

Latitude and Longitude Formats

Steve Beste

We all know about latitude and longitude written as degrees, minutes, and seconds. The Warrenton Airpark is at 38° 39' 20.433" N, 77° 47' 13.975" W. Call this format **Degrees-Minutes-Seconds**. Other formats are coming into use, however, so be prepared for people to send you coordinates in a notation that you might not be expecting. Consider this listing for the airpark in www.AirNav.com. It shows three formats:

- Degrees-Minutes-Seconds
- Degrees-Decimal Minutes
- Decimal Degrees

FAA Identifier: 7VGO
Lat/Long: 38-39-20.4330N / 077-47-13.9750W
38-39.340550N / 077-47.232917W
38.6556758 / -77.7872153

Which Format to Use?

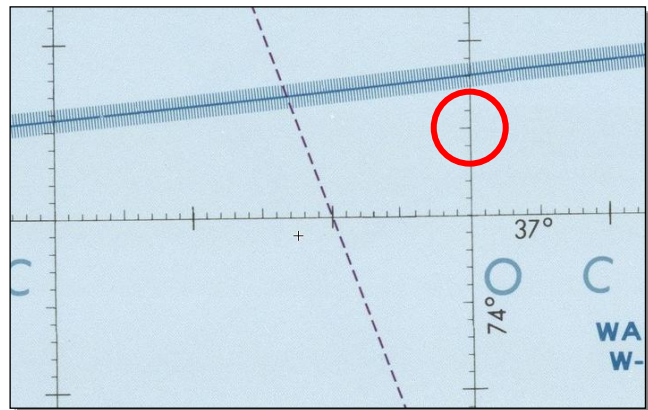
Typically, you'll set your GPS up for one of these formats, and that will become your favorite. I've chosen Decimal Degrees, but here are the tradeoffs.

Degrees-Minutes-Seconds. This is traditional. Everyone understands it – sixty seconds to the minute, sixty minutes to the degree. But it has all the cumbersomeness of any non-decimal system – feet and inches; pounds, shillings, and pence; pints, cups, and ounces. To this old problem, computers have added a new one: the ° symbol is not on the keyboard. This has driven various web sites and GPS makers to invent their own workarounds. AirNav, for instance, uses hyphens, as you see above. But if you copy that into Google Maps, it won't take. Google wants spaces instead of the hyphens. This is Babel.

Degrees-Decimal Minutes. Here, the airpark is 38° 39.34055 N, 77° 47.23291 W. Decimal minutes have replaced the seconds.

The virtue of this notation is that it makes a location easy to find on a sectional chart. Each latitude and longitude tick mark is one minute. It's easy to find 37° 5' N, 74° W in the picture at right. Just count five tick marks up from the 37° gridline.

As a bonus, the tick marks going up and down the chart – the minutes of *latitude* – each equal one nautical mile. That means you can use them as a quick mileage ruler. (The degrees of *longitude* equal one mile only at the equator, so you can't use those tick marks this way.)



Still, to me, this format is gimpy. It echoes John Kennedy's take on Washington as a city with Northern hospitality and Southern efficiency.

Decimal Degrees. In this notation, the airpark is 38.6556758, -77.7872153. To me, this is the way to go. Only one unit of measure: the degree. No figuring out how to enter the ° symbol into my computer or GPS. But how about the other tools I use?

What About the Tools I Use?

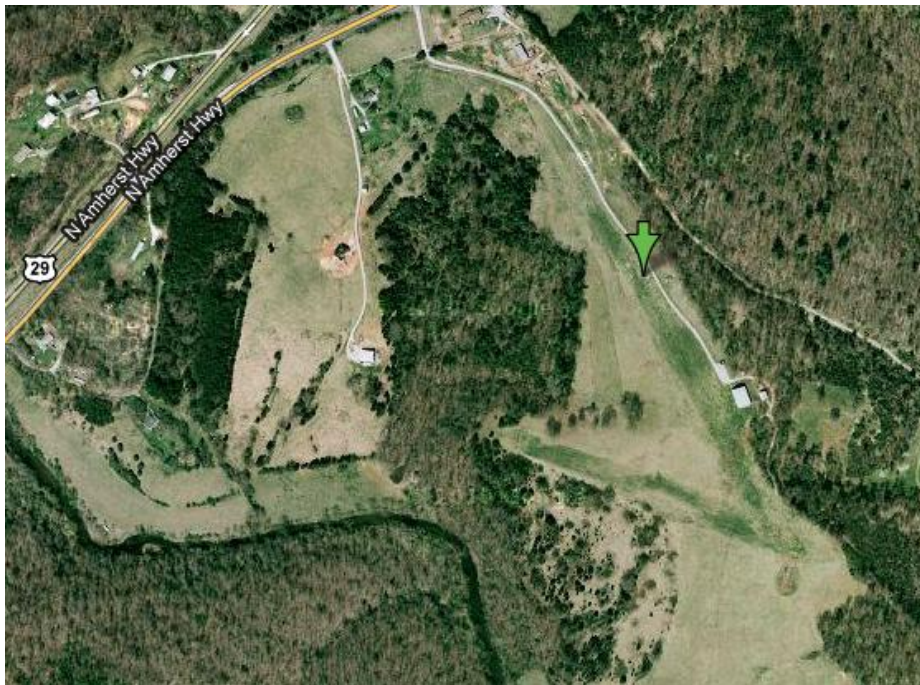
They all prefer decimal degrees.

AirNav. I get airport coordinates from www.AirNav.com and put them into my GPS. I use Airnav instead of the FAA's Airport/Facility Directory because AirNav includes the private airports that I fly to. But also, the Airport/Facility Directory, lists coordinates only in degrees-decimal minutes, as here.

FRONT ROYAL–WARREN CO (FRR) 3 W UTC–5(–4DT) N38°55.05' W78°15.21'

By contrast, AirNav lists all three formats.

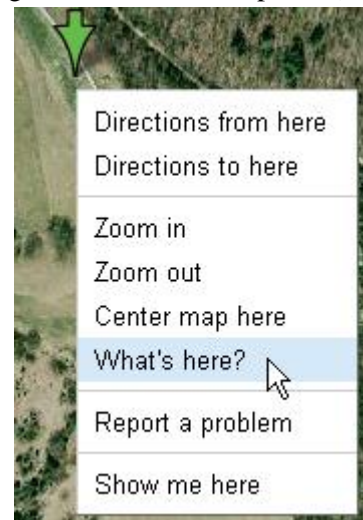
Google Maps. For places that are not airports, I get coordinates from Google Maps: <http://maps.google.com> For instance, my trike instructor has a private airfield that's not on the charts. To get its coordinates, I go to Google Maps and zoom in on his field in satellite view:



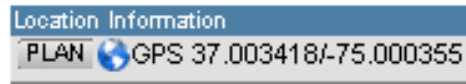
To get the coordinates, put the cursor in the middle of the field (where the green arrow is in the picture). Right-click and pick **What's Here?** on the context menu as shown at right.

The coordinates of the field show up at the top of the screen:

Google maps



Skyvector. www.skyvector.com, shows sectional charts online in scrollable, zoomable format. If you right-click anywhere on the chart, Skyvector will give you the coordinates of that point as shown below. Notice that Skyvector uses decimal degrees.



How to Convert?

No matter what format you prefer, you will sooner or later have to convert. There are many sites on the web that will convert between degrees-minutes-seconds and decimal degrees. Here's one:

- <https://www.fcc.gov/media/radio/dms-decimal>