Maritime Communication

Maritime communication comprises communication between vessels and coast-stations, intership communication and intraship communication (internal communication when the vessel is berthing, casting off, leaving berth, loading or discharging, etc.).
Vessels and coast-stations can communicate by means of RadioTelephony, Satellite, Digital Selective Calling (DSC) and Radio-Telex .
Categories of messages that can be transmitted and received are called "priorities".
They indicate the importance of the message.

Priorities

1 - A DISTRESS ALERT indicates that there is ***serious and immediate danger*** for vessel, crew and passengers.
A Distress Alert is also referred to as a **"MAYDAY "**.

2 - An URGENCY message indicates that there is ***serious danger*** for vessel, crew and passengers.
An Urgency Message is also referred to as a **"PAN PAN"** message.

3 - A SAFETY message indicates that there is ***imminent risk for navigation.***
A Safety Message is also referred to as a **"SECURITE"** message.

4 - A ROUTINE message is transmitted to ensure safe navigation.
Routine messages refer to intership communication, exchange of data in port operations, communication between ships and Vessel Traffic Services, inshore radar stations, pilot stations, bridges and locks.

The Global Maritime Distress and Safety System (GMDSS)

The Global Maritime Distress and Safety System came into force in 1999 and is part of the International Convention concerning the Safety of Life at Sea (SOLAS).
Its main objective is to prevent accidents by providing Marine Safety Information and at least minimize consequences of marine accidents by means of effective communication.
GMDSS will enable a vessel to communicate with coastal stations and other vessels at any time and under any circumstances.

Communication according to the Global Maritime Distress and Safety System comprises:
- transmission of distress alerts to shore-based stations, including locating (homing) of the vessel in distress;
- reception of shore-to-ship alerts;
- transmission and reception of ship-to-ship alerts;
- transmission and reception of messages concerning Search and Rescue Operations and On- Scene Communications during a SAR operation;
- transmission and reception of radio-signals to indicate or determine positions;
- transmission and reception of safety messages (Maritime Safety Information broadcasts);
- intership-communication, by which is understood communication between vessels.

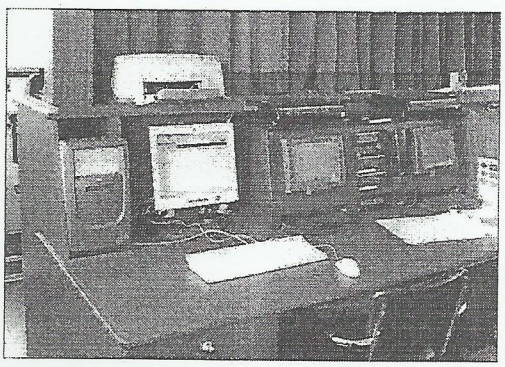
Sea-areas
GMDSS distinguishes four sea-areas:
Sea Area A1
An area within radiotelephone-coverage of at least one VHF-coast station, in which continuous VHF-DSC-alerting (channel 70) and radiotelephony services are available.
This area extends 30 miles off shore.

Sea Area A2
An area, excluding Sea Area Al, within radiotelephone-coverage of at least one MF-coast station, in which continuous DSC-alerting (2187.5 kHz) and radiotelephony services are available.
GMDSS-vessels travelling this area must carry a DSC-equipped MF radiotelephone in addition to equipment required for Sea Area A1.
This area extends 200 miles off shore.

Sea Area A3
An area, excluding sea areas Al and A2, within coverage of an Inmarsat geostationary satellite, in which continuous alerting is available. This area extends between 70 degrees latitude North and 70 degrees latitude South.
Ships travelling this area must either carry an Inmarsat A, B or C ship/earth station or a DSC-equipped HF radiotelephone/telex in addition to equipment required for an A1 and A2 Area.

Sea Area A4
The areas outside A1, A2 and A3 are A4-Sea Areas.
Ships travelling these Polar Regions must carry a DSC-equipped HF radiotelephone/telex, in addition to equipment required for areas A1 and A2. This area does not have Inmarsat-, but COSPAS-SARSAT coverage.

GMDSS-vessels
Vessels that are subject to the Safety of Life at Sea-Convention (SOLAS) must comply with the GMDSS-regulations and must be fitted with GMDSS-equipment. GMDSS-vessels (or SOLAS-vessels) include all vessels engaged on international voyages, except very small vessels, such as pleasure yachts that are not engaged in trade, ships that are not self-propelled, but also men-of-war and troopships. These non-GMDSS vessels mentioned above do not have to comply with the system. Finally, national governments have the authority to class certain types of vessels as GMDSS-vessels.



GMDSS Communication-set

Systems
GMDSS consists of a terrestrial- and a satellite-system. The terrestrial system (earth-system) comprises Radio-Telephony (RTF), Digital Selective Calling (DSC), Direct Printing Telegraphy (DPT), Navigational Telex (NAVTEX) and the Search and Rescue Radar Transponder (SART). The satellite-systems comprise Inmarsat, COSPAS/SARSAT, Emergency Position Indicating Radio Beacons (EPIRBs) and the Status Recording-system (STAREC).

