PBN Airspace Design Workshop

CASE STUDY 01 – KASBEGI TMA

Asia and Pacific Regional Sub-Office
Beijing, China

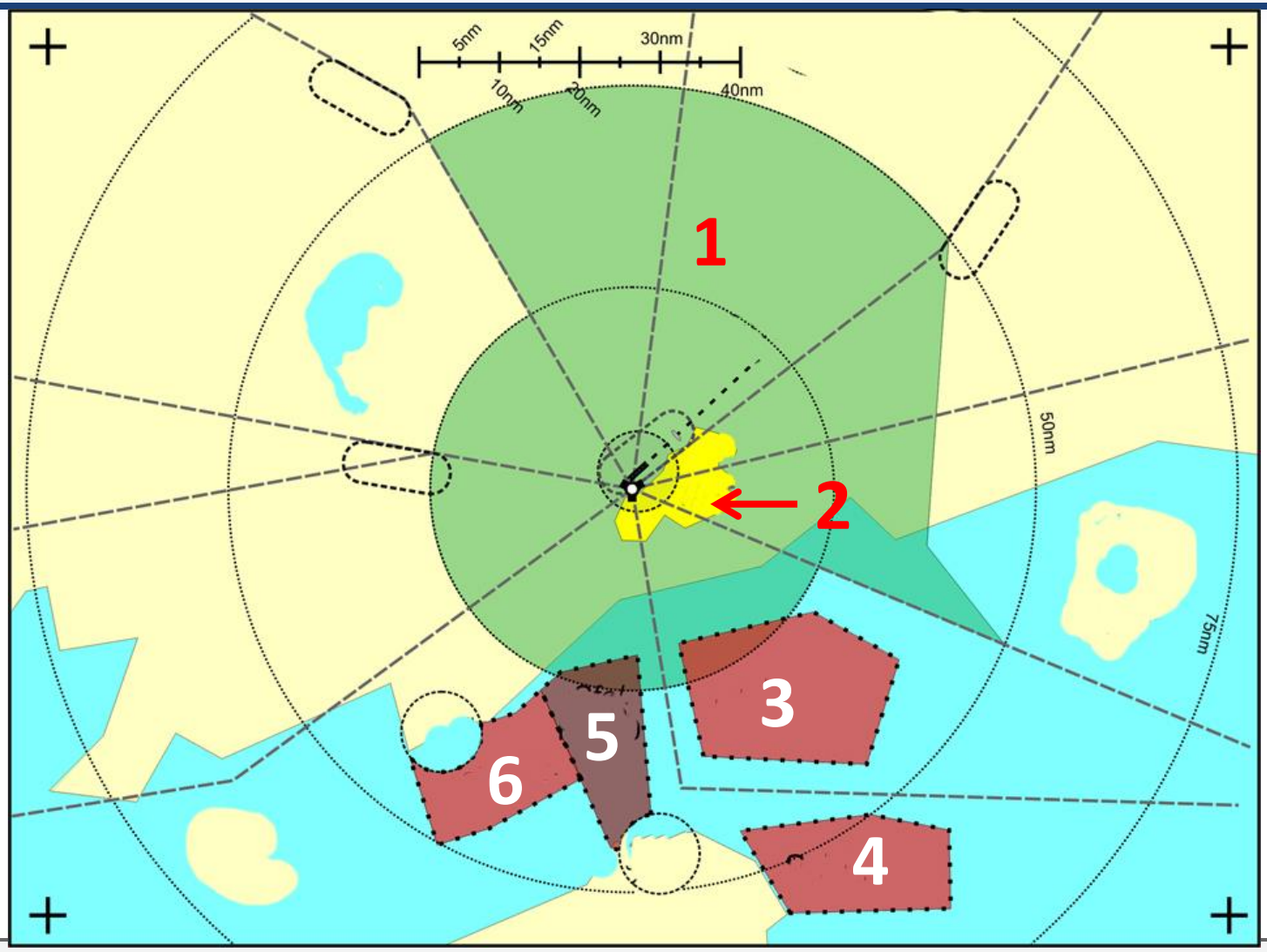
Introduction

- This module provides information on a fictitious TMA. It is a generic high level overview, which will provide a basis for understanding the present TMA operations

Case 1 Study

- Basic data provided
- Think outside the box! Experiment.
- You will need to investigate!
- Ask questions
- ***There are no silly questions!!***

