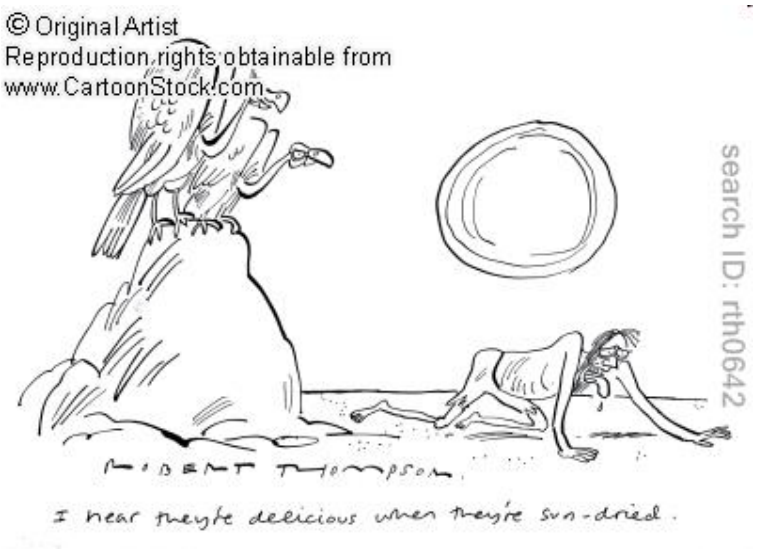
Personal Safety in the Desert

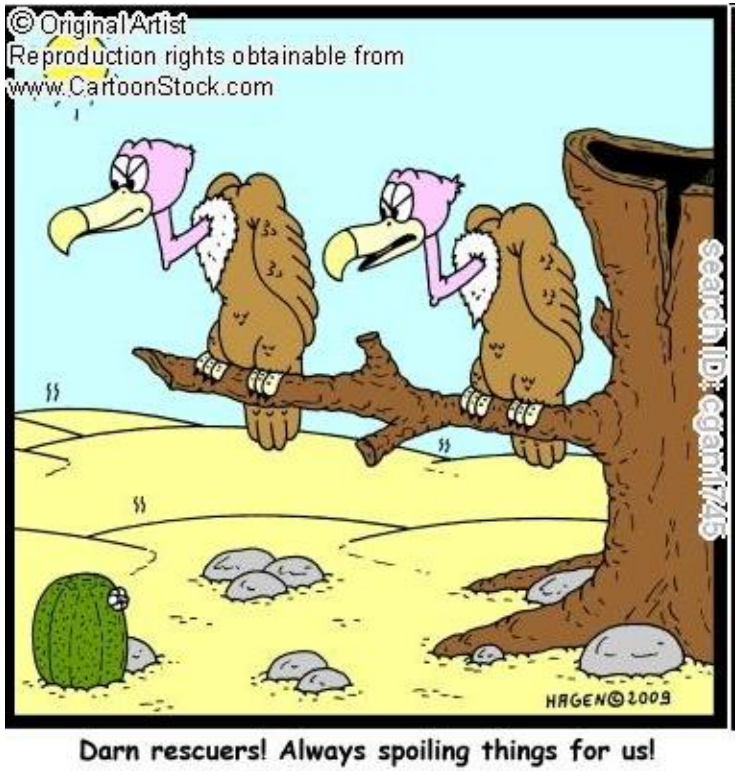
Don Endicott, CDAS
17 April 2021

Topics

- Personal Safety
- Heat Exhaustion and Heat Stroke
- Venomous Snakes
- Navigation
- Questions

Personal Safety





Desert Safety

- Drink Like a Fish
- Dress for Success
- Carry a Flare and a Spare
- If You Hit a Sandy Trap …
- Know Where You're Going
- Mind the Spines
- Don't Bomb Out
- Don't Wash Away

Source: CaliforniaDesert.gov

Ten Essentials (Sierra Club)

To Find Your Way

1. **Navigation *(map and compass)***
2. **Illumination *(flashlight/ headlamp)***

For Your Protection

3. **Sun protection *(sunscreen/ sunglasses/ hat)***
4. **Nutrition *(extra food)***
5. **Hydration *(extra water)***
6. **Insulation *(extra clothing)***

For an Emergency

7. **Fire *(waterproof matches and fire starter)***
8. **Emergency Shelter**
9. **Repair Kit & Tools *(knife, duct tape, etc)***
10. **First-Aid Kit**

Source: Ten Essentials | Sierra Club Angeles Chapter

Ten Essentials

- **Navigation**: map, altimeter, compass, GPS device, personal locator beacon
- **Headlamp**: with LED bulb and spare batteries
- **Sun protection**: sunglasses, sun protective clothing, sunscreen
- **First aid**: a first aid kit, wrapped in waterproof packaging
- **Knife**: hikers on a short trip may also carry a multi-tool, strong adhesive tape and cordage; on a longer trip, further small tools may be useful
- **Fire**: the means to both start and sustain a fire; either a butane lighter or matches, or other fire making device. Firestarters for igniting even wet wood, and in areas where no firewood will be available, a stove is advisable.
- **Shelter**: plastic tube tent, jumbo plastic trash bag or bivy sack
- **Extra food**: at least one day's food for a short hike, that should require no cooking.
- **Extra water**: drinking water and the skills and tools to purify water
- **Extra clothes**: additional items may be needed if spending the night in the emergency shelter

The first five items are intended to prevent and respond to emergencies, the second five to safely spend one or more nights outdoors

Source: Wikipedia, *Ninth Edition Mountaineering: The Freedom of the Hills, 2017*

Desert Safety Checklist (Personal)

- Appropriate Clothing
- Food and Water (bring extra)
- Whistle and Signal Mirror
- Sunglasses and Sunscreen
- Pocket Knife or Multiplier Tool
- Waterproof Matches
- First Aid Kit (and knowledge to use it)
- Headlamp and/or flashlight (and spare batteries)
- Map
- Compass
- GPS Unit
- Cell Phone

Source: BLM.gov

Desert Safety Checklist (Vehicle)

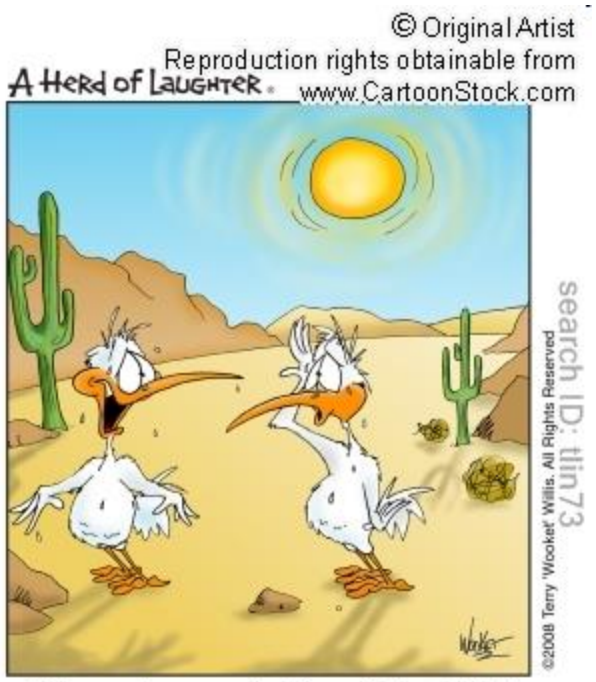
- Tool Kit
- Extra Fluids (Oil, Coolant, Gas, Water)
- High Lift Jack
- Sand Boards/Mats
- Tow Rope/Strap/Chain
- Shovel
- Spare Tire
- Signal Devices (Mirror, Flares)
- Duct and Electrical Tape
- $5 bill and $1 change for Pay Phone

Source: BLM.gov

Desert Safety Checklist (Other)

- Comb (removing cholla)
- Tell someone where you are going, when you expect to return, who to contact if you don’t return
- I also leave a note with this information inside my truck’s windshield

Heat and Water



"Oh ya, we're a couple of hot chicks alright!"

"It's a clear case of dehydration."

Heat Illness

- When the body heats up faster than it can cool itself, mild to severe illness may develop. Air temperature, humidity, and clothing can increase the risk of developing heat-related illness. Age, gender, weight, physical fitness, and nutrition can play a role.
- Someone with a mild reaction to heat may have a rash called "prickly heat". They can also have painful muscle spasms called heat cramps. These can happen during or after activity. A mild reaction may also include fatigue or dizziness.
- A moderate reaction to heat is heat exhaustion. A person could be sweating a lot. They could have cold, moist, pale or flushed skin. They might have thirst, extreme weakness or fatigue, as well as headache, nausea, lack of appetite, a rapid weak pulse, or giddiness. If not treated, the victim may collapse.
- Move anyone with mild or moderate symptoms to a cool, shaded place with circulating air. Have them lie down and, if conscious, have them sip cool water at frequent intervals. If symptoms continue, call a doctor.

Heat Stroke

- Heat Stroke is Hyperthermia (abnormally elevated body temperature)
- More severe than Heat Cramps or Heat Exhaustion – a true **Medical Emergency**
- Typically caused by combination of extreme heat, high humidity, and/or vigorous exertion under the sun
- Body normally generates heat as a result of metabolism and is usually able to dissipate that heat radiation through the skin or by evaporation of sweat
- In a Heat Stroke situation the body is unable to dissipate as much heat as it is generating and body temperature rises (can reach 106 degrees)
- One cause of Heat Stroke is Dehydration – person can not sweat fast enough for evaporation to regulate normal body temperature

Source: WebMD.com

Heat Stroke Symptoms

- High body temperature
- Absence of sweating (hot red or flushed dry skin)
- Rapid pulse
- Difficult breathing
- Strange behavior
- Hallucinations
- Confusion
- Agitation
- Disorientation
- Seizure
- Coma

Source: WebMD.com

Heat Stroke Prevention

- Avoid becoming dehydrated
- Drink: water
- Don’t drink: alcohol, coffee, tea
- Wear clothing that helps protects body from direct sunlight and helps retain moisture (hat, light colored clothing, light and loose clothing)

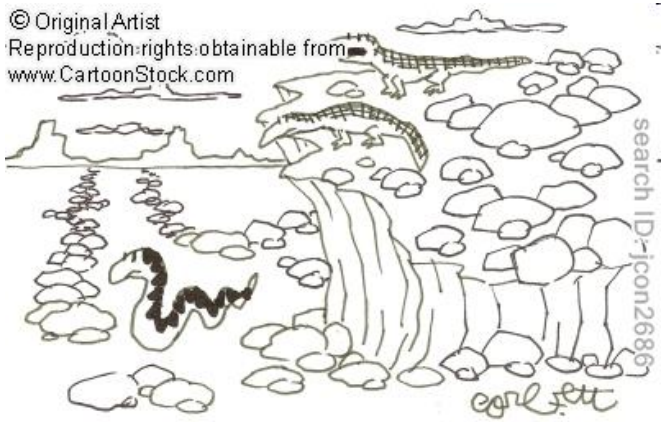
Source: WebMD.com

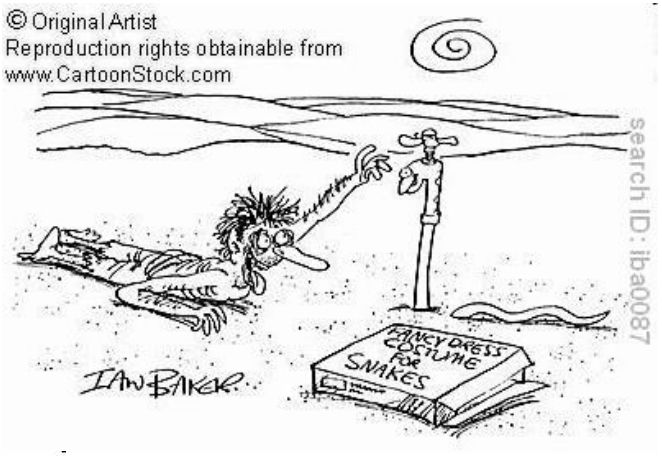
Heat Stroke Treatment

- ***First and foremost, cool the victim!***
- Get the victim to shady area, remove clothing, apply cool or tepid water to the skin (e.g. with mister), place ice packs under armpits and groin area, fan the victim to promote sweating
- Monitor body temperature with a thermometer and continue cooling until temperature falls below 101-102 degrees
- Contact emergency services (911) as soon as possible

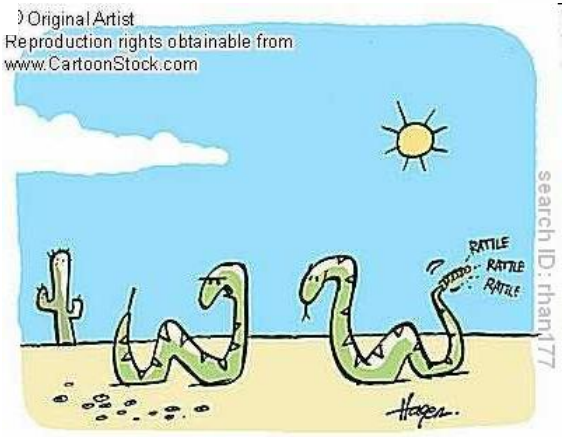
Source: WebMD.com

Snakes





"You forgot to shake out your boot again, huh?"



OH FOR CRYING OUT LOUD, I KNEW I SHOULD HAVE USED A LOCKWASHER!!

Get behind me Jed. When a rattler gets bongos out, he means business!

