

GPS for the Search Function

Nevada County Sheriff's Office

Search and Rescue Team

Things we'll cover today

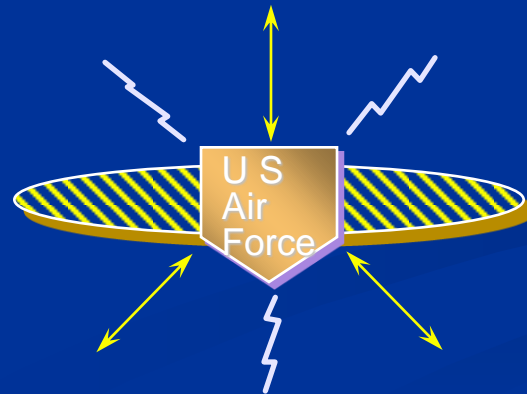
- What is a GPS and How does it work
- Things to always remember about your GPS
- Creating a Waypoint
- Creating a Route
- Turning Tracks ON/OFF
- Things to consider when using a route outline
- Turn your TRACKS OFF at the end of your search
- Saving a TRACK
- Down loading your GPS at the IC

Four Primary Functions of GPS

- Position and coordinates.
- The distance and direction between any two waypoints, or a position and a waypoint.
- Travel progress reports.
- Accurate time measurement.