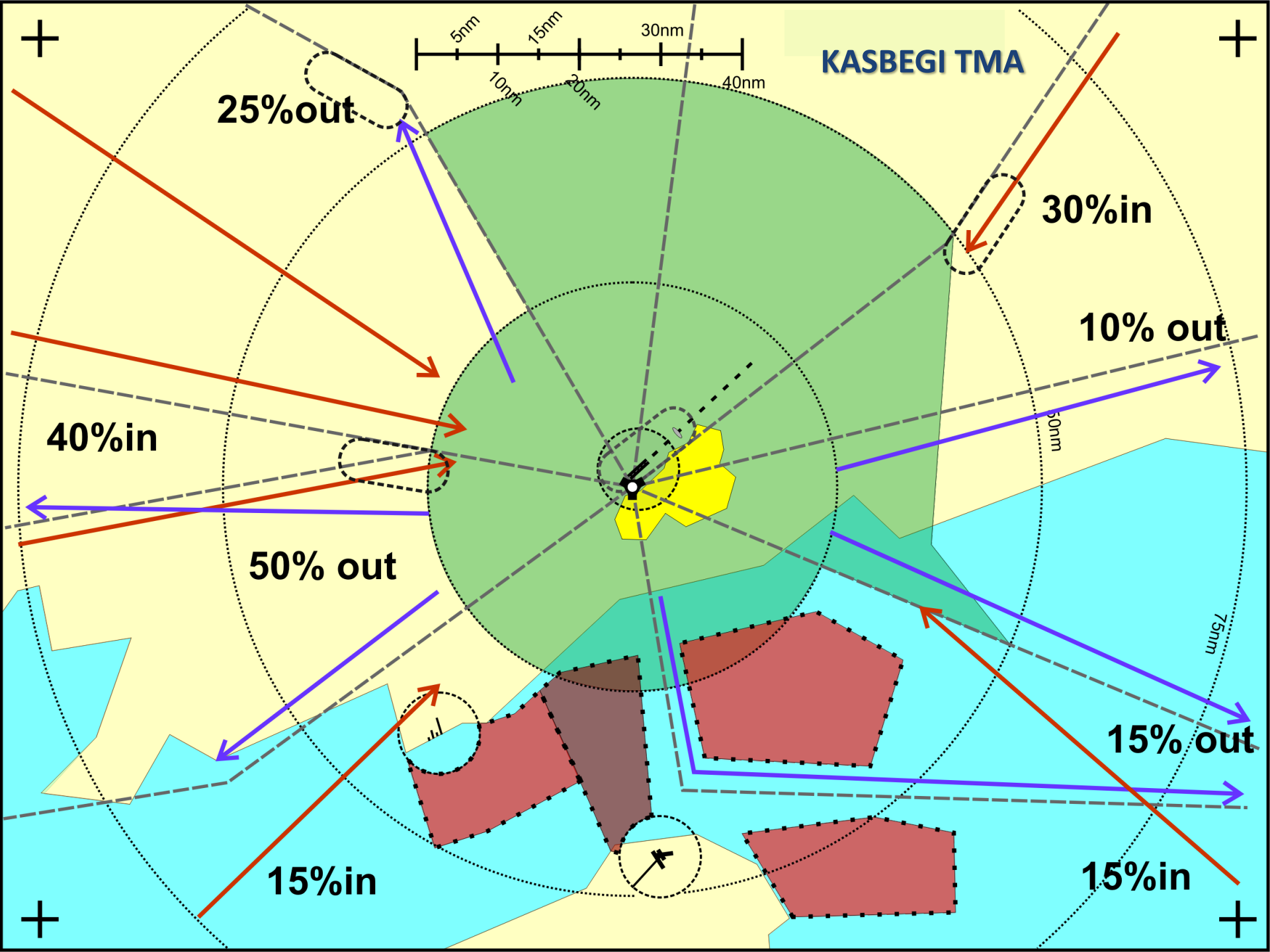
KASBEGI TMA

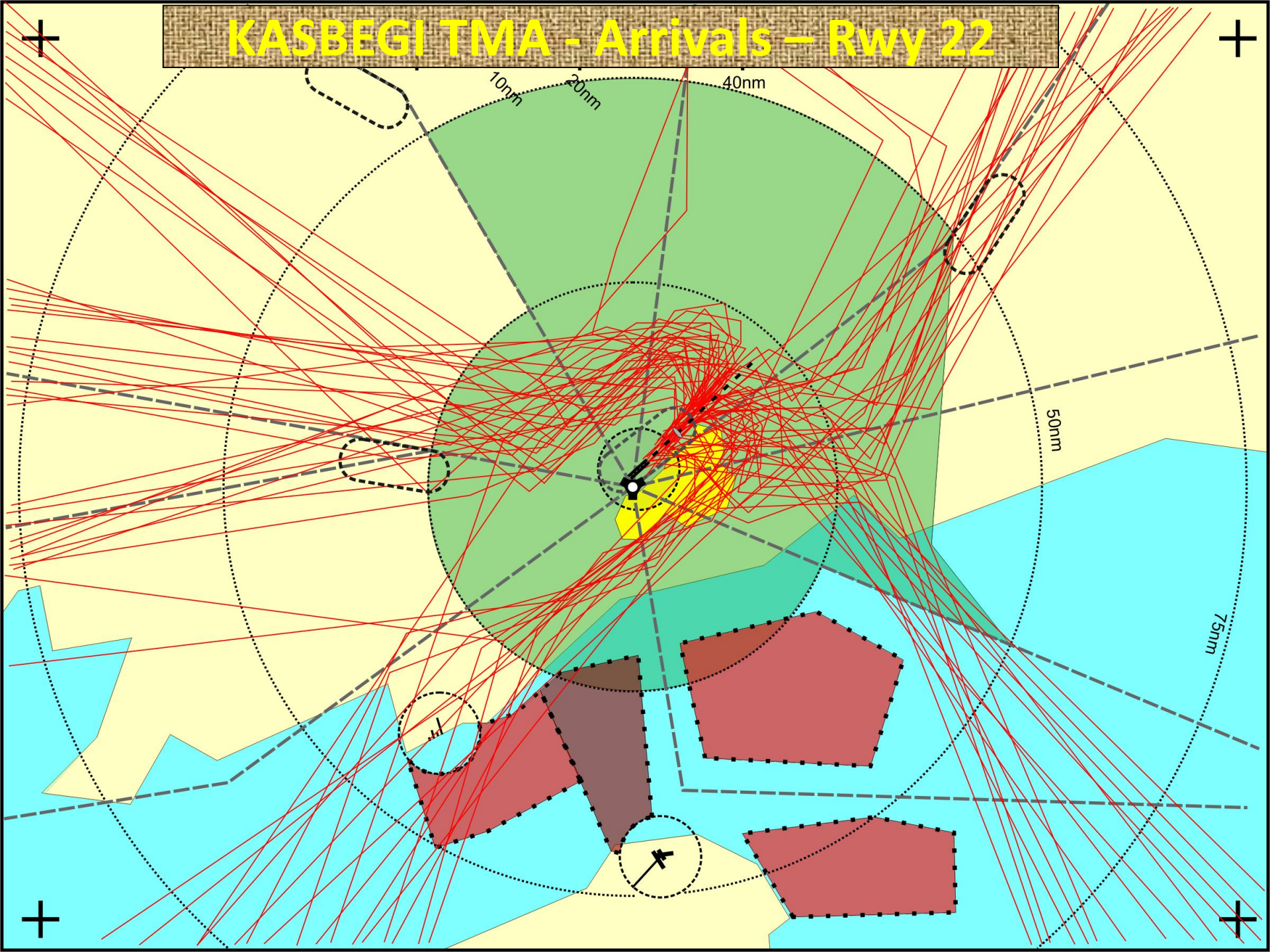