Source: WebMD.com

Rattlesnakes 101

- Rattlesnakes (Crotalidae) are pit vipers and may inject varying amounts of venom including none at all (20-30% of bites).
- Vast majority of human-snake encounters result in the snake retreating if it can find an escape path
- 7,000-8,000 venomous snake bites/year in all of the U.S. with an average of 5 deaths/year)
- Any bite from a venomous snake should be treated as a medical emergency (per American Red Cross)
- Most rattlesnakes have hemotoxic venom. Exceptions: baby rattlesnakes and Mojave Rattlesnake have neurotoxic elements.
- Hemotoxic venom results in tissue damage, destroy blood cells and skin tissues, and cause internal hemorrhaging.
- Neurotoxic venom immobilizes the nervous system, affects breathing (sometimes stopping it)

Source: herptology.com (from Henkel, FDA)

Avoiding Rattlesnake Bites

- Leave snakes alone - don’t handle them or try to kill them (they are protected in ABDSP)
- Keep hands and feet out of areas you can’t see
- Be watchful when climbing rocks
- Wear snake gators, especially in grassy areas
- Use hiking poles or hiking staff as probes, especially when walking off trail

Treating Snake Bites

- Do:
  - Wash the bite with soap and water
  - Immobilize the bitten area; keep it lower than the heart
  - Get medical help
  - Main objective is to get to a hospital as quicly as possible where antivenin can be administered
  - If unable to reach medical care with 30 minutes, some medical professionals *cautiously* recommend wrapping a bandage above the bite to slow venom (loose enough to fit a finger under it) and/or using a suction device over the bite (but DO NOT cut)
- Don't:
  - Apply ice
  - Use a tourniquet
  - Make any incisions

Source: herptology.com (from Henkel, FDA)

Navigation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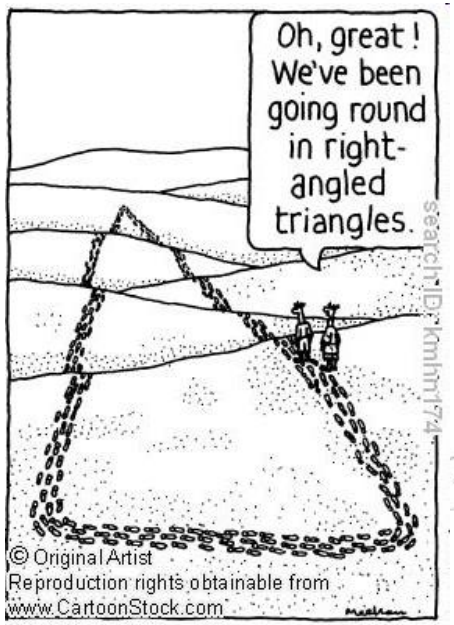
"Hi, I'm from search and rescue,
try not to move!"


Oh, great! We've been going round in right-angled triangles.
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YOU WERE HERE
NOW YOU ARE LOST
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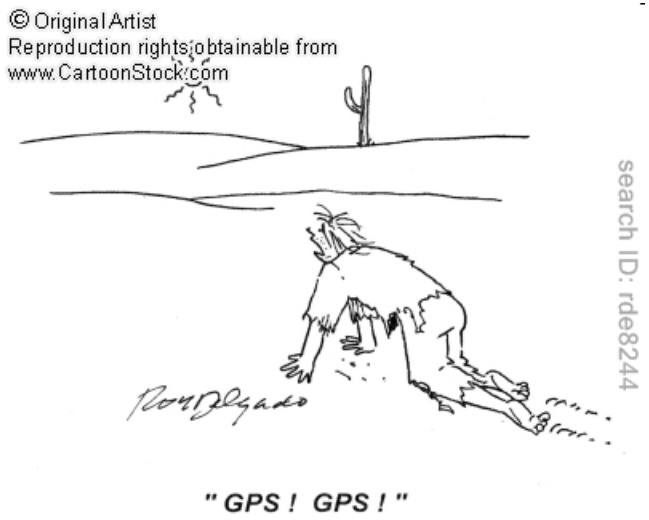
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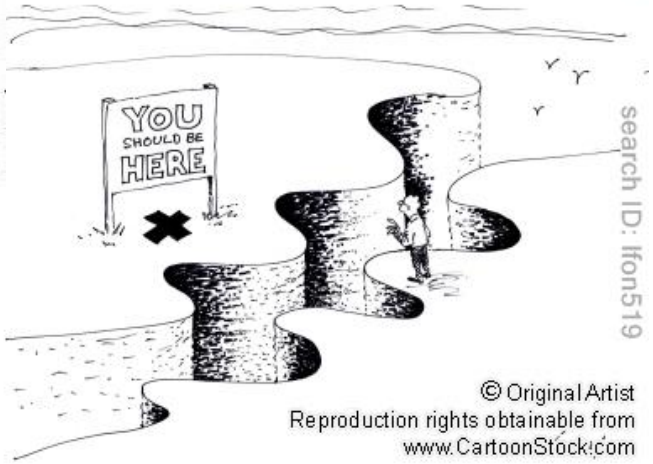
" GPS ! GPS ! "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Navigation

- Become familiar with a good map of your area. Get to know the principal topographic features and direction and distance to nearest roads
- Learn to use a compass (GPS devices are great tools but worthless if the batteries are dead)
- Don’t expect to have cell phone coverage. Reserve and check out one of the Park radios (if available).
- If you become truly lost, it is best to stay where you are, especially if you are with your vehicle

Navigation (Sierra Club)

- Possibly the most challenging item on the Ten Esssentials list.
- Having a basic knowledge of the principle we call *staying found* will go a long way towards keeping you safe and on track.
- Having a map and compass is handy when your phone battery dies and you still need to get back to the trailhead. Even a basic map can keep a trail hiker from going too far astray.
- Knowing where North is; knowing where you started from, what the land looks like, being prepared and aware - these factors will help get you back home.

Source: Ten Essentials | Sierra Club Angeles Chapter

Questions?

Break

Getting to Know Your GPS

Geolocation Skills Refresher for Site Stewardship and Field Archaeology

Don Endicott
17 April 2021

GPS Workshop Outline

- What is GPS?
- Maps and Navigation
- Geodesy and Datums
- Map Projections/Coordinate Systems
- GPS Receivers
- Getting to know your GPS
- Maps
- Navigating with GPS
- GPS Field Exercises
- Review and Feedback

What is GPS?

- GPS is an acronym for Global Positioning System
- Developed by U.S. military in 1970s; made available for civilian use in 1980s; fully operational in 1995
- Constellation of satellites (24 active plus spares) orbiting the earth twice a day that send precise details of their position in space back to earth
- The signals are decoded and processed by GPS “receivers” to calculate the receivers position (horizontal and elevation, speed, and time.
- Our “consumer grade” handheld units are GPS receivers. They typically track 8 or more satellites at a given time. At least 4 satellites are required for a position fix.
- Minimum accuracy 10m (~30 ft) but often within 3m (~10 ft)
- Contemporary cell phones are capable GPS receivers

What is GPS? - Videos

- Video 1: How GPS Works (Smithsonian) – 1 min
- Video 2: How GPS Works (Air Force) – 3 min 45 sec
- Video 3: GPS Basics (Wikipedia) – 5 min 35 sec
- Video 4 (optional): How GPS Works (white board) – 5 min 40 sec

Maps and Navigation

"Well if I'm so 'bloody useless' perhaps *you'd* better read the map!"

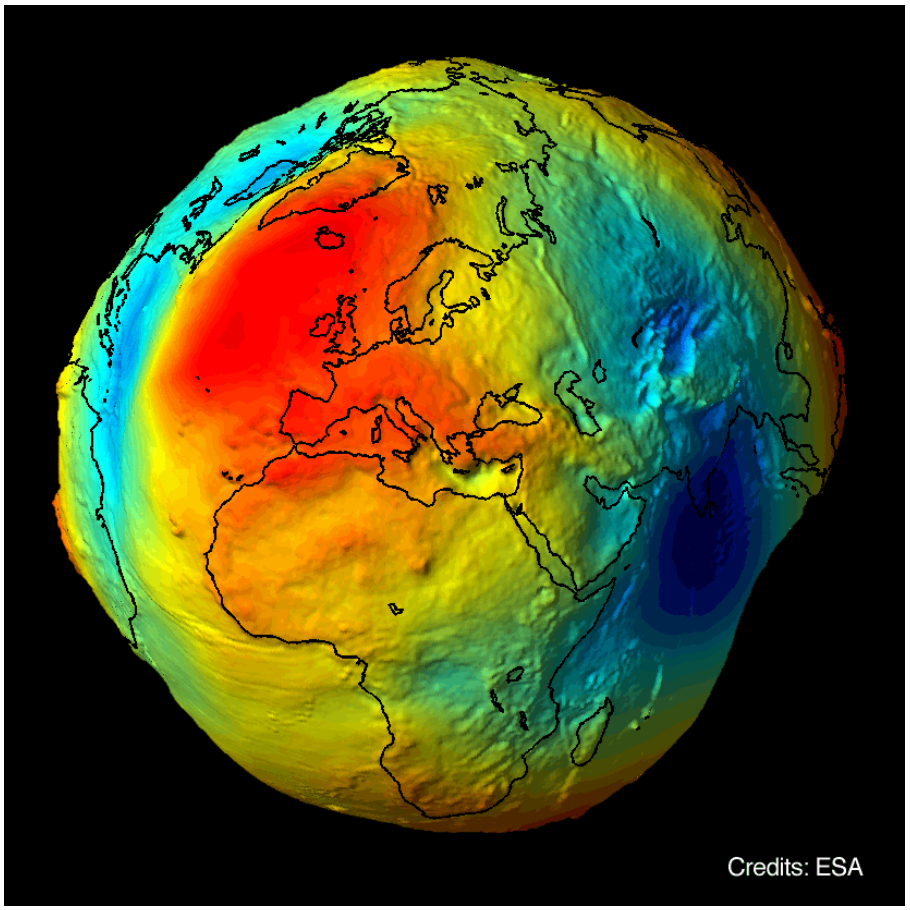
Navigation Terminology

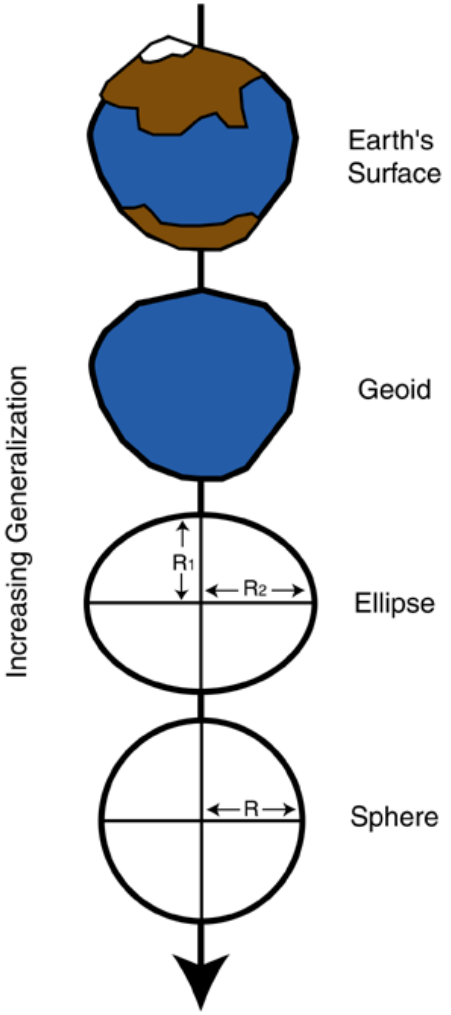
- Finding your current position
- Marking and labeling waypoints; navigating to waypoints
- Recording & saving a track
- Planning and following a route
- Specific steps to follow depend on the manufacturer, the GPS model and user interface, the software release, etc.
- Best learned through practice and reference to the product manual for your particular GPS

Maps and Navigation

- Geodesy and Datums – contending with a lumpy earth
- Cartography and Projections - multiple ways to translate positions on a 3-dimensional globe into 2-dimensional maps with measurable coordinates
- Navigation: Determining where you are and how to get to where you want to be
- Navigation tools
  - Map and compass
  - GPS (dedicated or cellphone)
  - Differential GPS
  - Other navigation aids (e.g. radio navigation)

