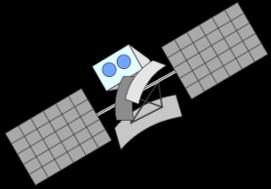




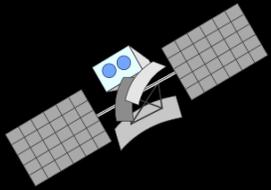
Shane Bradt
UNH Cooperative Extension
NHDES Water & Watershed Meeting 2009

Basic Intro to GPS



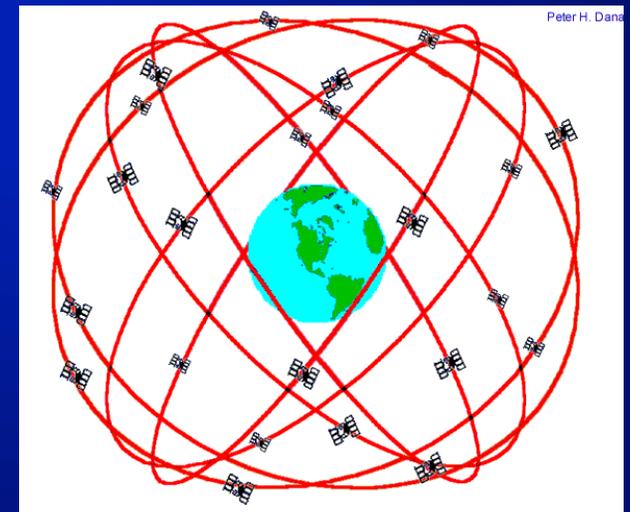
Global Positioning System:

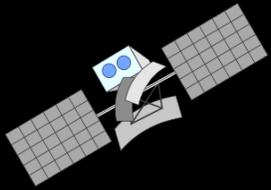
- **developed by the US Dept. of Defense**
- **satellite-based**
- **designed to provide positioning and timing information:**
 - **24 hours/day, 7 days/week**
 - **under any weather conditions**
 - **anywhere in the world**
- **Three components: space, ground, user**



1. Space component

- at least 24 satellites in constellation
- transmit a uniquely coded radio signal
- equipped with onboard atomic clock

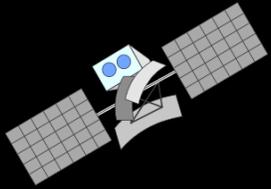




2. Control component

- ground-based monitoring and upload stations
- control orbit and timing information

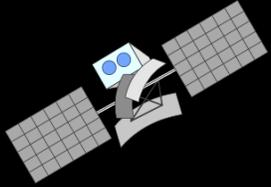




3. User component

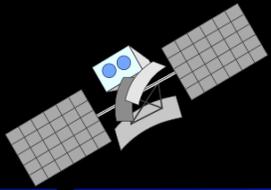
- navigation and positioning applications on land, sea, in the air and in space





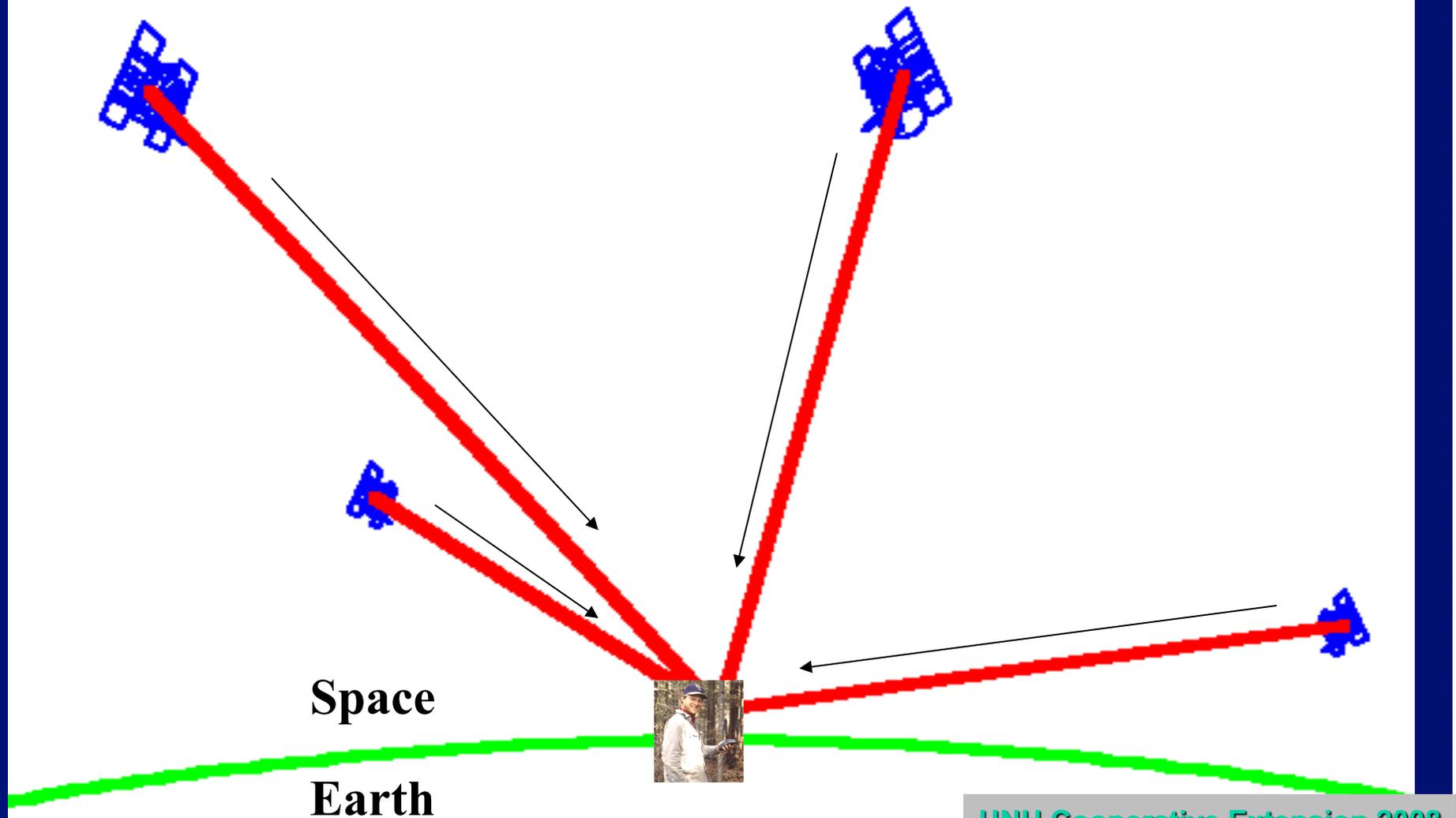
How does GPS work?

