



African Regional Runway Safety Seminar

10-12 April 2013, Agadir, Morocco



In cooperation with: المكتب الوطني للمطارات
Office National Des Aéroports

Conference program

Day0: Sunday April 07

All day : Welcoming participants at the airport and transfer to hotels

Wednesday April 10

Session 1 Introduction and Welcome

09:00	09:15	Introduction	Dalid Guendouz DG ONDA
09:15	09:25	Welcome and Opening Statement	Angela Gittens ACI D.General
09:25	09:35	Welcome and Opening Statement	Moroccan Officials
09:35	09:45	Welcome and Opening Statement	Gaoussou Konate, Deputy Director, ICAO WACAF RO
09:45	10:10	The Big Picture	Gaoussou Konate, Deputy Director, ICAO WACAF RO
10:10	10:30	Mitigating the Risks - The need for a collaborative approach	James White, Deputy Director Airport Safety and Standards, FAA
10:30	11:00	Break	

Session 2 Hazards and Mitigation Strategies for Excursions

11:00	13:00	30 mins Pilot/Air Operator Perspective of Excursion Hazards and Proposed Mitigation Strategies	Nacer Marrakshi, Royal Air Maroc
		30 mins Airport Operator perspective of Excursion Hazards and Proposed Mitigation Strategies	Peter O. Onyeri, Safety Manager, Federal Airports Authority Nigeria
		30 mins Air Traffic Controller/ATC perspective of Excursion Hazards and Proposed Mitigation Strategies	Djamel Ait Abdelmalek, IFATCA - ENNA, ATC Supervisor
		30 min Panel	David Gamper, ACI World
13:00	14:30	Lunch	

Session 3 Hazards and Mitigation Strategies for Incursions

14:30	16:00	15 mins Pilot/Air Operator Perspective of Incursions Hazards and Proposed Mitigation Strategies	Captain Moulay Hicham Guenoun, IFALPA
		15 mins Airport Operator perspective of Incursion Hazards and Proposed Mitigation Strategies	Rishi Thakurdin, Airports Company South Africa, Group Manager Safety and Compliance
		30 mins Air Traffic Controller/ATC perspective of Incursion Hazards and Proposed Mitigation Strategies	Boni Dibate, CANSO, Director Africa Affairs
		30 min Panel	Ruby Syyed, Assistant Director SO&I, IATA Middle East & North Africa

16:00 16:30 Break

Session 4 *Available Technologies*

16:30 17:30 40 mins ICCAIA

20 mins Q&A

19:00

Captain Sam Goodwill, Safety Pilot, AIA - Boeing
Mr Armand Jacob, Flight Test Engineer, ASD - Airbus
Elizabeth Gnehm, Technical Officer, ICAO Headquarters
Gala Dinner

Thursday April 11

Session 5 *The Runway Safety Team*

09:00 10:30 40 mins RST Description and Process
20 mins Role of the Regulator
30 mins Panel + Q&A

10:30 11:00 Break

Gaoussou Konate, Deputy Director, ICAO WACAF RO
Morrocan Civil Aviation Authority
Boni Dibate, CANSO, Director Africa Affairs

Session 6 *RST examples and issues*

11:00 12:30 50 min FAA RST experience
20 mins An RST Regional Example
20 mins Another RST Regional Example

12:30 14:00 Lunch

James White, Deputy Director Airport Safety and Standards, FAA
Youssfi Faissale, ONDA Runway Safety Manager
Captain Moulay Hicham Guenoun, IATA

Session 7 *Collaborative Approach (Interactive Session - Good interactive moderator to be identified)*

14:00 15:00 Presentation of a Hazard and multiple considerations (using a Regional example)

15:00 15:30 Break

Rishi Thakurdin, Airports Company South Africa, Group Manager Safety and Compliance

Session 8 *The way forward*

15:30 17:00 Identify plans for the development of RSTs - Challenges, Recommendations, RASG follow-up

Moderator TBD
Gaoussou Konate, Deputy Director, ICAO WACAF RO
Ruby Sayyed, Assistant Director SO&I, IATA Middle East & North Africa
Boni Dibate, CANSO, Director Africa Affairs
Ali Tounsi, ACI Africa Secretary General

Friday April 12

Workshop

09:00 13:00 Workshop

Elizabeth Gnehm, Technical Officer, ICAO Headquarters

13:00 14:30 Lunch

14:30 18:00 Airport Visit

Youssfi Faissale, ONDA Runway Safety Manager



African Regional Runway Safety Seminar

10-12 April 2013, Agadir, Morocco



In cooperation with: **المكتب الوطني للمطارات**
Office National Des Aéroports

Wednesday April 10

Session 1 Introduction and Welcome

09:00	09:15	Introduction	Dalid Guendouz DG ONDA
09:15	09:25	Welcome and Opening Statement	Angela Gittens ACI D.General
09:25	09:35	Welcome and Opening Statement	Moroccan Officials
09:35	09:45	Welcome and Opening Statement	Gaoussou Konate, Deputy Director, ICAO WACAF RO
09:45	10:10	The Big Picture	Gaoussou Konate, Deputy Director, ICAO WACAF RO
10:10	10:30	Mitigating the Risks - The need for a collaborative approach	James White, Deputy Director Airport Safety and Standards, FAA
10:30	11:00	Break	



ACI Welcome and Opening Statement

ICAO Runway Safety Seminar for Africa
Agadir, Morocco
10 April 2013

Angela Gittens
Director General
ACI World

1

What Does ACI Do?

