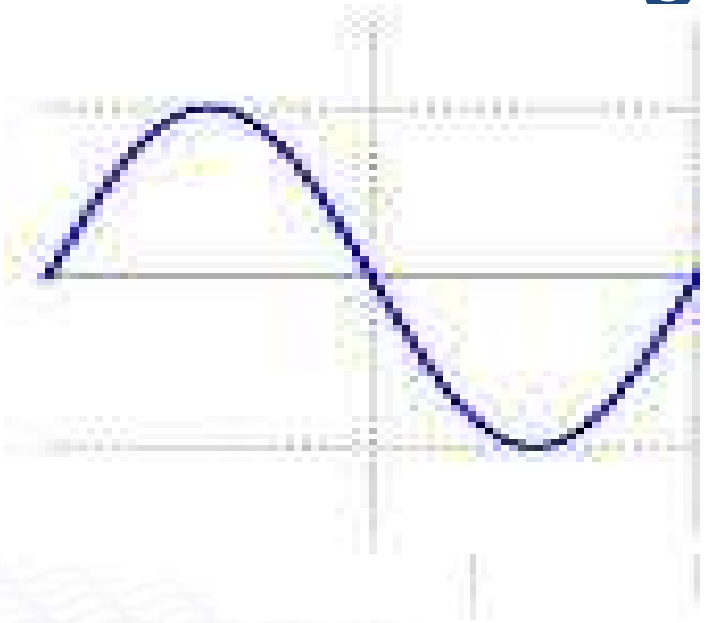
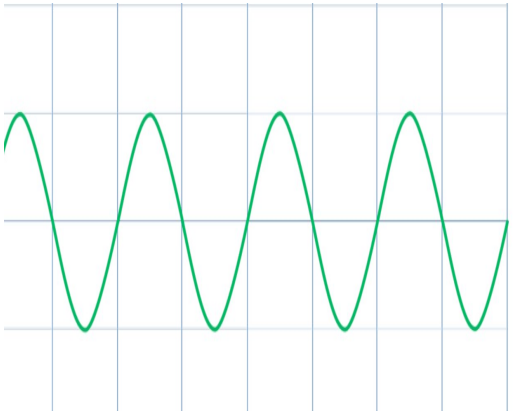
ORCV
OCEAN TRAINING

Session 3C

Radio Overview / Distress call

About Wavelength / Frequency





Radio moves at speed of light

(300,000,000 m/s)

Amplitude (strength)

Frequency (repetition)

Wavelength (distance between)

WL(m) = 300 / Freq(mHz)

>> Wavelength relates to antenna length

Radio Type	Frequency	Wavelength	Propagation
VHF	160Mhz	1.8m	Line of sight
HF	4.483Mhz	68m	Atmospheric skip
Cellular	Eg: 2100Mhz	0.14m	Line of Sight

Two Radio Systems

VHF

- Short range (unless repeaters used)
- Easy to use
- Little interference
- Hand Held (5w) or Vessel Mounted (25w)

HF

- Long Range
- More complex
- Subject to interference
- Mounted (100-150w)