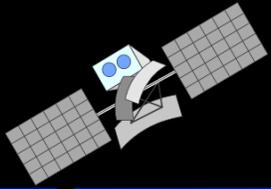
1. the receiver picks up the signals from the satellites
2. uses signal travel time to calculate distance to the satellites
3. triangulates to determine position of the receiver



How does GPS work?

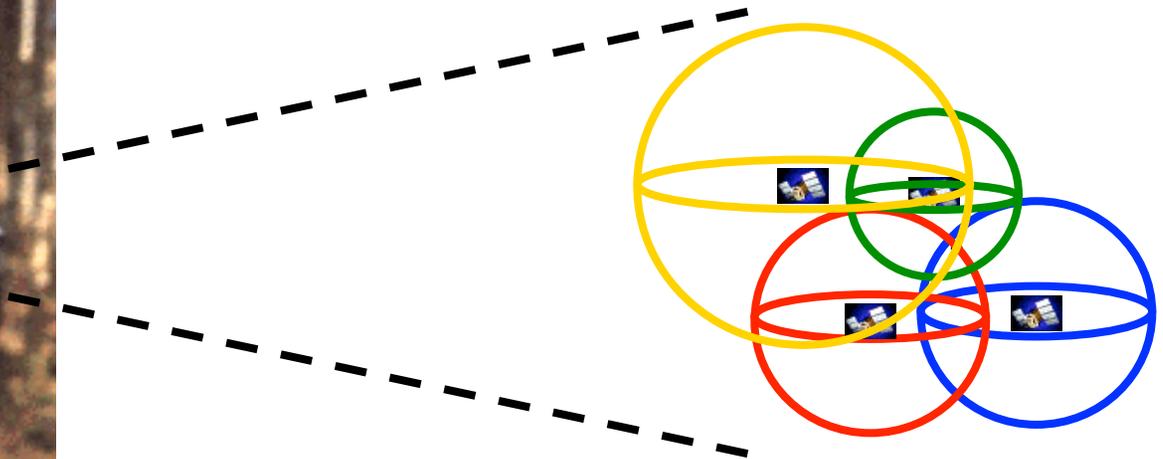
1. The receiver picks up the signals from the satellites

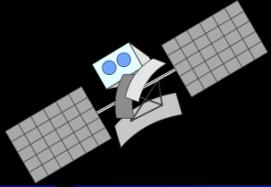




How does GPS work?

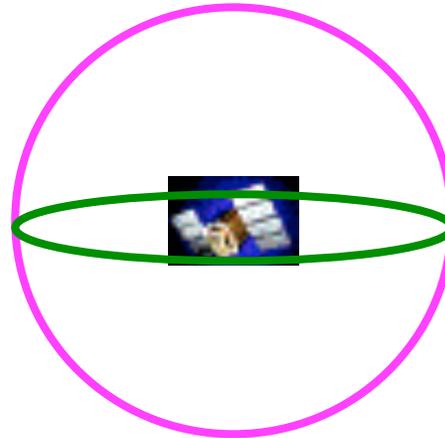
3. Receiver triangulates to determine position of the receiver

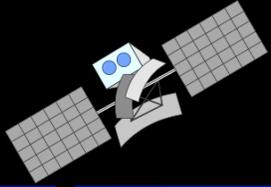




How does GPS work?