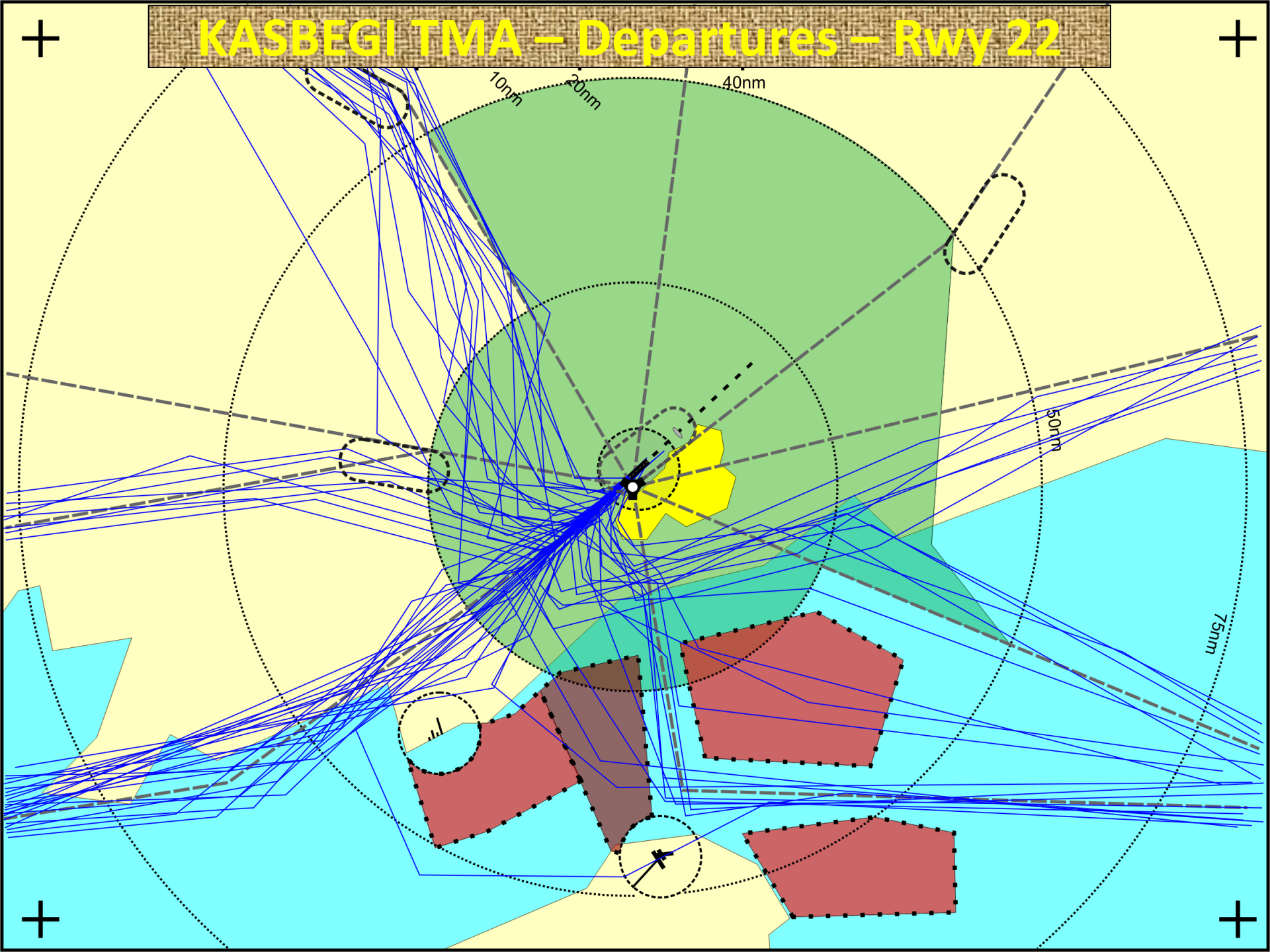
1. TMA – SFC to 150
2. City Limits
3. Military Training Area
4. Military Jet Training Area
5. Military Aerobatic Training Area
6. Police Helicopter Training Base