Geodesy and Datums

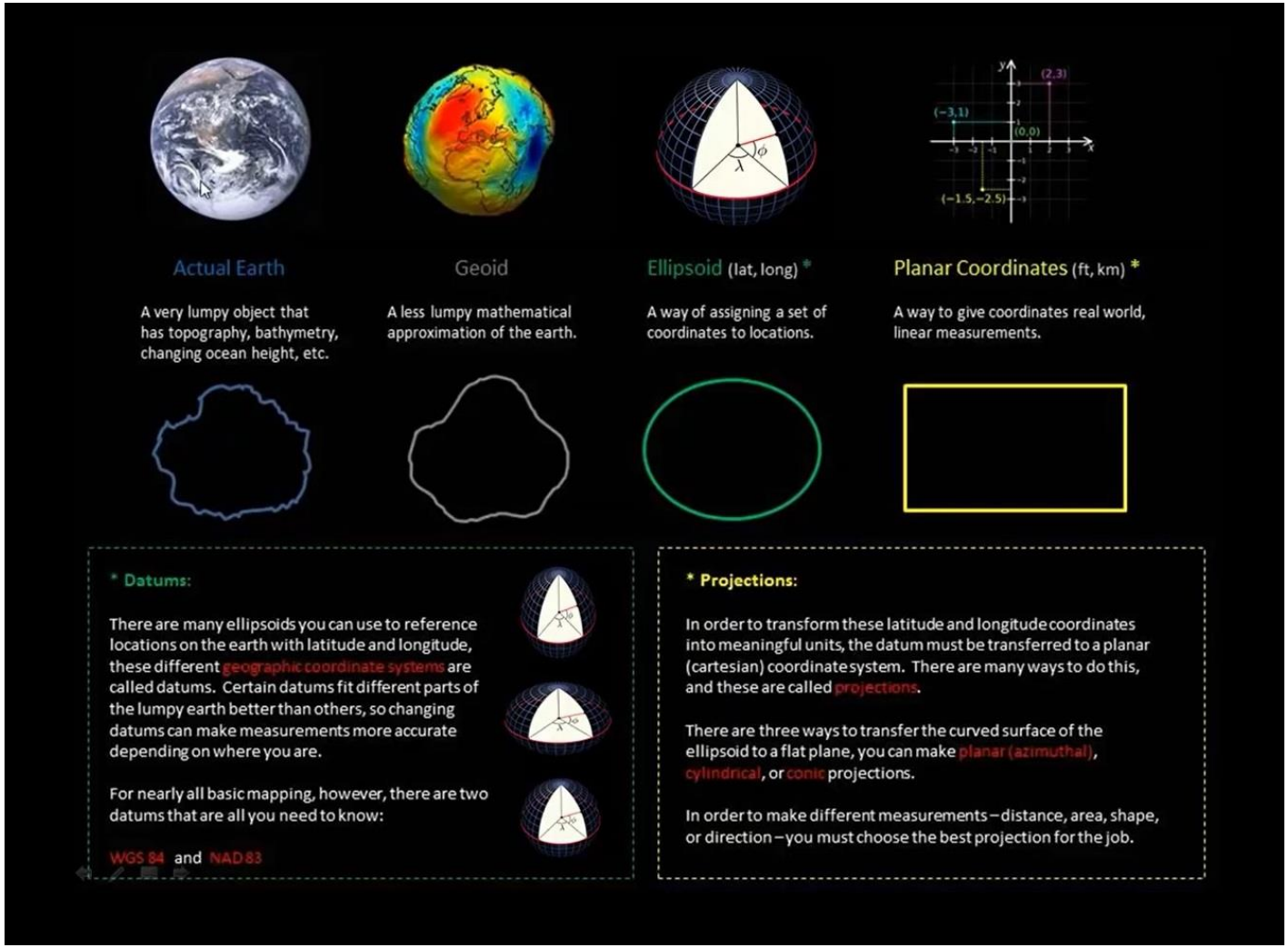




Geodesy and Datums

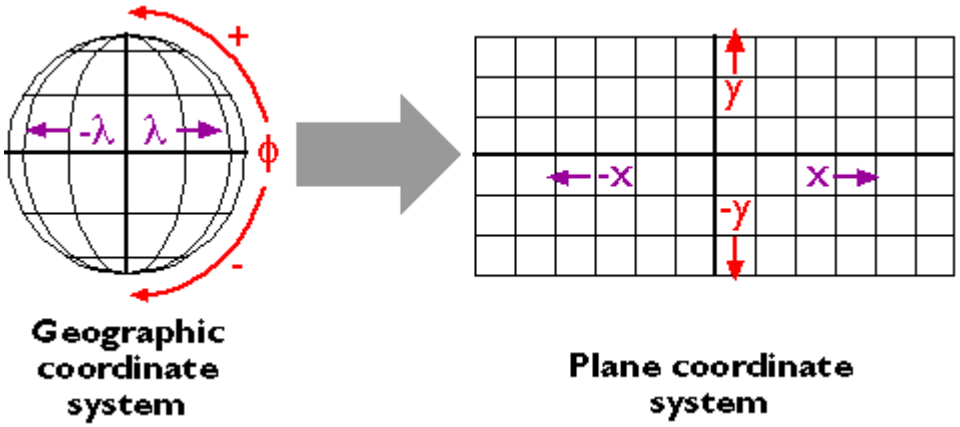
- Geodesy (definition): the science of accurately measuring and understanding the Earth's geometric shape, orientation in space, and gravity field as well as changes over time
- Putting it another way - enables precise navigation on our lumpy, asymmetric planet
- Geoid (definition): mathematical model of the Earth's surface
- Geodetic Datum (definition): a spatial reference system the describes the shape and size of the earth and establishes an origin for coordinate systems
- Video 5: Simple Explanation of Datum (2 min 10 sec)
- (Optional) Video 6: Coordinate System Jargon (8 min)

Geodesy and Datums



Map Projections

- Projections are systematic transformations of from geographic coordinates to planar coordinates
- Example geographic coordinates are degrees of latitude and longitude
- Multiple ways to project flat maps to support navigation
- Video 6: *Map Projections* (LizardTech University) - 14 min 24 sec



Coordinate Systems

- Three coordinate systems are typically used on GPS devices in the United States
- Example: Security Sign outside BARC

Lat/Long (Latitude/Longitude)

N33 15.373, W116 24.211
N33.25622, W116.40351
N33^{o} 15' 22.4", W116^{o} 24'12.6"

UTM (Universal Transverse Mercator)

11S 555560E 3679851N

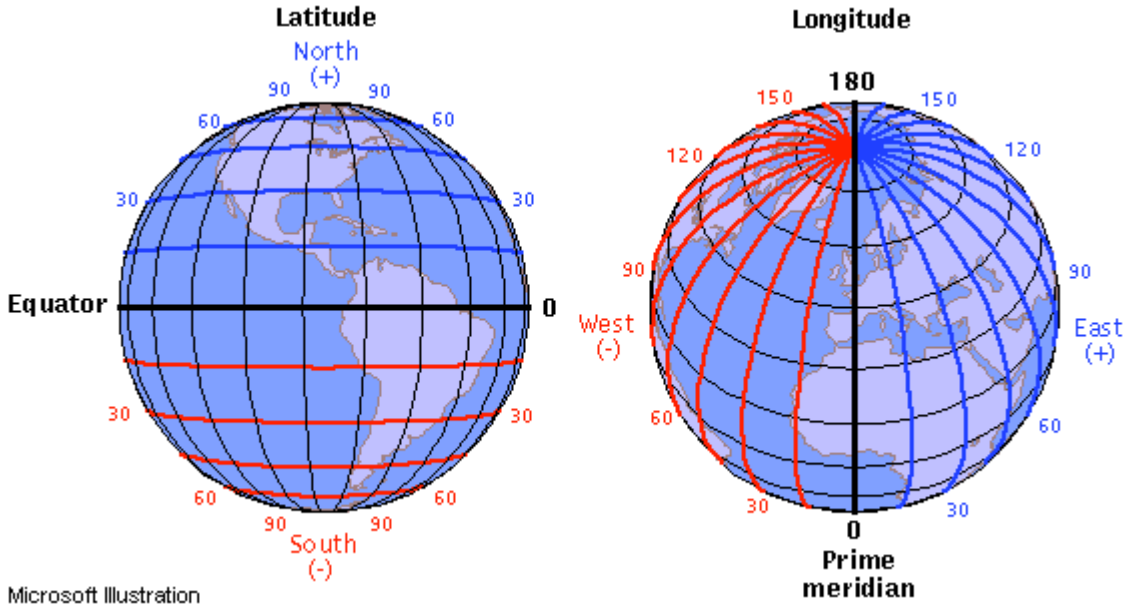
USNG (US National Grid)

11SNS55567985 (10m sq)

11SNS5556079851 (1m sq)

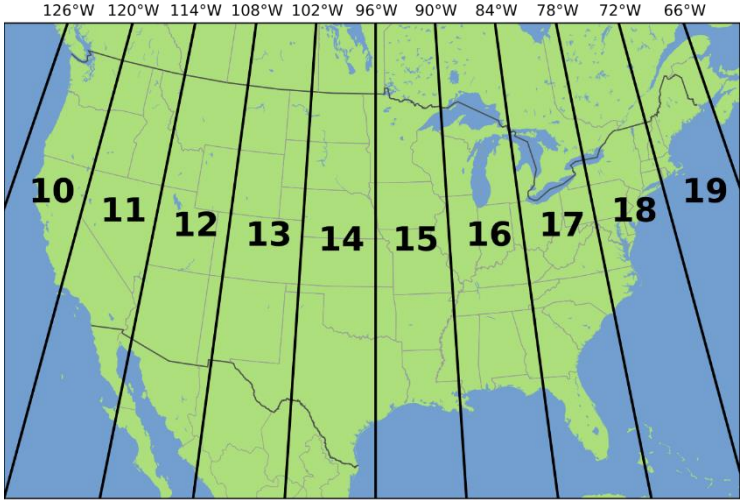
Coordinate Systems – Lat/Long

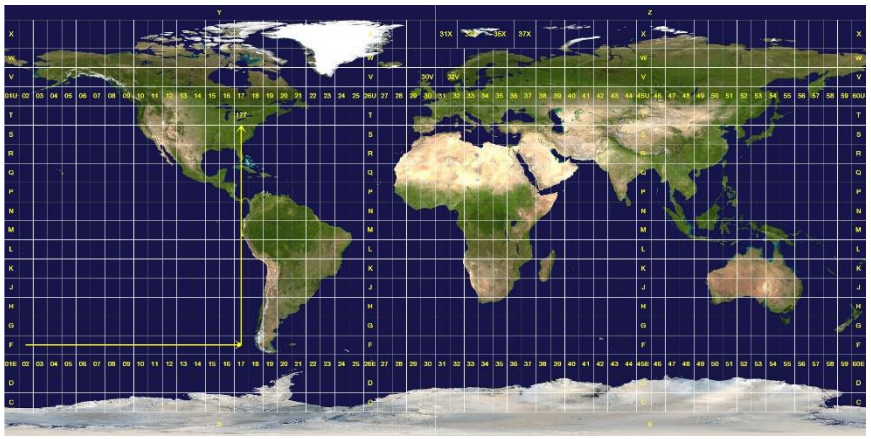
- Geographic coordinate system
- Latitude: Degrees North (+) or South (-) of the equator
- Longitude: Degrees East (+) or West (-) of prime meridian (Greenwich, England)



Coordinate Systems - UTM

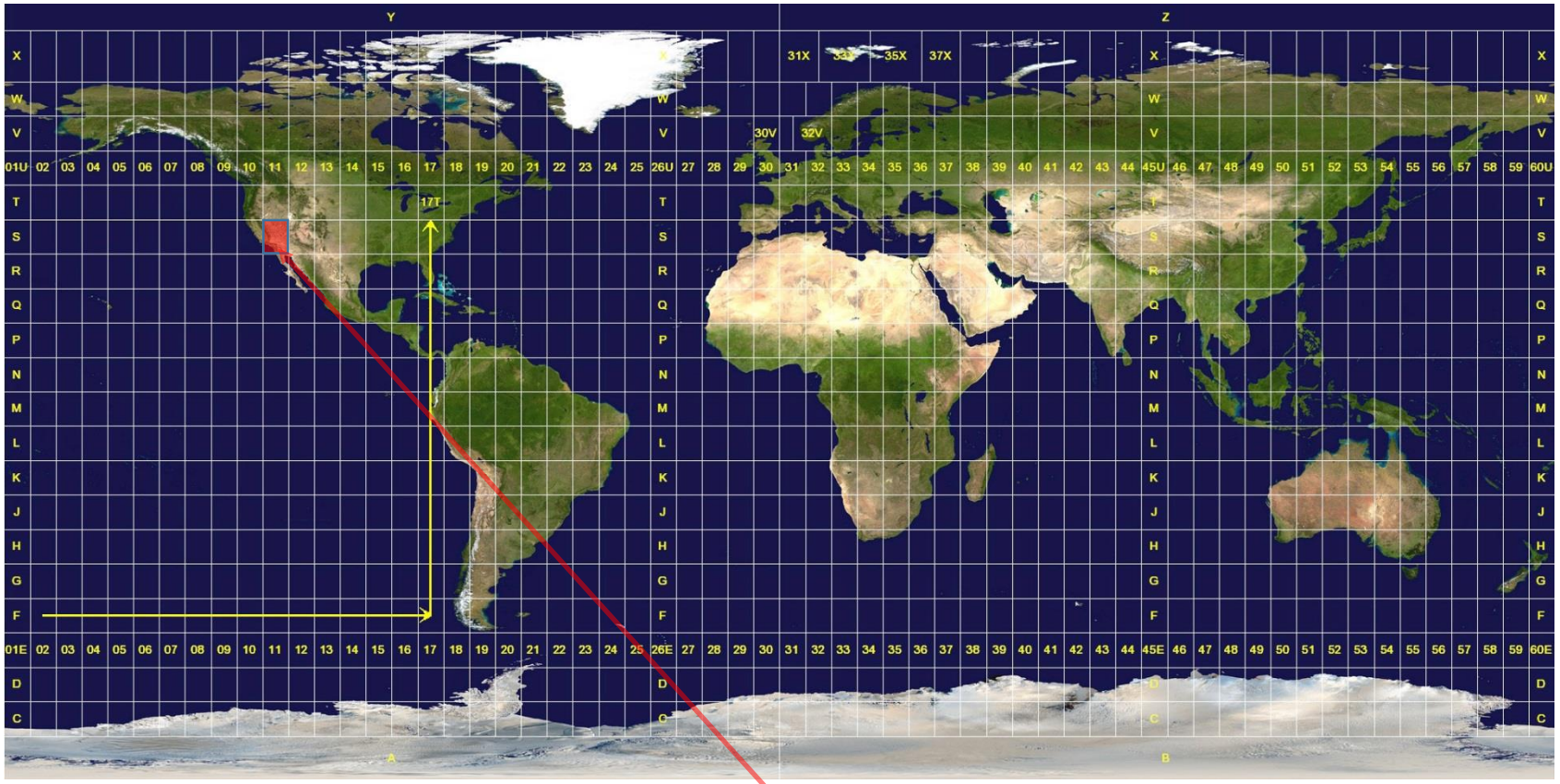
- Divides Earth into sixty numbered Zones of 6^0 longitude (Zone 1 – 60)
- Each Zone is segmented into 20 lettered latitude Bands, each 8^o high (Band C – X with I and O not used)
- Covers 80^oS to 84^oN
- Zone and Band define a “grid zone” – San Diego County falls in 11S
- Origin of a UTM zone is intersection of zone meridian with equator; measured as meters distant from equator (“northing” in Northern Hemisphere). Longitude measured as meters east of meridian (“easting”).
- All meridians arbitrarily set as 500 000 m to avoid negative numbers in any Zone; equator arbitrarily set as 10 000 000 m





The UTM Grid

San Diego County = Zone 11 S



Zone 11: Longitude W114^{o} to W120^{o}, Meridian = W117^{o}

Zone Designator S: Latitude N 32^{o} to N 40^{o}

UTM Easting = meters east/west relative to 117 degree meridian[1]; UTM Northing = meters north of equator

[1]All UTM meridians artificially assigned value of 500,000 meters

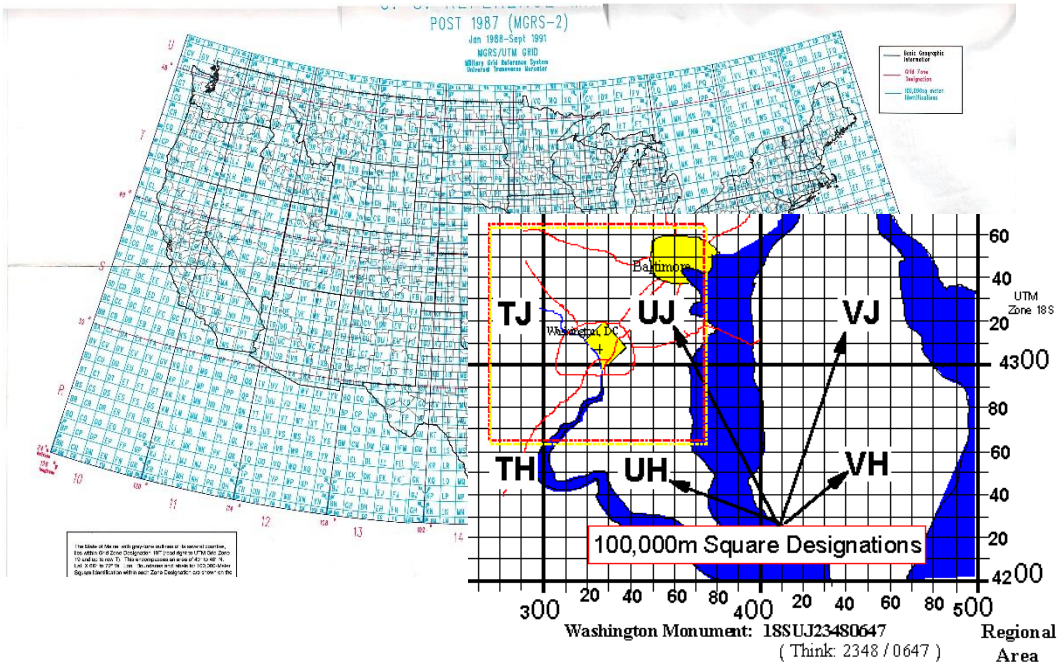
Our UTM Zone (11 S)

Points in Zone 11 S Grid	Latitude/Longitude (Degrees)	Standard UTM (Easting/Northing)
Origin/lower left corner (~200 miles W of Ensenada)	N 32 00.000 W 120 00.000	216577 E 3544370 N
33/116 Confluence (Fish Creek Mountains)	N 33 00.000 W 116 00.000	593419 E 3651731 N
Borrego Springs (Christmas Circle)	N 33 15.390 W 116 22.497	558216 E 3679892 N

Zone 11 Meridian (center axis in longitude) is W 117 = 500000 Easting

Coordinate Systems – US National Grid

- Adopted in 2002 as a National Standard
- Derives from Military Grid Reference System
- Alphanumeric point reference system overlaid on UTM numeric grid. Adds two-letter prefix to identify 100,000 m square regions. Drops the last digit of E and N and combines all three into a single identifier (XX 1234 5678) for 10m square



Navigating with GPS

I blame it on the GPS-System myself:
Hardly anybody gets lost around here anymore...