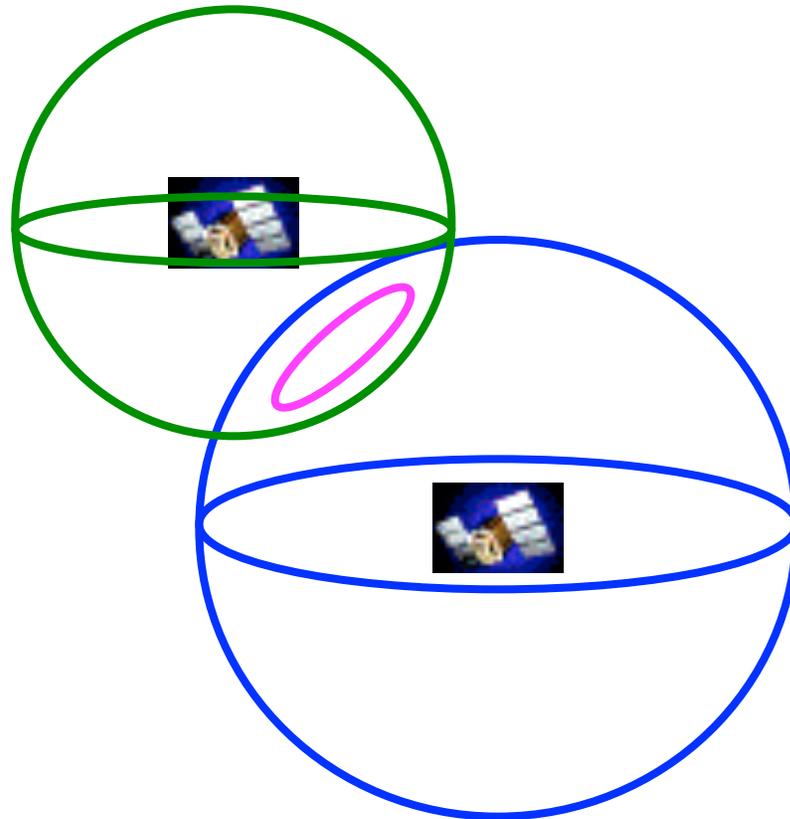
3. Receiver triangulates to determine position of the receiver

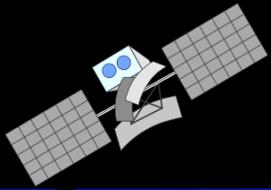




How does GPS work?

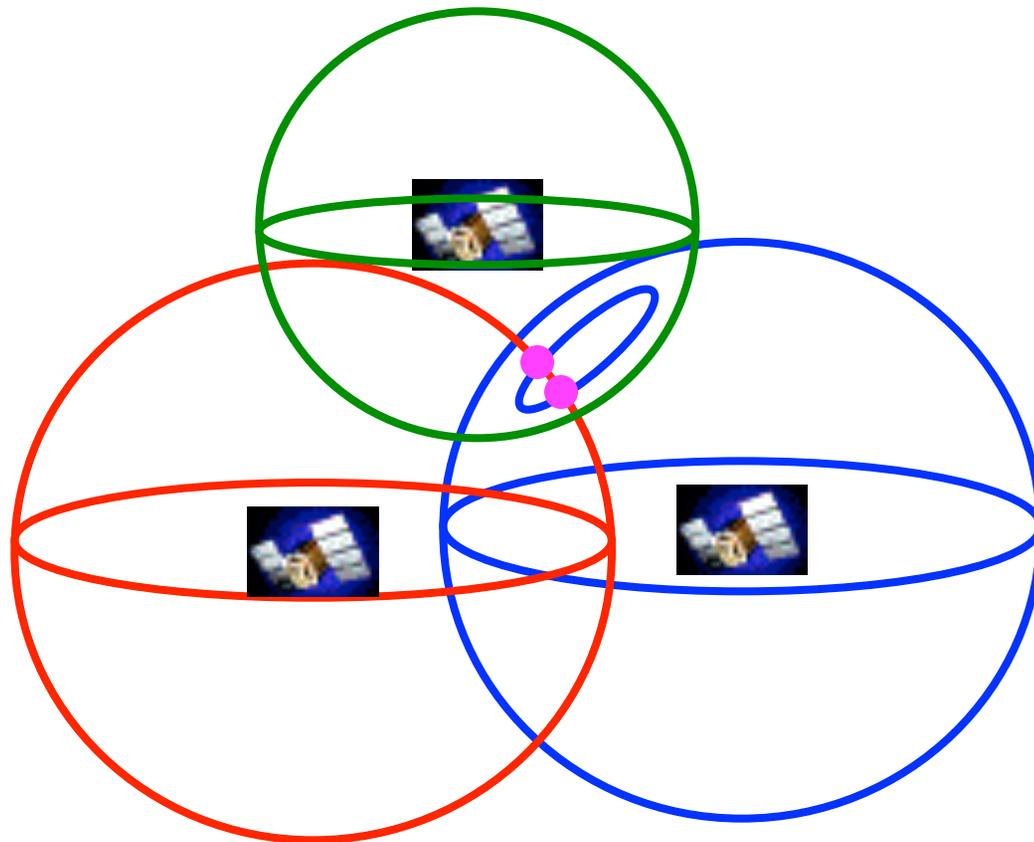
3. Receiver triangulates to determine position of the receiver

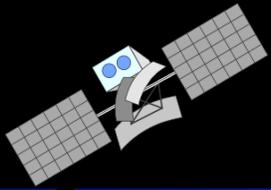




How does GPS work?

