



VHF SHORT RANGE CERTIFICATE COURSE



AIMS and OBJECTIVES

By the end of today you will be able to:

- **Understand the Radio Rules and Regs**
- **Operate Marine VHF DSC equipment**
- **Call using the correct channel**
- **Understand basic radio language**
- **Use the Phonetic Alphabet**

AIMS and OBJECTIVES (2)

- **Make calls to other stations**
- **Send a Distress Alert and Distress Message**
- **Learn about the Global Maritime Distress & Safety System**
- **Send an Urgency Alert and a Safety Call**
- **Prepare for the SRC Assessment**

BE SUCCESSFUL!



STANDARD HORIZON



SIMRAD



RAYMARINE



ICOM



HAND HELD VHF RADIOS

NO DSC

Simple
Many are
submersible



Maximum power = 5W

WITH DSC & GPS

Can navigate to:
1. A way-point
2. A position
3. A distress
position



Maximum power = 6W

VHF RADIO

VERY HIGH FREQUENCY radio waves travel in straight lines & don't bend round the earth's surface or penetrate land masses.

Antennas have to be able to see each other
– the higher the antenna the greater the range



ONE BIG 'SHARED LINE' !

**What you say can be heard by everyone
tuned to the channel you are using.**

**Many are waiting to speak on the
few usable inter-ship channels**



**There is therefore a
need for:**

BREVITY CLARITY

DISCIPLINE

MOBILE PHONES

What you say **CAN'T** be heard by all

NOT SO GOOD for DISTRESS

Limited by range and battery state.

Good as a back up wit SART numbers:

Greece: 108

Italy: 1530 ("numero blu")

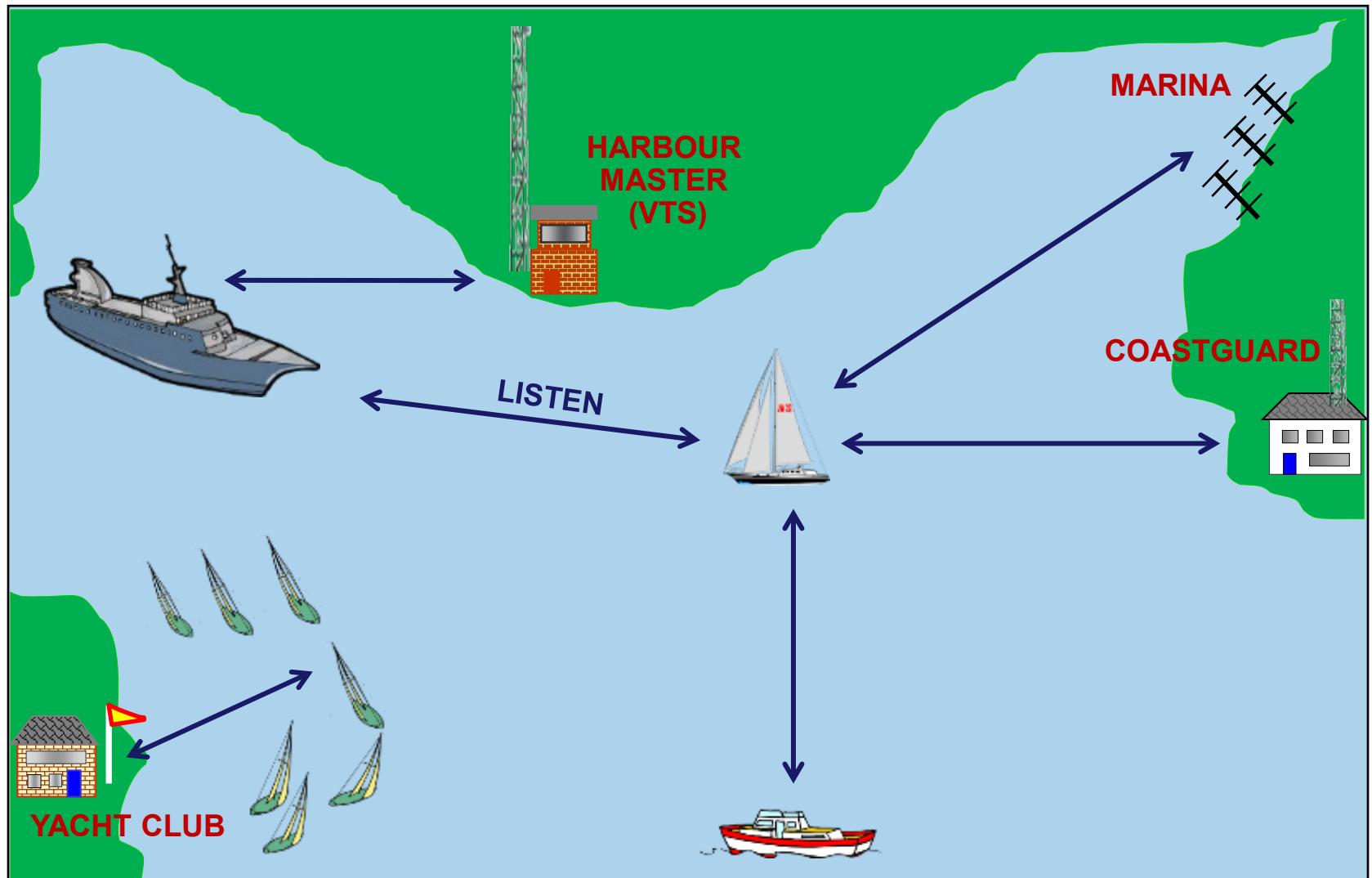
Croatia: 195 / (+385 1 195, 112)

Slovenia: 080 18 00 (Modra Stevilka)

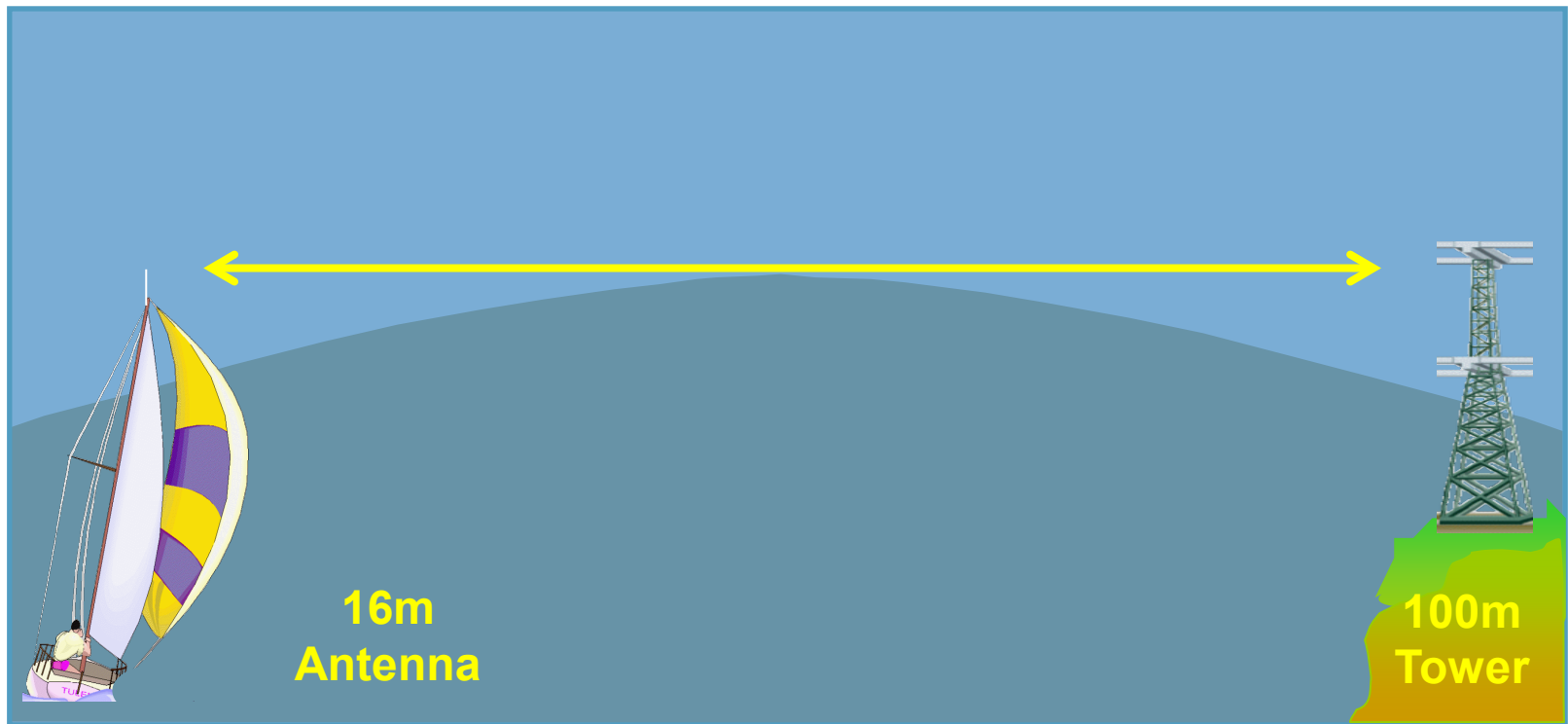
Turkey: 158 / +90 312 158 00 00



WHO MIGHT WE TALK TO?

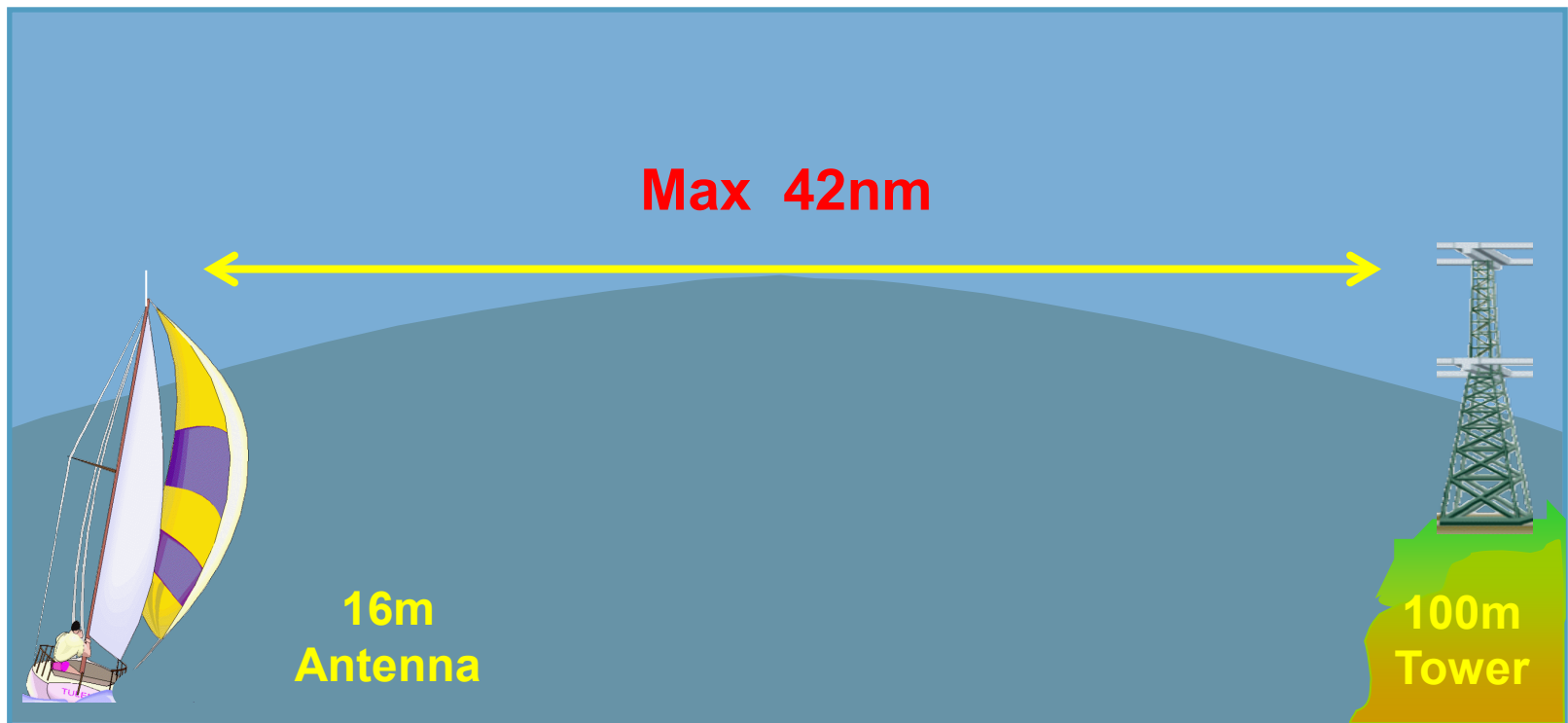


HOW FAR AWAY CAN THEY BE?