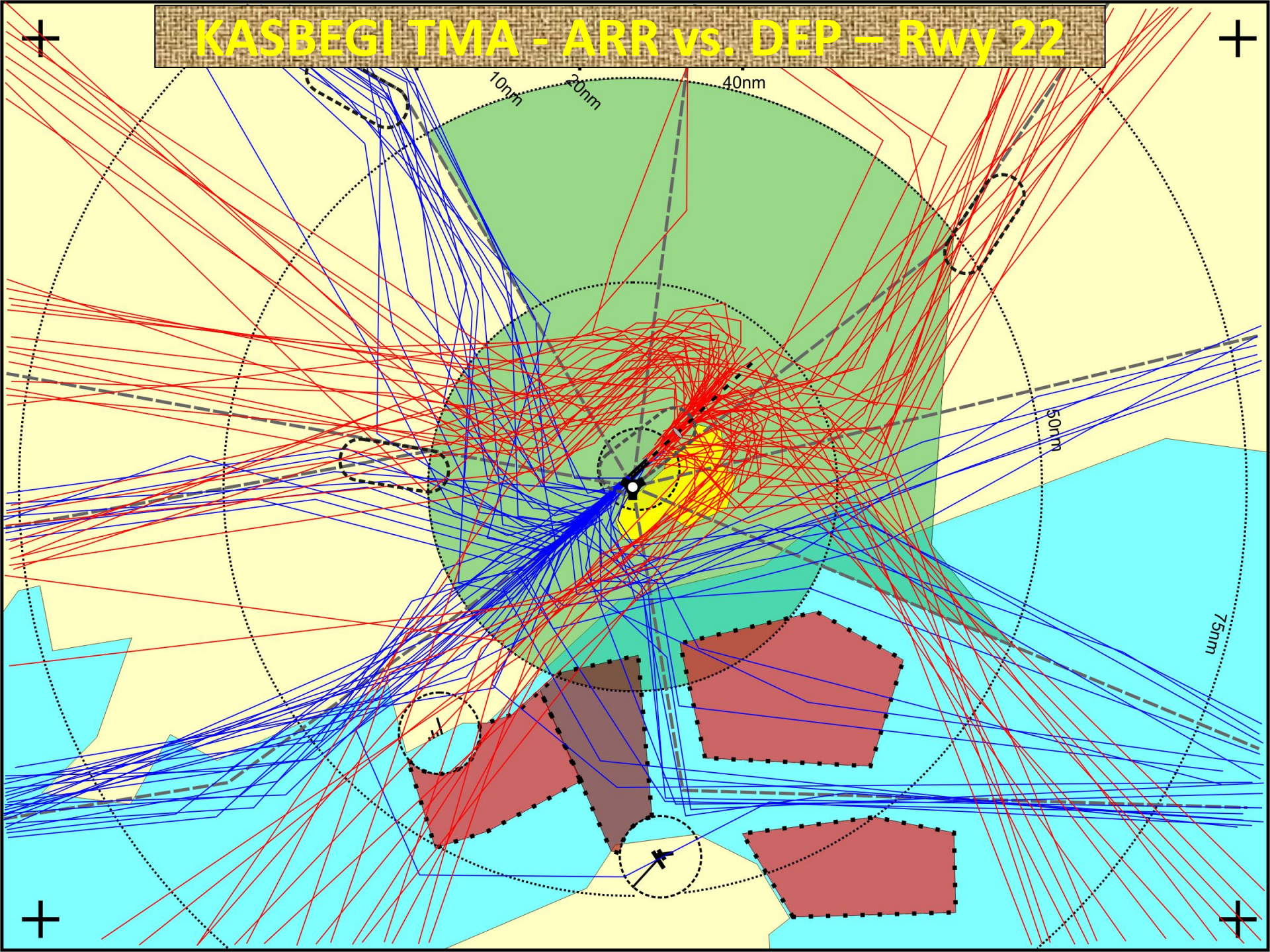
KASBEGI TMA- ISSUES

- RWY 04/22 – start with RWY 22
- RWY 22 is primary, in use 80% of the time
- Mostly Radar Vectoring
- Environmental constraints
  - No flights 2200-0600 due to city noise complaints
- Operator request for night flights
- Military needs larger practice area
- Operator wants more efficient ATM


KASBEGI TMA
5nm
10nm
15nm
20nm
30nm
40nm
25%out
30%in
10% out
40%in
50% out
15% out
15%in
15%in


KASBEGI TMA - Arrivals – Rwy 22
10nm
20nm
40nm
50nm
75nm


KASBEGI TMA – Departures – Rwy 22
10nm
20nm
40nm
50nm
75nm


KASBEGI TMA - ARR vs. DEP – Rwy 22
10nm
20nm
40nm
50nm
75nm

KASBEGI TMA -TRAFFIC

- 90 % GNSS EQUIPPED
- 40 % DME/DME
- ALL RNAV-5 approved
- 90 % RNAV-1 approved
- 80% RNP approved with RF
- 5% Retrofittable
- 5 % too old

KASBEGI TMA - AIRSPACE

- Airspace classification C (inside and outside TMA from 500ft upwards, uncontrolled below)
- Airspace restrictions (on map)
- Holding Areas (on map)
- MSA is 1500 ft
- Transition Level is FL100
- MRVA is published 1500 ft

KASBEGI TMA - ATM

- Currently there are no SIDs or STARs
- Arrival and Departures vectored
- Holds reactively activated
- HOLDS managed by APP but located in ACC
- No transit traffic
- High workload
- Limited VFR ops
- VFR has no impact on TMA ops
- Military VFR to TSA outside CTR
- Military airspace transited on occasion via controller request – nothing official in place

KASBEGI TMA - INFRA and TECHNICAL

- Two radar (APP and feed from ACC) full coverage from 800ft
- Update rate 10 per min
- Full RADAR and Flight plan data processing
- ILS both RWY ends Cat 3
- NDB for NPA

KASBEGI TMA - METEO

- No serious impact on ATM and low pressure / cold has no impact as well
- Moderate thunderstorm activity during summer, with normal disruption of traffic accommodated through vectors

KASBEGI TMA - ENVIRONMENT

- Noise curfew 2200-0600
- Desire to avoid city as much as possible
- Current holding levels not below FL110
- CDOs/CCOs are not implemented

KASBEGI TMA - Reserved Mil. Airspace

- Is used for air-combat and helicopter training.
- Activated from 0800-2200.
- No formal agreement for the use of the military airspace outside actual military use.
- Occasional use is obtained through telephone coordination.

