MIDAIR COLLISION AVOIDANCE

Capt Andrew Webster
Elmendorf AFB

PLEASE DON'T FEED THE RAPTORS

F-22 RAPTOR

…OR HIT THE HEAVIES

C-130H Hercules

C-17 Globemaster III

OVERVIEW

- The brutal facts about mid air collisions
- Airspace in the Anchorage bowl
- Proven techniques to reduce your chance of a mid-air

PRIMARY THEME: See and Avoid is the ONLY sure-fire way to avoid a mid-air collision

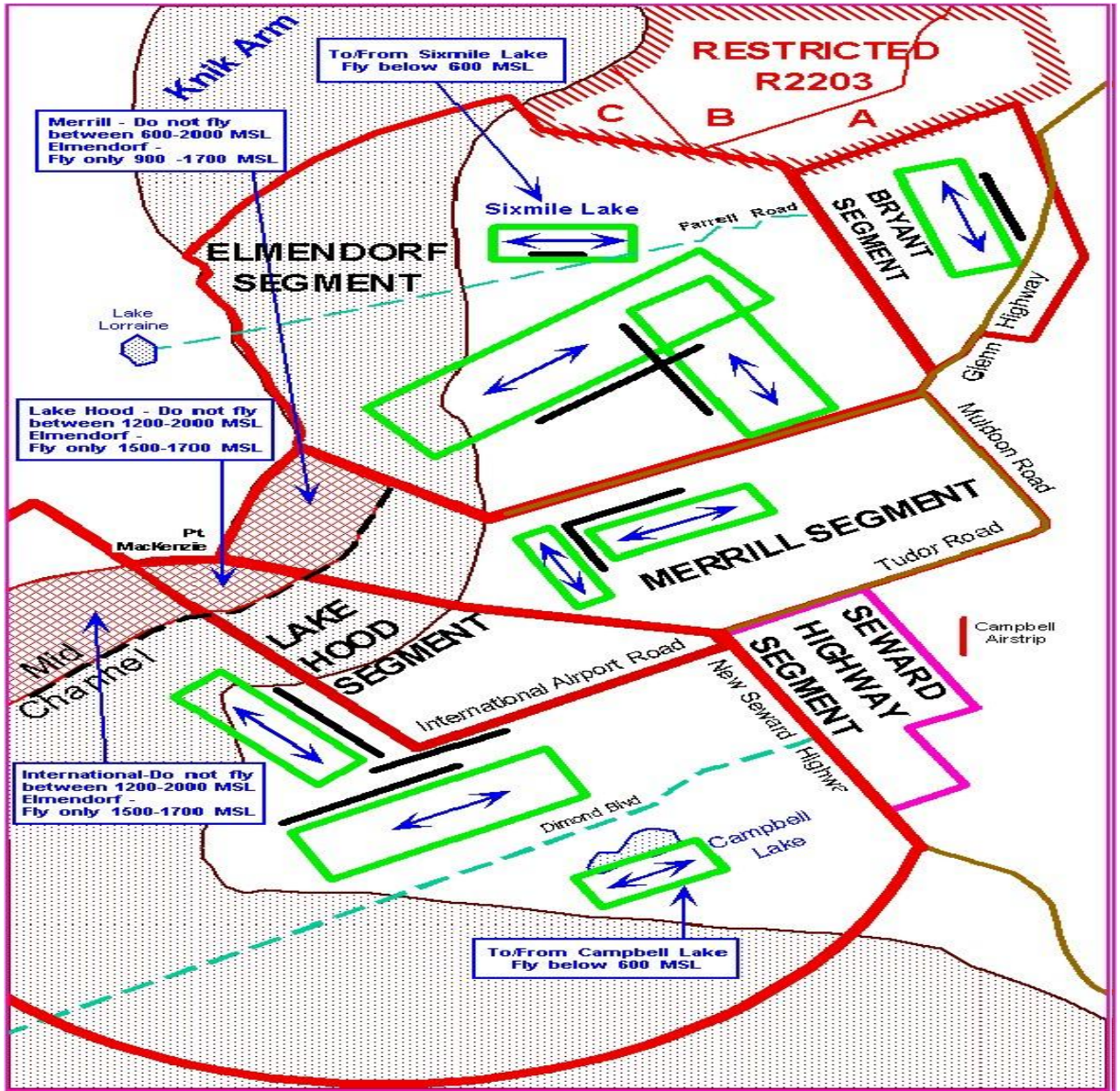
CONFRONTING THE BRUTAL FACTS

- FAA study: 329 U.S. mid-airs from 1983 to Aug 2000
  - 100% occurred in VMC, with 97% during the day
- Jan 1993 to Dec 2002: 9 mid-airs in Alaska
  - Highest threat: near airfields/landing areas
- F-16 vs. Cessna 172 in Florida, 2000
  - 2xF-16s descending into the low level environment
  - All players were VFR
  - F-16 pilot ejected and lived; Cessna pilot killed

