International Civil Aviation Organization

Tenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/10) of APANPIRG

Video Teleconference, 17 – 21 October 2022

Agenda Item 5: ATM Systems (Modernization, Seamless ATM, CNS, ATFM)

AIRSPACE RECONSTRUCTIONS IN JAPAN

(Presented by JAPAN)

SUMMARY

This paper presents that JCAB is reorganizing the domestic airspace of Fukuoka FIR in order to respond to the future increase in demand of air traffic and in anticipation of future TBO (Trajectory Based Operation).

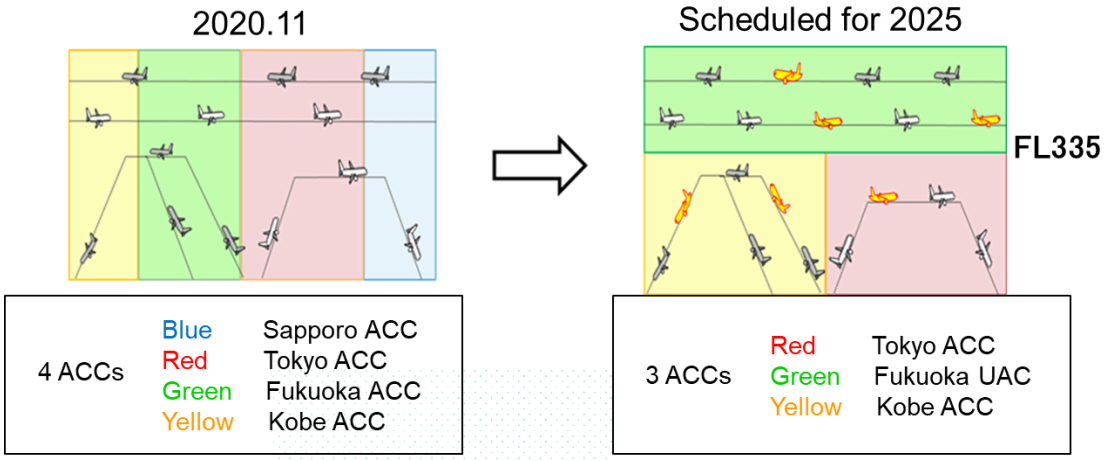
1. INTRODUCTION

1.1 JCAB considered ways to expand air traffic control processing capacity in order to respond to the future increase in demand for air traffic, not only for flights departing from and arriving in Japan, but also for aircraft passing over Japan. As a result, over the five years from 2020 to 2025, it was decided to significantly change the sector shape of the domestic airspace.

1.2 Until now, processing capacity has been expanded by changing the shape by dividing congested sectors. However, we determined that continuing to subdivide sectors would further increase coordination between sectors and would not have sufficient effect on expanding processing capacity.

1.3 Based on these considerations, the airspace reorganization this time focused on separating the shape of domestic airspace into high-altitude and low-altitude airspace with FL335 as the boundary altitude. The boundary altitude was set at FL335 to take into account the domestic airspace traffic flow and distribute the processing work load of the air traffic controllers.

1.4 As a result, at Fukuoka FIR, where Japan controls air traffic, the structure will change to one in which three large ACCs provide air traffic control. Fukuoka ACC will be in charge of the high altitude sector, Tokyo ACC will be in charge of the low altitude sector in eastern Japan, and Kobe ACC will be in charge of the low altitude sector in western Japan.



2. DISCUSSION

Changes in air traffic control operations due to vertical separation of domestic airspace

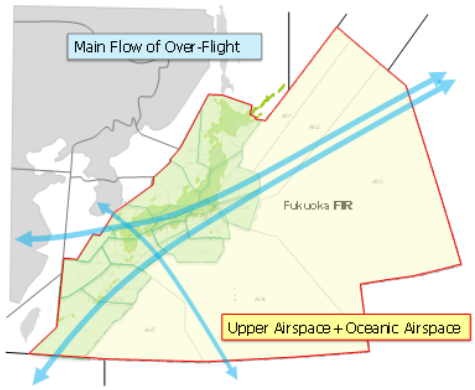
2.1 By separating the domestic airspace above and below with FL335 as the boundary altitude, the high altitude sector mainly handles high altitude cruise aircraft, and the low altitude sector handles the ascent and descent of departing and arriving aircraft.

2.2 In the high-altitude sector, centralized management of the airspace will reduce the number of times air traffic controllers need to coordinate and make radio communications, thereby reducing the workload of air traffic controllers and expanding processing capacity. On the other hand, the low-altitude sector provides more efficient control operations for aircraft as an airspace in which the control processing of ascent and descent of departing and arriving aircraft is concentrated.

2.3 Although we will not change the shape of the oceanic control airspace centered on the Pacific Ocean, we plan to implement unified control operations with domestic high-altitude sectors. And it will be possible to provide seamless air traffic control services using CPDLC between oceanic airspace and domestic high-altitude airspace.

Further development

2.4 In the high-altitude sector, where cruise aircraft are the mainstay, we are studying ways to set more flexible routes in anticipation of free routes in the future, aiming to further improve the operational efficiency of aircraft. International aircraft passing through Fukuoka FIR will mainly pass through this high-altitude sector, aiming to increase the flexibility of routes in the wide airspace connecting Asia and the Pacific Ocean.



3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) Note that air traffic control capacity will be expanded by implementing airspace reorganization. In addition, we will show the importance of TBO (Trajectory Based Operation) that we are aiming for in the domestic high-altitude sector in the future.

c) Note that further integration of airspace reorganization and airspace management, we will make effective use of airspace to enable more flexible route setting.

d) discuss any relevant matters as appropriate.

…….