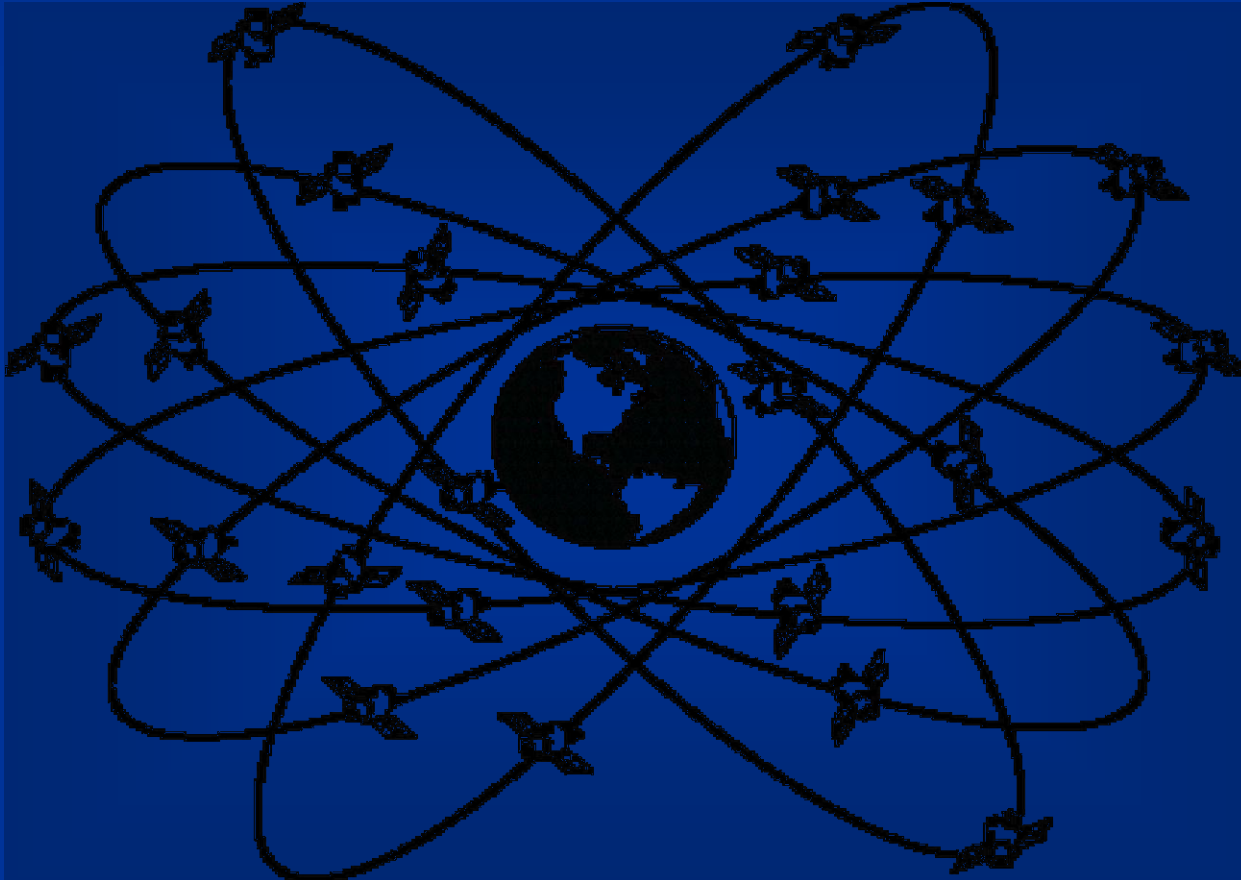
Control Segment

- Managed by the U.S. Air Force
- 4 monitoring and 3 upload stations
- Daily ephemeris (location) updates
- Transmits clock and orbit corrections
- Disable use of satellites
- Degrade accuracy of the signals