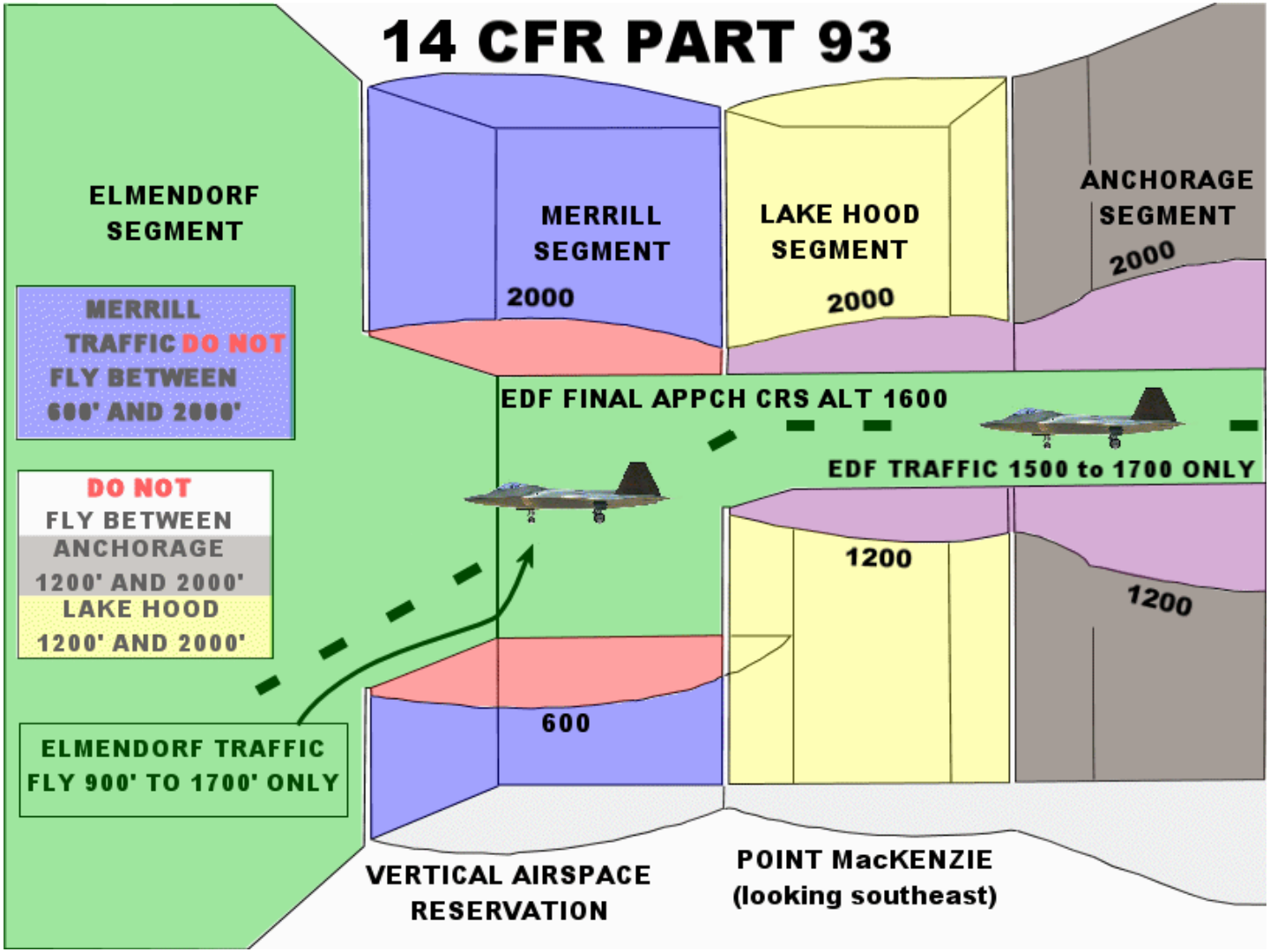
BUSY ANCHORAGE AIRSPACE

- Four controlled airfields within 8 miles of EDF
- Rwy 6 approach corridor transits all three other surface areas
- FAR “Part 93” corridor designed to maximize airspace utility while minimizing conflicts

