

GPS Coordinates

As amateur radio operators, and especially as emergency communicators, we may be called upon to give or relay GPS coordinates to identify the location of a person, accident, incident, resource or some other place on the map. It is important to have a basic understanding of what these coordinates mean and the various formats in which they may be given or requested.

GPS coordinates are given as two sets of numbers. The first number set is for latitude. This is the distance, either north or south, from the equator. The second number set is for longitude. This is the distance, either east or west, from the prime meridian or zero meridian. We know this as the longitude line that goes through Greenwich Village, England.

GPS coordinates may be given in **degrees, minutes and seconds**.

Those coordinates would look something like this: $39^{\circ} 53' 55'' \text{ N}$ $84^{\circ} 10' 33'' \text{ W}$

GPS coordinates may also be given in **degrees and decimal minutes**.

Those coordinates would look something like this: $39^{\circ} 53.92' \text{ N}$ $84^{\circ} 10.56' \text{ W}$

Last, GPS coordinates may also be given in **decimal degrees**.

Those coordinates would look something like this: $39.898666^{\circ} \text{ N}$ $84.176000^{\circ} \text{ W}$

Each of the above examples of GPS coordinates are actually for the same location.

Conversely, coordinates such as $39^{\circ} 53' 55'' \text{ N}$ $84^{\circ} 10' 33'' \text{ W}$ (degrees, minutes, seconds) and $39^{\circ} 53.55' \text{ N}$ $84^{\circ} 10.33' \text{ W}$ (degrees, decimal minutes) would **not** be the same place. Giving the correct number, but in the wrong format, could create an error of many miles. Understanding formats when giving or relaying GPS coordinates is therefore of the utmost importance.