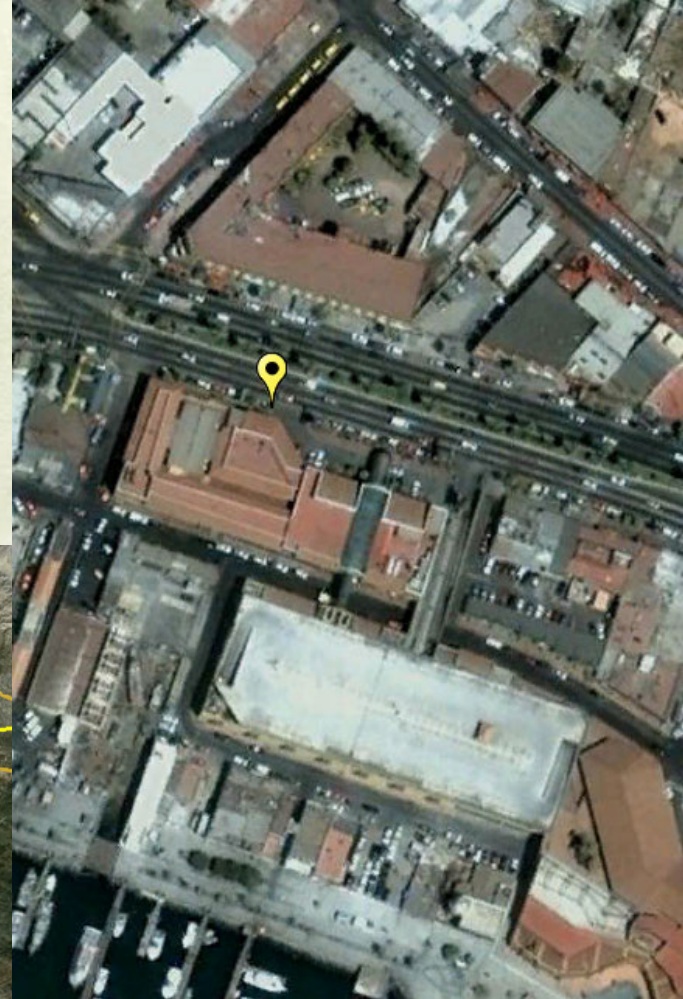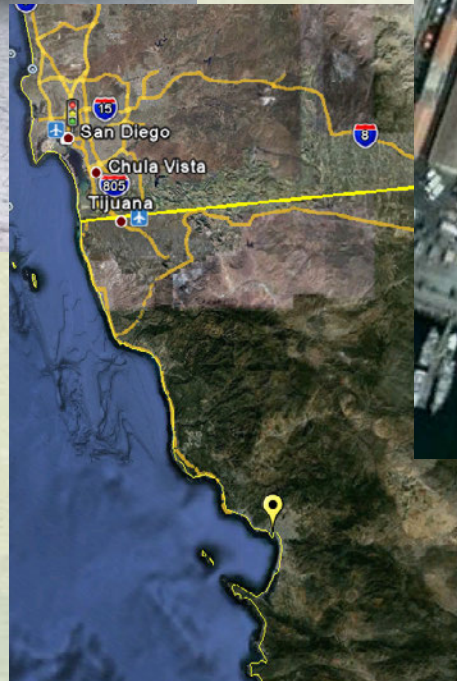# Geotagging your images