PART 93 TOP VIEW



PART 93 CROSS-SECTION VIEW



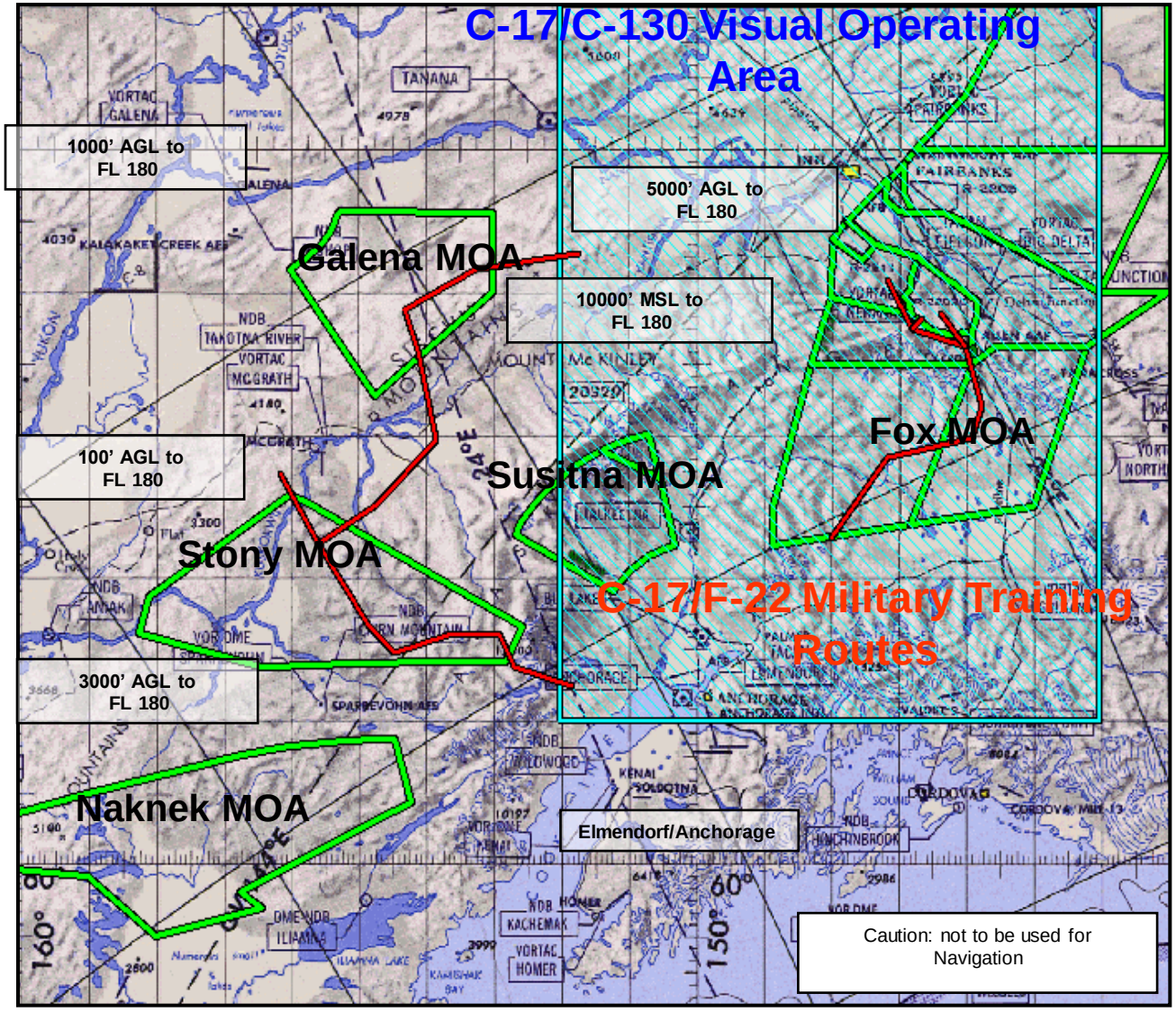
IN THE EDF PATTERN

- Three different pattern altitudes
  - 800 MSL: <105 KIAS… Helos and the Aero Club
  - 1200 MSL: Non-fighters >105 KIAS
  - 1700 MSL: Fighters
- Six Mile Lake: traffic at or below 600 MSL
- Merrill extension:
  - Merrill ATC grants permission for EDF traffic to go S of Glenn Hwy (desired for approaches to 34)
  - Does NOT guarantee traffic separation

IN THE EDF PATTERN

- **Elmendorf Airspace** is Class D airspace, surface to 3,000' MSL. It is extremely busy with local and transient aircraft. The primary runway is usually RWY 06 with aircraft using all runways for training.
- **Visual Pattern:** The visual pattern is busy with multiple aircraft from sunrise to early evening hours, Monday through Friday. Primary pattern altitudes are 1,200' MSL and 1,700' MSL (800' MSL for light planes and helicopters), but local aircraft can be anywhere from surface to 4,500' MSL.
- **Goose Bay** is used by Elmendorf aircraft for VFR holding and traffic sequencing. C-130s, C-17s, and E-3s may be seen holding between 1,500' MSL and 2,500' MSL over Goose Bay airport and the Knik Arm.

TRAINING AREAS AND LOW LEVEL ROUTES



MOA

- If you are flying through an active MOA, it is a good idea to consult Anchorage Center to determine if operations are being conducted and their general location. If possible, please deconflict laterally or vertically from the other participating aircraft in the MOA.
- Per AIM, “Pilots operating under VFR should exercise extreme caution while flying within a MOA when military activity is being conducted. The activity status (active/inactive) of MOA's may change frequently. Therefore, pilots should contact FSS within 100 miles of the area to obtain accurate real-time information concerning the MOA hours of operation. Prior to entering an active MOA, pilots should contact the controlling agency for traffic advisories”.
- When flying in and near the interior MOAs near Fairbanks and Delta Junction, you can receive SUAIS service from Eielson Range Control at 125.3. For more information, visit the SUAIS website, www.jber.af.mil/11af/alaskaairspaceinfo or call 1-800-758-8723

