Navigation Overview
Types of Navigation

• Pilotage
  – Landmarks
  – Beacons (Bonfires)

• Dead-reckoning
  – Landmarks/Beacons
  – Aircraft compass and Airspeed Indicator

• Radio Navigation
  – Non-directional Radio Beacon (NDB)
  – Very High Frequency Omni-range Radio (VOR)
  – Distance-Measuring Equipment (DME)

• Inertial Navigation
  – Inertial Navigation System (INS)

• Satellite Navigation Systems
  – Global Positioning System (GPS)
Radio Navigation

– Non-directional Radio Beacon (NDB)
  • “Here I am”
  • Only at airports
– Very High Frequency Omni-range Radio (VOR)
  • “Here I am & this is the course from me to you”
  • At airports and on routes between airports
– Distance-Measuring Equipment (DME)
  • “Here I am & this is the distance from me to you”
  • At airports and on routes between airports
– Inertial Navigation System (INS)
  • “This is your latitude, longitude, groundspeed, …”
  • Accelerometers exhibit drift over time
– Global Positioning System (GPS)
  • This is your latitude, longitude, groundspeed, …