VHF

Voice

Simplex/Duplex

DSC

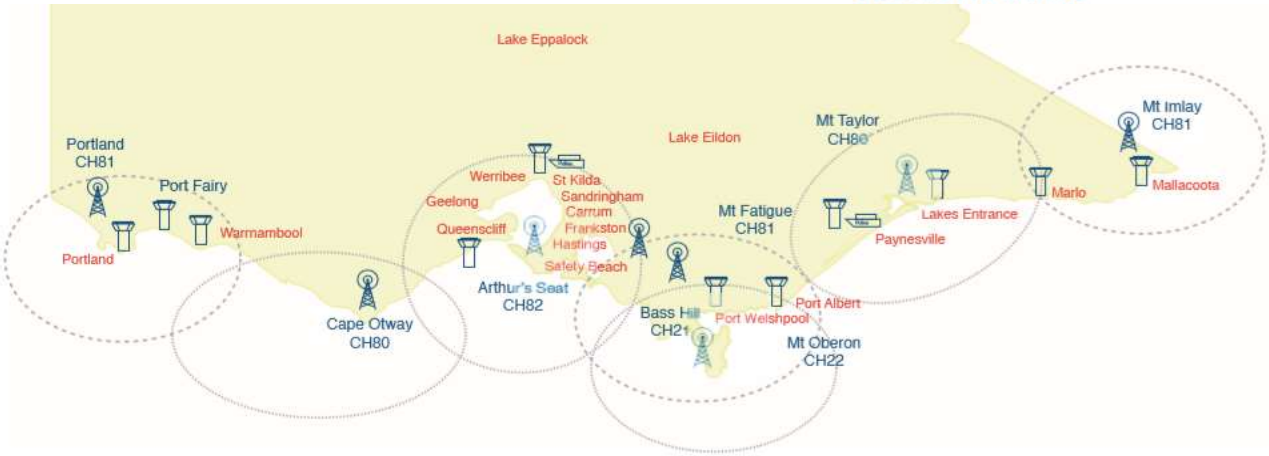
Defined channel/frequency use

AIS (possibly shared VHF components)

SART unit growing use

Range – limited line of sight (+ Repeaters)

Marine Radio Victoria – Channels 16, 67,70



VHF Setting up

Adjust squelch until noise just heard

Turn volume up to a comfortable level

Turn squelch up to just stop noise

Beware of interference from LED lights (see if noise level increases when lights turned on!)

