RADIOS

BB
OUTDOORS COURSE 2006

PART 1

CB RADIOS

Why talk about radio's

- Radio's are useful for general communication and for emergency situations.
- Mobile Phones don't work always work in the bush and are expensive
- Just about everything these days uses radio waves, so it's good to know something about them.
- Eg Television, AM/FM radio, CB Radio, HF Radio, remote control cars, GPS systems, Mobile phones, garage remotes, etc.

SOME RADIO'S

HAND HELD CB RADIO UHF

MILITARY MANPACK
VHF RADIO

VECHICLE CB RADIO UHF

CB RADIOS

- CB stands for Citizens Band. Anyone is allowed to use a CB radio.
- You can’t just use any frequency for any purpose. Different frequencies are set aside for different uses.
- CB’S can be Hand held, or mounted in vehicles or buildings.
- There are two main types of CB 27MHZ and 477 MHZ

CB RADIOS

- 2 Types of CB

- 27 MHZ (HF) – Generally longer range, larger antennas, less features.

- 477 MHZ (UHF)– Clearer, line of sight, shorter range, more compact size, more features. MOST COMMON

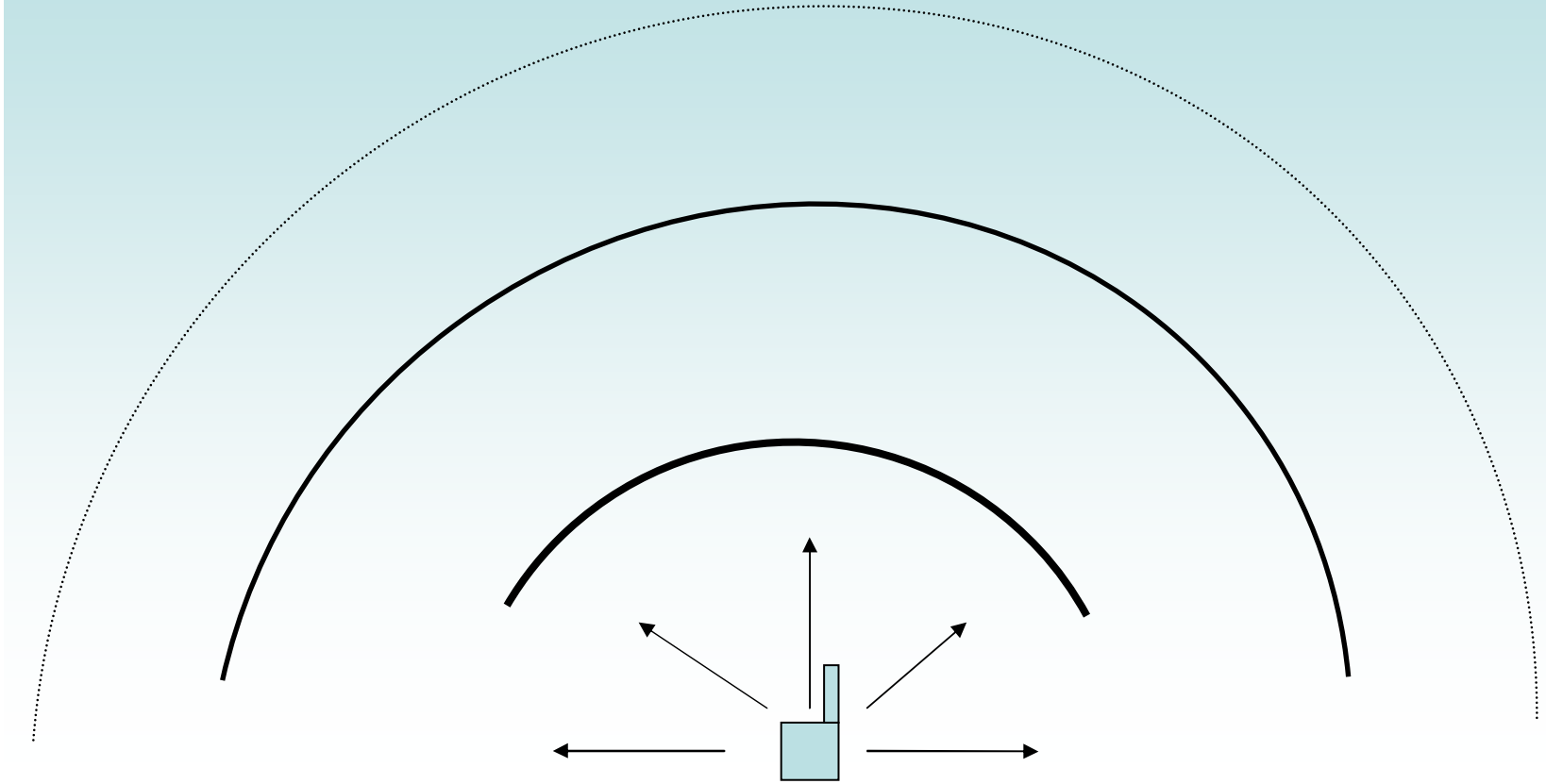
RANGE

- 27 MHZ - up to about 30km
- 477 MHZ - 5-20Km.
  Handheld units up to 5km.

These figures will vary depending on particular situation

CB CHANNELS – Channel designation for CB radio's.

WAVES



Radio Waves propagate in all directions from the antenna, the strength in each direction depends on the antenna setup

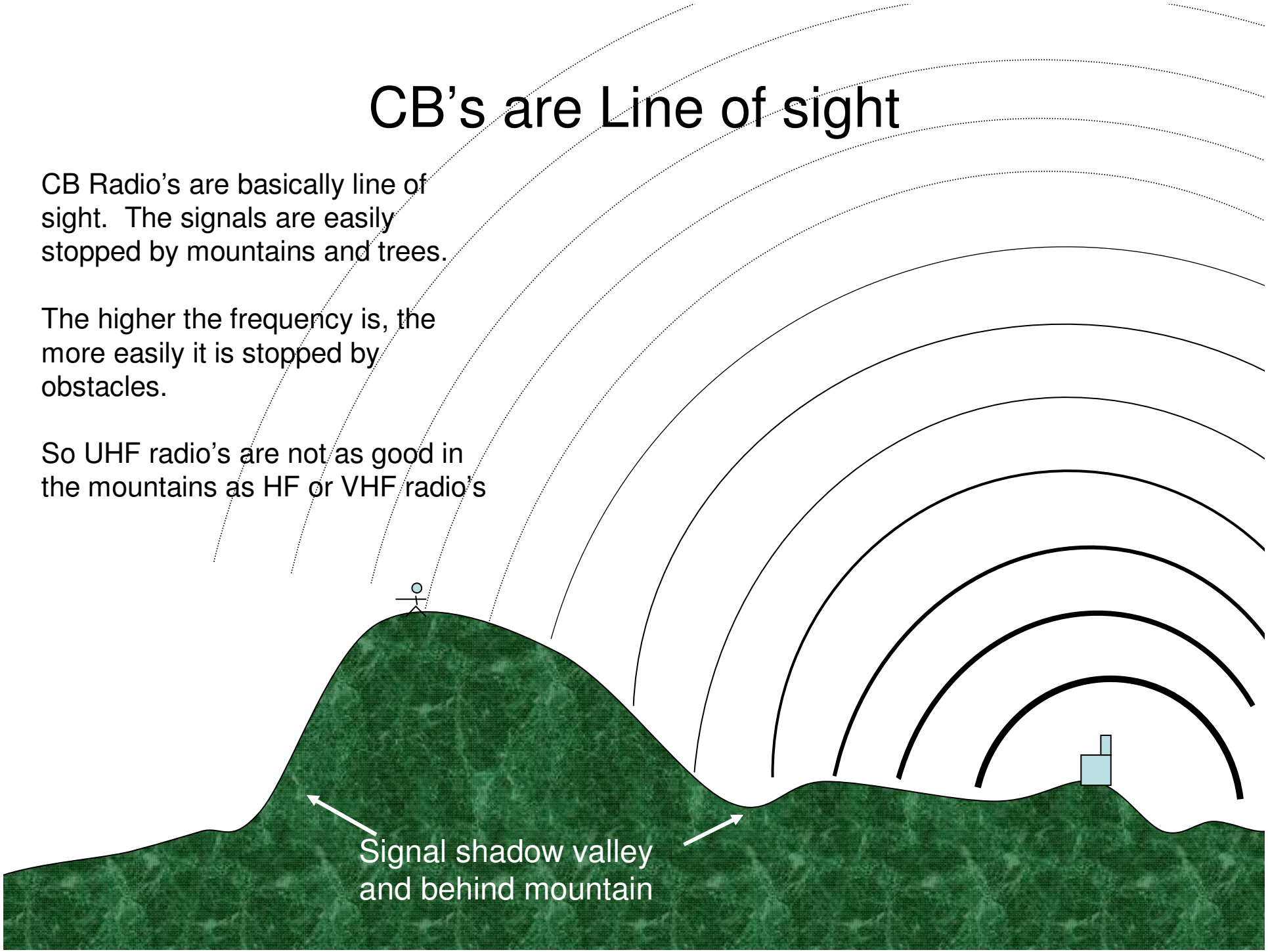
As the signal travels further and spreads out, the signal gets weaker

