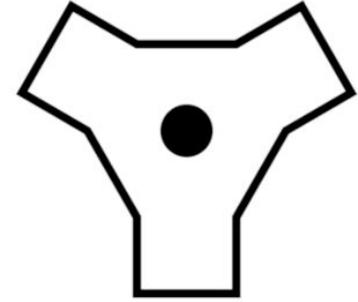


# TACAN



- **TAC**tical **Air N**avigation System
- navigational station that provides lateral direction and distancing information from the station's location

# What is the difference between a VOR and a TACAN?

VOR (Very High Frequency Omnidirectional Range) beacon

- civilian/commercial use

TACAN

- military use, usually stronger so provides wider coverage range

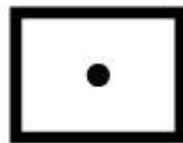
# Radio-Navigational Symbology



VHF omnidirectional radio range  
(VOR)



Collocated VOR and DME radio navigation aids  
(VOR/DME)



Distance measuring equipment  
(DME)



Non directional radio beacon  
(NDB)



Collocated VOR and TACAN radio navigation aids  
(VORTAC)

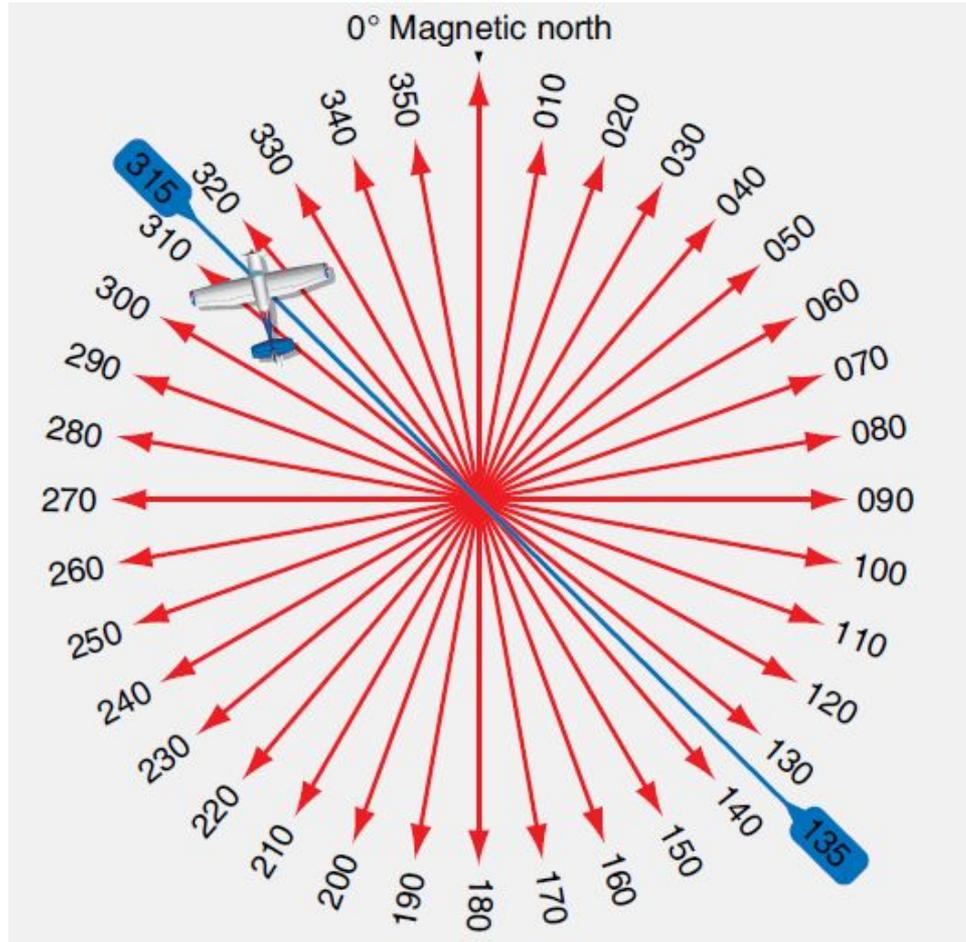


UHF Tactical air navigation aid  
(TACAN)