- Promotes the interests of the world's airports and the communities they serve
- Promotes professional excellence in airport management and operations



2

ACI at a Glance

584 members
1766 airports
173 countries and territories
members handle **95%** of global traffic



3

Map of ACI Regions

ACI World and Five Regional Offices



4

ACI Contributes to Industry Safety

- **Development of Best Practices**
- **Knowledge Transfer**
 - Publication of Guidance
 - Training
 - Conferences and Seminars



5

ACI Safety and Technical Standing Committee

ACI World Safety and Technical Committee

- Focus Areas:
 - Operational Safety
 - Aerodrome planning and design
 - Aerodrome equipment and installations
 - Airspace issues related to airports
- Committee work is in both **advocacy** and promoting **excellence** in airport operations
- Close working relationship with ACI **regional safety committees**
- **Support** for APEX programme

6



AIRPORTS COUNCIL
INTERNATIONAL



7

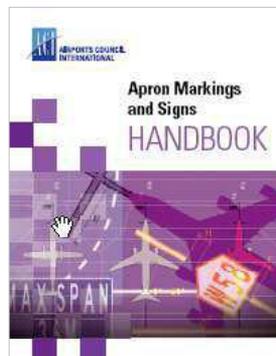


AIRPORTS COUNCIL
INTERNATIONAL

Best Practice Handbooks

Руководство по безопасности на аэродроме

4-ое издание 2010 года



8



9

ACI promoting excellence: training



- ■ ■ ACI Fund
- ■ ■ Developing Nations ACI Training
- ■ ■ ACI Global Training



10

Case for Change

ICAO Safety Audit Programme results with 165 States audited:

- 58% had not established procedures and 72% had no guidance for aerodrome certification and surveillance
- 69% had not established a runway safety programme related to runway incursions
- 65% had not established a mechanism to rectify safety issues in a timely way
- 83% had not implemented aerodrome SMS
- 59% had not reviewed Aerodrome Manuals periodically



11

Fight Safety Foundation

- Flight Safety Foundation Report found 431 (30%) of major damage accidents to commercial transport aircraft over 1995-2008 (1429 total) were runway-related
- Excursions accounted for 97% of these accidents
- Eight aerodrome operator-related causal factors



12



APEX Peer Review Process

- Purpose: Practical assistance to ACI members to **improve their level of safety**
- Team visits the airport
- “Safety partner” airport(s) provide staff to assist
- Other participants: ACI staff and ICAO and (optionally) national civil aviation authority
- Full report sent to requesting airport - following the peer review



13



APEX Tools

- Provision/explanation of Standards (ICAO)
- Provision of Best Practices (ICAO and ACI)
- Provision of Training Tools (ACI)
- Provision of Safety Self-assessment Tools
- (Under development) Key Safety Performance Indicators for airports (and collect data)



14



The
voice of the
world's
airports.

Leading, representing and serving the global airport community

www.aci.aero



Runway Safety: The Big Picture



ICAO 37th Assembly *October 2010 Resolution* A37-6 (1/2)



The Assembly:

1. *Urges* States to take measures to enhance runway safety, including the **establishment of runway safety programmes** using a **multidisciplinary approach, that include at least regulators, aircraft operators, air navigation services providers, aerodrome operators and aircraft manufacturers** to prevent and mitigate the effects of runway excursions, runway incursions and other occurrences related to runway safety;
 2. *Resolves* that ICAO shall actively **pursue runway safety using a multidisciplinary approach**; and
- (...)

