INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

REGIONAL AVIATION SAFETY GROUP – PAN AMERICA (RASG-PA)

TWENTIETH FIRST PAN AMERICA – REGIONAL AVIATION SAFETY TEAM MEETING

PA-RAST/21

SUMMARY OF DISCUSSIONS

MIAMI, UNITED STATES, 15 AND 16 OCTOBER 2015

Twentieth First Pan America — Regional Aviation Safety Team Meeting (PA-RAST/21)

Summary of Discussions

Date	Miami, United States, 15 to 16 October 2015
Location	IATA Regional Office for The Americas, Miami, United States
Meeting Opening	The Meeting was attended by 12 participants from 4 States/Territories, International Organizations and Industry. See **Appendix A**.
	Mr. Gabriel Acosta, Safety & Flight Operations Assistant, IATA welcomed participants to the Meeting, and Mr. Eduardo Chacin, Regional Officer, Flight Safety, ICAO NACC Regional Office, and Secretary of the Meeting extended appreciation to IATA on behalf of the RASG-PA Secretariat for hosting the Meeting.
	Mr. Adriano Monteiro de Oliveira, Brazil, and Mr. Acosta acted as PA-RAST Co-Chairperson of the Meeting, representing States/Territories and International Organizations and Industry respectively.
Discussion Items	
Agenda Item 1:	**Approval of the Provisional Agenda**
	1.1 The Co-Chairperson, International Organizations and Industry, presented Working Paper 1 inviting the Meeting to approve the provisional agenda, which was approved and included a presentation from ICAO Headquarters regarding iSTARS"Safety Data, An enabler to an Informed Safety Policy" under Other Business.
	1.2 The Meeting agreed to hold breakout sessions of the respective Safety Enhancement Teams (SETs), in order to continue developing the Detailed Implementation Plans (DIPs) for Loss of Control In Flight (LOC-I), Controlled Flight Into Terrain (CFIT) and Runway Excursion (RE).
Agenda Item 2:	**PA-RAST Action Items**
	2.1 The Meeting updated the status of the PA-RAST Action Items. See **Appendix B**.

Agenda Item 3:	**Eleventh Information Analysis Team (IAT/11) Report**

3.1   The IAT/11 Meeting was held on 14 October 2015 at the same location and with the same participation as the PA-RAST/21 Meeting.

3.2   The appropriate non-disclosure agreements for Aviation Safety Information Analysis and Sharing (ASIAS) data were duly signed by RASG-PA Members attending the IAT and PA-RAST Meetings for the first time.

3.3   Boeing, IAT/11 Rapporteur, informed that ASIAS database and IATA Flight Data eXchange (FDX) were reviewed looking for precursors for RE, LOC-I, CFIT, and Mid Air Collision (MAC) such as:

- Unstable Approach (UA)
- Terrain Avoidance Warning System (TAWS)
- Traffic Collision Avoidance System (TCAS)
- Loss of Control – Inflight indicators (LOC-I)

3.4   The Rapporteur specified to the Meeting the risk areas and locations of concern in the CAR and SAM Regions, as previously identified as "hot spots" (six airports and four areas in the airspace).

3.5   The Rapporteur also informed that the ASIAS data from North American airlines had been compared with the IATA FDX data from Latin American airlines, all operating in the CAR and SAM Regions, and that they coincided on the already identified "hot spots" as mentioned in 3.4. No emerging regional trend was identified by the IAT.

Agenda Item 4:	**Use of Reactive Information to Enhance PA-RAST Safety Recommendations**

4.1   Brazil delivered a presentation regarding the Use of Reactive Information to Enhance PA-RAST Safety Recommendations. See **Appendix C**.

4.2   The assumption as presented by Brazil is that the PA-RAST safety recommendations can be improved by adding to the current process the regular use of safety recommendations issued by investigation authorities. Such safety recommendations, if selected by some criteria, could help explain the origin of trends currently revealed by ASIAS and IATA FDX, and allow the creation of more robust DIPs in the Pan American Region.

4.3   The proposal from Brazil was the following:

- That the PA-RAST incorporate safety recommendations issued by investigation authorities (review the SET Teams workflow)
- That the safety recommendations should be adopted after a prior assessment of which recommendations would be more relevant to mitigate safety occurrences in the Pan American Region

- Selection criteria proposal:

  o Recommendations should be related only to LOC-I, CFIT, RE and MAC
  o Recommendations should involve a minimum of three PA-RAST stakeholders Research would be made on reports no older than 2 years
  o Preference would be given to reports from authorities who deal with a significant number of air transport

4.4   The Meeting approved the proposal.

4.5   The next steps will be to include Brazil's proposal on PA-RAST Terms of Reference (TOR).

4.6   Brazil volunteered to perform the continuous research on recommendations and report them regularly to the PA-RAST.

4.7   After each report, SETs affected will analyze recommendations and potentially start using the information on the DIPs development.

4.8   Boeing, as United States Commercial Aviation Safety Team (CAST) member, shared their experience on reactive information used by the CAST.

4.9   The Meeting was informed that SET 1 started using Dutch Safety Board (DSB) recommendations in the development of the DIP (LOC-I).

Agenda Item 5:   **Safety Enhancement Team (SET) 1 —** *Loss Of Control-Inflight (LOC-I) Detailed Implementation Plan (DIP)*

5.1   United States, as rapporteur of SET 1, presented the progress of the DIPs. SET 1. **See Appendix D**.

5.2   SET 1 followed the steps identified at the PA-RAST/20 Meeting and dedicated to work on:

1.   Creation of a LOC-I Training Survey for commercial flight operators in the CAR and SAM Regions.

2.   Creation of a baseline LOC-I Training Survey for commercial flight operators in the CAR and SAM Regions for the States in the CAR and SAM Regions.

5.3   **Appendix E** shows the SET 1 meeting notes.

Agenda Item 6:   **Safety Enhancement Team (SET) 2 —** *Controlled Flight Into Terrain (CFIT) Detailed Implementation Plan (DIP)*

6.1   IATA, on behalf of SET 2, as informed in the PA-RAST/20 Summary of Discussions, is pending on the conclusion of the works of SET 1 DIP to schedule seminars about CFIT and LOC-I initiatives.

6.2 In this regard, various PA-RAST members offered Subject Matter Experts (SME) to conduct the previously mentioned seminars. Additionally, the Meeting considered to hold the seminars during the same week of the PA-RAST Meetings in order to safe in travel costs, considering the presence of SME.

6.3 The Meeting also suggested that the seminars could be funded by RASG-PA.

Agenda Item 7: **Safety Enhancement Team (SET) 3 —** *Runway Excursion (RE) Detailed Implementation Plan (DIP)*

7.1 The rapporteur of SET3 presented the four DIPs as follows:

1. RASG-PA/RE/1 – Landing Training for Flight Crews. See **Appendix F**.

2. RASG-PA/RE/217 – Airline Operations and Training – Take-off Procedures and Training. See **Appendix G**.

3. RASG-PA/RE/218 – Implementation of on-board technologies. See **Appendix H**.

4. RASG-PA/RE/4 – Air Traffic Service Provider Training to Prevent Runway Excursions. See **Appendix I**.

7.2 The Meeting considered that the DIPs are ready to be presented to ESC/25 Meeting for consideration.

Agenda Item 8: **Safety Enhancement Initiatives from other ICAO Regional Aviation Safety Groups (RASGs)**

8.1 Due to lack of time, the Meeting did not review the Safety Enhancement Initiatives from other RASGs.

Agenda Item 9: **RASG-PA Strategic Plan Update**

9.1 The Meeting was informed by the Secretariat about the results of the RASG-PA Strategic Plan Task Force Meeting (RSP-TF) Meeting held at the ICAO SAM Regional Office, from 25 to 26 August 2015.

9.2 The Meeting expressed concern about the proposed elimination of the IAT due to the sensitive information that is handled by the Team.

9.3 The Meeting agreed to delay the discussion about the Terms of References (ToRs) after the approval of the RASG-PA Strategic Plan by the ESC/25 Meeting.

9.4 The main locations and dates for 2016 meetings were discussed. The Meeting agreed on the need of having quarterly presential meetings. Some of the locations considered were:

- Brazil, to be hosted by Brazil and Embraer
- Colombia, to be hosted by IFALPA
- United States, to be hosted by ALTA and IATA
- Mexico, to be hosted by ICAO NACC Regional Office

Agenda Item 10: | **PA-RAST/21 Meeting Actions Items (AI)**

10.1   The Meeting reviewed the PA-RAST/21 Meeting AI. No new AIs were agreed.

Agenda Item 11: | **PA-RAST/22 Meeting**

11.1   The Meeting was informed that the IAT/12 and PA-RAST/22 Meetings will be held in Long Beach, United States, from 7 to 9 December 2015 hosted by Boeing.

Agenda Item 12: | **Other Business**

12.1   ICAO Headquarters provided a presentation (See **Appendix J**) "Safety Data, An enabler to an Informed Safety Policy", in which iSTARS 2.0 (SPACE) was introduced to the Meeting. iSTARS is the ICAO's information exchange platform. Some of the applications available are:

- Airport Punctuality
- SSP Gap Analysis
- Fleet Information
- PBN Implementation Progress
- Safety Audit Information
- Terrain – Elevation Indicator for Major Airports
- Weather Stats, and more

12.2   ICAO HQs offered to the PA-RAST Members access to the system.

12.3   Boeing provided a presentation to the Meeting on fatality risk calculation.

12.4   The Meeting discussed the RASG-PA Tactical Go-Team Visit to Costa Rica, 15 July 2015. The Meeting agreed to develop standard introductory slides for the presentation of the RASG-PA Tactical Go-Team. The Summary of Discussions of the meeting is presented at **Appendix K**.