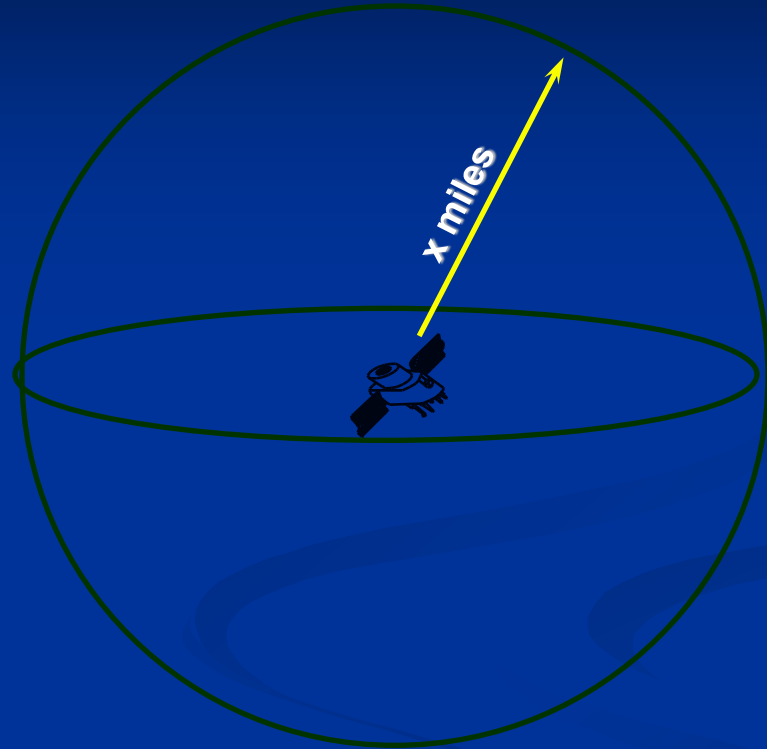


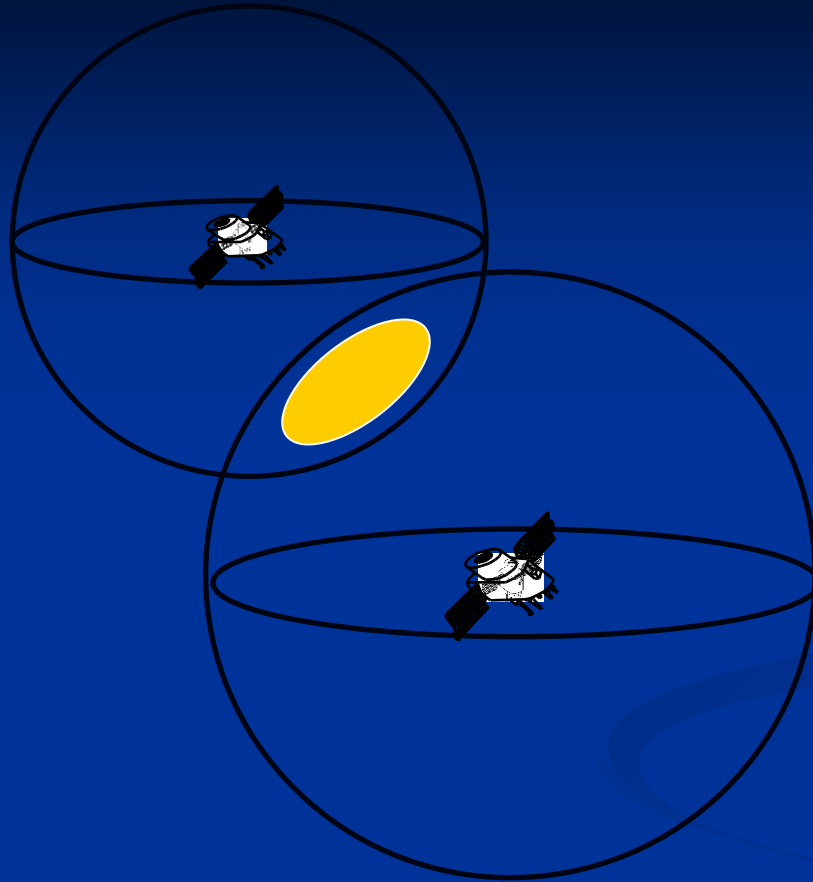
Space Segment

- 24 satellites in 6 inclined orbits (27 w/3 in reserve)
 - 4 satellites per orbit - 12 hour revolutions
 - 12,600 miles (20,000 km) altitude

