GIS TRAINING

Paramilitary Training

Likuyu-Seka-Tanzania

June, 2021

GPS RECEIVERS

1

- The **Global Positioning System** (**GPS**) is a space-based system that provides **location** and **time information** anywhere on or near the Earth.

  - Determine your current location by finding the position of a number of satellites.
  - Calculating the distance from satellites to provide your location.
  - A GPS receiver can be inbuilt into a device, e.g mobile phones, cameras, wrist watches etc.
  - GPS receivers are used for navigation, locating, mapping, surveying, surveillance, recreational etc.

GPS RECEIVERS Cont...

- The Global Positioning System (GPS) is a satellite-based navigation system made up of a network of 24 satellites placed into orbit.

- GPS was originally intended for military applications, but in the 1980s, the government made the system available for civilian use.

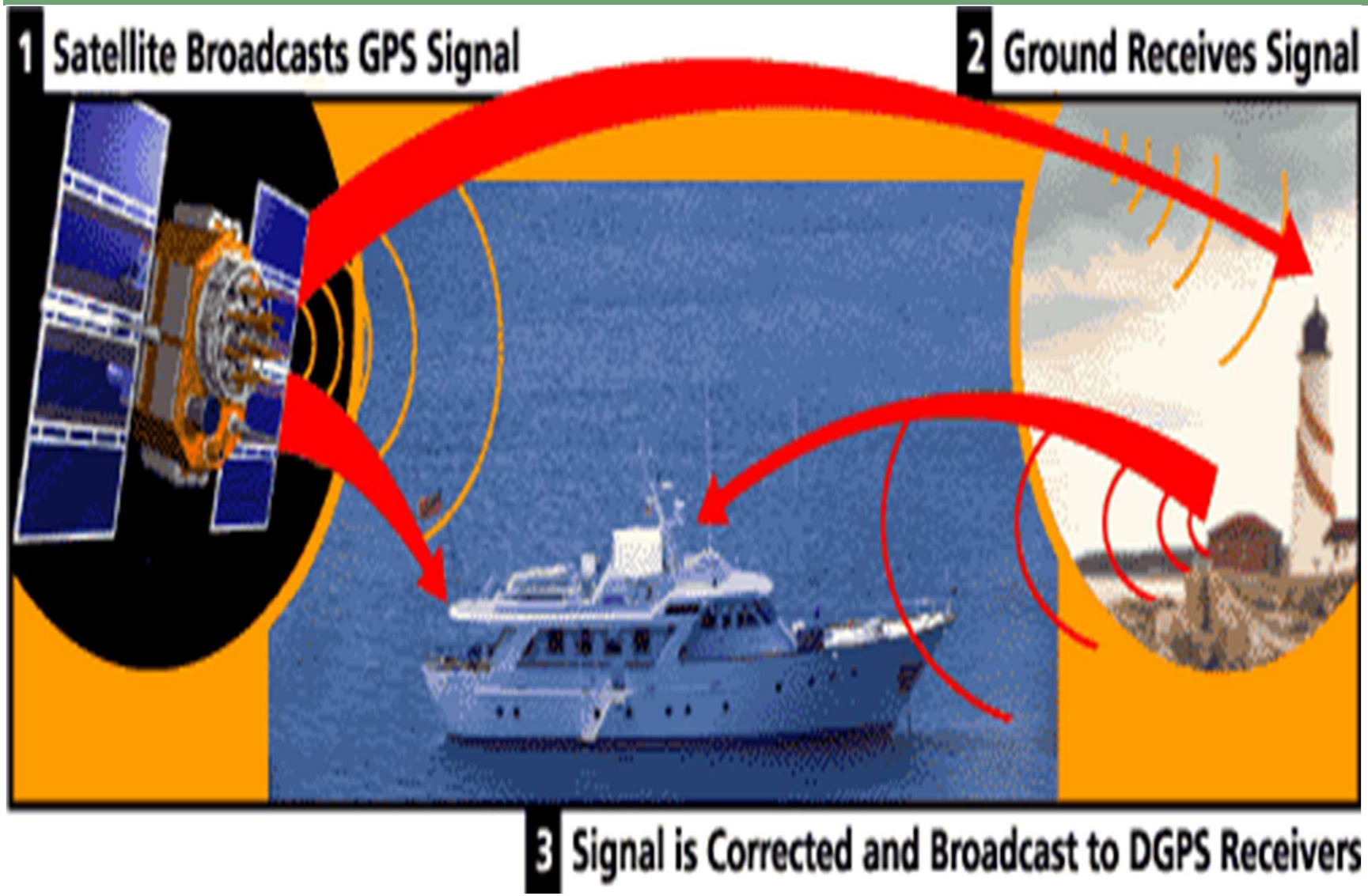
Satellite System

- The 24 satellites that make up the GPS space segment are orbiting the earth about 12,000 miles above us. They are constantly moving, making two complete orbits in less than 24 hours. These satellites are travelling at speeds of roughly 7,000 miles an hour.