Line of Sight & antenna height

Height of antenna alters possible range

Horizon $\approx 3.57\sqrt{height}$

E.g: 2m height -> 2.5nm Horizon = 5 nm range

Arthurs Seat = 45nm

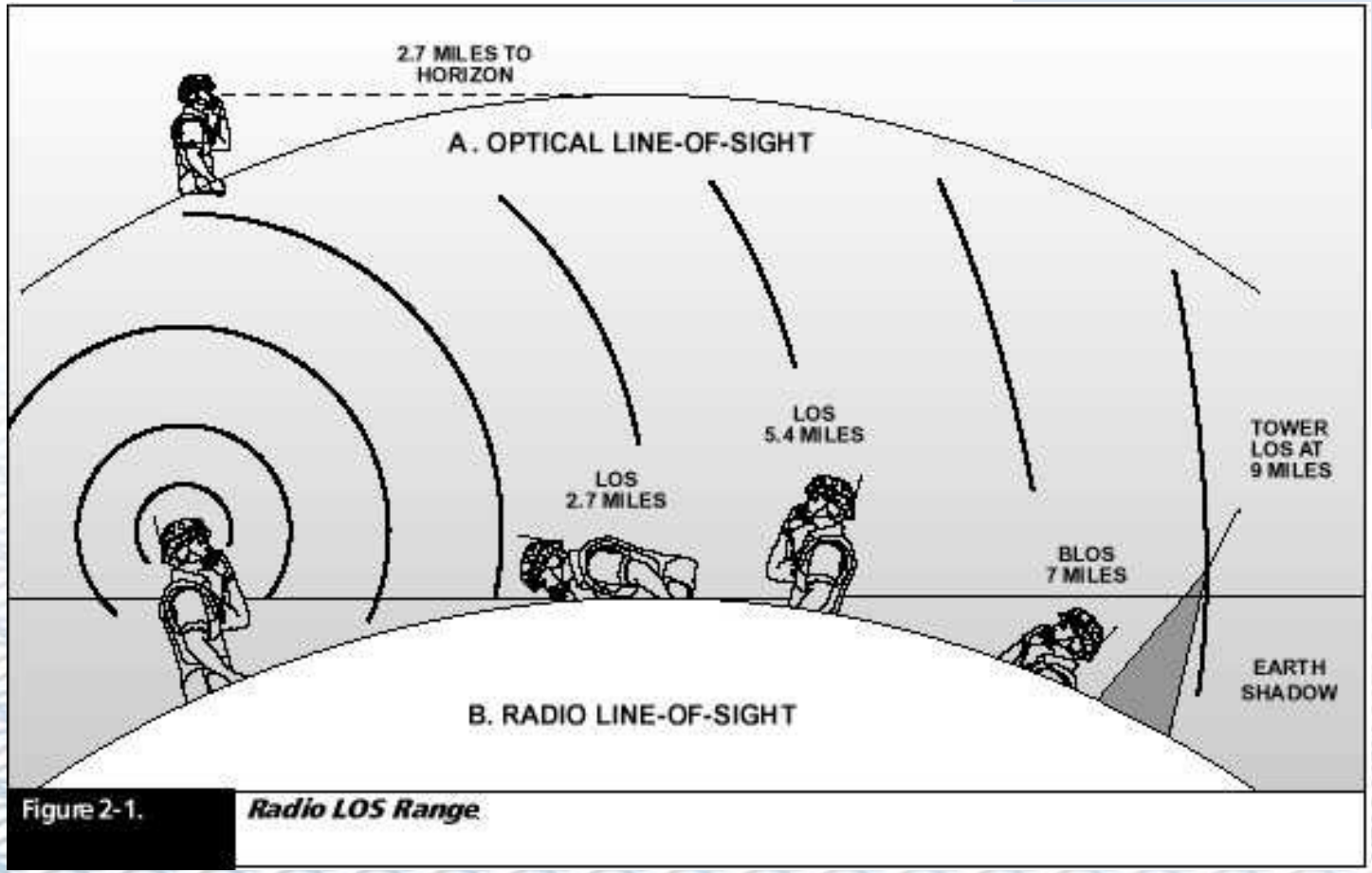


Figure 2-1. ***Radio LOS Range***

>> VHF mast head antenna recommended

VHF – Maintenance and Testing

Ensure water does not get into any of the antenna connections (masthead, bilge and radio set)

