



EUROCONTROL

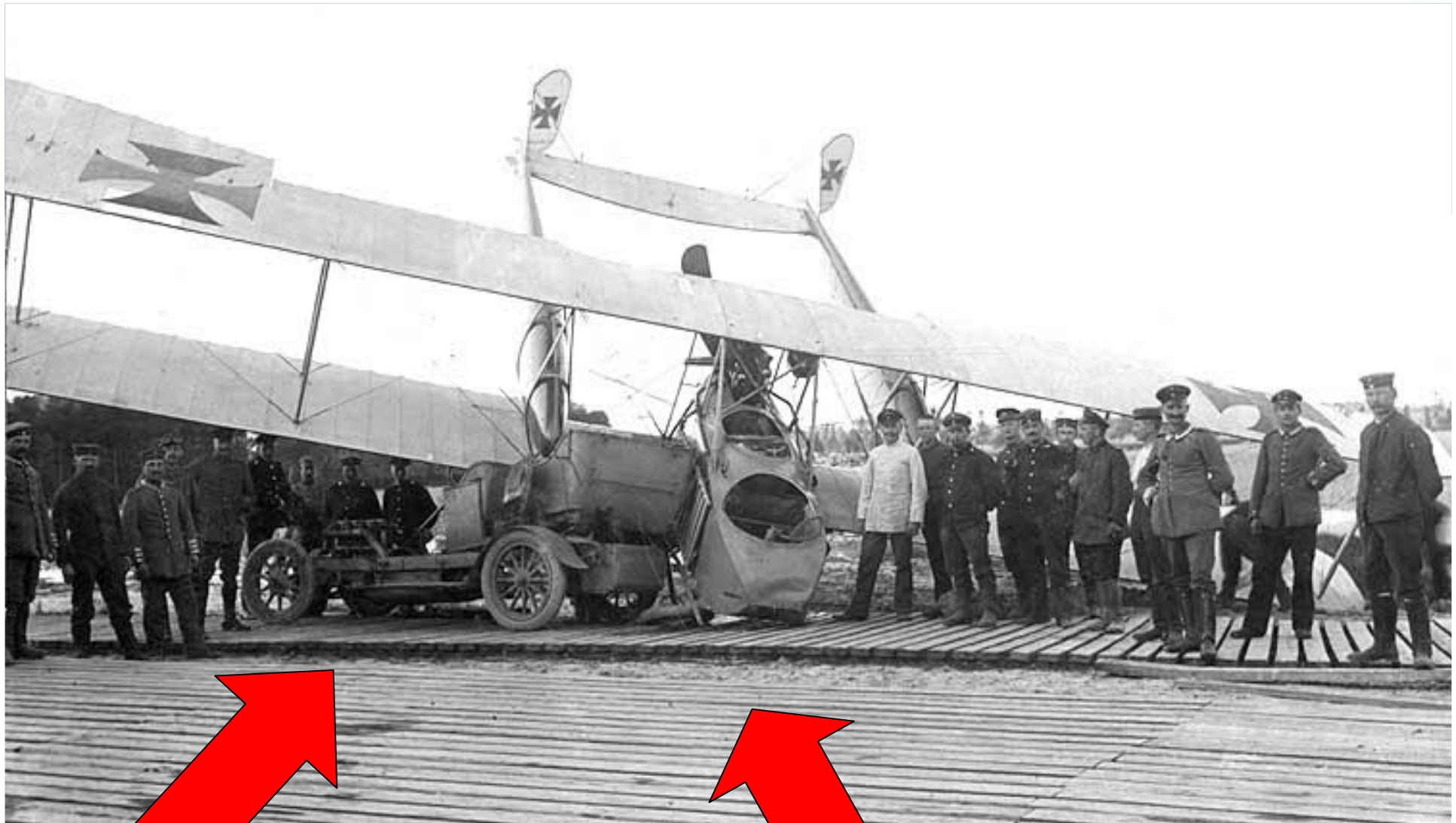
Airport Operations Programme

Symposium 2007 sur les Incursions sur Piste

Paris, Issy Les Moulineaux,
29 Novembre



Eric MIART, EUROCONTROL APR Manager



World War 1 picture

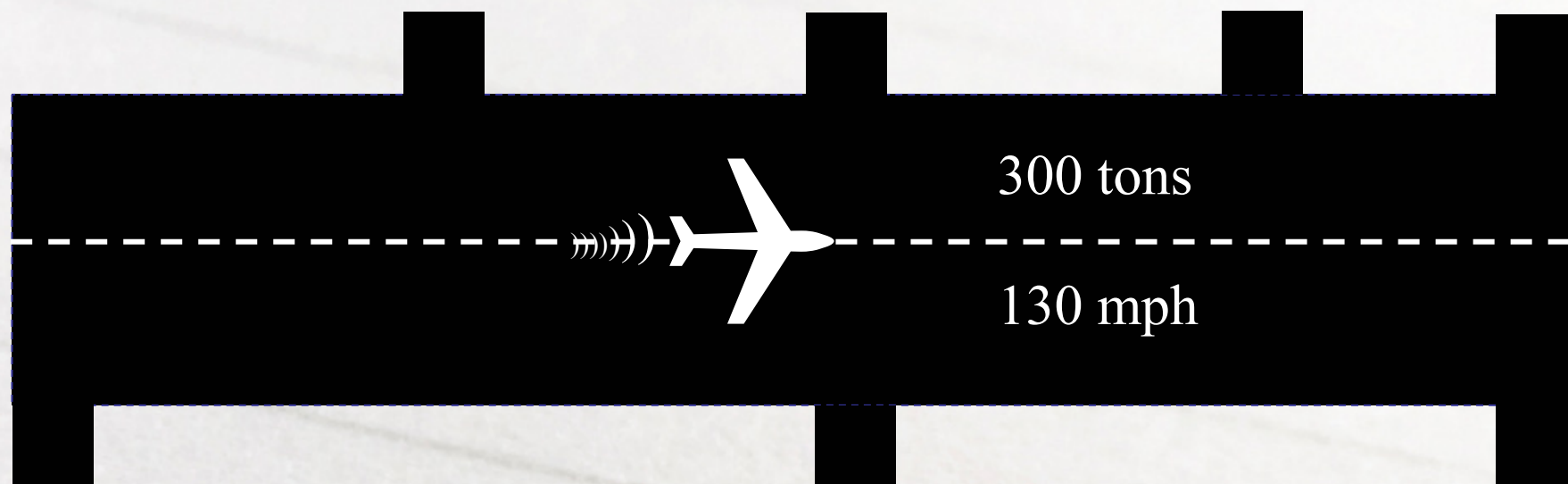
Runway Safety - Not a New Problem

« Toute occurrence sur un aéroport impliquant la présence incorrecte d'un aéronef, d'un véhicule ou d'une personne dans l'aire protégée d'une surface utilisée pour l'atterrissage ou le décollage d'un aéronef »

“Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take off of aircraft”

