Ministry of Land, Infrastructure, Transport and Tourism
CIVIL AVIATION BUREAU, JAPAN

Runway Safety Teams(RSTs) of Japan

TOMOO MATSUMURA
Chief Official of Air Traffic International Affairs Office
ANS Department Civil Aviation Bureau, Japan

URL http://www.mlit.go.jp/koku/flyjapan_en/index.html

Message from the Ministry of Land, Infrastructure, Transport and Tourism

Today Japan is taking a united stand against the challenge of the tremendous damage caused by the 2011 Tohoku - Pacific Ocean Earthquake followed by the massive tsunami on 11 March 2011, and by the nuclear power plant accident triggered by the tsunami. Taking this opportunity, we would like to express our sincere gratitude for the domestic and international support in this recovery process.

All the airports in Japan, including four major airports, Narita, Tokyo International (Haneda), Kansai (Osaka) and Central Japan/Centrair (Nagoya), and with the exception of Sendai which was directly affected by the tsunami, have been accommodating the air transport services to operate normally and functioning as the bases for the rescue and reconstruction of the disaster-stricken areas since the immediate aftermath of the earthquake. Currently, there is no restriction on landings and take-offs of all aircraft, regardless of international or domestic, scheduled or non-scheduled. As for Sendai, restoration of the damaged facilities have been almost completed for normal operation thanks to the cooperation of U.S. Forces Japan, and domestic flights (temporary service from April 13 2011), international charter flights (from June 23 2011), domestic scheduled flights (from July 25 2011), international flights (temporary from July 25 2011) and international scheduled flights (partly from September 25 2011) have resumed.

In addition, radiation by the nuclear power plant accident at a level that has harmful effects on human health has not been detected at any airports in Japan.

Based on those observations, authoritative international organizations such as the International Civil Aviation Organization (ICAO), the International Atomic Energy Agency (IAEA) and the World Health Organization (WHO) have declared that there is at this stage no need for imposing restrictions on travel to Japan from the professional perspective, judging from the objective facts and their scientific knowledge.

This website is designed to provide accurate information about the status of air transport of Japan. We hope this website is of some help to people in and outside Japan so that they can enjoy their flights to and from Japan with greater comfort and confidence.

Overview Runway Safety Teams of Japan

- Runway Safety Teams(RSTs) of Japan

  The Safety Promotion Committee of JCAB

- The actual condition of activity

  Narita International Airport Corporation

  Kansai International Airport Corporation

- The examination team classified by subject

  Runway incursion preventive measure team

  Bird Control Committee for prevention of bird strike

- Wrap up

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The Safety Promotion Committee in JCAB(1)

Headquarters(JCAB, Ministry of Land, Infrastructure, Transport and Tourism)

Safety Promotion Committee

（The purpose of establishment）

- **Determine for ensuring the safety policy, etc.**
- **Understanding, Consolidation and Analysis of safety information**
- **Planning, Framing, Inspection and Evaluation of safety measures**

(member)

- **Director-General,**
- **Senior Deputy Director-General**
  - **Director –General, Affairs Division**
- **Director-General, Aviation Network Department**
- **Director-General, Aviation Safety Department**
  - **Director ,Airport Safety and Aviation Security Division**
- **Director-General, Air Navigation Services Department**
  - **Director, Air Navigation Services Planning Division**
- **Safety and Security Inspector-General**

The Safety Promotion Committee in JCAB(2)

Regional Office (2), Airport Office (31), Airport branch ※(34), Air Traffic Management Center (1)
Air Traffic Control Center (4)

Regional Safety Promotion Committee

（The purpose of establishment）

- **Understanding, Consolidation and Analysis of safety information**
- **Planning, Framing, Inspection and Evaluation of safety measures**

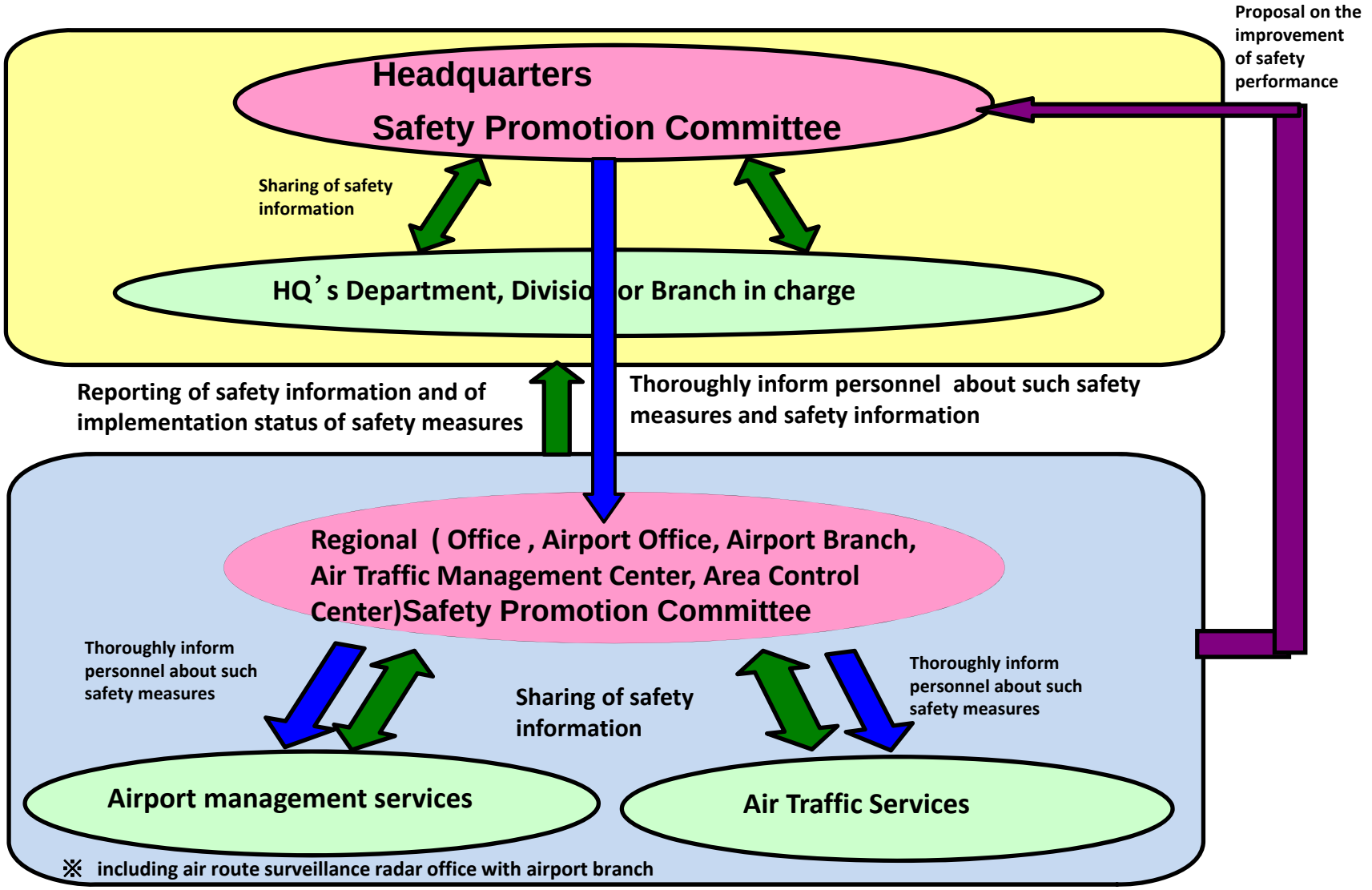
(Safety Promotion Committee member)

