

# Getting to Know Your HAM Radio

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# Amateur ("HAM") Radio

the

*original*



# Uses

- Emergencies (Our focus)
- Hobby

When other technologies fail,  
HAM works.

# I. Radios



# What do you need to get on the air?

- When will you use your radio?
- What's your budget?
- How many gadgets do you need?



# Emergency radios

should be

- \* simple

(so you'll USE it)

- \* reliable

- \* inexpensive

# Radio Controls/Functions

*Find...*



- **Power** – On/off
- **Volume**
- **Squelch** – Stops background noise.
- **PTT** – “**P**ush **T**o **T**alk” button

- **Alpha-Numeric Keypad**
- **LCD Display**
- **Menu**
- **Scan** – Scans (scrolls through) specified channels.
- **Channel** = Number assigned to a frequency.





- **Lock** – Disables controls to prevent accidental changes.
- **Offset** – Repeater transmit vs. receive frequency difference.
- **Microphone Jack**
- **Earphone Jack**
- **External Power Jack**



- **VFO** – Displays **temporary** frequency **number.**
- **Memory** – Displays frequency **number / name.**
- **Tone** – “PL” (**P**rivate **L**ine) = Code radio sends to repeaters or other radios to turn on receiver programs.
- **TX Power** – **Transmitting power** measured in watts. (RX = Receiving)
- **High/Low** – Sets radio to high or low **transmitting power.**





## **Voice Operated Transmission (X)**

Enables unintended hands-free calls like a cell phone "pocket call"

**If it's there, BEWARE!  
Don't use it.**

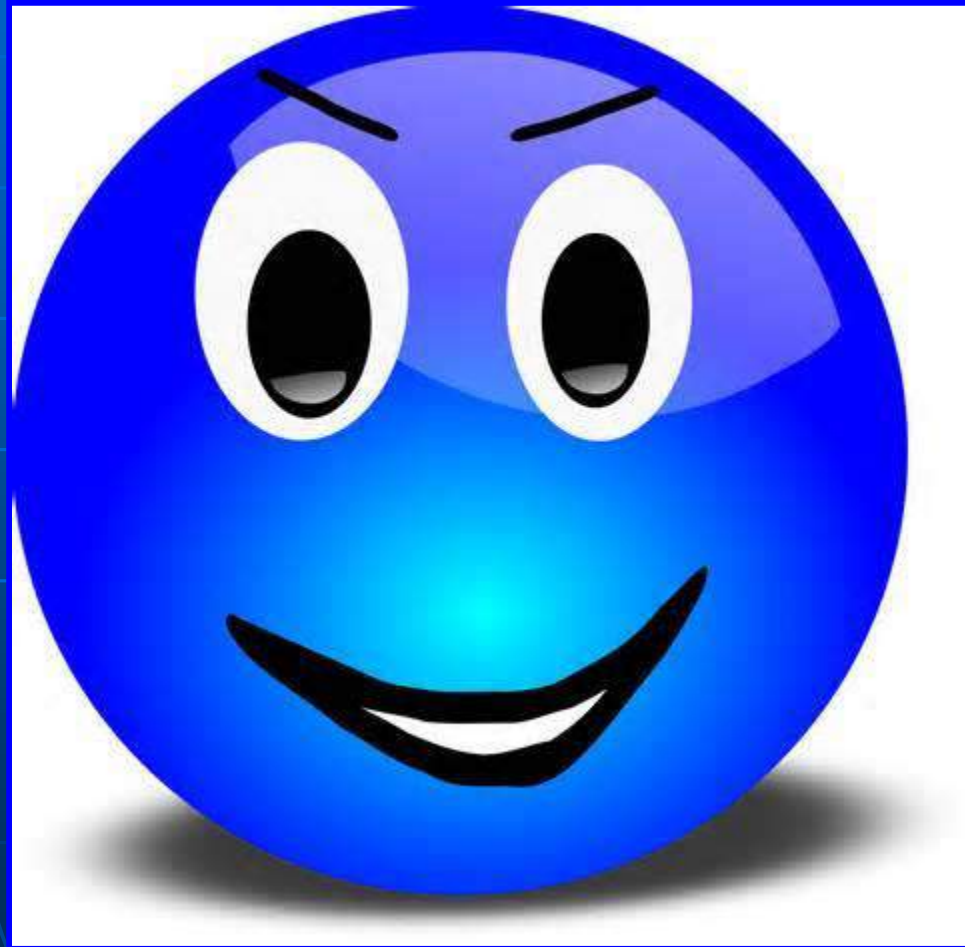


# Can you find...

- **Off / On**
- **Push To Talk**
- **Squelch**
- **Frequency Display**



Now you're talkin' !



# What kind of radio...

- Do you have?
- Should you get?

# Used or New?



## Older Used Models

- Lots available
- Inexpensive
- Can cost more to program
- Bigger, heavier

# New Radios

## Handheld ("HT")

- Cost vs. quality
- Domestic vs. import



## Mobile Station

- Auto dash-mount
- Can serve as mini "base station" at home or Red Cross shelter, school, etc.