Rules of Thumb

CCO and CDO are operating techniques.

CDO descent rough starting points:

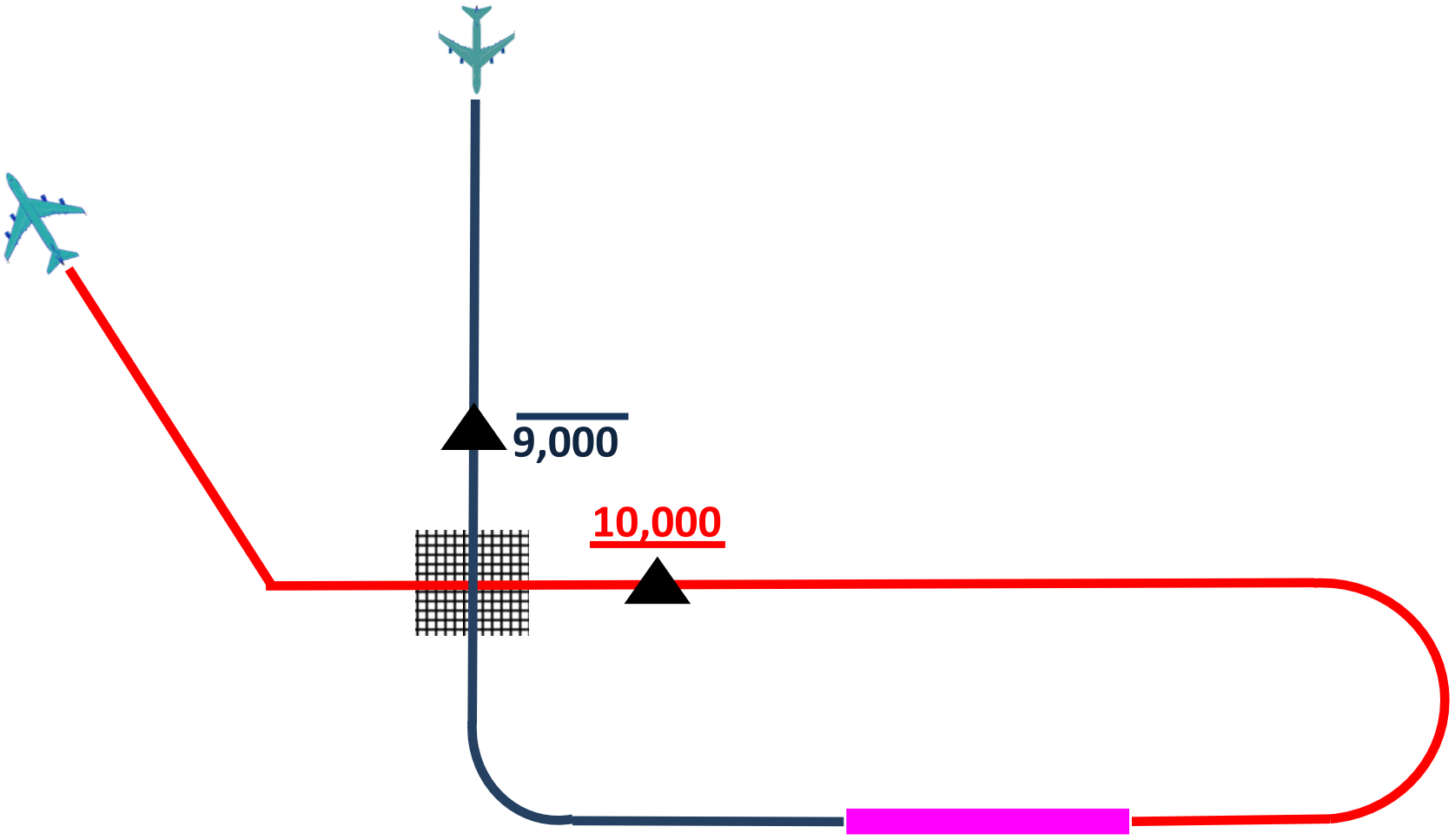
- **3 miles per thousand feet plus 1 mile per 10knots**
  or
- **4 miles per thousand feet**

CCO climb rough starting points:

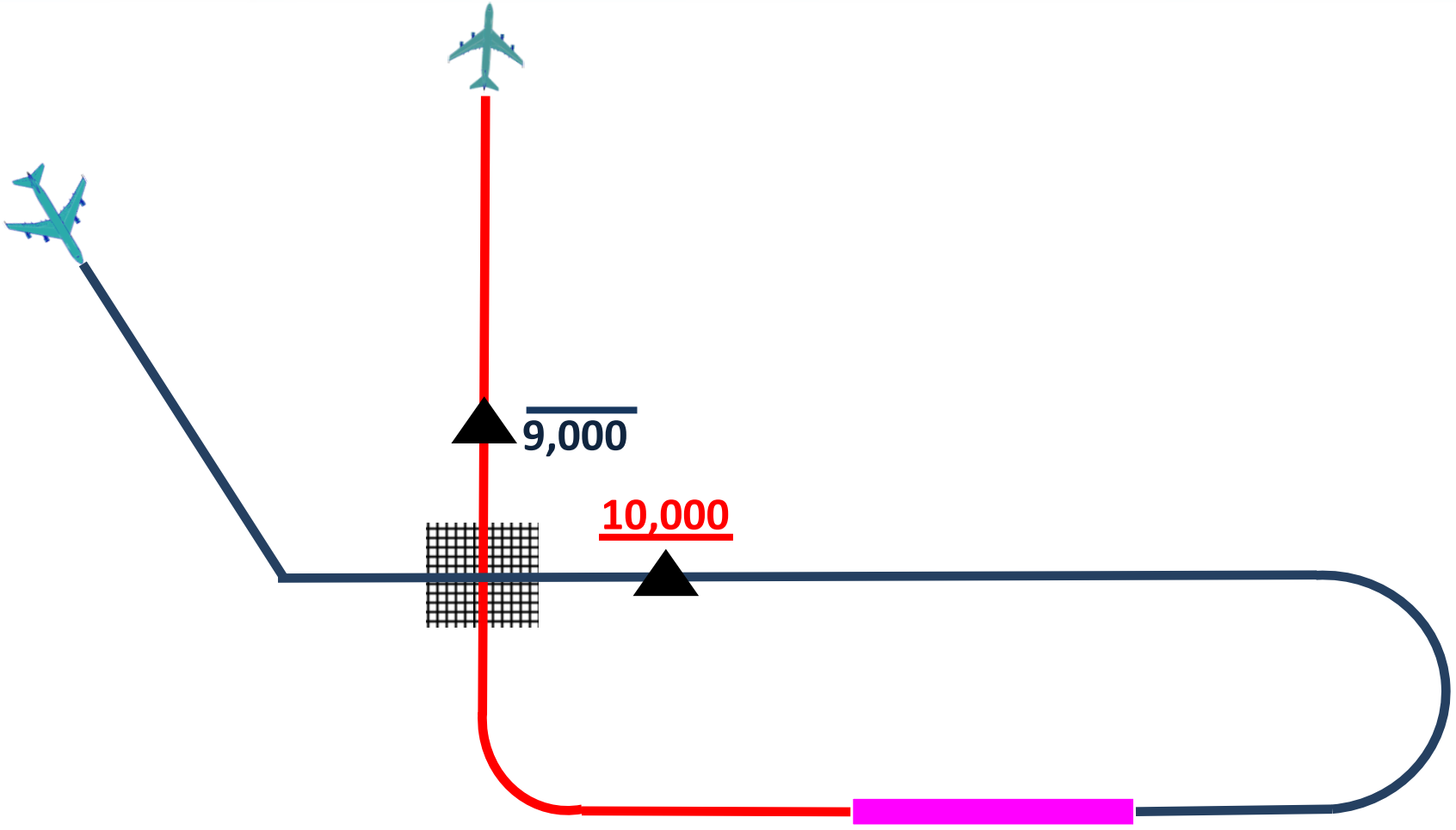
- **Very Slow climber - 5 miles per thousand feet**
- **Medium climber – 3 to 4 miles per thousand feet**
- **Faster climber – 2 miles per thousand feet**
- **Rocket ship - 1 mile per thousand feet**