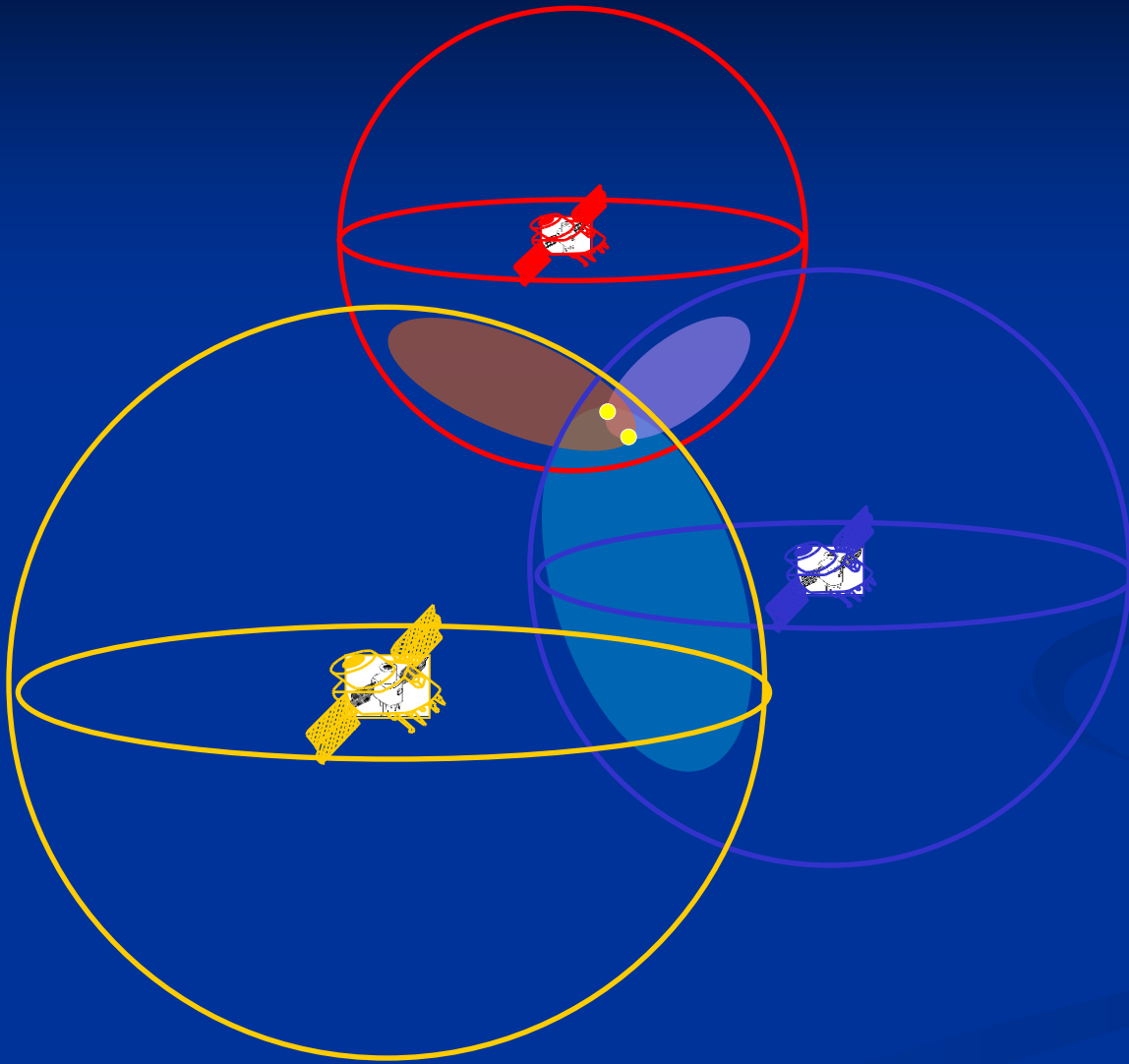


The distance (x) from one satellite tells us we're located somewhere on the surface of an imaginary sphere centered on that satellite with a radius of x .



