# 52ND CONFERENCE OF DIRECTORS GENERAL OF CIVIL AVIATION ASIA AND PACIFIC REGIONS

*Manila, Philippines*
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AGENDA ITEM 3.1: THEME TOPIC

*"Evolving the New Generation Aviation Professionals towards a Harmonized, Safe, Secure and Green Asia Pacific Sky"*

# TOWER SIMULATOR FOR AIR TRAFFIC CONTROL TRAINING

(Presented by Japan)

**INFORMATION PAPER**

**SUMMARY**

JCAB started to use new Tower Simulator for innovative air traffic control training from 2013. This simulator has visually intuitive interface and easy to edit routs, setting or modification of aircrafts.

Thanks to this, innovative training environments are provided into the instructors and trainees with easiness and low cost.

Now, JCAB has introduced this simulator into Japanese 31 airports.

# TOWER SIMULATOR FOR AIR TRAFFIC CONTROL TRAINING

## 1. INTRODUCTION

1.1 JCAB has newly introduced the tower simulator into Japanese 31 airports from 2013. Thanks to this simulator, JCAB could provide the pre-OJT training for tower air traffic control before the OJT in actual tower to familiarize airport characteristics and local traffic flow for non-rated trainee who is transferred from other ATC units or is at the first assignment to the ATC unit after graduating from Aeronautical Safety College, and also provide the periodic training including emergency procedures for rated air traffic controller.

1.2 This simulator has been developed as an application supporting Windows (XP/Vista/7/8); this facilitates easy access from any PC. In addition, JCAB's training simulator feature is catering for fully automated operation of many aircraft, by single instructor, so that effective training could be achieved.

## 2. DISCUSSION

2.1 Intuitive, visual interface

The user interface of our 3D simulator is similar to real ATC equipment with its green and orange flight strips, radar screen display simulating a real aircraft for example.

The simulation time line can be easily controlled using intuitive buttons "play", "pause", and "fast forward", just as in a simple music player.


Incorporation various field options and demands, the simulator enables handling of almost all commands required for air control simply by using the Command buttons. It is possible to change a taxiing route just by clicking on the screen. Instructions specific to military aircraft with formations of up to 4 aircrafts are also available.

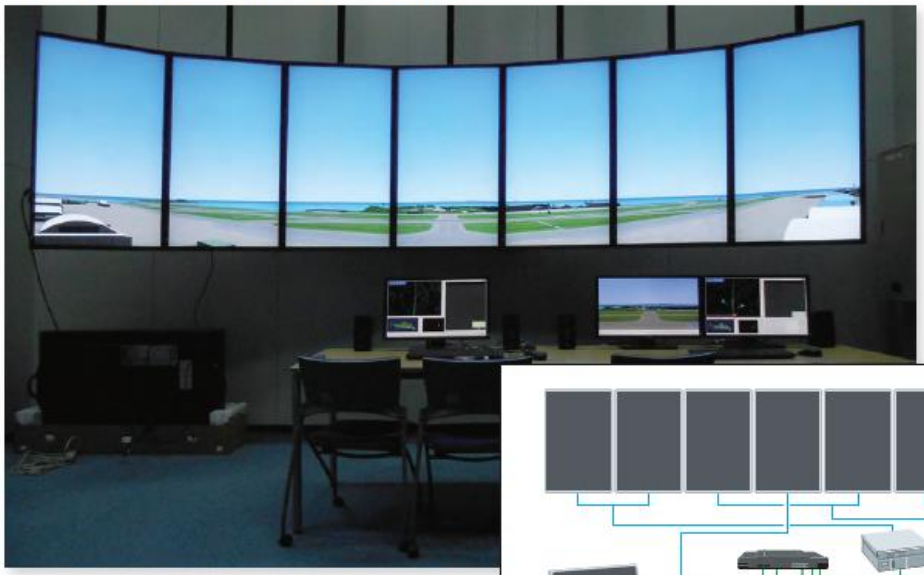
This simulator also supports console commands popularly used in previous ATC simulators. Complex instructions such as radar vectors are also available.


Command console

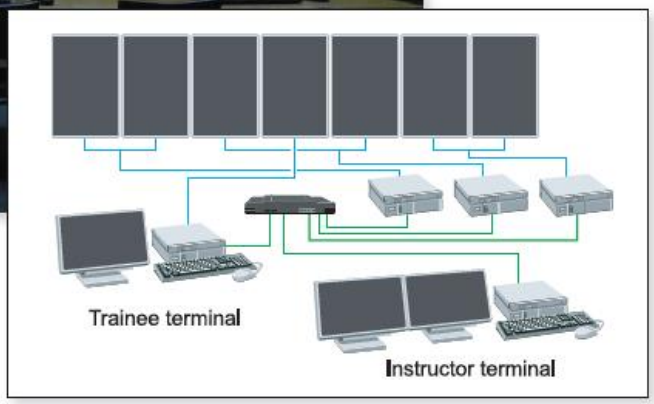
## 2.2 Flexible system configuration

This simulator consists of a network of modules each with a specific function. Modules can be freely combined according to budget and other requirements, going from a private training system to a professional full-scale system.

• Case 1: Full-scale system configuration



■ 5 networked PCs
■ 7 monitors
■ Display angle: 210°
Upper view: 38°(RWY 1800ft)




• Case 2: Compact system configuration

## 2.3 Wide variety of distinct tools

A variety of tools for route creation or data maintenance are available. These tools are freely available according to the application requirements and are fully customizable under administrator permissions.

- Route editor: Simplified operation enables creation or editing of an air route including SID, STAR, and traffic patterns for VFR.
- Note editor: Enables creation or editing of ground routes as spots or stop lines.
- Ship editor: Enables setting or modification of aircraft characteristics such as physical properties or flight performance.
- Data editor: Enables setting or modification of individual parameters such as FIX or Visual Reporting Points.
- Scenario editor: A training syllabus can be designed by setting the appearance/ disappearance of aircraft as well as climate changes over a set period of time. The settings can even be changed on—the-fly as the simulation is running, demonstrating the high level of integration in the system.


## 2.4 High precision and high quality graphics

Airport models are faithfully replicated including runway lights and taxi lights. Time zone, climate and visibility variations are also implemented.

2.5 **Wide selection of aircraft models to choose from**

Numerous aircrafts currently in service are available, and can be selected as required according to purpose and size. The simulation of gear, flaps, thrust reverser operation, and even engine sound has been individually tailored.

Realistic and detailed flight characteristics such as climbing or turning data have also been incorporated, which realizes flight characteristics just as those of the real aircraft.

Standard parameters such as WTC (Wake Turbulence Category), aircraft codes compliant to the ICAO standard are incorporated in the system.

## 3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to note the information contained in this Paper.

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