ICAO 37th Assembly *October 2010* Resolution A37-6 (2/2)



Associated practice no. 1:

- The runway safety programmes should be based on **inter-organizational safety management** including the **creation of local runway safety teams that address prevention and mitigation of runway excursions, runway incursions and other occurrences related to runway safety.**

22 April 2013

Page 3

3

ICAOs Runway Safety Programme



- **Outcomes of GRSS:**
 - Identification of hazards requires **collaboration** of all stakeholders
 - Solutions need to be standardized to international standards and harmonized to facilitate efficient international operations
 - **Runway Safety Teams** – should be established locally and hosted by the airports
 - RSP partners have committed to work together to compile and promote proven solutions and endorse best practices
- **Regional Runway Safety Seminars (RRSSs):**
 - Promote and enhance implementation of solutions through multidisciplinary RSTs
- **Runway Safety Website** www.icao.int/RunwaySafety :
 - Easy access to information on public website
 - Development of RST Action Plan Tool
 - Share documents and toolkits from RSP Partners



4

Objectives of this RRSS



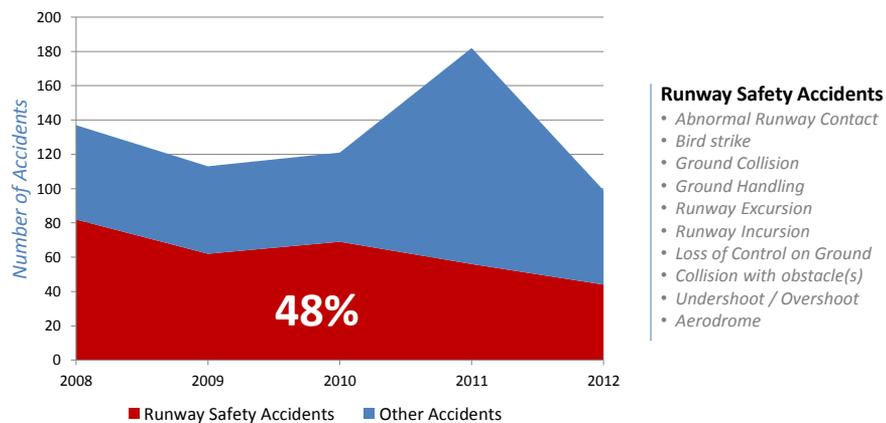
- Improve runway safety outcomes
- The establishment of RSTs
- Provide tools for use by RSTs
- Develop a regional strategy to establish, promote and provide ongoing support to RSTs

Runway Safety Overview



Runway Safety Accidents

Scheduled Commercial Traffic – MTOW > 2 250 kg (Yrs 2008- 2012)

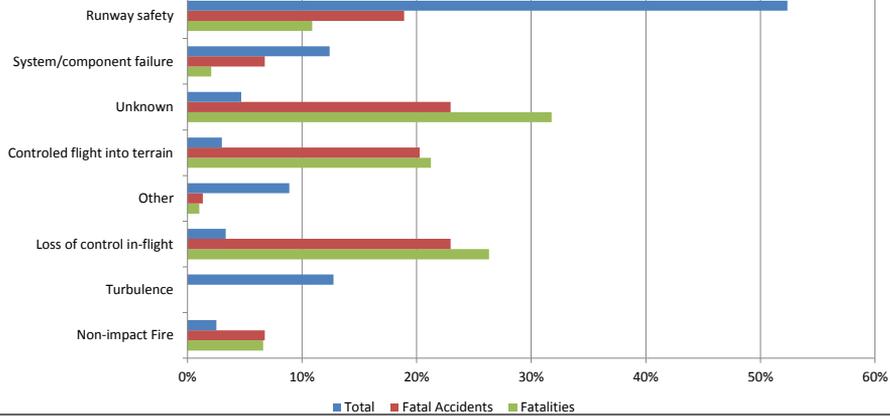


Runway Safety Overview

Worldwide

Accidents & Related Fatalities by Occurrence Categories

Scheduled Commercial Traffic – MTOW > 2 250 kg (Yrs 2006- 2010)



Focus on Africa

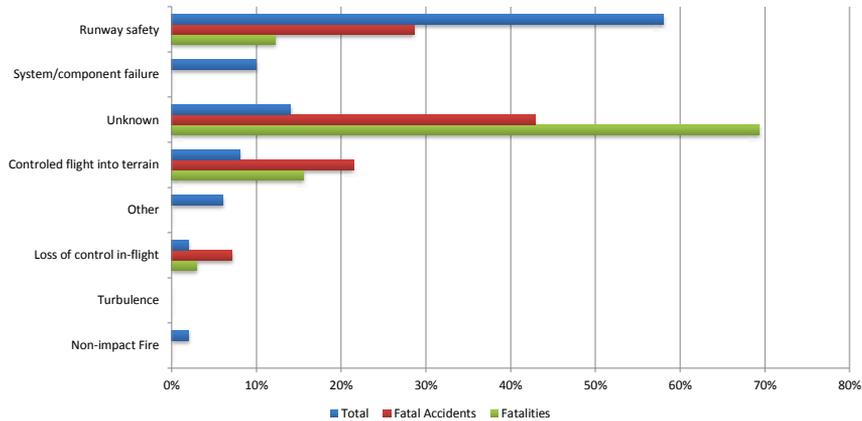
Runway Safety Overview



Focus on Africa

Accidents & Related Fatalities by Occurrence Categories

Scheduled Commercial Traffic – MTOW > 2 250 kg (Yrs 2008- 2012)



