Teeka and Ms. Sikha Singh for their help and timely guidance, without which he would not have had a gratifying tenure as the Head of this Institute.

After an official handing and taking over the charge of Principal by incumbent Mr. S.Viswanathan, there was a cheership by the cadets where Prof. Swamy was ceremonially pulled out in an open jeep by the staff along the road leading to the main gate.

We wish Prof. Swamy all the best in his future endeavours and warmly welcome Mr. S.Viswanathan to ESM and SIMS family!

An impressive guard of honour by the cadets

Prof D.V.B Swamy delivering a farewell speech

Prof. D.V.B. Swamy being presented with the SIMS plaque by Mr. B.S. Teeka

Cheership by cadets for Prof. D.V.B Swamy

The SIMS team

Prof D.VB. Swamy and Mr. S. Viswanathan formalising the taking over of charge

Tapti House Wins Inter-house T10 Cricket Tournament

With a consistent good bowling and sharp fielding, Tapti house beat their rival Kaveri house in the finals of the inter house cricket tournament held at the campus in February, 2010.

Tapti decided to bat first having won the toss and scored 61 runs in allotted 10 overs.

Kaveri House started the chase on a disastrous note by losing 2 wickets in the second over and then lost wickets at regular intervals. They managed only 3.5 in their allotted overs and subsequently handed the victory to their rivals in a platter.

Nevertheless, to the credit of Kaveri House, they were the finalists for both the cricket and football championship and thereby proving their great sportsmanship in the campus.

Double Joy for Ganga House

Wins 3rd Basketball Championship of 2010

With a display of superior skill and physical fitness, the Ganga House lakers produced a spectacular win over their opponent, Godavari to lift the coveted third Championship trophy of the year with a final score of 24-8 on 13th April, 2010.

It was history repeating itself when the Ganga and the Godavari Houses once again locked their heads as in the previous year.

The Ganga team definitely had a serious advantage over their opponent, having most of its team members being the institute's representative players in basketball competitions outside.

Indeed, a big round of applause for Godavari, who were not intimidated by their rivals but kept their fight on till the end. And, three cheers for Ganga for winning both the football and the basketball championship!!

Ganga House Clinches 3rd Football Championship

The third Football League championship of the institute ended with the two top teams representing Ganga and Kaveri houses fighting a royal battle over the championship and the underdog Ganga clinching the trophy with a mesmerising goal from Rishabh Singh.

The six-day tournament saw huge enthusiasm from the players and the onlookers from all the four houses and brought the faculty and other staff members down to the field to cheer their favourite team.

Kaveri started as the favourite team as they thrashed Ganga in their league matches. Ganga House fans had their hopes high to defend the championship while fighting with a strong midfield.

Although Kaveri arrived with a slight psychological advantage, it was the Ganga house who dominated from the beginning. Taking possession of ball right from the start, Ganga house forward with a mesmerising dribble and coordination directed a fierce strike but thwarted nicely by Kaveri goalkeeper. Now it was a chance for Kaveri players with their counter attack. Live Commentary by DNS 10 cadets with their humorous quotes, kept the spectators amused.

The players and viewers were deeply engrossed, while Rishabh Singh of Ganga house captured an opportunity all alone and stunned the opposition team with a sublime solo effort. Final score at end of the match was 1-0, in favour of Ganga House!

Continued from page 22 (Watch Out - We Are Crossing an Iceberg!)

At around 2200 hrs on the same day on a clear full moon night, a similar hazy echo was seen on the radar. After some anxious moments, in bright full moon light, we were able to identify the unmistakable shape of another large iceberg. This time, the vessel passed the iceberg as close as 7 miles on starboard side of the vessel.

I considered this to be a 'near miss' of sorts and the situation to be far more serious than anticipated. Urgent messages were sent to owners, charterers and routing service and after going through the available information, including various ice charts and publications, we decided to alter course to about 070 (T) so as to pass well clear the "northern ice limit" of South Pacific Ocean.

Within about 15 minutes, I received a call from the owner's office instructing me to alter course due North and steam at full engine speed until reaching 45 deg south latitude and then steer due East to pass well clear of ice limits of South Pacific for the month of November, with an intention to head for Cape Horn, about 700 miles off the South American coast.

We altered course immediately to comply with the instructions and proceeded north to head for 45 deg South Latitude. We did not have any further sightings of icebergs from there on.

After 2 days, some clippings were sent to us from office which is as below:

Aerial snapshots of the icebergs

We kept the vessel along 45 S Latitude maintaining additional look outs throughout the passage up to 750 miles off South American coast line, from where we followed a rhumb line course to Cape Horn and safely arrived Port Vitoria, Brazil on 28th of November 2007.

A few days after our sighting, we received reports that a huge iceberg was visible from south part of New Zealand and that this was happening for first time in history.

Looking back, I cannot help but think that had the night been cloudy with poor visibility (which is not unusual for that part of the ocean) and if the icebergs had been a few miles north we could well have been in a perilous situation altogether.