# Antennas

- Short ("rubber duck" usually comes w/ radio)

- Medium (flexible)

- Auto (magnet mount)



# Programming



## Commercial Software

<https://www.rtsystemsinc.com/>

<https://www.youtube.com/user/RTSystemsInc>



## Open Source Software

<http://chirp.danplanet.com>

# II. Using Your Radio

## Preparation:

- **KEEP** antenna vertical
- 
- **TURN** the radio 75° away.
- **HOLD** it 3" from your mouth.
- **PLAN** what you'll say *succinctly*.



# Calling & Listening:

Listen \*Press \* Wait \* Talk \*\*\* Wait \* Release \* Listen

**Listen** Is anyone talking? Check the “traffic” before you “merge”.

**Press** Talk button

**Wait** 1 second

**Talk ...**

Give sign you're calling:

“KE7MOM,”

*Just like phoning “Hi, Mom...”*

Give your call sign:

“This is KE7KID.”

*“...It's me.”*

**Wait** 1 second

**Release** Talk button

**Listen...**

*“ This is KE7MOM. Go ahead.”*

**Press**

**Wait**

**Talk...**

**"Please send money."**

**Wait**

**Release**

**Listen**

*"Ok. Message received. KE7MOM out."*

**Press**

**Wait**

**Talk...**

**" KE7KID clear"**

**Wait**

**Release**

**Listen**

# HAM Speak:

Contact: talk to someone

Doubling: 2 people transmitting at the  
same time

Traffic: messages, something to transmit

Out or Clear: goodbye





Personal  
Details  
On air

# Station Identification

Give your call sign –

When you sign on

Every 10 minutes

When you sign off



# III. OK... Tech Stuff

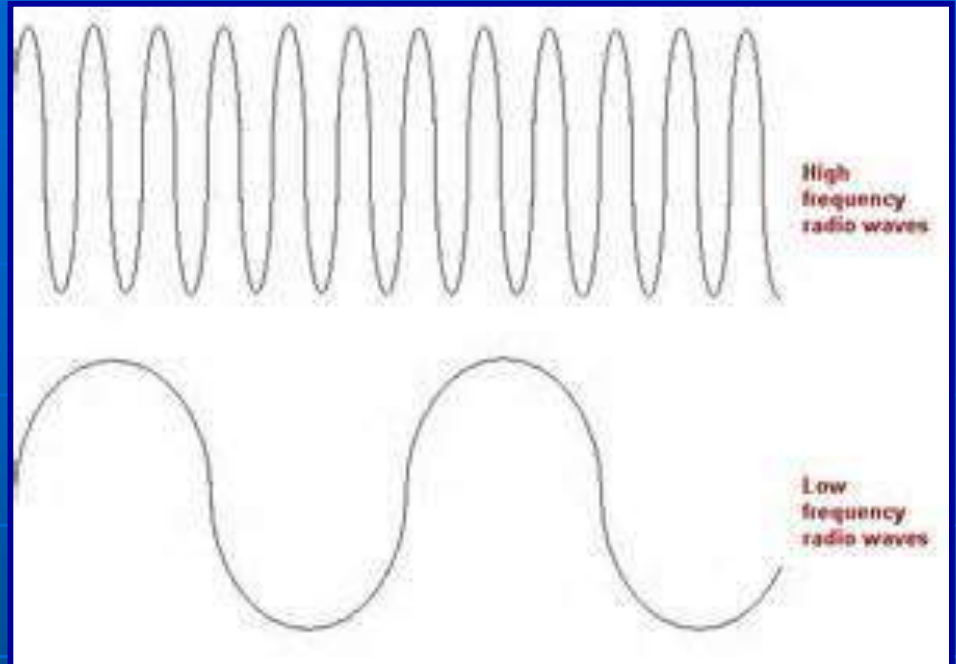


**NOW  
PANIC  
AND  
FREAK  
OUT**

# Frequencies

Radio

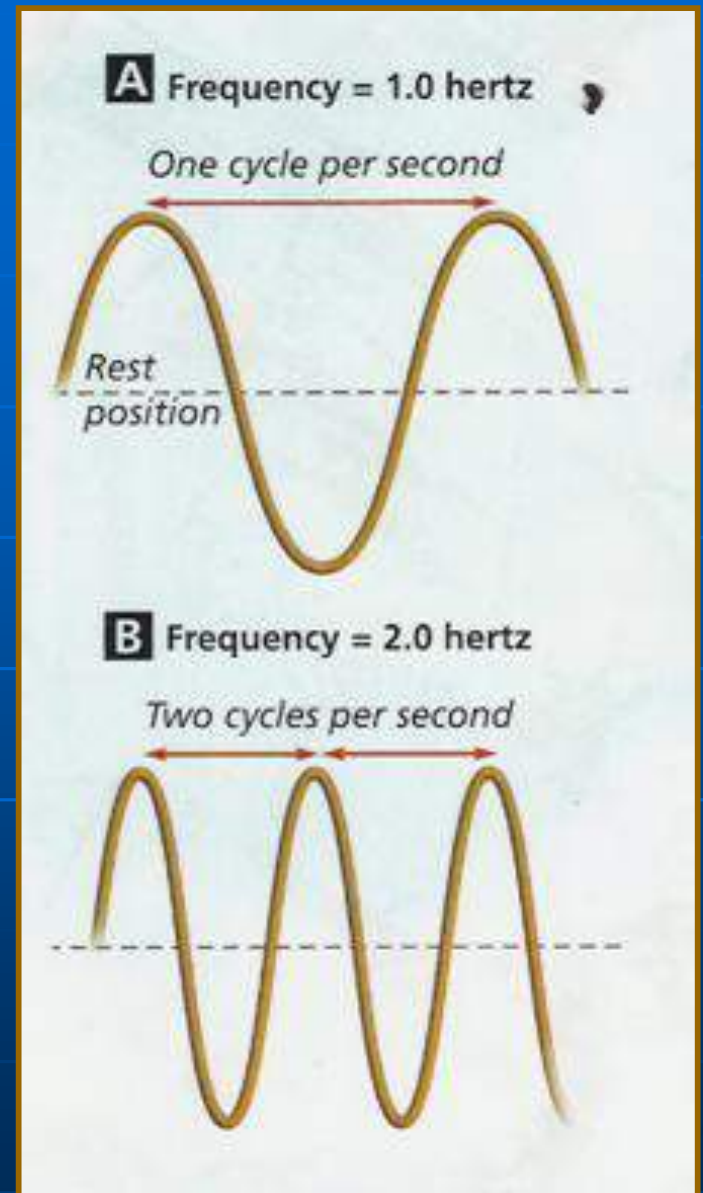
Frequency (RF)



- How frequently the wave hits its lowest and highest points.

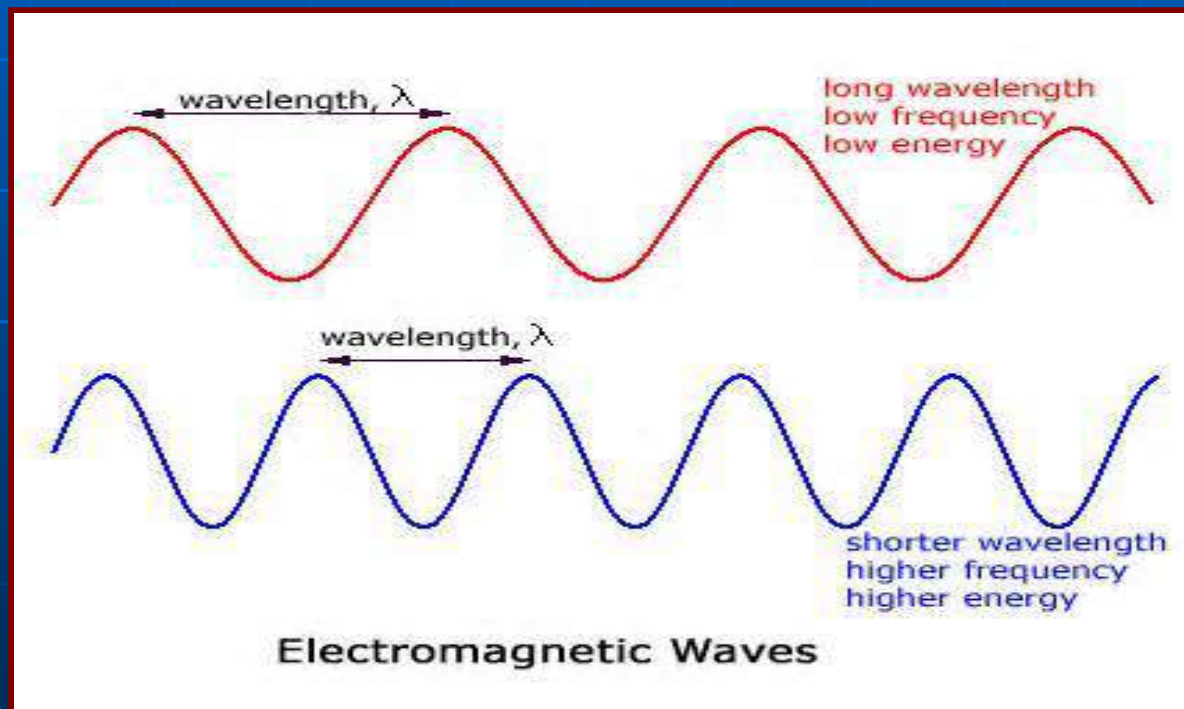
# Frequencies are named by

1. the *cycles* per second



**AND...**

2. the *distance* between points (wavelength)