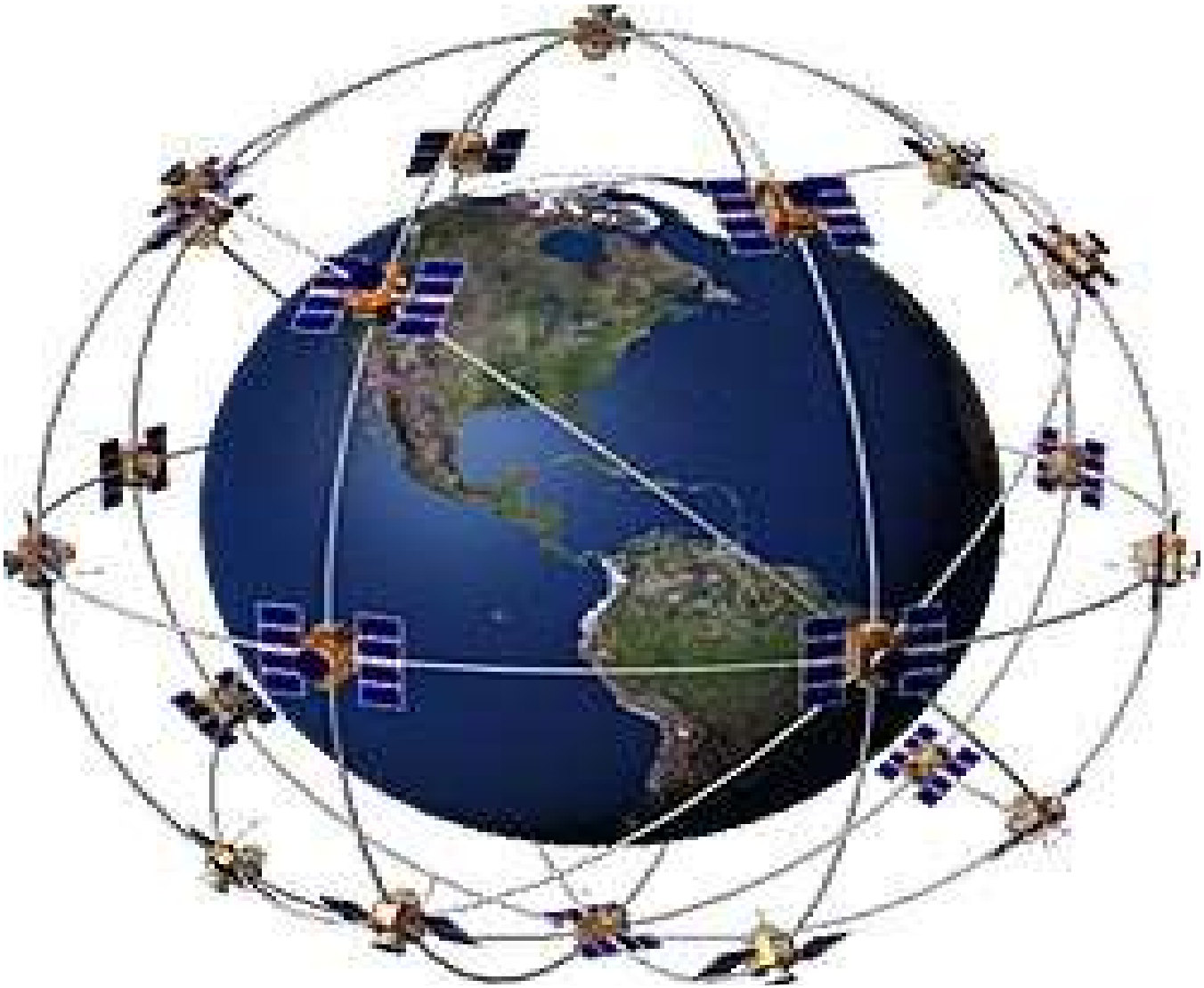
Satellite System Cont…

- GPS satellites are powered by solar energy. They have backup batteries onboard to keep them running in the event of a solar eclipse, when there's no solar power. Small rocket boosters on each satellite keep them flying in the correct path.

Satellite System Cont…



Satellite System Cont…



GPS RECEIVERS Cont...

- GPS satellites circle the earth twice a day in a very precise orbit and transmit signal information to earth. GPS receivers take this information and use triangulation to calculate the user's exact location.