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APPENDIX A

LIST OF PARTICIPANTS

Brazil		
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APPENDIX B

PA-RAST VALID ACTIONS ITEMS (AI)

Action Item #	Description	Action Owner	Remarks	Status
PA-RAST/15/A14	Include LHDs in the work of SET 4 that will deal with MAC. Agenda Item 15	SET 4	• SET 4 will be formed after SET 1 and SET 2 develop their respective DIPs • PA-RAST/19: delayed due to lack of human resources to accomplish the task	Valid
PA-RAST/16/A2	Include Portuguese language tab in the ACI-LAC website. Agenda Item 13.3	ACI-LAC	• ACI-LAC to inform	Valid
PA-RAST/17/A1	Boeing to provide crew members and flight simulator use to assist ALTA in simulator video. Agenda Item 4	Boeing	• Reply from Boeing is pending	Valid
PA-RAST/19/A1	Programme session with the assistance of a facilitator between pilots and air traffic controllers, in order to discuss the simulated flight execution presented in the RASG-PA Runway Excursion (RE) Prevention Video RREPV. Agenda Item 4	ALTA	• The Secretariat will coordinate the activity under the RASG-PA Aviation Safety Training Team (ASTT) programme • Seminar to be held at the ICAO NACC RO, sponsored by Mexico, SENEAM, ALTA, IFALPA, CPAM, etc.	Valid
PA-RAST/20/A1	Conduct LOC-I workshops, initially with one State (Chile) and two operators (LATAM and Sky Airways) Agenda Item 4	IATA	• In preparation for the Workshop set up a teleconference with Chile, LATAM and Sky Airways to introduce the team, the LOC-I DIPS and a possible workshop date(s)	Valid

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Use of Reactive Information to Enhance PA-RAST Safety Recommendations

PA-RAST/21 Meeting

Presented by: Brazil

Introduction

- PA-RAST Safety Enhancement Initiatives (SEIs) are produced through a data-driven process, supported by FDM/FOQA

- Such data reveals the main types of occurrences in a given location and/or route ("Hot Spots")

- SET's are supposed to analyze the data and to conduct some investigation work to detect the root cause of the concentration of occurrences

Assumption

- The PA-RAST safety recommendations (outputs of the 4 SETs) can be improved by adding to the current process the regular use of safety recommendations issued by investigation authorities

- Such safety recommendations, if selected by some criteria, could help explain the origin of trends currently revealed by ASIAS/FDX, and allow creation of more robust DIPs in the Pan-american region.

Case Study – Pitch-up Upsets due to ILS False Glide Slope

• The Issue

During the approach to Eindhoven Airport (The Netherlands) on 31 May 2013, a Ryanair Boeing 737-800 was radar vectored towards runway 21 for a landing with the aid of the ILS. The aircraft was flying under IMC. During the latter stage of the approach, the aircraft was above the intended 3 degree Glide Path. After the Localizer was captured, a Glide Slope intercept from above was executed. The Autopilot Flight Director System (AFDS) and the Auto Throttle (AT) were engaged. The Approach mode was armed and the aircraft was configured for landing.
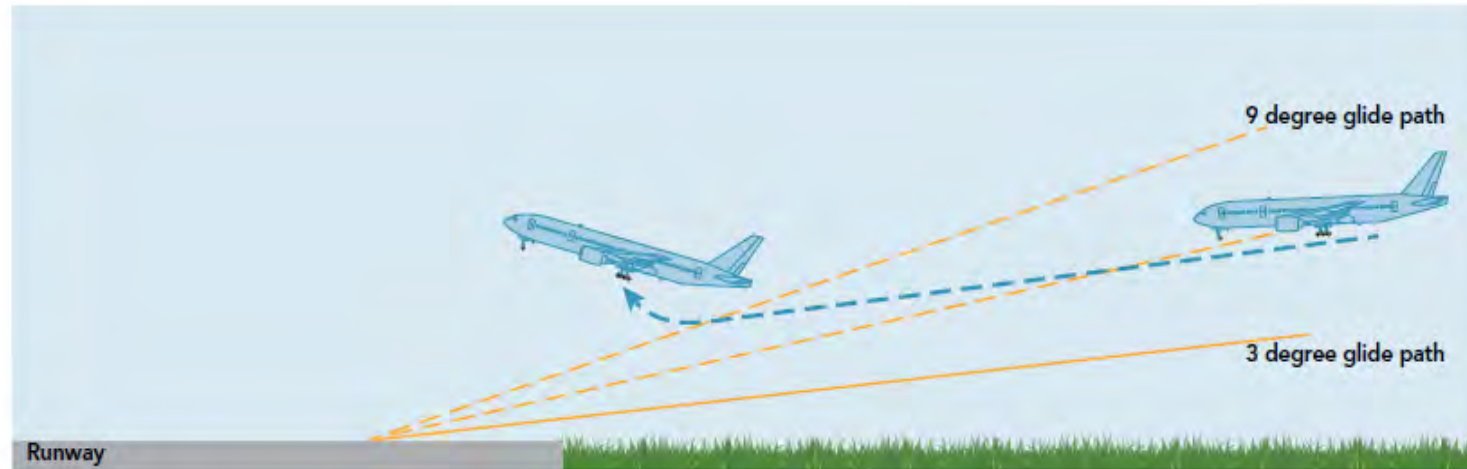
Case Study – Pitch-up Upsets due to ILS False Glide Slope

- ## The Issue (cont'g)

At short final, at approximately 0.85 NM from the threshold, at 1060 feet altitude, the Glide Slope was captured. Upon Glide Slope capture, a pitch increase of 24.5 degrees aircraft nose up (ANU) occurred in about 8 seconds. The crew pressed the TOGA button for a go-around, almost simultaneously followed by the activation of the stick shaker warning. During the following approach to stall recovery manoeuvre there was a second stick shaker activation. The crew made a successful go-around and landed at Eindhoven Airport.

Fig. 1 – Example of Glide Slope capture with a pitch upset above 3 degree glide path

Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Initial Investigation**

The activation of the aircraft's stick shaker during an autopilot coupled ILS approach in close proximity to the runway was a factor of interest that prompted the Dutch Safety Board to start an investigation. The occurrence has been categorized as a serious incident.
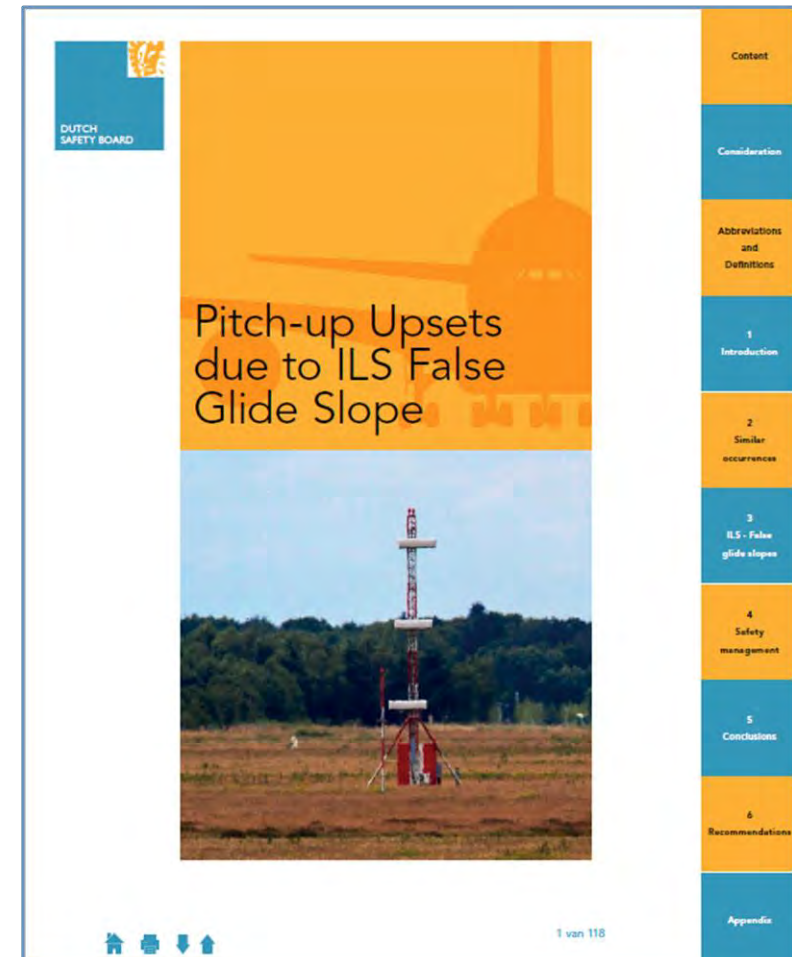
Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Significance of the Eindhoven incident**

Eindhoven investigation revealed characteristics of the ILS signal which was not fully understood and appreciated. Also, the Eindhoven incident **was not unique**. Four other occurrences with autopilot commanded pitch-up upset during ILS approach from above the 3 degree Glide Slope were identified (different types of aircraft, by different Airlines, on approach to different airports):

- Schiphol Airport, The Netherlands, 2011, KLM, Embraer E190
- Murcia Airport, Spain, 2011, Ryanair, Boeing 737-800
- Charles de Gaulle Airport, France, 2012, Air France, A340
- Treviso Airport, Italy, 2013, Ryanair, Boeing 737-800

Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Significance of the Eindhoven incident (cont'g)**

The general belief is that false Glide Slopes invariably occur at regular intervals from the normal 3 degree angle. In addition, the general view is that a warning is given in the cockpit before the aircraft crosses a False Glide Slope. The identified incidents with different aircraft types seem to indicate differently.

Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Significance of the Eindhoven incident (cont'g)**

These findings led the Dutch Safety Board to conclude that little known ILS signal characteristics pose a significant threat to aviation safety, as they may result in unexpected aircraft behaviour and may thus endanger the safety of passengers and flight crews. Because identified occurrences, combined with the potential severity of this hazard, the DSB decided to address this issue separately.

The fact that similar incidents in the past did not lead to mitigating measures also raises the question of effectiveness of the aviation Safety Management Systems (SMS) framework.

Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Conclusions:**
  - The signal characteristics of ILS Image Type antenna system and corresponding cockpit instrument warnings do not correspond with received wisdom and training.
    - Glide Slope signal measurements revealed two different signal characteristics: False Null and Signal Reversal. Signal Reversal occurs **sometimes at approximately 6 degree Glide Path** and **always at the 9 degree Glide Path angle**.
    - Cockpit instruments do not present correspondent ILS warnings.

