



ICAO

MIDANPIRG/23 & RASG-MID/13

CAIRO - EGYPT

14-18 JUNE 2026





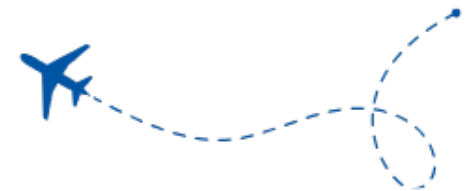
Radio Altimeter



Muna Alnadaf

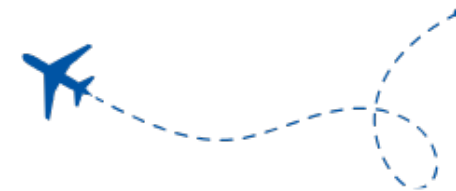
Technical Officer/ Communications,
Navigation, and Surveillance

ICAO Air Navigation Bureau

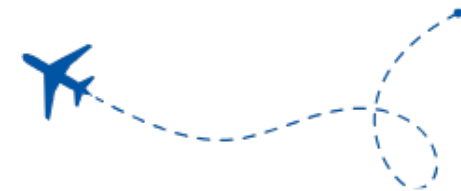
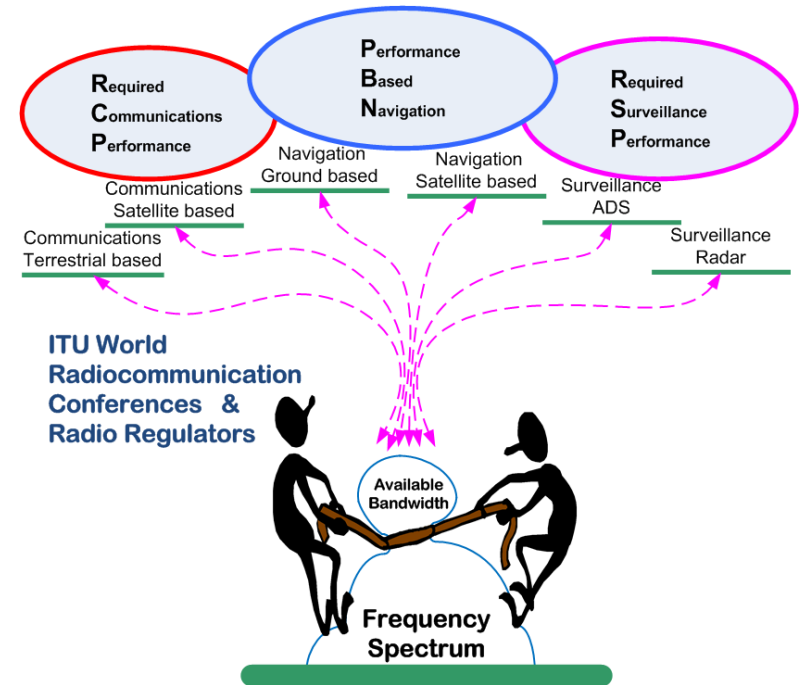


Aviation Safety Depends on CNS and Spectrum

- ❑ About 100.000 flights take off and land every day without any incidents around the world
- ❑ Aviation maintains its exceptional safety through a globally coordinated approach **supported by CNS systems — all of which rely on access to protected radio-frequency spectrum**