# Radio-Navigational Symbolology



# Basic Concept

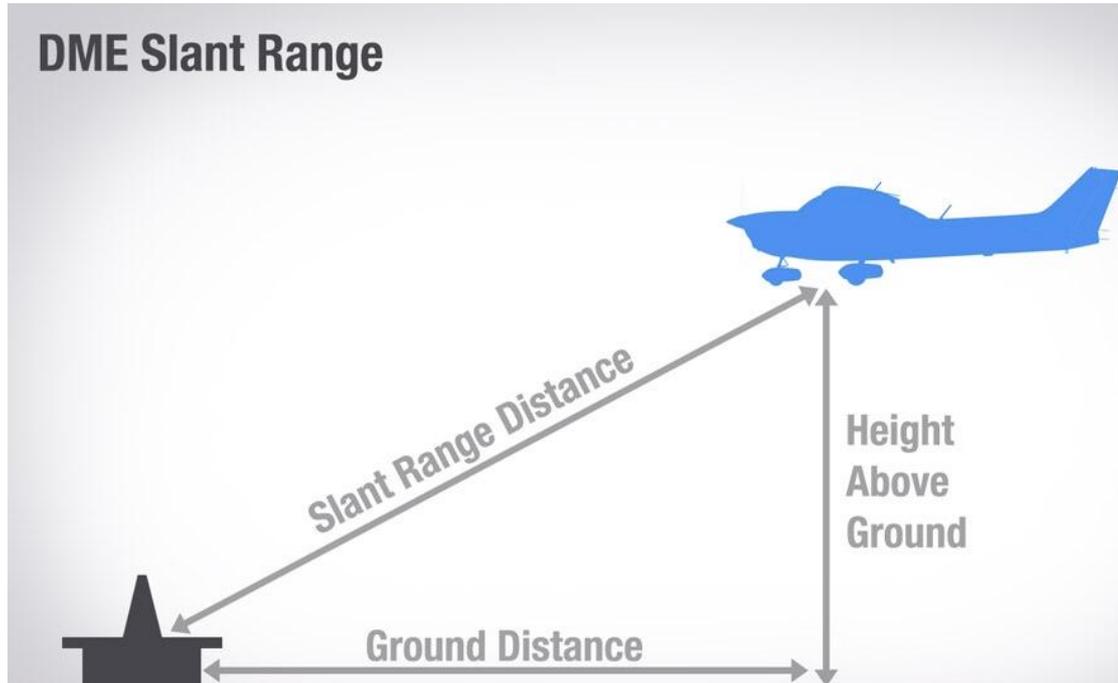


- projects series of radials coming out from the station like spokes on the wheel of a bike
- can find where you are on the “wheel”, and how far away from the center you are
- you can also choose and track a specific “spoke” or *radial* for your own tactical or navigational purposes

# DME

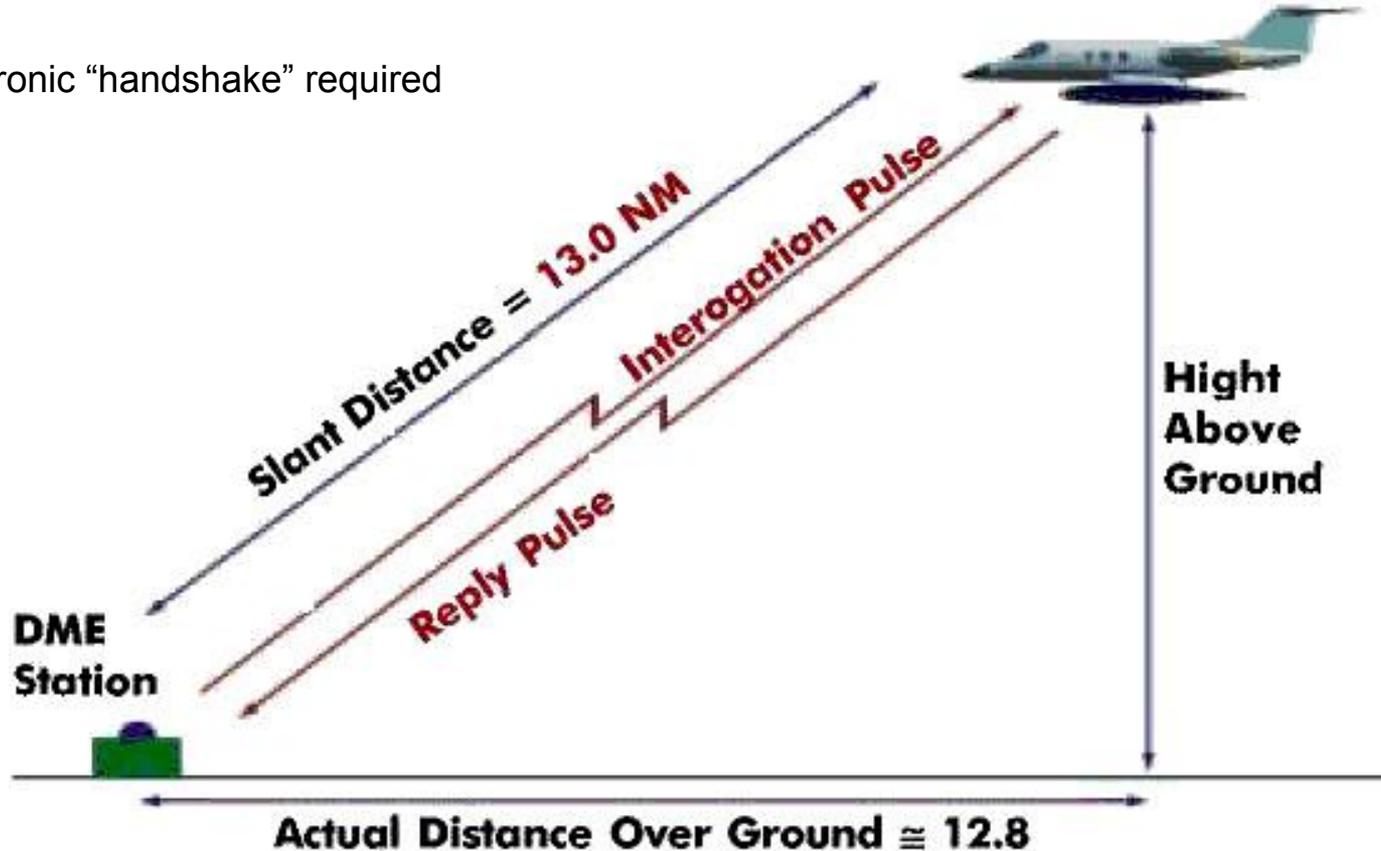
TACANs provide DME (Distance Measuring Equipment), which shows your distance from the station