22 April 2013

Page 9

9

Role of Runway Safety Teams in the WACAF Region



- Identify and develop mitigation options to:
 1. **Reduce** the number of runway safety related Accidents at individual airports
 2. **Improve** the survivability after a runway excursion

This seminar is designed to facilitate the formation of runway safety teams at individual airports

22 April 2013

Page 10

10



Federal Aviation Administration

FAA Runway Safety Initiatives

Presented to: ICAO RW Safety Seminar, Agadir
By: James R. White
Date: April 2013



Runway Safety: Surface Operations Risk Factors



Minimal separation and rapid pace



High-speed operations with little margin for error



Complex environment



Low visibility in poor weather

Combination of Factors Minimizes Safety Margin



Federal Aviation Administration

Tools to Improve Runway Safety

- **Airport Certification and Inspection**
- **Airport Safety Management Systems**
- **Runway Safety Action Teams**
- **Markings and Lighting**
- **Runway Safety Areas**
- **Aircraft Rescue and Firefighting**
- **Wildlife Hazard Management**
- **FOD Detection Systems**
- **Pavement Management**



Aerodrome Certification Requirements

- **Promulgation of basic aviation law.**
- **Establish a State entity responsible for aviation (normally the CAA), with the authority to ensure compliance with regulations.**
- **Develop and promulgate Certification regulations.**
 - Certification requirements.
 - Procedures, criteria and technical specifications.
 - Guidance material.
 - Adequate Trained Staff.



Aerodrome Inspections

- Cadre of trained inspectors.
- Conduct periodically and routinely.
- Ensure continued compliance with requirements and standards.
- Ensure continued compliance with aerodrome certification manual.
- Verify that the SMS is functioning.



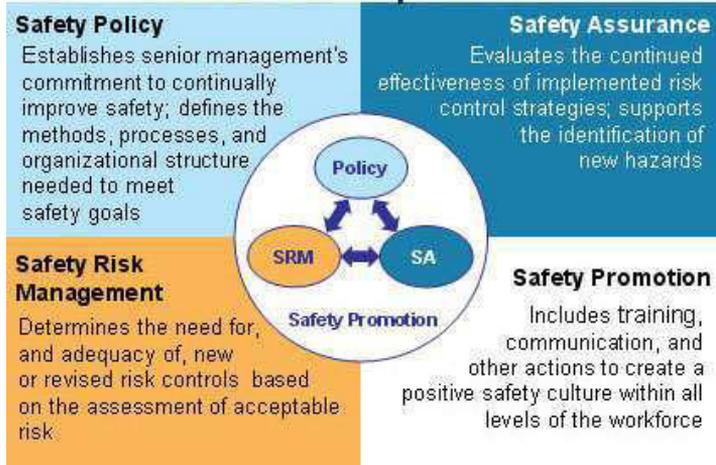
ICAO and Safety Management Systems

- **SMS added to Annex 14**
- **Need to be proactive, identify risk, mitigate risk before introducing changes to airport infrastructure or procedures.**
- **ICAO issued SMS manual.**
- **An SMS is defined as a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies, and procedures.”**



SMS Defined

The Four SMS Components



SMS for Airports in the U.S.

- **Require rulemaking to amend Part 139.**
- **Rulemaking action underway.**
- **Issued Notice of Proposed Rulemaking for public comment.**
- **Currently considering comments received.**
- **Conducted SMS pilot projects.**
- **Issued draft SMS Advisory Circular for comment August, 2012.**
- **FAA Issue final SMS rule 2014.**



Participation in RSATs *and Reducing Runway Incursions*



Federal Aviation
Administration

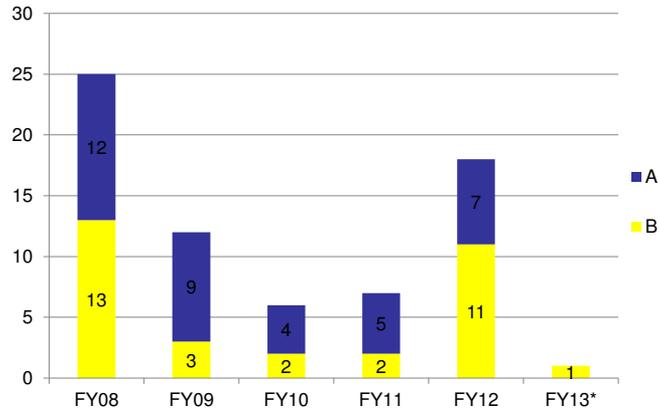
9

The worst accident in aviation history was a runway collision accident in 1977 at Tenerife, Canary Islands, that resulted in 583 fatalities when two B-747s collided on the runway.