Applicable 25 November 2004

Runways are hazardous



System needs to be perfect

... Nearly will not do

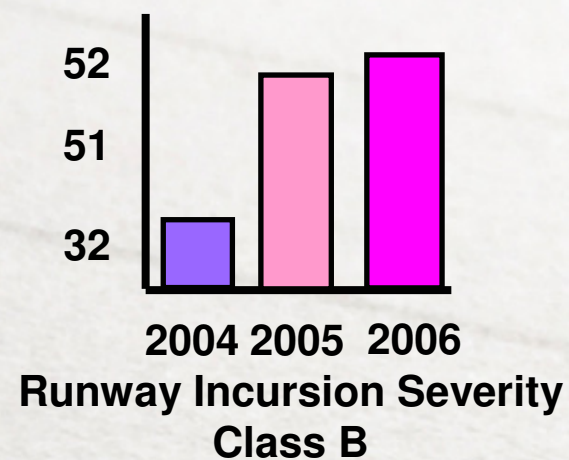
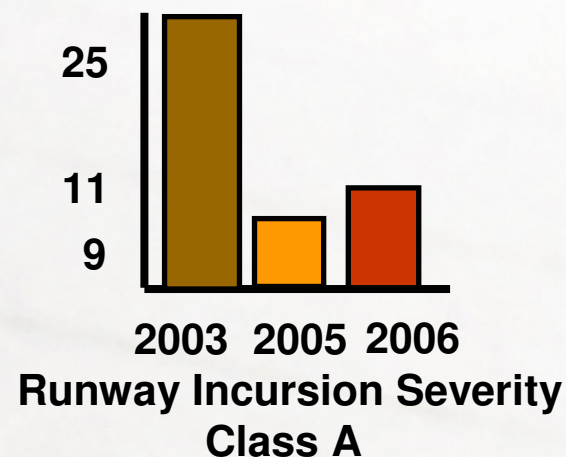
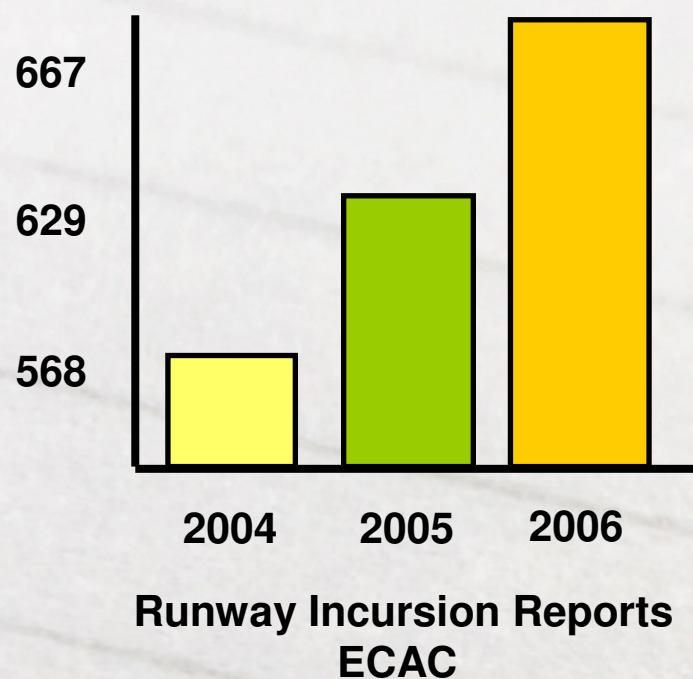
Preventing Runway Incursions Runway Incursions happen ...

- **When situational awareness is lost**
- **Errors are not caught in time**



- **Communications breakdown**
- **The Team doesn't work**

European Runway Incursion Data 2006





Preventing Runway Incursions Contributory and causal factors

Controller factors

Crew not familiar with the airport

Deficient markings, signage and lighting

Loss of situational awareness

Misapplied conditional clearance

Inadequate driver training

Communication

50% of Pilots and Drivers believe they have permission to be on the runway.

Two Main Thrusts:

- **Systemic Mitigations**
 - **Background/justification – EAPPRI**
- **Technology Mitigations**
 - **A-SMGCS – Surface Movement management**

Both important elements of APR

European Action Plan for the Prevention of Runway Incursions



- European Action Plan for the Prevention of Runway Incursions
- Input to ICAO Runway Safety Manual
- Runway Safety Awareness CD
- Aerodrome Resource Management
- Local Runway Safety Team Seminar