- **Director-General,**
- **Director –General, Affairs Division**
- **ATS Division**
- **Radio and NAVigation Division**
- **FIS Division**
- **Visual aids and Electrical System Divion**
- **Facility and Equipment Division**

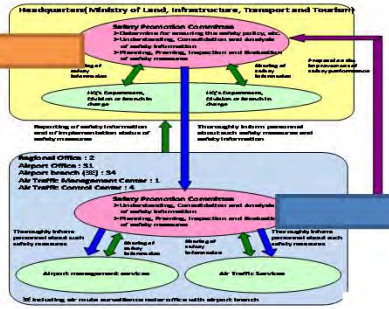
(member)

- **Director-General,**
- **Director-General, Affairs Division**
- **Airport Construction Division**
- **Rescue and Fire Fighting Division**
- **Airport Committee (Airport Staff)**
- **FIS Division**
- **Visual aids and Electrical System Divion**
- **Facility and Equipment Division**

Flow of Information and reports for the Safety Promotion Committee



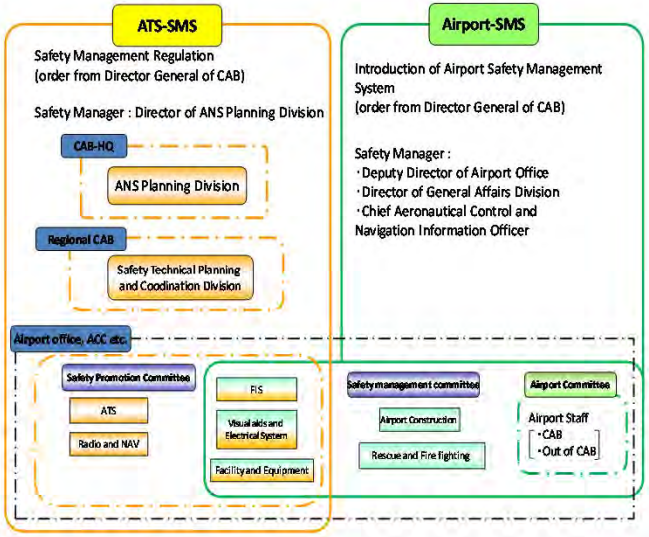
Safety Promotion Committee (Plenary meeting by Video conference system)



Activities of Safety promotion committee

- In the Safety Promotion Committee, members discuss broad range of items to enhance the aviation safety. Information sharing and discussions such on the items below have contributed runway safety enhancement.
- Discussion the Enhancement and promotion of the safety management framework of JCAB.
- Information sharing of new safety management SARPs (Annex19 to the Chicago Convention)
- Discussion of the future safety promotion activities in the area of Aircraft operations, Airport operations and Air Navigation Services.

Relationship between ATS-SMS & Airport SMS

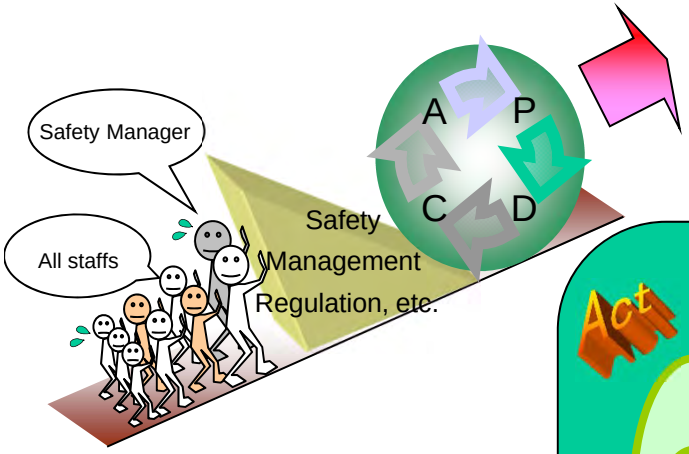


Efforts in Airport Operation and Air Navigation Services Area

• In the areas of Airport Operation or Air Navigation Services, Japan takes **proactive measures** in a comprehensive way such as identifying the hazards which could cause accidents or incidents, assessing the risk from the hazards and reducing the risk to acceptable level of safety performance.

• We implement the comprehensive and continuous safety management; determining safety policy and objectives, **plan**ning the safety management plan, **do**ing the plan, **check**ing the outcome and **act**ing measures required.

Safety enhancement

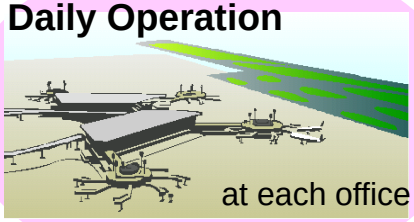


Safety promotion actions

Airport Hazard Map

Holding the safety seminar

Daily Operation



Establishing the non-punitive environment to promote the safety troubles (near-accidents, etc.) reports

Risk Assessment

Identifying the hazards

Risk Assessment
・occurrence probability and severity of the risks

Risk reduction
・installing the new technology and system
・education and training
・ regulations and operation procedures, etc.