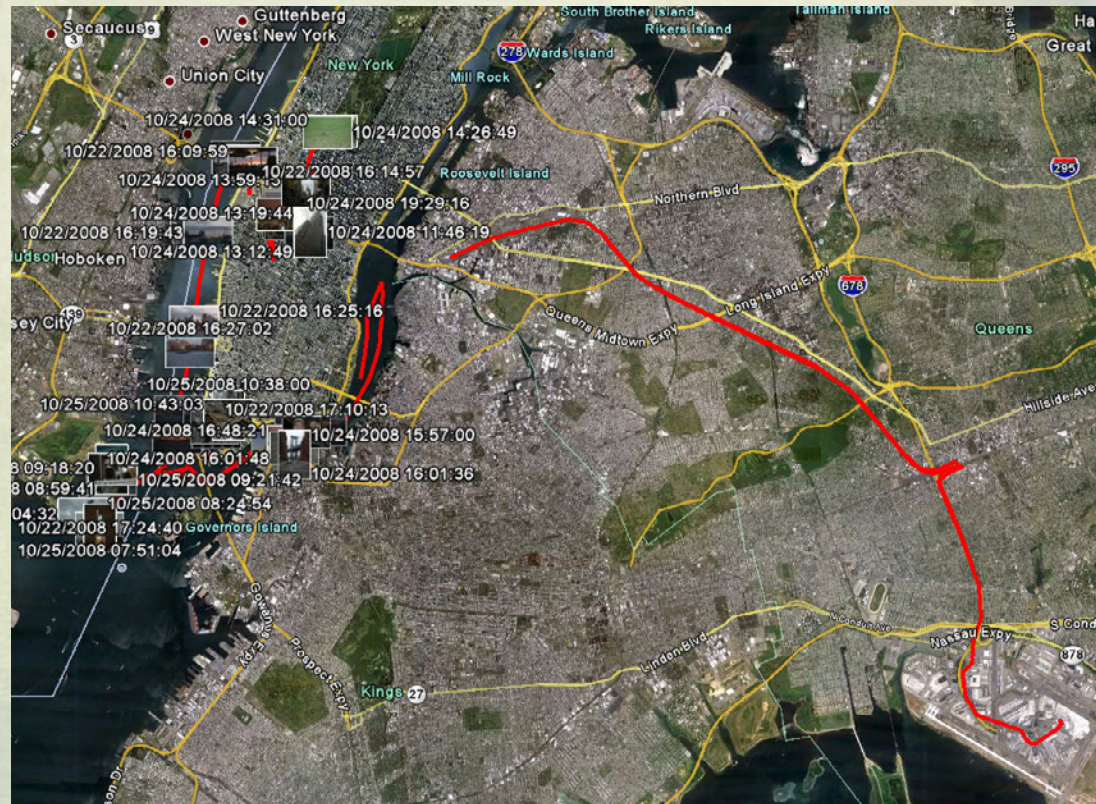http://goo.gl/Ybryr

Where was this taken?

Where was this taken?

Why Geocode your images

- Organize images better, keep track of where you've been
- Better way to show your images
- Remembers better than you do!

A Brief introduction to IPTC and EXIF

- IPTC is the old name, though you still hear it called that sometimes
- EXIF is what is used to store the location information for geotagged images but can include other data:
  - Date and time information. Digital cameras will record the current date and time and save this in the metadata.
  - Camera settings. This includes static information such as the camera model and make, and information that varies with each image such as orientation (rotation), aperture, shutter speed, focal length, metering mode, and ISO speed information.
  - A thumbnail for previewing the picture on the camera's LCD screen, in file managers, or in photo manipulation software.
  - Descriptions, keywords and copyright information.
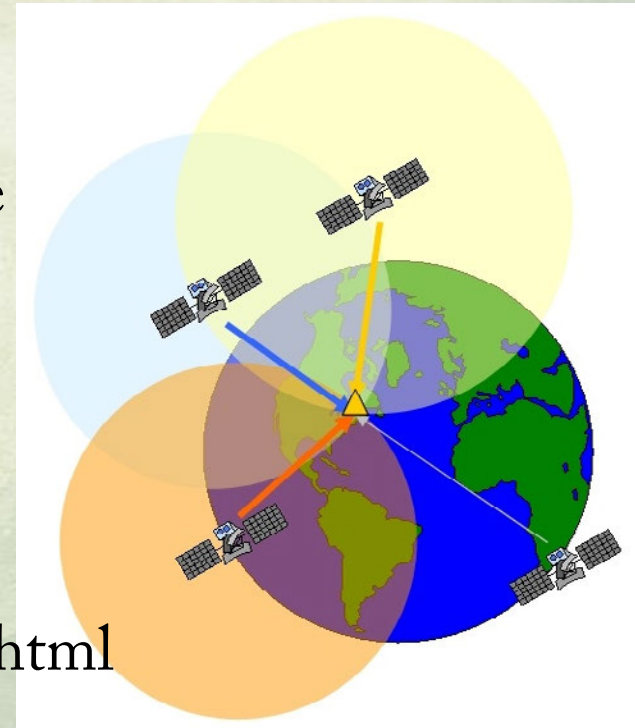 - Location