Max $3 \times (\sqrt{\text{antenna 1}} + \sqrt{\text{antenna 2}})$

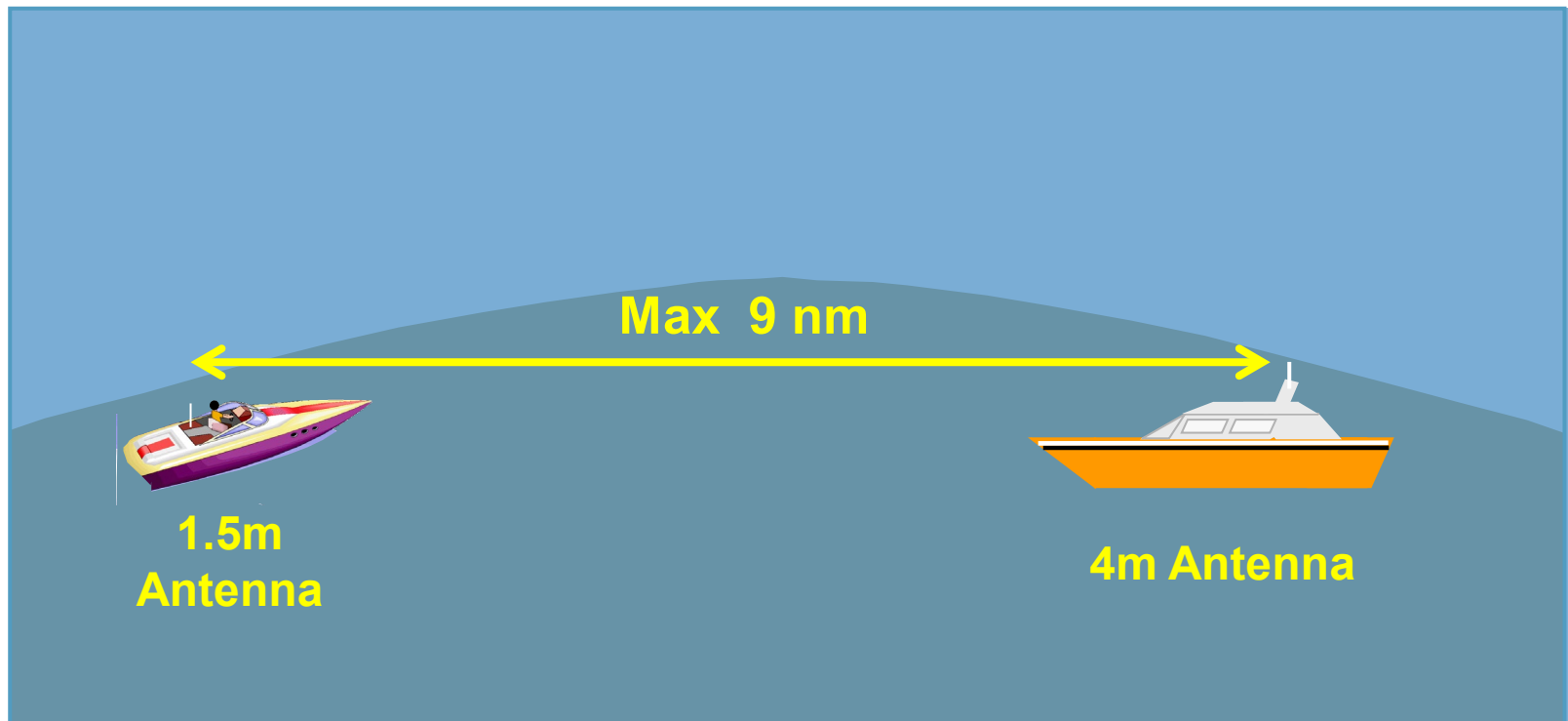
HOW FAR AWAY CAN THEY BE?



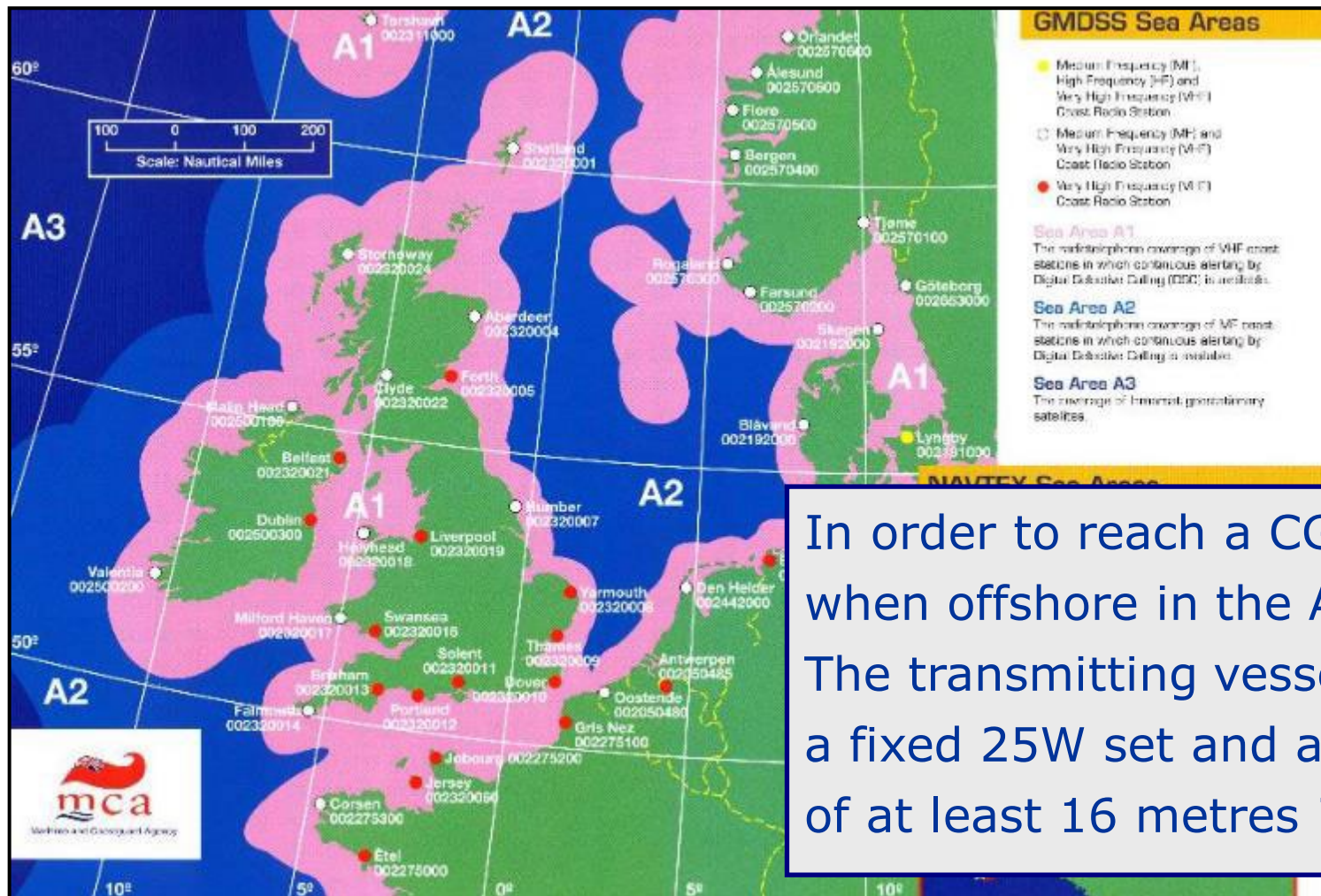
Figures are for an upright yacht.

TYPICAL RANGES

Antennas must not be in the "go faster" position. Must be upright for maximum range.



GMDSS AREAS



In order to reach a CG Station when offshore in the A1 area, The transmitting vessel requires a fixed 25W set and an antenna of at least 16 metres in height.

Fist mike with PTT button
where to hold it, don't shout

Channel selector

International
channels

Ch16 quick
select

Power &
Volume

Squelch

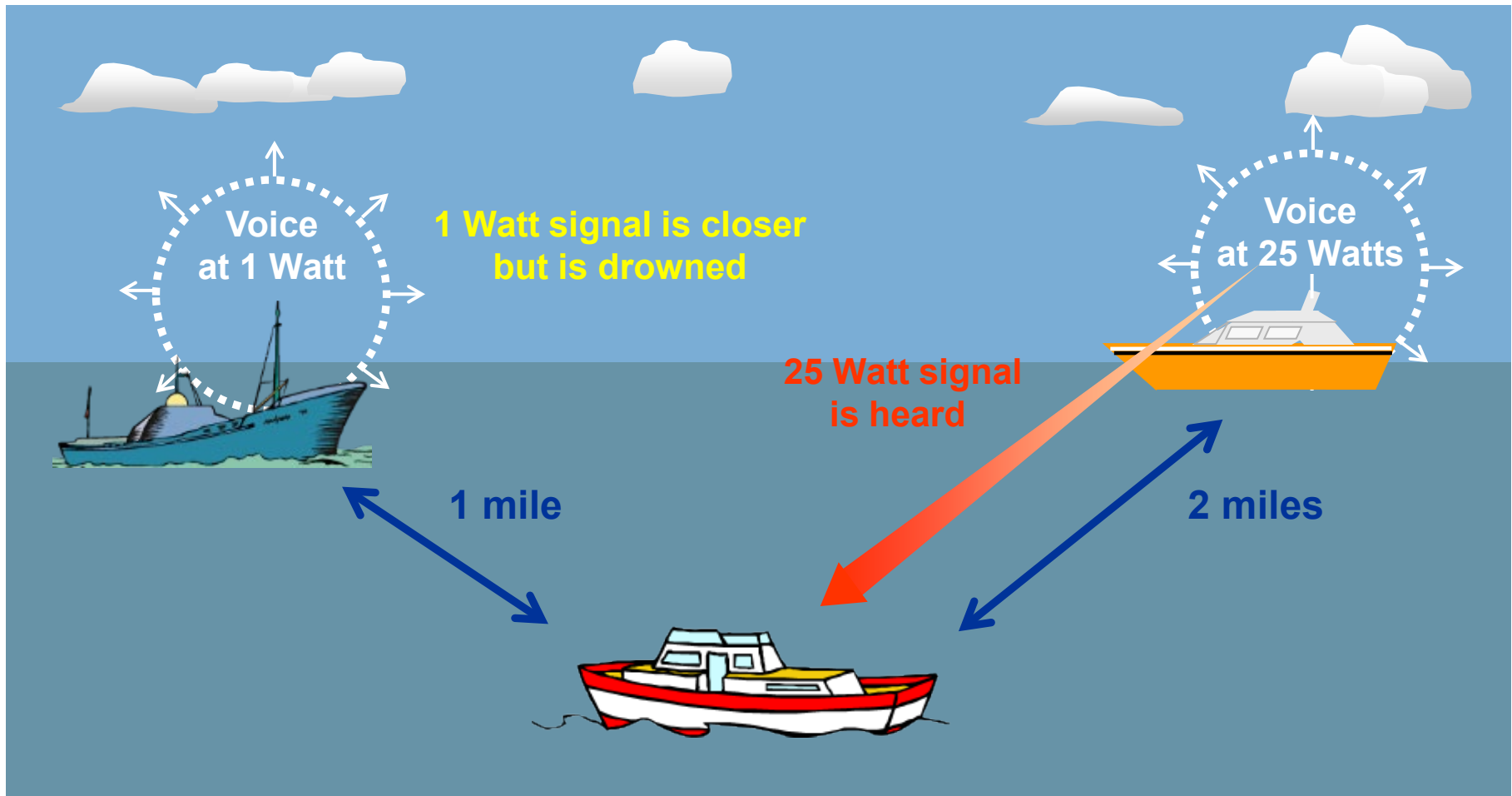
Dual watch

High/low power



LOW POWER or HIGH POWER?