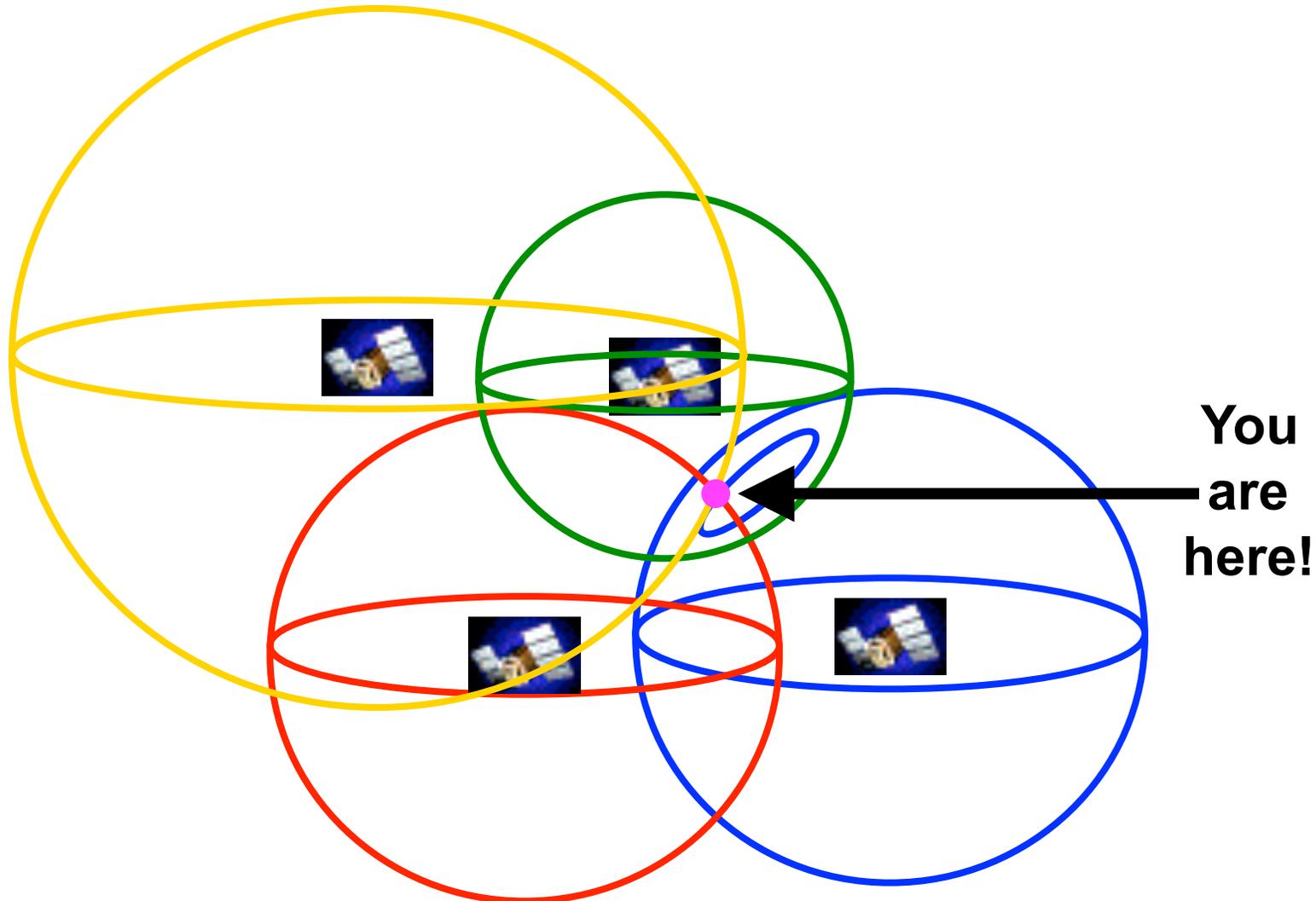
3. Receiver triangulates to determine position of the receiver

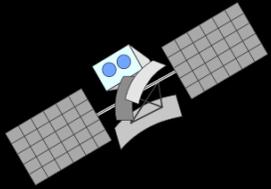




How does GPS work?

