



Hello Tomorrow Emirates



Runway Safety Begins on the Flight Deck

MID-RRSS/2

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VP Flt Operations Support

Introduction



- Safety is based on collaboration
 - Airport, ATC and Flight Deck coordinating activities
 - Airfield design
 - Ground infrastructure
 - Human Factors
 - Alerts
 - Technology path still relatively new

Tradition



- Airfield Design
 - Avoid straight across, etc
- Awareness
 - Pilots, ATC, Airfield Ops
- Procedures
 - “hold short”

Infrastructure



- Signage
- Stopbars

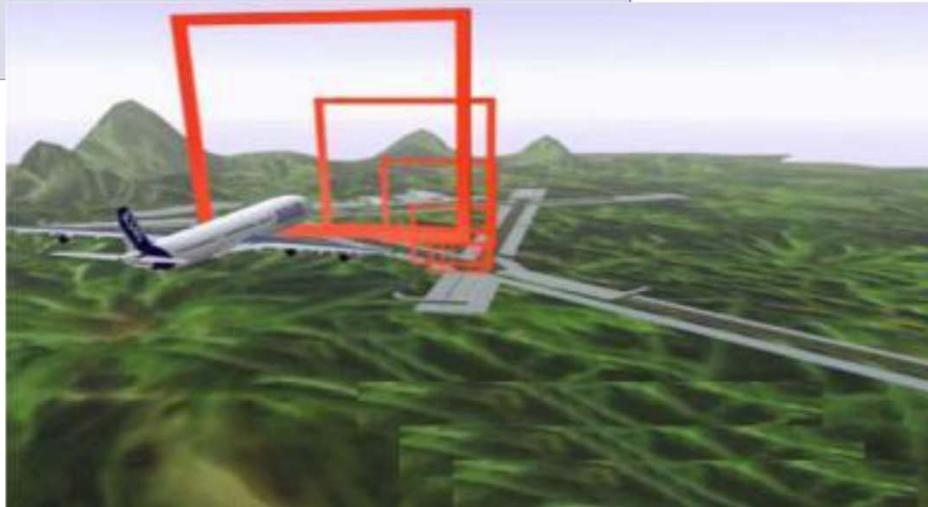
- GMR/ MLAT/ ADS-B
- RIMCAS
 - Incursion detection not prevention

Technology



- Runway ahead
 - Ground and aural
- Still reliant on fundamentals
- But technology is further developed in other areas