High power 'drowns' low power transmissions



[illegible]

United Kingdom of Great Britain and Northern Ireland

Authority to Operate

The holder of this certificate is hereby authorised to operate a VHF DSC and VHF ONLY radio telephone station established in a ship under a licence issued by the Secretary of State.

Subject to the provisions of Section 7 (3) of the Wireless Telegraphy Act 1949 regarding the suspension of any authority with a view to revocation thereof, this Authority shall remain valid until further notice.

[Signature]
For the Secretary of State
London

Maritime Radio Operator Certificate of Competence

**SHORT RANGE
CERTIFICATE**

Issued by
R/A

on behalf of
mca
Maritime Communications Authority

The short Range Certificate is awarded under the provisions of Section 7 (3) of the Wireless Telegraphy Act 1949, the Radio Regulations annexed to the International Telecommunication Convention, and Recommendation T.R. 91 - 04 of the European Radiocommunications Committee of the Conference of European Postal and Telecommunications Administrations.

INTERNATIONAL CALL SIGN

On issue of a Ship Licence a boat is given
a unique **INTERNATIONAL CALL SIGN**

This call sign remains with boat on change of
ownership. Ofcom must be informed of any
change.

Typical 2009 UK Ship call sign = **2ATN6**

PORTABLES

are registered to a person not the boat

Typical "T" identification = T132916

WHO IS RESPONSIBLE IN THE UK?

Two agencies manage licensing and regulations in the UK



The MCA checks that:

1. The radio equipment on board is approved for purpose
2. The operator has the right qualifications for the job

Ofcom

**Controls the licensing of equipment
and allocation of frequencies**

**Penalties for infringing the radio regulations –
fines of up to £5,000, confiscation of radio
equipment and, possibly, IMPRISONMENT.**



CERTIFICATION & LICENSING

If you use a VHF radio on board a boat you will be expected to have the following items on board:

Ofcom
OFFICE OF COMMUNICATIONS

Ship Radio Licence / Ship Portable Radio Licence
United Kingdom of Great Britain & Northern Ireland, the Channel Islands & the Isle of Man
Royaume-Uni de Grande Bretagne et d'Irlande du Nord, les Îles Anglo-Normandes et l'Île de Man
Vereinigtes Königreich von Großbritannien und Nordirland, die Kanalinseln und die Isle of Man

Wireless Telegraphy Act 2006

Note: This Licence is valid only if the vessel and Licensee accord with the details of the Licence and shall continue in force until the Licence is surrendered by the Licensee or revoked by Ofcom.

Section 1
Licence details

Licence Class	Ship Radio Licence
Licence number	1-158733900
Licencee's name	Mrs Alison Noice
Licencee's address	3 Gorkleion Road

SHIP RADIO LICENSE
(for fixed radios) and/or
SHIP PORTABLE LICENSE

CERTIFICATE of COMPETENCE & AUTHORITY TO OPERATE



THE SHORT RANGE CERTIFICATE OF COMPETENCE AND AUTHORITY TO OPERATE

'The Driving License'

**For those not operating under
SOLAS rules; i.e. leisure
boaters over the age of 16,
using a Class D set, portable
or fixed.**



The SRC is valid for life !



SHIP RADIO LICENCE & **SHIP PORTABLE RADIO LICENCE**

Apply to Ofcom at www.ofcom.org.uk

Licence is free on line. £20 by post.

Anything that transmits must be added to the application. i.e. Radar, EPIRB, AIS

Renew on line every 10 years or when changes to equipment or address are made.

The licences should be kept on board the boat. When visiting other countries you risk a fine if you have not got it!

In AUSTRIA

Webseite

<https://www.bmvit.gv.at/ofb/funk/funkdienste/schiff/index.html>

Infoblatt

<https://www.bmvit.gv.at/ofb/publikationen/infoblaetter/downloads/201303.pdf>

Antrag

<https://www.bmvit.gv.at/ofb/formulare/downloads/schiffsfunkste.pdf>

MARITIME MOBILE SERVICE IDENTITY

If the boat has a DSC set, Ofcom issues an MMSI which is the vessel's unique 9 digit number.

THE FIRST THREE FIGURES IDENTIFY NATIONALITY (MID)

UK & OFFSHORE ISLANDS = 232, 233, 234, 235

GERMANY = 211, 218

CROATIA = 238

ITALY = 247

SLOVENIA = 278

SWITZERLAND = 269

AUSTRIA = 203

TYPES OF MMSI

UK SHIP STATION IDENTITY

2 3 2 X X X X X

UK GROUP SHIP STATION IDENTITY

0 2 3 2 X X X X

UK COAST STATION IDENTITY

0 0 2 3 2 X X X

**Double 00 numbers are licensed to rescue
NOT TO KILL!**

HANDHELD VHF+DSC+GPS



**Has an MMSI
beginning 235 9...(UK)**

This tells a Coastguard that:

- 1. The radio is portable**
- 2. It is fitted with GPS**
- 3. It has limited range**
- 4. It has a short battery life.**

DIRECTORY OF MMSIs

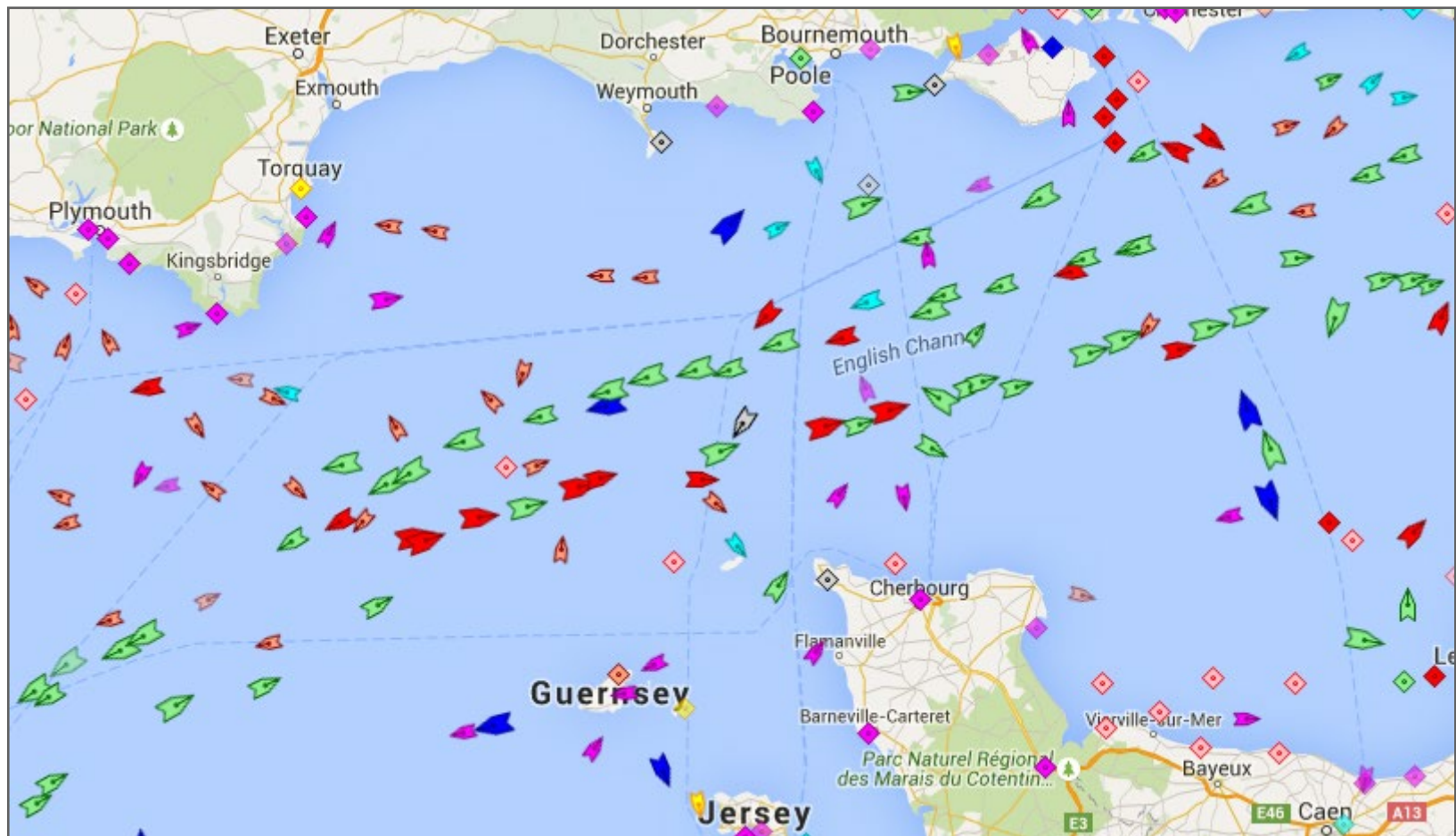
PROVIDED ON THE INTERNET AT I.T.U.

**Click on “Radiocommunications”
and then **MARS****

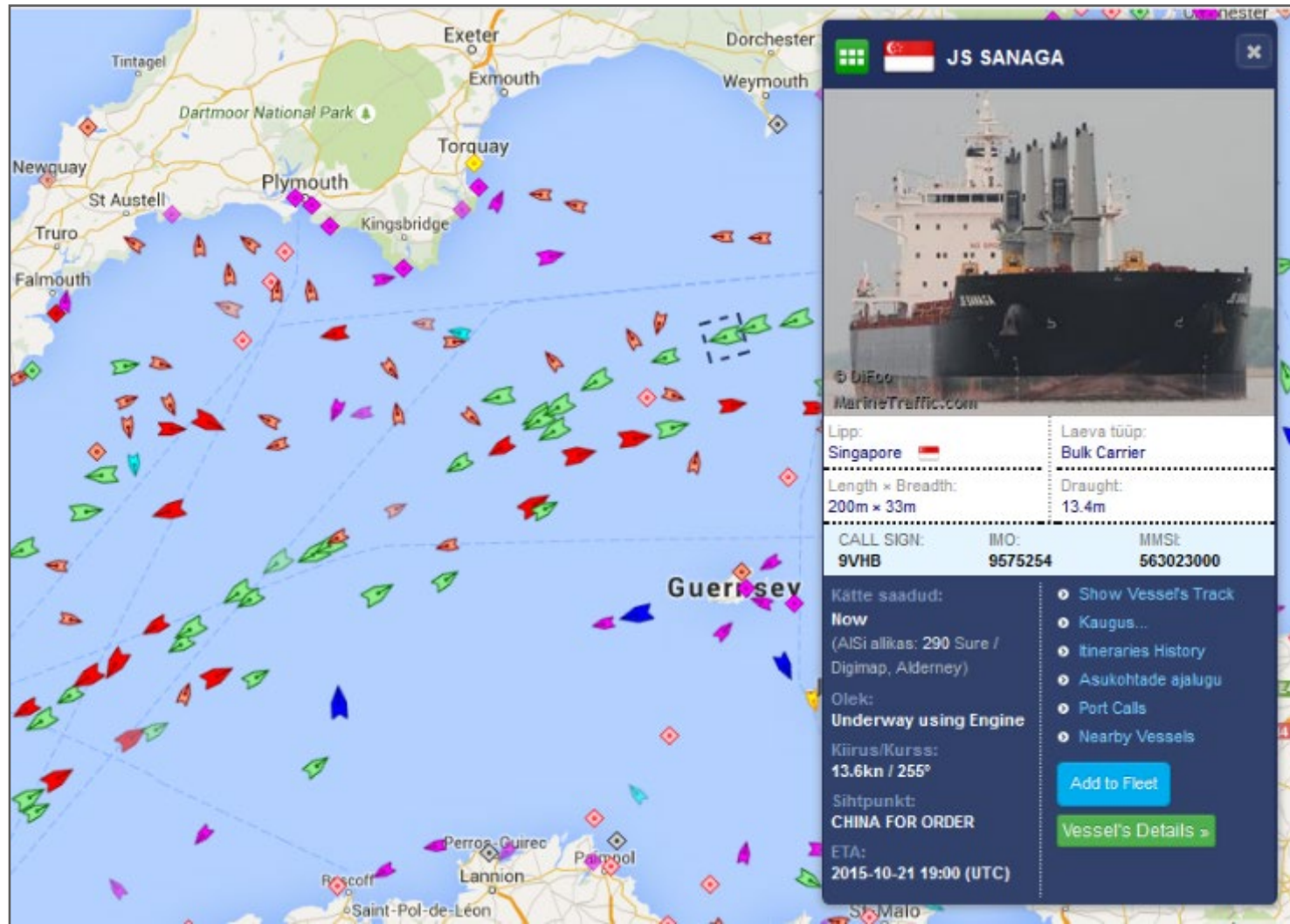


A.I.S (Automatic Identification System)