10

Serious Runway Incursions



*FY13 data through March 14, 2013



Federal Aviation
Administration

11

Top RI Errors Code FY12 and 13 Totals

• National



15 – Crossed hold short line, but did not enter runway after acknowledging hold short instructions. (Pilot)

22 – Landed/departed without a clearance (Pilot)
(4 Cat A and B)

14 – Entered the runway after acknowledging hold short instructions with proper read back. (Pilot)

(3 Cat A and B)

18 – Entered runway without communications/clearance (hold short not required). (Pilot)

• Core 30



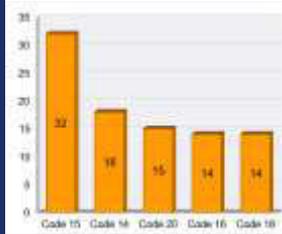
1 – Failed to provide required arrival/departure separations for same/intersecting runways or did not ensure runway was clear. (ATC)

(2 Cat A and B)

30 – Airport vehicles/personnel (authorized access) entered runway without communication/authorization. (Vehicle/Pedestrian)

Top RI Errors Code FY12 and 13 Totals

•Part 121



15 – Crossed hold short line, but did not enter runway after acknowledging hold short instructions. (Pilot)

22 – Landed/departed without a clearance (Pilot)

14 – Entered the runway after acknowledging hold short instructions with proper read back. (Pilot)

20 – LUAW then departed without a clearance.

16 – Taxied wrong route and entered runway.

18 – Entered runway without communications/clearance (hold short not required). (Pilot)

30 -- Airport vehicles/personnel (authorized access) entered runway without communication/authorization. (Vehicle/Pedestrian)

29 -- POV or pedestrian not authorized access to airfield entered runway without communication/authorization. (Vehicle/Pedestrian)

31 – Authorized vehicle crossed hold short line only without communication/authorization.

32 – Airport vehicle/personnel instructed to hold short/remain clear of runway with correct read back, entered the runway or taxied wrong route and entered runway.

•V/PD Codes



Runway Safety Action Teams

The RSAT Team is a non-regulatory assessment of the airport for potential runway incursion problems.

Purpose of the RSAT Team is to identify problem areas at the airport and recommend mitigation measures. The RSAT team works with stake holders to implement changes in procedures, operations and facilities to prevent runway incursions.



Federal Aviation
Administration

14

Runway Safety Action Team Members

FAA Personnel

- Runway Safety Office
- Airports Division
- Air Traffic Personnel
- Technical Operations (FAA NAVAIDS)
- Flight Standards (FAA Safety Team)

Airport Personnel:

- Airport Management/Operations/Maint.
- FBOs, Airlines, Tenants, Local Users



Reviewing Incident History

Charting Airport Incursions

Incident Plot Diagrams

Incident Recreations

Evaluate Potential Hot Spots



Recommendation – Highlight the taxiway centerline from Alpha around the corner towards Runway 3 and install a surface painted destination sign for Runway 3.



FOE

Recommendation Implemented



FOE

STL PD Runway Incursions on Runway 6



On 4/7/08, a CRJ-900 taxiing to Runway 29 on Tango, instead turned left on Taxiway Alfa and entered Runway 6. There was no loss of separation. 19

STL RSAT Action Items for the Alfa/Tango Intersection



Modified Sign

Action - Modify the Runway 6 holding position sign on the right side of Taxiway Alfa by replacing the 24 designation panel with an arrow panel pointing left. 20

STL RSAT Action Items for the Alfa/Tango Intersection



Modified Sign

Action - Modify the Runway 29 holding position sign on the left side of Taxiway Tango by adding another module on the right side with an arrow panel pointing upper right.

21

Example of an RSAT Recommendation for holding positions when there is a history of pilots failing to hold short.



Elevated and In-pavement Runway Guard Lights are a common RSAT recommendation to enhance the identification of runway-holding positions at intersections with a history of runway incursions.

22

Enhanced Taxiway Markings

Previous Markings



Enhanced Markings





3/14/12

Airport Safety R&D



Federal Aviation
Administration

25



Runway Status Lights (RWSL) Configurations



Runway Entrance Lights (RELs)



Takeoff Hold Lights (THLs)



RWSL Installation Plan

- **RWSL will be installed at 15 ASDE-X airports**
- **FAA owns, operates, and maintains entire system**
- **Initial Operational Readiness Summer 2014**



LESSONS LEARNED

- BURBANK,
CALIFORNIA



Federal Aviation
Administration

29

Lack of RESA



RSA improvements

- In U.S. Improving all RSAs at certificated airports to extent practicable by end of 2015.
- Airport can purchase land.
- Relocate NAVAIDs or make frangible.
- Use of Declared distance.
- Move roads
- Install Arresting Systems.



Engineered Materials Arresting System (EMAS) Installations



Baton Rouge Metropolitan Airport, LA



Roanoke Regional Airport, WV



Little Rock Airport, AR



Greater Binghamton Airport, NY

Photos Courtesy
of ESCO



ESCO's EMAS product is currently installed at 75 runway ends at 49 airports.

