



WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE B

- Agenda Item 8: Emerging safety issues**
8.1: Measures to proactively address emerging issues;

PREVENTING OBJECTS FALLING OFF AIRPLANES

(Presented by Japan)

EXECUTIVE SUMMARY

This paper presents various measures that were taken to prevent objects falling off airplanes in Japan. The number of objects falling off airplanes is increasing globally. It is important to make global efforts to solve the problem of objects falling off airplanes.

Action: The Conference is invited to:

- a) request ICAO to collect and analyze data of objects falling off airplanes from the states and industry; and
- b) request ICAO to develop guidance materials to prevent objects falling off airplanes.

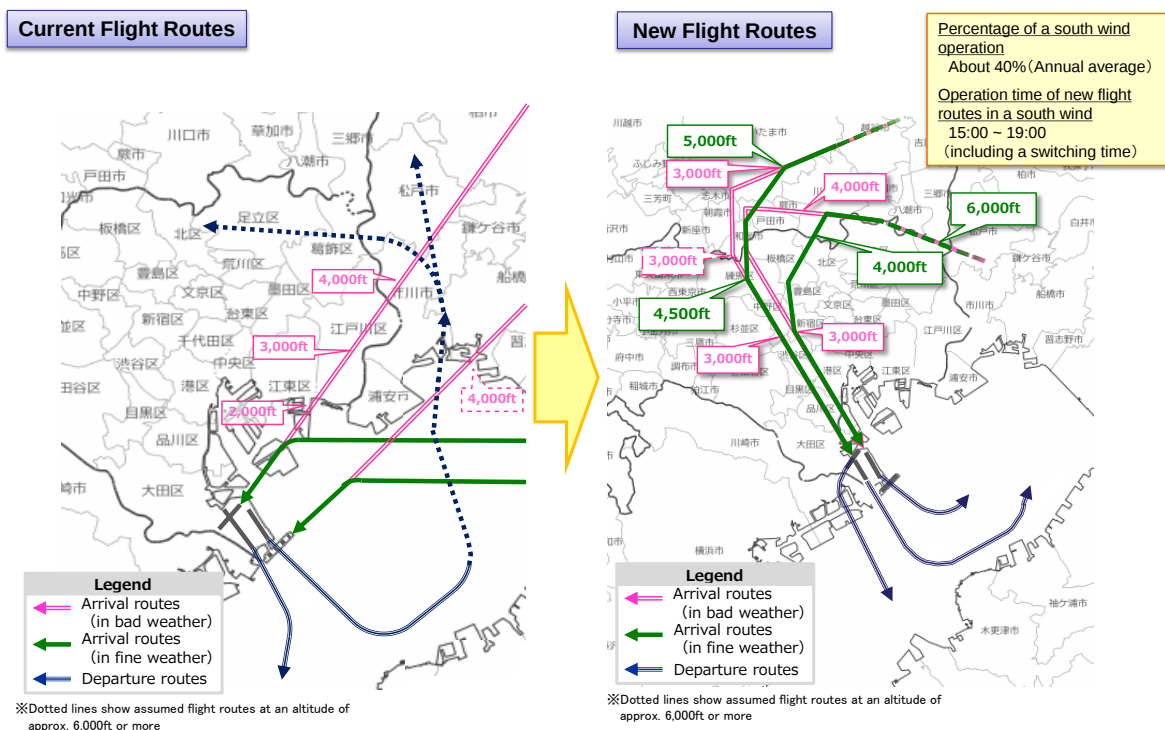
1. INTRODUCTION

1.1 Objects falling off airplanes, including ice blocks, are catching attention as one of the significant social problems in Japan. In addition, we recognize that objects falling off airplanes have been increasing all around the world according to manufacturers' data. It is important to recognize the current situation and take effective measures proactively.

1.2 Japan is taking various measures to prevent objects falling off airplanes after serious incidents in Japan. This paper introduces the actions taken by Japan to prevent objects falling off airplanes and recommends actions to address this challenge globally.