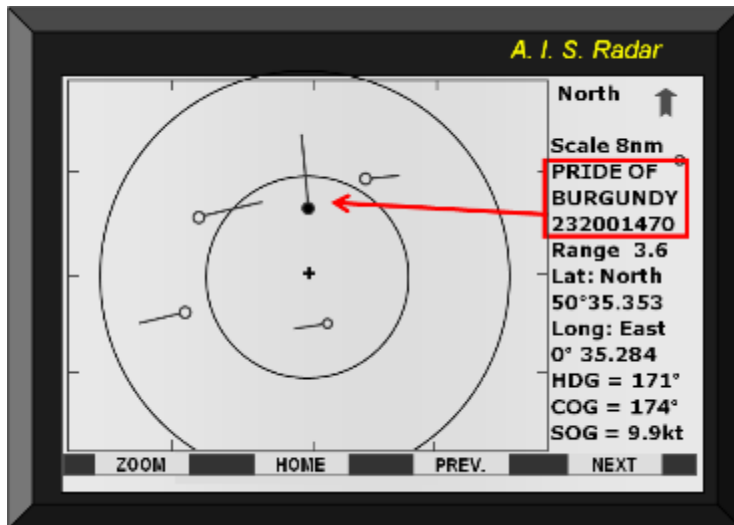
Live A.I.S. from Marine Traffic 1725 UTC 03/09/2015



A.I.S (Automatic Identification System)



A.I.S. RECEIVERS



**Standard Horizon
GX2200E with
GPS and AIS**

**NASA AIS
“Radar”**



TIME FOR TALKING



SIMPLEX & DUPLEX CHANNELS

SIMPLEX channels use 1 frequency & are for:

- | | |
|-----------------------|--------------------|
| 1. Distress | Ch 16 |
| 2. Urgency | Ch 16 |
| 3. Inter-ship | Ch 6, 8, 72, 77 |
| 4. Port Operations | Ch see Pilot books |
| 5. Small craft safety | Ch 67 |
| 6. Bridge to bridge | Ch 13 |
| 7. Yacht clubs | Ch M1, M2 |

SIMPLEX & DUPLEX CHANNELS

DUPLEX channels use 2 frequencies & are for:

1. Routine weather & safety information
2. UK Marinas (Ch 80)
3. Ship to shore telephone calls (Various)

You cannot talk to another boat on a duplex channel unless you have the correct equipment

DUAL (TRIPLE) WATCH

DUAL WATCH is a function to monitor:

- channel 16

AND

- another channel at the same time

TRIPLE WATCH monitors channel 16 and two other channels

BASIC CALLING What to say

First **WHO YOU ARE CALLING**
(boat name and/or call-sign)

Second **WHO YOU ARE**
(boat name and/or call-sign)

Call their name **up to a maximum of 3 times**
depending on the situation.

**Generally 1 or 2 times to a shore station or if the
other boat has been contacted with a DSC alert.**

WHICH CHANNELS MAY WE USE?



Types of calls and prowords

Type	Proword	Channel
DISTRESS (alert)	Mayday	16
URGENCY	Panpan	16
SAFETY	Securite	16 + other
ROUTINE	-	16 + other
URGENCY	Mayday Relay	16

WHAT IS DSC?

DIGITAL SELECTIVE CALLING

A perfectly normal radio transceiver fitted with an added digital alerting device and interfaced with a GPS receiver

A Digital Announcement or Alert may be sent to:

- a) All Stations**
- b) A Group of Stations**
- c) An Individual Ship Station**

DSC are transmitted digitally on channel 70

DSC ROUTINE CALL

1. Select menu – DSC call
2. Select 'Individual', then 'Routine'
3. Input MMSI (or from memory)
4. Choose channel
5. Transmit

The receiver will have to first stop the sound, then press OK 3 times to establish the connection

PS: every radio model has its own specifics!

DSC ROUTINE CALL

ADVANTAGES

- Does not occupy channel 16
- The alarm on the called radio is very loud!
- A 'missed' call remains in the call log

DISADVANTAGES

- You must know the MMSI of the other vessel
- You need to enter the MMSI in the radio



DISTRESS

MAYDAY (from French "M'aider")

Used only when there is:

GRAVE and IMMINENT DANGER

**to: PERSON,
VESSEL
AIRCRAFT or
VEHICLE**

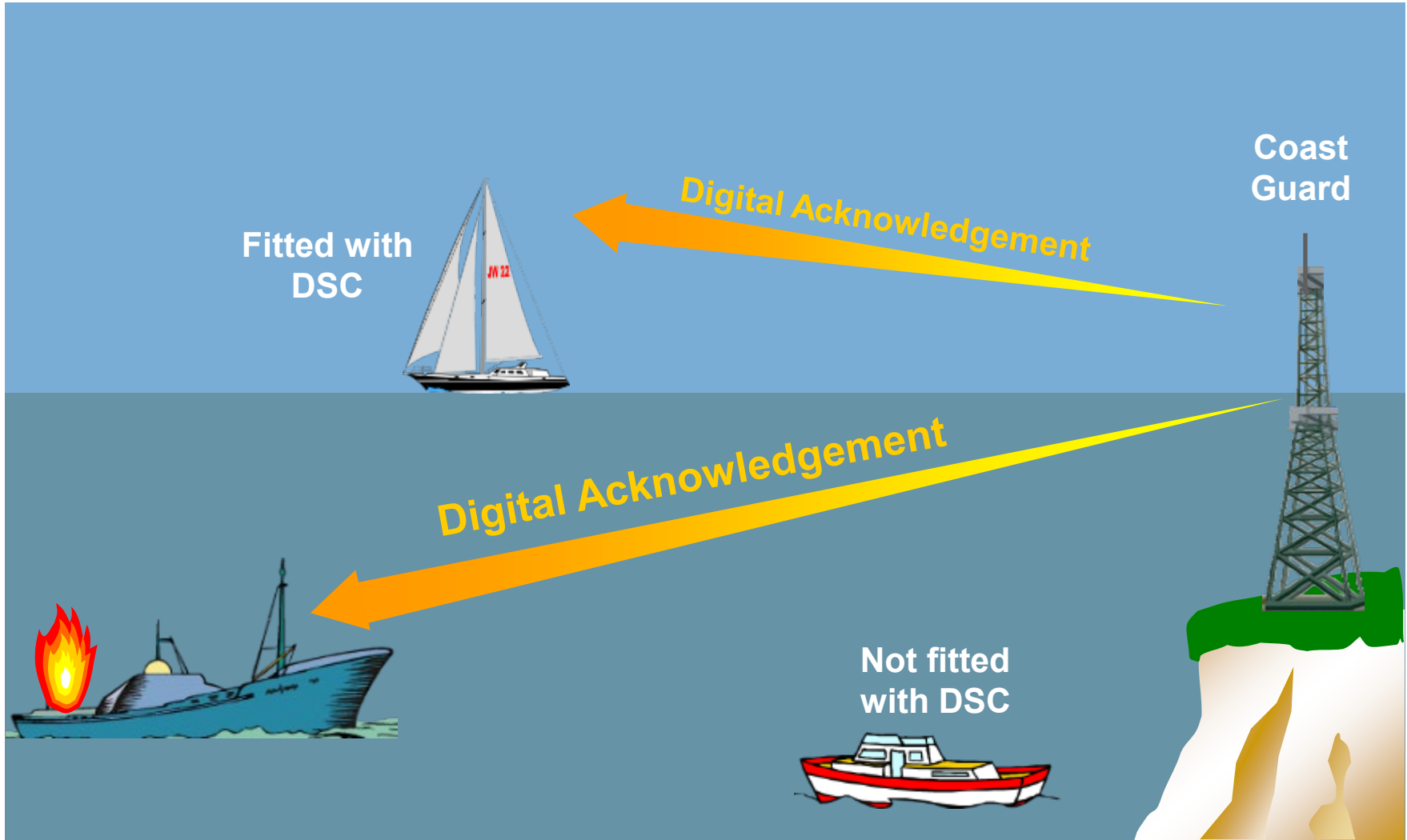


and IMMEDIATE ASSISTANCE is required

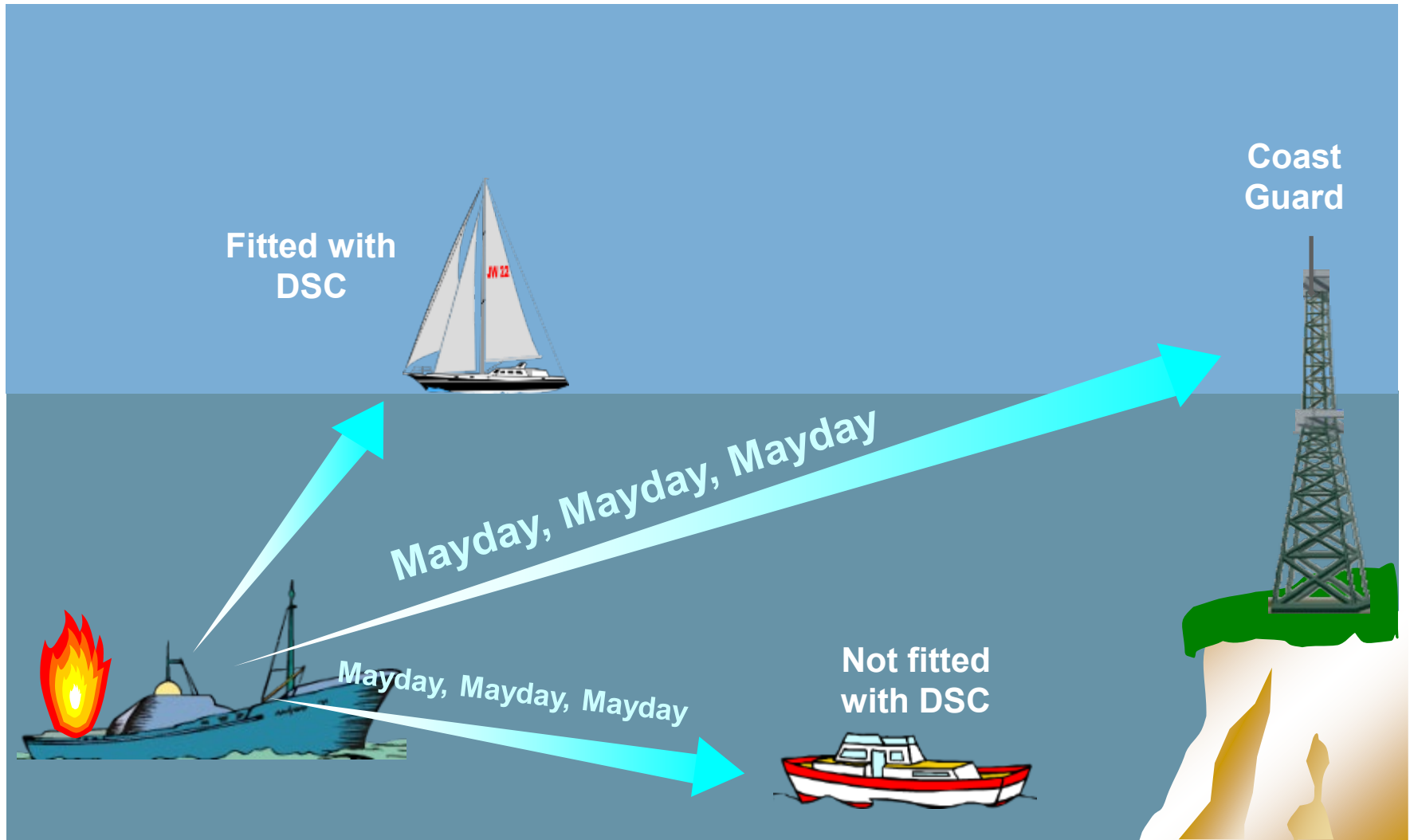
DISTRESS ALERT - PHASE 1



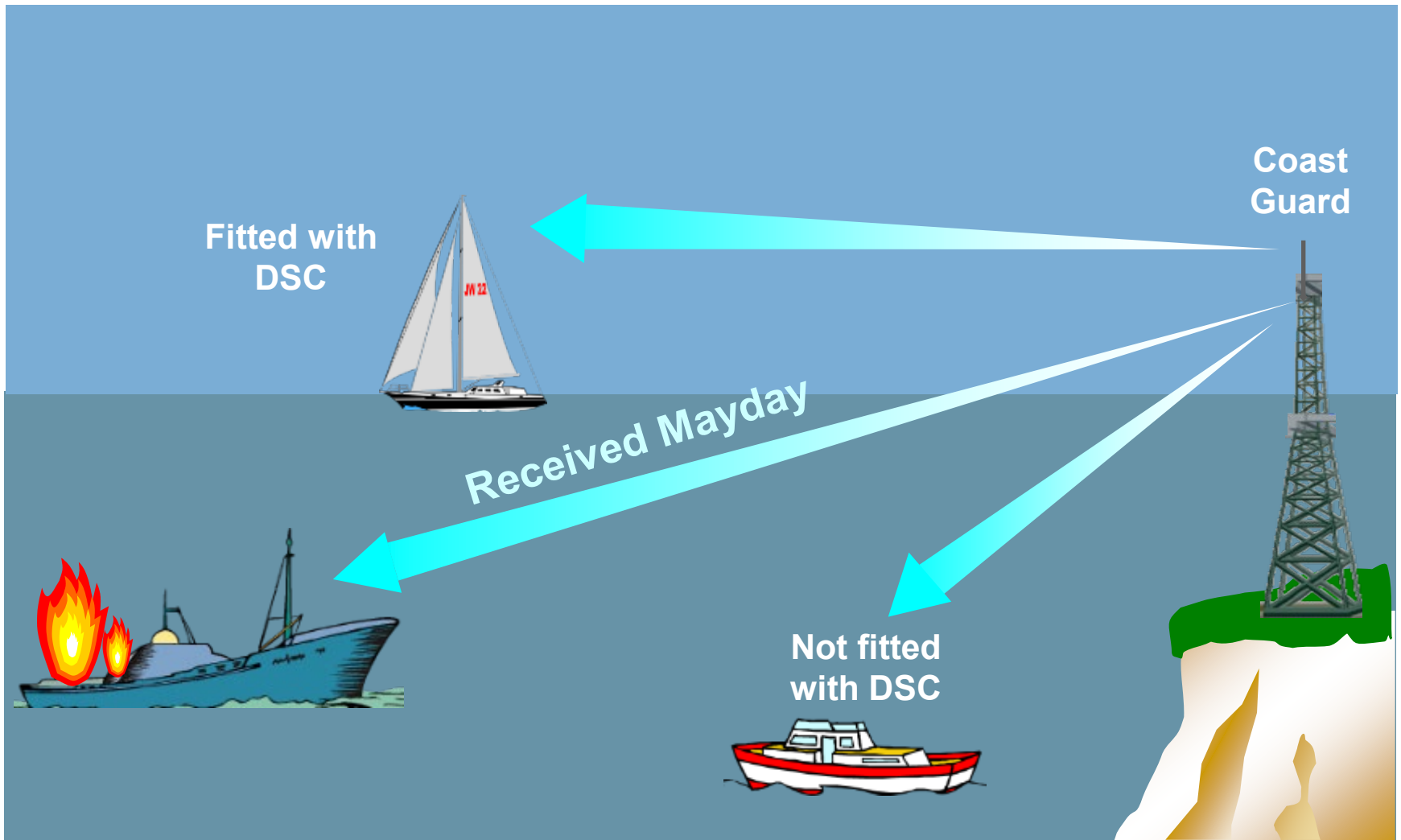
DISTRESS ALERT - PHASE 2



DISTRESS ALERT - PHASE 3



DISTRESS ALERT - PHASE 4



DISTRESS CALL & MESSAGE

M	MAYDAY
I	IDENTIFICATION
P	POSITION
D	DISTRESS
A	ASSISTANCE
N	NUMBER OF PERSONS
I	INFORMATION
O	OVER

DISTRESS CALL & MESSAGE

Mayday, Mayday, Mayday

This is M/V Flam, Flam, Flam

Callsign 2CGE4 MMSI 235899982

M Mayday
I Flam 2CGE4 MMSI 235899982
P In position 50°47'.51N 001°17'.29W
(approx 1 mile north of Cowes)
D Fire on board
A I require immediate assistance
N Eight persons on board
I Abandoning to life-raft.
O Over.



CANCEL a DISTRESS ALERT

- Switch off the radio to stop retransmitting.
- Make a VOICE call to all stations on CH 16, high power:

All stations, all stations, all stations

This is Broadsword (3 times)

Call sign GMDS9, MMSI 235912345

Cancel my distress alert

I say again

Cancel my distress alert
(sent in error at 1230 LT)

Out

G.M.D.S.S.

Global Maritime Distress and Safety System

**Introduced by the International
Maritime Organisation in the late
1980s to ensure that ships had at
least two methods of sending and
receiving a distress call.**

GMDSS

Ships of 300 tons or more and passenger vessels with 13 or more passengers must fit the following equipment (in open waters):

- 1. VHF DSC + portable radios**
- 2. 406 MHz E.P.I.R.B**
- 3. Radar**
- 4. S.A.R.T.**
- 5. Navtex + Inmarsat station**
- 6. Automatic Identification System (A.I.S)**