Protect all connections with amalgamating tape

Testing on VHF 82

Make sure radio is set to International channels

Choose 1W power

Transmit and listen for return noise signal

HF

Voice

Simplex/Duplex

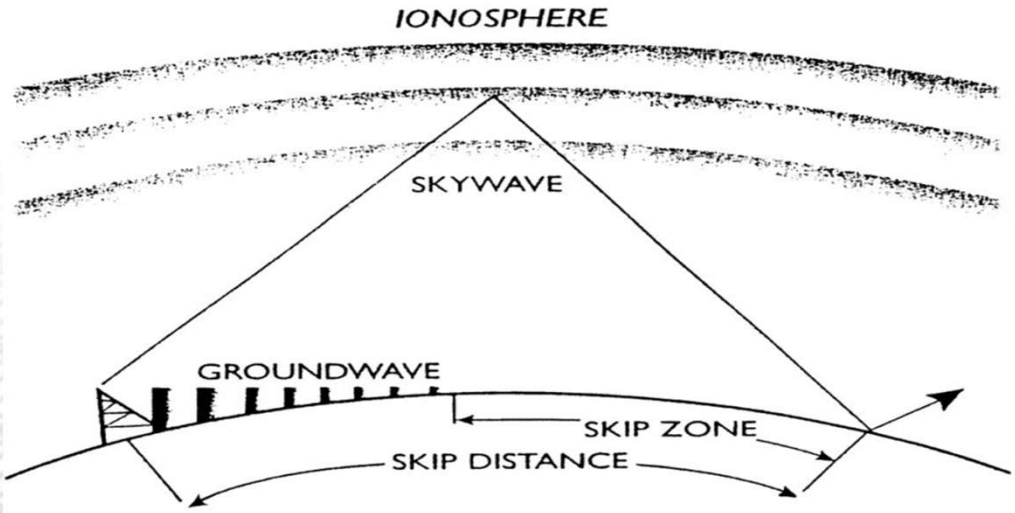
DSC

Defined frequency use

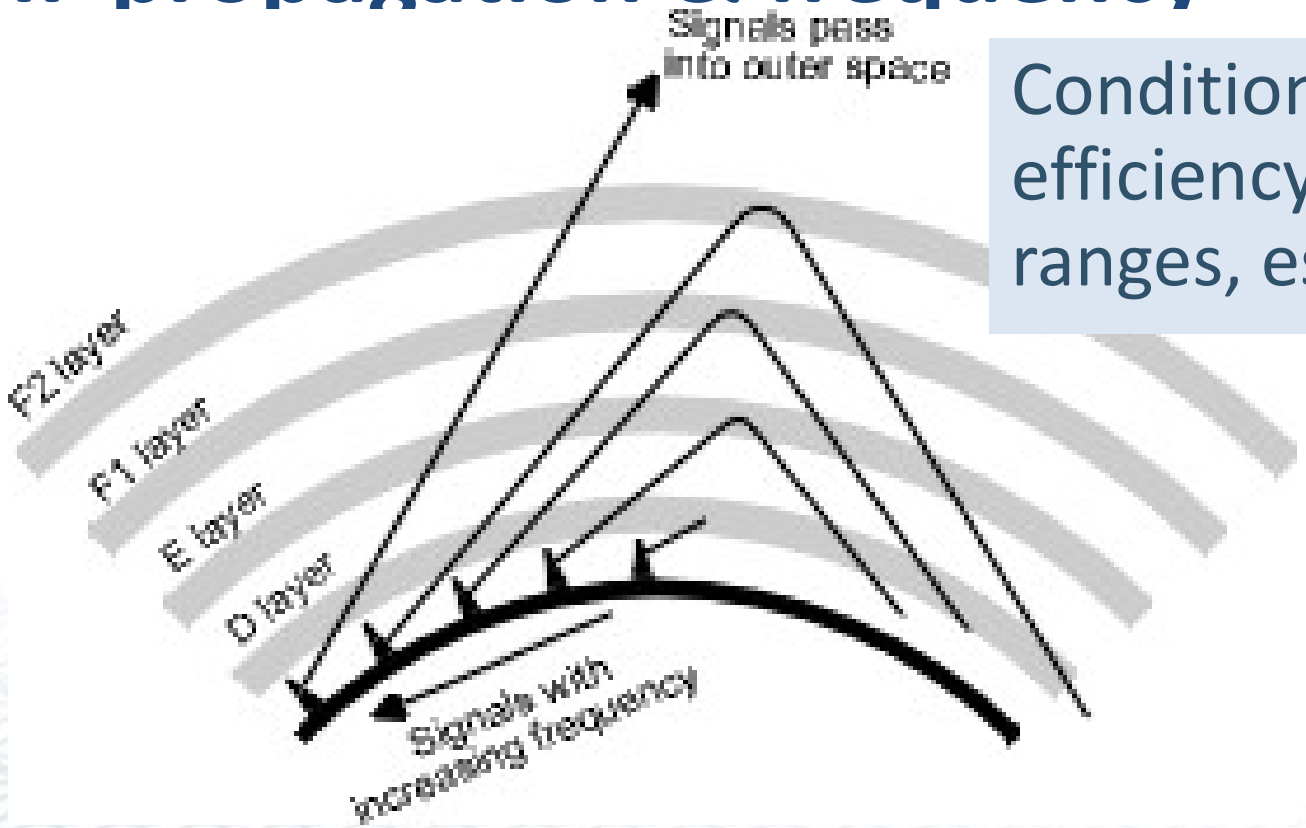
Weather Fax

Email

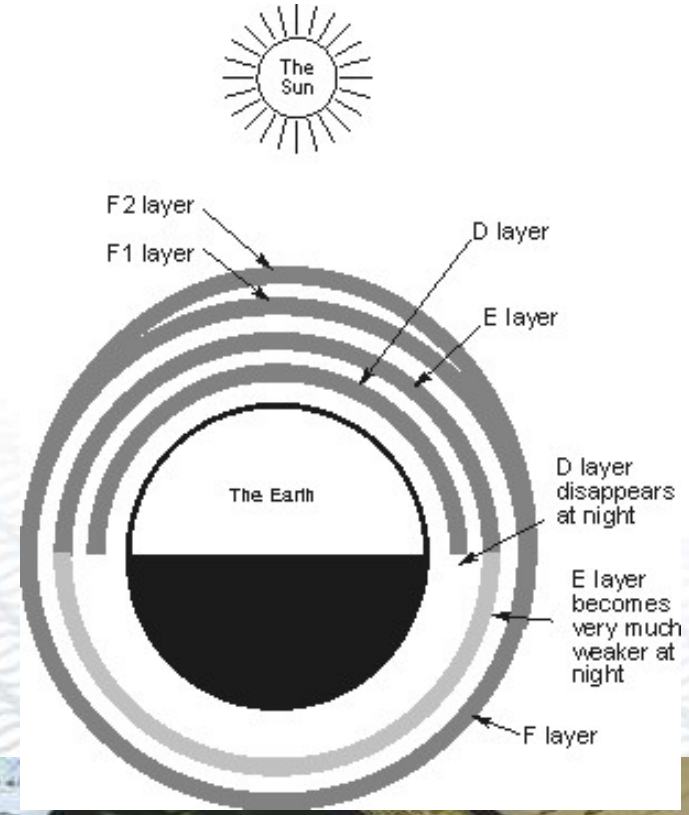