2. DISCUSSION

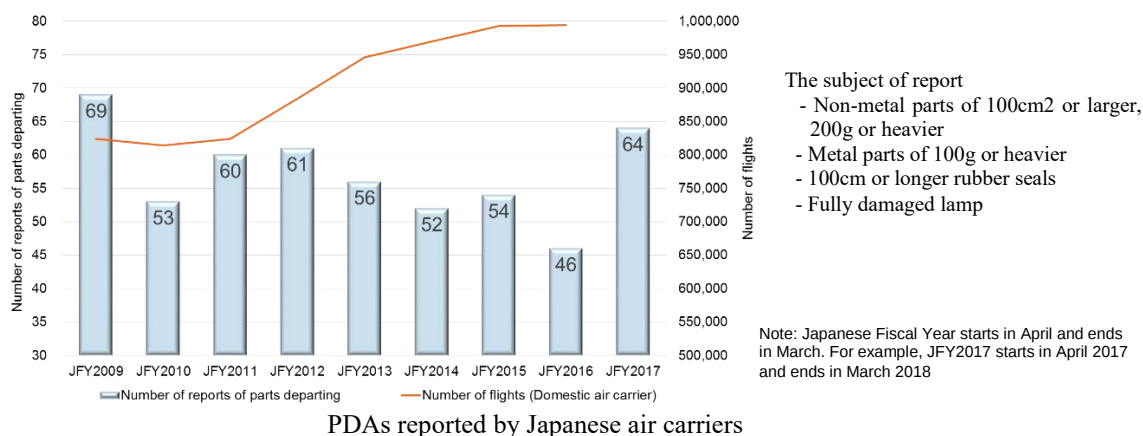
2.1 Japan has two large airports, Narita Airport and Haneda Airport in Tokyo. Japan plans to increase the number of slots through a re-examination of the runway capacity, revision of runway operation and flight routes at Haneda Airport, and construction of high-speed taxiways at Narita Airport as measures to be taken before the 2020 Tokyo Olympic and Paralympic games. In the new runway operation and flight paths at Haneda Airport, airplanes will fly over the city center of Tokyo. Therefore, the Government of Japan has been offering careful explanations to local municipalities and residents.



Change of Runway Operation and Flight Routes (South wind operation)

2.2 During such explanatory meetings, many residents made various requests of thorough noise prevention measures and particularly thorough safety measures including those against objects falling off airplanes. If objects fell off airplanes, damages of third parties may occur which may impact a safe operation significantly.

2.3 The Government of Japan has been requiring Japanese air carriers to report the parts departing aircraft (PDAs) since April 2009. Although the number of reported PDAs decreased slightly, it increased in 2017.



2.4 Japan has already implemented various measures against objects falling off airplanes, such as completing draining water in the water supply pipes before the take-off to prevent ice blocks falling from the airplanes onto the ground, requesting air carriers to complete maintenance and inspection to maintain safe operations including prevention of objects falling off airplanes, and requesting aircraft manufacturers to improve designs and prevent incidence of falling parts from the airplanes.

2.5 However, serious events regarding objects falling off airplanes recently occurred, which raised huge public attention. In September 2017, a panel (4.3kg, 1.1m) fell from an airplane onto a car driving on a busy street in Osaka. In May 2018, an engine failure occurred when an airplane was climbing after taking off Kumamoto Airport. Through this incident, more than 100 metallic fragments, which are suspected to be part of the engine, fell onto the ground, houses, and cars. Fortunately, there was no injured person by the incident; however, the incident resulted in the damage of a window in a hospital, windows of cars, etc. These events were broadly reported to the public by the mass media. In addition to the above, five cases of damage caused by objects falling off airplanes occurred between 2008 and 2017, including damage to a greenhouse and roof tiles. Moreover, the events that ice blocks fell onto the ground happened. Anxiety and concern of residents toward objects falling off airplanes have been augmented.



The panel falling off an airplane and the damaged car window in Osaka, Japan



Examples of objects falling off airplanes (Spring/Ice blocks)

2.6 Japan has been taking further actions based on “Enhanced Measures to Prevent Objects Falling off Airplanes” established in March 2018 in the council which consists of various stakeholders such as air carriers, maintenance organization, aircraft manufacturer, etc., and has decided to take action as follows:

- Establishing “Standard to Prevent Objects Falling off Airplanes”. This standard requires measures to prevent objects falling off airplanes from both “Hardware” and “Software” side.
- [Hardware side] Aircraft modification, etc.
- [Software side] Inspection/maintenance, education and training, system to conduct root cause analysis, preventive measures of recurrence when parts departing from airplanes and falling ice blocks occur, etc.
- Utilization of the newly created booklet “Implementation of Measures to Prevent Objects Falling off Airplanes,” which introduces actual examples of preventive measures.
- Strengthening the aircraft inspection: increasing the number of ramp inspections and introducing a new inspection by airport administrators.

