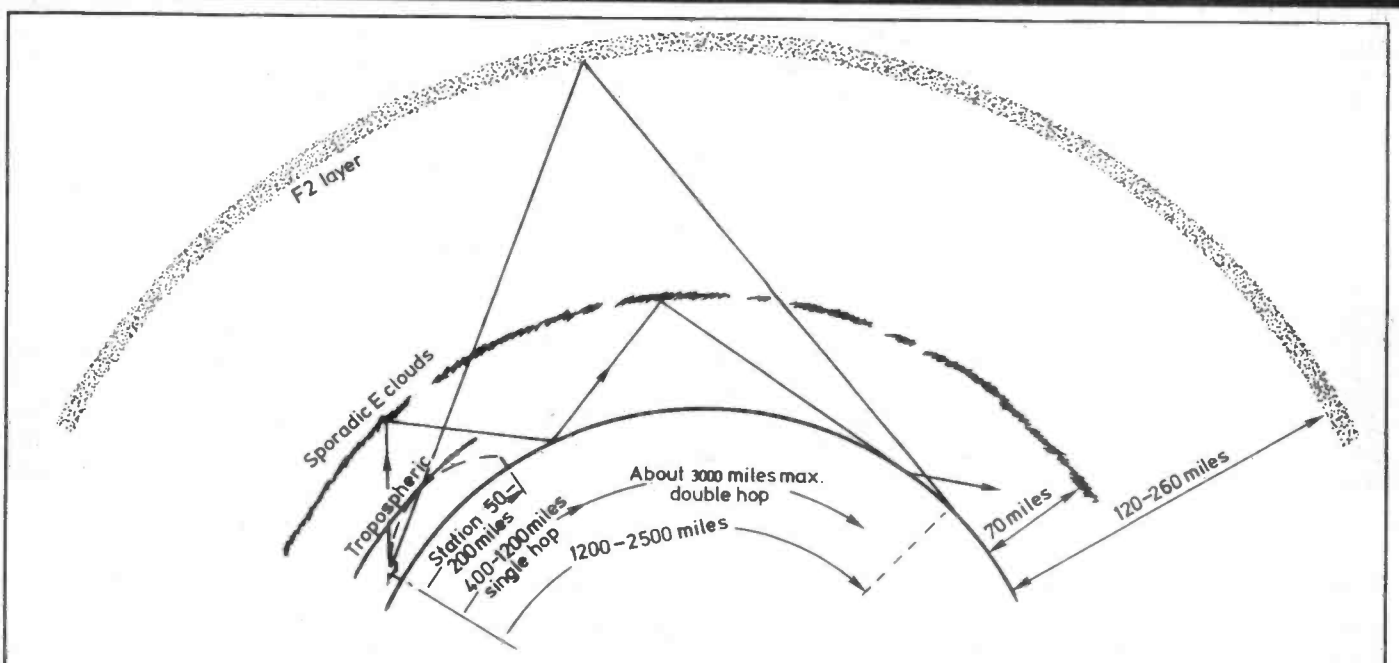

MAIN 10 metre propagation modes

mirror and signals are readily reflected at good strength. On the other hand, the areas covered at each end of the path will be relatively small. This makes activity appear low — especially if the local time at the other end of the path corresponds with a period when activity would be low anyway.

This is one of the reasons why 10 metres is famous for signals suddenly appearing from an apparently dead band — one minute you can be hearing nothing, and the next working a juicy piece of DX as you find a path which coincides with some activity. Low power can give some surprising results under these conditions, so a CQ on what appears to be a dead band can be very worthwhile.

Backscatter

You may have heard weak and watery signals from other British and European stations when they have been working into some other part of the world at the same time. The phenomena is known as 'back-scatter', and occurs because whenever the reflected signal hits the earth, a small part of it is scattered in all directions. When the F2 layer is highly reflective, some of this scatter will be reflected back to the source area again, giving rise to these very weak signals.

This mode of communication works best using CW and, if you are using beams, you need to direct this towards the DX location, *not* at the station you are hearing, otherwise the signal will almost certainly be weaker, if audible at all.

Sporadic-E

This is another term familiar to the VHF operator, but equally responsible for propagation on 10 metres. The distances involved are usually 400-1200 miles and the mode is useful for working into Europe. When you find the band full of strong European stations, Sporadic E short skip will be the reason.

The reflection occurs as a result of the formation of highly ionised cloud layers at about the height of the E layer (70 miles). They are random in nature, and only last up to a few hours, hence the name. They are thought to be caused by wind-shear, and are not directly related to Sunspot activity, so they can happen at any time within the Solar cycle.

The Es season is May-August, with another small peak in midwinter. During thr summer it can occur at any time of the day, although early evening and mid-morning are the most likely times.

Due to the height of the clouds, a single propagation hop has a maximum distance of around 1200 miles. However, in the summer when large areas of cloud may form, multiple hops via more then one cloud are achievable, extending the communication range to 3000 miles or more.

The antennae and power needed for Es are highly non-critical. Anything from a piece of wet string to a beam will work, and low power will often be more then adequate. Received signal strengths can be extremely strong, and, as the phenomena is short lived, in the summer the band can often be full of activity one hour, and apparently dead the next.

Tropospheric propagation

The 10 metre band is largely ignored for local communications, but is in fact capable of supporting this well up to about 50-70 miles at any time of the day or night, and at any season. With the decrease in the likelihood of DX QSOs during the coming years, anything that increases the usage of the band will be welcome.

Tropospheric propagation at 28MHz is much like VHF, although not so markedly affected by the weather. Signals will follow an air mass boundary such as the common temperature inversion, where a boundary forms by one layer of air being cooler than another by virtue of the differing densities. The best conditions occur in the evening as things are cooling, and just before sunrise. A reasonable aerial helps in keeping the angle of radiation low,