Radiotelephony
A VHF-transceiver (transmitter + receiver) transmits and receives radio signals.
The VHF is used to bridge short distances, is easy to operate and is allowed to be used both in territorial waters and inland waterways.
Its receiver has a "push-to-talk button". If the installation is a "simplex" radio, speaking and listening cannot be done simultaneously. When you wish to speak, you push the button; when you wish to listen, you release it.
Before changing from speaking to listening, you say "over".

Radiotelephone (the VHF)

Distress Message, Urgency Message and Safety Message
non-GMDSS VESSELS

DISTRESS MESSAGE
(non-GMDSS vessels)

Procedure and structure
Example of a Distress Message on VHF:

Announcement and message on VHF by "Vincente PWCA" (*non-GMDSS vessel*)

FORMAT:

Address and Identify:

Spoken message: **MAYDAY**

- identification
- the position of the vessel
- time of transmission (not required)
- the nature of distress or danger
- the assistance that is required
- any other important information and requirements (e.g. number of persons on board of vessel in distress).

TRANSMISSION:

Address and Identify:

MAYDAY MAYDAY MAYDAY

this is Vincente - Papa Whiskey Charlie Alfa
Vincente - Papa Whiskey Charlie Alfa
Vincente - Papa Whiskey Charlie Alfa

Spoken message:

MAYDAY
My position three six degrees two one minutes N /
zero zero niner degrees five three minutes W. Vessel on fire.
I require fire fighting assistance.
Number of crew on board: eight.
Information: I will launch lifeboat.
OVER

Distress Message, Urgency Message and Safety Message
GMDSS VESSELS

Announcement and acknowledgement

For vessels that must comply with the Global Maritime Distress and Safety System Distress Messages, Urgency Messages and Safety Messages are announced to coast-station and all vessels in the vicinity through **"Digital Selective Calling".**

When the **DSC-Acknowledgement** has been received from the coast-station, a MAYDAY-, PAN PAN- or SECURITE message is transmitted to all ships by conversation through Radio Telephony (VHF, MF or HF), via satellite or by telex.

Care must be taken to keep the RadioTelephony conversation short and to the point. Therefore the *Standard Marine Communication Phrases* must always be used in VHF-communication.

DISTRESS MESSAGE
(GMDSS vessels)

Procedure and structure

Example of a Distress Message on VHF:

"MV Pearl Head" on fire

MV Pearl Head (call sign VRSE - MMSI-Code 235 786 000) is on fire.
Her position is 38 degr.10 min N / 018 degr.10 min E. Fire has been located in the engine room and in No. 2 hold. The vessel is sinking and the crew are abandoning her.
Crew consists of 18 members, 8 of whom have been injured - one crewmember was killed.
Pearl Head has put two lifeboats in the water.

After her distress-alert by DSC has been acknowledged she transmits a Distress message on VHF.

Message on VHF:

MAYDAY
This is two three five - seven eight six - zero zero zero
Pearl Head - Victor Romeo Sierra Echo.
My position: three eight degrees one zero minutes North / zero one eight degrees one zero minutes East.
I am on fire: fire is in engine room and number-two hold.
Vessel is sinking.
Crew must abandon vessel.
Number of crew on board: one eight.
Number of injured persons: eight.
Number of casualties: one.
Number of lifeboats launched: two.
OVER

Distress-traffic *continued*: further procedures
(received mayday / relay / silence)

*(All messages concerning the distressed vessel must begin with "**MAYDAY**")*

"Received Mayday"
When a vessel has received a Distress Alert from a distressed vessel, the radio operator must wait and remain stand-by for a few minutes until the acknowledgement from RCC has been received.
Any ship receiving a *distress alert acknowledgement* must transmit a "RECEIVED MAYDAY" on VHF to the distressed vessel, in order to let the distressed vessel know that the alert was received.

"RECEIVED MAYDAY" MV Ocean Queen - IRSL to distressed vessel Pearl Head

MAYDAY
Pearl Head
Pearl Head
Pearl Head - Victor Romeo Sierra Echo
This is Ocean Queen
Ocean Queen
Ocean Queen - India Romeo Sierra Lima
RECEIVED MAYDAY

"Received Mayday" (*supplementary*)
A vessel that has transmitted a "Received Mayday" must transmit a supplementary "Received Mayday" if she is "able to comply" - that is: within short range of the distressed vessel - giving her identification, position and speed, her ETA at the distressed vessel and any other important information.

"RECEIVED MAYDAY" (*supplementary*) from Ocean Queen - IRSL on VHF

MAYDAY
Pearl Head
Pearl Head
Pearl Head - Victor Romeo Sierra Echo
This is Ocean Queen
Ocean Queen
Ocean Queen - India Romeo Sierra Lima

Information:
my position: bearing zero four five degrees from distress position - distance three miles.
My course: zero three five degrees; my speed: one two knots.
ETA distress position is within two five minutes.
OVER

"Mayday Relay"
If a vessel has noticed that a vessel in distress is not able to transmit a Distress Alert, she must transmit a *Distress Alert Relay* ("Mayday Relay") to the Rescue Co-ordination Centre or coastal station.