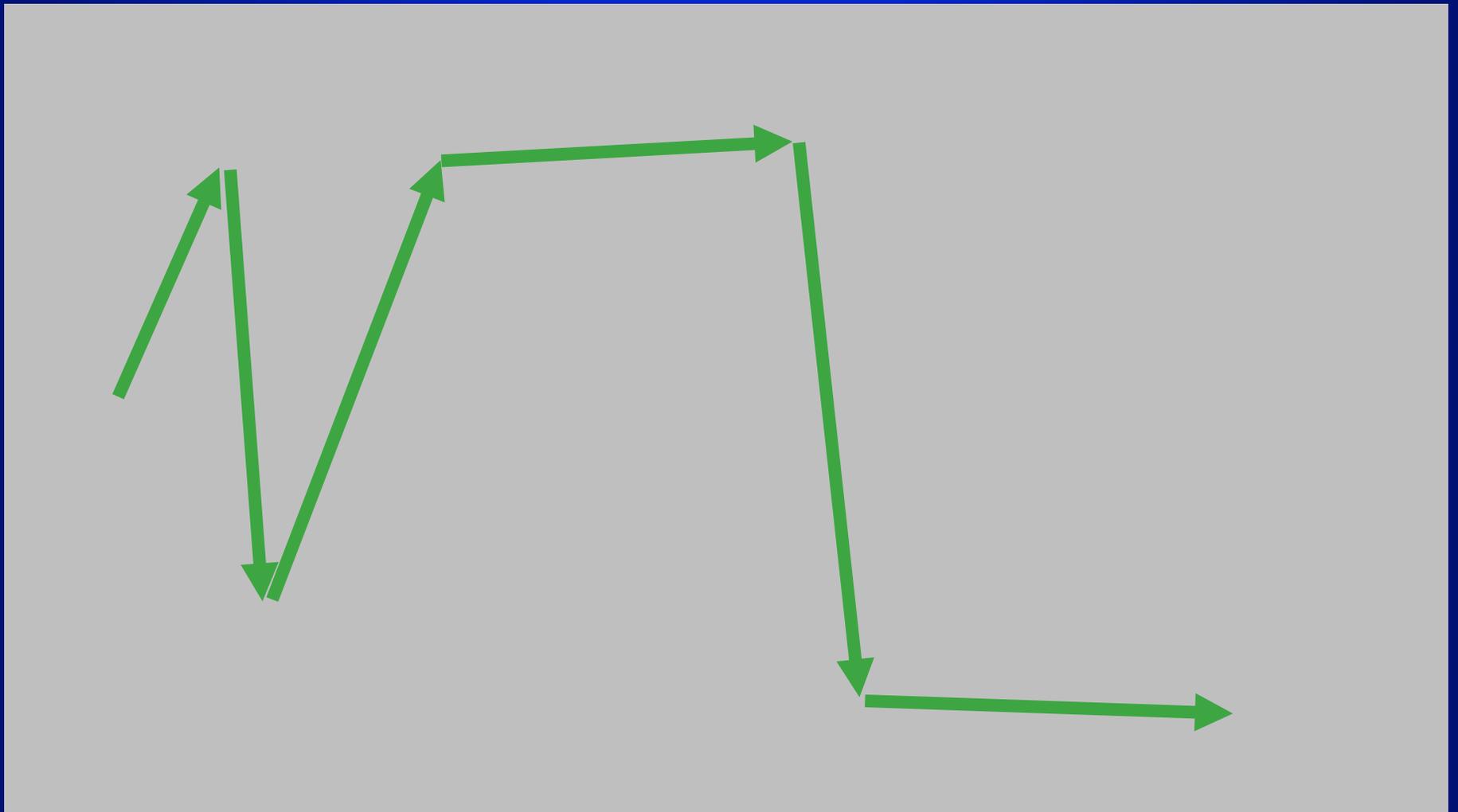
3. Receiver triangulates to determine position of the receiver

