How to Geotag Photos

Geotagging is the recording of the latitude and longitude of the location where a photograph was taken. It can be a valuable tool in cataloging your photographs for future use, as well as to establish locations for use in official actions. New technologies have made geotagging easier than ever.

The easiest way to geotag photos is to use a camera with a GPS sensor that automatically records the location. A few new cameras have this capability, and aftermarket devices are available to add geotagging capability to many other cameras. If you're using your smartphone to take pictures, you may already have geotagging capability built in. On an iPhone (3G or later), go into Settings/Location Services, and make sure location services are on for the camera. With an Android device, while in the camera app click the onscreen icon that looks like a satellite dish and make sure "Store location" is turned on (also make sure your GPS is turned on).

Even if your camera doesn't have dedicated GPS, you can still geotag digital photos as long as you have a GPS device (including an iPhone 3G or later or Android smartphone). Your pilot may have an onboard GPS device that will generate data he or she can share with you, so you may be able to geotag photos even if you don't have your own GPS receiver—check with the pilot before your flight.

Of course, every GPS device is different, so it's impossible to precisely describe every step, but the general steps are similar. Geotagging photos occurs in 3 stages: (1) setting up your GPS and camera before the flight; (2) recording GPS data and taking photos during the flight; and (3) combining the GPS data with the photos. With this information and a little experimentation, you should be able to geotag photos with little trouble.

Preflight

The first step in preparing to geotag photos is to make sure you can record a GPS "track" on your device and then output it to your computer as a GPS file (*.gpx format). If you're using a handheld GPS device such as a Garmin, TomTom or others, this capability will almost certainly be included with your device. If you're using an iPhone or Android phone, you'll need an app.

As is often the case, there are a number of apps that will do what you need, at varying prices. The best free app for the iPhone we've found so far is *AllTrails*. Google's *My Tracks*, also free, works well for the Android. Of course, if you want additional capability for other purposes, there are plenty of paid apps with additional features that will also create a track.

The second thing you'll need to do before heading out is understand how to set up your clocks. Because the process uses time stamps to match photos to locations, it's important to record the time to the second. It's not crucial that the camera and GPS be set to the exact same time—what is crucial is that you know the difference so you can account for it. The simplest way to do this is to set your GPS device so its clock is showing, and then take a picture of it. When you look at the time stamp of your photo, you'll be able to calculate the difference and enter it at the appropriate stage.

Unfortunately, if you're using an iPhone or Android as your GPS device, the native clocks don't show the time to the second, so you'll need to download an app that does. A free option for the iPhone is *Alarm Clock HD – Free*, but there are many others. *Alarm Clock Free* by iHandysoft Inc. is an option for the Android.

Inflight

On the day of the flight, the procedure is simple. Just start a track with your GPS device and then take your pictures. With a handheld GPS device, if the device is on, it generally will automatically generate a track, but refer to your documentation to confirm this. With an iPhone or Android, you'll need to start a track using your app.

Our experience has been that the GPS receivers are pretty sensitive, and it's usually not hard to get a good track, especially if you keep the receiver close to a window. To be sure, you may want to ask your pilot if there is a place, such as on the dashboard, that has a particularly clear view of the sky.

Also, it can be helpful to take a picture of the time display on your GPS device before the flight but after you start creating your track. You can use this known place to troubleshoot your pictures later.

Postflight

Once you're home, the first step is to export the track from your GPS device to your computer. If you have an iPhone or Android, the simplest way is probably just to email it to yourself. With a handheld GPS, check your documentation for instructions on how to export tracks.

Once you have your track (as a *.gpx file) and photos on your computer, you need to sync them. To do this, you'll need to download and install software. The tool we suggest is called GPicSync (http://code.google.com/p/gpicsync/). Other software is available, but this is the only one we know of that's available for Windows, Mac, and Linux, so it's the most versatile.

Before synchronizing your pictures, you'll need to account for time. This may require two steps. First, you need to address any difference between the clocks on your GPS and camera. In GPicSync, under options, select "Local time correction," and then enter times for the GPS and camera. Second, you may need to account for your time zone. Most GPS tracks actually record in what is known as UTC ("Coordinated Universal Time"). Since your camera and clock are in local time, you need to offset by the appropriate amount. The easiest way to do this is to go to the pull down menu following "Select time zone" and choose the appropriate zone.

Then, use the buttons near the top of the screen to navigate to your picture folder and GPS file pathways, and click "Synchronise" (yes, they use the British spelling). After a little while, your pictures will be geotagged. If everything was done correctly, you should be able to open a window in your favorite photo-viewing software such as Picasa or iPhoto showing where the picture was taken.

The last step you may want to take is cleanup: As part of the syncing process, GPicSync will create a subfolder containing the original, un-geotagged photos; once you're satisfied with your geotagging, you can delete those original photos to save space and avoid confusion.

Don't hesitate to contact us if you have questions about this procedure, and have a great flight!