# WE CAN TALK IN THE LITTLE WAVES. 😊

**NO!**

**HF**  
HIGH

100m - 10m

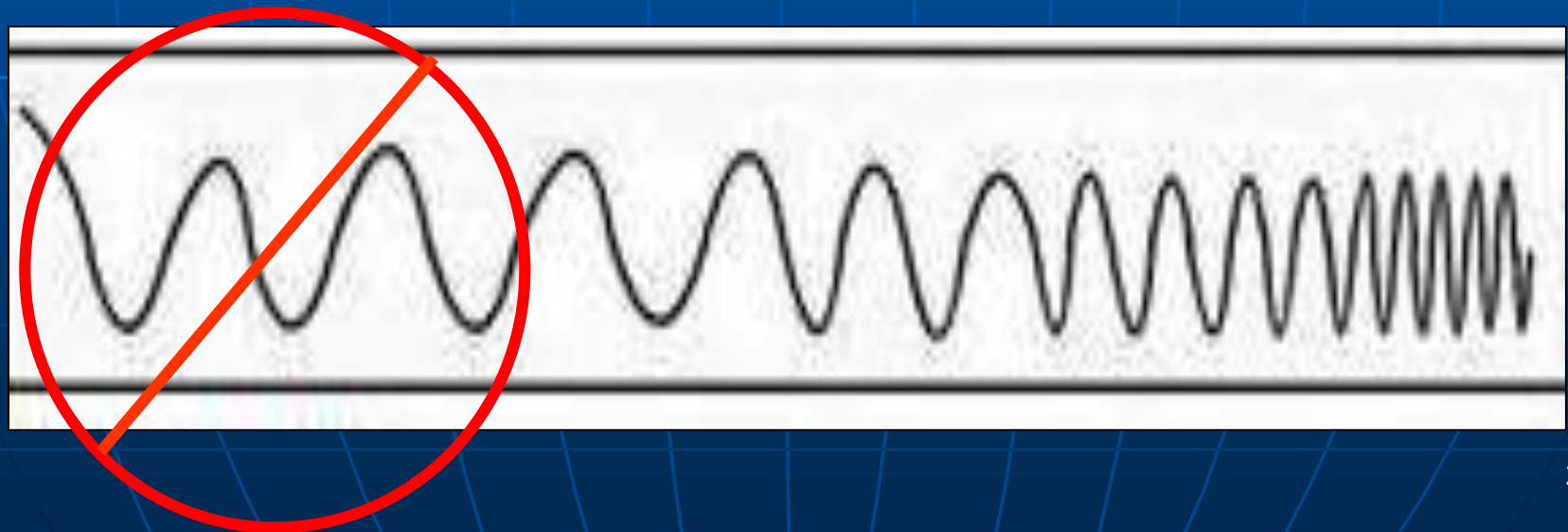
**OK**

**VHF**  
VERY high

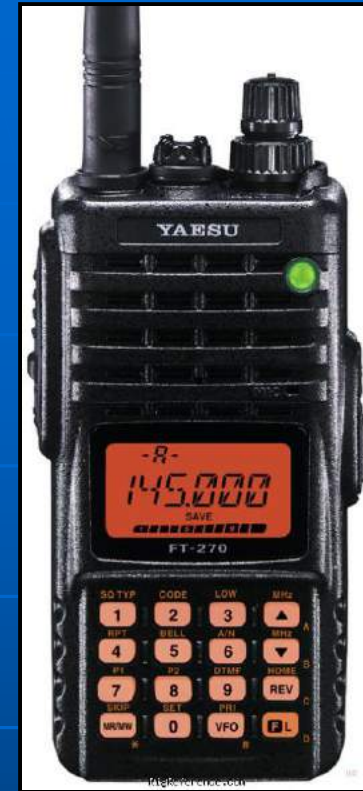
10m - 1m

**UHF**  
ULTRA high

1m - 100mm



# Your HAM radio is "dual band"



**Very High Frequency = 1 band**  
**+ Ultra High Frequency = 1 band**  
**= 2 bands**

# Channels on your Radio:

**Channels** are “Pigeon holes”  
for frequencies



- Radio-dependent

(Your “channel 1” can be a different frequency  
from someone else’s “channel 1.”)

- Team radios must have  
matching channels!



# Simplex vs Duplex

## Simplex A→B

Like a "Walkie Talkie"

Line-of-Sight

Uses **NO** repeater.

- **FRS\*** (Family Radio Service - No license)
- **GMRS** (General Mobile Radio Service)
- **HAM**