CB's are Line of sight

CB Radio's are basically line of sight. The signals are easily stopped by mountains and trees.

The higher the frequency is, the more easily it is stopped by obstacles.

So UHF radio's are not as good in the mountains as HF or VHF radio's



Using a CB

Before you leave

- Do a Radio Check (call each other to check it is all working)
- Choose a channel to use, make sure everyone knows which one.
- Use the correct channels for conversations and Emergency.
- Check Radio condition and batteries

Having trouble contacting another radio?

- Use higher power setting
- Go to the top of a hill or raise your antenna higher.
- Speak clearly and slowly if necessary.
- Move closer to the other person.
- You will normally get better comms over large areas of water and flat or wet ground than dry ground and forrests.
- Do not waste batteries, but don't stop trying either.
- Look after your radio and it's antenna. It could be your best lifeline in an emergency.

Other stuff

- HF CB's (27MHz) generally have better range than UHF CB Radios but are not as clear.
- Do not interrupt in the middle of conversations, it gets very confusing.
- For long distance outback travel you would use a HF radio or Satellite phone. CB radio range is too short.
- Look after your radio and it's antenna. It could be your only lifeline in an emergency!

PART 2

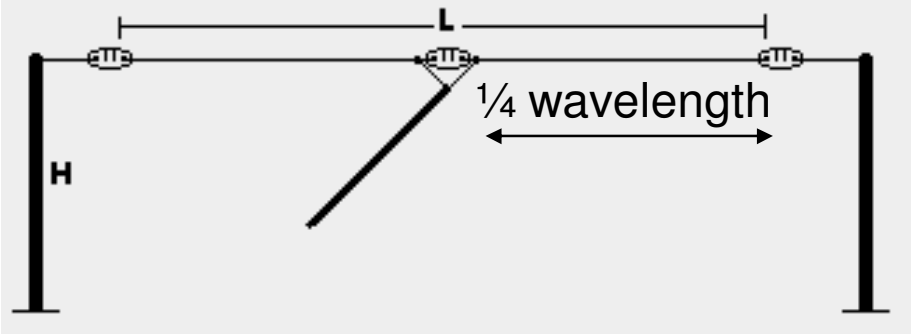
ANTENNAS, FREQUENCIES AND OTHER RADIO'S

FREQUENCIES

RADIO FREQUENCIES – Which frequency for which application?