Technology



Where to now



- A-SMGCS
 - Follow the greens



Where to now

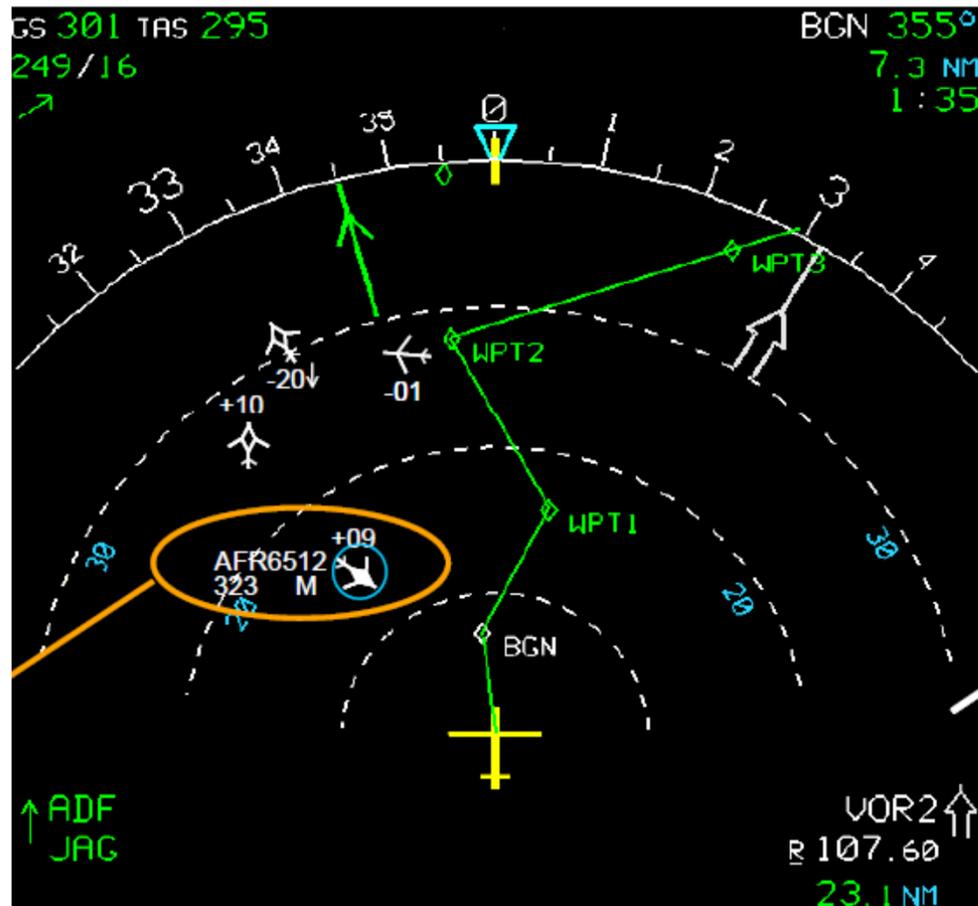
- AMM
 - Integrated cockpit



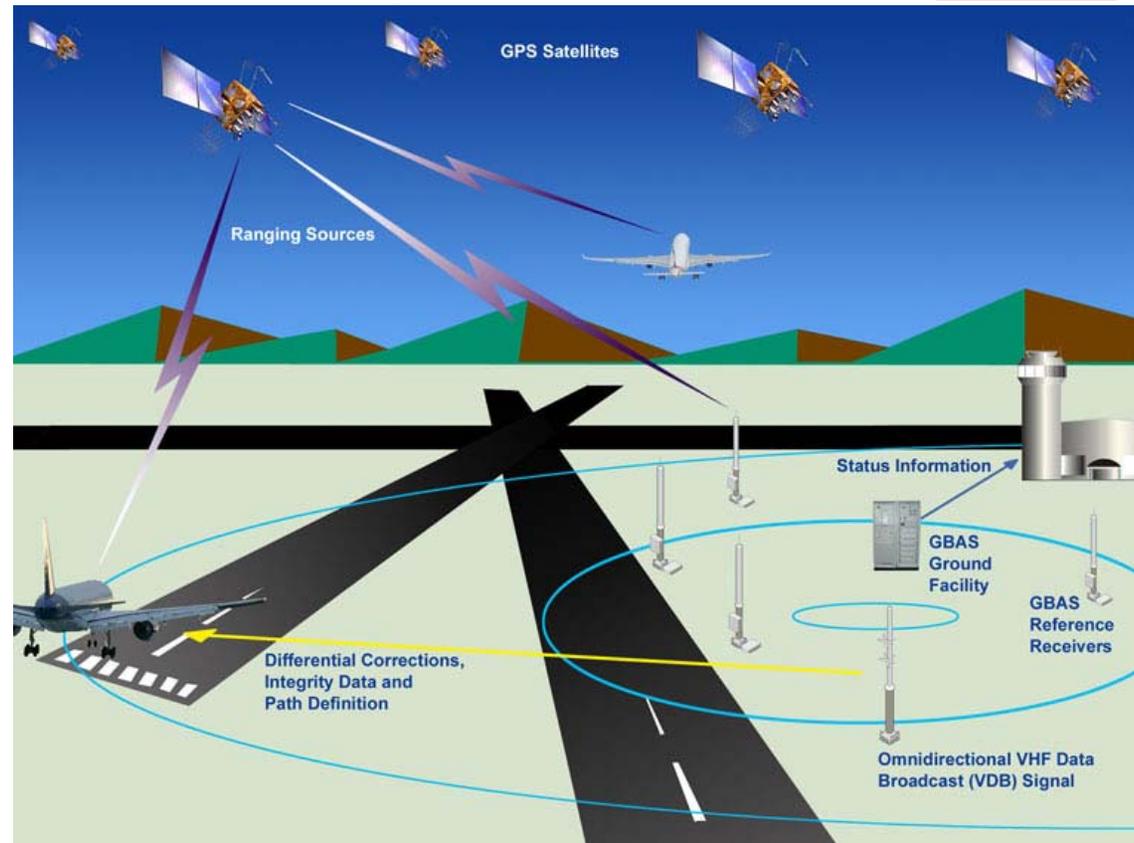
Coordinated Route guidance

Where to now

- ADS-B IN
 - Alerting function

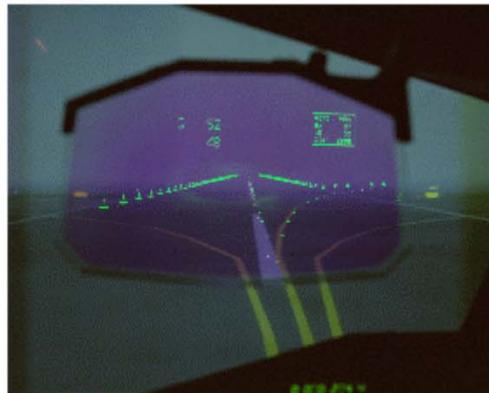
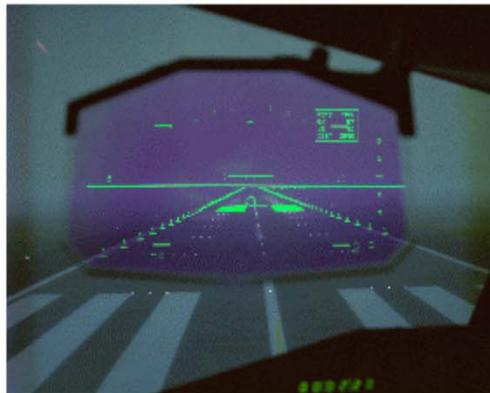
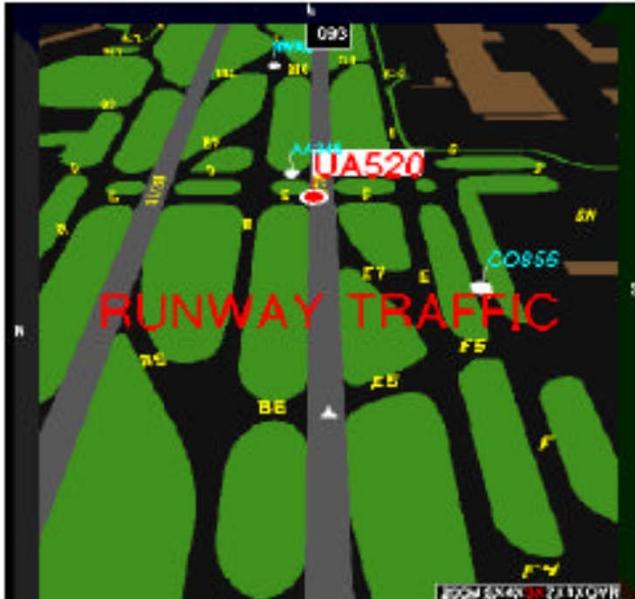


Where to now



- Precision Guidance
 - GBAS?
 - RNAV can land to 0.1nm at 150kts,
 - GLS will provide 50m/ 0ft,
 - What about precision taxi guidance?

Complete Integration?



What about the basics?



- Sensors
 - Lights show where to go, how about where to stop?
 - Indicators for “safe” zones?
 - Induction loops

Runway Safety



- Future relies on increased integration between systems
- Linking between airport/ ANS and Operator
- Until full 4DT evolves
 - Final barrier is in the cockpit!

Thank you