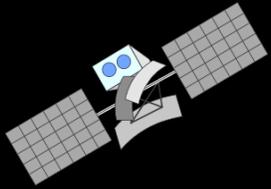




How to map with GPS

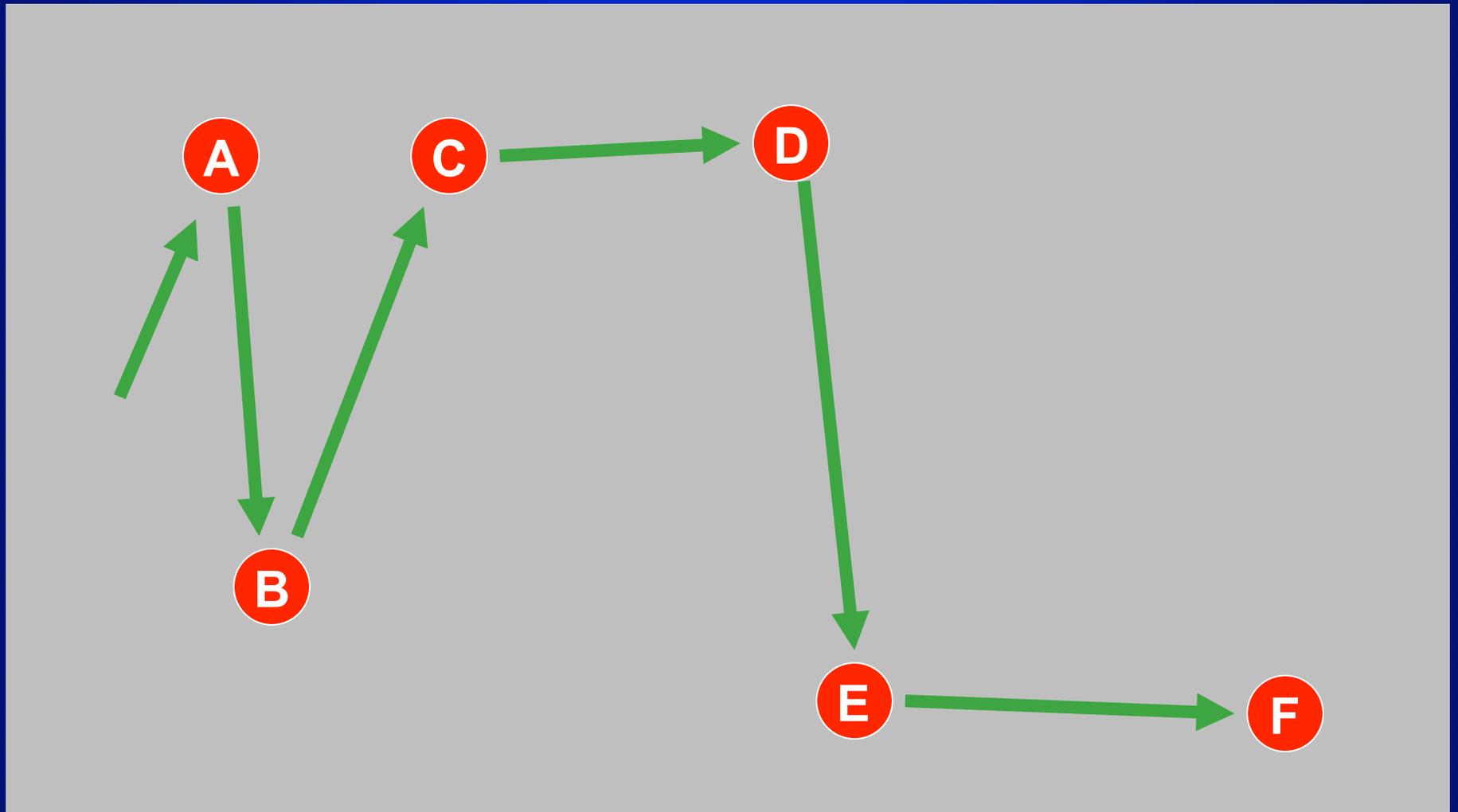
A path you would like to map

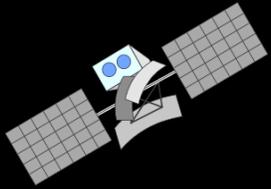




How to map with GPS

Using Waypoints





How to map with GPS

Using Waypoints