Antenna length

- The antenna length of any radio depends on the frequency.
- The antenna is usually about ¼ to 1 wavelength long.
- The *longer* the wavelength the *longer* the antenna.
- The *Lower* the frequency the *Longer* the antenna



Typical HF antenna

Antenna length

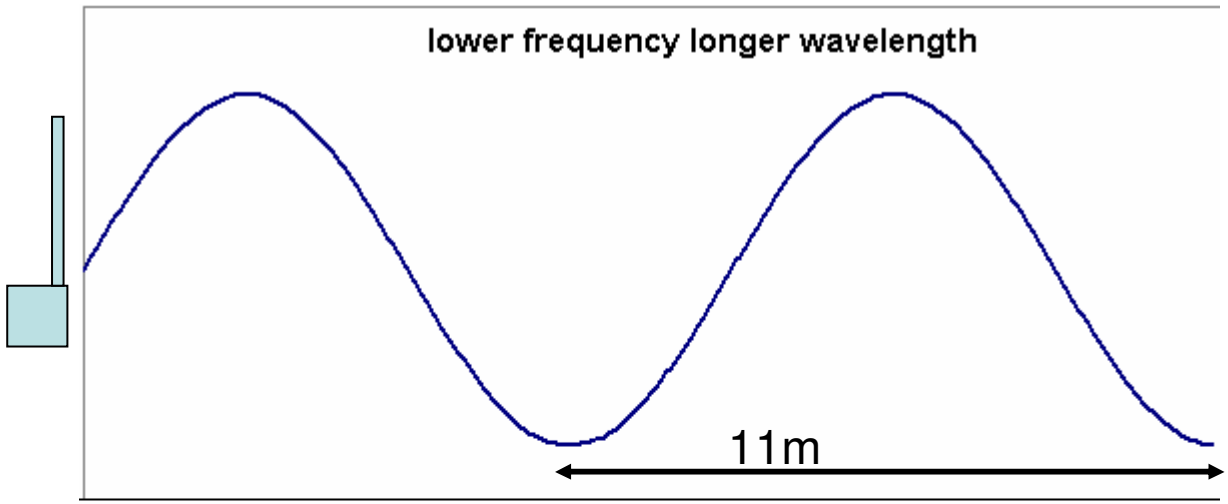
- For a 27 MHZ CB the antenna length would be about 2.6m

- For a 477 MHZ CB the antenna length would be 15cm
- See excel calculator

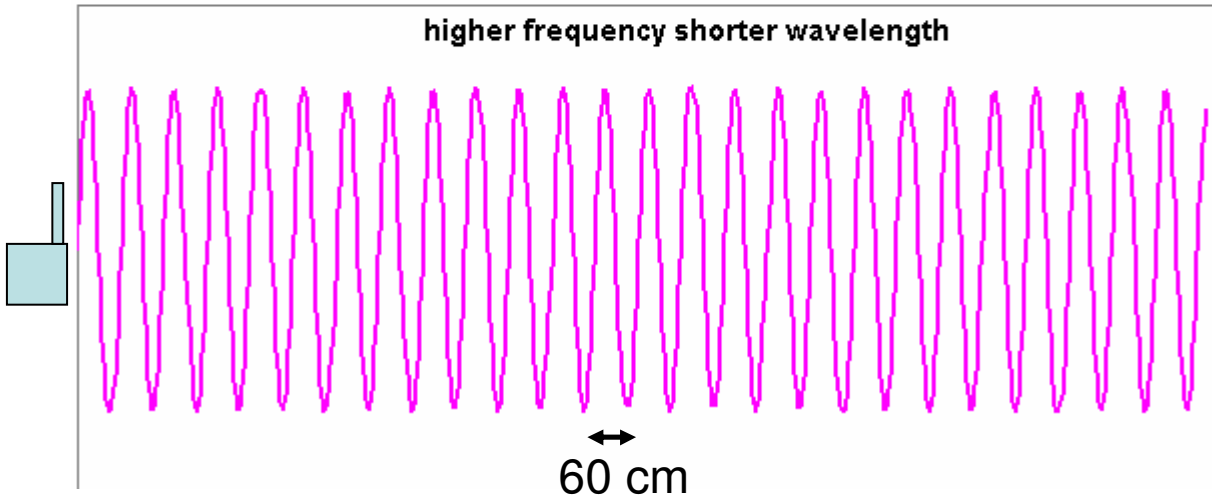
- Which one do you think is easier to carry around!