406 MHz E.P.I.R.B

**Emergency
Position
Indicating
Radio
Beacon**



**Uses the COSPAS/SARSAT
military satellites to
pin-point the casualty**



COSPAS / SARSAT
Satellite



INMARSAT
Satellite



COASTGUARD



EPIRB



Stricken Vessel



Liferaft with
Handheld VHF



COSPAS / SARSAT
Satellite



INMARSAT
Satellite

COASTGUARD



EPIRB



Stricken Vessel

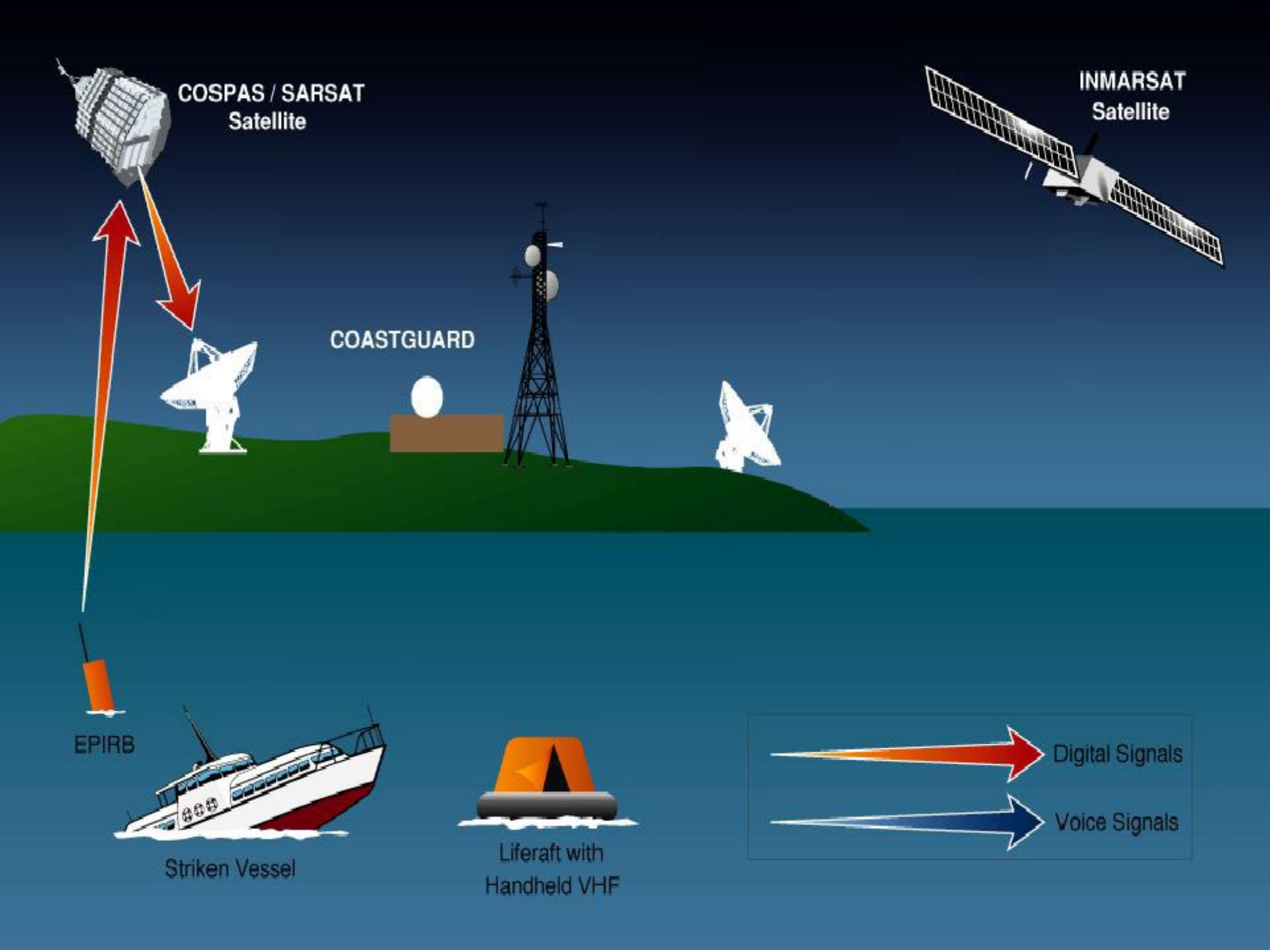


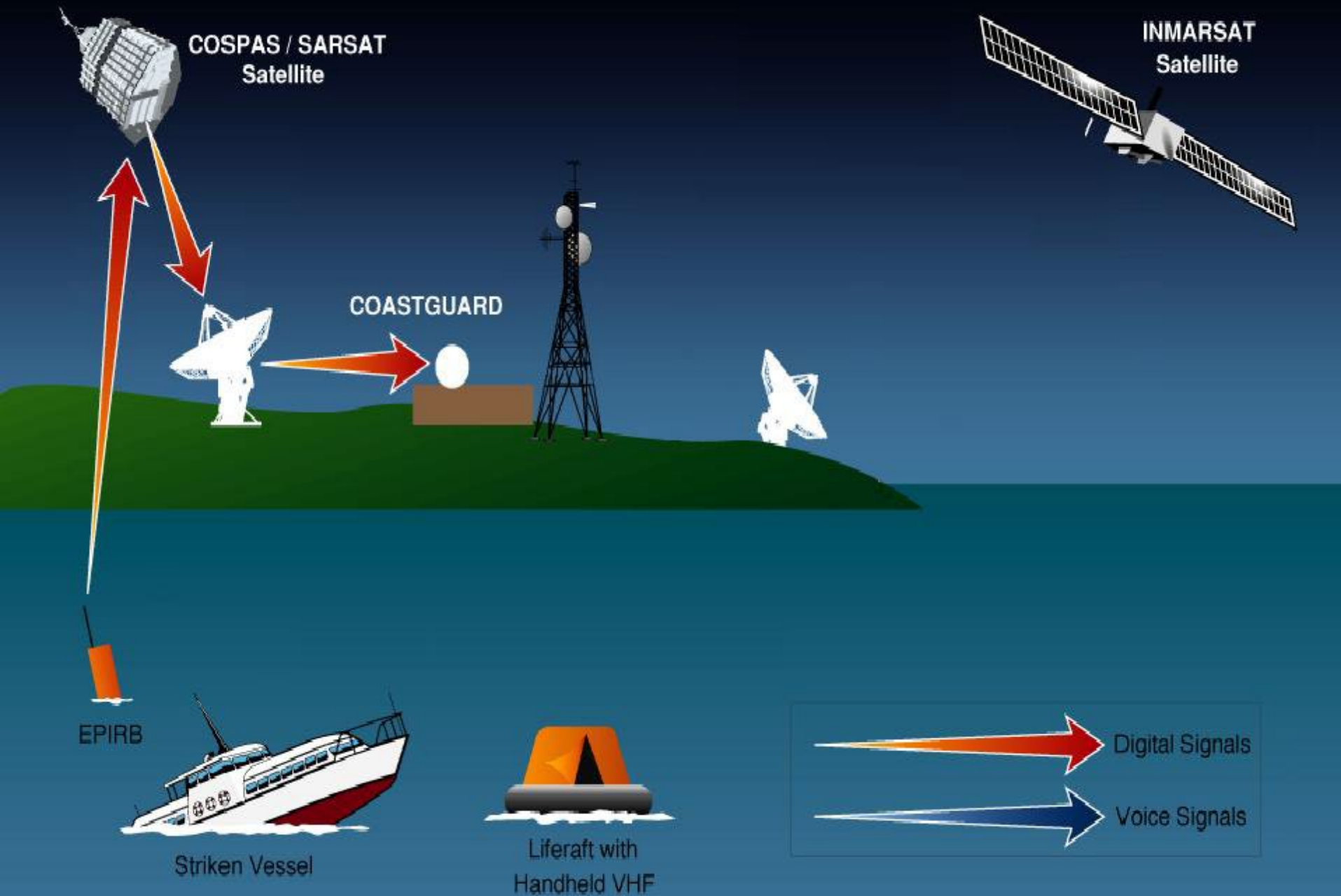
Liferaft with
Handheld VHF

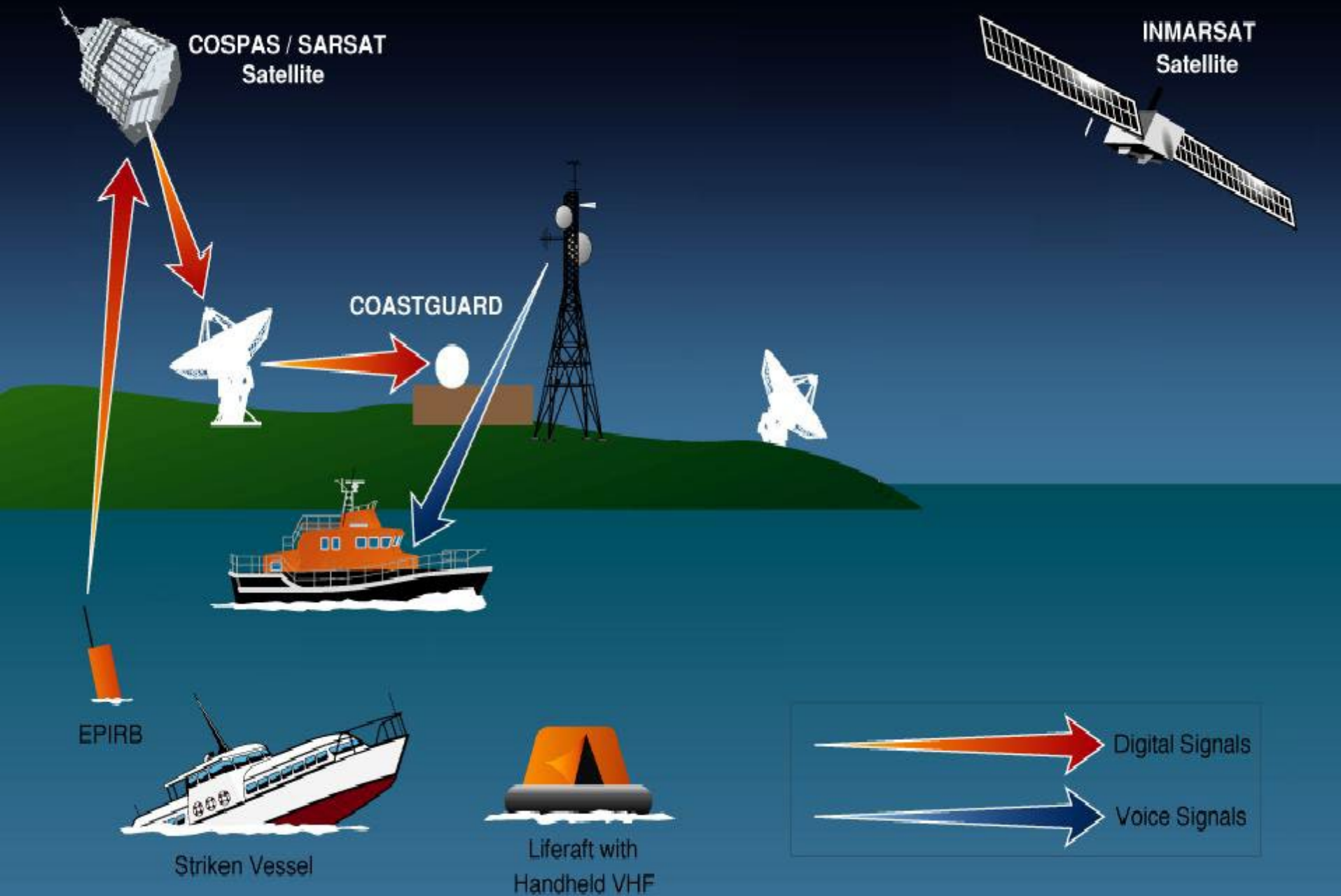