Fig. 2 – Cross section view of the M-Array ILS antenna system. "Fly up" (blue) and "Fly down" (brown)
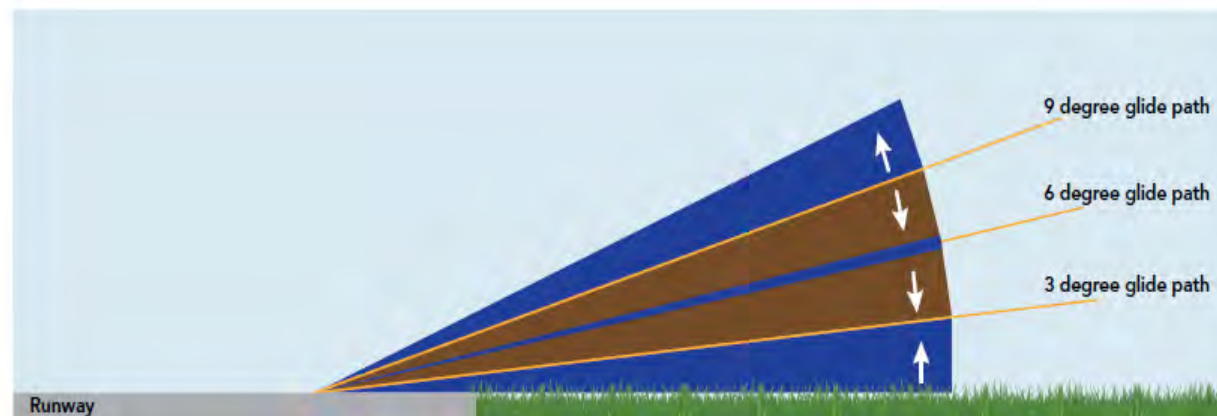
Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Conclusions (cont'g):**

  - The area above 5.25 degree Glide Path and onward, is not part of the ILS Flight Inspection programme, and therefore not part of the ILS ICAO certified volume of operation. Consequently, **aircraft flying above the certified volume of operation are exposed to risks related to ILS Signal Reversal and subsequent unexpected automatic flight system response resulting in severe pitch-up**.
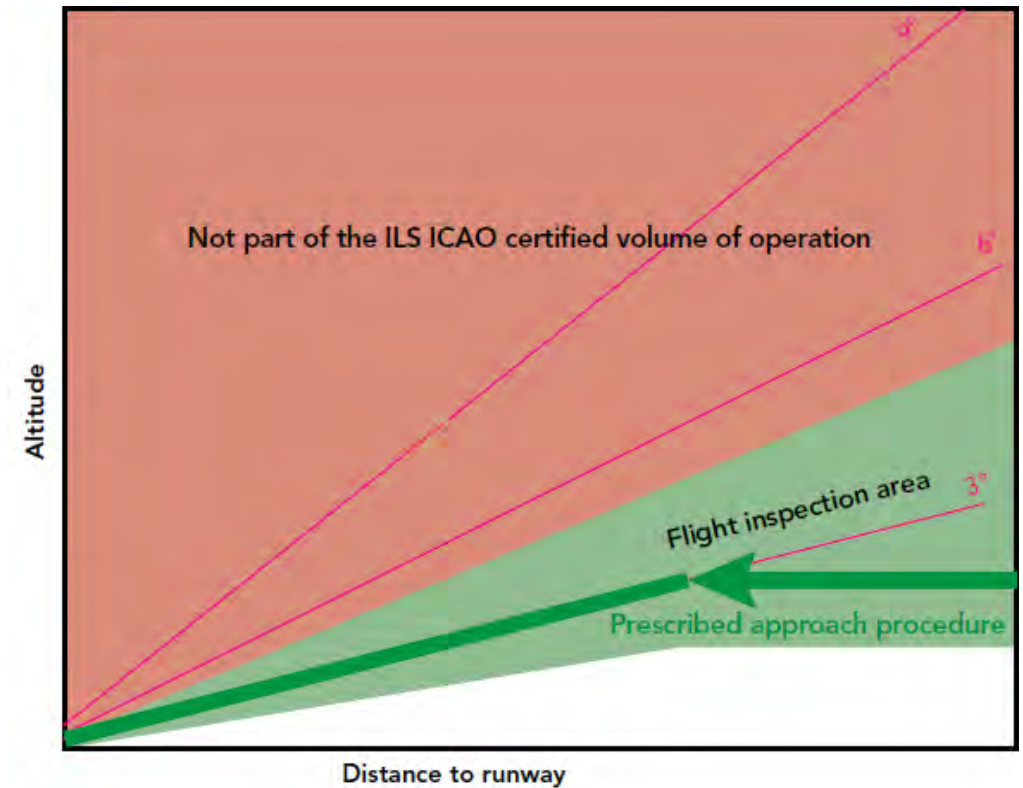

Fig. 3 – Cross section of ILS Glide Slope signal that is inspected and certified for operational use.

Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Conclusions (cont'g):**

    - Automated on-board systems when in use must support the flight crew and should not bring the aircraft into danger without a preceding clearly recognizable warning and with ample time for flight crew intervention.

Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Conclusions (cont'g):**

  - The existing framework of SMS neither identified the occurrences related to ILS False Glide Slope Signal Reversal as serious incidents separately, nor was the potential hazard understood and/or addressed. Contributory to this was that accessible information and received wisdom did not make a distinction between the two types of False Glide Slope characteristics. Also the exchange of occurrence report information between operator, manufacturers and (inter)national database managers was insufficient. The result was that a latent safety deficiency how the ILS was used remained unidentified.

Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Conclusions (cont'g):**

  - Flight crews' decisions to execute a go-around or to challenge Air Traffic Control seems to be postponed too long when flying high above the normal vertical profile during an ILS approach. There is reason to believe that the high level of very reliable automation in the cockpit contributes to this and that altitude versus distance basic flying skills are insufficiently practiced.

Case Study – Pitch-up Upsets due to ILS False Glide Slope

- **Recommendations:**

The DSB made the following recommendations to EASA (Europe), FAA (USA), ANAC (Brasil), CAA (China), FATA (Russia), Civil Aviation Bureau (Japan) and Transport Canada:

  - Information and awareness (manuals, training material) **A S**
  - Short term measures (mitigating actions: operation and technical measures) **A S M N**
  - Long term measures (development of new landing systems) **S M**
  - Occurrence reporting and analyses (SMS assessment on operators, ANSP and manufacturers) **A S M N**
  - Training regulations (review of initial and recurrent training, situational awareness) **S**
  - International regulations (revision of ICAO Doc 4444) **I**
  - Update of stabilized approach criteria (ALAR toolkit update) **F**

A – Airlines; **S** – States; **M** – Manufacturers; **N** – ANSPs; **I** – ICAO; **F** - FSF

Proposal

- PA-RAST to incorporate safety recommendations issued by investigation authorities (SET Teams workflow).

- The safety recommendations should be adopted after a prior assessment of which recommendations would be more relevant to mitigate safety occurrences in PA region.

- Selection criteria proposal:
  - Recommendations should be related only to LOC-I, CFIT, RE or MAC
  - Recommendations should involve minimum of three PA-RAST stakeholders: Airlines, States, Manufacturers, ANSPs, ICAO, etc.
  - Research would be made on reports no older than 2 years
  - Preference would be given to reports from authorities who deal with significant air transport numbers – See Attachment 1

Benefits

- Some trends revealed by FDX/ASIAS could be explained by the feedback provided by the investigation conclusions (e.g. Unstable Approaches rising in a given location, etc)

- Overall visibility of the operational concerns would be improved. SET outputs would be increasingly more robust.

- PA-RAST would also be a mechanism to promote implementation of reactive recommendations in the region.

Next Steps

- PA-RAST to evaluate proposal (Approve?)

- In case of approval, proceed to include a statement on PA-RAST Terms of Reference (TOR)

- Brazil volunteers to perform the continuous research on recommendations and report them regularly to PA-RAST

- After each report, SETs affected would analyze recommendations and potentially start using the information on DIPs development

- SETs workflow: 7-Steps affected?

Thank You!

Attachment 1 – Air Transport, PAX carried

- The World Bank - Air transport, passengers carried (*)
  - Countries with more than 25,000,000 PAX carried in 2014:

Country Name	Air Transport, Passengers carried (2014)
United States	762,560,000
China	390,878,784
United Kingdom	125,068,988
Japan	110,544,000
Germany	107,587,503
Ireland	100,962,395
Brazil	100,403,628

Country Name	Air Transport, Passengers carried (2014)
Turkey	92,624,865
Canada	75,528,607
Australia	67,686,801
France	63,434,263
Spain	53,038,503
Mexico	40,693,895
Netherlands	33,928,613

Country Name	Air Transport, Passengers carried (2014)
Switzerland	26,716,498
Italy	25,594,275
Colombia	25,053,386

(*) The World Bank, 2015. Both domestic and international aircraft passengers of air carriers registered in the country

Attachment 2 – Countries and Investigation Offices

Country	Investigation Office	Website
United States	NTSB	http://www.ntsb.gov
China	CAAC	n/a
United Kingdom	AAIB	http://www.aaib.gov.uk
Japan	JTSB	http://www.mlit.go.jp/jtsb/english.html
Germany	BFU	http://www.bfu-web.de
Ireland	AAIU	http://www.aaiu.ie
Brazil	CENIPA	http://www.cenipa.aer.mil.br
Turkey	MTMAC	n/a
Canada	TSBC	http://www.tsb.gc.ca
Australia	ATSB	http://www.atsb.gov.au
France	BEA	http://www.bea.aero
Spain	CIAIAC	http://www.ciaiac.es

Attachment 2 – Countries and Investigation Offices

Country	Investigation Office	Website
Mexico	DGAC	n/a
Netherlands	DSB	http://www.safetyboard.nl
Switzerland	BFU	http://www.sust.admin.ch
Italy	ANSV	n/a
Colombia	GIA	http://www.aerocivil.gov.co

SET ACTION ID	ACTION TITLE	ACTION DESCRIPTION	START DATE	FINISH DATE	ACTION OFFICER	STATUS	SE196 Effective UPRT, including approach to stall				SE197 Flight Crew Training for Non-Normal Situations			SE198 Scenario-Based Training for Go-Arounds			SE199 Enhanced Crew Resource Management				SE192 Low Airspeed Alerting	
							O1	O2	O3	O4	O1	O2	O3	O1	O2	O3	O1	O2	Q3	Q4	O1	O2
072015 - 1	Develop a Survey for Commercial Flight Operators	Review 4 LOC-I training DIPS and create baseline survey for commercial flight operators in the region. The results of the survey will identify gaps in existing training scenarios vs the training scenarios found in the DIPs. In addition, the survey results will help the SET identify the inventory of existing training devices in the region.	jul-15	dic-15	Diana/Warren/SET	<10/15/2015>Diana/IFALPA used the draft survey to informally interview a Commercial Airline training department in the region. Based on the feedback, the team will update the survey instrument to address some of the confusing/ambiguous questions. Once the draft is finalized, the team will work with the two volunteer airlines in Chile (reference action 072015 - 6 below).	A3,A4															
072015 - 2	Develop a Survey for States	Create a baseline survey for States in the region. The results of the survey will identify existing Flight Simulator Training Devices (FSTDs) regulations, policies, standards and guidance with an emphasis on Upset Training and Recovery Maneuvers. When drafting the survey, reference the FAA's National Simulator Program (NSP) UPRT Flight Simulation Training Device Guidance Material as well as applicable ICAO Annexes (1, 6 & 8).	jul-15	dic-15	Warren/Gabriel/Adriano	<10/15/2015> A working draft of the survey has not been developed. Further attention and resources needed to accomplish this task.	A1, A2, A3															
~~072015 - 3~~	~~On-line Guidance Repository~~	~~Create an on-line repository of existing LOC-I guidance material~~ ~~- upload reference material to OneDrive from MS docs~~ ~~- review material and prepare summary~~ ~~- link elements found in the existing guidance material to the survey questions (reference action item #1 and #2 above)~~	~~jul-15~~	~~feb-16~~	~~All/Warren~~	<10/15/2015> This action has been superseded 102015 - 1. All reference material will be moved from the MS One Drive to the IATA LOC-I website.		A1			A1			A1			A1					
072015 - 4	Project Plan	Create a Project Plan Gantt chart to manage the status of each DIP activity as well as a cross reference the SET actions with the DIP activities.	sep-15	ene-16	Warren & Gabriel	<10/15/2015> There has been no action on this task to date. It is not in the critical path of the DIPs however a master project plan will be useful for PA-RAST and SET leadership - especially to identify resource constraints and needs.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
072015 - 5	ICAO LOC-I Working Group	Review ICAO LOC-I status information provided by Eduardo (see email)	sep-15	oct-15	Warren/Team	<10/15/2015> This action is **complete**. The material will be added to the SET's online resource website.		A1			A1			A1			A1					

