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International Civil Aviation Organization
CAR/SAM Regional Planning Implementation Group (GREPECAS)
Sixteenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/16)
(Punta Cana, Dominican Republic, 28 March to 1 April 2011)

Agenda Item 2: Flight Safety and RASG-PA activities

TACKLING THE GLOBAL ISSUE OF RUNWAY SAFETY

(Presented by the Secretariat)

SUMMARY

The ICAO Runway Safety Programme has evolved to include the prevention and mitigation of RI, RE and other occurrences related to runway safety. ICAO has developed Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services (PANS), guidance material and toolkits to address various aspects of runway safety and has held a series of seminars to raise awareness. Historically, these runway safety efforts were made within individual operational specialties. However, the increasingly interconnected nature of specialties in addressing modern aviation issues requires a more holistic approach. The ICAO Runway Safety Programme is envisioned to provide a forum to include at least regulators, aircraft operators, air navigation services providers, aerodrome operators and aircraft manufacturers to holistically address runway safety issues across operational specialties.

This paper, while providing an update on ICAO Runway Safety Programme, requests States to take initiatives to enhance runway safety by adopting measures such as the establishment of runway safety programmes to prevent and mitigate runway-related accidents and serious incidents.

Action by GREPECAS/16 is contained in paragraph 4.

1. INTRODUCTION

1.1 A survey by the Flight Safety Foundation of all turbine aircraft accidents for the years 1995 through 2008 has shown that 431 accidents out of 1429 total accidents (30 per cent) were runway excursions (RE) and runway incursions (RI). Of those 431accidents, 417 (97 per cent) were RE with the remaining 14 (3 per cent) being RI. Forty-one (10 per cent) were fatal with 973 total fatalities. Of the 41 fatal accidents, 34 (83 per cent) were RE with the remaining 7 (17 per cent) being RI. Of the 973 fatalities, 712 (73 per cent) were attributable to RE and 261 (27 per cent) were attributable to RI. The much greater number of RE accidents has resulted in a substantially greater number of fatalities, but the 27 per cent of fatalities attributable to RI when RI represents only 3 per cent of all runway accidents, shows the likelihood of higher severity accidents when they do occur.

1.2 The trend data for both RE and RI accident indicates that there has been no substantial global improvement in the past fourteen years.

1.3 The ICAO Accident/Incident Data Reporting (ADREP) system indicates that RE are the highest single occurrence category of all accidents over the last 10 years for all commercial and general aviation operations of fixed-wing aircraft above 5 700 kg certified maximum take-off mass.

1.4 Potential prevention strategies for RE and RI must be developed with the cooperation of several operational specialities, to include at least regulators, aircraft operators, air navigation services providers, aerodrome operators and aircraft manufacturers. These areas should also be included in the ICAO Runway Safety Programme.

2. ICAO RUNWAY SAFETY PROGRAMME

2.1 ICAO's dedicated focus on runway safety efforts began in 2002 with an education and awareness campaign that consisted of a series of seminars in ICAO regions to disseminate information on the prevention of RI, the development of guidance material and a runway safety toolkit. As the frequency and severity of RE became more apparent it was considered appropriate to address all runway safety issues in a comprehensive manner. Therefore, the ICAO Runway Safety Programme has been expanded to cover both RE and RI, as well as other occurrences and activities related to runway safety. As part of the evolution of this programme, we are now working towards a multidisciplinary approach to improving runway safety outcomes worldwide.

2.2 As a component of ICAO's Runway Safety Programme, ICAO will convene a Global Runway Safety Symposium (GRSS) in Montreal, 24 – 26 May, 2011. The intent of the GRSS is to identify a common framework, and coordinate a global effort, for improving runway safety, and we have partnered with various international organisations to help us achieve this. The GRSS will also set the stage for a subsequent series of regional ICAO Runway Safety Workshops over the next three years, and we will be working with our partners and the regional offices to deliver these workshops. More information about the GRSS can be found at: www.icao.int/GRSS2011/.

2.3 Further, technical officers from various sections here in head office, including ISM, OPS, AGA, Meteorology, CNS, AST and ATM Sections, are working together to examine our runway safety-related provisions across aviation professional domains.

Runway excursion

2.4 ICAO's runway safety efforts currently underway in regard to RE include development of:

a) provisions for runway end safety areas (RESA) and associated mitigating measures;

b) provisions for runway friction measurement and surface condition assessment and reporting, and development of a circular providing runway friction-related information and guidance;

c) provisions that promote stabilized approaches, including performance-based navigation (PBN), air traffic control (ATC) procedures and visual aids, etc.;

d) provisions for standardized visual aids providing consistent situational awareness for flight crews; and

e) a joint ICAO/IATA Runway Excursion Risk Reduction Toolkit providing a multi-disciplinary perspective.

2.5 ICAO's runway safety efforts in regard to RI since 2002 include development of:

a) SARPs, PANS and guidance material for the integrated use of visual aids to help prevent RI;

b) guidance on the use of appropriate ATC procedures and surface movement and guidance control systems (SMGCS) and advanced surface movement and guidance control systems (A-SMGCS), including surface movement radar, ADS-B and multilateration and other possible sensors;

c) guidance material on the prevention of RI and a runway safety toolkit;

d) standardized controller-pilot-driver communications;

e) standardized RI terminology and improvements in the collection of RI data; and

f) human factors considerations of clearance compliance.

Other runway-related safety occurrences and activities

2.6 ICAO's runway safety efforts and activities currently underway include:

a) development of provisions concerning the regular inspection, monitoring and maintenance of movement areas, including runways, so that runway pavements are kept clear of foreign object debris (FOD);

b) expansion of bird strike hazard reduction provisions to include all wildlife;

c) development of provisions concerning the use of the new performance level "C" foam for aircraft rescue and fire fighting; and

d) development of provisions relating to the reporting and forecasting of meteorological conditions (precipitation, fog and volcanic ash deposition), and reporting of crosswind and tailwind components of wind and wind shear warnings at aerodromes.

3. FUTURE WORK

3.1 ICAO's future runway safety efforts will include:

a) development of provisions for a global reporting format, including common taxonomy, for runway surface conditions and their correlation to aircraft braking performance to help prevent RE;

b) development of provisions to address RI and RE from an aerodrome design perspective;

c) study and adoption of technological solutions to RI and RE;

d) development of a standard TRAINAIR training package on the prevention of RI;

e) continued development of training strategies for flight crews in threat and error management, especially as it relates to unstabilized approaches;

f) study of human factors in relation to RE;

g) development of guidance on the use of automated FOD detection systems;

h) consideration of including runway safety in the development of the PANS-Aerodromes document; and

i) a gap analysis of the ICAO Runway Safety Programme to identify any areas that require strengthening and to examine the need for aggregation and integration of multiple safety data sources that will lead to the development and implementation of data-based mitigation strategies.

3.2 An outcome of the recent High-level Safety Conference (2010) was a recommendation for States to support the holding of regional runway safety summits. ICAO is planning to organize a global runway safety symposium as mentioned in paragraph 2.3 above, which in addition to strengthening the implementation of ICAO provisions for the prevention and mitigation of RE, RI and other runway-related occurrences, will assist in the initiation of these regional runway safety summits.

4. ACTION BY GREPECAS/16

4.1 The meeting is invited to:

a) note ICAO work programme in enhancing the Runway Safety Programme;

b) urge States who have not yet done so, to establish a runway safety programme to prevent and mitigate runway-related accidents and serious incidents.

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