Range – long distance



HF propagation & frequency



Conditions change, affects efficiency of frequency ranges, especially night vs day



Note VHF and Satphone (higher frequency) signals go straight through ionosphere

HF conditions are predictable

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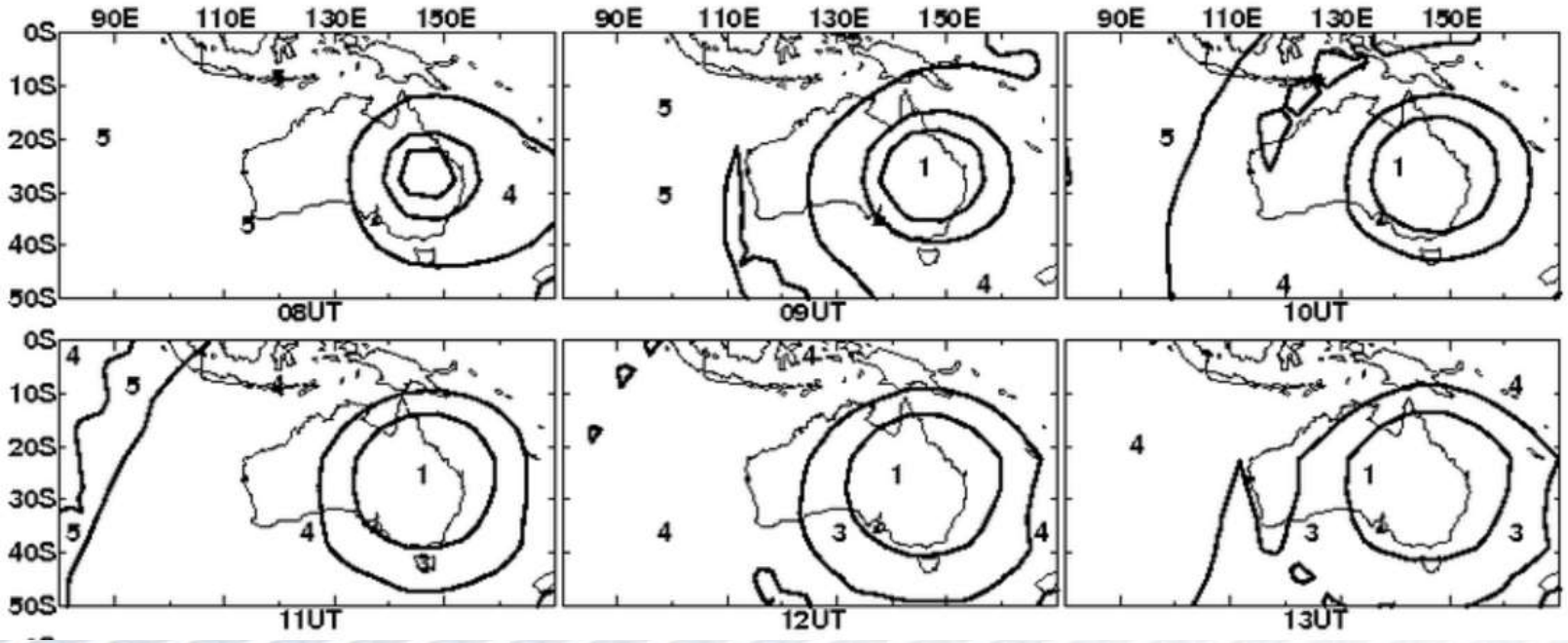
Weekly Weather Voice and Radiofax HAPs