							Timeline
072015 - 6	LOC-I DIP Workshops	Plan and conduct workshops - link on-line references (see Action #3) to each scenario found in the DIPs - conduct workshop only after we receive the results of the survey (see Action 1 & 2) 　　- One State (Chile) and two operators (LATAM and Sky Airways) have volunteered to participate in the inaugural workshop(s) and surveys. 　　- In preparation for the workshops, set up a telecon with Chile, LATAM and Sky Airways to introduce the team, the LOC-I DIPS and a possible workshop date(s).	sep-15	dic-15	Warren & Gabriel /All	<10/15/2015> This action will require additional resources. Brazil/ANAC has volunteered to be a second State to respond to the survey. The plan is to introduce the final surveys (State & Operator) at the December PA-RAST meeting. We will also discuss logistics for a workshop in the Region later in 2016.	(yellow) A1 ... A1 ... A1 ... A1
102015 - 1	RASG-PA LOC-I Website (Public)	IATA will convert the existing website to RASG-PA for use. We will use this website to host guidance material, articles and surveys as well as the DIPS.	oct-15	feb-16	Warren/Gabriel/S ET	<10/15/2015> This action supersedes action 072015-3 (strikethrough above). IATA is working with the website developers to make this resource available to the SET.	(green) A1 ... A1 ... A1 ... A1
102015-2	Low Airspeed Alerting Survey	Work with IATA and ALTA to develop a survey for operators. The goal is to baseline the low airspeed alerting equipage in the region's fleet.	15-oct	16-mar	IATA/ALTA/LOC-I SET	<10/15/2015> This action may be secondary as there are limited resources within the SET. The primary focus is on the Surveys and workshops.	(green) A1

GREEN	ON Track/low risk
YELLOW	Probability of missing target/Medium Risk
RED	Target Missed/High Risk
BLUE	Action complete

October 2015 LOC-I SET MEETING notes

- LOC-I SET Commercial Airline Training Department Survey Brainstorm:

  - A SET member shared some preliminary results from an unofficial survey response from a major operator in the Region:
    - The purpose of this unofficial response to the survey is to get respondents to provide feedback on the survey instrument itself.
    - The team discussed and identified areas where the survey questions need to be enhanced.
    - This particular operator is a parent holding company with several subsidiaries
      - Training standards differ among subsidiaries
        - Is there a standard for training across the parent company?
      - For example the response to the cargo training survey may differ from those from the mainline operations
- The team needs to be clear the Survey is intended for Passenger and Cargo Commercial operations (scheduled and unscheduled)
  - 135
  - 121-like
  - Not vertical flight
  - Not GA
- A lot depends on safety culture on how a survey is perceived
  - Not an audit
  - Improve safety
  - Voluntary
  - Data collected shall be aggregated and de-identified
- Questions to be added to the survey
  - Do you outsource your training?
    - All?
    - Both?
    - None – all in house?
  - Do you perform UPRT in aircraft vs simulator
    - What is the percentage split 10% in AC and 90% in sim?
    - Add check box to the survey for each scenario (in aircraft; in simulator)
  - How frequent is the scenario trained?
    - Once
    - Every 24 months
    - Every 40 months
    - Other frequency?
  - Are there plans to change LOC-I scenario-based training in the next 5 years?

- The team discussed the minimum/ideal qualifications of the survey respondent.
  o Ideally, find someone who is directly involved with the training and AQP
  o Someone who is very familiar with the training curriculum
  o 15+ years as instructor pilot
  o Member of the training board
- It was suggested we the SET draft a "read this before taking the survey" document the respondent to read before taking the survey.
  o Frequently asked questions (FAQ) regarding RASG-PA and the LOC-I DIPS
  o Who does the respondent contact if the question is unclear, or they need additional information
  o De-identified results

State LOC-I Training Survey (working draft & brainstorm)

- The following draft questions are derived from the LOC-I DIPS and FAA National Simulator Program (NSP) guidance
- The SET is working to adapt the content and questions to be relevant to States
- Ultimately, the States in the Region will respond to the survey and provide a baseline perspective when it comes to LOC-I training and regulatory oversight.

-------------------------- DRAFT SURVEY QUESTIONS--------------------------
1. Do you have regulations for certificating flight training devices? Regulation #/section?
   a. If no, do you have plans to have regulations in the future? If so, when?
   b. If no, do you recognize foreign certificates?
   c. Do you currently have full flight sims for commercial flight crew training in your country?
   d.
2. If yes, UPRT questions (extracted from FAA Guidance document)
   a. Have you issued FTSD qualification guidance material focusing on UPRT?
      o Aerodynamics Evaluation:
         o Do you certify the simulator is capable of performing upset recognition and recovery tasks as defined on the simulator's Statement of Qualification?
         o Do you evaluate the simulator for each specific upset recovery maneuver for the purpose of determining that the combination of angle of attack and sideslip does not exceed the range of validated data or wind tunnel/analytical data during a typical recovery maneuver as defined in the sponsor's training program?
         o Do you certify the following minimum set of upset recovery maneuvers are available to the instructor/evaluator? Other upset recovery scenarios as developed by the FSTD sponsor must be evaluated in the same manner.

          ▪   A nose-high, wings level aircraft upset.
          ▪   A nose-low, wings level aircraft upset.
          ▪   A high bank angle aircraft upset.

  b. Instructor Operating System (IOS):
     i. Do you certify selectable airplane upsets provide guidance to the instructor concerning the method utilized to drive the FSTD into an upset condition including any malfunction or degradation in the FSTD's functionality required to initiate the upset?
     ii. The intentional degradation of simulator functionality to drive an airplane upset is generally not acceptable unless used purely as a tool for repositioning with the pilot out of the loop.
     iii. Do you certify the simulator has a feedback mechanism in place to notify the instructor/evaluator when the simulator's validated envelope and aircraft operational limits have been exceeded during an upset recovery training task?
     iv. Do you certify the FSTD employees a method for the instructor/evaluator to assess the student's flight control inputs used to execute the upset recovery maneuver.
     v. Do you certify the FSTD feedback mechanism has the capability to capture and replay an upset recovery scenario to debrief the students at either on onboard of off-board debriefing station?

  c. Statement of Compliance (SOC)
     i. Do you require a Statement of Compliance (SOC) that defines the source data used to construct the flight test and wind tunnel/analytical envelope?
     ii. Does the SOC verify each upset recovery maneuver as defined on the FSTD's Statement of Qualification has been evaluated using the methods described in this section.

3. Process and regulations for reviewing and approving training programs

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Detailed Implementation Plans (DIPs)

Rast No	Safety Enhancement Action	Reference	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/RE/1	Landing Training for Flight Crews		#	High	Easy	P1	#	Long

Safety Enhancement

Air carriers define, publish, and train proper techniques for stabilized approach, flare, touchdown, and use of available airplane stopping devices during landing, with emphasis on realistic scenarios that contribute to runway excursions.   This training should include performance of a landing distance assessment at the expected time of arrival, once manufacturer advisory landing performance data are provided to the carriers.

Action (expanded):

Develop and distribute training guidance materials
Conduct workshops to obtain consensus between regional stakeholders on implementation approach at carriers
Implement training scenarios in initial and recurrent training per guidance

Statement of Work:

To reduce runway excursion accidents, pilots should conduct landing distance assessments when applicable and air carriers should define, publish, and train proper techniques for stabilized approach, flare, touchdown, and use of available airplane stopping devices for the following scenarios:

1) Landing with reduced or minimal landing distance margin resulting from one or more of:
   a. Wet or contaminated conditions
   b. Tailwind, including gusts
   c. Runway closures that reduce available landing distance
2) Landing with conditions conducive to directional control issues, resulting from one or more of:
   a. Crosswind, including gusts
   b. System failures (thrust, brakes, nose gearing steering, etc.) or Minimum Equipment List (MEL) conditions that results in directional asymmetries

Champion Organization: IATA

Human Resource: IATA, ALTA, FSF, Boeing, Airbus, Embraer, IFALPA, air carriers, commercial training providers, Bombardier, ATR, CAAs, Labor Organizations, Civil Aviation Authorities

Financial Resource: To be determined

Relation Current Aviation Community Initiative:

CAST SE-215 RE – Airline Operations and Training – Landing Distance Assessment
CAST SE 216 RE – Airline Operations and Training – Flight Crew Landing Training
FAA SAFO 06012, Landing Performance Assessments at Time of Arrival (Turbojets)

Performance Goal Indicators:

Goal 1: Achieve 50% fatality risk reduction by 2020 based on 2010 performance, for all part 121 equivalent operations
Indicator: RE fatality risk rate in Pan America as measured by RASG-PA's ASR Team

Goal 2: Inclusion of scenarios in training for air carriers in the region that correlate to a higher risk of RE
Indicator: survey of air carrier training programs

Goal 3: Reduction in precursor RE events including long landings, improper/untimely deployment of stopping devices, and unstable approaches

Key Milestones	DIP Milestone	Time
	Output 1 Develop guidance material	8 months
	Output 2 Conduct Outreach Workshop	12 months
	Output 3 Implement Training at Air Carriers	18 month to revise procedures and training scenarios
		36 months for pilots to receive training

Potential Blockers: Cost of implementing training

Concurrence from regional regulatory authorities for training revisions

Simulator fidelity to handle scenarios

DIP Notes: RASG-PA Annual Safety Report Team (ASRT) will review collected data on a yearly basis. This data will be reflected in the annual RASG-PA Safety Report

PA-RAST/RE/1 Output 1

Description: RASG-PA develops guidance material for conducting flight crew landing training, including performance of a landing distance assessment where applicable.