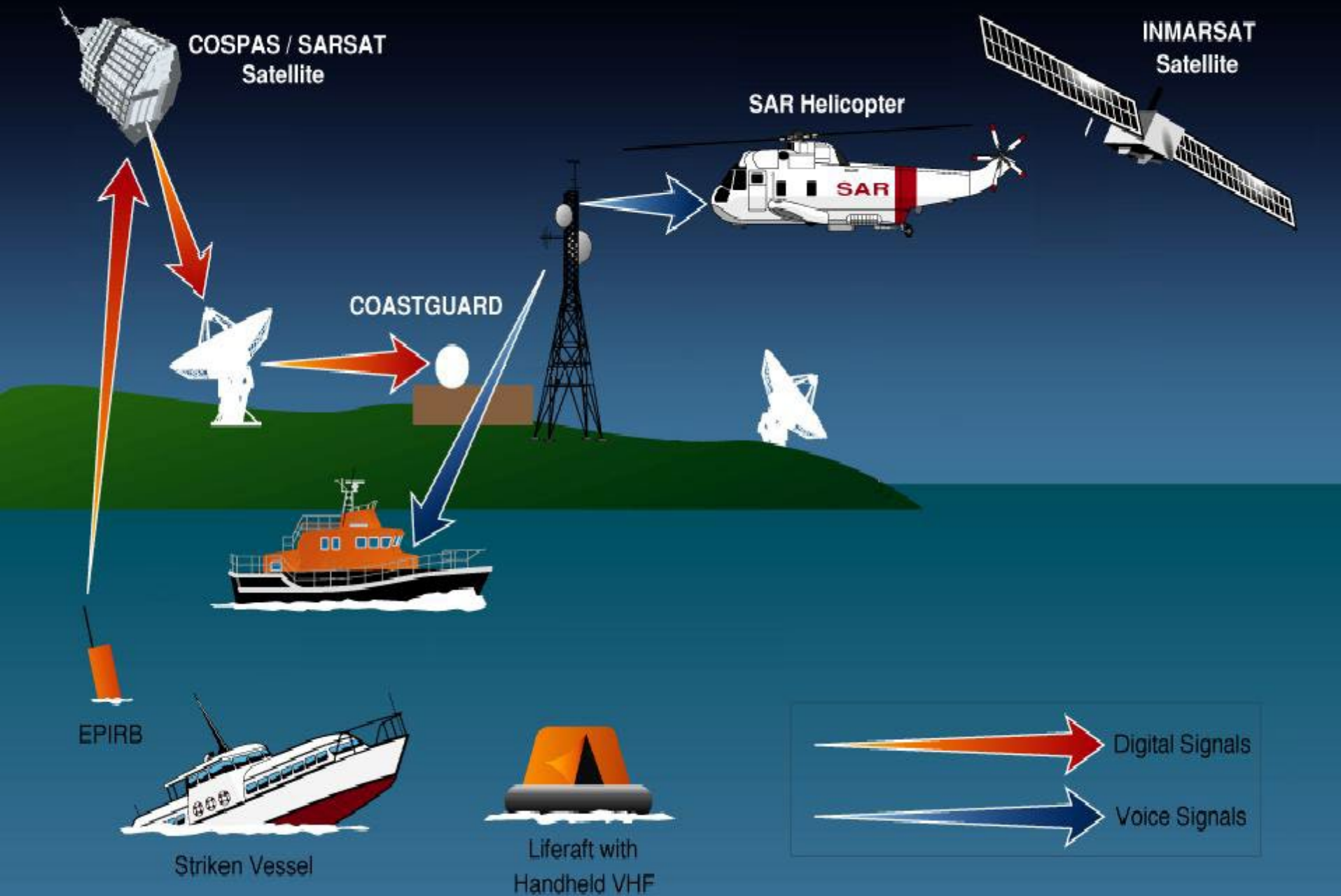
Digital Signals

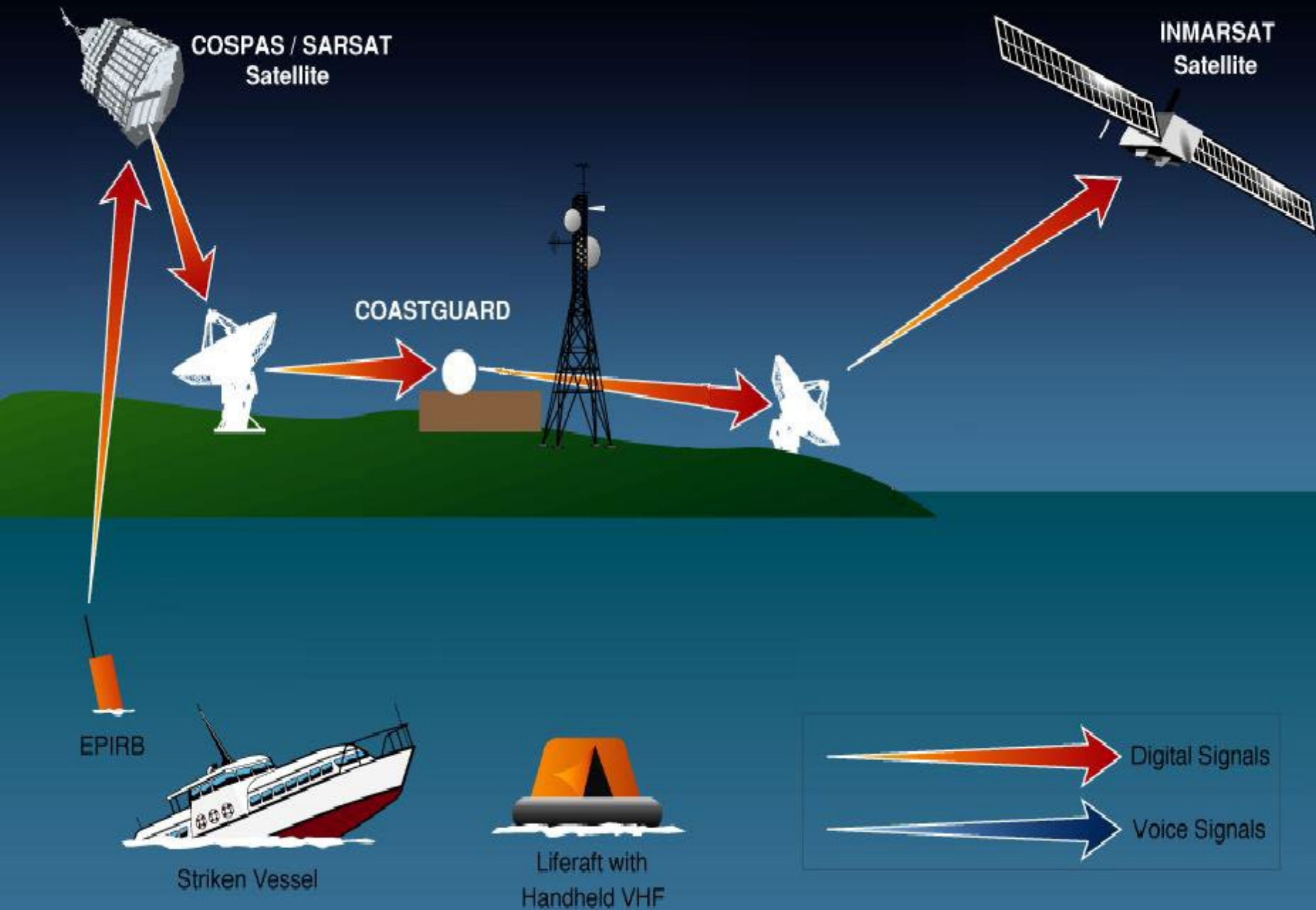
Voice Signals

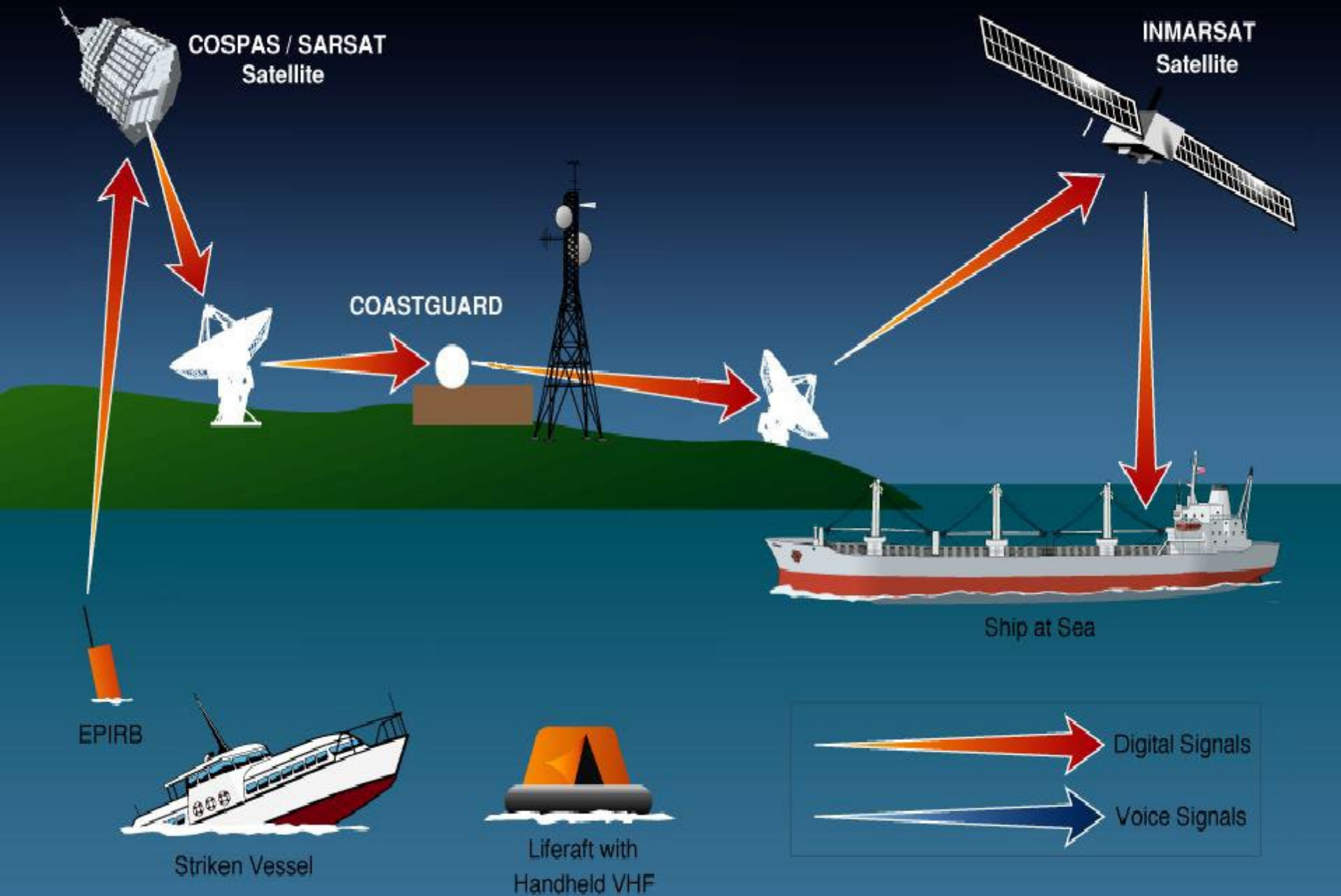


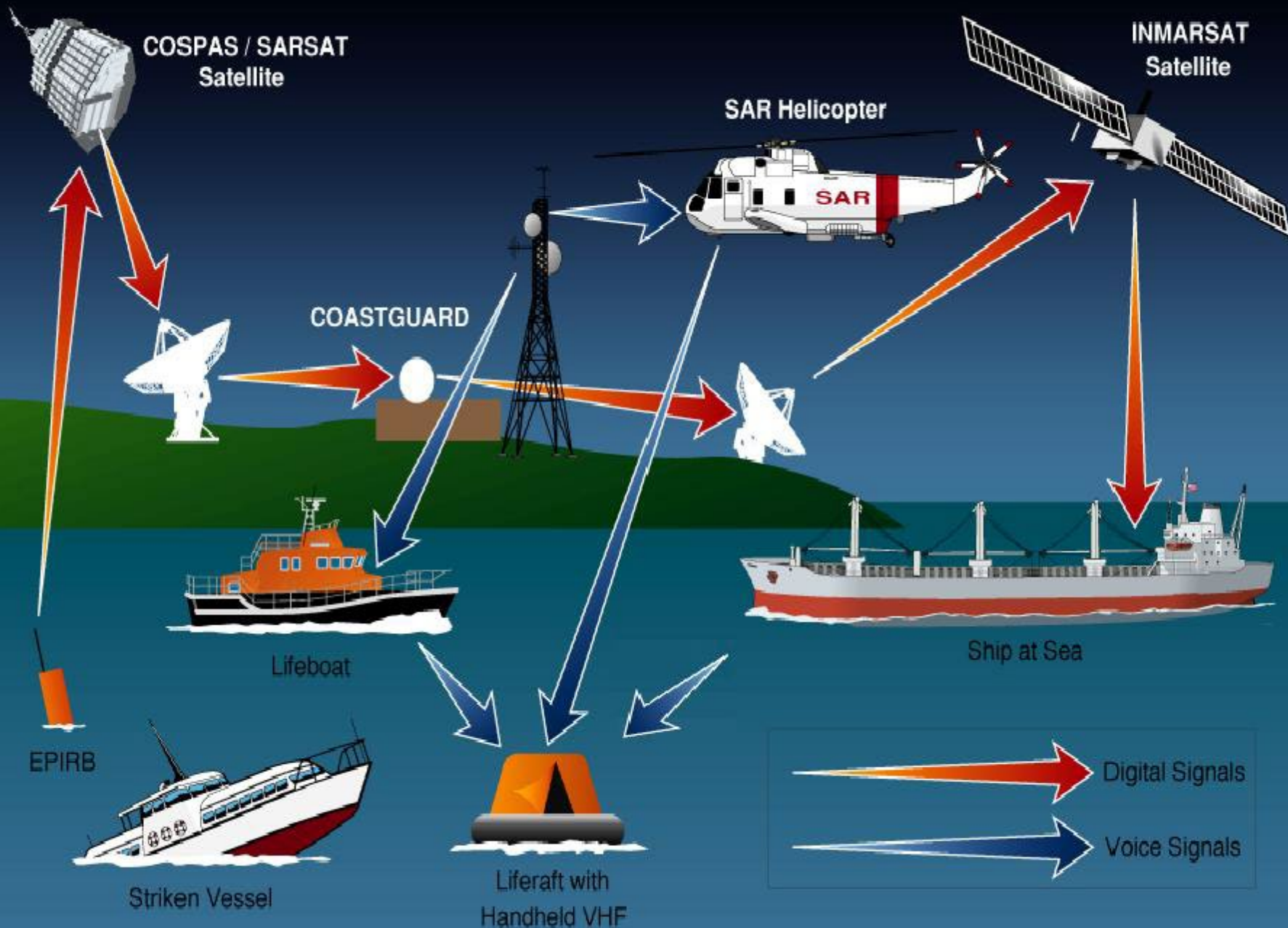












E.P.I.R.B - SUMMARY



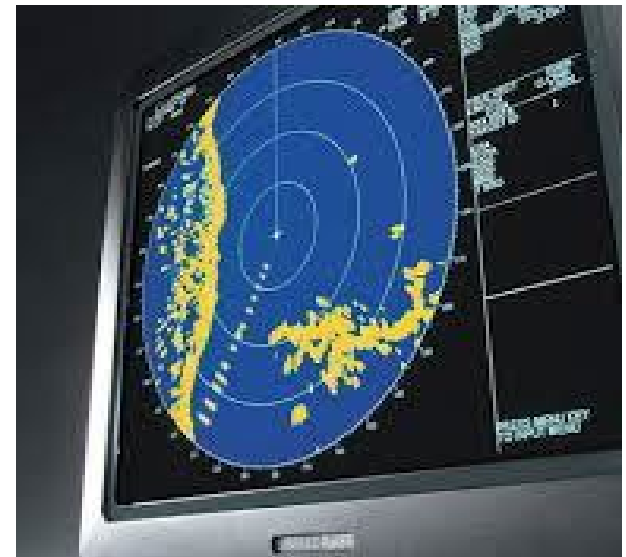
**ALL UK EPIRBs MUST BE
REGISTERED WITH THE
NATIONAL EPIRB REGISTRY **AT**
COAST GUARD (FALMOUTH)**

**If it is switched on accidentally:
SWITCH IT OFF AS SOON AS POSSIBLE & CALL
THE NEAREST COASTGUARD.**

S.A.R.T.