EMAS Installation List (January 2012)

EMAS	Airport	Location	Runway End (RTE)	Installation Date (FAC/2012)
2	JFK International	Jamaica, NY	4B, 13L	1996/2002, 2003
3	Metropolitan WA Field	Minneapolis, MN	11P	1998/2001
3	Lima Intl	Lima, Peru	04, 21R	2000/2001
3	Frederick International	Frederick, MD	8	2001
3	Burlington	Burlington, VT	8	2001
3	Porter County Municipal	Porter County, IN	11	2001
2	Greene County	Greene County, NY	35, 36	2002/2001, 2001
3	Worcester Regional	Worcester, MA	14	2001
3	Roanoke Regional	Roanoke, VA	04	2001
3	Fort Lauderdale Intl	Fort Lauderdale, FL	17R, 35	2004
3	Durham County	Fayetteville, NC	15, 13	2001
3	LI Coastal	Phelps, NY	15, 13	2001
3	Worcester Regional	Worcester, MA	04, 11R	2002/2001, 2001
3	Lando International	Lando, TX	17R	2006
3	Indian Springs (LGA)	Indian Springs, FL	2, 20	2006
3	San Diego	San Diego, CA	07	2006
3	Greenville	Greenville, SC	8, 09	2006, 2011
4	Chicago-Midway	Chicago, IL	11C, 4R, 12L, 11C	2006, 2007
3	Chickamauga	Chickamauga, GA	01	2007
3	Carolina	Carolina, AK	01	2007
3	Midland-Orange Intl	Midland, TX	11L, 11R	2007
3	Hampton	Hampton, VA	8	2007
3	William Egan Veterans Intl	Waco, Texas, TX	4, 21	2008
3	San Luis Obispo	San Luis Obispo, CA	21, 30	2008
3	Chicago O'Hare Intl	Chicago, IL	4R, 12L	2008
3	Shreveport International	Shreveport, LA	08	2008
3	Cherokee County Intl	Cherokee, NC	20R	2008
3	W. Piedmont	W. Pied, NC	14, 11	2008
3	Worcester Regional	Worcester, MA	11, 29	2008, 2009
3	Reading Regional	Reading, PA	10	2008
3	Kansas City Downtown	Kansas City, MO	19, 1	2008, 2010
3	Wallops Island	Wallops Island, VA	13	2010
3	New Castle County	Wilmington, DE	19	2010
3	Kay Yert Intl	Kay Yert, FL	9	2010
3	Avaulta Florida	Avaulta, FL	03	2010
3	Tallahassee Regional	Tallahassee, FL	6, 27	2010
3	Logan International	Logan, Toronto	18	2011
3	Felix Burck International	West Palm Beach, FL	14	2011
3	Alton-Centre Wilkes Field	Alton, VA	30, 17	2011
3	Republic Airport	Freeport, NY	14	2011
3	Cleveland Hopkins Intl	Cleveland, OH	30, 38	2011
3	Lafayette Regional	Lafayette, LA	12L, 4R	2011, 2011
3	Marion New London	Marion, CT	1, 11	2011
3	Augusta Intl	Augusta, ME	15, 11	2011
3	Alton-Centre Regional	Alton, VA	6	2011
3	Knox Airport	Knox, TN	34, 22	2011
3	Wilmington Airport	Wilmington, NC	25, 34	2011
3	Carroll County Regional	New River, TN	13	2011
75	Systems Installed			

Note: Dates in parentheses are replacement bids.

Successful EMAS Capture



Courtesy: ESCO

**EMAS capture of a Boeing 747 at JFK International Airport, NY
January 2005**



Successful EMAS Capture



EMAS capture of a Falcon 900 at Greenville Downtown Airport, SC
July 17, 2006

Successful EMAS Capture



Successful EMAS Capture



Federal Aviation
Administration

37

Key West



Federal Aviation
Administration

38

Fire Research Mock-up Section



Federal Aviation
Administration

39

ARFF – Penetrating Nozzles



Federal Aviation
Administration

40

Full-Scale Freighter Aircraft Fire Fighting at SCLA

- A310 donated by Fed Ex
- Fully instrumented aircraft with thermocouples, oxygen sensors, FLIR and video coverage.
- Emergency sprinkler system installed.
- ULD instrumented with 48 thermocouples



Federal Aviation
Administration

41

Full Scale ASPN Penetration Testing



- DOT-FAA-TC-12-48 Aircraft Skin Penetrating Nozzle Testing of Freighter Aircraft Cargo Liner – Published Dec. 2012
- Under ambient conditions, cargo liner does not hinder penetration by an ASPN.
- Radiant heat allows the cargo liner to soften but does not prevent ASPN penetration.