RECOMMENDED FREQUENCY CHANNELS FOR CHARLEVILLE- J3E VOICE BROADCASTS FOR THE PERIOD 12-18 JUL 15
CHANNEL/FREQUENCY(KHZ) – 1/ 2201 2/ 4426 3/ 6507 4/ 8176 5/12365 6/16546
NOTE -- AT TIMES, ANOTHER CHANNEL MAY BE USABLE – LACK OF A SUITABLE CHANNEL IS INDICATED BY ZERO
RADIO PROPAGATION CONDITIONS : NORMAL. NO SWFS



"HAP Charts" http://www.ips.gov.au/HF_Systems/1/1/1

Licencing

VHF – no equipment licence needed

- operator licence (yacht club courses)

HF – equipment (ACMA) licence

- operator licence

MMSSI – from AMSA

Mobile Phone

- For bay/coastal – good supplement
- Voice, SMS & Data
- Apps and Smart phone features
- Or dedicated wireless broadband device

- Range – limited line of sight
- Extendable using external antenna
- Amplifiers illegal

Satellite services

- Emerging technology, evolving fast
- Voice, SMS, Data, Trackers
- Handheld and hard wired

- Expensive to use
- Sometimes unreliable

Distress Calls

Three Types of Distress Call:

- **Mayday**
- **Pan Pan**
- **Securite**
- **Silence periods**

Making a MAYDAY Call

Transmit "MAYDAY, MAYDAY, MAYDAY"

Say" This is the (name of the boat three times, call sign once "

Give your position

Report nature of the emergency

Report what assistance is required

Report number of POB and any injuries

Wait for a response, if not repeat

Distress Calls

Have a completed cheat sheet ready which is completed for your boat near the radio so all crew know what to say in a clear & calm way.

Practical #1 – Make call

You are on a yacht called “Hewitts Revenge”

Have just hit a submerged object

Position is 39.44, 146.21

6 persons on board

Taking on water rapidly, suspect sink within the hour, EPIRB is activated

Make a call (take in turns)

Practical #2 – Receive call

You are downstairs when you hear on VHF16 the following, what do you do ?