SEARCH AND RESCUE TRANSPONDER

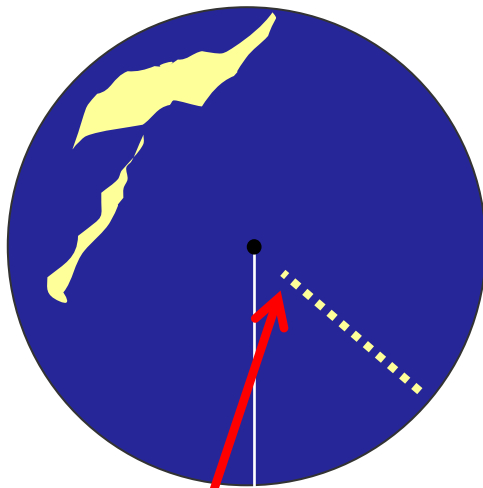
**Responds with its
own signal when “interrogated”
by a Radar beam.**



SEARCH AND RESCUE TRANSPONDER

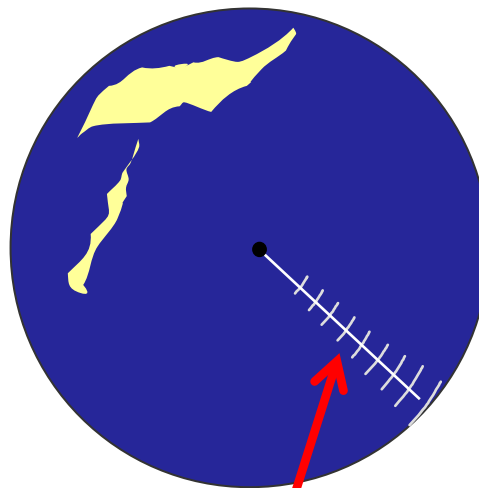
North Up Display

1. Up to 12 dots are displayed on the radar screen



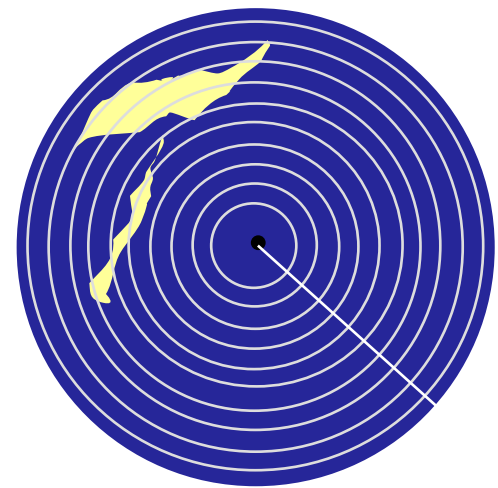
casualty

2. As the rescue vessel gets closer the dots change to arcs

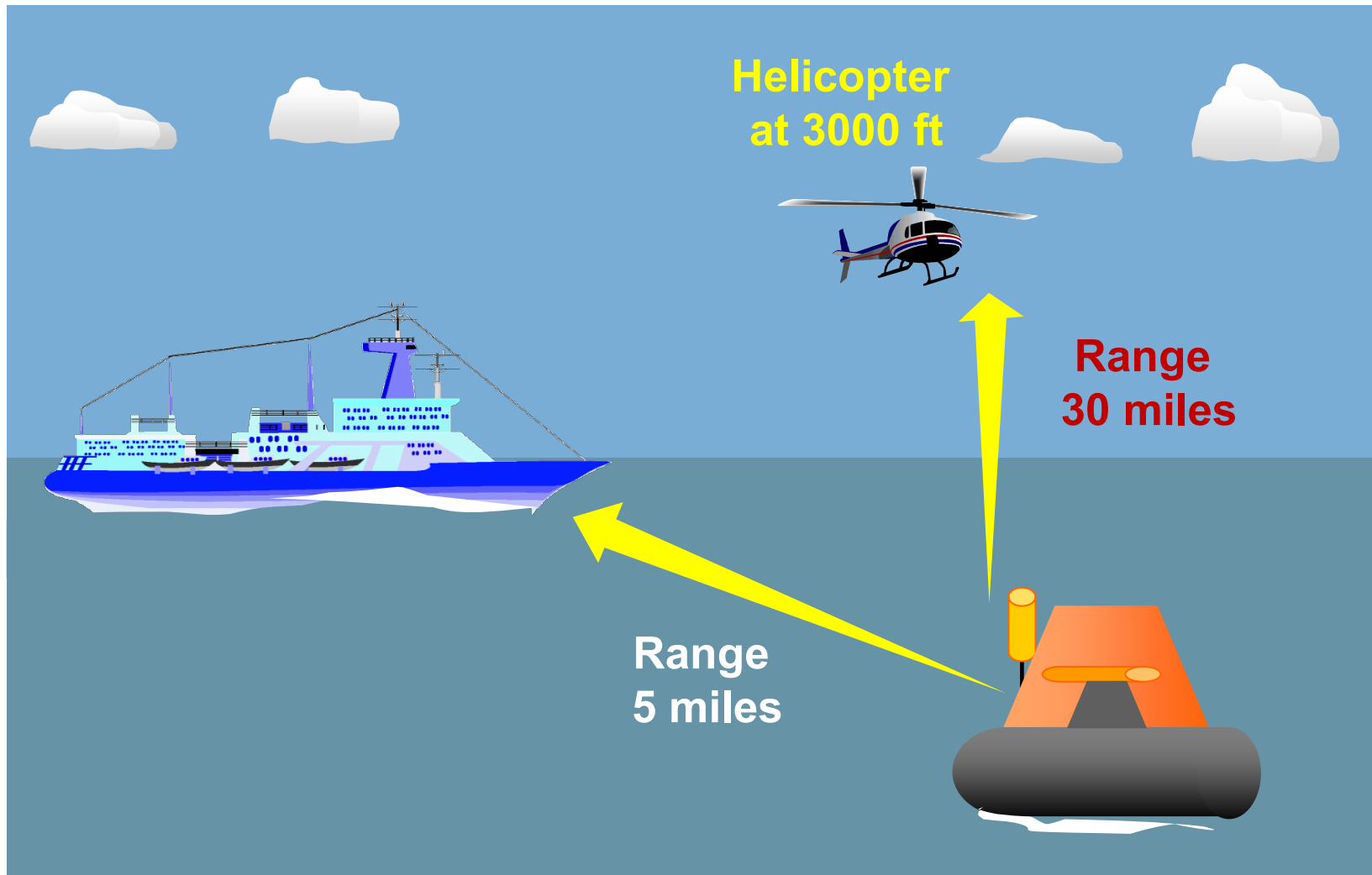


heading marker

3. Concentric circles are shown when very close to the casualty

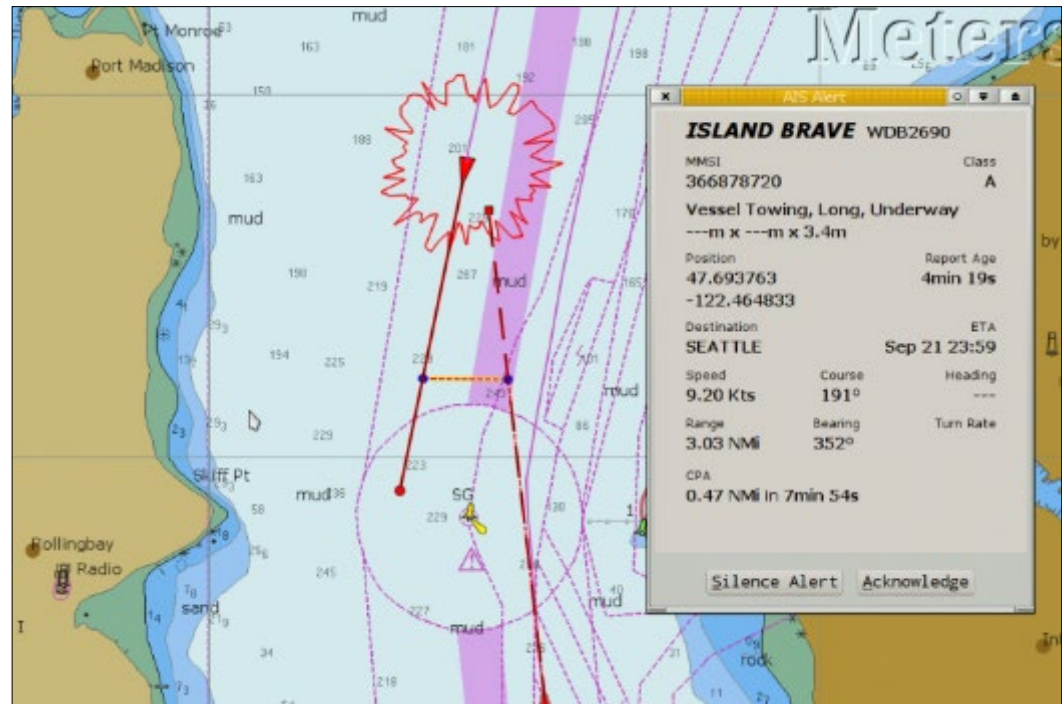


SART RANGES



A.I.S S.A.R.T.

Displays position of casualty on chart plotter



NAVTEX

Dedicated TEXT equipment which receives:

- 1) Weather forecasts & gale warnings**
- 2) Navigational warnings**
- 3) Details of distress messages**

Range approx 300 miles

English language 518 KHz

National language 490 KHz – 2 frequency sets



URGENCY

PAN PAN

For an urgent message concerning the safety of life or a vessel when immediate assistance is NOT justified

i.e. steering problems & engine trouble



URGENCY MESSAGE

Pan-Pan, Pan-Pan, Pan-Pan

All Stations, All Stations, All Stations

This is M/Y Nogo, Nogo, Nogo

Call sign M6CVA MMSI 235899985

Position 3 miles south of Dodman Point

Have engine failure and require a tow

Nine metres in length

Four people on Board

Over



URGENT MEDICAL HELP



PAN PAN



**CALL ADDRESSED TO NEAREST
COASTGUARD OR 'ALL STATIONS'
FOR URGENT
MEDICAL ASSISTANCE or ADVICE**

SPOKEN MESSAGE REQUESTING URGENT MEDICAL ADVICE

Pan-Pan, Pan-Pan, Pan-Pan

Thames CG, Thames CG, Thames CG

This is S/Y Dab, Dab, Dab

Call sign M4GHQ MMSI 235899983

My position 51°44'.71N 001°04'.32E

**I have an injured crew member and
request urgent medical advice.**

Over



URGENCY

DISTRESS RELAY



An URGENCY alert is used to relay a Distress call and message -> when the problem is someone else's !!

DISTRESS RELAY

RELAY IMMEDIATELY

- Person stranded by tide
- Person repeatedly raising and lowering arms
- Vessel suffering a catastrophic explosion
- Aircraft entering the water

RELAY AFTER WAITING 5 MINUTES

- For vessels who have sent a DSC Distress alert but NOT received an acknowledgement from a Ship or Rescue Co-ordination centre

RELAY FOR PERSON WITH NO RADIO

Mayday Relay, Mayday Relay, Mayday Relay

All Stations, All Stations, All Stations

This is Spy, Spy, Spy

Call sign 2NJY8 MMSI 235899987

Mayday - stranded person at base of cliff

Approximate position 50°12'.4N 02°15'.7W

Rising tide and partially

Immersed in water

He requires immediate assistance

Over



RELAY FOR MAYDAY MESSAGE RECEIVED **FOLLOWING DSC DISTRESS ALERT**

Mayday Relay, Mayday Relay, Mayday Relay

All Stations, All Stations, All Stations

This is Spy, Spy, Spy

Call sign 2NJY MMSI 235899987

Mayday M/Y Jazz Call sign 2VCX3 MMSI 234000679

His position is 50°12'.4N 002°15'.7W

Holed and sinking

He requires immediate assistance

Three persons on board

They have a life-raft.

Over.



SAFETY - SECURITÉ

The **DIGITAL** Alert is used for:

- 1. Gale Warnings**
- 2. Strong Wind Warnings**
- 3. Urgent Navigational Warnings**

**Announcement ONLY
on Ch16.**

**MESSAGE broadcast on a
WORKING channel**



ANNOUNCEMENT FOR A ROUTINE MARITIME SAFETY INFORMATION BROADCAST

All Stations, All Stations, All Stations

This is Solent CG, Solent CG, Solent CG

For my routine Maritime Safety Information
Broadcast for the Solent & Portland areas

Listen Channel 86 for vessels east of the Isle of
Wight and west of The Needles.

Listen Channel 23 for vessels in the Solent.

SAFETY

HM COASTGUARD MARITIME SAFETY INFO

A broadcast every **3 hrs** for
12 areas around the UK & NI

New forecast every 6 hrs

Solent & Portland area

0130, 0430, **0730**, 1030,
1330, 1630, **1930**, 2230.

Full information 0730 & 1930

(Navigational warnings,
shipping

& inshore waters forecast)





Vorlagen und mehr:
www.seefunk.net/seminar/