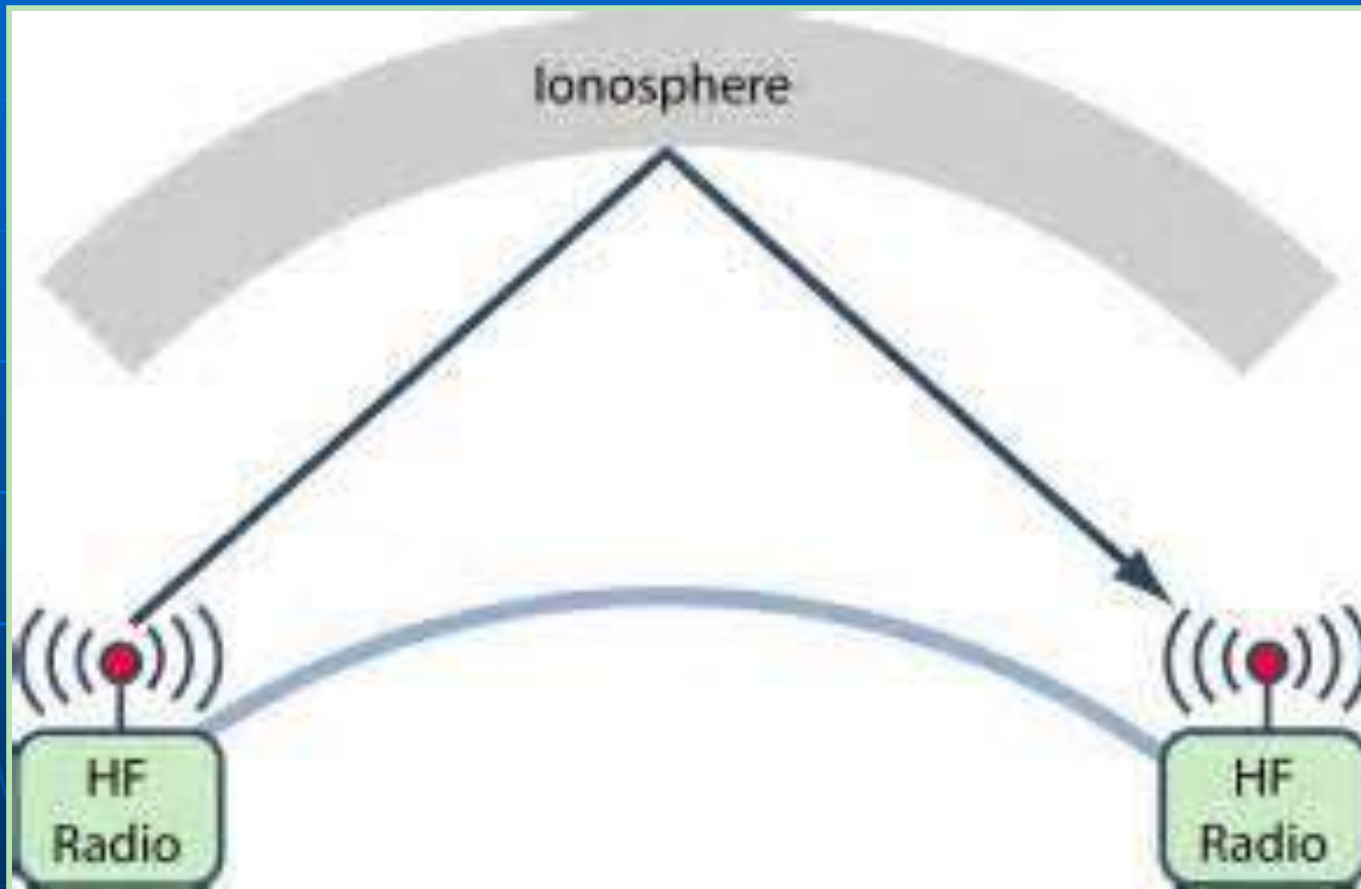




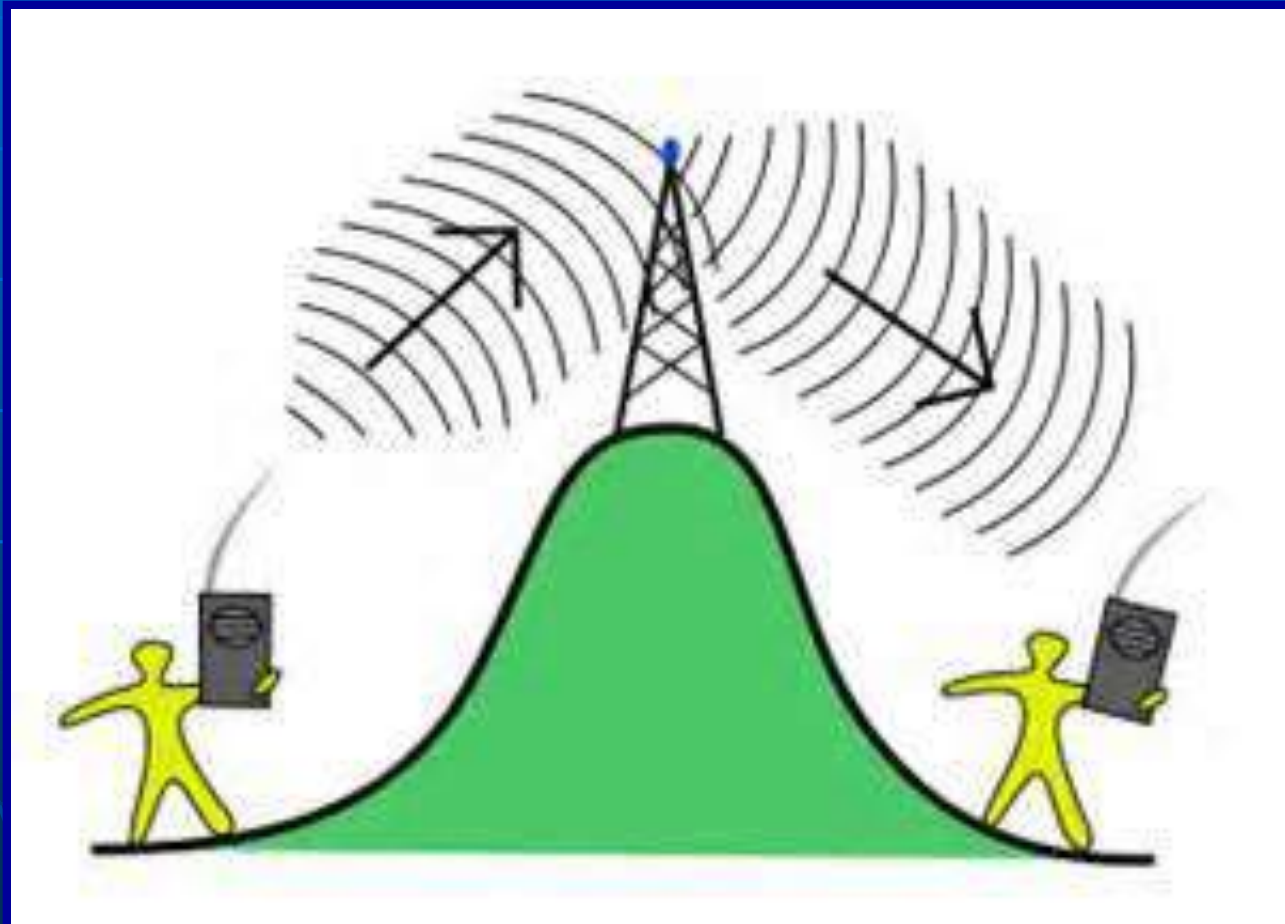
# Duplex: A → repeater + repeater → B Beyond Line-of-Sight