- distance is shown in *slant range*



# Transmit & Receive (T/R)

- electronic “handshake” required

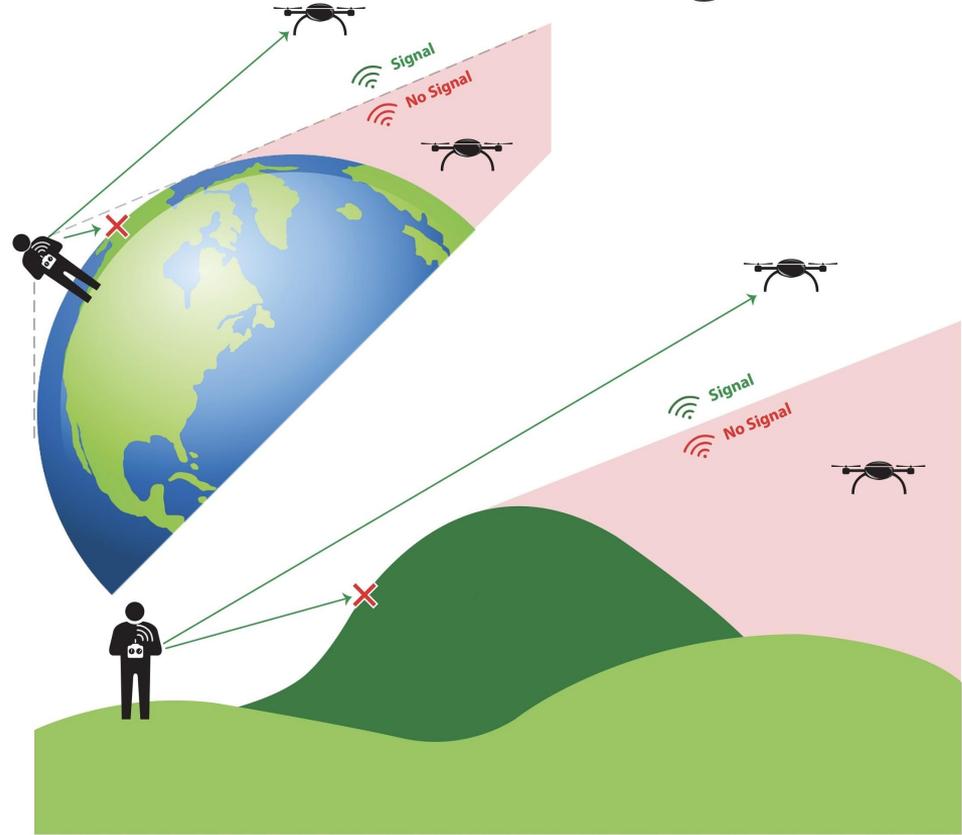


# Radio Line of Sight

## Line-of-Sight

TACANs require that you have line-of-sight to the stations

- coverage somewhere between 100 nm - 150 nm, sometimes even more



Most radio signals travel straight from the transmitter and are blocked by the curve of the earth (if their range is great enough), hills or other terrain.