A Brief introduction to GPS

- Essentially GPS boils down to a bunch of satellites beaming down a signal with what time it is and where they are
- You need 3 good signals to determine your location in 3 dimensional space (well, usually on earth)
- Used to cost $100,000+ for a receiver, now they only cost a few dollars to make and come on most cell phones for 911 purposes
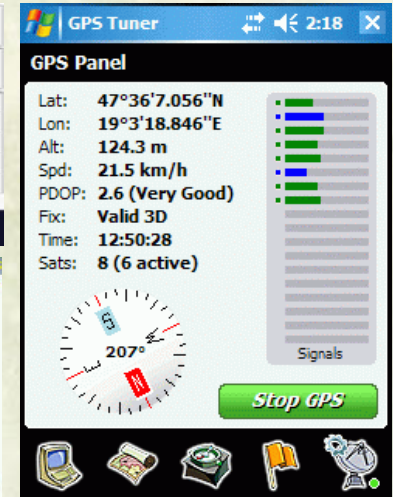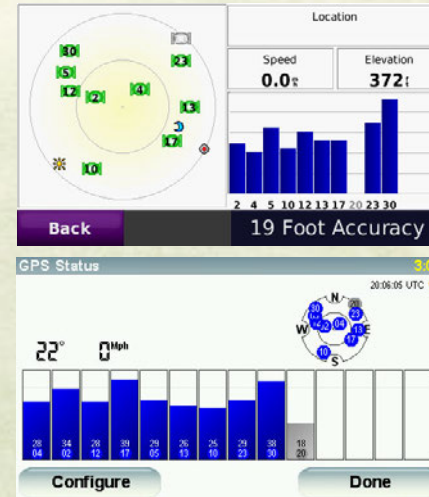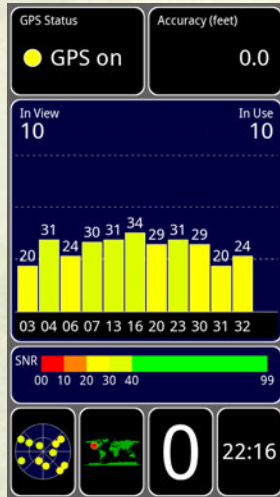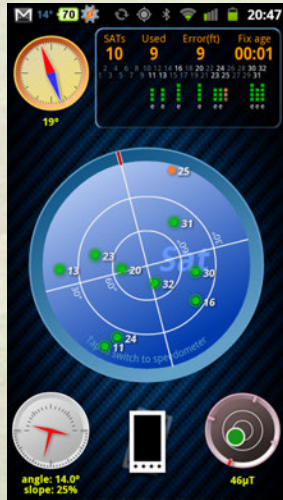
more info at
http://www.sxbluegps.com/gps-error-Budget.html
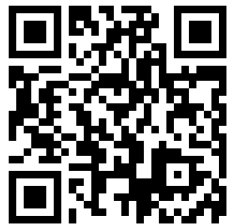
Getting Around GPS

- Most GPS Programs and Devices have similar features
  - GPS satellite signal screen
  - Satellite sky map
  - Location, time, speed and signal stats screen
  - A map, track, points of interest, start or destination display
- Most can be switched between metric and imperial (miles, feet etc...)
- Location is in Degrees, Minutes, Seconds (40°26'47"N 79°58'36"W) Degrees, Minutes (40° 26.7717, -79° 56.93172) or Degrees (40.446195, -79.948862) which is easier in my opinion.

Getting the most from your GPS

- GPS works best with an direct view of the sky - and the more sky the better
- Can't go through metal (even metal coated windshields on some cars)
- Doesn't like concrete, generally won't work in large buildings
- Will generally work in a residential house, but it's not the best signal
- Has a particular weakness for foliage, canyons and "urban canyons"
- Some systems can download data from the internet to get a quicker and better fix, otherwise it take up to a few minutes or even a few hours in extreme cases to recieve location data (Ephemeris) directly from the satellites - the happens anyway when the GPS is on so it's worse if you haven't used it for a long time
- aGPS can help as well, comes in a variety of forms

How to Geocode: Built-in GPS

- Many new cell phones have built-in GPS (n-series, iPhone 3G, most Android and Windows Phones)

- Some point and shoot cameras Have GPS Built-in

- Some High-end DSLR pro cameras support a GPS module that injects the GPS info into your images

Sanity check: be aware if your device geocodes

Geocoding is cool stuff but if you don't know that your phone is automatically putting your location into your photos and you upload them to twitter or another site it is likely someone will see that information.

Just ask Adam Savage

How to Geocode: Data Logger/Smart Phone

- SET YOUR CAMERA CLOCK!!! or it's *much* harder to geocode your images
- Dedicated Data Logger or handheld GPS that can record a track

- Many Windows Mobile, Nokia, Blackberry, Android and iPhones have free programs you can run to record your tracks
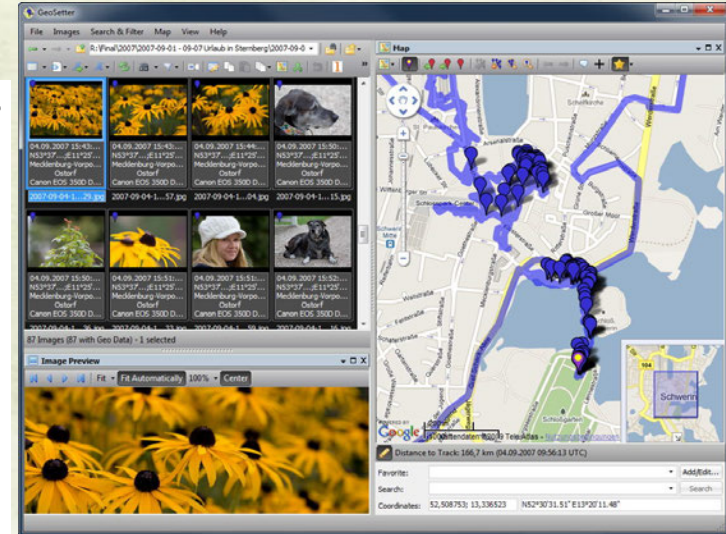- Export to GPX file format