GPS Receivers

Consumer Grade GPS Receivers

- Garmin handheld models are the most widely used (e.g. GPSmap, Etrex, Oregon, Montana)
- Other manufacturers include Magellan, DeLorme
- Available with physical buttons and/or touch screens
- Loadable maps from variety of sources
- All have comparable functionality and accuracy
- All interface with compatible computer applications

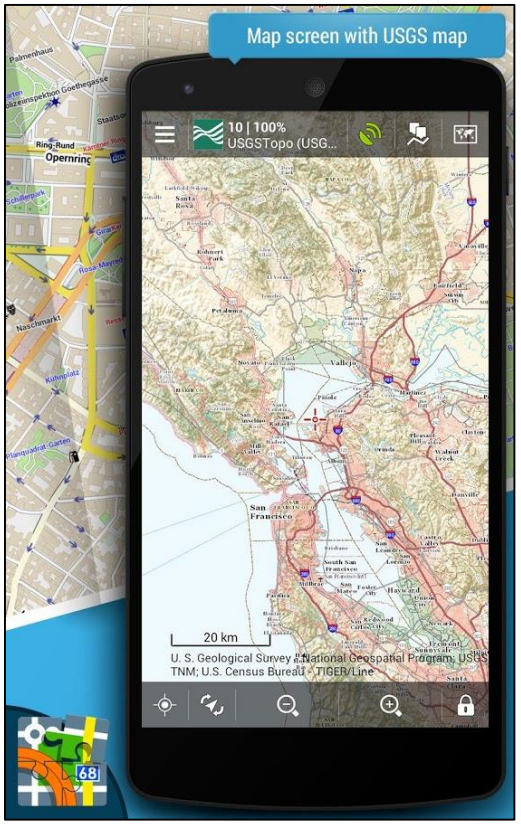
An Example: Garmin GPSmap 62st

Smartphones and Tablets

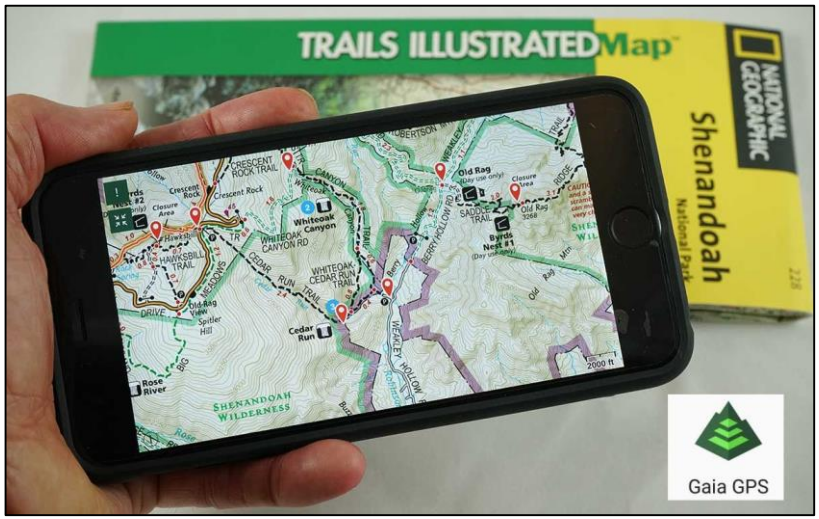
Smartphones and Tablets

- Increasing market share and navigation capabilities
- Advantages: convenient for local hikes, bike rides, daily activity logging; taking georeferenced photos; inexpensive maps including satellite imagery; storage capacity, features
- Disadvantages: accuracy, durability, battery life, can be difficult to view outdoors, operating stability
- Special considerations
  - Need to configure for off cellular grid use
  - Operating in airplane mode significantly increases battery life in the field (requires apps/maps be functional offline)
  - Geotagging of photos is default setting and can introduce a confidentiality issue
  - Cellular devices require additional protection from moisture and damage from physical impacts

Cellphone Examples

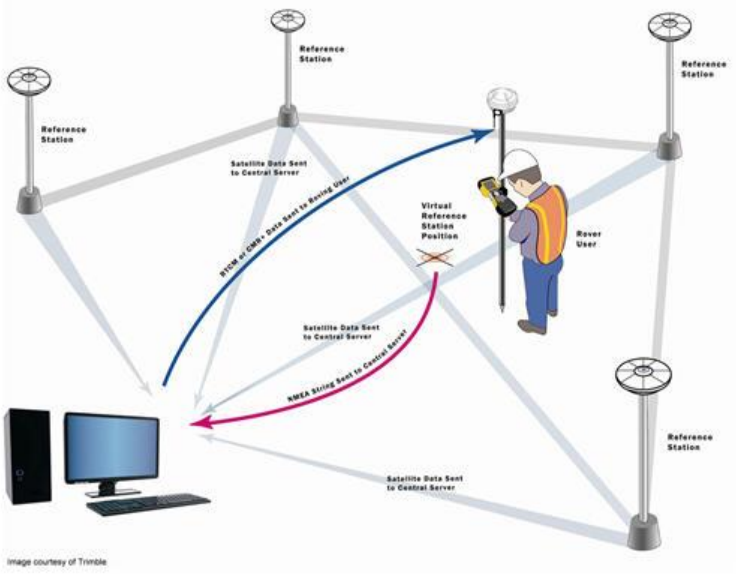


Locus Map on Android

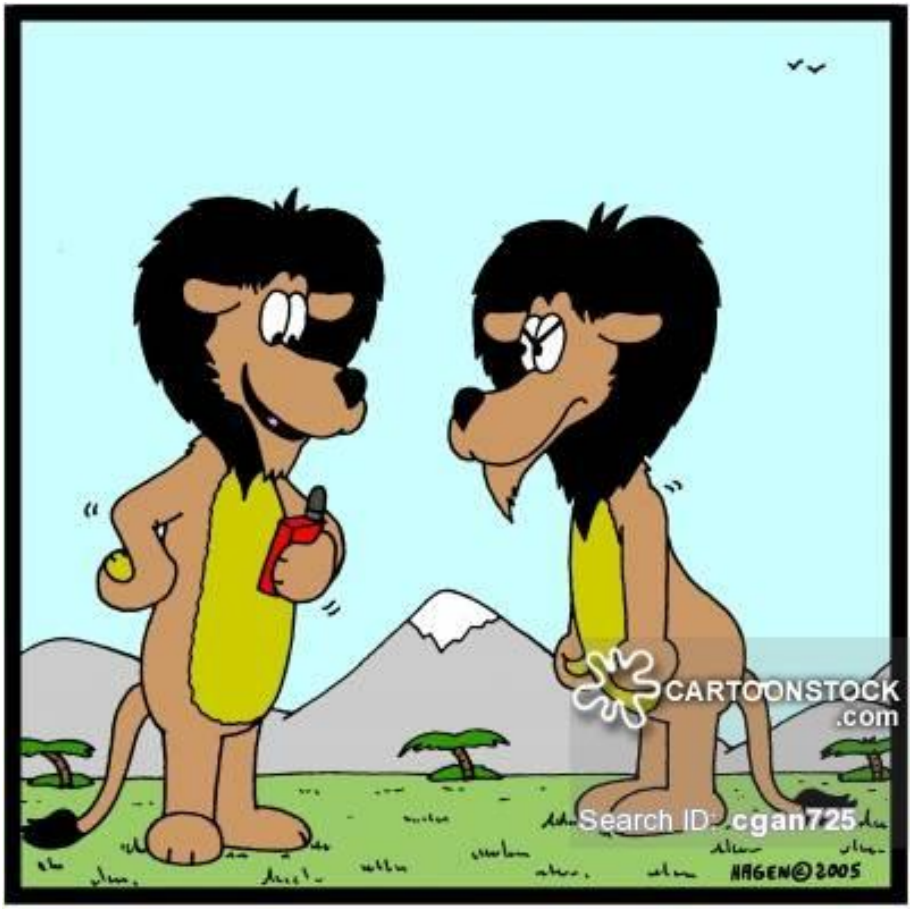


Gaia GPS on iPhone

Survey grade GPS Systems



Getting to know your GPS



Sorry Charles, but according to my GPS-receiver,
I'm still in my own territory...

Essential Basic Skills

- Mark a point – record/save the location of a feature, artifact, or place of interest such as where you parked or a reference landmark
- Find a point – navigate to points saved in your navigation device
- Record a track – record/save a continuous series of points to document a path such as your hike to/from a site or the perimeter of a feature or cluster of features
- Download points and tracks to a computer for storage, editing, transferring to Park staff
- Upload points from a computer for use in the field

Additional Skills

- Loading maps into your GPS device
  - Garmin: Mapinstall application
  - Cellphone: maps install through application specific procedures
- Changing which maps are displayed on your device
  - Garmin: a menu selection on the device
  - Cellphone: through application specific menus
- Managing “geotags” in metadata of photographs

Before you start recording in the field

- Become familiar with the physical layout, controls, and menus for your GPS receiver (manual, YouTube)
- Preload any known reference waypoints
- Check battery level (and bring spares)
- Calibrate altimeter (if taking elevation readings)
- Check position readings are stable
- <Mark> your starting position
- Save current track (if appropriate)
- Clear trip computer
- Clear current track

Recommended Settings

- Position Format: *UTM UPS*; Datum: *NAD83*
- North Reference: *True*
- Bearing: *Numeric Degrees*
- Units/Distance and Speed: Statute or Metric
- Units/Elevation: Feet (ft/min)*
- System/GPS: WAAS/EGNOS or WAAS/GLONASS
- System/Battery Type: Rechargeable NiMH
- Display/Battery Save: On
- Software Version: verify you have latest available

* *To match elevation units on USGS 7.5' and 15' printed maps*

Location Tags (Geotags)

- Cellphone cameras and digital cameras with GPS features default to recording location information in their EXIF metadata (EXIF = Exchangeable Image File Format)
- EXIF data also includes camera model, aperture, shutter speed, ISO, focal length, date, time, and customizable fields.
- Distributing photos with embedded geotags potentially risks exposing sensitive location information associated with features or artifacts to unauthorized persons
- Default settings can be edited to turn off recording location coordinates
- Location information can also be removed from any image's metadata in Windows, macOS, or cellphone applications

Geotag Applications

- Cellphone/tablet applications are available that overlay geotag information visibly on to images – coordinates, elevation, azimuth (direction camera was facing)
- Some of these applications can retroactively overlay this information on to older images if EXIF data was originally recorded
- This capability may be useful for creating reference sets of images with understanding they should not be posted, published, or shared publically
- Examples: Nav Camera (iOS), AngleCam (Android)