Act

Plan

Implementation Monitoring

Safety Measures Planning

Check

Safety Measures implementation

Do

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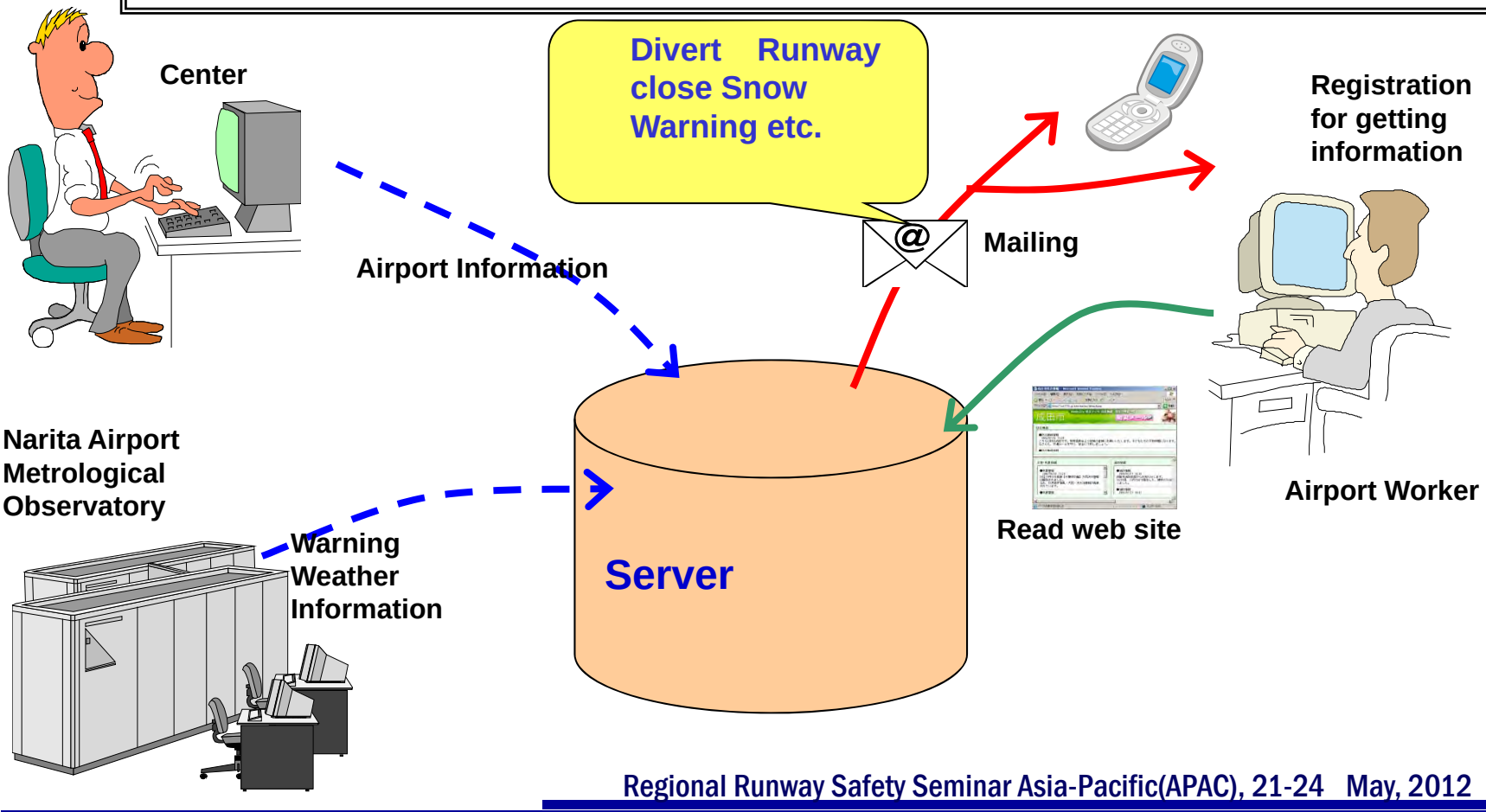
Narita Airport Operational Imformation System ①

【Function】

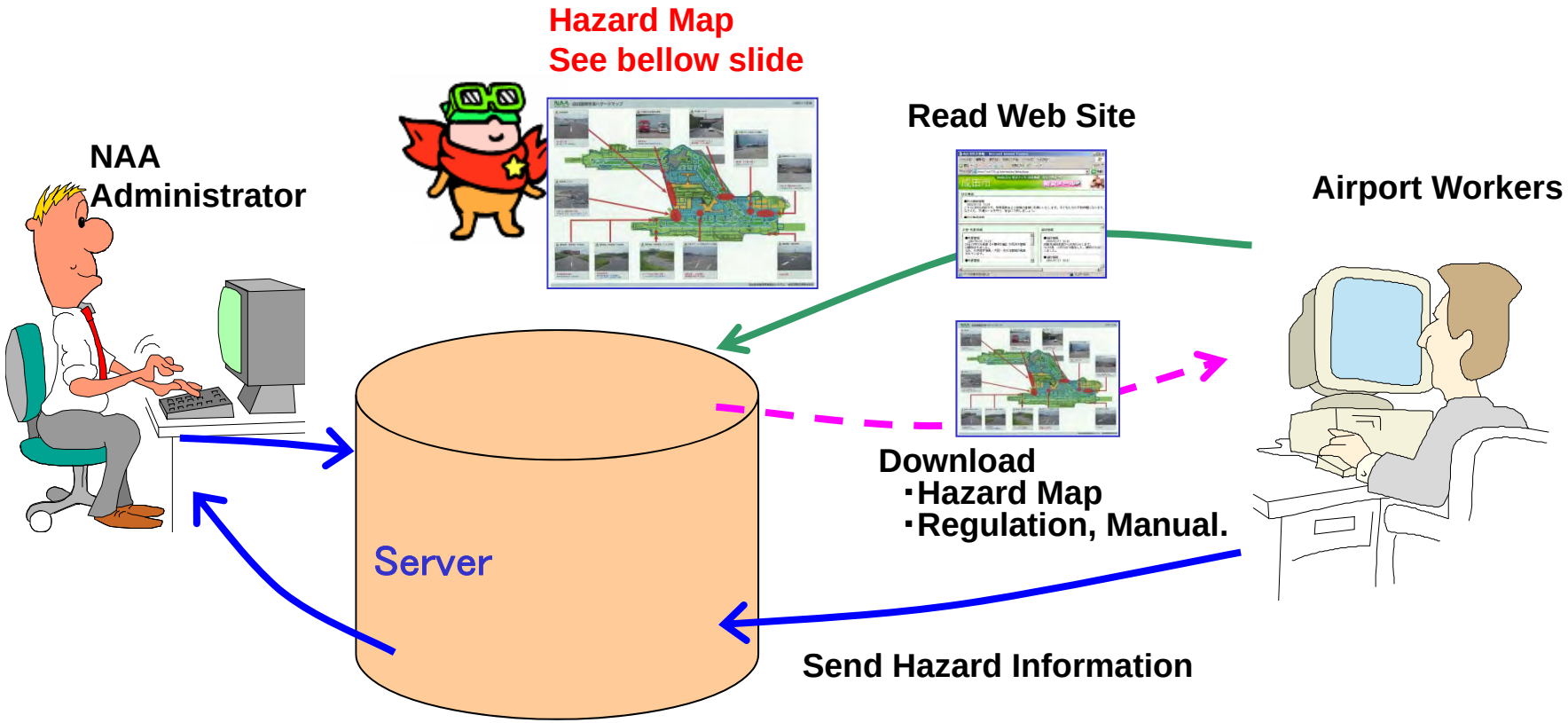
- Operational Information Center staff to enter various information into the System database.
- Distribute brief information to airport workers via internet mail.
- Distribute detailed information to airport workers via web site.



Narita Airport Operational Imformation System ②

【Function】

- Distribute safety information concerning airport operation such as Hazard Map
- Hazard Map, Safety Regulation, Safety Manual can be downloaded
- Receive hazard information from airside workers.



Narita Airport Operational Imformation System ③

Narita Airport Operational Information
成田空港運用情報提供システム

ユーザID User ID

パスワード Password

LOG IN

User Registration

Safety Management Committee (Kansai International Airport)

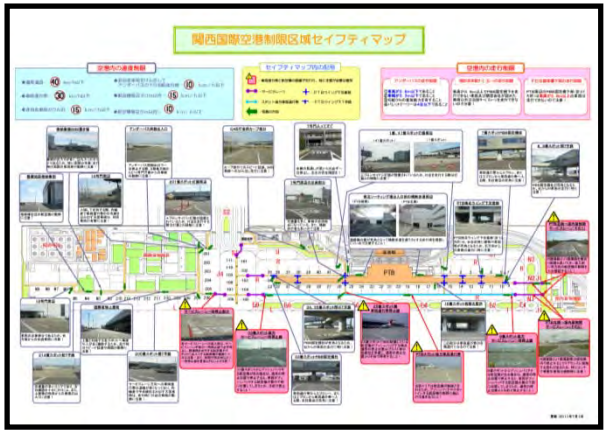
■KIAC Safety Management Committee

(It holds 4 times a year.)