# Advanced Licenses: (the Big Waves)



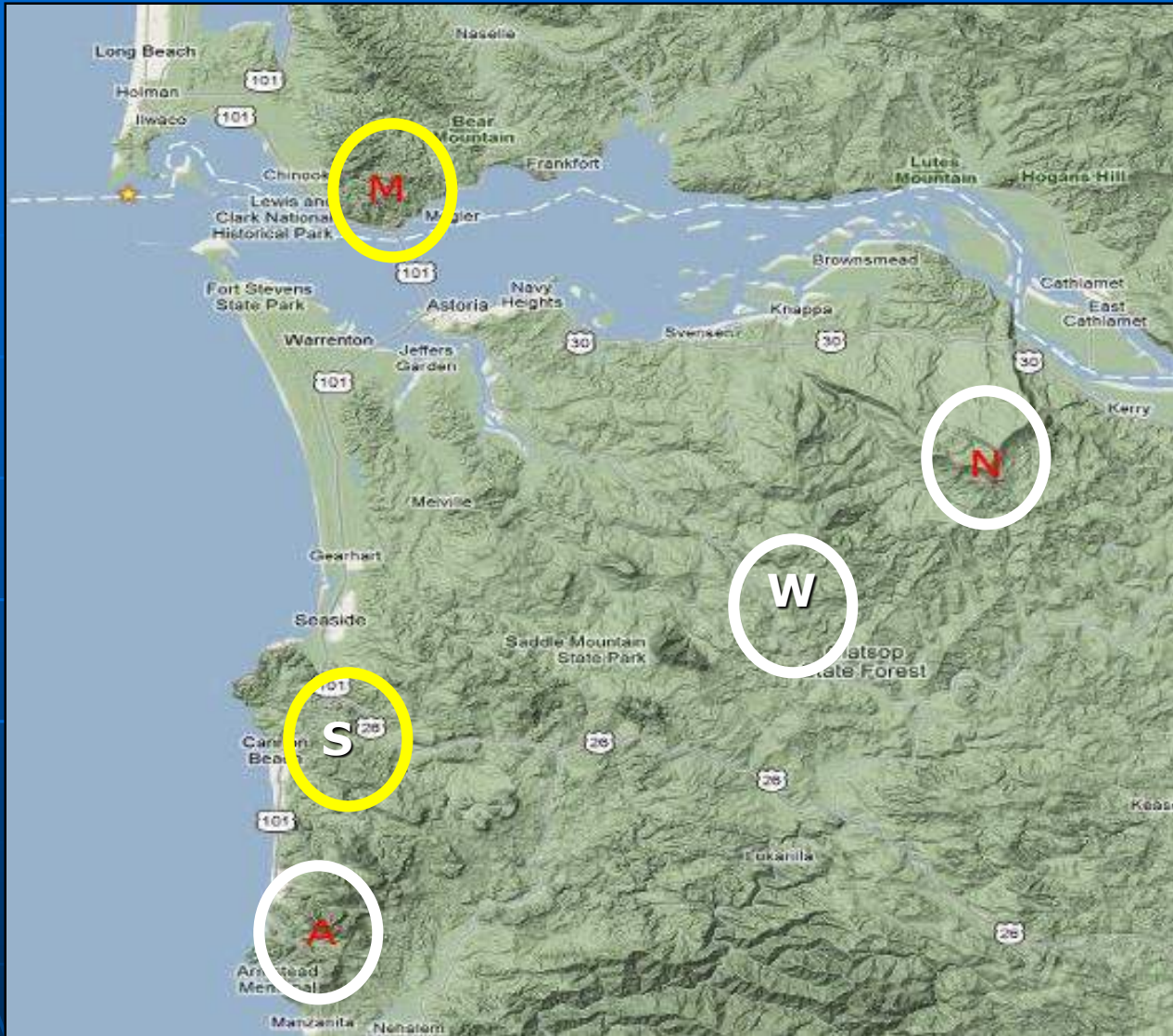
# Repeaters you'll be using:



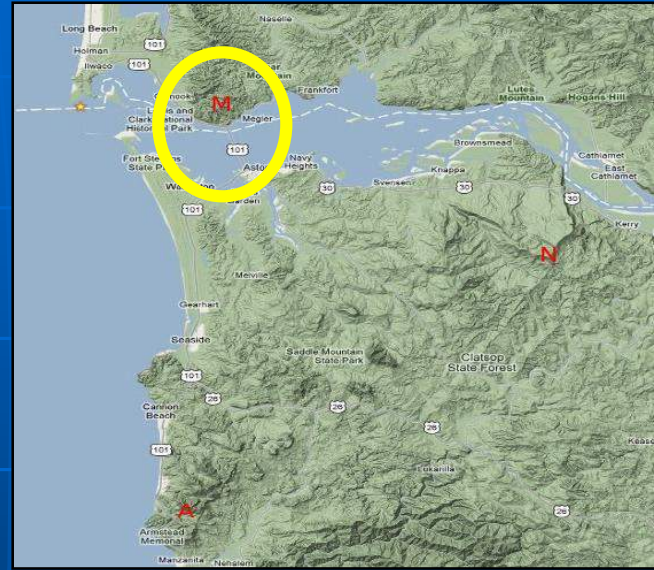
# Local Repeater Frequencies

- **145.45** Megler (SEARC)
- **146.66** Wikiup
- **146.76** Nicolai
- **145.49** STARS
- **146.74** Arch Cape