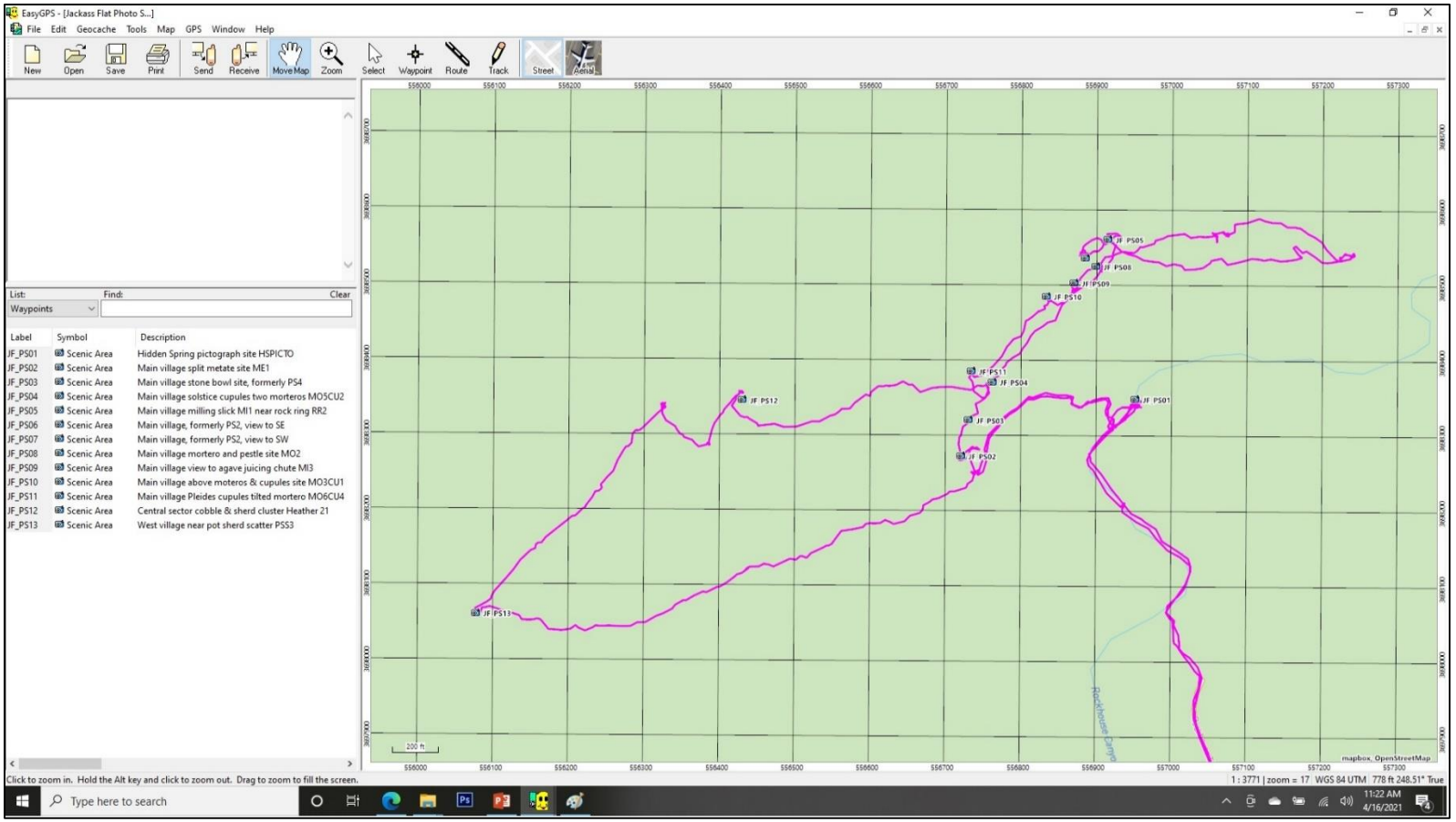
Computer Software for your GPS

Interfacing with your Computer

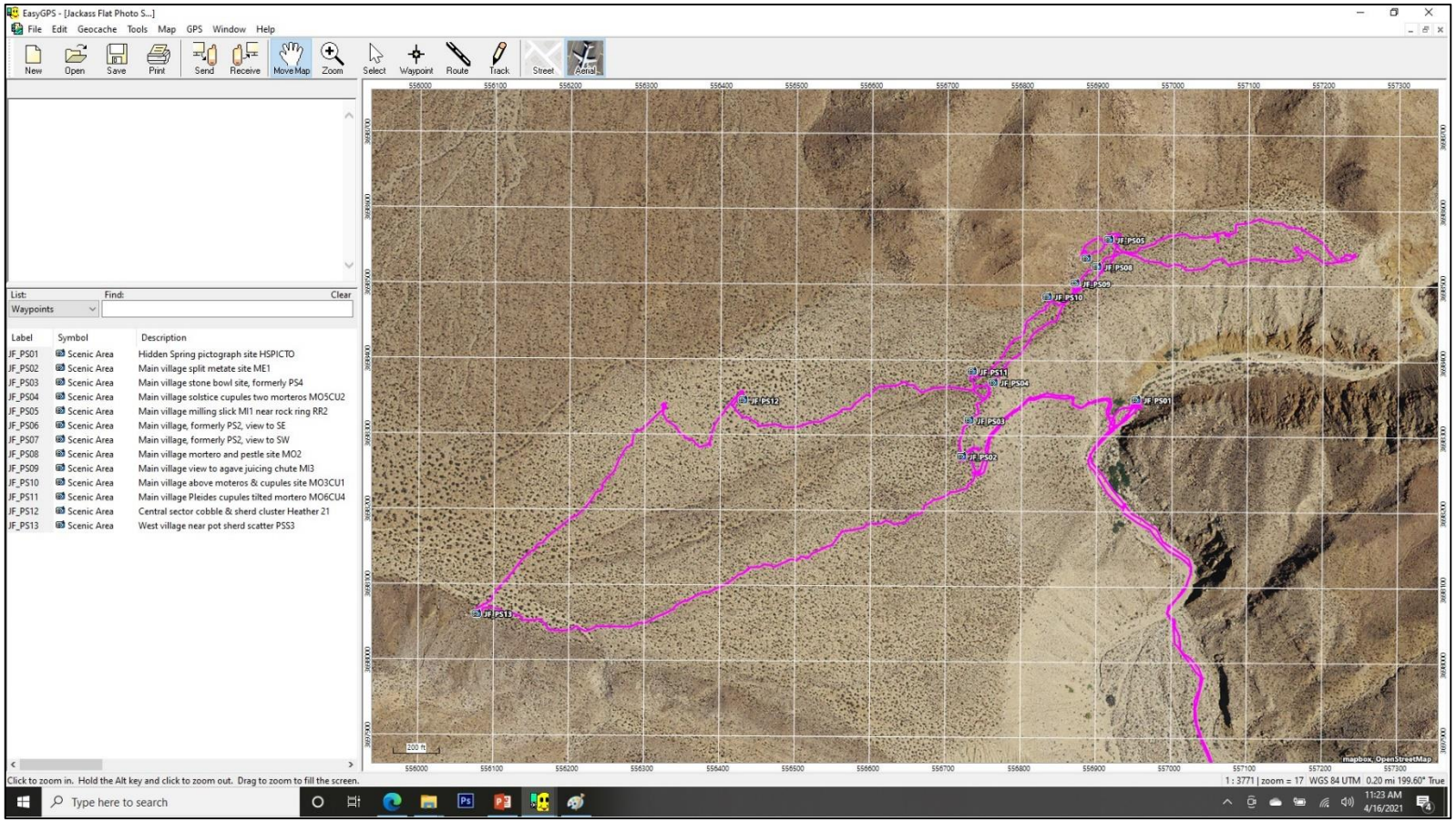
The primary tools I use on my PC

- EasyGPS: Very useful for downloading/uploading waypoints and tracks; quick views of waypoints and tracks on street or aerial map backgrounds, and editing waypoint files (nominal annual subscription ($11.99/year)
- GPS Track Editor: used to create “clean” tracks
- GPS Visualizer: web-based application for converting gpx files to kml/kmz format (Google Earth) or elevation profiles
- Garmin BaseCamp: multifunction software to transfer, edit, store, view, and merge/export GPS tracks and waypoints
- Garmin MapInstall: transferring maps to your GPS
- Garmin WebUpdater or Garmin Express: check for handheld software version; updating to latest version