■KANSAI Intl. Airport Committee

■Safety Information Committee（It holds 9 times a year.）

Carrying out the safety patrol, picking up the FOD and Cleaning up the lamp area etc.



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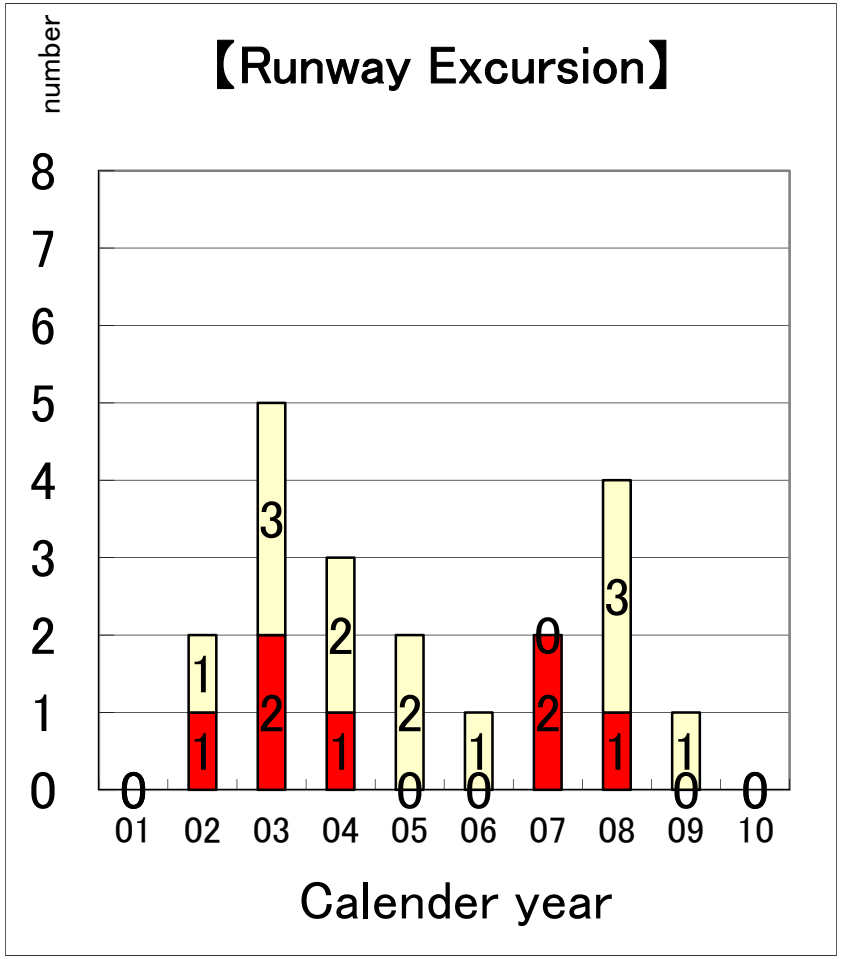
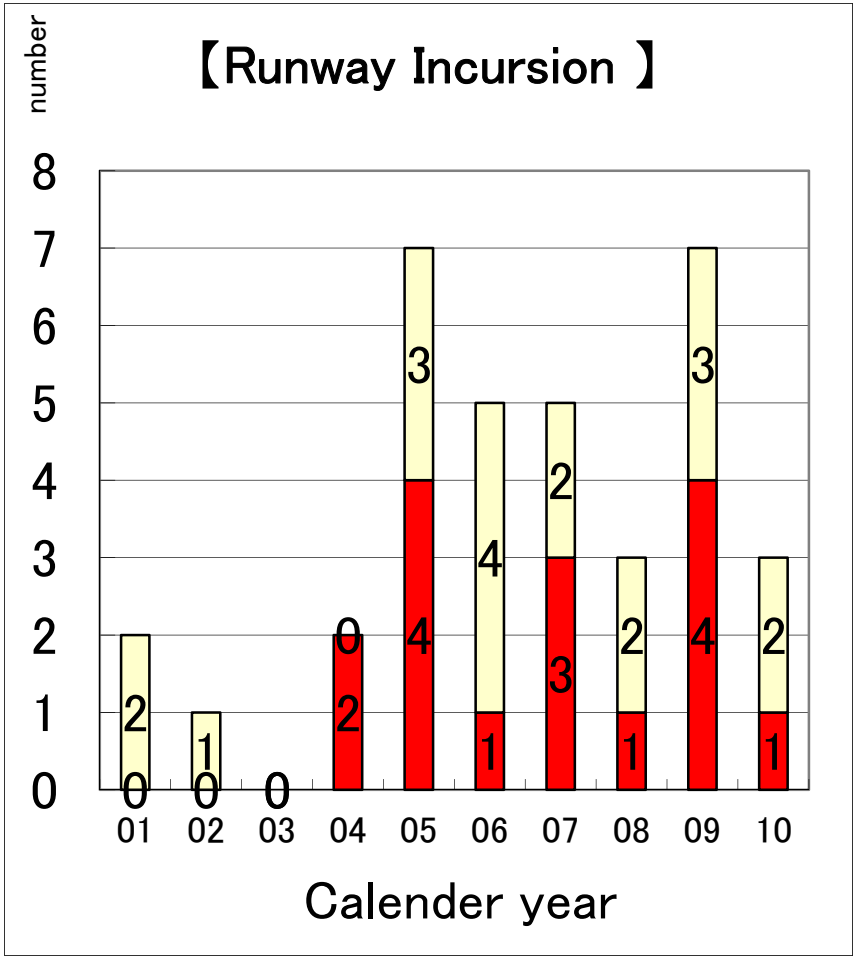
Serious incident and Minor incident





：Serious incident　　：Minor incident

Promotes the preventive measures of runway incursion

✈Purpose

In Japan, runway incursion case occurred from September to November 2007. “Runway Incursion Preventive Measure Team” was established to prevent the recurrence runway incursion.

✈The contents of activity

Analysis of each case, interview of opinions from team members, surveillance study of examples of other countries, propose the preventive measures, etc.