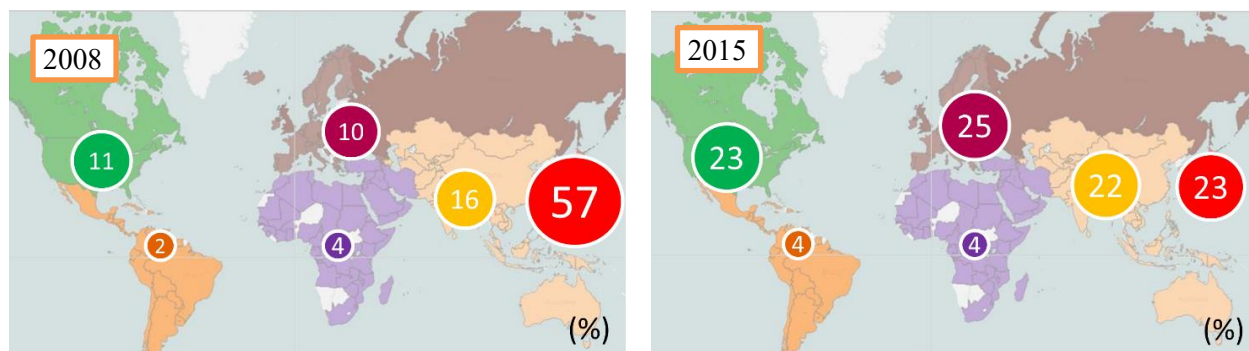
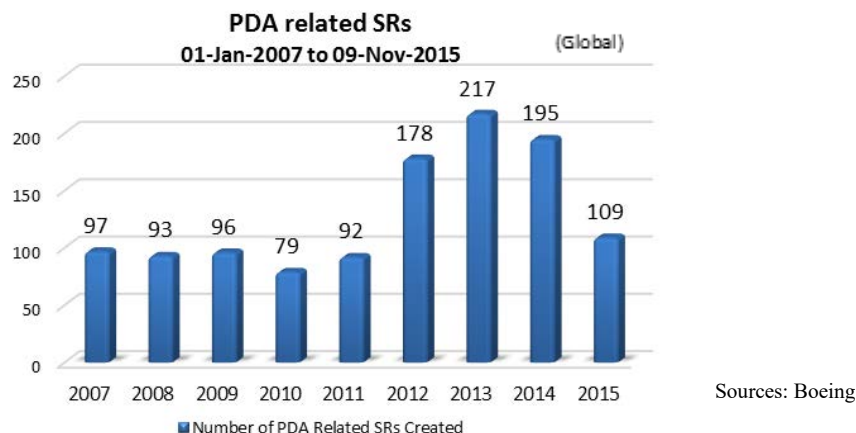


Example of preventive measures (Replacement with improved locking/Cleaning of draining valves)

2.7 Japan established “Standard to Prevent Objects Falling off Airplanes” in August 2018. For foreign air carriers flying in/from Japan, Japan plans to enforce “Standard to Prevent Objects Falling

off Airplanes” from March 2019, and also plans to establish the relief system for damage caused by objects falling off airplanes.

2.8 In a global viewpoint, the number of reported PDAs, especially in Europe and the United States, is recently increasing.



Transition and distribution of the number of PDAs reported to Boeing in the world

2.9 Aviation demand is considered to increase globally. Japan believes that the number of objects falling off airplanes may increase so much more if proper measures are not taken. In the world, there are cities where airplanes fly along flight routes over dense areas. These cities may also be in similar situations with Tokyo.

2.10 We recognize that preventing PDAs is becoming a global challenge. However, global measures against objects falling off airplanes are not sufficient.

3. CONCLUSION

3.1 Guidance material regarding objects falling off airplanes are not sufficient. Japan believes that global understanding of the need to prevent objects falling off airplanes is necessary for the sustainable development of civil aviation.

3.2 The Conference is invited to agree to the actions in the executive summary.