A

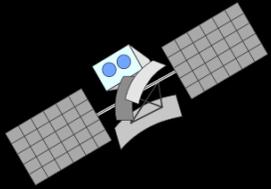
C

D

B

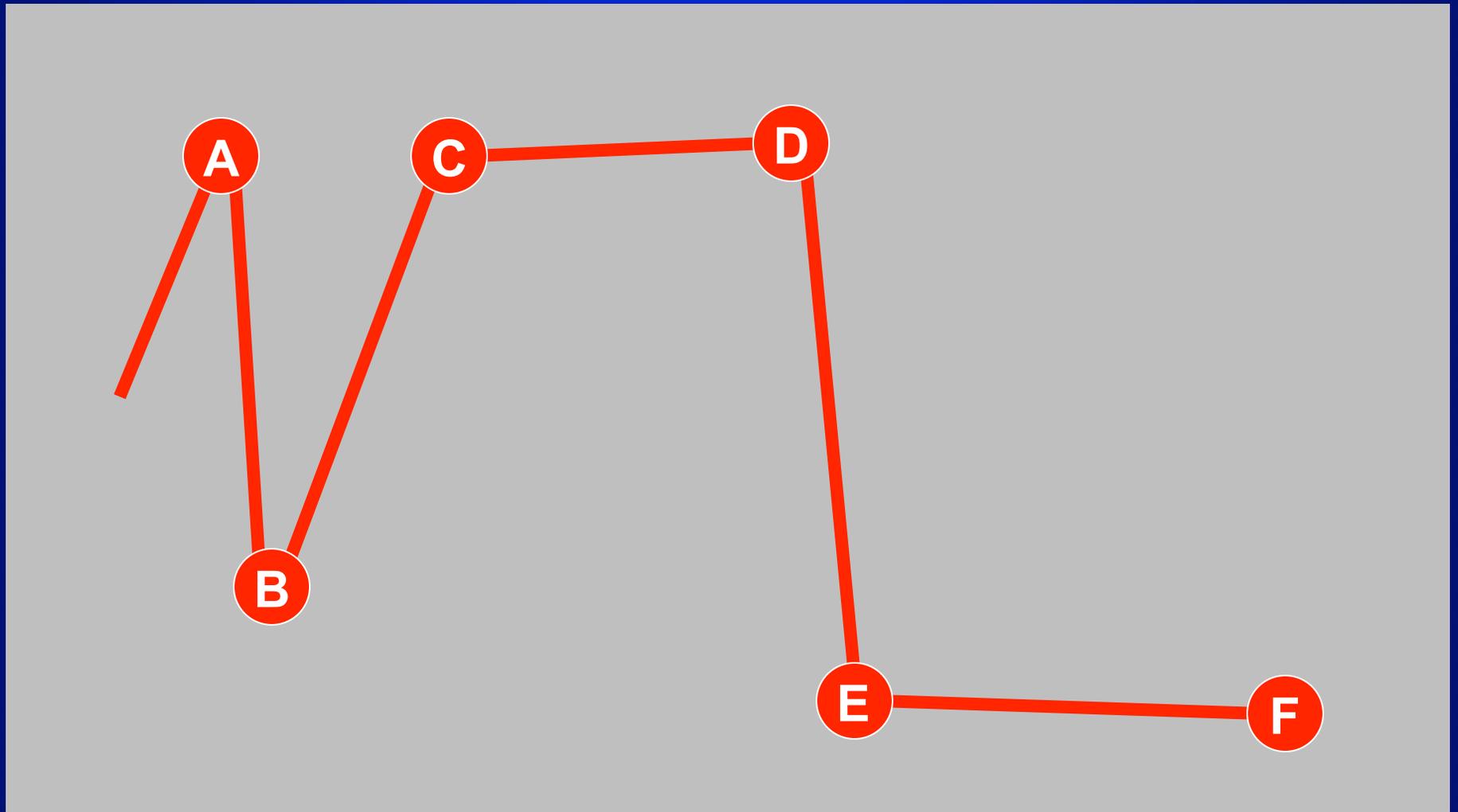
E

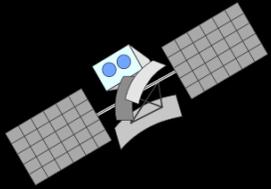
F



How to map with GPS

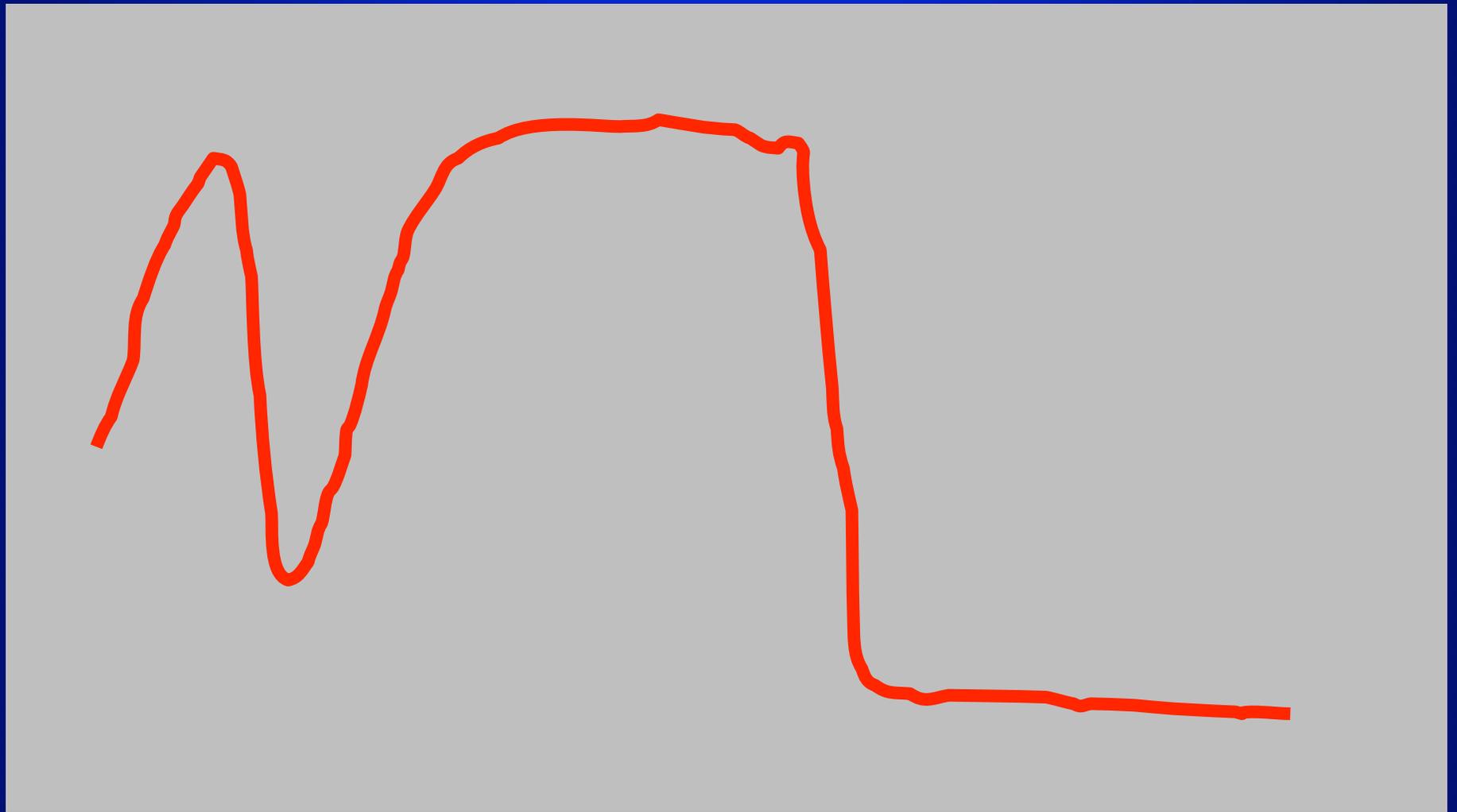
Using Waypoints: Routes

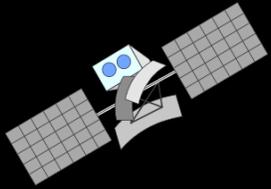