There is little doubt that ocean routing services have access to a huge data base and have the expertise and ability to forecast the conditions with a fair degree of accuracy. However, they can be wrong and this event goes a long way in reiterating that at sea, there is no substitute to effective watch-keeping and prudent seamanship.

ESM and SIMS Once Again Bag BP (Partner of the Year) Award

Executive Ship Management and Samundra Institute of Maritime Studies (ESM/SIMS) have jointly become the proud winner of the Partner of the Year (2009) Award which is part of the annual CEO's Health Safety Security Environment (HSSE) Awards instituted by BP Shipping Ltd (BPS). The award is in recognition of the partnership role played by ESM and SIMS towards fulfilling Shipping's HSSE objectives. It was a sweet win for the second time around, as ESM/SIMS had previously won this prestigious award for the year 2007.

Mr. John Ridgway, CEO, BP Shipping, presenting the Partner of the Year Award (2009) to Mr. B.S. Teeka, MD, ESM

Mr. John Ridgway, CEO, BP Shipping presented the award to Mr. B.S.Teeka, Managing Director, ESM at a dinner held in connection with the 2010 BP Shipping CEO regional forum in Singapore at the Blu Restaurant, Shangri La Hotel Singapore, on 1st March 2010. Addressing the participants of the forum comprising the representatives of BP shipping's partners in business, Mr. Ridgway spoke highly of ESM and SIMS's outstanding contributions to BP Shipping's Safety Culture and HSSE Performance and the value added to BP Shipping's endeavour for an exceptional standard of HSSE performance, both onshore and at sea.

It may be mentioned here that SIMS has been BP shipping's exclusive training provider to the entire Indian officers and ratings training sailing on BP ships. Through the advanced facilities and courses provided through SIMS, many of them designed specifically for BPS, ESM is placing utmost importance on improving the quality and efficiency of each officer and crew put onboard a BPS vessel.

On an earlier occasion, while inaugurating the latest Gas Tanker Simulator facilities at Lonavala campus on 15th December, 2009, Mr. Ridgway had emphasised the close relationship of BP shipping with ESM and SIMS and described it as a "winning partnership".

SIMS, Lonavala Wins Architecture Awards

The campus of Samundra Institute of Maritime Studies (SIMS), Lonavala has garnered numerous awards and accolades since its construction in 2007. The world class state-of-the-art 'green' campus was designed by the internationally renowned design house, Christopher Charles Benninger Architects.

One of the most recent awards is the Best Educational Institute Award under the J.K. Cement Architect of the Year Awards 2009.

J. K. Cement Ltd. is one of the largest cement manufacturers in North India. The jury members are eminent architects from Sri Lanka, Nepal, Bangalore, Varoda, Ranchi, Ahmedabad, New Delhi, Pune, and Indore. In its 19th year running, besides India, the awards were also extended to neighbouring countries such as Bangladesh, Nepal, Bhutan, Maldives, Mauritius, Seychelles, and Sri Lanka in recent years.

SIMS, Lonavala campus also brought in the Architect of the Year Award under ArchiDesign Awards 2009 to its designer Mr. Benninger followed by two more awards from the Institute of Steel Development & Growth (INSDAG) 2009 and Runner's Up for Best Steel Architecture in India and Indian Institute of Architects Award 2008 for Excellence in Architecture for Best Public Building.

The three awards mentioned above were designed to appreciate and commend the excellence in architecture in India alone. It is also worth adding that SIMS Lonavala was nominated as a finalist for the World Architecture Festival Award 2009, Barcelona, in the category of Completed Buildings –Learning, with a few hundred entries hailing from 67 different countries worldwide.

SIMS Clinches Championship Trophy in Chanakya Extravaganza

The cadets of Samundra Institute of Maritime Studies clinched the championship trophy of the XPRESSIONS 2k10' - the annual sports and cultural extravaganza of T.S.Chanakya held on 2nd and 3rd April, 2010 at the latter's campus in Mumbai. The SIMS delegation beat five other competitors including the strong host team to bag the trophy with 13 individual and team awards including the "Best participating team" by scoring the highest tally of winning scores.

The team showed an outstanding talent and preparedness by competing in a total 19 categories of competition within just five days of receiving the invitation from the host. The prizes won displayed the multi-faceted talents of the cadets excelling in a wide variety of areas ranging from solo singing contest to team sports like basketball and debating competition to tattoo designing and Street Play.

Cadets who excelled in more than two diverse categories were Cdt Ram-Prasad (GME-08) who won three prizes in Solo dance (1st prize), Tattoo Designing (1st prize) and Collage painting (2nd prize), Cdt Independent Singh (DNS-09) who won Debating (2nd prize), Mock Press Conference (2nd prize) and Basketball (winning team) and Cdt Lovepreet Singh (DNS-09) who won in Fusion dance (2nd prize), Sahitya Abhibyakti (2nd prize) and Poster designing (2nd prize).

