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## **SOUTH AMERICAN AIG REGIONAL COOPERATION MECHANISM (ARCM)**

### **FIFTH AIG AUTHORITIES MEETING** (Medellín, Colombia, 03 to 05 October 2018)

#### **Agenda item 6: Study and analysis of the regulatory and operational framework, and of the recommendations drawn from investigations of accidents or incidents during instruction flights (general aviation) occurred in the SAM region (ARCM States)**

(Working paper presented by the Instruction Flight Accidents Task Force)

#### **Summary**

This working paper analyzes the operational and regulatory context, as well as the recommendations drawn from the investigations of accidents and incidents occurred during instruction flights.

The result of the activities conducted by the task force, presented in the AIGSAM/5 meeting, has the purpose of allowing the South American States to address the deficiencies detected in the above-mentioned analysis. The result of the task shall be forwarded to the SAM States by means of the fast communication mechanism, so that they are applied by the affected States, if appropriate.

#### **References**

- Aeronautical Regulations of each State.
- Guidance material for flight instruction of each Aeronautical Authority.
- Instruction flight accidents investigation reports.
- ARCM SDCPS

#### **Experts in charge of the task**

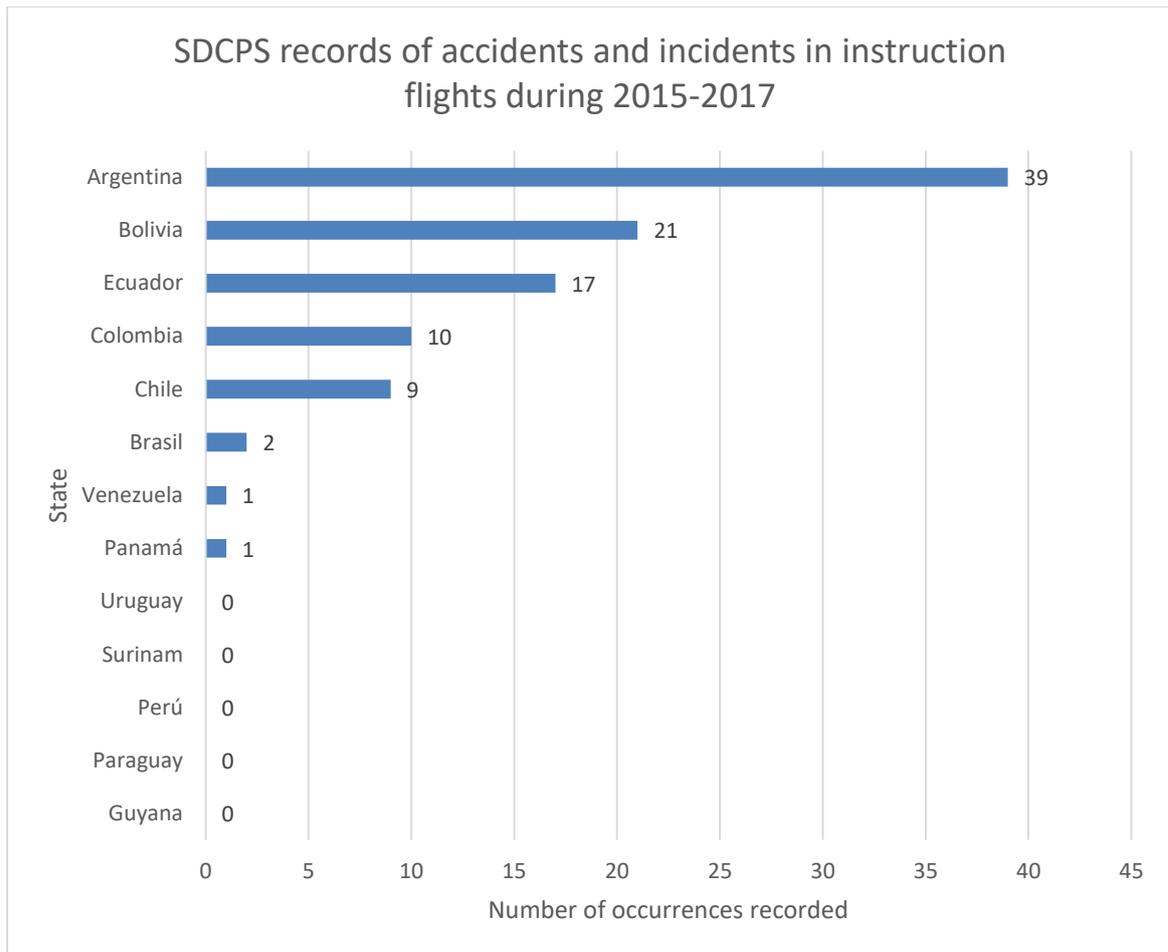
Cesar Araya (rapporteur) - Chile  
Pablo Reynoso - Argentina  
Leandro Goncalves - Brazil  
Javier Perdomo Ramírez - Colombia  
Rafael Vivas Carrasquel - Venezuela