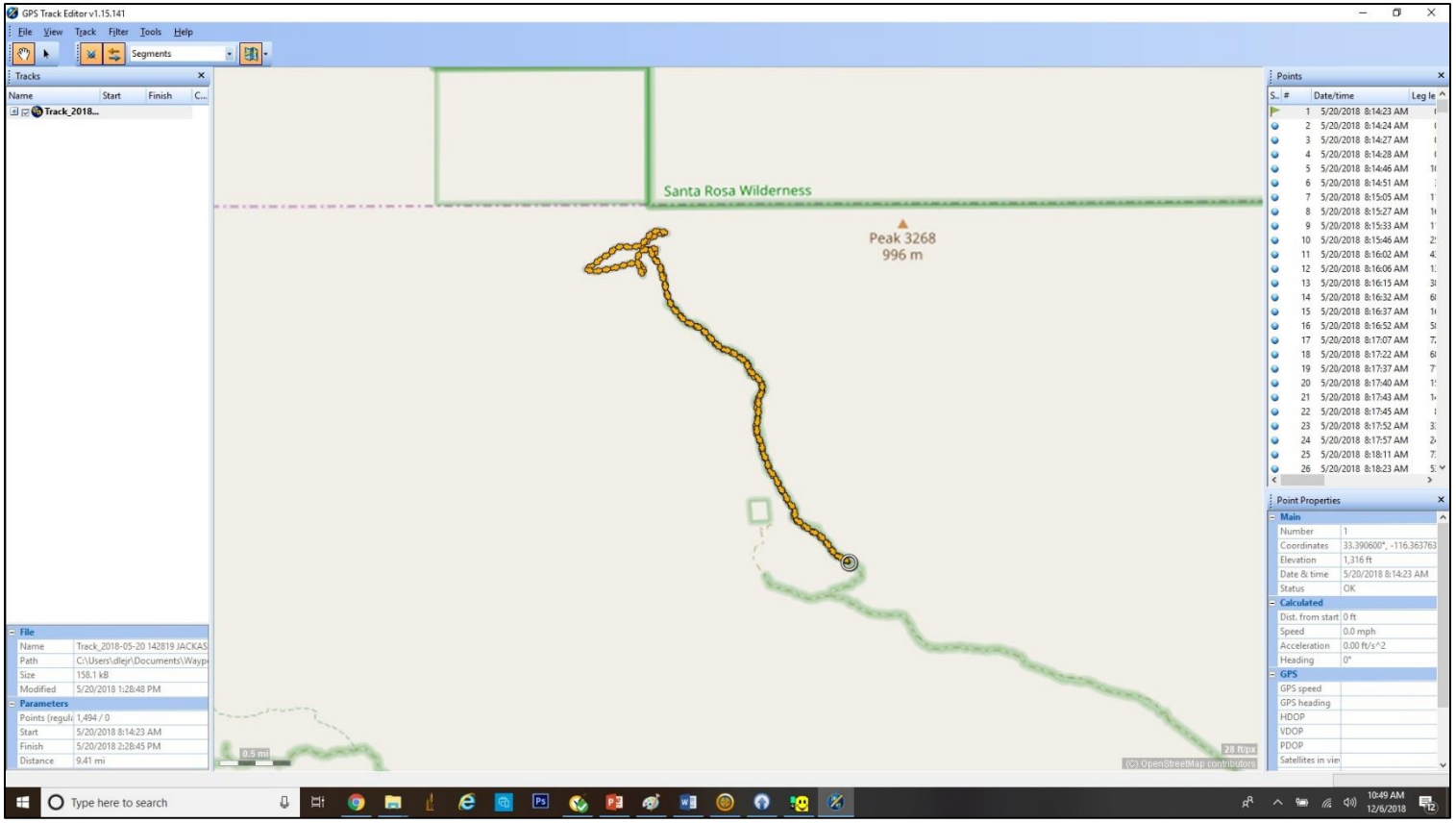
EasyGPS – Street View



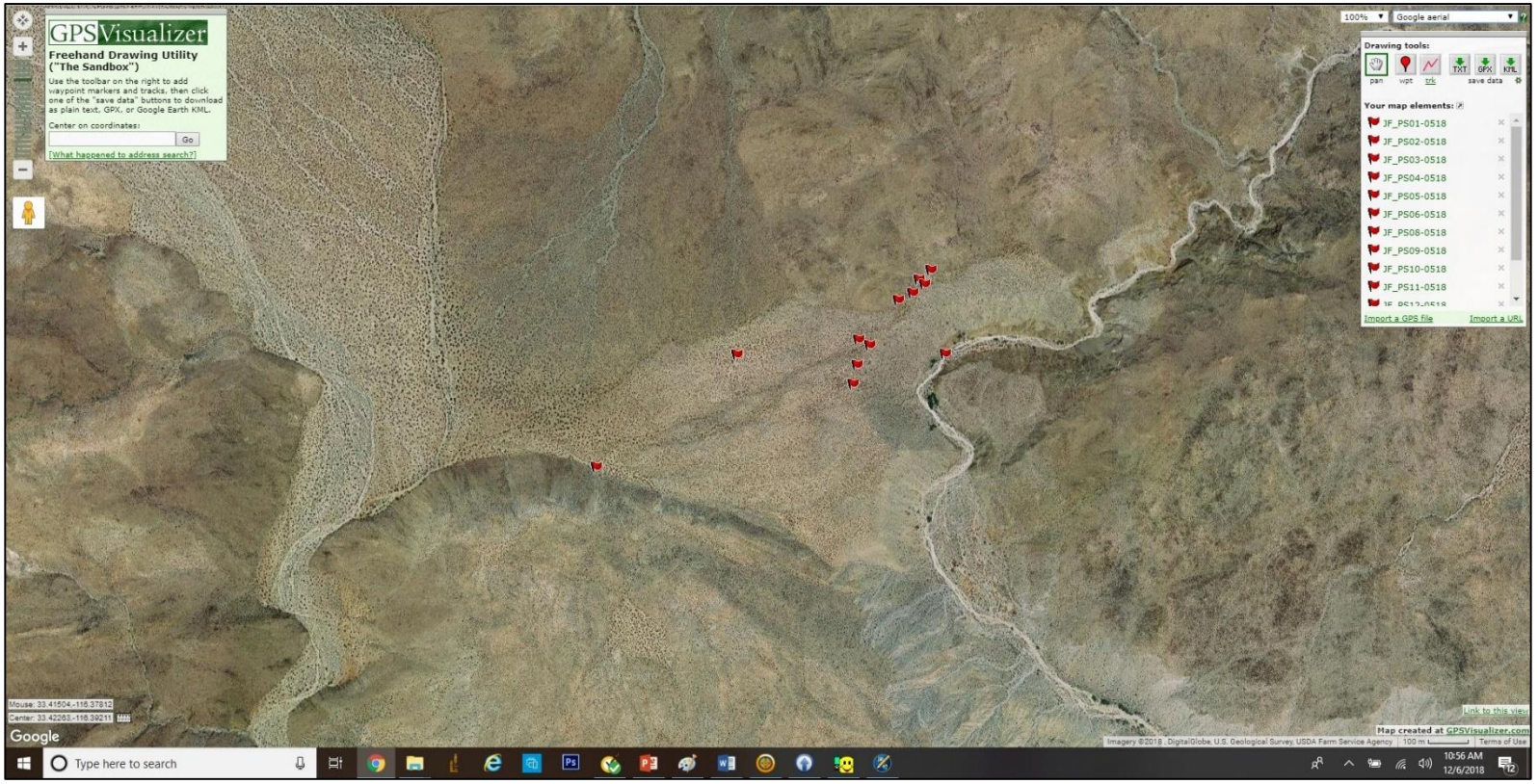
EasyGPS – Aerial View



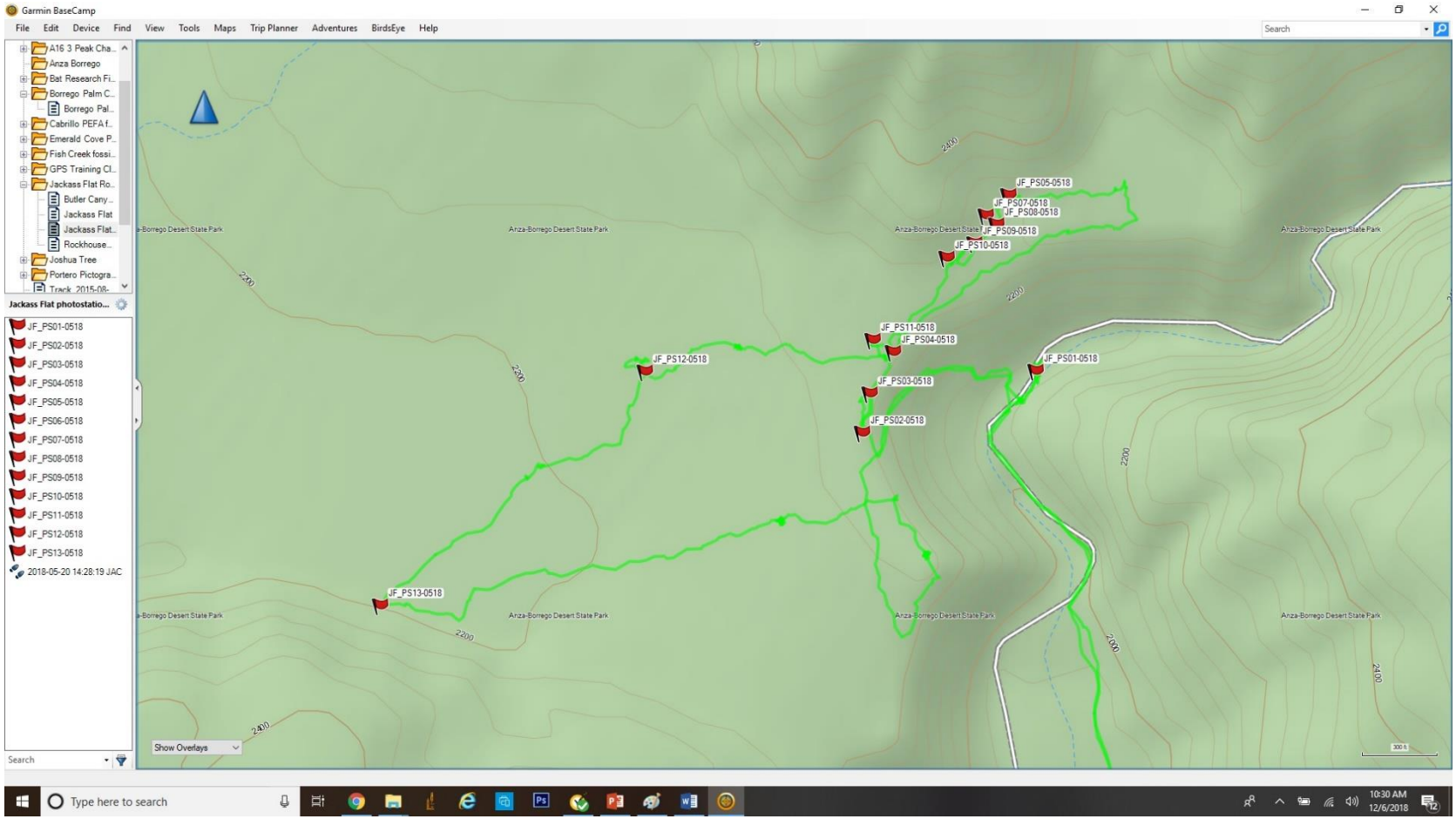
GPS Track Editor



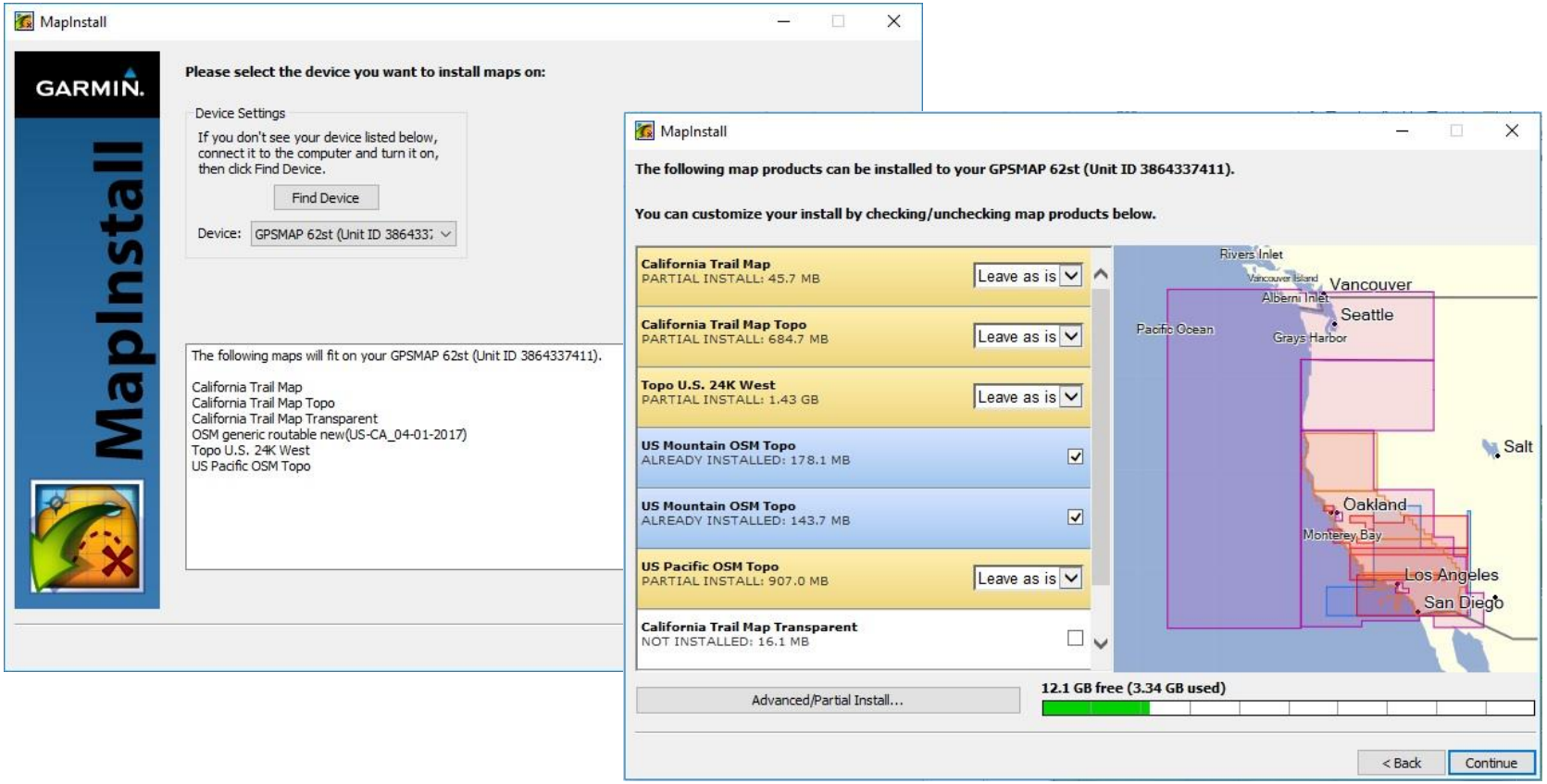
GPS Visualizer (web app)



Garmin BaseCamp



Garmin MapInstall



Garmin WebUpdater

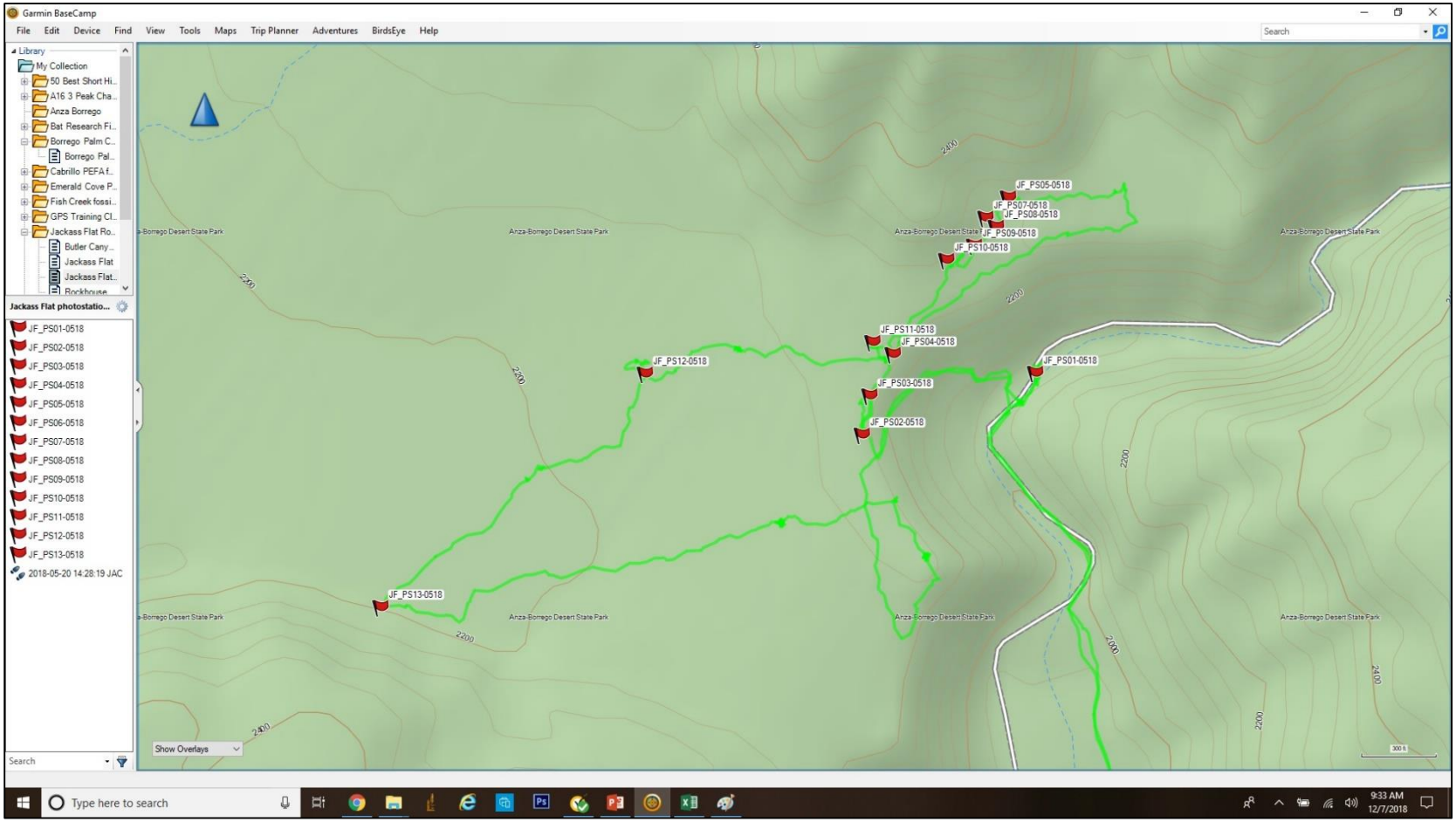
Maps

"My dad's GPS says I don't need to learn how to read maps."

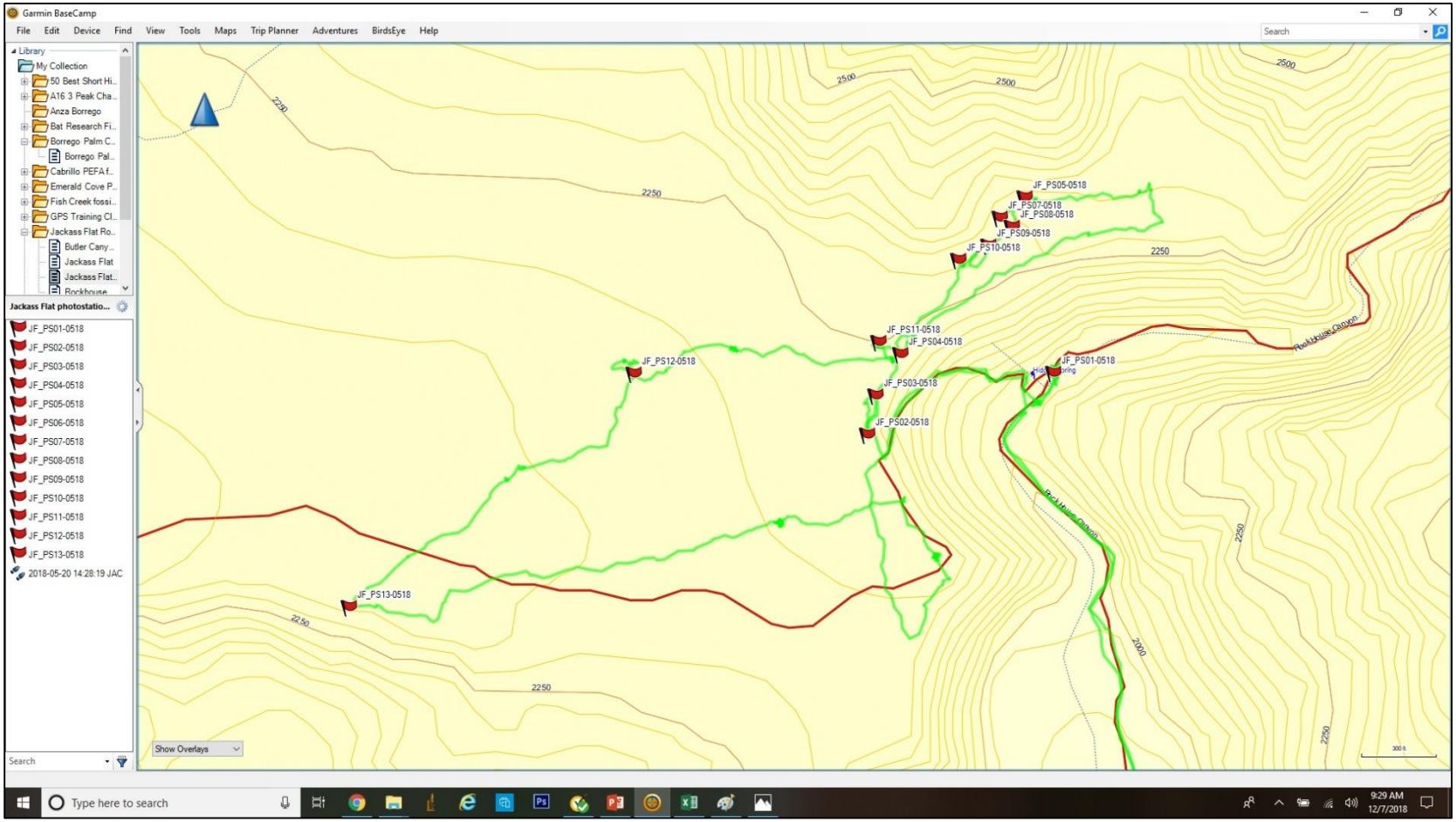
Maps for your GPS

- Garmin Base Map: bundled with your Garmin GPS; typically 100K topographic map for entire country
- Garmin Topo U.S. 24K West: proprietary, requires purchase (~$100), more topographic detail and possibly more accurate elevation for California, Hawaii, Nevada, Oregon, Washington
- OpenStreetMap (OSM) on Garmin: free, routable, open source maps available for nearly all regions of the world; convenient, intuitive self-installer. No elevation data.
- US OSM Topo Routable Map: free, routable, accurate topography, many ground features; a little trickier to install.
- California Trail Map: local San Diego product, lifetime updates all formats ($45); works on Garmin, Android, iOS devices. Features topographic and overlay maps with nearly all trails and dirt roads for all of Southern California and jurisdictional boundaries