Widely implemented
Throughout Europe

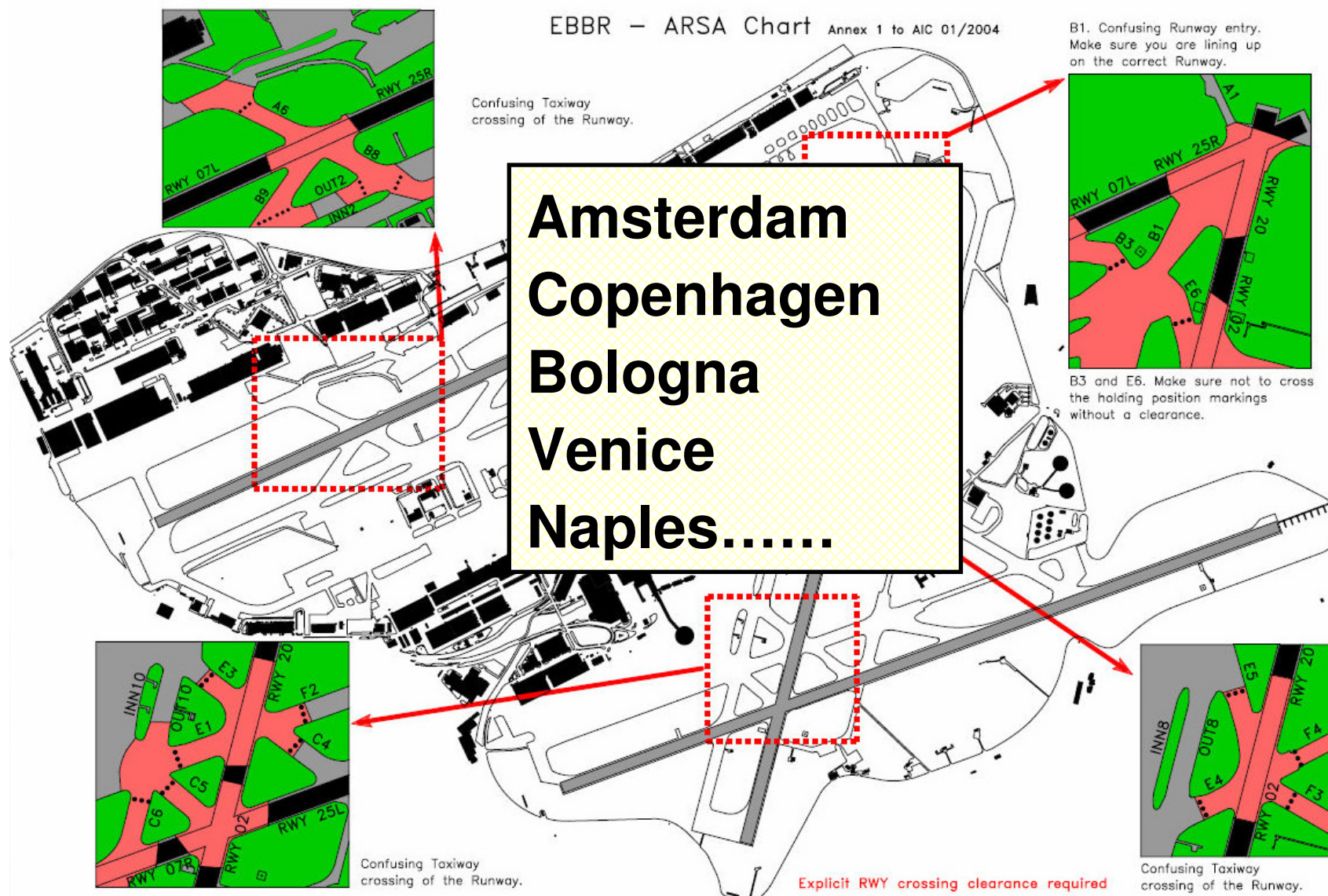
Reports from Tower Managers, ACI and IATA from more than 120 airports across ECAC concur

- 92% Local Runway Safety Teams
- 92% Awareness campaigns
- 73% Formal driver training
- 80% IATA member airlines globally, promote best practices for pilots' planning of ground operations (sterile cockpit)



EUROCONTROL
Airport Operations Programme

Example of best practice Hot Spot Map - Brussels



- **Use of stop bars - e.g. Amsterdam, Gatwick, Geneva, Manchester, Stansted, Stockholm**