✈Members

JCAB（ATC, Engineers etc.), The Scheduled Airlines Association of Japan, Airlines（JAL・ANA・SKY　etc.）and Japan Aircraft Pilot Association

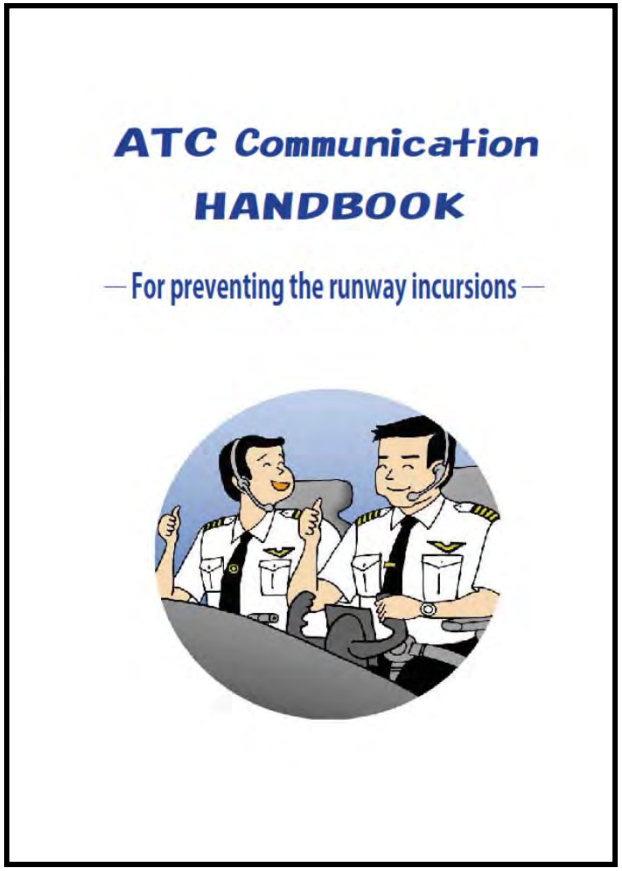
✈Conclusion

Improvement of communication between controllers and pilots,

Enhancement of visual functions to controllers or pilots

Runway Incursion Preventive Measures in Japan (1)

Improvement of communication between controllers and pilots



Runway Incursion Preventive Measures in Japan (2)

Enhancement of visual functions to controllers or pilots

Introduction of new visual facilities

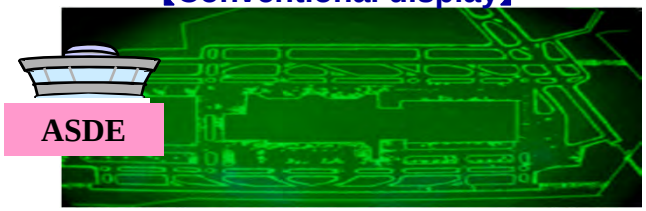
a) Multi-lateration, in addition to ASDE, provides ATC with a better coverage (much less blind areas) on the airport surface;

b) Support functions for the aerodrome control supports ATC situational awareness;

c) Runway Status Lights (RWSL) will enhance pilot's situational awareness, in particular when safety is critical

Runway Incursion Preventive Measures in Japan (3)

【Conventional display】



▼There is a blind area by building.
▼Monitor performance deteriorates by the rain or snow.
▼Controller needs to operate a tag for identification of aircraft by manual.

【Using technology of multi-lateration】

Character

- Able to pinpoint the correct position of aircraft by receiving a signal from it.
- Able to attach a tag to aircraft automatically and not affected by rain and snow.

Utilizing a position information of aircraft

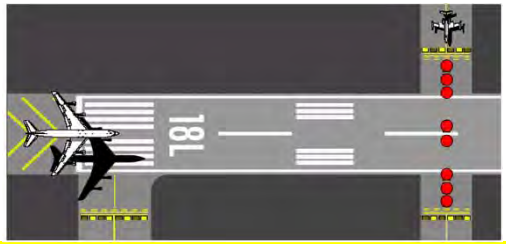
Visual support for controller

【Runway occupation monitor】

Visual support for pilot

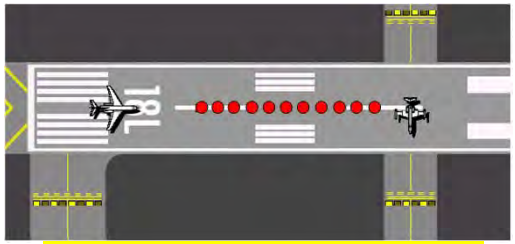
【Runway status lights (RWSL)】

REL: Runway Entrance Lights



Preventing from false runway incursion

THL: Take-off Hold Lights

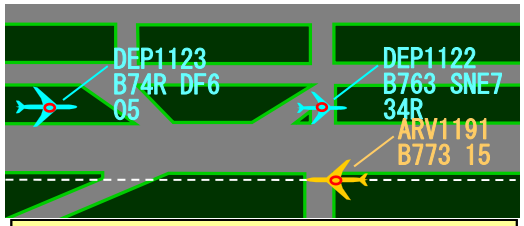


Preventing from false departure

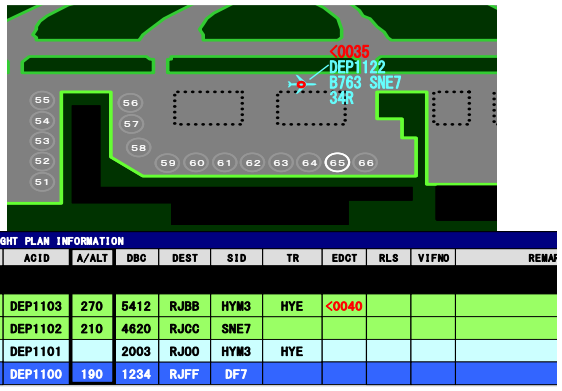
Runway Incursion Preventive Measures in Japan (4)