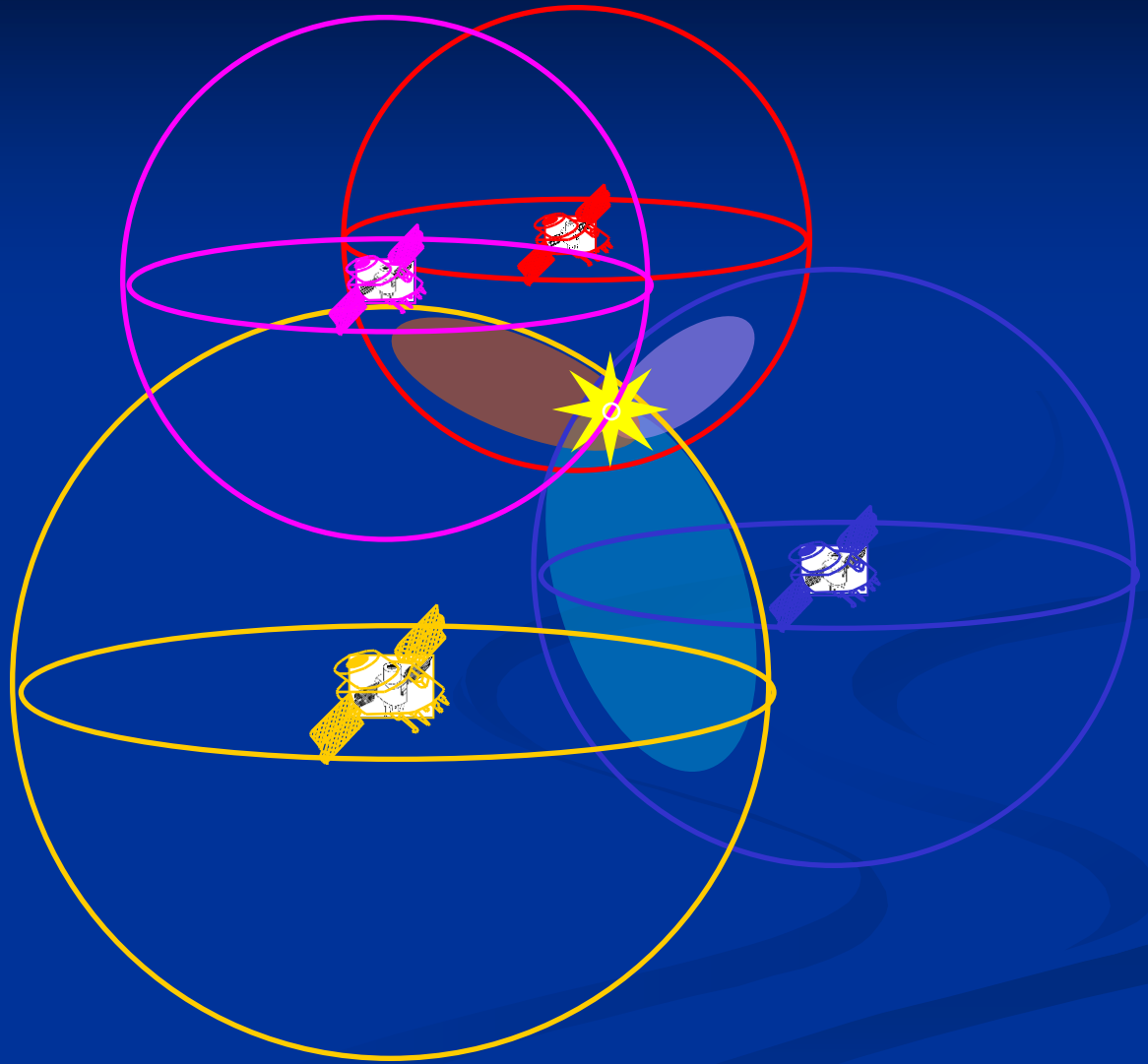


- Distance measurements from two satellites limits our location to the intersection of two spheres, which is a circle.



■ A third measurement narrows our location to just two points.

■ A fourth measurement determines which point is our true location



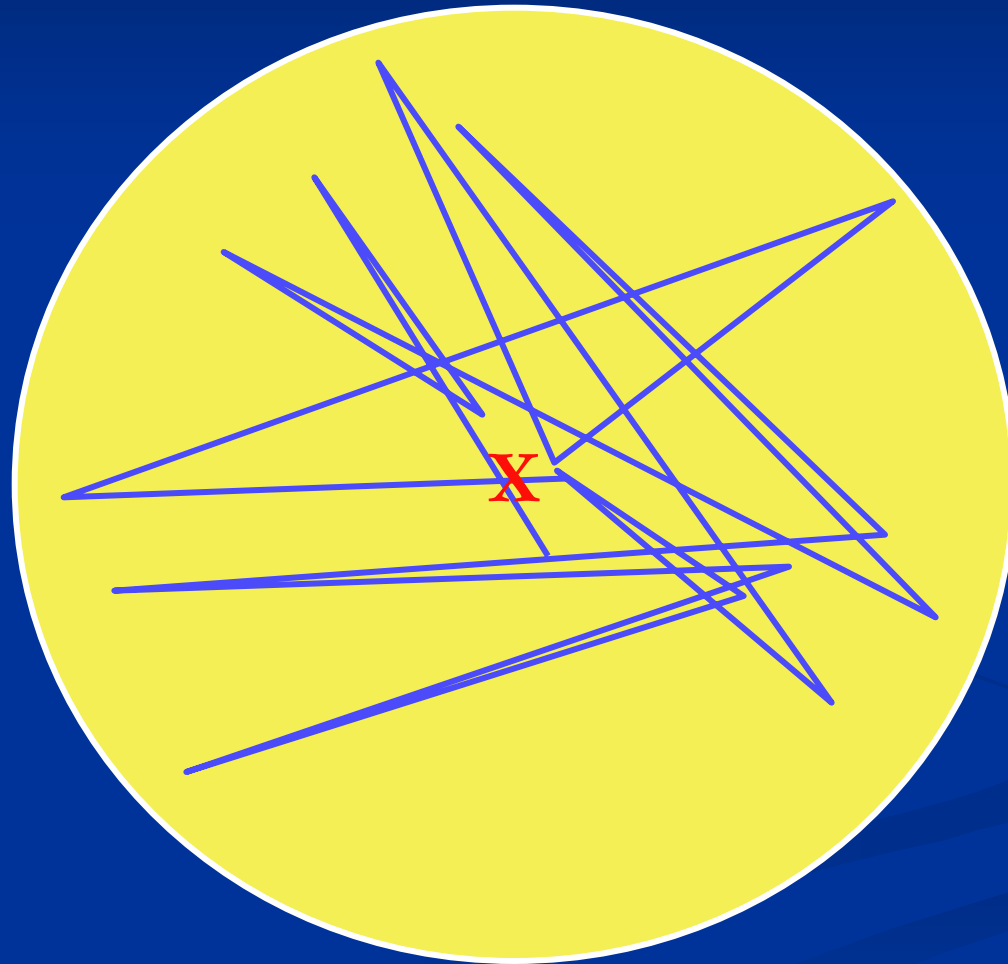
Position Fix

- A position is based on real-time satellite tracking.
- It's defined by a set of coordinates.
- It has no name.
- A position represents only an *approximation* of the receiver's true location.
- A position is not static. It changes constantly as the GPS receiver moves (or wanders due to random errors).
- A receiver must be in 2D or 3D mode (at least 3 or 4 satellites acquired) in order to provide a position fix.
- 3D mode dramatically improves position accuracy.