Mayday, Mayday, Mayday

This is Shawthing, Shawthing, Shawthing VKV7212

We have hit a submerged object and are rapidly taking on water

We have 4 POB, EPIRB is activated and we are preparing to abandon ship

Our position is 39.14, 146.29 and we require immediate assistance

Mayday Shawthing VKV7212

Over

Practical #3 – Make call

You are on a yacht called “Hewitt's Revenge”

Your mast has just collapsed and your engine wont start

Position is 38.21, 147.22

4 persons on board

The crew is working to remove mast 1st

Make a call (take in turns)

Practical #4 – Make call

You are on a yacht called “Hewitts Revenge”

You are passing through Port Philip heads and have noticed semi submerged fishing net and buoys with thick rope trailing

Make a call (take in turns)

Practical #5 – If time MOB

You are in the ocean, a person has fallen overboard, you have lost sight of the person

Conditions aren't great, you are having trouble finding the person

Make a call (take in turns)

HF Radio Better Explained

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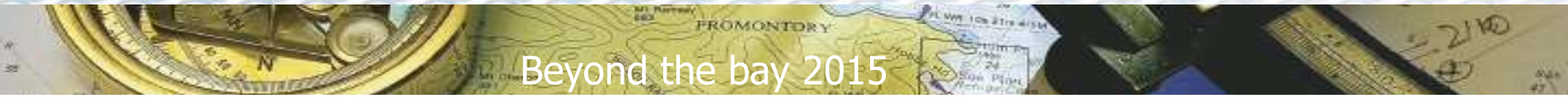
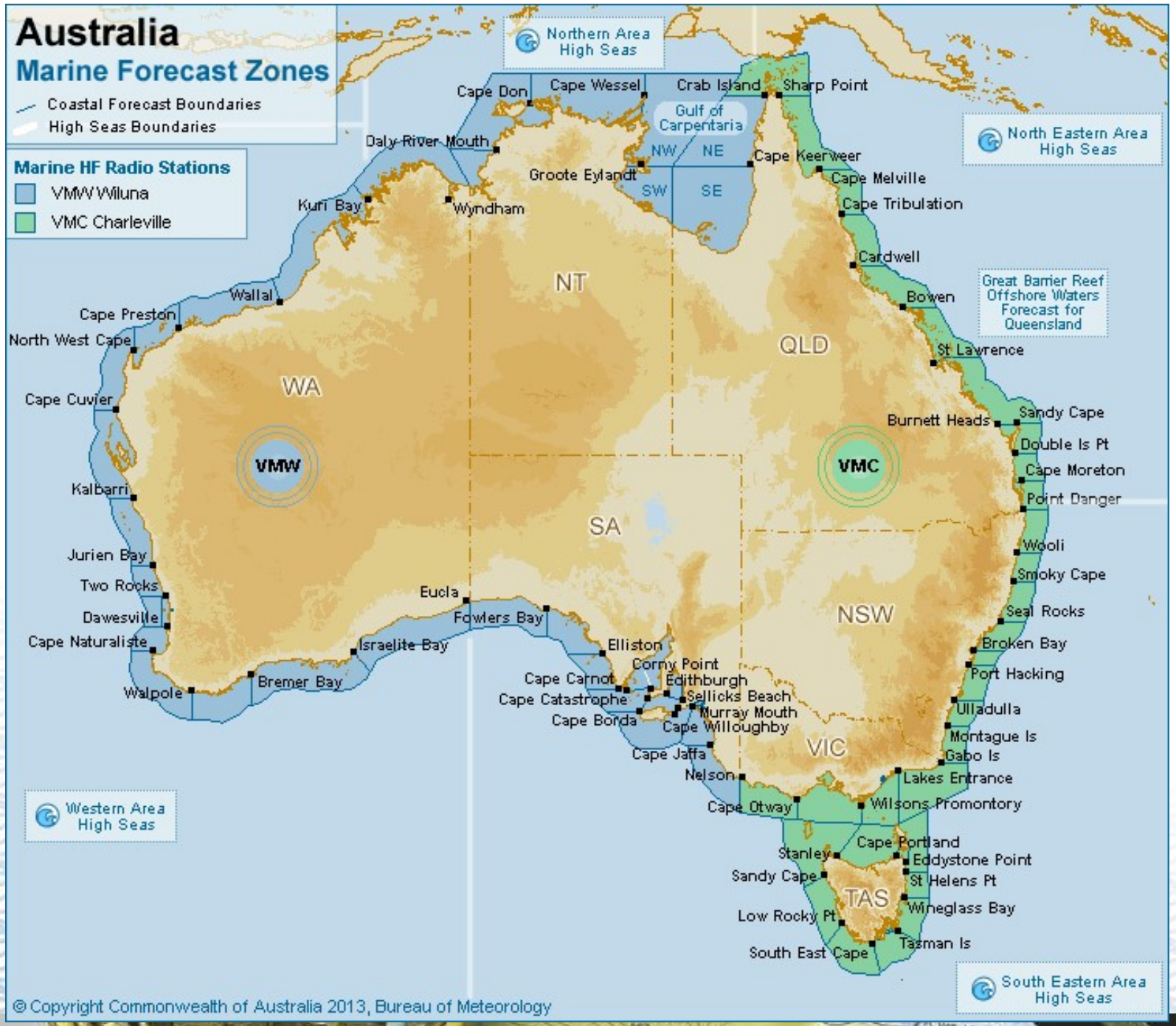
Structured Communications

