



WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 4: Implementing the global air navigation system and the role of planning and implementation regional groups PIRGS

4.4: Implementing search and rescue (SAR) processes and procedures

IMPLEMENTING SEARCH AND RESCUE (SAR) PROCESSES AND PROCEDURES

(Presented by the Secretariat)

EXECUTIVE SUMMARY

This paper outlines the improvements that are needed in the area of search and rescue (SAR) and the impact of the Global Aeronautical Distress and Safety System (GADSS).

Action: The Conference is invited to agree to Recommendation 4.4/x: Search and rescue (SAR) and the Global Aeronautical Distress and Safety System (GADSS) in paragraph 3.1.

<i>Strategic Objectives:</i>	This working paper relates to the Safety Strategic Objective.
<i>Financial implications:</i>	<i>Impact for the aviation community:</i> The improvement of the SAR system as a whole is mostly based on enhanced cooperation agreements which will have marginal financial implications but will allow better use of existing resources. Implementation of Standards and Recommended Practices (SARPs) on aircraft tracking and distress tracking will have a significant impact on on-board equipment and ground infrastructure. <i>Impact for ICAO:</i> The ICAO activities referred to in this working paper will continue over the next triennia, additional resources are required, both financial and human, to support ICAO's efforts in the highly specialized areas associated with SAR.
<i>References:</i>	Annex 6 — <i>Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes</i> Annex 11 — <i>Air Traffic Services</i> Annex 12 — <i>Search and Rescue</i> Doc 9750, <i>Global Air Navigation Plan</i> Doc 10075, <i>Assembly Resolutions in Force</i> GADSS Concept of Operation v 6.0

1. INTRODUCTION

1.1 Search and rescue processes and procedures are best implemented through regional cooperation and collaboration. The implementation of new Standards relating to the location of an aeroplane in distress in support of the Global Aeronautical Distress and Safety System (GADSS) will enhance aviation safety. However, the additional information made available by aircraft tracking needs to be leveraged to further improve SAR processes and enhance coordination between the various SAR actors.

1.2 Members of the aviation community have different expectations of the air navigation system in various key performance areas. For search and rescue (SAR), these expectations are extremely high, especially when an accident occurs.

1.3 The performance of SAR, although mostly measured in times of urgency, depends largely on the organization of SAR services and preparations undertaken before any SAR operations take place and is based on considerable planning and coordinated approaches. It is supported by local, regional or global collaborative frameworks, which are aimed at making the best use of the evolving air navigation system, based on SAR-specific operational scenarios and requirements. Planning and implementation regional groups (PIRGs) can provide direction to national plans, thus contributing to the achievement of global performance. PIRG actions therefore have a direct relevance for SAR.

2. DISCUSSION

2.1 Overall strategy: regional cooperation and collaboration

2.1.1 The 38th Session of the Assembly resolved (Resolution A38-12, Appendix H) that Member States should, in cooperation with other States and ICAO, seek the most efficient delineation of search and rescue regions and consider, as necessary, pooling available resources or jointly establishing a single SAR organization to be responsible for the provision of search and rescue services within areas extending over the territories of two or more States or over the high seas.

2.1.2 The Assembly further resolved that remedies to any inadequacies in the provision of efficient search and rescue services, including over the high seas, should be sought through negotiations with States which may be able to give operational or financial assistance in search and rescue operations, with a view to concluding agreements to that effect.

2.1.3 The action called for in Assembly Resolution A38-12 is best initiated at the level of the PIRGs. Cooperation can be initiated and reinforced thanks to international symposiums such as the High Level Conference on the Improvement of Search and Rescue (SAR) Services in Africa, held from 10 to 12 April 2017 in Lomé, Togo. The general organization of SAR needs to be enhanced to ensure that when an accident occurs, the search for survivors is never hampered by factors that could have been avoided through, for example, the conclusion of regional cooperation agreements.

2.1.4 Cooperation agreements can encompass various levels of the organizations usually involved in SAR. They should be concluded at the State level, as well as at the operational level to ensure cooperation between operational units involving, when necessary, military authorities who often play an important role in SAR operations. Examples of such agreements are the Asia Pacific (APAC) Search and Rescue (SAR) Plan, developed by the APAC SAR task force (APSAR/TF) and working group (APSAR/WG), or the European (EUR) SAR Plan developed by the EUR SAR/TF. They can also be

comprehensive bilateral agreements specifying the cooperative arrangements supporting overall SAR coordination.