STANSTED AIRPORT	
3	<p>Stop bars:</p> <p>Alpha, Golf Bravo, Hotel, Kilo, Lima, Lima Romeo, November Romeo, Papa Romeo, Papa, Quebec Romeo, Quebec, Romeo and Sierra holding points. Green Lead-on/off lighting is suppressed when red hold bars are illuminated. Guard lights at all runway entry points.</p> <p>At all CAT I/II runway holding points. Hotel and Juliet have stopbars along their length and within the Alpha Cul-de-Sac. No stopbars on Taxiway Foxtrot.</p>

- **Training - e.g. ARM courses at IANS or at airports on request**

Who really needs to drive on the manoeuvring area?

Cost effective driver training including:

ICAO compliant phraseology +

Aviation English +

Use of RT

=

Use of a single frequency on the runway

Improved situational awareness for

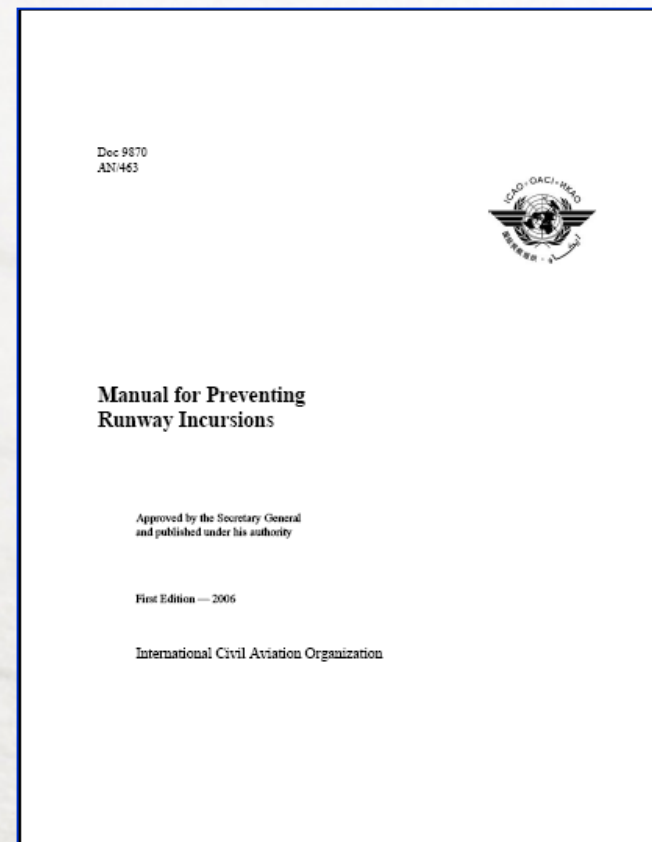
Pilots and Drivers and Air Traffic Controllers

What EUROCONTROL does

- **Visit Local Runway Safety Teams – share best practices**
- **Provide LRST with support, information, methods**
- **Run a local Aerodrome Resource Management training**
- **Review current technologies and facilitate the development of what's needed**

A GLOBAL WORLD / ICAO ISSUE

- One runway incursion definition
- Use of standard ICAO phraseology
- ICAO Runway Safety Manual
- Runway Safety part of the Universal Safety Oversight programme
- IFALPA, IFATCA and ACI working together