- Broadcasts (weather or shipping hazards)
  - HF – VOICE and FAX from BOM
    - Some coastal stations read BOM bulletins.
  - VHF – Voice from BOM and coastal stations

- Position reporting Skeds
- All digital formats





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Example - Ocean Warning

Ocean Wind Warning 6

40:2:1:04:55S075E35095:11:00

IDY21050

SECURITE

HIGH SEAS WEATHER WARNING FOR METAREA 10

Issued by the Bureau of Meteorology National Meteorological and Oceanographic

Centre

AT 0211UTC 28 JULY 2014

GALE WARNING FOR WESTERN AND SOUTHEASTERN AREAS

PLEASE BE AWARE

Wind gusts can be 40 percent stronger than the averages given here, and maximum

waves may be up to twice the height.

Situation

Vigorous westerly flow over the Southern Ocean with embedded lows and troughs.

Cold front developing near 44S080E 46S105E 50S113E at 280600UTC. Forecast

43S080E 43S103E 46S117E 48S119E at 281200UTC and 42S080E 43S090E 42S108E 41S121E

43S126E to low 964 hPa near 47S125E at 281800UTC.

Area Affected

Bounded by 44S080E 40S080E 42S099E 36S117E 37S140E 39S149E 41S152E 50S150E

50S147E 46S136E 50S127E 50S084E 47S095E 44S080E.

Forecast

W quarter winds 34/45 knots west of 37S135E 45S146E 50S146E at first, extending

to west of 37S140E 46S151E by 281200UTC and west of 152E by 290001UTC. Winds

easing below 34 knots west of 36S110E 50S085E by 280600UTC, west of 36S116E

47S095E by 281200UTC and west of 36S122E 47S095E by 290001UTC. Very rough seas.

Heavy swell.

WEATHER MELBOURNE

Digital Data

Why

- Reliable
- Persistent
- Easy to understand
- Some is two - way

Weather Fax

Facsimile broadcast over HF radio

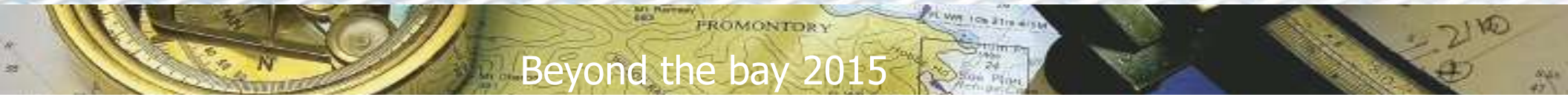
24 hour schedule – no repeats

60 different charts ~ 30 minutes each

Equipment / software required

Email / Internet / GRIB

- Need 2 way communications
  - HF modem (SailMail)
  - Wireless Broadband (mobile phone)
  - Satellite



Practical #1 – Receive weather fax

Instructor will run people through the process

Practical #2 – Receive GRIB file

(Only if time)

Instructor will run people through the process