Federal Aviation
Administration

42

Prototype Nozzle Development



- New nozzle design developed.
- Improved extinguishing capability in an indirect fire attack.
- Report in editing cycle



Back to Basics ARFF Training

- **FAA inspections noted increase in airports not meeting ARFF training requirements.**
- **Results in firefighters not fully trained on shifts.**
- **FAA is pursuing enforcement and increasing review of ARFF training records during annual inspections.**



Wildlife Hazard Mitigation



Federal Aviation
Administration

45

Wildlife Hazard Mitigation R&D



Federal Aviation
Administration

46

The Hazardous Wildlife Problem (U.S. data)

- **Bird populations are increasing.**
 - Canada Geese increased from 1 million in 1990 to over 3.5 million in 2000 and has been stable since.
 - 13 of 14 species over 8 pounds have significantly increased.
- **Birds are staying in urban areas rather than migrating.**
- **Commercial aircraft movements are increasing. In the U.S. operations have increased:**
 - 18 million in 1980
 - 25 million in 2011
 - 37 million estimated in 2030
- **Reported bird strikes in the U.S. have increased 5-fold since 1990.**
 - 1,748 in 1990
 - 9,730 in 2011



National Scale

Locations of Reported Strikes on February 27/28 and March 3, 2013

★ **February 27-28, 2013**

Memphis, TN
 Dallas, TX
 Salt Lake City, UT
 New York, NY
 Omaha, NE
 Gainesville, FL
 Indianapolis, IN
 Oakland, CA

★ **March 12, 2013**

Lehigh Valley, PA
 Fredericksburg, VA
 Portland, OR
 Kansas City, MO
 Orlando Sanford, FL
 Miami, FL
 Teterboro, NJ



Wildlife Hazard Assessment

- **Identify species, numbers, locations, local movements**
- **Daily and seasonal occurrences of observed wildlife**
- **Describe existing wildlife hazards to air carrier operations**
- **Review strike records**
- **Identify wildlife attractants on and off airport**
- **Provide recommendations for reducing wildlife hazards**



Wildlife Hazard Management Plan

- **Provide measures to alleviate or eliminate wildlife hazards.**
- **Identify persons who have authority for implementing the plan.**
- **Priorities for needed habitat modification.**
- **Identification of resources for the plan.**
- **Procedures to be followed during air carrier operations.**
- **Wildlife control measures.**
- **Plan reviewed and approved by FAA**



Wildlife Hazard Management Plan Examples

- **New York City - Removed Canada geese from within 7 miles of both JFK and LaGuardia airports.**
 - 1,235 geese in 2009
 - 1,676 geese in 2010
 - 1,579 geese in 2011.
- **Kauai Airport in Hawaii**
 - Relocated 400 endangered nene geese from near runway.



Canada Geese Feeding Research
Kentucky Bluegrass – preferred “by geese”
Tall Fescue – not preferred
Zoysia Grass – not preferred



RESOURCES

Wildlife Hazard Management at Airports

(Second Edition Manual – 2005)

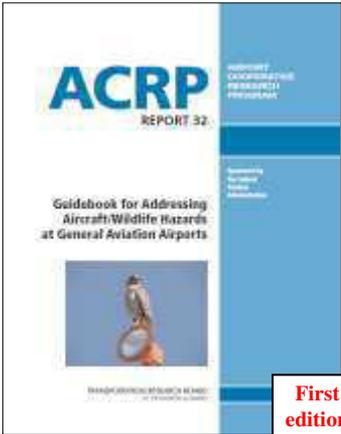
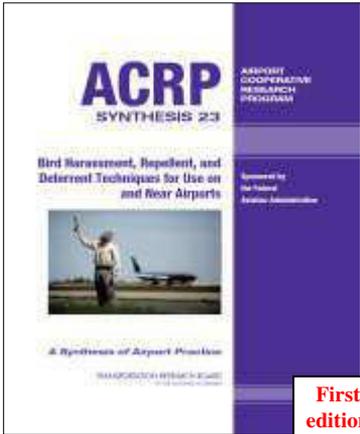


•Available to download on FAA website. Also available in French and Spanish.

<http://wildlife.faa.gov>

RESOURCES

ACRP Manuals on Wildlife Hazard Management at Airports



Industry-Government Hazardous Wildlife Collaboration Initiative



- Mexico
- Caribbean
- Central America
- South America

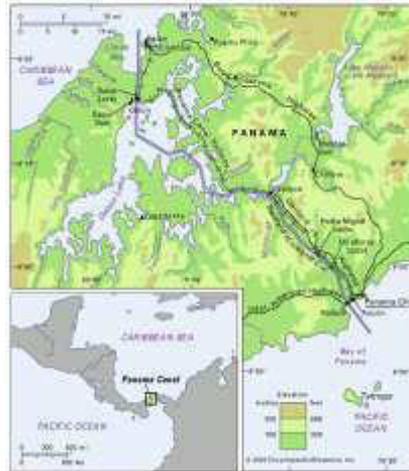


Federal Aviation
Administration

55

Panama Pilot Project

- Initial pilot project
- Panama City: Tocumen International Airport (PTY)
- COPA airline serving as project champion.
- Biologist provided by FAA and USDA
- Projected WHA start date
 - 2nd QTR 2012
- Projected WHA completion:
 - Early 2013