Search and Rescue

SAR-organisations have been established in territorial- and high-seas areas to perform co-ordination and render services in cases of distress.
These services are provided within a Search and Rescue Region (SRR), which is associated with a Rescue-Co-ordination Centre (RCC).
When a SAR operation is started, a SAR Mission Co-ordinator (SMC) at the Rescue Co-ordination Centre will guide the operation until rescue has been effected or it has become apparent that further efforts will be hopeless.
The SMC will designate a vessel in the vicinity of the distressed vessel or aircraft that participates in the search as the On-Scene Co-ordinator (OSC) until a Search and Rescue Unit (SAR-vessel) is available at the spot. The OSC must co-ordinate on-scene activities and must ensure that reliable communications are maintained.
Vessels that are able to render assistance because they are in the vicinity of the distressed unit are "able to comply" and must transmit a "Received Mayday" as soon as they have received a DSC-acknowledgement from a coast station.

Situation Report (SITREP)
A situation report (SITREP) is transmitted by the Rescue Co-ordination Centre (RCC) and On-Scene-Co-ordinator (OSC) to all vessels and other stations as soon as details of the incident or accident have become clear enough to indicate SAR involvement.
A SITREP is transmitted by the OSC to keep the SAR Mission Co-ordinator (SMC) informed of on-scene mission progress and conditions.
A SITREP is also transmitted by assisting vessels and helicopters to inform the OSC.
The short-form SITREP is used to provide the earliest notice of an emergency.

Short-form SITREP (earliest notice of emergency) by San Juan Rescue Co-ordination Centre on Sept.12 15.20 hrs. Identity of casualty: Dutch ore-carrier Pacific Star - Papa Kilo Delta Echo of 85,000 GT - owned by Jansen-Shipping Netherlands), on fire in posn. 21 degr. 0 min. S / 068 degr. 16 min. W. (Search & Rescue-Region Brazil), underway from Sao Paulo to Cape Town; number of crew: 12. Fire-fighting assistance is required.

- Priority (distress / urgency)	*DISTRESS*
- Date and Time	*September 12*
	time: 1520 hrs UTC
- From RCC	*San Juan Rescue Co-ordination Centre*
- To	*All vessels in vicinity of position*
	21 degr. 0 min S / 068 degr. 16 min W
- SAR SITREP number	*1*
- Identity of casualty	*Pacific Star - PKDE*
(Name, call sign, Flagstate)	*Dutch registration*
- Position (Latitude / longitude)	*In position 21 degr 0 min S /*
	068 degr 16 min W
- Situation: Message	*Distress*
Date and time	*September 12 at 1520 hrs UTC*
Nature of Distress	*Pacific Star is on fire*
- Number of Persons at risk	*12*
- Assistance that is required	*Fire-fighting assistance and SAR*
- Co-ordinating Centre	*San Juan Rescue Co-ordination Centre.*

The Ship Reporting System

The Standard Marine Alphabet must be used when names or call signs are spelt.
In the IMO Ship Reporting System the letters of the alphabet have been given standard meanings.
Coast Station may request a vessel to give a Maritime Report and a Position Report (MAREP/POSREP) prior to entering the port.
A MAREP/POSREP will make conversation short and clear.

The first four letters (Alfa / Bravo / Charlie / Delta) are used for the POSREP.
"Charlie" indicates a longitude/latitude-position;
"Delta" indicates a position as a bearing and distance from a fixed point. In VHF-conversation a Delta-position indication must always be preceded by the word "bearing".
Like so:
"My position: bearing zero four five degrees from Falls Light, distance two decimal five miles".

Note that numbers are always pronounced in separate digits (045 = zero four five).
However, in helmorders numbers are as written (15 degrees = fifteen degrees).

SHIP REPORTING SYSTEM: MAREP/POSREP - meaning of letters of the alphabet

POSREP

Alfa	- *Vessel's name + Call Sign*
Bravo	- *Day of month + time (UTC/Local/Zone)*
Charlie	- *Position: longitude - latitude*
Delta	- *Position: as a bearing and distance from a fixed* point

MAREP

Echo	- *True course*
Foxtrot	- *Speed (in knots)*
Golf	- *Last port of departure*
Hotel	- *Time and point of entry into the system*
India	- *Destination + ETA*
Juliet	- *Deep-sea or local pilot on board*
Kilo	- *Time of exit from the system*
Lima	- *Intended track*
Mike	- *VHF-channels guarded*
November	- *Time of next report*
Oscar	- *Draft*
Papa	- *Cargo (type and quantity)*
Quebec	- *Any deficiencies or limitations*
Romeo	- *Any pollutants or dangerous goods o/b*
Sierra	- *Weather conditions*
Tango	- *Ship's representative or owner*
Uniform	- *Size and type of vessel*
Victor	- *Medical personnel*
Whiskey	- *Number of persons o/b*
X-Ray	- *Any other useful* information
Yankee	- *Request to relay report to other system*
Zulu	- *End of report.*