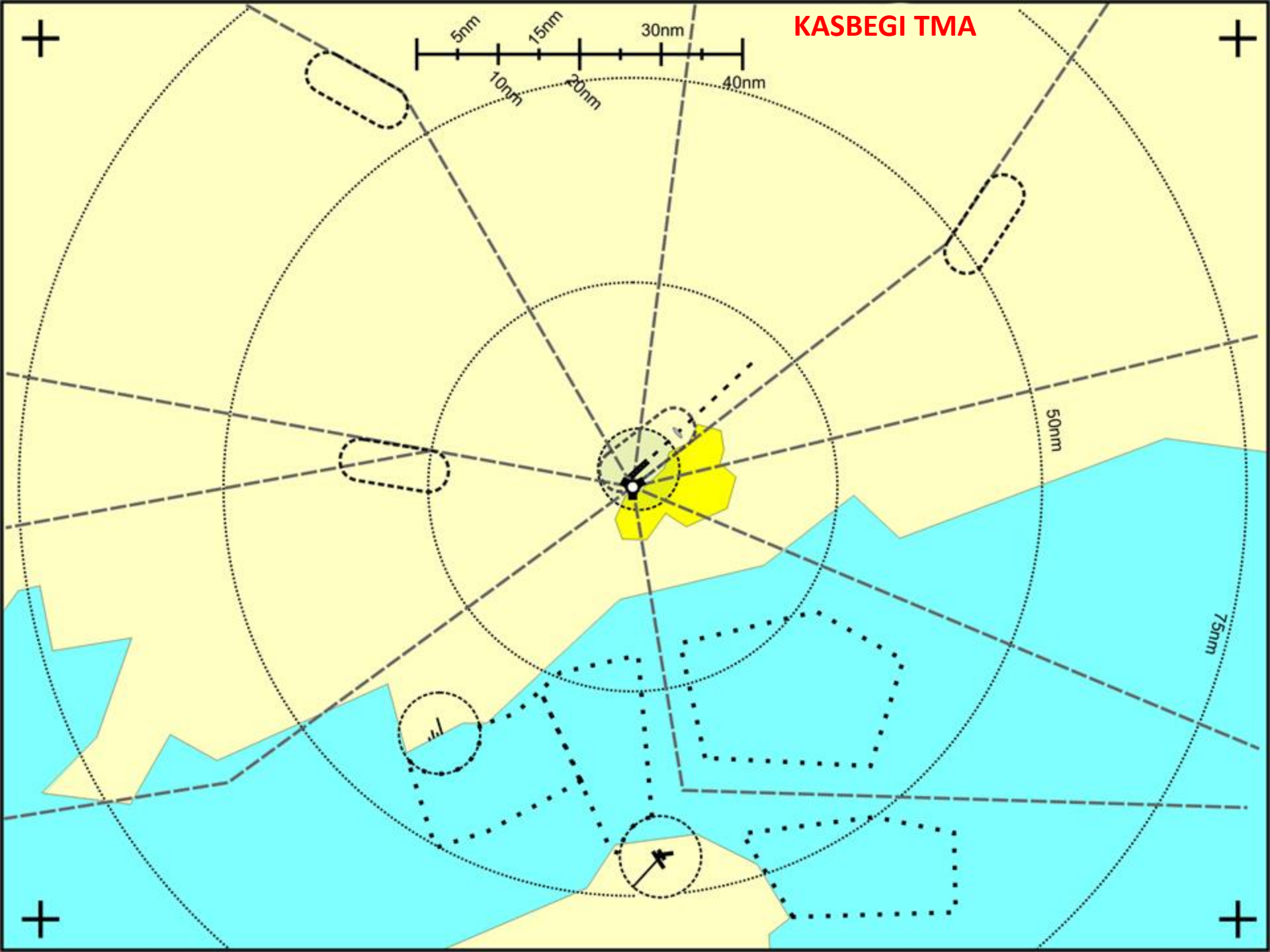
- **RNAV Final between 4-5 nm**

Rules of Thumb



Rules of Thumb




KASBEGI TMA
5nm
10nm
15nm
20nm
30nm
40nm
50nm
75nm

Case Study 1

- **Task 1**
  - **Select Team Leader**
  - **Select Team Name**
  - **Select Recorder**
  - **Decide Objectives – WHY?**
    - ***Safety, Capacity, Access, Efficiency, Environment***
  - **Decide Scope – *WHAT***
  - **Decide Timeline - *WHEN***

Case Study 1

- **Task 2**
  - Design SIDs – RWY 22
  - Design STARs – RWY 22
  - If time permits, design SIDs and STARs for RWY 04
- **Task 3**
  - Design Holds
  - Redesign KASBEGI TMA if required
  - Sectorize KASBEGI TMA if required

Case Study 1

- **Task 4**
  - **Presentation of Case Study 1**
    - **Team Dynamics**
    - **Assumptions**
    - **Navigation Specifications**
    - **Objectives**
    - **Goals**
    - **Timelines (Hypothetical)**
    - **Presentation of Airspace Design (Including ITERATIONS if applicable)**

Groups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Questions?


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Thank You