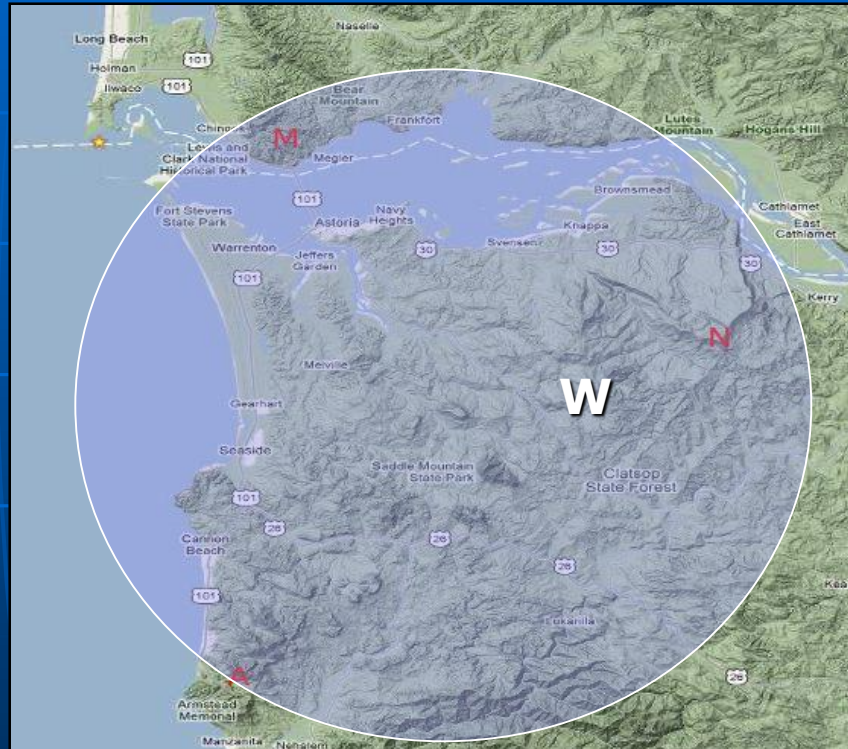


# MEGLER 145.45



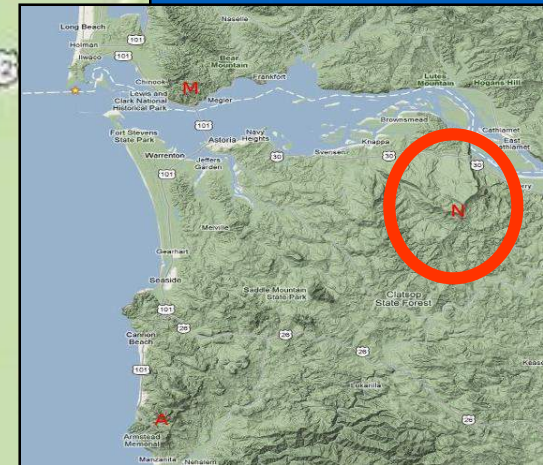
# Wikiup

146.66



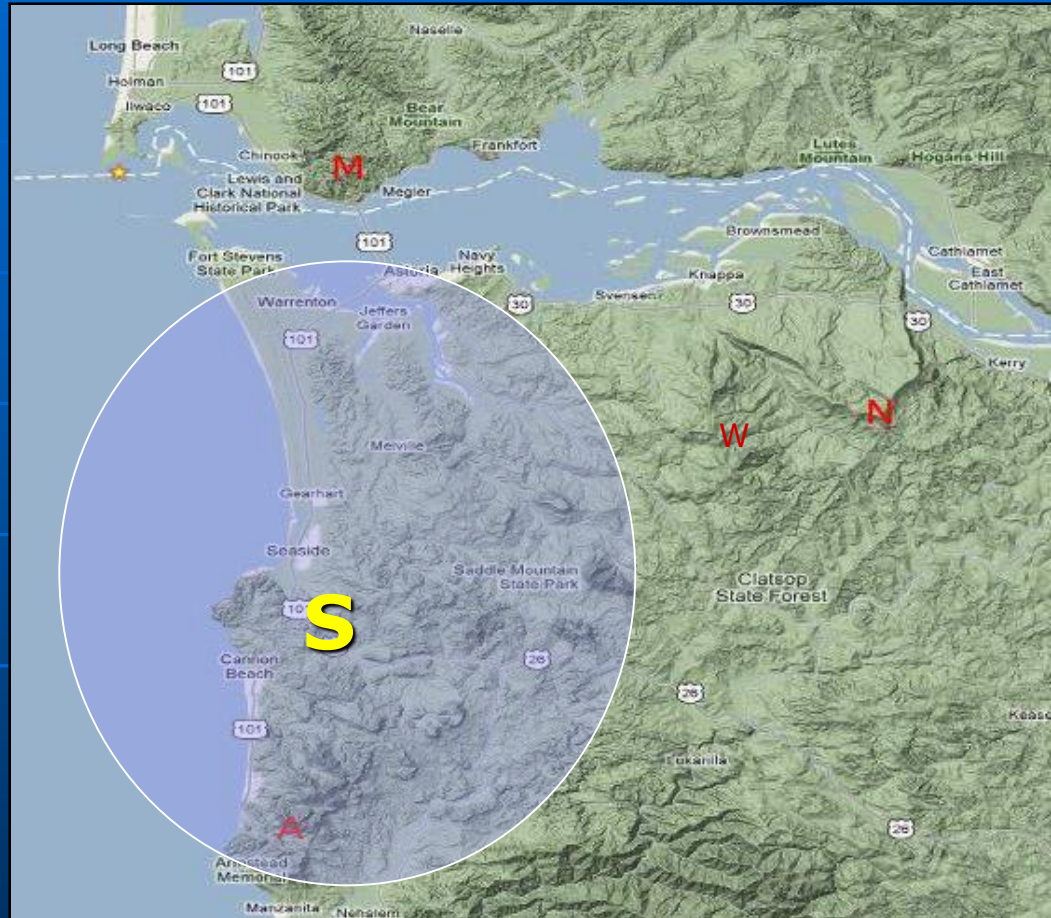
# Nicolai

146.76



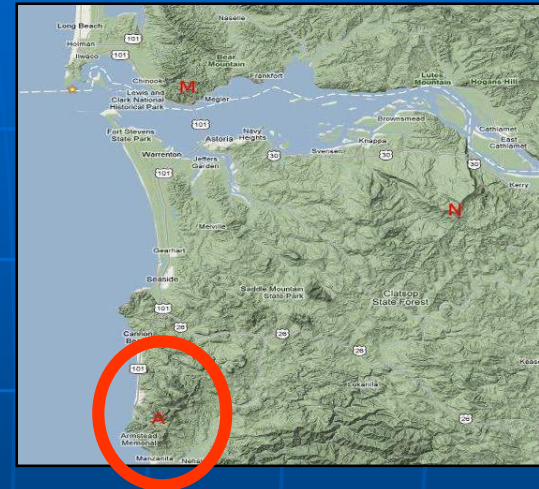


**STARS**  
**145.49**



# Arch Cape

146.74



# IV. PRACTICE NETs



So DO it!

# Radio NET Defined:

3 or more  
people  
talking =

**Informal  
NET**



# Add “NET Control” person:

for a

**Directed  
NET**



# So how do I check in?



First time on  
this NET?

Don't check in  
just yet.

**Listen...**



If you have  
a MENTOR  
on the NET,



you'll be added to the ROSTER  
in advance  
and NET Control will call you  
to check in.



If not, wait until the end.

NET Control will ask for:

**“Late, Missed, or  
Visitor Check-in’s”**

That’s **YOU!**  

“NET Control, this is KZ7ZZZ.  
My location is \_\_\_\_\_.  
No traffic.”

*Easy !!!*





You will be welcomed to the NET  
& added to the roster for  
the next net...



**American  
Red Cross**

...as an  
important  
part of the  
team.



*medical  
reserve  
corps*