◇ Support functions for the aerodrome control

B. Display of distance between the runway edge and the arrival aircraft

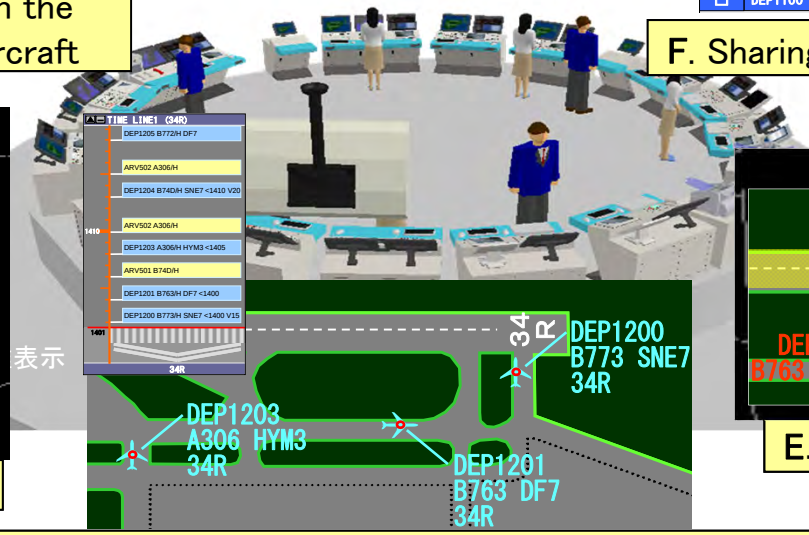


A. Automatic identification for surface movement

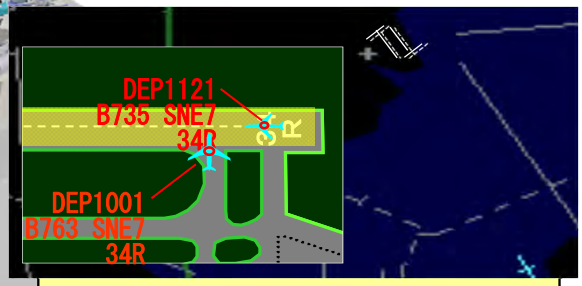


F. Sharing of ATC Clearance Information

C. Hazard area monitor



D. Display of timeline of Departure/Arrival aircraft



E. Runway occupation monitor

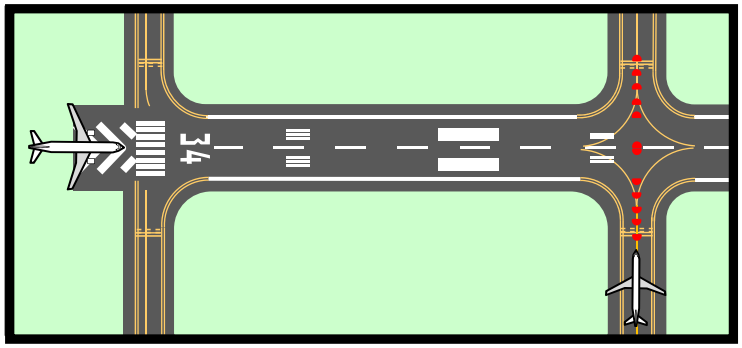
Runway Incursion Preventive Measures in Japan (5)

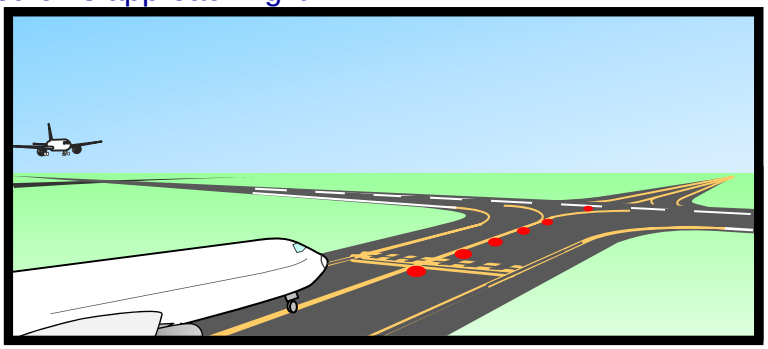
✈ **The runway status lights system (RWSL) automatically** gives a warning to an aircraft which intends to take off, or to an aircraft or vehicle crossing the runway, when the runway is occupied (in use) by another aircraft or vehicle.

● Visual aid to pilot

✈ Runway Entrance Lights (REL) : prevent runway invasion

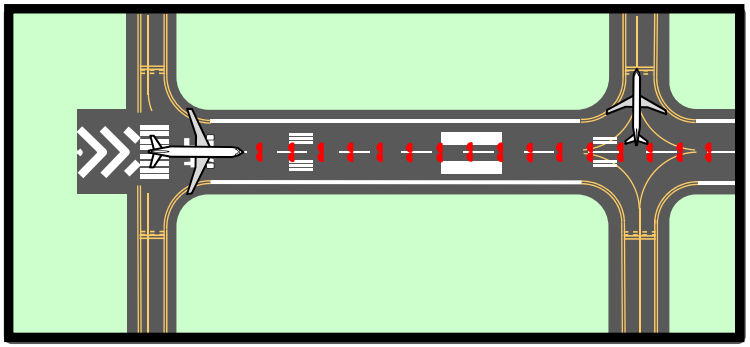
Runway entrance lights (REL) are installed at the point of intersection of runway and taxiway, and turn on when an aircraft is either running on the runway at the prescribed speed or is approaching it.

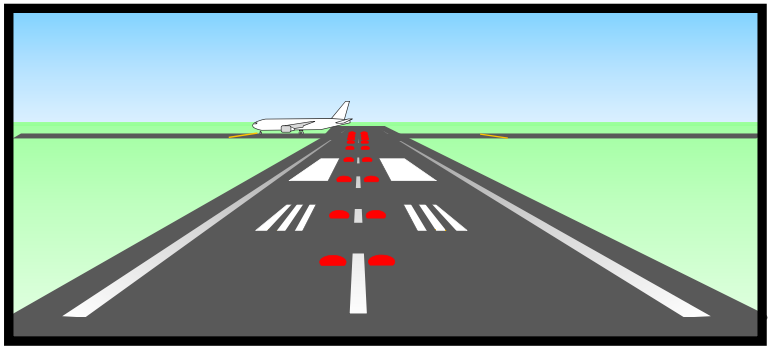




✈ Take off hold lights(THL) : prevent wrong takeoffs

Take off hold lights (THL) are installed ahead of the location where the runway takeoff run starts, and turn on when an aircraft is scheduled for takeoff and its runway is occupied by another aircraft.