Resources: IATA, ALTA, air carriers, commercial training providers, Airbus, Boeing, Embraer, Bombardier, ATR, Labor Organizations, Civil Aviation Authorities

Resource Notes:

Time Line: 8 months

Actions:

1. RASG-PA designate an appropriate working group to develop guidance material related to landing training, including a landing distance assessment when applicable.   The guidance material should draw from the following resources:
   a. FAA SAFO 06012, Landing Performance Assessments at Time of Arrival (Turbojets)
   b. CAST SE-215 RE – Airline Operations and Training – Landing Distance Assessment
   c. CAST SE 216 RE – Airline Operations and Training – Flight Crew Landing Training
   d. FAA Advisory Circular (AC) 121.195(d)-1A, Operational Landing Distance for Wet Runways; Transport Category Aircraft
   e. Air Carriers SOP's

2. The working group will develop relevant guidance as directed by action #1 in an appropriate format for distribution to Pan American air carriers, to include the following key elements:
   a. Landing Distance Assessment.   The guidance material should provide:
      i. Recommendations for air carrier procedures for the use of airplane performance data by flight crews when making the landing distance assessment, including at what point during the flight an assessment should be performed.
      ii. Background information on manufacturer-provided landing distance data, including description of content and accuracy required for factors that affect the landing distance and standards for reporting runway conditions.
   b. Landing Scenarios with Reduced or Minimal Landing Distance Margin.   The guidance material should describe scenarios that include:
      i. Wet or contaminated runway conditions, with emphasis on variability and inconsistency of conditions along the length of the runway
      ii. The effects of tailwind, including gusts, on airplane landing distance (due to higher ground speed) and on airplane handling characteristics during the flare

        iii.   Runway closures that reduce available landing distance

        iv.   Late runway changes to a shorter-than-planned-for runway and timely re-assessment of the landing decision

    c.   <u>Landing Scenarios with Reduced or Minimal Directional Control.</u>   The guidance material should describe scenarios that include:
        i.   Wet or contaminated runway conditions, with emphasis on variability and inconsistency of conditions along the length of the runway and the impact of directional controllability.
        ii.   The effects of crosswind including gusts, on airplane on airplane handling characteristics during the flare, touchdown, and rollout.
        iii.   System failures (thrust, brakes, nose gearing steering, etc.) or minimum equipment list (MEL) conditions that result in directional asymmetries.

3.   RASG-PA to distribute guidance material to air carriers in the PA region through IATA, ALTA, IFALPA, and other organizations as applicable.
    a.   DG meetings (Working Papers for SAC and NACC)
    b.   ICAO Meetings, Seminars and Workshops
    c.   ALTA Safety Summit (break out session)
    d.   ALTA-IATA Safety Team Meetings
    e.   Training Provider
    f.   OEMs
    g.   Air carrier flight training and safety departments
    h.   CAA Air Carrier Certificate Managers – flight training oversight
    i.   Others

4.   Through IATA/ALTA Surveys, determine AQP (Advance Qualification Programs) programs in the region

Target Completion: 8 months after RASG-PA approval

PA-RAST/RE/1 Output 2

Description: Conduct a series of joint industry-government workshop in the PA region to develop consensus between air carriers, manufacturers, Civil Aviation Authorities, and other stakeholders on implementation of proposed training in the region.

Resources: IATA, ALTA, air carriers, commercial training providers, Airbus, Boeing, Embraer, Bombardier, ATR, CAAs, FAA, CANSO, Training Service Providers (other than OEM), Labor Organizations

Resource Notes:

Time Line: 18 months

Actions:

1.   RASG-PA identifies target audience for the workshop
    a.   Air carrier training departments
    b.   CAA certificate management offices – training oversight
    c.   OEMs
    d.   Training service providers (other than OEM)
    e.   Labor Organizations
    f.   Others

2.   RASG-PA sponsors a workshop to develop a consensus industry-government approach for implementing improved flight crew landing training in the PA region, including:

      a.   Prepare executive summary on study findings and results for both CAAs/certificate managers and Air Carriers
      b.   RASG-PA communication of CAST RE study findings
      c.   CAA involvement and buy-in for approval of training programs
      d.   CAA, manufacturer, and training provider involvement in simulator qualification
      e.   Others
3.   Workshop participants develop working agreements between CAAs and air carriers to streamline implementation and approval of revised training.
      a.   Draft working agreement template
      b.   Foster the implementation of the agreement between CAA's and carriers.

Target Completion: 12 months after completion of OP1

PA-RAST/RE/1 Output 3

Description: Air carrier recurrent and initial flight crew training procedures are revised to include performance of landing distance assessment, when applicable, and use realistic training scenarios that correlate to higher risk of runway excursion.

Resources: IATA, ALTA, air carriers, commercial training providers, Airbus, Boeing, Embraer, Bombardier, ATR, Civil Aviation Authorities

Resource Notes:

Time Line: 18 month to revise procedures and training scenarios
                   36 months for pilots to receive training

Actions:
1.   Air carriers review RASG-PA RE guidance material, and revise their training programs as necessary to ensure the components are included in recurrent and initial training, as detailed in the guidance developed and distribution in Output 1.
2.   Air carriers coordinate with their pilot labour organizations, as applicable, to communicate these revisions and the rationale supporting them to the line pilot community.
3.   Air carriers coordinate with their Civil Aviation Authority (CAA) to determine training approval requirements.
4.   Air carriers implement revised training in accordance with agreements their CAA and labour organizations, as applicable.
5.   Air carriers actions are complete for this output when the following are accomplished:
      a.   The air carrier has revised their flight crew training, as necessary, to reflect the guidance material developed in Output 1.
      b.   All pilots have received the training (initial or recurrent)
6.   IATA and ALTA will track implementation of their member carriers and report progress to RASG-PA.
7.   RASG-PA will designate a team that will track implementation for non-IATA/ALTA members and report progress to RASG-PA
      a.   ISSA for smaller carriers
      b.   Identify and survey commercial training providers
      c.   Survey non-member air carriers directly
      d.   Survey CAA certificate managers and ask if they have recently approved changes to training related to RE

Target Completion: 36 months after completion of OP2

APPENDIX G

Runway Excursion DIP 2

Detailed Implementation Plans (DIPs)

Rast No	Safety Enhancement Action	Reference	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/RE/2	Airline Operations and Training – Takeoff Procedures and Training		#				#	Long

Safety Enhancement
Improve takeoff safety through revised procedures and training for takeoff planning and rejected takeoff (RTO) decision making.

Action (expanded):
Develop and publish guidance material for training
Conduct workshops to obtain consensus between regional stakeholders on implementation approach at carriers
Implement training scenarios in initial and recurrent training per guidance

Statement of Work:
To reduce runway excursion accidents, air carriers should develop standard operating procedures and conduct training to ensure the accuracy and entry of takeoff performance data and define and update standardize procedures and training for the rejected takeoff (RTO) decision.

Champion Organization:
IATA

Human Resource:
IATA, ALTA, FSF, Boeing, Airbus, Embraer, IFALPA, air carriers, commercial training providers, Bombardier, ATR, Civil Aviation Authorities CAAs, Labour Organizations, ICAO

Financial Resource:
To be determined

Relation Current Aviation Community Initiative:
ICAO RE Workshops

CAST SE-217 RE – Airline Operations and Training – Takeoff Procedures and Training
Takeoff Safety Training Aid; U.S Department of Transportation Federal Aviation Administration

Performance Goal Indicators:
Goal 1: Achieve 50% fatality risk reduction by 2020 based on 2010 performance, for all part 121 equivalent operations, regarding RE accidents
Indicator: RE fatality risk rate in Pan America as measured by RASG-PA's ASR Team

Goal 2: Reduction in runway overrun excursions during takeoff

Goal 3: Reduction in RTO events above V1

Key Milestones	DIP Milestone	Time
	Output 1 Develop guidance material	8 months
	Output 2 Conduct Outreach Workshop	12 months
	Output 3 Implement Training at Air Carriers	18 month to revise procedures and training scenarios
		36 months for pilots to receive training

Potential Blockers: Cost of implementing training

Concurrence from regional regulatory authorities for training revisions

Simulator fidelity to handle scenarios

DIP Notes: RASG-PA Annual Safety Report Team (ASRT) will review collected data on a yearly basis. This data will be reflected in the annual RASG-PA Safety Report

PA-RAST/RE/2/ Output 1

Description: RASG-PA develops guidance for air carrier standard operating procedures to ensure accurate takeoff performance data and airlines define and update SOPs for the RTO decision.
`

Resources: IATA, ALTA, air carriers, commercial training providers, Airbus, Boeing, Embraer, Bombardier, ATR, ICAO, Labor Organizations, Civil Aviation Authorities

Resource Notes:

Time Line: 8 months

Actions:

1. RASG-PA develop and publish guidance material for air carriers on takeoff planning to:

   a) Emphasize timely (i.e., before commencement of taxi) communication and coordination between gate agents, ground crew chiefs, load agents/dispatchers, and flight crews on accurate takeoff weight and balance information.

   b) Encourage development and use of software "flags" to alert all air carrier personnel involved in dispatch of aircraft to gross data entry errors.

   c) Emphasize the importance for both flight crew members to cross-check takeoff performance data and/or calculations.

   d) Provide guidance on training for hazards/risks of incorrect data entry into the Flight Management Systems (FMS), electronic flight bags (EFB), or laptops for takeoff performance calculations.

   e) Address proper processing and communication of late changes to passenger/cargo loads, weather and runway conditions, departure runway or clearance, etc.

   f) Address both "paper" information and electronically transmitted information, e.g., Aircraft Communication Addressing and Reporting Systems (ACARS).

2. Air Carriers define and update standardize procedures and training for the rejected takeoff (RTO) decision utilizing guidance as recommended in the 2005 revision of the Takeoff Safety Training Aid. Procedures and associated training for the RTO decision should address the following points as a minimum:

   a) Utilize good crew resource management (CRM) in briefing for a possible RTO and crew responsibilities during an RTO.

   b) Awareness of and adherence to SOP regarding the RTO decision, including emphasis on startle effect.

c) Emphasis in training scenarios on RTO decision making on "non-engine-failure" related events that occur during the takeoff roll, such as—
   i.   Airspeed discrepancies;
   ii.   Takeoff configuration warnings;
   iii. Cargo/door warning lights;
   iv.   Mechanical issues;
   v.   Tire failures;
   vi.   Air Traffic Control (ATC) comments, "instruction" to reject, or cancelled clearance;
   vii. Bird strike; and
   viii. Scenarios (other than engine failure) that, per air carrier SOP, should instigate an RTO.
d) Reinforce in training the underlying rationale for the RTO procedures, based on airplane stopping characteristics

Target Completion 8 months after RASG-PA approval

PA-RAST/RE/2 Output 2

Description: Conduct a series of joint industry-government workshop in the PA region to develop consensus between air carriers, manufacturers, Civil Aviation Authorities, and other stakeholders on implementation of proposed training in the region.