# 8MP vs 6.1MP

Correlating your Images

- Get your GPX track and images ready
- Use a program to match locations to times

- PC only: GeoSetter is great http://www.geosetter.de/en/
- Windows, Mac and Linux - GPicSync:
  https://code.google.com/p/gpicsync/
  Prune: http://activityworkshop.net/software/prune/download.html
- While you're at it, add some other tags: maybe some keywords or a description
- good tutorial on http://www.digital-photography-school.com/how-to-geotag-images

Geocoding images without GPS

- Use GeoSetter or another program to manually place your images, you can even do this with photos you took on film and have scanned
- Many people report great success using Google's free Picasa photo management program to manually geocode their images: http://picasa.google.com/support/bin/answer.py?hl=en&answer=161869
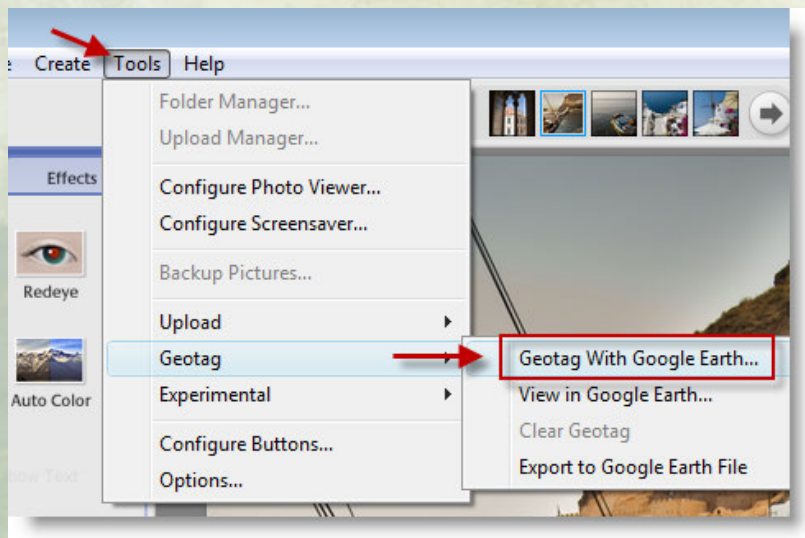
Displaying your geotagged images

- Upload to Flickr, Locr or another online site that understands geotags
- View your images in iPhoto, Picasa, GeoSetter, Photoshop Elements or another off-line program that can handle geotags
- GeoSetter can export a Google Earth "KMZ" file that includes tracks and images in a single file that's easy to share
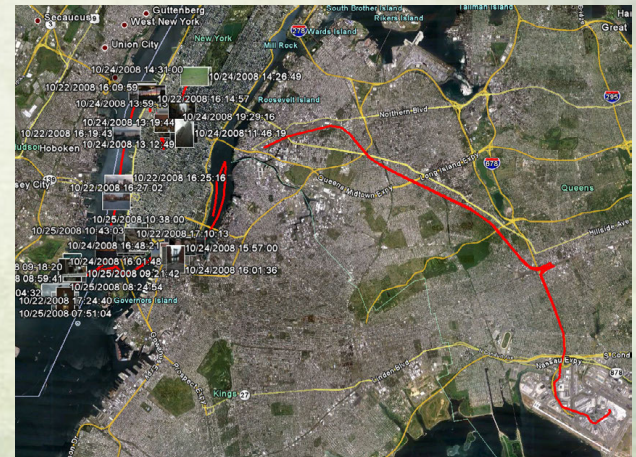
- The tags are embedded in the image so if anyone uses the right viewer they can see the location and other information you have added. No additional files needed!

Links and more

- Geo Eraser (Android): http://goo.gl/1kOdkn
- My Tracks (Android): http://goo.gl/j923C
- Geotag Photos (iOS, Android): https://www.geotagphotos.net/en/
- http://androgeoid.com/ - a blog about using android phones for GPS
- TrackMe (Windows Mobile 5-6.5): http://goo.gl/yBwpS
- InstaMapper (Android, iOS): http://www.instamapper.com/
- A few trackers for iOS: http://gpsloglabs.com/help_devices.html
- Blackberry: http://www.emacberry.com/gpslogger.html
- Nokia: http://goo.gl/GpJYB or http://goo.gl/I3H80
- GPX Logger (Windows 7): http://wp7applist.com/app/2618/
- Runkeeper (Android, iOS): http://runkeeper.com/