# True vs. Magnetic North

- TACANS (and VOR's) are placed in orientation to *magnetic* north
- this means when plotting a course from the f10 map, you will need to adjust for magnetic variation and fly the adjusted course to actually fly the course you want
- “east least” rule
  - for east variation (Caucasus is 6 degrees east), subtract that number from your intended f10 course line, then fly that heading or course

# HSI Symbology in the Cockpit

distance (DME)

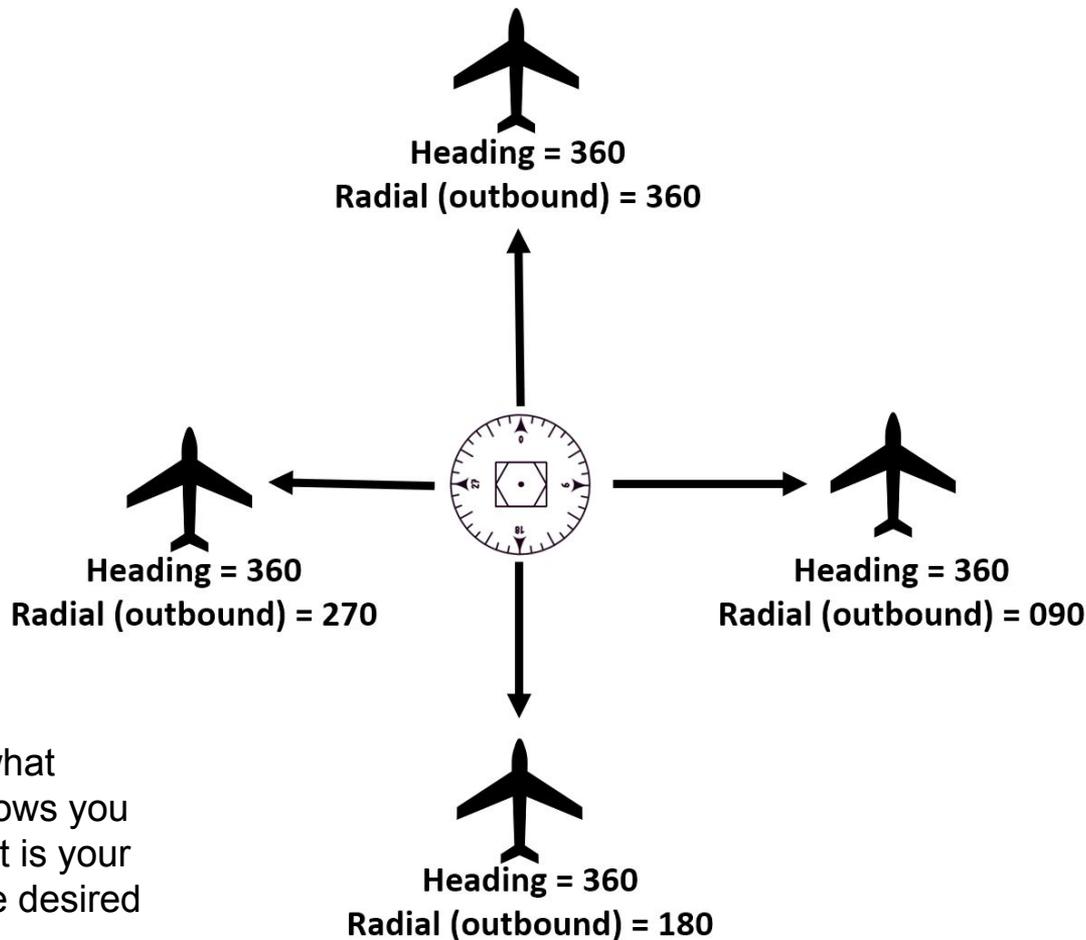
course line  
(magnetic)



deviation indicator

# Radial vs. Heading

- heading is where your *nose is pointing*
- radial is your *position FROM the station*



\*\*TACAN station does not know or care what heading you are on, it only knows and shows you what your *radial* is relative to the station, it is your job to manage your own heading to fly the desired course\*\*

# Understanding the Deviation Line

The deviation line is showing you where the selected course line is FROM you



# Applications

- when lost, tune in and fly **direct** to the station
- flying direct from **station to station** to get where you want to go
- utilize radials & distances of your choice to **create your own flight plan**
- stay away from **threats**

# Demonstrations (Optional)

- 1) fly direct to station from an unknown position
- 2) fly from station to station
- 3) plot your own flight plan (laterally and vertically) via f10 map
  - theory of “highways in the sky”
- 4) stay away from threats

# Tips for IFR Flying

- radial scan, don't fixate on any one instrument
- utilize your heading bug, it's designed for you to use as a bookmark
- aim small on artificial horizon
- watch the VSI
- trim is your best friend
- use idle time to think/plan next turn, descent, etc