FAA, Air Services Australia, EUROCONTROL

FURTHER ENHANCEMENTS

Airport Operations Programme

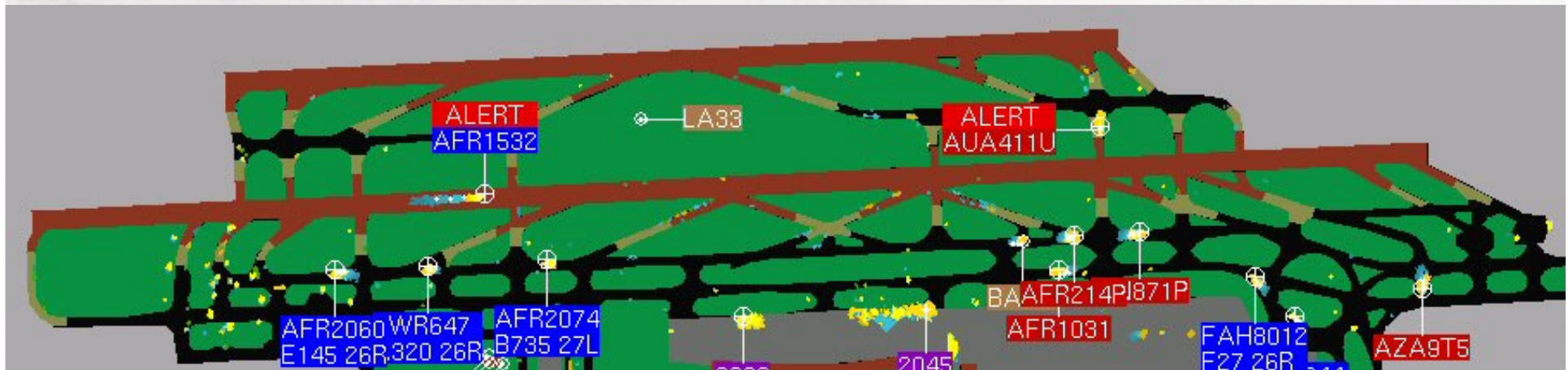
Follow On



- Improved surveillance
- Has already saved some serious incidents

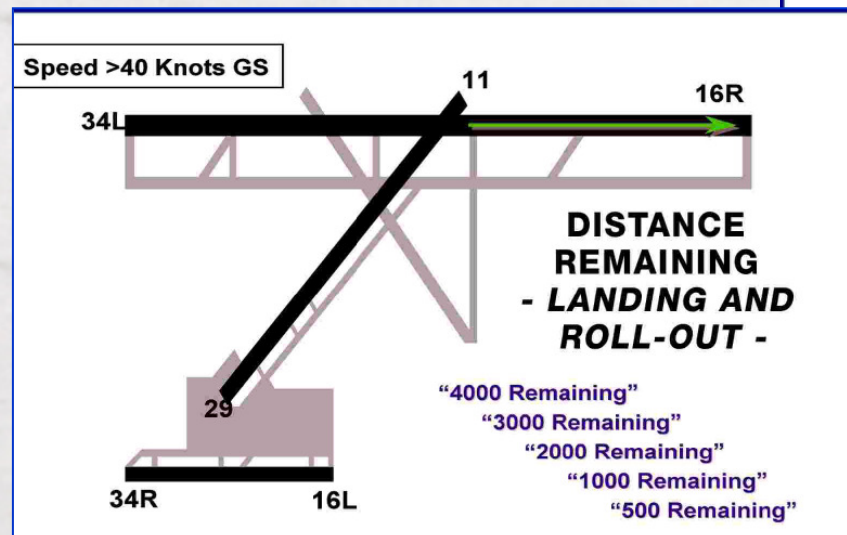
Runway Incursion Monitoring and Conflict Alert System - Now

- Safety net detects conflict
- Passed to controller
- Understood by Controller
- Decide on recovery actions
- Pass to Pilot(s)
- Need to understand and react ...