Resources: IATA, ALTA, air carriers, commercial training providers, Airbus, Boeing, Embraer, Bombardier, ATR, CAAs, FAA, ICAO, Training Service Providers (other than OEM), Labor Organizations, Civil Aviation Authorities

Resource Notes:

Time Line: 12 months

Actions:
1. RASG-PA identifies target audience for the workshop
   a. Air carrier training departments
   b. CAA certificate management offices – training oversight
   c. OEMs
   d. Training service providers (other than OEM)
   e. Labor Organizations
   f. Others

2. RASG-PA sponsors a workshop to develop a consensus industry-government approach for implementing improved takeoff safety through revised procedures and training for takeoff planning and rejected takeoff (RTO) decision making.   Prepare executive summary on study findings and results for both CAAs/certificate managers and Air Carriers
   a. RASG-PA communication of CAST RE study findings
   b. CAA involvement and buy-in for approval of training programs
   c. CAA, manufacturer, and training provider involvement in simulator qualification
   d. Others
3. Workshop participants develop working agreements between CAAs and air carriers to streamline implementation and approval of revised training.
   a. Draft working agreement template
   b. Foster the implementation of the agreement between CAA's and carriers.

Target Completion: 12 months after completion of OP1

PA-RAST/RE/2 Output 3

Description: Air carriers modify standard operating procedures and training to ensure accurate takeoff performance data and RTO decision in accordance guidance from output 1.

Resources: IATA , ALTA, air carriers, commercial training providers, Airbus, Boeing, Embraer, Bombardier, ATR, Civil Aviation Authorities

Resource Notes:

Time Line: 18 month to revise procedures and training scenarios
36 months for pilots to receive training

Actions:
1. Air carriers review and revise their takeoff planning and RTO decision procedures and training, as necessary, in accordance with output 1
2. Air carriers coordinate with their pilot labour organizations, as applicable, to communicate these revisions and the rationale supporting them to the line pilot community.
3. Air carriers coordinate with their Civil Aviation Authority (CAA) to determine training approval requirements.
4. Air carriers implement revised training in accordance with agreements their CAA and labour organizations, as applicable.
5. Air carriers actions are complete for this output when the following are accomplished:
    a. The air carrier has revised their flight crew training, as necessary, to reflect the guidance material developed in Output 1.
    b. All pilots have received the training (initial or recurrent)
6. IATA and ALTA will track implementation of their member carriers and report progress to RASG-PA.
7. RASG-PA will designate a team that will track implementation for non-IATA/ALTA members and report progress to RASG-PA
    a. ISSA for smaller carriers
    b. Identify and survey commercial training providers
    c. Survey non-member air carriers directly
    d. Survey CAA certificate managers and ask if they have recently approved changes to training related to RE

Target Completion 36 months from completion of OP2

APPENDIX H

Runway Excursion DIP 3

Detailed Implementation Plans (DIPs)

Rast No	Safety Enhancement Action	Reference	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/RE/3	Implementation of on-board technologies		#					

Safety Enhancement Implementation of on-board technologies to reduce or prevent landing overruns on new and existing airplane designs on transport category airplanes

Action (expanded): Conduct workshops to gain consensus between regional stakeholders on implementation of design features to reduce runway excursion and appropriate training associated with use of these design changes
Operators implement on-board technologies to reduce or prevent landing overruns on new and existing airplane designs, as applicable and feasible.

Statement of Work: To reduce landing overrun accidents operators should implement on-board technologies to reduce or prevent landing overruns on new and existing airplane designs, as applicable and feasible, through purchase on new airplanes and retrofit on existing transport category airplanes.

Examples runway overrun prevention systems that meet the intent of this safety enhancement include systems from the following manufacturers

- Airbus Runway Overrun Protection System (ROPS)
- Boeing Runway Situation Awareness Tools (RSAT)
- Embraer
- Honeywell SmartLanding system

Champion Organization: IATA

Human Resource: IATA, ALTA, Boeing, Airbus, Embraer, Bombardier, air carriers, CAAs, Labor Organizations, ICAO, FSF (LOC working group).
Financial Resource: To be determined

Relation Current Aviation Community Initiative: CAST SE-218 RE– Design – Overrun Awareness and Alerting System

Performance Goal Goal 1: Achieve 50% fatality risk reduction by 2020 based on 2010 performance, for all part 121 equivalent operations, regarding runway excursion overrun accidents
Indicators: Indicator: Fatality risk rate in Pan America as measured by RASG-PA's ASR Team

Goal 2: Reduction of Runway Excursion Incidents and Accidents

Goal 3: Influence on Contributing Factors Measureable by FOQA

- Increase in go-arounds from unstable approaches, as indicated by FOQA
- Reduction in long landings as indicated by FOQA
- Increase in go-arounds from long landings, as indicated by FOQA
- Reduction in delayed deployment / use of speedbrakes (where applicable) as indicated by FOQA

Key Milestones	DIP Milestone	Time
	Output 1: Conduct Outreach Workshop	12 months
	Output 2: Air carriers implement technology as feasible	60 months

Potential Blockers   Cost of implementing design changes and associated training.

Fleet commonality

Mitigation of Implementation Risk: Potential savings in Insurance Premiums for airlines

PA-RAST/RE/3Output 1

Description: Conduct a series of joint industry-government workshop in the PA region to develop consensus between air carriers, manufacturers, Civil Aviation Authorities, and other stakeholders on implementation of design features to reduce runway excursion and appropriate training associated with use of these design changes.

Resources: IATA, ALTA, air carriers, commercial training providers, Airbus, Boeing, Embraer, Bombardier, ATR, CAAs, FAA, ICAO, Training Service Providers (other than OEM), Labor Organizations

Resource Notes:

Time Line: 12 months

Actions:

1. RASG-PA identifies target audience for the workshop
   a. Air carrier training departments
   b. CAA certificate management offices – training oversight
   c. OEMs
   d. Training service providers (other than OEM)
   e. Labor Organizations
   f. Others

2. RASG-PA sponsors a workshop to develop a consensus industry-government approach for implementation of design features to reduce runway excursion and appropriate training associated with use of these design changes

     a.   Prepare executive summary on study findings and results for both CAAs/certificate managers and Air Carriers
     b.   RASG-PA communication of CAST RE study findings
     c.   CAA involvement and buy-in for approval of training programs
3. Workshop participants develop working agreements between CAAs and air carriers to streamline implementation and approval of revised training.
     a.   Draft working agreement template
     b.   Foster the implementation of the agreement between CAA's and carriers.

PA-RAST/RE/3Output 2

Description: To reduce landing overrun accidents operators should implement on-board technologies to reduce or prevent landing overruns on new and existing airplane designs, as applicable and feasible, through purchase on new airplanes and retrofit on existing transport category airplanes.

- Examples runway overrun prevention systems that meet the intent of this safety enhancement include systems from the following manufacturers

  - Airbus Runway Overrun Protection System (ROPS)

  - Boeing Runway Situation Awareness Tools (RSAT)

  - Embraer

  - Honeywell SmartLanding system

Champion: IATA/ALTA

Resources: IATA, ALTA, air carriers, commercial training providers, Airbus, Boeing, Embraer, Bombardier, ATR, ICAO , Labor Organizations, FSF

Time Line: Action 1:6 months

     Action2: 36 months

     Action 3: Timeline for implementation of systems is not included as this will vary depending on results of assessments

Actions:

1) ALTA/IATA associations will communicate with their carrier members, explaining the analysis undertaken by CAST regarding Runway Excursions and the potential benefits of on-board technologies that reduce or prevent landing overruns.

2) Air carriers study the feasibility of incorporating these technologies into their specific fleet (both existing airplanes and new purchases) and operations.   Studies should take into account current and potential future availability of systems from manufacturers, with consideration of available systems from the airplane manufacturers and avionic suppliers

3) Air carriers implement systems based on results of their feasibility assessments, where applicable, and report whether or not they intend to incorporate systems in their fleet to airline industry associations.

Target Completion December 2021 (To be reviewed depending on assessment)

APPENDIX I

Runway Excursion DIP 4

Detailed Implementation Plans (DIPs)

Rast No	Safety Enhancement Action	Reference	GSI	Safety Impact	Changeability	Indicator	Priority	Time Frame
RAST-PA/RE/4	Air Traffic Service Provider Training to Prevent Runway Excursions			#	High	Easy	P1	#Short

Safety Enhancement

Enhanced air traffic control training on factors that contribute to the risk of runway excursions such as adverse winds, runway surface conditions and unstable approach.

Action (expanded):

Develop and distribute training guidance materials for Air Traffic Controllers in the PA Region on the contribution of adverse winds, runway surface conditions and unstable approach on the risk of runway excursion
Conduct workshops to gain consensus between regional stakeholders on implementation of training to air traffic service providers
Implement training at air traffic service providers. Develop and conduct CAA surveys regarding the status of the controllers training according to their Oversight Plan and the RST program in international airports.

Statement of Work:

To reduce the risk of runway excursion accidents, air traffic service (ATS) providers in the Pan America (PA) region should develop and implement training for air traffic controllers on the factors that contribute to the risk of runway excursions, including wind conditions, runway conditions, and unstable approaches.

Champion Organization: CANSO

Human Resource: IATA, ALTA, ATS providers, CANSO CAAs, ICAO Regional Offices of NACC and SAM, labour organizations

Financial Resource: To be determined

Relation Current Aviation Community Initiative:

CAST SE-219 RE – Air Traffic Operations –Policies, Procedures and Training to Prevent Runway Excursions
FAA Training module for Air Traffic Controllers (in development)

Performance Goal Indicators:

Goal 1: Achieve 50% fatality risk reduction by 2020 based on 2010 performance, for all part 121 equivalent operations, regarding RE accidents
Indicator: RE fatality risk rate in Pan America as measured by RASG-PA's ASR Team

Goal 2: Reduction in precursor RE events including unstable approaches and tailwind landings

Key Milestones	DIP Milestone	Time
	Output 1 Develop training material	18 months
	Output 2 Conduct Outreach Workshop	12 months
	Output 3 Implement Training at ATS Providers	48 months
	Output 4 Conduct survey on status of controller training	8 month

Potential Blockers: Cost of implementing training

Concurrence from regional regulatory authorities for training revisions

Lack of appropriate ATSP recurrent training to ATCOs

DIP Notes: RASG-PA Annual Safety Report Team (ASRT) will review collected data on a yearly basis. This data will be reflected in the annual RASG-PA Safety Report

PA-RAST/RE/4 Output 1

Description: RASG-PA develops recommendations for training material for ATS providers to train controllers on factors that increase the risk of RE.