The team was mentored by faculty member Capt. Prabhat Nigam, Warden P.S.Mehra and Sports coach Sathyan Thomas. Other participating institutes in the competition were T.S Chanakya (hosts),T. S Rehman, NAMAC (Naval Maritime Academy), MERI (Marine Engineering Research Institute), Mumbai and YAK Maritime Academy.

Trophies won by SIMS cadets

Visitors' Comments - First Quarter, 2010

Please 'stay ahead'. That is where your institute belongs. Best wishes for the decade.
- Dr. S.B. Agnihotri, IAS, Joint Director General of Shipping, Mumbai

Thank you for the wonderful hospitality. This is indeed a very beautiful and comprehensive campus.
- Mr. Lam Yi Young, CEO, Maritime and Port Authority (MPA), Singapore

Very impressive. World-class facilities. I wish I was fortunate to take training in such an institute. Founder and staff have taken great efforts to make the institute a success.
- Mr. S.S. Gadkar, Engineer & Ship Suveyor-cum-Deputy General (Tech), Directorate General of Shipping, Mumbai

SIMS was built with a vision. A noble vision. A decade from now, I'm sure the alumnus of SIMS will play leading roles at sea and ashore.
- Mr. Yujin Chia, Manager, Maritime and Port Authority (MPA), Singapore

A worthwhile visit that has only confirmed my previous view of this institute as industry best practice but now it can be said with the experience of this visit. Thank you.
- Mr. Terry Luke, Regional Marine Superintendent, Marine Assurance, Chevron Shipping Company

Thank you very much for the hospitality and allowing us to experience this world class facility. Truly inspiring.
- Mr. Henrik O Madsen, CEO, DNV

Thank you for your hospitality. I'm inspired by your state-of-the-art facilities that you have envisioned for a seafaring career in India.
- Ms. Lena Han, Manager, Corporate Communications, Maritime and Port Authority (MPA), Singapore

An institute that I wanted to see all the time in my life. What a wonderful set up. Good luck to all those who are engaged and are going out in the world of opportunity.
- Mr. Rinchen Dorji, Director, Ministry of Works and Human Settlement -Dept of Urban Development & Engineering Services, Bhutan.

Thank you very much for your generous and kind hospitality. It has been a true learning experience for me to visit your reputed institute. You should be proud of your institute and in the professional way you are contributing to our industry.
- Mr. Erik Toft, Corporate Vice President, Marine HR, Torm Shipping

I have found this institute founded in a vision of excellence creating path breaking ways to teach the culture of the Marine Sciences in a way that will make those who pass out proud to be an Indian. Congratulations. It has been a learning experience for me.
- Mr. Murali Iyer, CEO, Torm Shipping Pvt. Ltd.

A visible result of vision, pride and excellence. You make a lot of people very proud.
- Capt. Arun Malia, Island Shipbrokers Pvt. Ltd., Singapore

SIMS is a 'Vision Statement'. Each time I visit here I find 'the bar 'has been raised further. I am sure the best is yet to come.
- Capt. Kersi Khambatta, Deputy General Manager, Training - Torm Shipping Pvt. Ltd.

Thank you for an extraordinary input as to who to educate first class officers that will be the future of the world shipping business. We are looking forward to working with officers educated of this facility.
- Mr. Steven Sandorff, General Manager, Tanker Operations, Norden A/S

Very impressive training facilities. Very good equipment and realistic atmosphere created for the pre-sea candidates. Very useful for post-sea courses as well.
- Capt. M.S. Parulekar, Senior Manager, BW Maritime

Lots of thanks for sharing this "second to none" initiative. Graduates from here will be able to satisfy owners. Well Done. Looking forward to cooperating with officers from here.
- Mr. Peter K Brandt, Superintendent, Norden A/S

The tour of the campus leaves you with a convincing impression of dedication and the facilitation to serve this.
- Mr. Jorn Andersen, General Manager, Technical Dept., Norden A/S

Great and unbelievable facilities and infrastructure. Making India proud. Thanks for the opportunity and hospitality.
- Mr. Prakash Tikare, Business Development Manager, South Asia, DNV

Thank you for showing us this impressive facility; it has been a great pleasure.
- Mr. Henrik Christensen, Quality Assurance Manager, Norden A/S

Thanks for an extremely well-arranged visit. The creations since my previous visit are commendable.
- Mr. Kamal Kumar, Area Manager, DNV, India

A very impressive facility. Your staffs are friendly, informative and dedicated.
- Capt. Geoff Pearson, General Manager, BW Maritime

Marvelous is not enough. Superb school!
- Mr. Pradeep Putta Reddy, Operations Manager, Norient Product Pool, Singapore.

Excellent School. Truly impressed. Good luck to all.
- Ms. Junko Mikano, General Manager, Norient Product Pool, Singapore

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▲ A part view of SIMS, Lonavala pre-sea campus

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