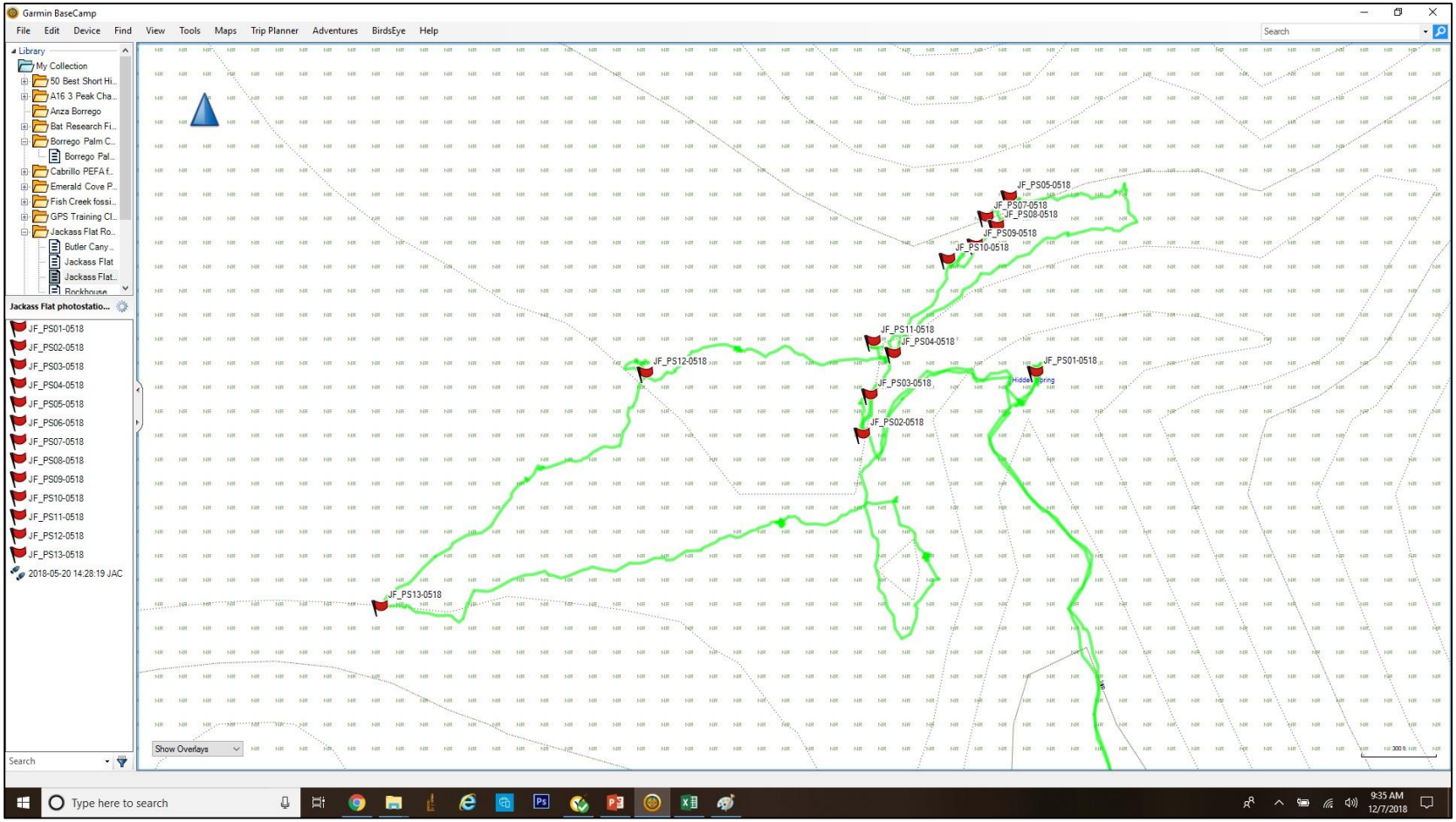
Garmin Topo 24K Map



California Trail Map



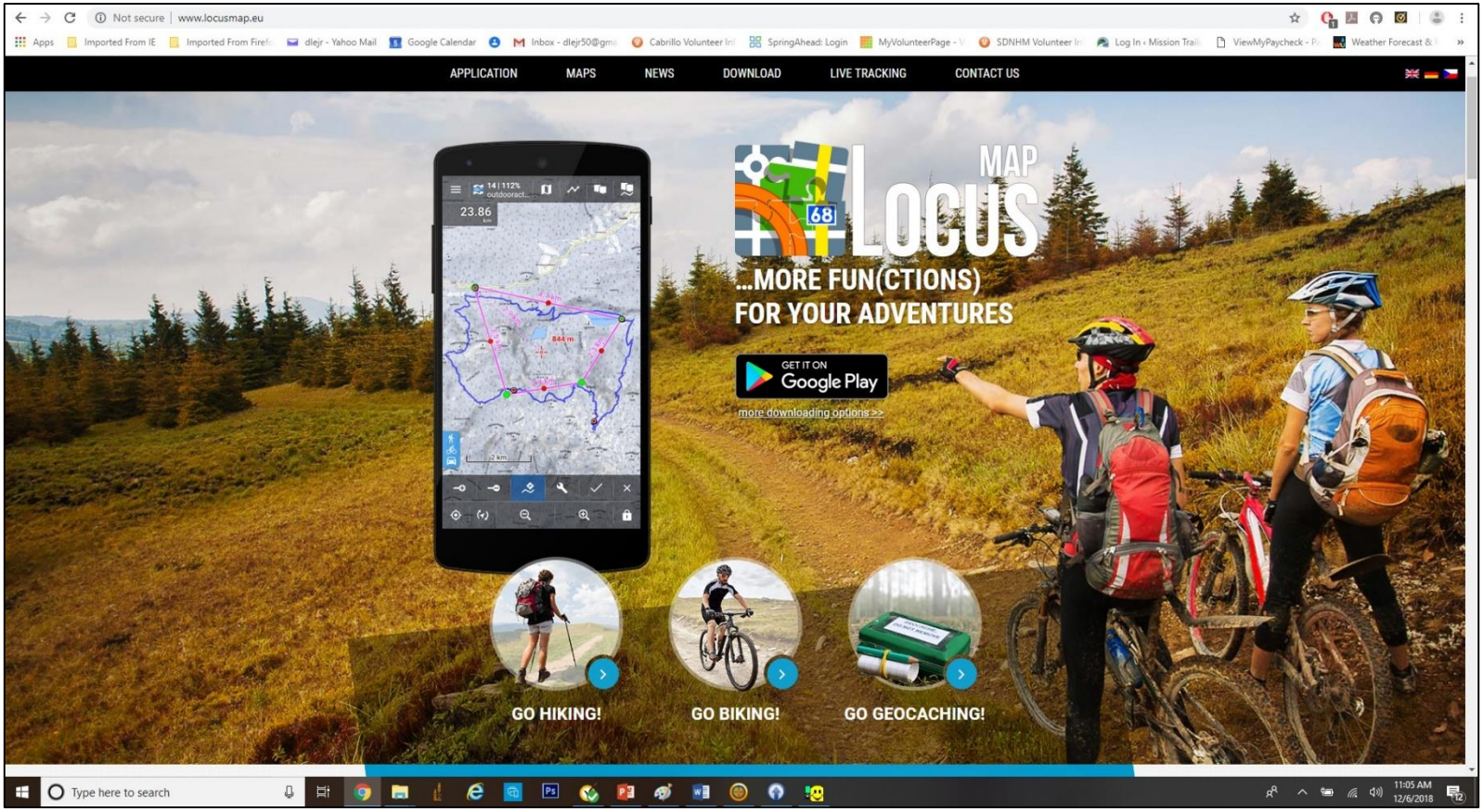
US Pacific OSM Topo Map



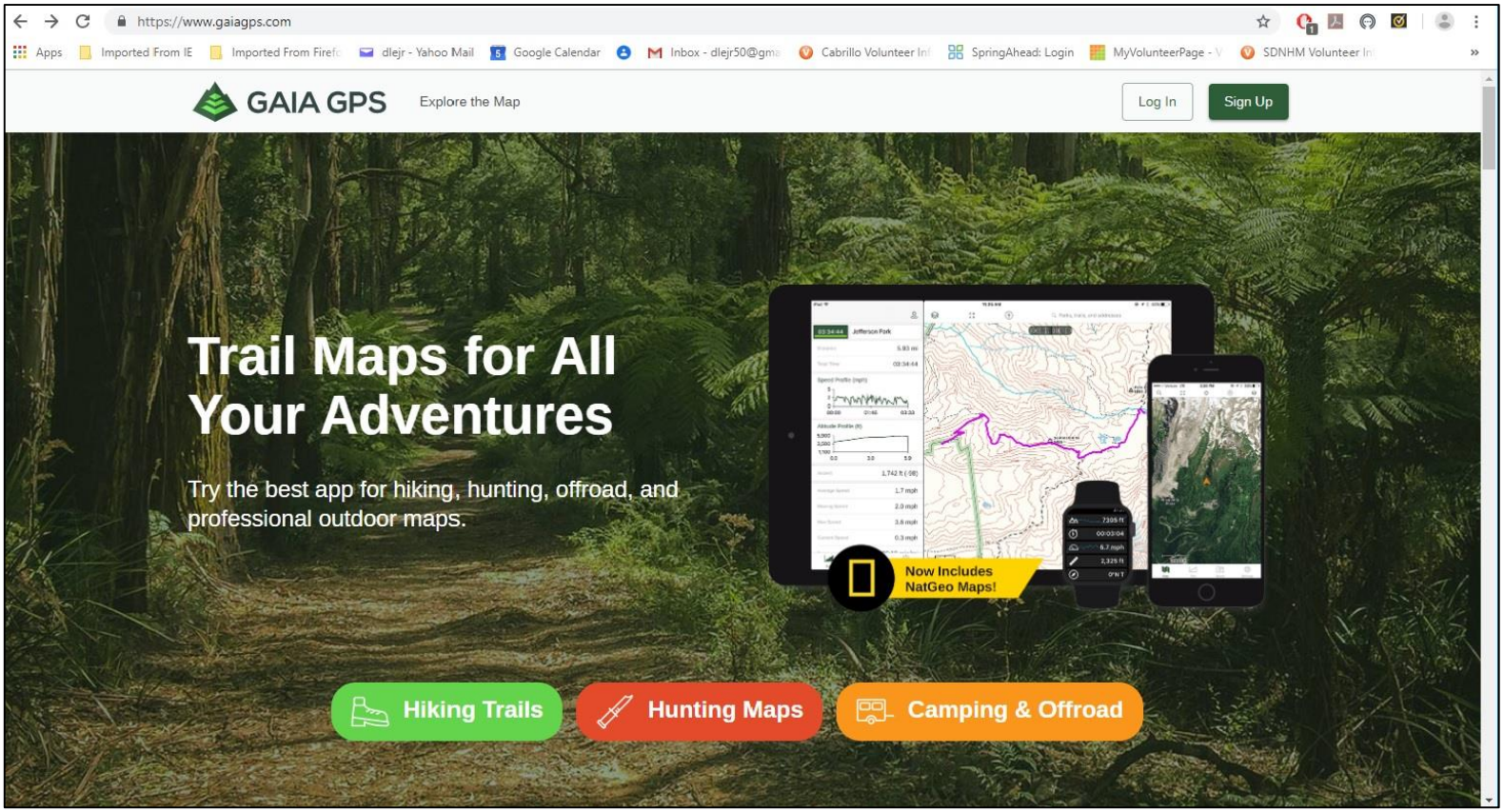
Map Apps for your cellphone or tablet

- Wide variety of Android and iOS mapping applications are available that tap into the GPS capabilities of cellular devices
- Many are free or minimal cost
- Some allow map downloads for use outside of cellular tower range
- Additional maps are often available for use with these apps
- Some include detailed topographic information, satellite imagery aerial imagery
- Apps I use (Android): Locus Map Pro, Gaia GPS, Google Maps
- Apps I use (iOS): Gaia GPS, Galileo Pro, Spyglass, Google Maps
- Maps I use regularly: California Trail Map, US OSM Topo Routable, USGS 7.5’ topographic, Open Street Map, GAIA’s subscription topographic, aerial, and satellite maps