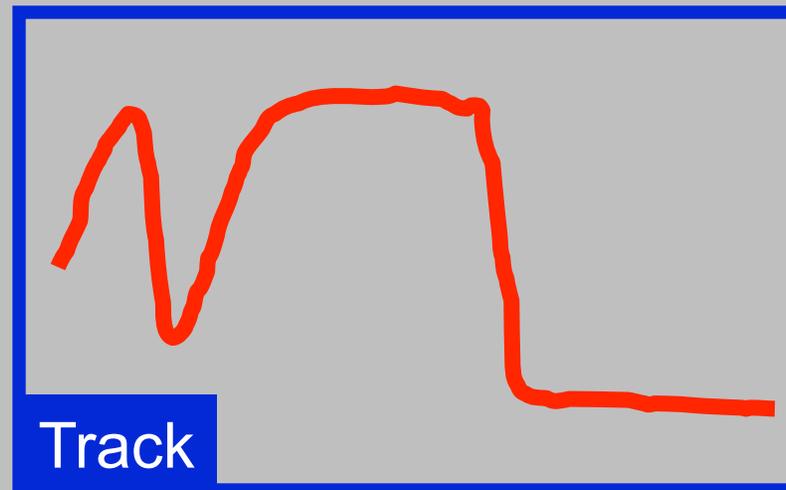
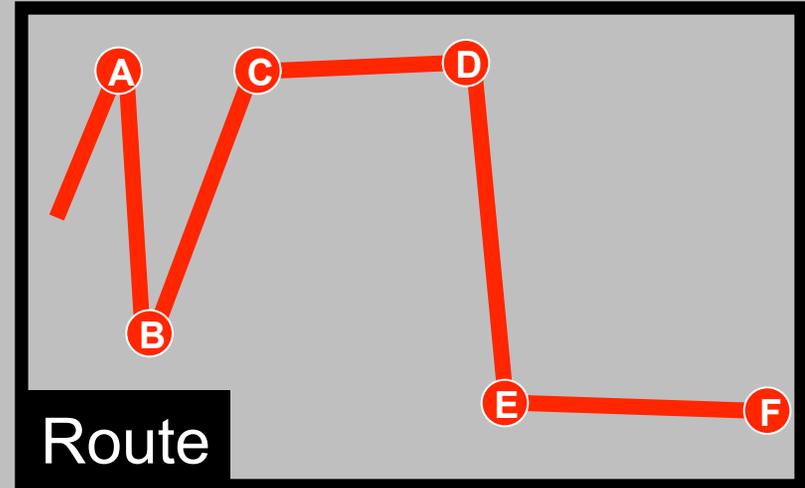
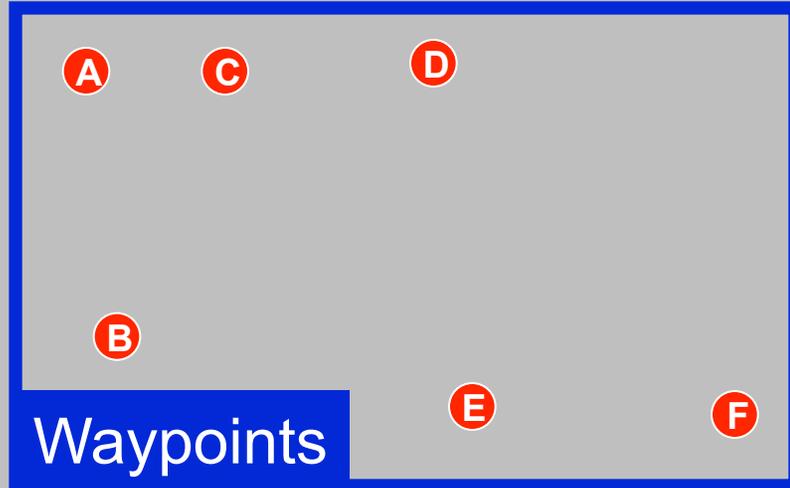
How to map with GPS

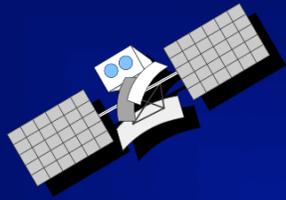
Using Tracks





How to collect data with GPS





Questions?