Federal Aviation
Administration

56

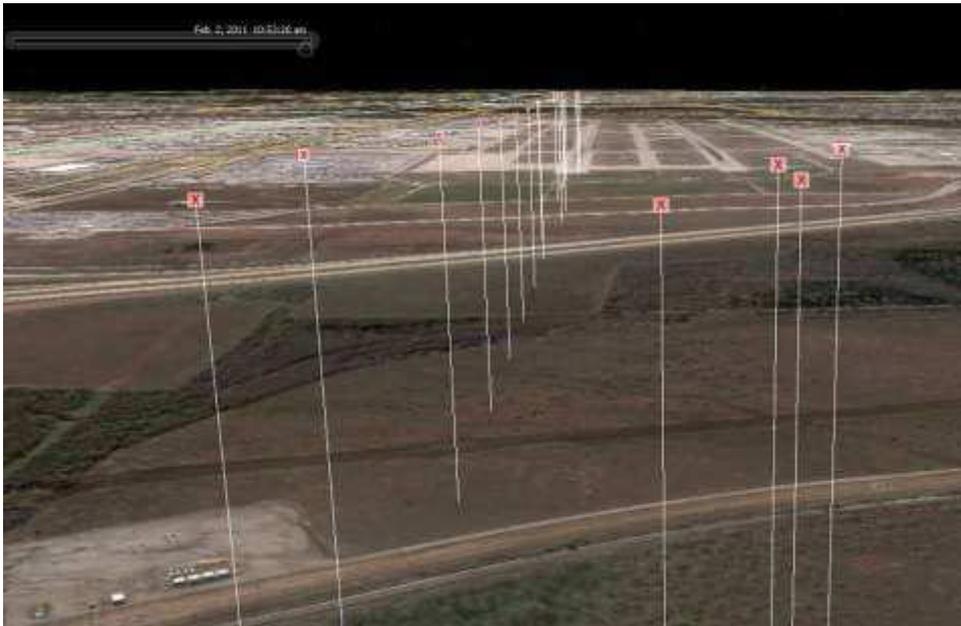
Ecuador Pilot Project

- Secondary initial pilot project effort.
- Guayaquil: Jose Joaquin de Olmedo International Airport (GYE).
- LAN airline project champion.
- Biologist provided by USDA
- FAA provides audit assistance.
- Projected WHA start date:
 - 2nd QTR 2012
- Projected WHA completion date
 - Early 2013



BSTAR





Federal Aviation
Administration

59

Automated FOD Detection Why is the FAA Interested?



Federal Aviation
Administration



"It has become clearer that this was a unique accident caused by a one-off chance of a piece of metal lying on the runway".

-Concorde crash preliminary report



Automated FOD Detection

Xsight - FODetect



Federal Aviation
Administration

62

Tarsier Camera in operation



Tarsier Camera in operation



Example FOD finds by the QinetiQ system



Stratech – Success Stories

FOD – Tyre Burst

- Date: 14 Aug 11
- iFerret Detected Time: 2150
- Rover 34 Found Time: 2157
- Location: RW2
- Chainage: 2743m

powered by
stratech

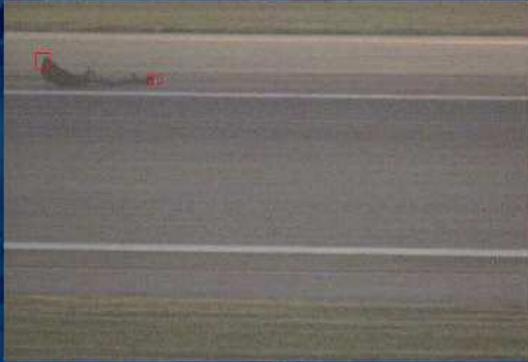
Confidential

Intelligent Vision | Intelligent Transport Systems | e-Systems



powered by
strattech

iFerret Detected Image



Confidential

Intelligent Vision | Intelligent Transport Systems | e-Systems



Federal Aviation
Administration

67

Strattech – Tire



Federal Aviation
Administration

68

FOD Evaluation in 2013

- Will install FOD systems on primary departure runway at Boston and Miami.
- Requires competitive bid.
- 50% cost share with FAA grant.
- Collect data to evaluate FOD systems performance vs standard visual detection.
- Mobile system at Minneapolis.



National Airport Pavement Test Facility



Instrumented Test Track at the NAPTF, FAA Technical Center

http://www.faa.gov/airports/engineering/pavement_design/



NAPTF Test Vehicle



Federal Aviation
Administration

71