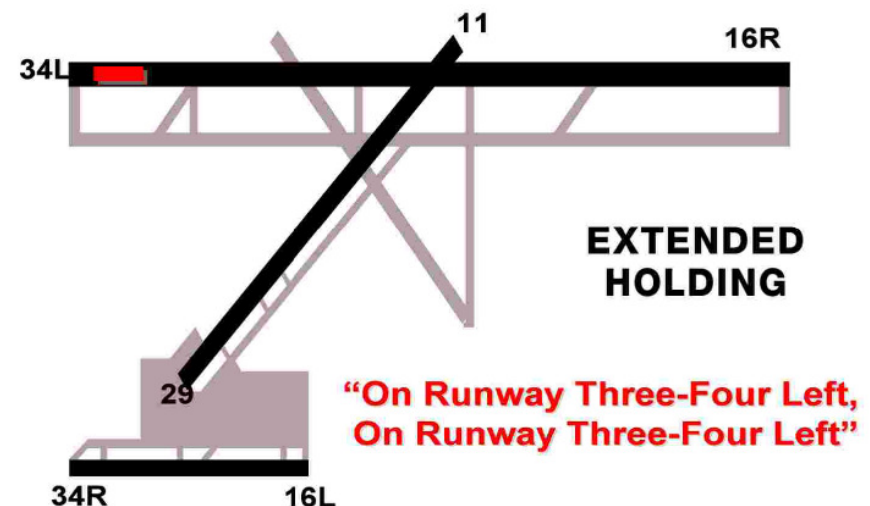


Positional information and proximity warnings given in the cockpit

- Honeywell system
- Potential for the future
- Not yet fully mature
- No pilot consensus yet



Non-Routine Advisories

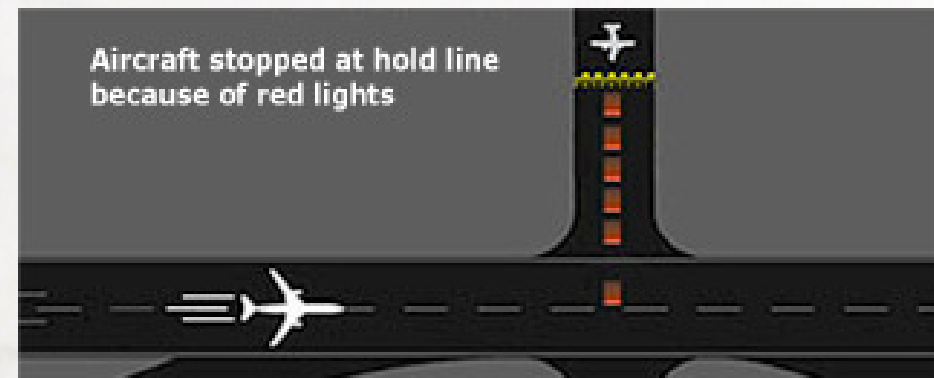


FAA “Status Lights” initiative

The Problem



Potential Solution: Part 1



Potential Solution: Part 2



- **Low cost compared to an SMR**
 - Not yet an A-SMGCS
- **Synchronized Millimeter Wave Sensors**
- **Controls taxiway centre lights, stop bars, signs, runway guard lights and other ground lights**





FURTHER ENHANCEMENTS MEDIUM TO LONG TERM

What is needed 1/2



- **Simultaneous positional information**
- **Simultaneous proximity warning for Pilots, Controllers and Drivers**

What is needed 2/2

- **Airport Surface Management and Safety**
- **Development of technology based safety nets**
- **Contribute to ground training for Pilots**
- **Global Lights On policy (IFALPA)**
- **Best Practice documentation**
- **Stop bars 24 hours**



What airport operational staff want

Blame free reporting

← **All staff**

- High situational awareness
- Never to be asked to cross a red stop bar

← **Drivers & Pilots**

- Optimal training in RT, phraseologies & procedures
- Adequate equipment

← **Drivers**

- Clear ICAO signs, marking and lighting
- Unambiguous ICAO RT phraseology
- Only one aviation language
- Input into airport developments
- Use of ICAO procedures

← **Pilots**

What airport operational staff want

- Good vision from the visual control room
- Adequate equipment
- Human factors issues to be considered
- No excessive peaks of traffic

← **ATCOs**

- Tools and assistance to support identifying local issues
- Airport level safety occurrence monitoring and analysis
- Joint training for operational staff
- ICAO compliant solutions whenever practicable
- Blame free reporting

← **LRST**

Runway Incursions

The most serious
safety issue facing
Airport Operations

**Thank you
for your
attention**

INCURSIONS