## **1. Guidelines for the task**

- 1.1 Analysis of the current situation in the South American region, in relation to the accidents/incidents, occurred during instruction flights.
- 1.2 The conduction of an ARCM survey on the number of occurrences and the regulatory framework in each State.
- 1.3 Guidance material in each State regarding the instruction flights; guidance material for private pilot and commercial pilot rating; guidance material for flight instructor rating; guidance material for flight inspectors of the aeronautical authority.
- 1.4 Identification of common problems, related to this activity in the SAM region.
- 1.5 Analysis of the most important recommendations, of regional applicability, issued by each AIG organization during the last 3 years. Recommendation proposal at the regional level for the ARCM.
- 1.6 Analysis of the regulatory framework at the State and regional levels (LAR), and verifying whether a modification through the ARCM is appropriate.
- 1.7 Creation of a WP to be presented in the 5th AIG meeting, with the summary of the work done, results obtained and presentation of the proposals at the regulatory framework level, recommendations and actions to be taken.

## **2. Results obtained**

- 2.1 For this working paper, an analysis was conducted of the accidents and serious incidents occurred in the ARCM member States, during the 2015-2017 period. To this end, the ARCM SDCPS was consulted, and the result of such consultation was that during the 2015-2017 period, a total of 1291 occurrence was recorded, 100 whereof occurred during flight instruction operations, i.e., a total of 7.8%.
- 2.2 On the other hand, a survey was conducted to the States regarding the accidents and incidents occurred in instruction flights, during the period of interest (2015-2017). This survey was answered only by Argentina, Chile, Colombia, Ecuador, and Paraguay, and it showed a total of 69 occurrences, i.e., a 69% of all the recorded occurrences in the ARCM ACDPS was officially informed.
- 2.3 As a result, it was decided that the 100 occurrences incorporated in the ARCM SCDPS are considered for the analysis, whose distribution by State is shown in the following figure:

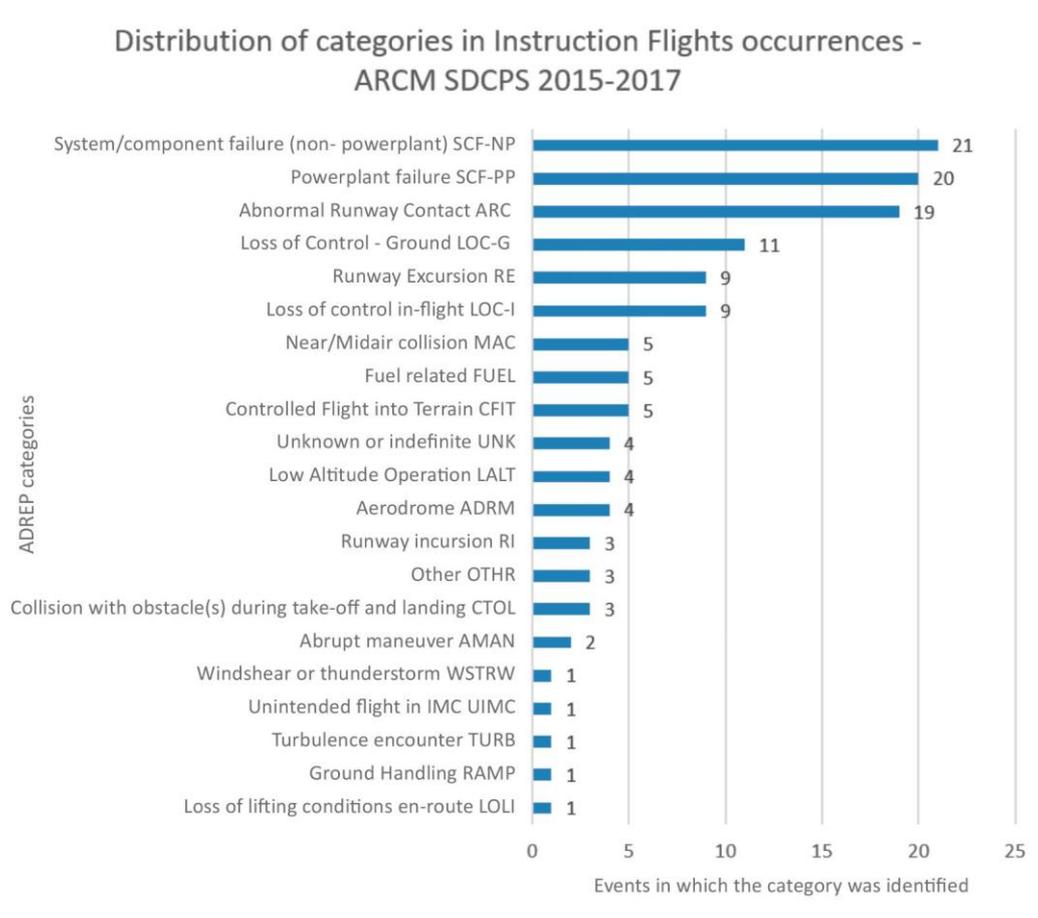


**Figure 1. Accidents and incidents in instruction flights distribution by States**

2.4 Furthermore, an analysis was conducted of the occurrences per categories corresponding to the standards of the ADREP taxonomy, which showed that the main categories were related to technical aspects (failure of components or non-engine system, especially related to burst tires and gear collapse, or engine failure), as well as those that may arise from unstabilized approaches (Abnormal Runway Contact, loss of control on surface and runway excursion) and those arising from loss of control in-flight, which generally occur at low altitudes and low speeds, especially during approach.

2.5 The following figure shows the occurrences according to the ADREP categories<sup>1</sup>:

<sup>1</sup> Note: It is necessary to consider that an occurrence may be classified in more than one category. Hence, in the study case, a total of 132 categories were identified among the 100 cases analyzed.



**Figure 2. ADREP categories in instruction flights occurrences during 2015-2017**

2.6 The States were consulted regarding the Safety Recommendations issued as a result of the investigations of accidents and incidents occurred during flight instructions. Only the States of Argentina and Chile provided information on such actions arising from the investigations, therefore, there was no representative data to delve into the analysis.

2.7 Notwithstanding the foregoing, and based on the experience in investigation and flight instruction of the task force partaking in the Working Paper, with the purpose of seeking the improvement of safety in the States of the SAM region, it is deemed necessary to generate recommendations oriented to mitigate the occurrences in the main ADREP categories identified in the cases of interest.

2.8 In relation to the categories associated with failures in the System/component failure or malfunction (non- powerplant) (SCF-NP) and Powerplant failure or malfunction (SCF-PP), it is recommended that the quality control processes during the aeronautical maintenance tasks are strengthened.

2.9 Regarding the categories Abnormal Runway Contact (ARC), Loss of Control - Ground (LOC-G) and Runway Excursion (RE), it is recommended that the States of the SAM region strengthen the instruction of stabilized approaches.

- 2.10 Regarding the category Loss of control in-flight (LOC-I), it is recommended that the States consider reinforcing their training programmes in the areas related to aircraft aerodynamic capacities, especially during low-altitude and low-speed flights, such as traffic patterns.
- 2.11 From the analysis of the cases incorporated into the ARCM SDCPS, referred to above, it was not possible to establish the participation of aspects directly related to the regulatory framework of the States, in the occurrence of the events. On the contrary, the information available would indicate that the occurrences are exclusively related to the execution of operation procedures during the instruction activities.
- 2.12 In this regard, and considering that only Argentina and Chile provided information regarding the regulatory framework for instruction flights, it is feasible to note that both States have norms and regulations that refer to the issuing of licenses, to the instruction procedures and in general, to the development of the flight instruction activity. In this regard, and considering that the information on the aviation occurrences in the study would not be related to the regulatory framework for the development of the flight instruction, delving into the analysis of the regulatory framework is out of the reach of the ARCM and, what is more, it is a responsibility of the aeronautical authority of each State.

### **3. Conclusions**

- 3.1 The representatives of the AIG authorities of the ARCM member States are invited to:
- a) Take note of the content in this Working Paper.
  - b) Promote the development of actions at the level of each State, aimed at reinforcing the procedures of quality control in the maintenance of engines, systems and components, strengthen the instruction on stabilized approaches and about the consideration of the aerodynamic capacities during operations at low altitude and low speed, all this, in order to prevent occurrences in the main categories of interest for instruction flights.
  - c) Encourage their respective organizations to participate actively in the development of studies on accidents and incidents of regional scope, in order to improve the availability, quantity, and quality of data for analysis purposes.