Limiting Factors

- Dense canopy
- Steep topography
- Large and numerous structures
- Microwave antenna interference

GPS Waypoint Circle of Error



Basic To Do List

- Turn GPS ON (If you have changed location greater the 30 miles calibrate your compass)
- Go to COMPASS Page



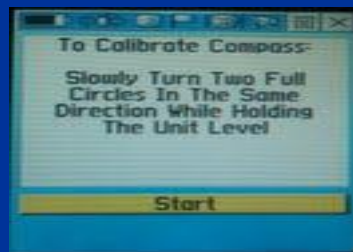
- Press MENU



- Select CALIBRATE COMPASS



- Press START



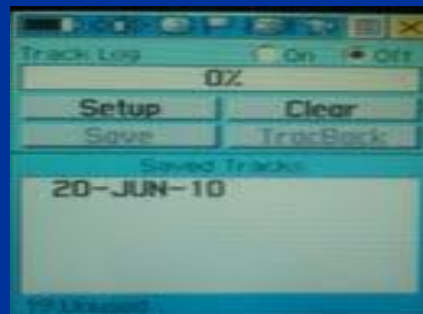
- Turn Clockwise two times

Things to remember about your GPS

- Check your Battery level
- Check your Datum selection (UTM NAD 27)
- Check your tracks are in the OFF position until you start your search
- MARK your Position at IC
- Make sure to label waypoints and tracks with the correct name
- This makes it easier for IC to find the pertinent info to down load when you return to IC

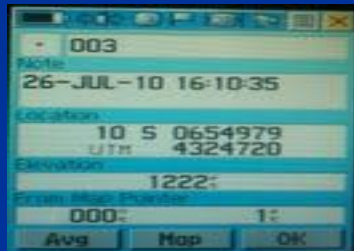
Labeling tracks and waypoints

- 1A3G (1=operational period, A=Search Area, 3=Team Number, G=Ground Pounder)
- 2G12K (2=Operational Period, G=Search Area, 12=Team Number, K=Canine)
- G=ground Pounder
- K=K9
- A=ATV
- H=Horse Team
- T=Tracking Team
- R=Ropes Team
- C=Crisis
- S=Snow Mobile
- SC=Snow Cat



Create Way Points

- Find your corners and write down the coordinates
- Press the MARK key
- Edit the UTM to match the coordinates you want
- Press OK
- Repeat above steps for the rest of your corners



Create a Route

- Go to MAIN MENU
- Select ROUTES
- Select NEW
- Select SELECT NEW POINT
- This takes you to Waypoints Press ENTER
- Select your first corner waypoint you entered
- Select USE then Press ENTER
- Scroll up to SELECT NEW POINT and Press ENTER
- Continue the same process for all the corners
- When your done entering all corners the last entry is going to be the first corner you entered
- Then scroll down to the MAP Icon and Press ENTER
- You should now have a pink highlighted box on the screen of your GPS