Resources: IATA, ALTA, air ATS providers, CAAs, labour organizations

Resource Notes:

Time Line: 18 months

Actions:

1. RASG-PA designate an appropriate working group develop recommendations for air traffic controller training on factors that increase the risk of RE, including wind conditions, runway conditions, and unstable approaches.   The recommendations should draw on the following resources:
   a. FAA ATO training for controllers on RE Risk
   b. CAST SE 219 RE – Air Traffic Operations –Policies, Procedures and Training to Prevent Runway Excursions

2. The working group will develop recommendations on training for air traffic controllers on the following significant factors, among others, that can contribute to the risk of runway excursions:

   a. Adverse winds effects, including but not limited to:

      i. Tailwind effects on airplane ground speed at touchdown and associated stopping distance

      ii. Tailwind effects on airplane handling characteristics and contribution to float and long landing

      iii. Crosswind effects on airplane lateral control in the air and directional control on the runway, particularly when combined with wet or contaminated runway conditions

      iv. The importance of providing pilot reports of wind conditions to departing or approaching airplanes from airplanes of similar size, weight, and configuration

   b. Runway surface conditions, including but not limited to:

        i.   The effect of wet and contaminated runway conditions on airplane braking capabilities and the nonlinear increase in stopping distance associated with decreasing friction

        ii.   The importance of providing pilot reports of runway surface condition to departing or approaching airplanes from airplanes of similar size, weight, and configuration

    c.   Unstable approach factors, including but not limited to:

        i.   Air traffic controller understanding of generally applicable approach gates that facilitate stable approaches (e.g., "10,000 ft and 250 kts @ 30 nm from the airport")

        ii.   Holding airplanes high or fast until late in the approach to facilitate air traffic flow into airports

        iii.   Arrivals with multiple speed and altitude crossing restrictions and their impact on flight deck workload and airplane performance

        iv.   Late clearances or runway changes and their impact on flight crew planning and use of automation in executing approaches

3.   RASG-PA will distribute recommendation to ATS providers in the PA region through TBD, utilizing.
    a.   DG meetings (Working Papers for SAC and NACC)
    b.   ALTA Safety Summit (plenary and break out session)
    c.   CAA Air Traffic Oversight
    d.   Others

4.   Through IATA/ALTA Surveys, determine AQP programs in the region

Target Completion 18 months after RASG-PA approval

PA-RAST/RE/4 Output 2

Description: Conduct a series of joint industry-government workshop in the PA region to develop consensus between air carriers, manufacturers, Civil Aviation Authorities, and other stakeholders on implementation of proposed training in the region.

Resources: IATA, ALTA, air ATS providers, CAAs, labour organizations

Resource Notes:

Time Line: 12 months

Actions:
1.   RASG-PA identifies target audience for the workshop
    a.   ATS providers
    b.   CAA ATS oversight offices
    c.   Labour Organizations
    d.   Others

2. RASG-PA sponsors a workshop to develop a consensus industry-government approach for implementing improved flight crew landing training in the PA region, including:
   a. Prepare executive summary for both CAAs/certificate managers and ATS providers
   b. RASG-PA communication of the CAST RE study findings and results
   c. RASG-PA review of the RE Safety Enhancement Team (SET) accident set and fatality risk methodology
   d. CAA involvement and buy-in for approval of training programs
   e. Others
3. Workshop participants develop working agreements between CAAs and air carriers to streamline implementation and approval of revised training.
   a. Draft working agreement template
   b. Develop a prototype (willing CAA and air carrier to enter agreement)

Target Completion 12 months from RASG-PA approval

PA-RAST/RE/4 Output 3

Description: ATS provider training programs include controller training on factors that can increase the risk of RE.

Resources: ATS providers, CAAs, labour organizations

Resource Notes:

Time Line: 48 months

Actions:

1) ATS providers implement training for air traffic controllers on the significant factors that that can contribute to the risk of runway excursions (see Output 1).

Target Completion 48 months from completion of OP1

PA-RAST/RE/4 Output 4

Description: Develop and conduct CAA surveys regarding the status of the controllers training according to their Oversight Plan and Runway Safety Program at international airports.

Resources: CAAs, Regional Offices

Resource Notes:

Time Line: 8 months

Actions:

1) Develop a regional survey to the Civil Aviation Authorities regarding:

   a. Verify if regulations and procedures of Authority have included the oversight of training activities of controllers and whether this training has included runway safety considerations.

   b. Status of Oversight Plan of ANS providers according to:

      i. The ANS provider SMS (international aerodromes) has established a Safety Performance Indicator (SPI) aimed at improving runway safety including a risk analysis on Runway Excursion;

      ii. The training program is retro-fed by the Runway Safety Program.

   c. The Runway Safety Program at international/main airports includes the prevention of runway excursion incidents

   d. The Runway Safety Program includes incidents prevention that provides guidelines and training in ATC simulators

2) Circulate the survey among CAAs and collect information

3) Prepare a report with the initial diagnosis of the results of the survey and provide recommendations if applicable.

Target Completion 8 months after completion of OP3

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SAFETY DATA
An Enabler to an Informed Safety Policy

Developed by:
Air Navigation Bureau
Aviation Safety, International Civil Aviation Organization

TWENTY FIRST PAN AMERICA — REGIONAL AVIATION SAFETY TEAM MEETING (PA-RAST/21)
14 - 16 October 2015
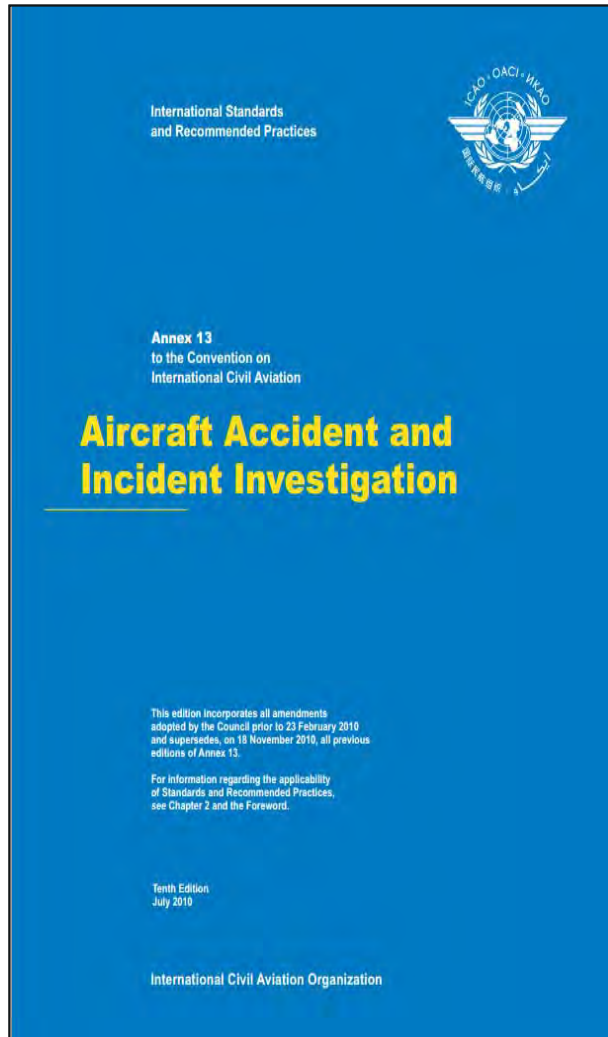
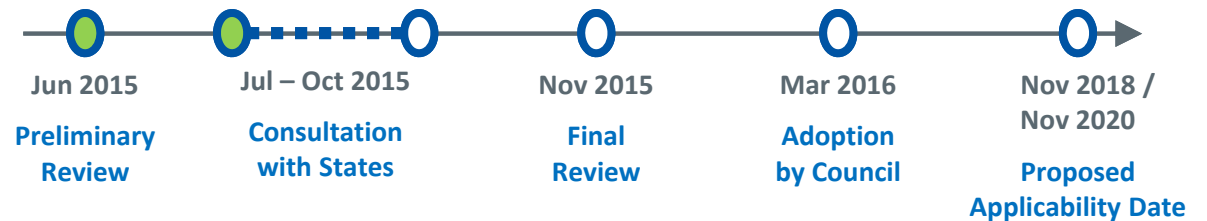# *Safety Information Protection*

Amendment to Annex 13

- **April 2014**
  - Group of Experts on Protection of Accident and Incident Records (GEPAIR) was established to enhance provisions and guidance material related to protection of certain accident and incident records, and flight recorder recordings in routine operations

Jan 2015	Mar – Jun 2015	Sep 2015	Mar 2016	Nov 2016
Preliminary Review	Consultation with States	Final Review	Adoption by Council	Proposed Applicability Date
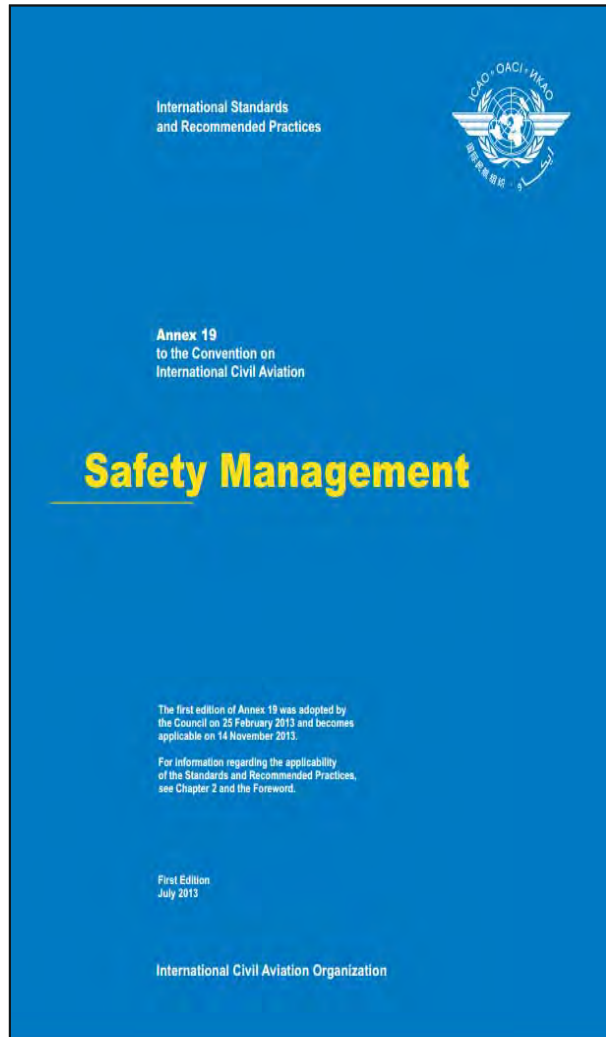
Safety Information Protection

Amendment to Annex 19

- **26 – 27 March 2015**
  - Considering feedback from the HLSC, States and International Organizations, experts from the Safety Management Panel (SMP) and Safety Information Protection Task Force (SIP TF) held a meeting, which led to the development of a consolidated proposal related to the protection of safety data and safety information.