KNOW YOUR ENEMY

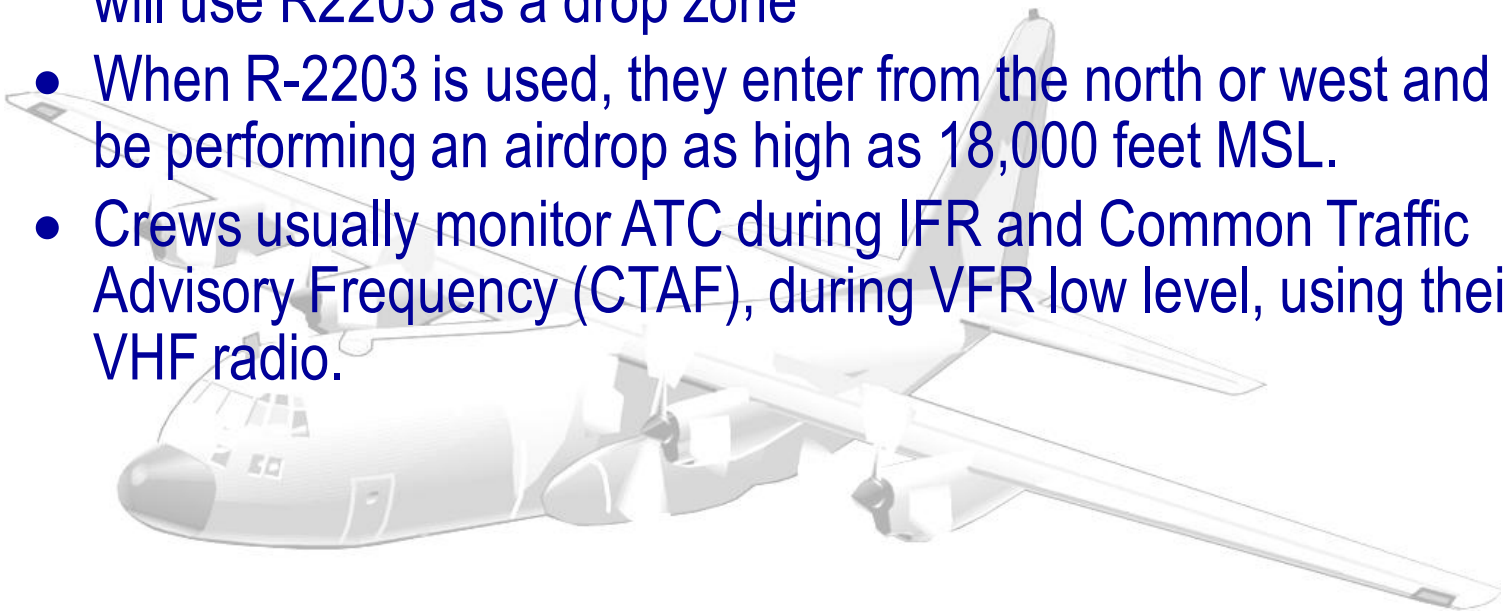
- **F-22 Avoidance Information:**
  - F-22 operations are primarily during daylight hours, Monday through Friday, during summer. In winter, flying operations outside the MOAs may occur late into the night.
  - In training areas, expect them at all altitudes and airspeeds.
  - While in training areas, F-22s monitor UHF Guard and are not normally on a frequency with Anchorage Center.
  - On low level routes, expect to see the fighters at 500' AGL flying about 510 knots. When flying in the vicinity of an MTR, you must ask FSS for MTR activity. MTRs are not listed in the NOTAMs.
  - Fighters on low level routes monitor Flight Service Station (FSS) frequencies (255.4 UHF) and UHF Guard.
  - Fighters primarily fly in formations of two to four planes. If you see one, look for more, 500’ to 3NM either abreast or in trail