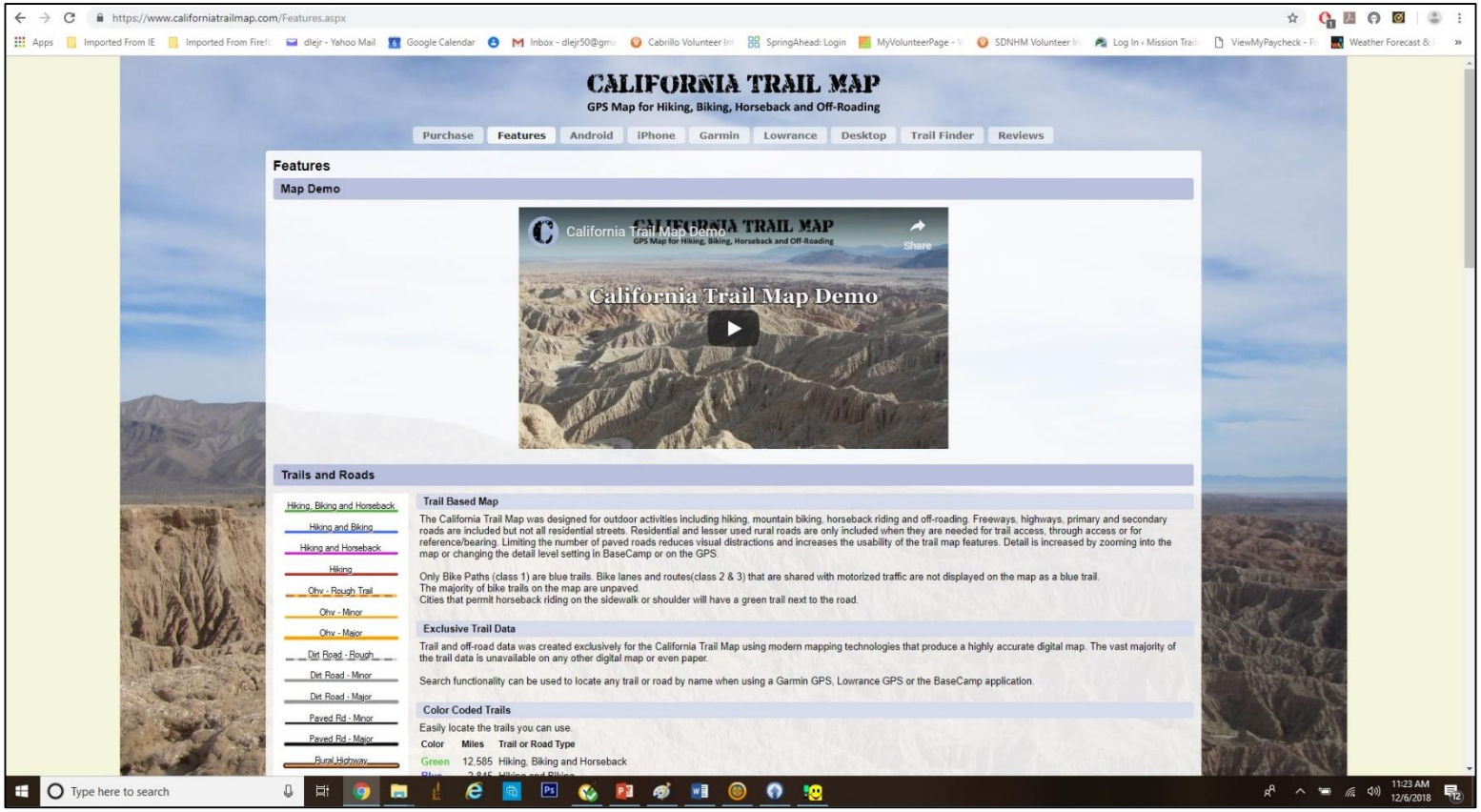
Locus Map Pro (Android app)



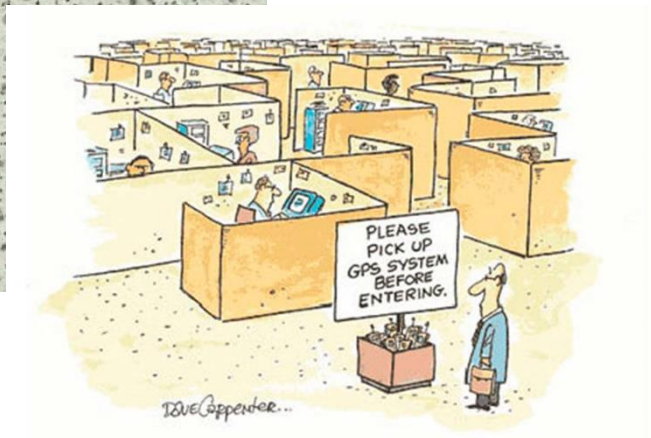
Gaia GPS (Android & iOS app)



California Trail Map



GPS Field Exercises

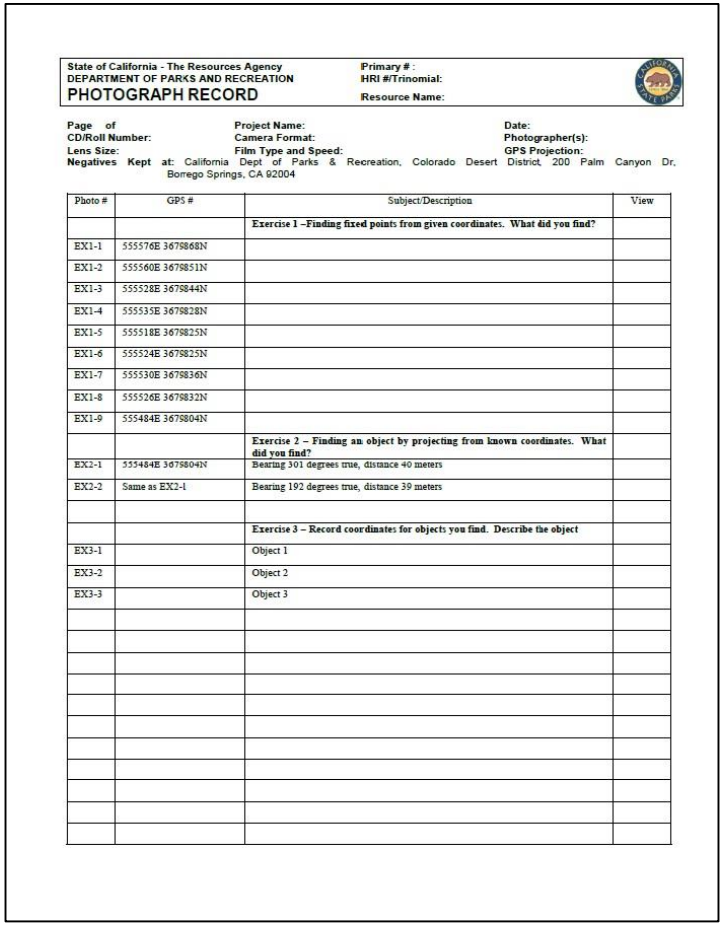


GPS Field Exercises

- Locating artifacts and features using provided location information given (in UTM coordinates)
  (1) Waypoints are known (find)
  (2) Distance and bearing from a feature are known (projection)
- Recording location information for objects you find (in UTM coordinates)
- Applying techniques for improving accuracy of recorded positions
- Mapping the perimeter of a cultural site
- Determining the area of a cultural site

We will pair up for these exercises

GPS Field Exercise Worksheet



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH RECORD

Primary # :
HRI #/Trinomial:
Resource Name:

Page of
CD/Roll Number:
Lens Size:

Project Name:
Camera Format:
Film Type and Speed:

Date:
Photographer(s):
GPS Projection:

Negatives Kept at: California Dept of Parks & Recreation, Colorado Desert District, 200 Palm Canyon Dr, Borrego Springs, CA 92004

Photo #	GPS #	Subject/Description	View
		Exercise 1 –Finding fixed points from given coordinates. What did you find?	
EX1-1	555576E 3675868N		
EX1-2	555560E 3675851N		
EX1-3	555528E 3675844N		
EX1-4	555535E 3675828N		
EX1-5	555518E 3675825N		
EX1-6	555524E 3675825N		
EX1-7	555530E 3675836N		
EX1-8	555526E 3675832N		
EX1-9	555484E 3675804N		
		Exercise 2 – Finding an object by projecting from known coordinates. What did you find?	
EX2-1	555484E 3675804N	Bearing 301 degrees true, distance 40 meters	
EX2-2	Same as EX2-1	Bearing 192 degrees true, distance 39 meters	
		Exercise 3 – Record coordinates for objects you find. Describe the object	
EX3-1		Object 1	
EX3-2		Object 2	
EX3-3		Object 3	

We will pair up for these exercises

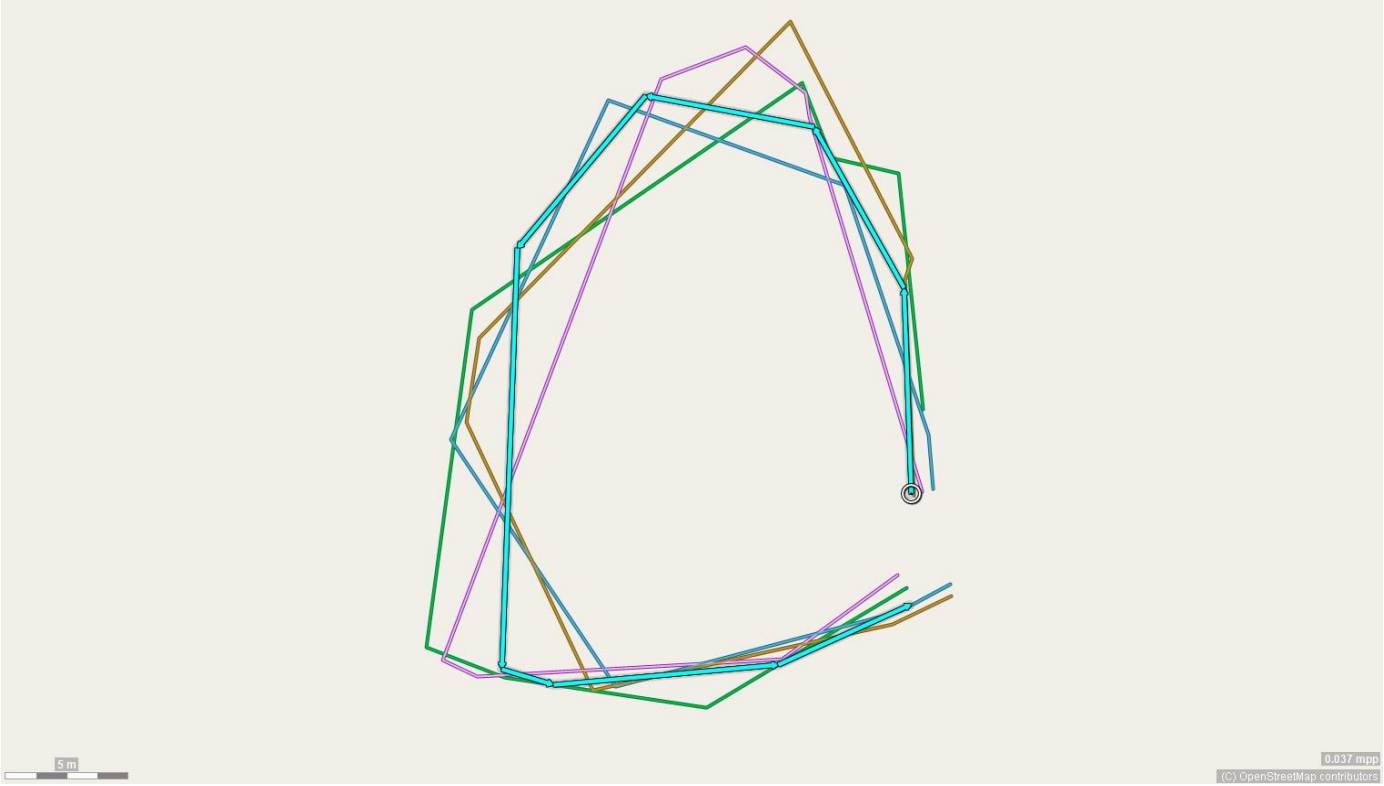
Field Exercises - Assignments

- Exercise 1: Find fixed points with known coordinates; record any offset as viewed on your GPS (in meters)
- Exercise 2: Find an object by projecting from a fixed point with known coordinates
- Exercise 3: Record coordinates for objects you find (quick look and with position averaging)
- Exercise 4: Walk and record a perimeter
- Exercise 5: Estimate area within a perimeter

We will pair up for these exercises

Field Exercise Results

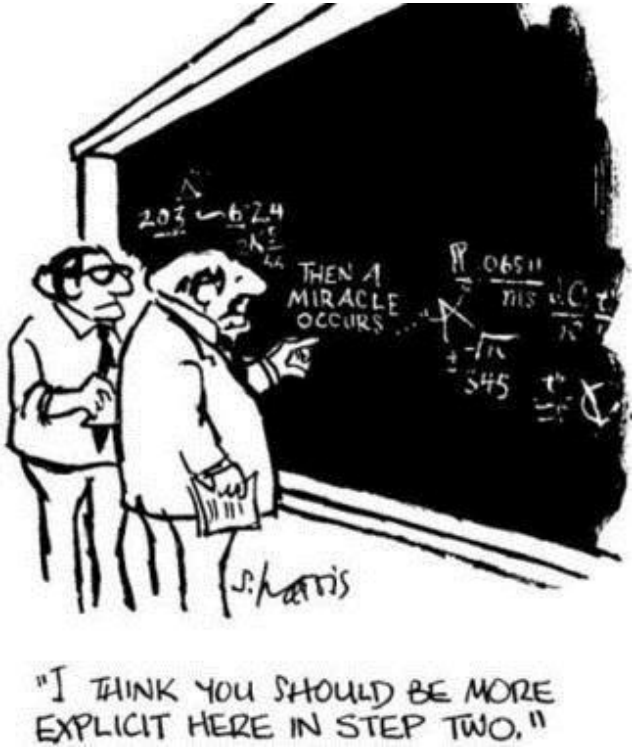
Field Exercise Results



Review

- What is GPS?
- Maps and Navigation
- Geodesy and Datums
- Map Projections/Coordinate Systems
- GPS Receivers
- Getting to know your GPS
- Maps
- Navigating with GPS
- GPS Field Exercises

Feedback?


THEN A MIRACLE OCCURS
"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

Backup

Some thoughts on configuration

- Learn the factory settings first
- Get to know your way around the Main Menu, Setup menu, and the choices available when pressing the <menu> button
- Ensure at least one display screen includes UTM coordinates when doing archaeology field work
- Experiment with screens you think you will use most
- (Optional) Add/subtract screens to simplify use in the field
- (Optional) Tailor data fields on display screens to match your needs

An Example: Garmin GPSMAP 62s

- See “Configuration and Controls Crib Sheet” (handout)
- See “How to Use in Field Crib Sheet” (handout)

Locus Map Resources

Website (scroll to bottom for help resources)

https://www.locusmap.app/

User Guide

https://docs.locusmap.eu/doku.php?id=manual:user_guide

Basics

https://docs.locusmap.eu/lib/exe/fetch.php?media=manual:locus_map_basics.pdf