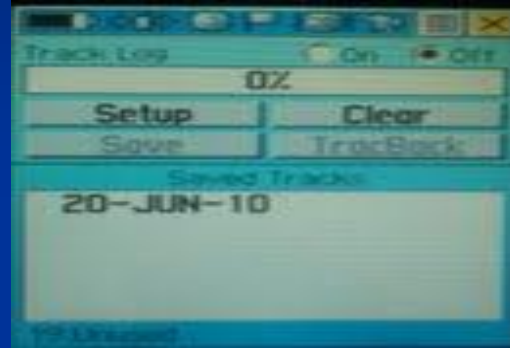


Things to Consider when viewing your route on your GPS

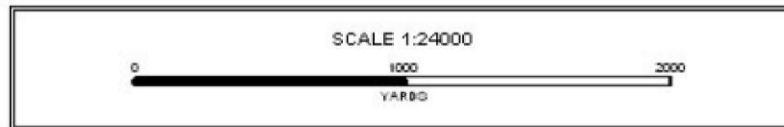
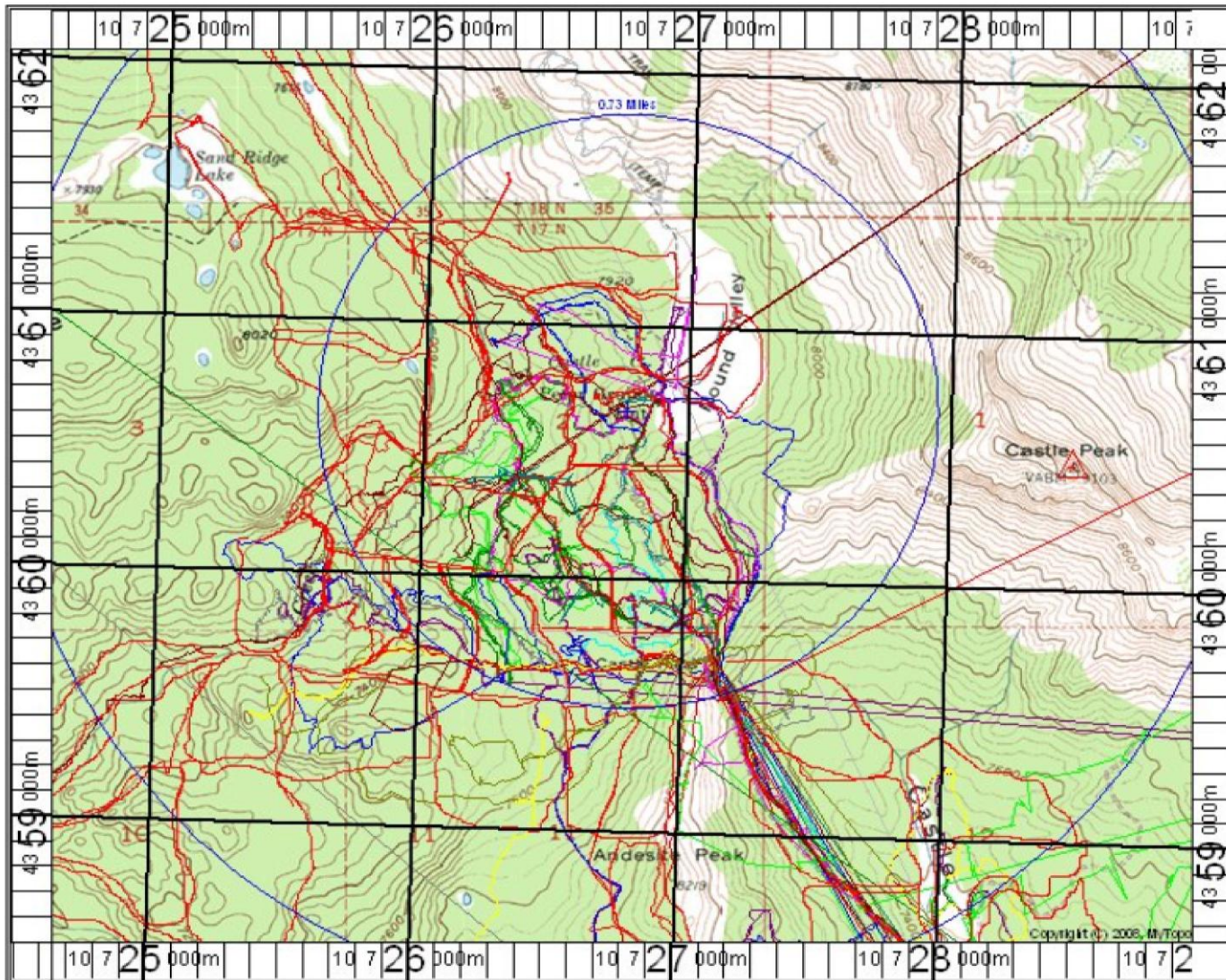
- Your MAP is not oriented (if your map is set to north up)
- Only your CURSER is pointing in the direction you are facing
- This is IMPORTANT so that you don't get DISORIENTED
- If you select Track Up your map is now oriented.

Turn Your Tracks On

- When you arrive at your search area the first thing you want to do is turn ON your TRACKS



- Go to Main Menu
- Select TRACKS Press ENTER
- At the top of your screen you will see a ON and a OFF selection
- Highlight the ON position and Press ENTER
- Your TRACKS will now start tracking your every move until you turn them OFF



THANK YOU

BE SAFE OUT THERE &
HAVE A BACK UP PLAN