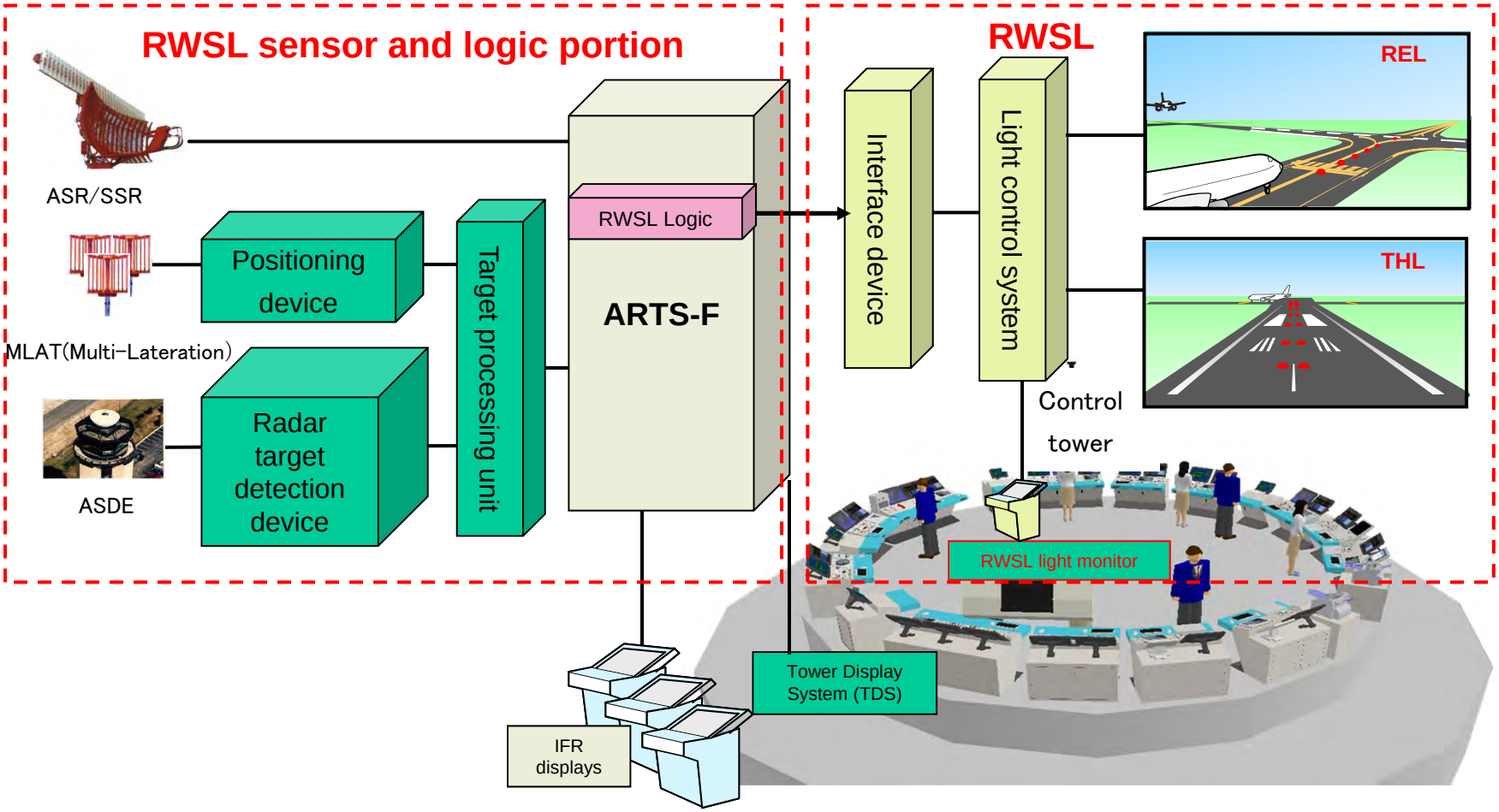


Runway Incursion Preventive Measures in Japan (6)

Overall Configuration of RWSL

The overall configuration of RWSL is shown in the figure below.

The main sensor is MLAT, and the lights on/off logic is carried out in ARTS-F.



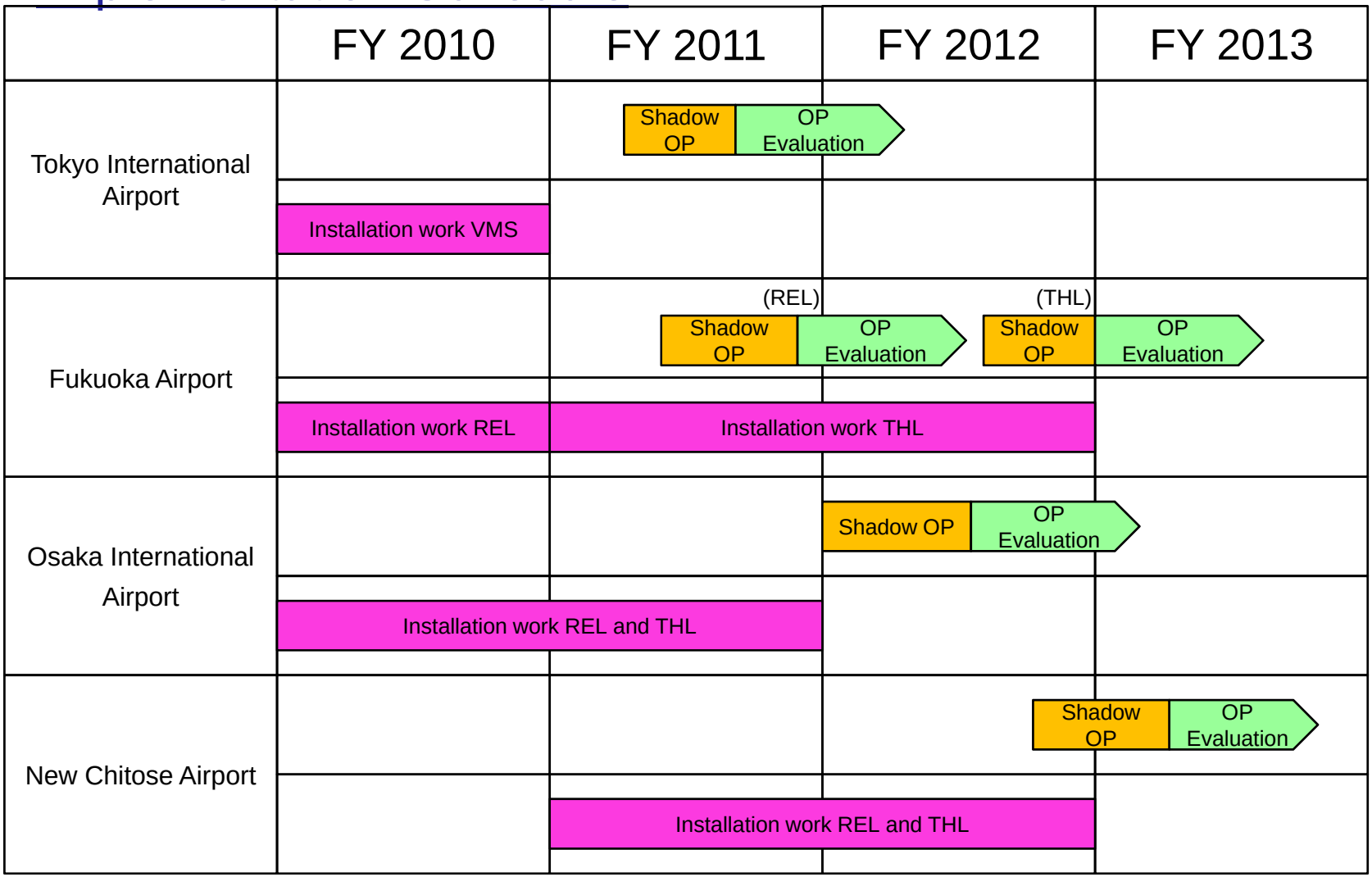
Runway Incursion Preventive Measures in Japan (7)

Basic Specifications of RWSL Overall

- Processing speed and responsiveness requirements
  - Lights are turned on/off within 1.5 seconds by supplemental monitoring sensors
- Reliability requirements
  - In case of conflict between control authorization and RWSL, the RWSL operation can be stopped by the controller.
- Processing capacity requirements
  - Corresponds to the number of ARTS-F processing units
- Lighting requirements
  - THL is installed in a straight line on both sides of the runway center-line in the direction of the line.
  - REL will be installed parallel to taxiway center-line towards the runway, immediately before the runway stop position indicator.
  - Brightness is capable of adjusting 5 levels; daytime and nighttime switchover are logically controlled
- Functional requirements
  - Lights on/off logic of RWSL will be implemented by the ARTS-F function
  - It is capable of operating all RWSL lights off by the controller's hand.
  - In the control tower's RWSL lights monitor (airport lights monitor or dedicated monitor) lights on/off status of REL and THL can be displayed

Runway Incursion Preventive Measures in Japan (8)

Implementation Schedule



Bird Strike Control and Reduction Organization

MLIT

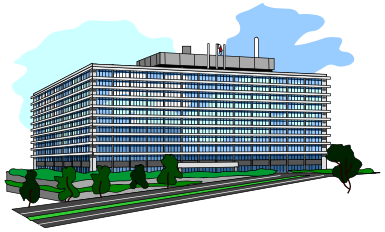
Regulatory Authorities

Regional JCAB

Ask

Advice

Information provision



JCAB,HQ

ICAO (IBIS)