KNOW YOUR ENEMY

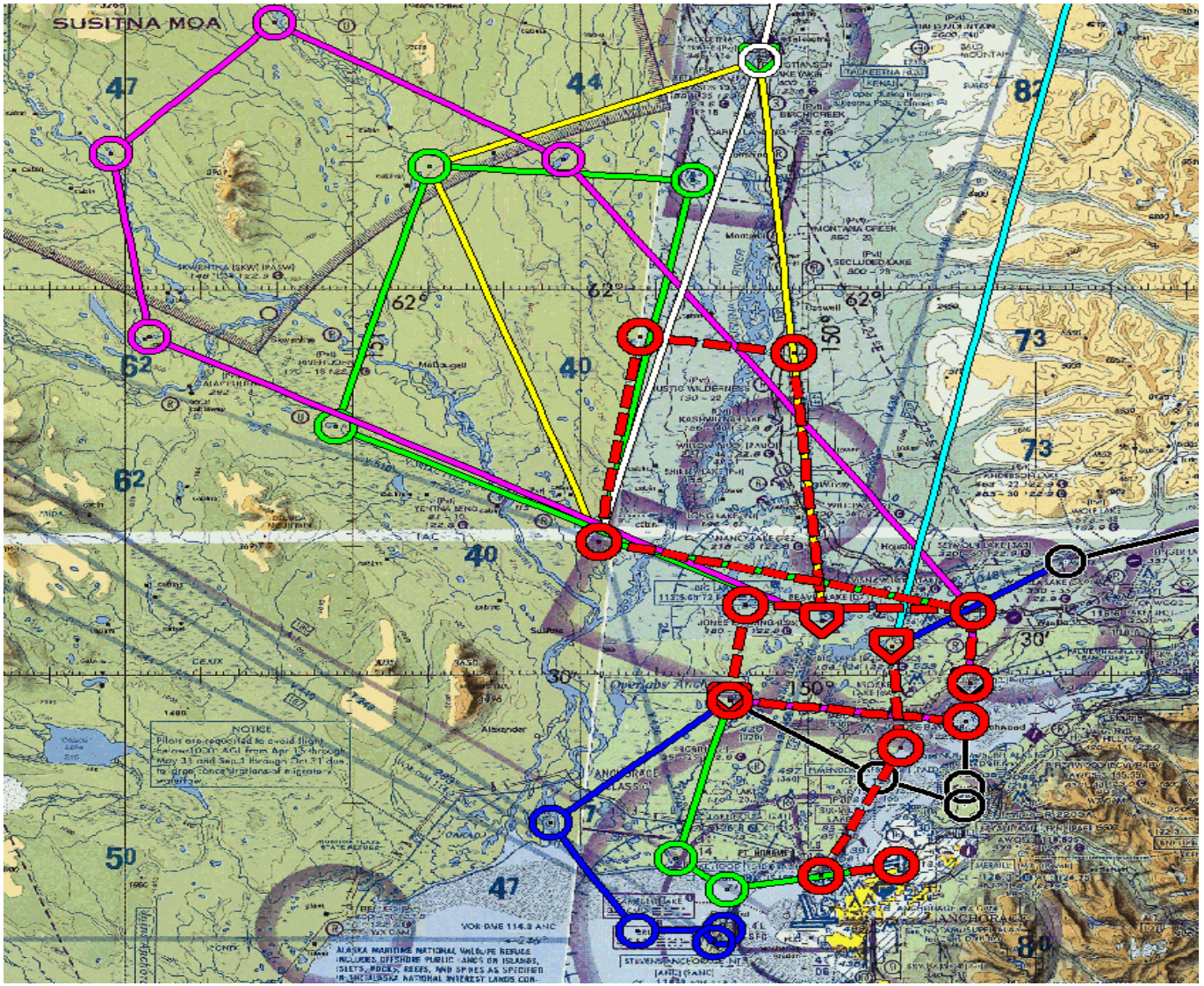
- **C-130/C-17 Avoidance Information:**
  - C-130s and C-17s fly in the Mat-Su Valley and surrounding areas as low as 300' AGL and up to 6000' MSL between 130-300 Knots
  - Alaska C-130s and C-17s are equipped with TCAS. **Using your transponder (if equipped) will help them avoid you**
  - C-130s and C-17s operate VFR and IFR in the Mat-Su Valley primarily during daylight hours, Monday through Friday. During winter months,both may operate late into the night. Airspeeds: 180-230 knots.
  - Often fly in formations of two to six planes at co-altitudes. So, if you see one, look for more 2000' to 4000' in-trail.