- People don't like huge antennas hanging around in their radio's and phones so antenna wire is often coiled around into circles to make it smaller.

Frequency and wavelength



27 MHZ CB



477 MHZ CB

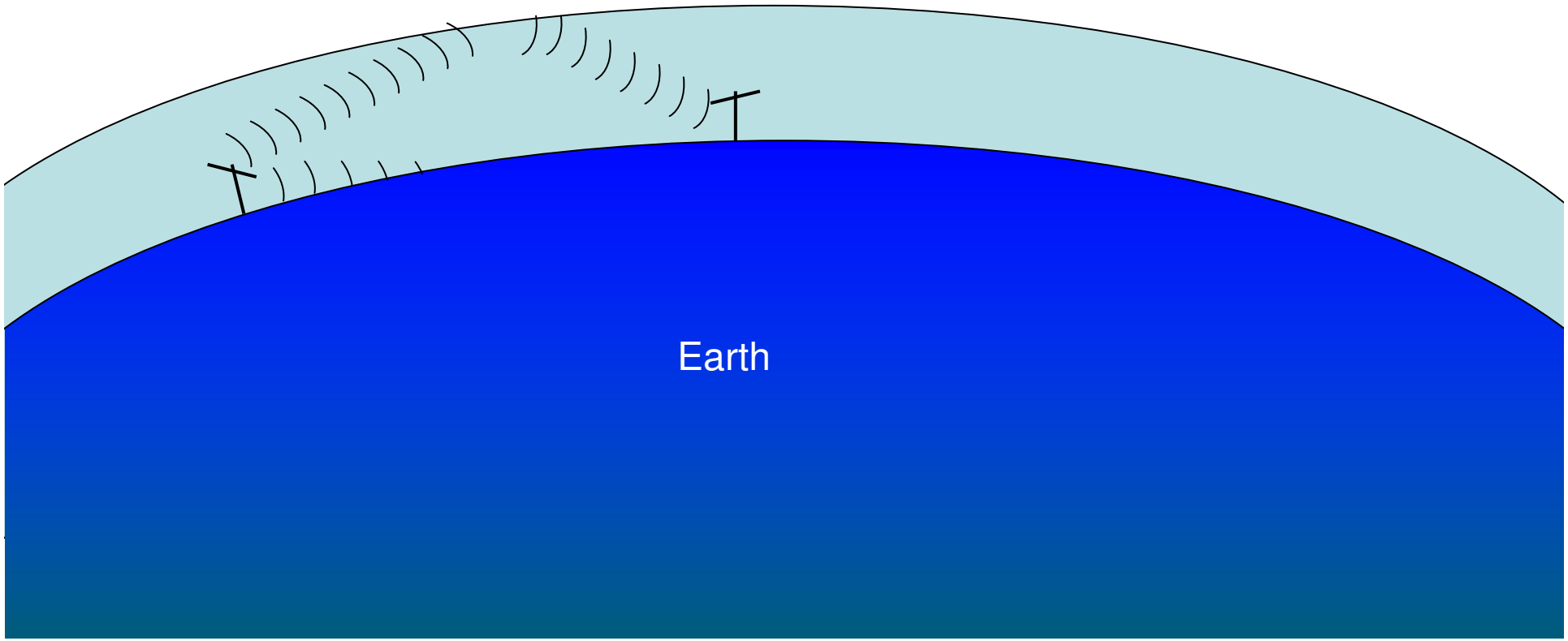
HF RADIO'S

HF RADIO'S

- HF RADIO'S ARE EXCELLENT FOR LONG DISTANCE COMMUNICATIONS
- ESPECIALLY OVERSEAS AND OUTBACK COMMUNICATION
- LICENCES ARE REQUIRED TO USE THE DESIGNATED FREQUENCIES

HF RADIO

- Sometimes HF frequencies can bounce of the earths ionosphere and travel overseas.



HF RADIO

- These frequencies can travel thousands of kilometers.