Jun 2015	Jul – Oct 2015	Nov 2015	Mar 2016	Nov 2018 / Nov 2020
Preliminary Review	Consultation with States	Final Review	Adoption by Council	Proposed Applicability Date

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Success Factors

Operational Data

State Safety Programme (SSP)

Safety Management Systems (SMS)

Identify Hazards

Assess Safety Risks

Develop Mitigation Strategies

Monitor and Measure Safety Improvements

ICAO UNITING AVIATION   NO COUNTRY LEFT BEHIND

Challenges

Access to
sufficient
information
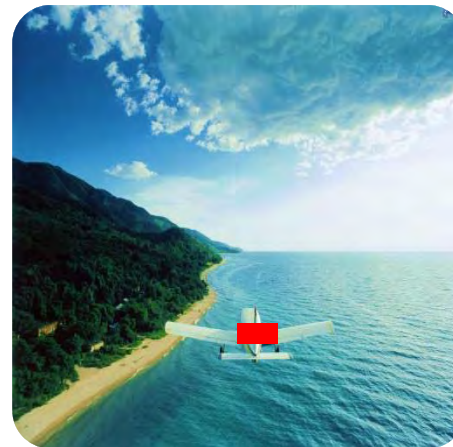
De-identifying
information for
low levels of
aviation activity

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Strategies

Aggregation of Safety Data

Exchange of Safety Information

Safety Data - An Enabler to an Informed Safety Policy

INITIATIVES

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iSTARS 2.0 (SPACE)

ICAO's information exchange platform

OVER 23

Applications in iSTARS / SPACE for Safety Analysis and Information

MORE THAN 2000+

Users registered in iSTARS / SPACE

Some of the Apps Available
- Airport Punctuality
- SSP Gap Analysis
- Fleet Information
- PBN Implementation Progress
- Safety Audit Information
- Terrain – Elevation Indicator for Major Airports
- Weather Stats
- And more…

http://www.icao.int/safety/istars

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Technology &
Infrastructure
Needs &
Business Case
(ASBUs, PBN)   A-PAINT

Import /
Export Risk   SOLUTION
CENTER

SCAN
Safety
Collaborative
Assistance
Network

SOCIO-ECONOMIC
BENEFITS OF AVIATION

NEEDS TODAY   COST

Money   REAL COST OF
IMPLEMENTATION
Infrastructure
$ ↘

People

ENHANCED SAFETY

3.4%   58.1
of global GDP   million

ECONOMIC DRIVER

State Audit Results   **State Risk Profile**

GCDB
Global Cost
Database

Finding   Corrective   Best
Action   Practices

People
Structure

CAA-HR
Toolkit

ICAO GSI
Database   Regional
Dashboards

**Reporting on current
State risks**

**Prioritizing risks &
providing corrective actions**

**Providing practical solutions
to prioritized risks**

*Enhancing
implementation by
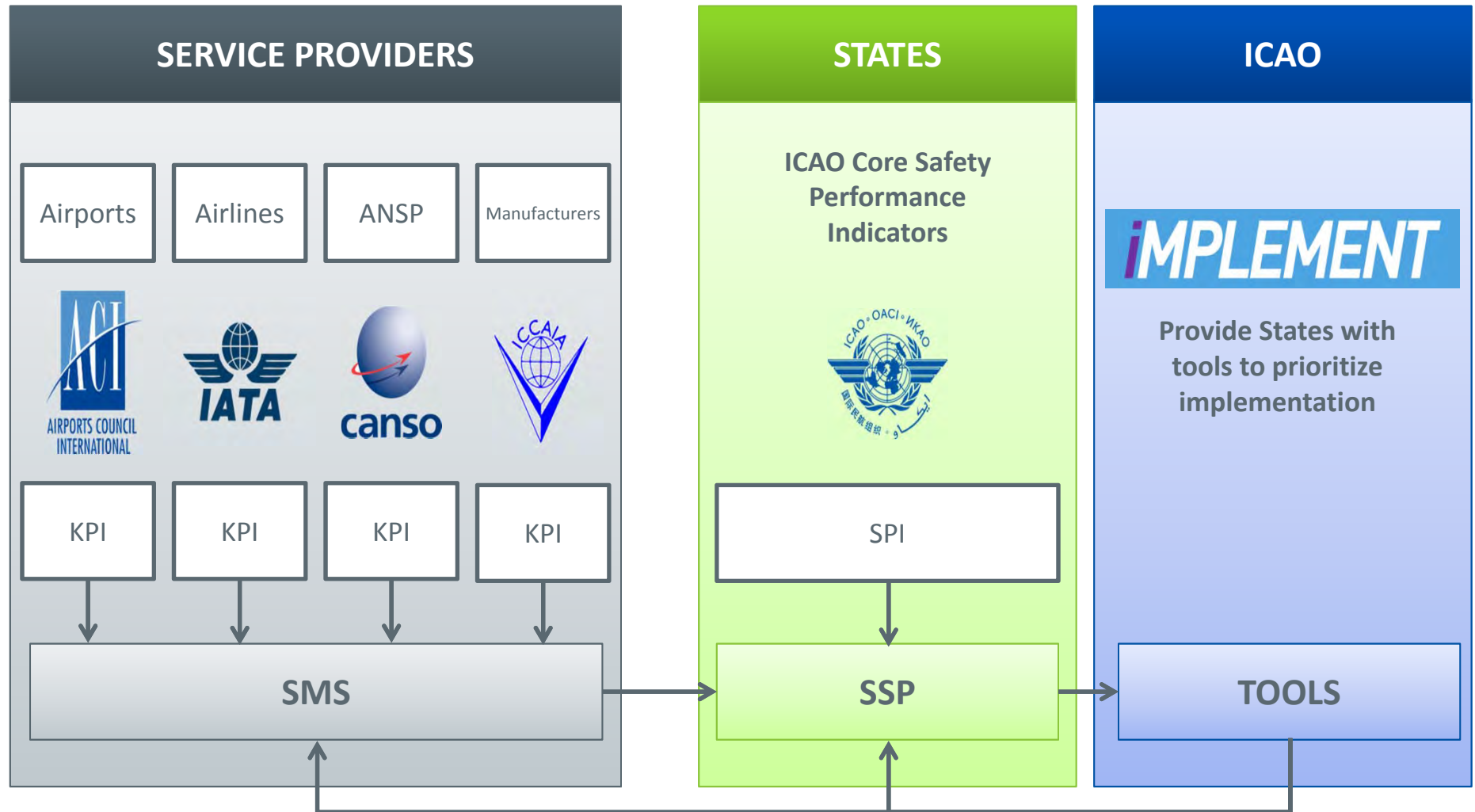prioritizing improvement
activities based on data*

*Showing the economic
and social impact of
aviation development*

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SERVICE PROVIDERS

| Airports | Airlines | ANSP | Manufacturers |

ACI AIRPORTS COUNCIL INTERNATIONAL

IATA

canso

ICCAIA

| KPI | KPI | KPI | KPI |

SMS

STATES

ICAO Core Safety Performance Indicators

SPI

SSP

ICAO

iMPLEMENT

Provide States with tools to prioritize implementation

TOOLS
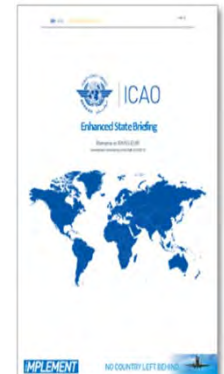
Safety Information Monitoring Service (SIMS)

- ICAO SIMS supports States and service providers in the process of collecting, monitoring, visualizing and thus, sharing progress of their State Safety Programme (SSP) and Safety Management System (SMS).

- States, International Organizations and service providers who are willing and able to contribute to the design and development of the early stages of this effort should submit their expression of interest through the website

http://www.icao.int/safety/Pages/Safety-Information-Monitoring-Service.aspx

**REGULAR AVIATION SAFETY GROUP – PAN AMERICA
(RASG-PA)**

RASG-PA TACTICAL GO-TEAM

EXECUTIVE REPORT
DRAFT

SAN JOSE, COSTA RICA, 15 JULY 2015

<table>
<tr><td colspan="4" align="center">**RASG-PA TACTICAL GO-TEAM**
EVENT REPORT
EXECUTIVE SUMMARY</td></tr>
<tr><td>Event Report by:</td><td></td><td>Date:</td><td>8 October 2015</td></tr>
<tr><td>Dates of Event:</td><td colspan="3">15 July 2015</td></tr>
<tr><td>Place of Event:</td><td colspan="3">DGAC HQs, San Jose, Costa Rica</td></tr>
<tr><td>Title of Event</td><td colspan="3">RASG-PA Tactical Go-Team Visit</td></tr>
<tr><td>Objective, Purpose and Scope of Event:</td><td colspan="3">The RASG-PA Tactical Go-Team visited Costa Rica to assist the Civil Aviation Authority (CAA) with the mitigation strategy in order to reduce unstabilized approaches at the MROC International Airport.

As background, Costa Rica presented a Working Paper at the RASG-PA/8 Annual Plenary Meeting held in Medellin, Colombia, on 25 June 2015, on the activities executed by the DGAC,as result of the safety information obtained from the Flight Operations Quality Assurance (FOQA) Data Sharing (PASO) Programme, particularly with unstabilized approaches to Runway 25 at MROC.

In this regard and as per *RASG-PA/ESC/23/D/1*, Costa Rica requested assistance from a multidisciplinary RASG-PA Tactical Go-Team to visit Costa Rica and present the facts to the DGAC appropriate units and to PASO members in accordance with the:

CONCLUSION
RASG-PA/8/6   *"RASG-PA TACTICAL GO-TEAM" VISIT TO COSTA RICA TO ASSIST THE CIVIL AVIATION AUTHORITY WITH THE MITIGATION STRATEGY FOR REDUCING UNSTABILIZED APPROACHES AT SAN JOSE INTERNATIONAL AIRPORT (MROC)*

    That a "RASG-PA Tactical Go-Team" visit Costa Rica to assist the civil aviation authority with the mitigation strategy for reducing unstabilized approaches at MROC International Airport.

Considering that the PA-RAST/20 Meeting was held in San Jose, Costa Rica, from 14 to 16 July 2015, experts from ALTA, CAST and IATA presented the FOQA data on unstabilized approaches at the MROC runways 07/25 to the DGAC and PASO Programme Members.</td></tr>
<tr><td>Participants</td><td colspan="3">The list of participants is at the **Appendix**.</td></tr>
<tr><td>Event Results</td><td colspan="3">The DGAC of Costa Rica took note of the provided information which was considered very valuable and important in order to continue with the mitigation strategies for the unstabilized approaches at MROC.</td></tr>
<tr><td>Follow-up actions</td><td colspan="3">The PA-RAST will continue monitoring the MROC FOQA data and will inform the Costa Rica representative for RASG-PA.</td></tr>
</table>

LIST OF PARTICIPANTS

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— END —