KNOW YOUR ENEMY

- **C-130/C-17 Avoidance Information:**
  - After a flight through the Mat-Su Valley, C-130s/C-17s commonly will use R2203 as a drop zone
  - When R-2203 is used, they enter from the north or west and may be performing an airdrop as high as 18,000 feet MSL.
  - Crews usually monitor ATC during IFR and Common Traffic Advisory Frequency (CTAF), during VFR low level, using their VHF radio.

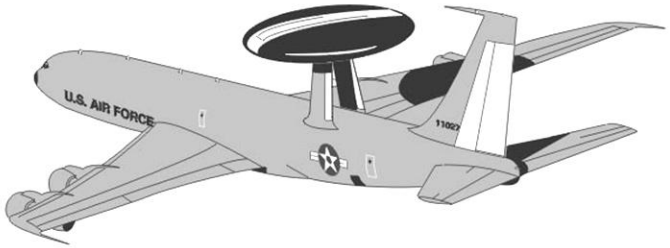


General C-17/C-130 Valley Low Levels (South)



KNOW YOUR ENEMY

- **Other Military Traffic:**



YOUR EYES ARE YOUR BEST FRIEND

- Eye sees best in a 10-15 degree cone called the “fovea”
  - Your vision is ten times better in the fovea
- **A proper scan technique is to divide your field of vision into blocks approximately 10 to15 degrees wide. Examine each block individually**
- Remember to refocus your eyes on an object far from your AC (>5 miles) after instrument scan
- A moving target attracts attention and is relatively easy to see. A stationary target or one that is not moving in your windscreen is very difficult to detect and is the one that can result in a Midair Collision
- Finally, it takes 2-10 seconds to see an aircraft, become aware of the conflict, and react

YOUR ROLE IN COLLISION AVOIDANCE

- Adhere to the necessary communications requirements.
- Traffic advisories should be requested and used when available to assist the pilot's own visual scanning -- advisories in no way lessen the pilot's obligation to see and avoid.
- If not practical to initiate radio contact for traffic information, at least monitor the appropriate frequency.
- Make frequent position reports along your route. <u>At uncontrolled airports broadcast your position and intentions on common traffic advisory frequency (CTAF).</u>
- Make your aircraft as visible as possible - turn on exterior lights below 10,000 MSL and landing lights when operating within 10 miles of any airport, in conditions of reduced visibility, where any bird activity is expected or under special VFR clearance.

‘TRONS CAN HELP

- C-130s/C-17s have TCAS
- F-22s do not have TCAS, but do illuminate transponder returns on the radar display
  - Bad news: they might be in ground mode, or weather mode, or looking for a tanker 200 miles away. They might even be looking OUTSIDE the airplane!
- Bottom line: LEAVE YOUR MODE-C TRANSPONDER ON! It’s no substitute for clearing, but it might help the faster airplane spot YOU in time.

LIGHTS-OUT OPERATIONS

- The FAA has approved military aircraft to operate with no external lighting in local MOAs and Air Traffic Control Assigned Areas (ATCAAs are all above 18,000' MSL).
- These operations will be announced at least 48 hours in advance via NOTAM and will be carried out with public safety in mind.
- For real-time information, please refer to NOTAMS, contact Anchorage Center, Eielson Range Control at 125.3, or visit the SUAIS website
  www.elmendorf.af.mil/11af/611AOG/611aos/webdocs/suais/suais.htm

NEAR MIDAIR COLLISION?

- Tell ATC! Maybe no one else noticed….
- For NMACs, inform the nearest air traffic control agency or flight service station and provide the following information:
  - Your Call Sign
  - Time and Place of incident
  - Altitude
  - Description of other aircraft involved
  - Advise them you intend to file a NMAC report and request they save all available data

PARTING SHOTS

- Be aware of the threat, and don't get complacent – it can happen to you!
- Remember that the only sure-fire way to avoid a mid-air is to look outside.
- It's a crowded sky, and we all need to use it.
- Any questions?