

What is it & how can I use it in genealogy?



# Global Positioning System

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## What is GPS?

GPS is a Satellite Navigation System.

GPS is funded by and controlled by the U. S. Department of Defense (DOD). While there are many thousands of civil users of GPS world-wide, the system was designed for and is operated by the U. S. military.

GPS provides specially coded satellite signals that can be processed in a GPS receiver, enabling the receiver to compute position, velocity and time.

Four GPS satellite signals are used to compute positions in three dimensions and the time offset in the receiver clock.

(See Figure 1.)

## Space Segment

The Space Segment of the system consists of the GPS satellites. These space vehicles (SVs) send radio signals from space.

The nominal GPS Operational Constellation consists of 24 satellites that orbit the earth in 12 hours. There are often more than 24 operational satellites as new ones are launched to replace older satellites. The satellite orbits repeat almost the same ground track (as the earth turns beneath them) once each day. There are six orbital planes (with nominally four SVs in each), equally spaced (60 degrees apart), and inclined at about fifty-five degrees with respect to the equatorial plane. This constellation provides the user with between five and eight SVs visible from any point on the earth.

(See Figure 2.)

## Control Segment

The Control Segment consists of a system of tracking stations located around the world.

The Master Control facility is located at Schriever Air Force Base (formerly Falcon AFB) in Colorado. These monitor stations measure signals from the SVs which are incorporated into orbital models for each satellite. The models compute precise orbital data (ephemeris) and SV clock corrections for each satellite. The Master Control station uploads ephemeris and clock data to the SVs. The SVs then send subsets of the orbital ephemeris data to GPS receivers over radio signals.

(See Figure 3.)

## User Segment

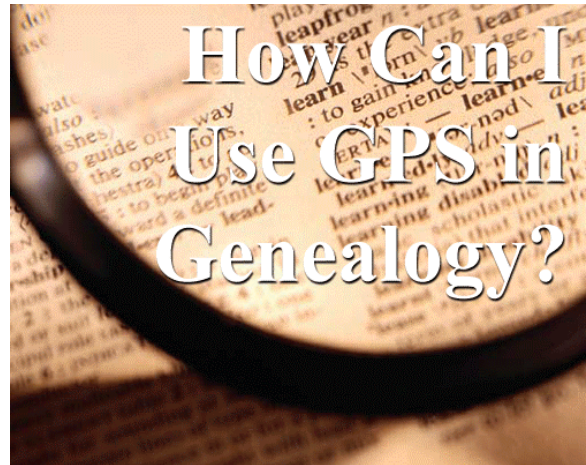
The GPS User Segment consists of the GPS receivers and the user community. GPS receivers convert SV signals into position, velocity, and time estimates. Four satellites are required to compute the four dimensions of X, Y, Z (position) and Time. GPS receivers are used for navigation, positioning, time dissemination, and other research. Navigation in three dimensions is the primary function of GPS. Navigation receivers are made for aircraft, ships, ground vehicles, and for hand carrying by individuals.

(See Figure 4.)

## My GPS Equipment & Video

Garmin GPS V

GPS V Video



Find and/or mark locations:

- Homesteads
- Cemeteries
- Travel Routes

# APPENDIX

Figure 1

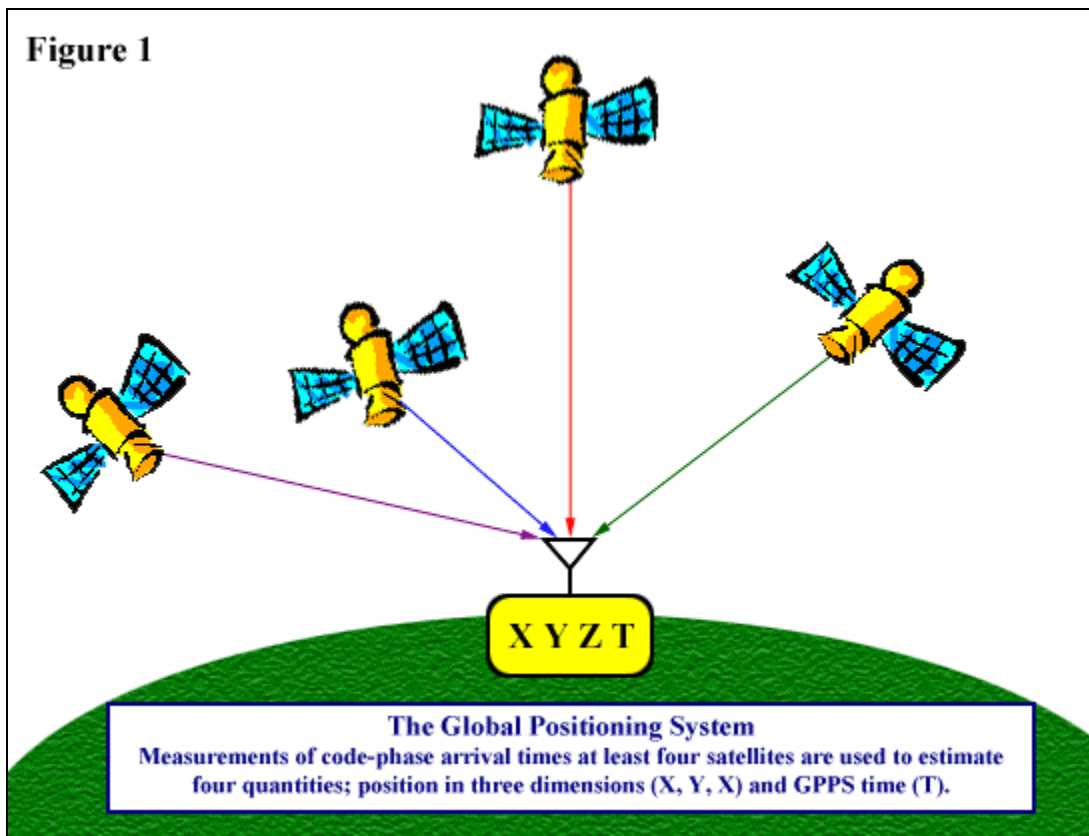
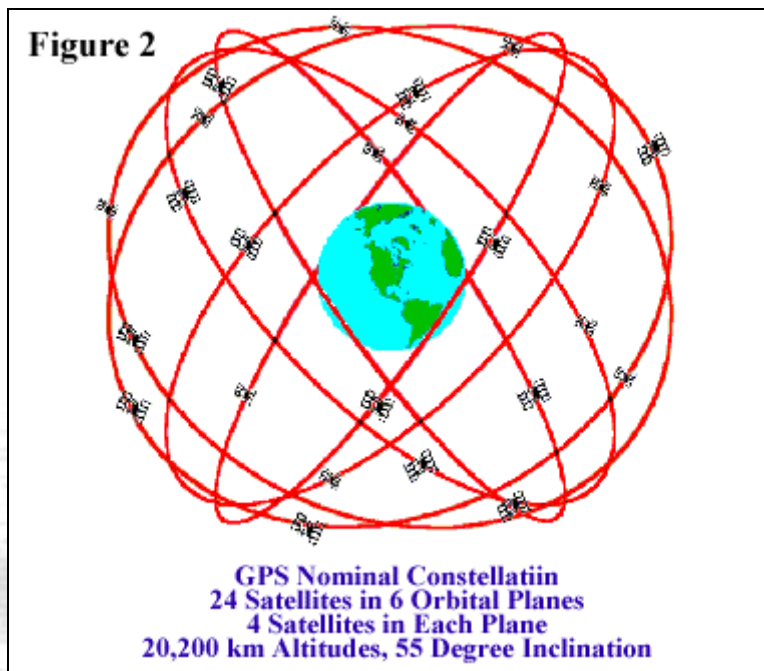
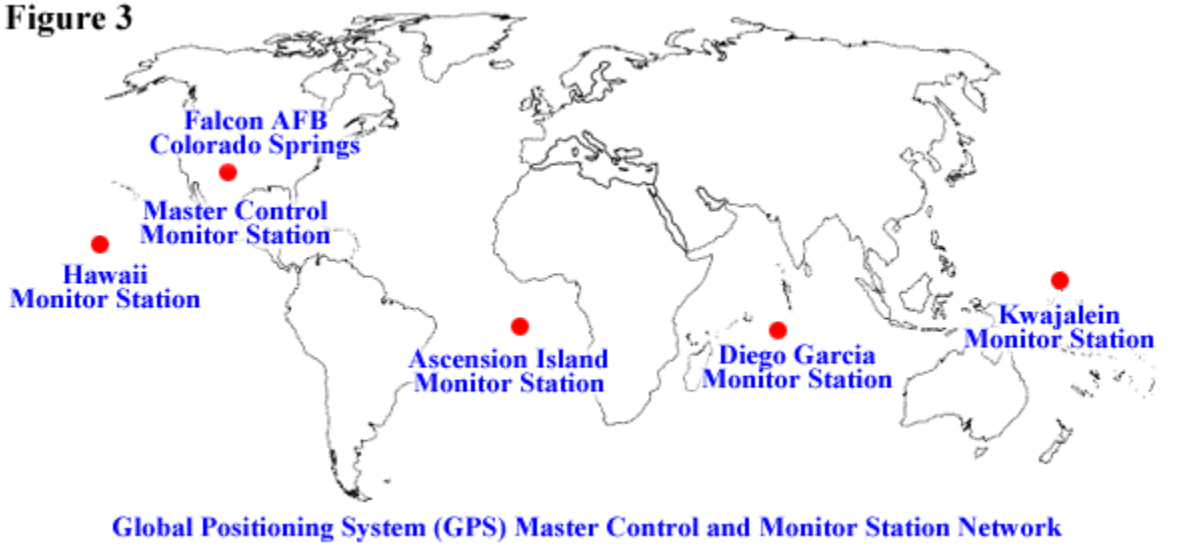


Figure 2



**Figure 3**



**Figure 4**