Work together

Bird Control Committee for prevention of bird strike

Direct instruction by Bird Control Committee For prevention of bird strike

Ask

Advice

Instruction

Information Sharing Site

BIRD STRIKE INFORMATION JAPAN

Bird strike report (by Operator)

Airport operations Manual /Guidance materials

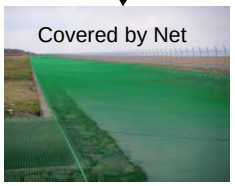
Airports

Airport bird strike prevention conference (Airport users)

Hazard reduction plan

Various activities

Bird Patrol



Covered by Net

Streamer placement

Habitat Control

intelligence sharing

Specific Airport

Stakeholders for Airport bird strike prevention conference(Airport users)

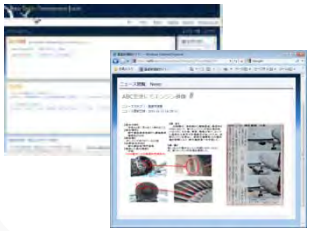
Airport Administrator, Air Traffic Controller, Flight Operation Information unit, Airport /Navigation facility management unit, Local government, Airline, Terminal building management company, Bird patroller, etc.

Bird strike Control and Reduction Program

Data Analysis

*Indicated by bold frame is the action after 2009

Bird Strike INFORMATION Sharing Site



・Collect Bird Strike Report from operators by INTERNET

・Bird Strike Database and automatic analysis (with photo and document)

・Sharing Bird Strike information and documentation with all stakeholders

Bird Species Identification by DNA or Feather analysis

Blood, Feather etc. from Runway inspection or Aircraft/ENGINE

Identification Report

exchanging information and best practices

Airport Administrator/Operator

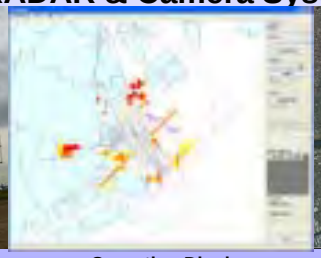
Environmental Research (Food, Water and Shelter)

Research Vegetation at or around Airport

Research Birds Moving Route

Bird Detection RADAR & Camera System (HANEDA)

Birds position Information Radar Display System (BIRDS made by NEC Corp.)



Operation Display (with ALERT, Camera Observation)

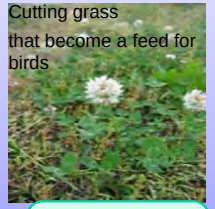
Tokyo INTL Airport (HANEDA)

Airport is surrounded by the sea

Habitat Control

Water area

Cutting grass that become a feed for birds



Grass area

Cutting trees at/near Airport

Nest Management

Bird Patrol

Bird Sweep

Rocket

Long Range Acoustic Device (at Night)

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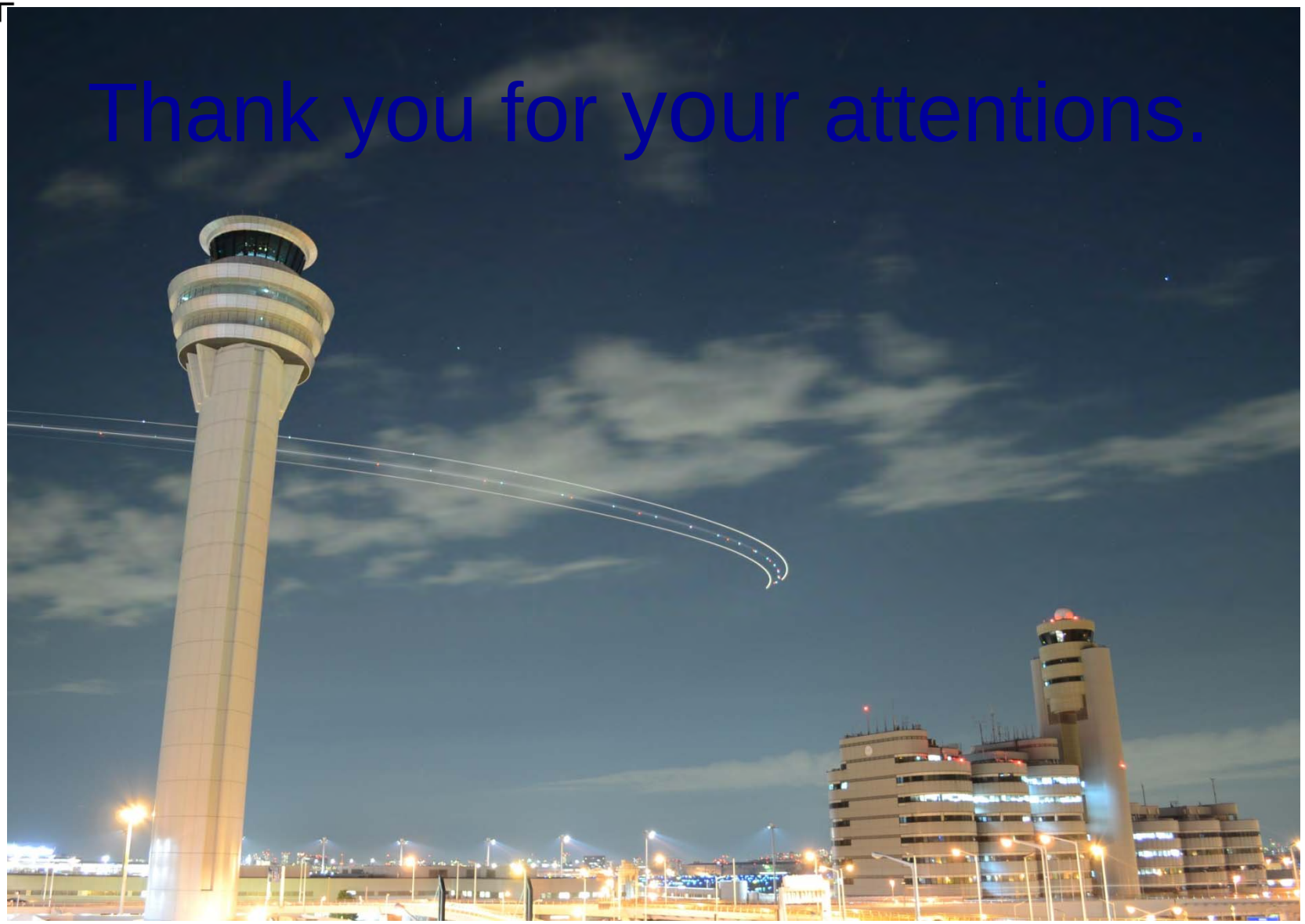
Wrap up

Through our valuable experiences, JCAB believes that RST is needed:

- to organize the team according to the functions; e.g. Airport-related representatives team, Airport operators – Regulatory authority cooperation team, and special team depending on the objectives;
- to understand, consolidate and analyze the safety information timely and appropriately;
- to plan, implement and evaluate the safety measures;
- to continue the safety measures and activities; and
- to response to each case appropriately.


Thank you for your attentions.