2.1.5 The implementation of the Standards on aircraft tracking and location of an aeroplane in distress supporting the GADSS offers the opportunity for all PIRGS to re-evaluate SAR-related regional agreements and cooperation mechanisms in their regions. The establishment of procedures and processes which takes full advantage of the new SARPS in Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes* will facilitate discussions and overcome the shortcomings of SAR organization, notably the absence of cooperation agreements to facilitate the organization and the conduct of SAR operations. Such agreements will ensure efficient information exchange between air navigation service providers (ANSP) and rescue coordination centres (RCC), as well as with military authorities.

2.2 Global Aeronautical Distress and Safety System (GADSS)

2.2.1 One of the many reasons why aviation maintains a high level of safety is the willingness to learn important lessons from rare events. The tragedies of Malaysia Airlines Flight 370 and Air France Flight 447 have highlighted limitations in the current air navigation system that have hampered timely identification and localization of aircraft in distress. This has significantly hindered effective search and rescue efforts, recovery operations and subsequent accident investigations.

2.2.2 The GADSS and the aircraft tracking Standards in Annex 6 aim to enhance the effectiveness of current SAR services by addressing a number of key improvement areas in all phases of flight and under all circumstances, including distress. Aircraft operators will be able to: maintain an up-to-date record of aircraft progress and, in case of a crash, forced landing or ditching; provide information on the last known aircraft position that will help in the timely search for survivors and aircraft wreckage; and assist in retrieving flight data.

2.2.3 Additional provisions and procedures will be required to support the recently adopted Standards on aircraft tracking, to complete GADSS implementation and also to ensure that SAR services can take full advantage of these new sources of information related to the last known aircraft position. Due consideration should also be given to the impact of additional information on aircraft tracking and distress tracking on SAR alert phases. Updated information on GADSS activities can be found at: <https://www.icao.int/safety/globaltracking/Pages/Homepage.aspx>.

2.3 Implementation of GADSS in support of SAR

2.3.1 GADSS will improve the effectiveness of the current alerting procedures for SAR as it will ensure that aircraft position is reported, in normal circumstances, every fifteen minutes or less and every minute when the aircraft is in distress. But the GADSS will also facilitate accident investigation as it will enable a rapid location of the accident site and will therefore also enable a faster recovery of the flight recorder data.

2.3.2 **Enablers** — The capacity to exchange aircraft position information and to make it available in a timely manner is directly dependent on system-wide information management (SWIM) in general, and flight and flow information for a collaborative environment (FF-ICE) in particular.

2.3.3 **Supporting network/infrastructure** — The capacity to exchange aircraft position information between aircraft operators, ANSPs and RCCs, as well as military authorities and others, will rely on an information management system ensuring the timely availability of data to the appropriate stakeholders.

2.3.4 **Deployment and implementation considerations** — SAR operations are often a multinational response, predicated on the establishment of robust coordination mechanisms at the level of States, ANSPs, and RCCs.

3. **CONCLUSION**

3.1 The expectations for SAR organizations are extremely high and their performance is largely dependent on the organization of SAR services and the implementation of regional cooperation and collaboration. The implementation of new Standards in support of GADSS will not only help to further enhance aviation safety, it will also provide an opportunity to review and enhance existing SAR procedures. The Conference is therefore invited to agree to the following recommendation:

Recommendation 4.4/x: Search and rescue (SAR) and the Global Aeronautical Distress and Safety System (GADSS)

That the Conference:

- a) urge States to review their current organization of search and rescue (SAR) services, and establish bilateral and regional agreements facilitating the provision of SAR;
- b) urge ICAO to emphasize to States the importance of implementing the Standards and PANS provisions related to aircraft tracking and to the location of an aeroplane in distress which support the Global Aeronautical Distress and Safety System (GADSS); and
- c) request ICAO to organize regional SAR seminars/workshops to facilitate implementation of the Global Aeronautical Distress and Safety System (GADSS).

— END —