Modern Aircraft: Fully Dependent on Safety Spectrum







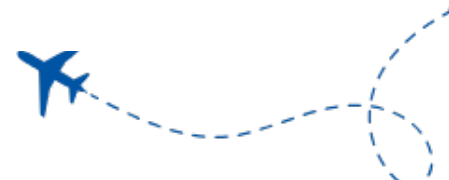
Future Risks

\$174+ billion USD paid by mobile telecom at spectrum auctions between 2021-2025

Mobile Telecom Evolution

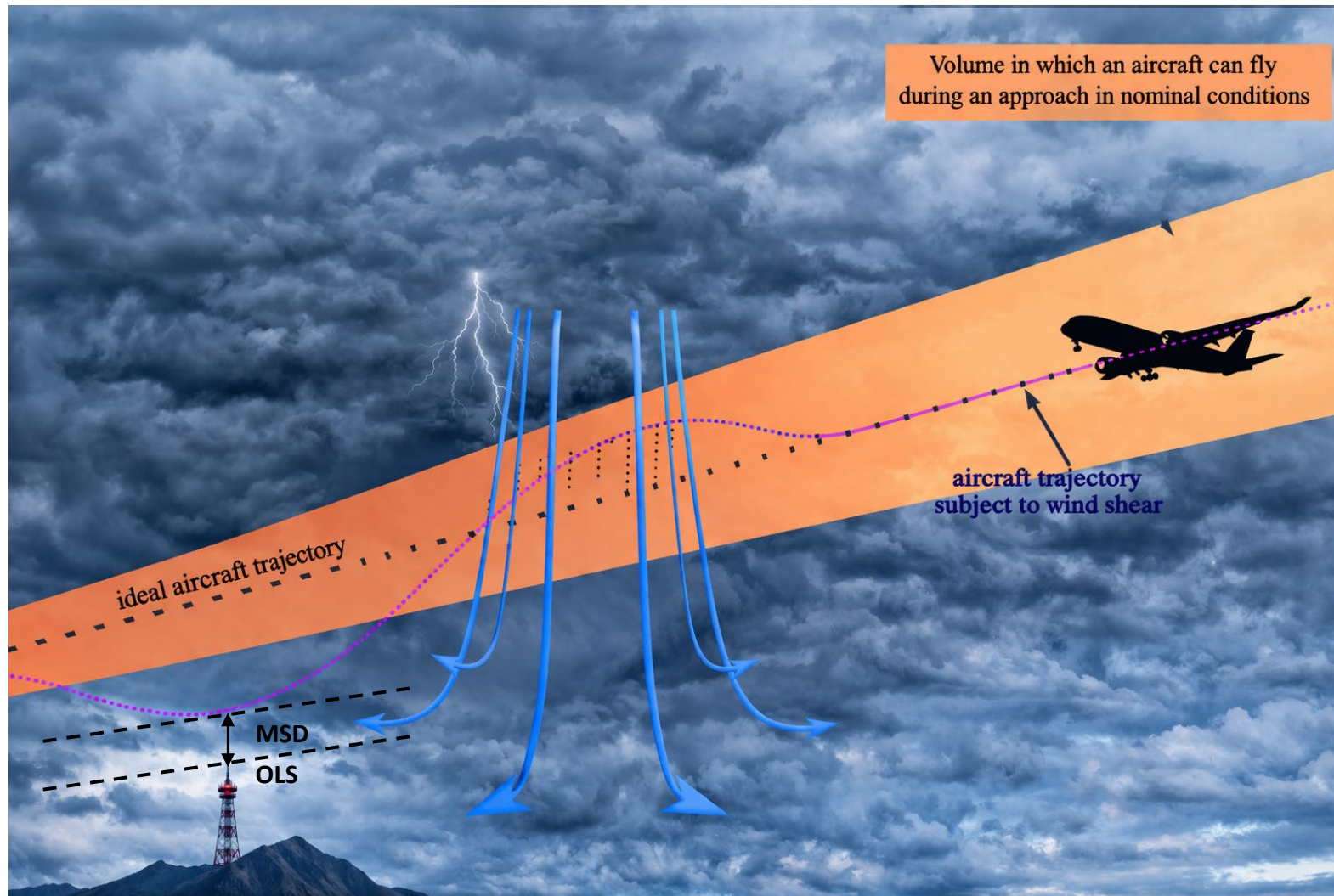


-  Telecom market pace vs. aviation safety improvement timelines
-  5G impacts to radio altimeters
-  Emergence of 6G
-  Market pressure



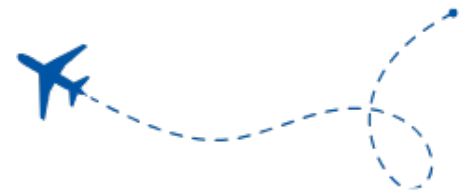
Aviation Safety Concerns:

Missing scenario: Off-nominal operations



If the radio altimeter fails to provide accurate altitude information, the consequences could be severe ...
This scenario must be thoroughly addressed under WRC-27 Agenda Item 1.7

Who makes the decisions about the allocation of spectrum and what is the role of ICAO?



World Radiocommunication Conference

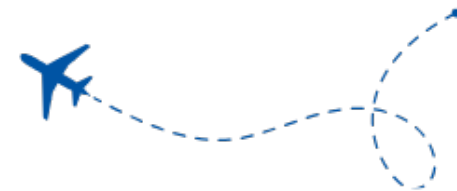
- Decisions every 4 years during the World Radiocommunication Conferences (WRC)
- Decided by States, influenced by international treaties and industry inputs
- Also, more than 1000 private companies/organizations participate in ITU study groups (technical expertise, lobby)
- Delegations led by telecommunications representation



Int Telecom Union

Frequency Allocation Decision

- State delegations make decisions at the World Radio Conference



Aeronautical Frequency Spectrum Management



- National position is developed and coordinated by the National Frequency Spectrum authority
- Aviation is but one of many users that lobby for attention

National level



- National telecommunications authorities co-ordinate their position through regional organizations
- Aviation representatives may not be allowed to speak up as the National Frequency Spectrum Authority has only “one official position”
- ICAO is allowed to participate

Regional Level



- National telecommunications authorities co-ordinate their position through the ITU-R Study Groups
- National delegation has only “one official position”
- States look to ICAO for guidance on aviation matters

International level

Call to Action



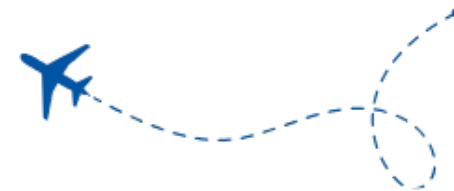
Upcoming spectrum meetings

2026

- ITU WP4C – Mobile Satellite Service (Apr, Oct)
- ITU WP5B – Aeronautical and RADAR (May, Nov)
- ITU WP5D – International Mobile Telecom (May, Oct)
- APT (Asia-Pacific Regional Spectrum Group)
- CEPT (European Regional Spectrum Group)
- ATU (African Regional Spectrum Group)
- ASMG (Arab Regional Spectrum Group)
- CITEL (Americas Regional Spectrum Group)

2027

- **ITU Conference Preparatory Meeting; Apr 5-17, Geneva, Switzerland**
- APT (Asia-Pacific Regional Spectrum Group)
- CEPT (European Regional Spectrum Group)
- ATU (African Regional Spectrum Group)
- ASMG (Arab Regional Spectrum Group)
- CITEL (Americas Regional Spectrum Group)
- **World Radio Conference-27; Oct 18-Nov12; Shanghai, China**



Thank You