- Essentially, the GPS receiver compares the time a signal was transmitted by a satellite with the time it was received.

GPS RECEIVERS Cont...

- A GPS receiver must be locked-on to the signal of at least three satellites to calculate a 2D position (latitude and longitude) and track movement.

- With four or more satellites in view, the receiver can determine the user's 3D position (latitude, longitude and altitude).

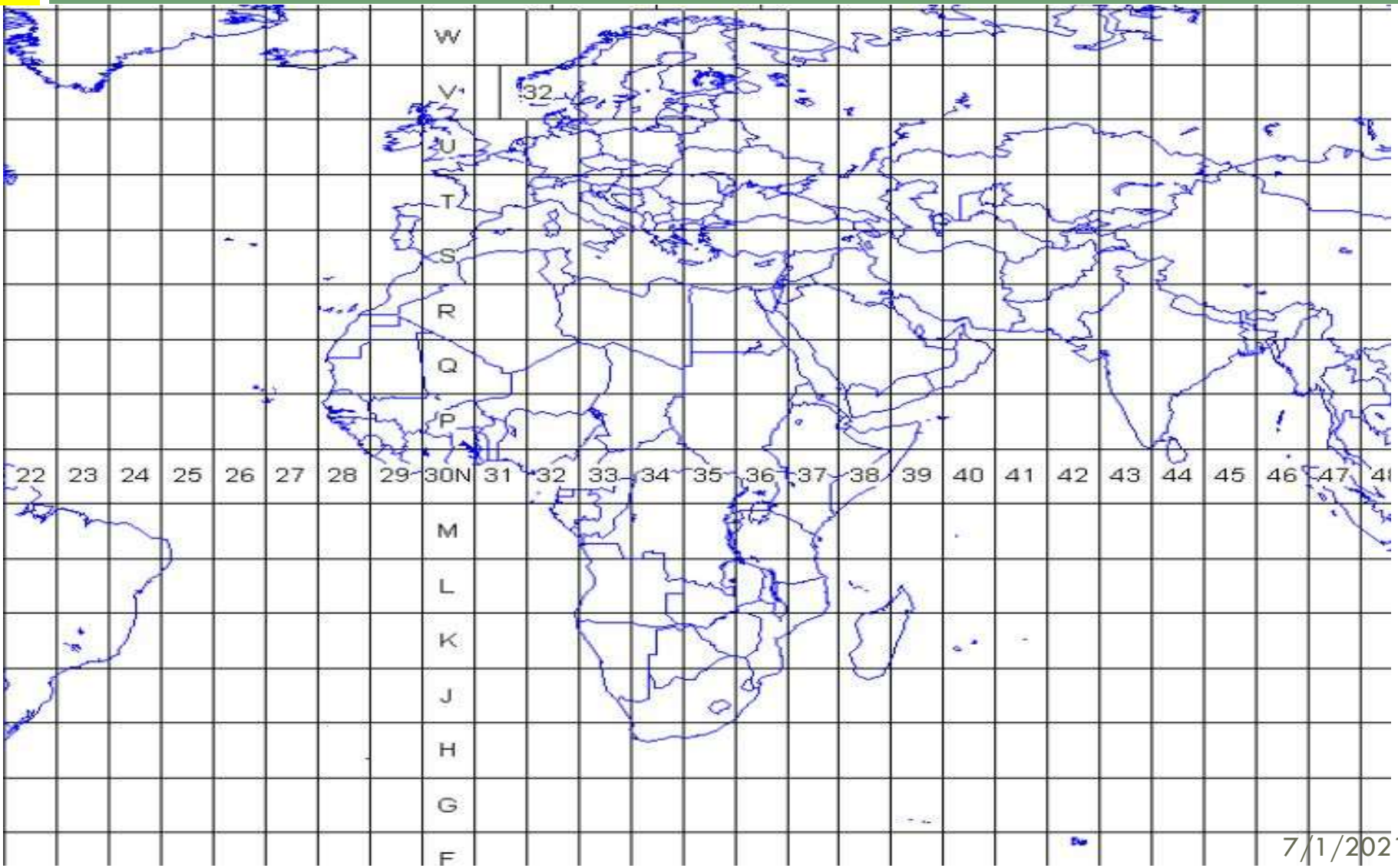
GPS RECEIVERS Cont...

- Once the user's position has been determined, the GPS unit can calculate other information, such as speed, bearing, track, trip distance, distance to destination, sunrise and sunset time and more.

GPS Coordinates

- 37M 0653422
  9192093
- 36 L 0376543
  9109874
- 35 L 0682376
  9123764

Map Zoning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END…

- THANK YOU!!!!