



International Civil Aviation Organization

**SIXTEENTH MEETING OF THE
COMMUNICATIONS/NAVIGATION/SURVEILLANCE AND
METEOROLOGY SUB-GROUP (CNS/MET SG/16) OF APANPIRG**

Bangkok, Thailand, 23 – 27 July 2012

Agenda Item 11: Meteorological advisories and warnings

ISSUES ON DISSEMINATION OF TSUNAMI WARNING AT AERODROME

(Presented by Japan)

SUMMARY

This paper describes current discussion on dissemination of Tsunami Warning at aerodrome in Japan and some suggestions from the discussion.

This paper relates to –

Strategic Objectives:

A: Safety - *Enhance global civil aviation safety*

C: Environmental Protection and Sustainable Development of Air Transport - *Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

Global Plan Initiatives:

GPI-19 Meteorological Systems

1. Introduction

1.1 At 2:46 P.M., March 11, 2011, series of big earthquakes occurred near the northeast and east part of Japan. The magnitude of the biggest quake recorded M9.0.

1.2 Soon consequentially, within about 30 minutes, there were horrible gigantic Tsunami which rushed deep into the shore, swallowing buildings, cars, and almost all kinds of things. Precise research showed that the maximum height of the Tsunami was more than 10m.

1.3 The Sendai Airport, which was located at about 1km apart from sea shore, was hit by the tsunami which rushed into its terminal and also over its runway. Equipments near the surface were broken or swept away, and electric facilities of airport building were broken. There were almost 1400 staff and passengers left inside of the airport terminal building. They went up to the top of the building and waited for rescue. 2 days later, all people were fortunately rescued.

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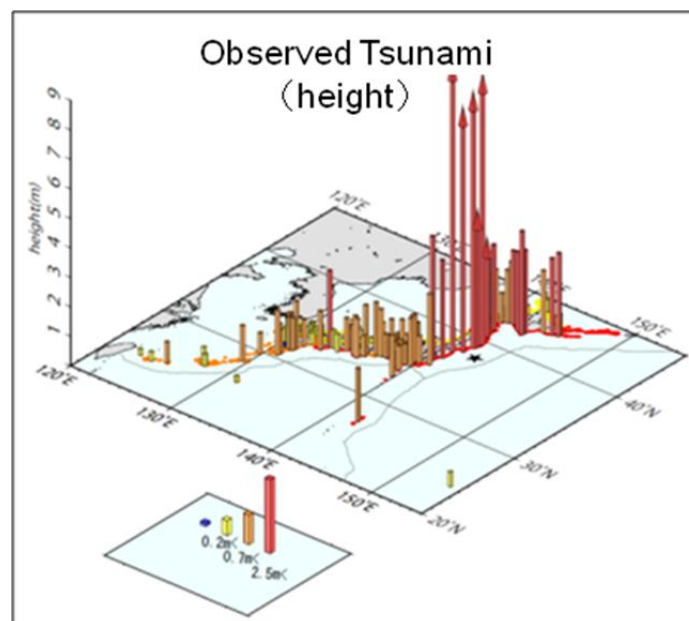


Figure1. Observed height of tsunami after the earthquake in 11 March, 2011.

1.4 In Japan, because there were many experiences of earthquakes which caused tsunami, it has been the most important thing to issue tsunami warning without any delay, as soon as possible. Therefore, the Japan Meteorological Agency (JMA) has established highly sophisticated tsunami warning system which can issue tsunami warning within about 3 minutes after the quake, at the latest. Actually, in this case, the first tsunami warning was issued at 2:49 P.M., just 3 minutes after the quake.

1.5 Civil aviation operation at the Sendai Airport was recovered relatively soon, but actually, it took around 1 month while tremendous efforts was made by various relevant organizations, such as Japan Civil Aviation Bureau, Japan Self Defensive Force, and Japan Meteorological Agency, with significant support from U.S. force.

1.6 The Sendai Airport's experience revealed keen necessity to establish Tsunami contingency plan at many aerodromes especially located near sea shore. At the end of June 2011, The Japan Civil Aviation Bureau established a committee to discuss this. In its 1st meeting, a shortfall in working arrangements for dissemination of Tsunami information was pointed out. At many aerodromes, there have not been established framework for tsunami information delivery, and in some cases, users get the information only from TV broadcast.

1.7 In order to solve the problem, JCAB and JMA soon started discussion on how to improve dissemination of tsunami warning at aerodromes especially which are located at sea shore.

2. Discussion

2.1 Needless to say, "accuracy" of Tsunami information is very important. Inaccurate information could mislead users to take wrong action, and as a result, it can cause significant damages.

2.2 For the States surrounded by the sea like Japan, Tsunami could reach within several minutes when earthquake occur very close to the shore. To allow people to take appropriate action within such a limited time, in addition to "accuracy", "timeliness" of delivery of the information is another most important aspect.

2.3 To assure timely and secure dissemination, JMA does not reproduce tsunami warnings into the form of aerodrome warning. After the review of current communication framework for tsunami information, it became apparent that it depends on ATS providers, airport authorities, and airliners at each aerodrome how they get tsunami information and use it. This could cause different situational awareness among the stakeholders, consequently bring significant difficulty to take integrated action to mitigate the damage by tsunami.

2.4 In this regard, The Sendai airport's experience shows that it should not be enough only to disseminate accurate information in a timely manner. To assure enough appropriate understanding of Tsunami information among the users shall be very important to establish effective contingency plan and to ensure integrated and right actions by users.

2.5 Also, considering that all the airport staff would need to evacuate when such tsunami is expected to reach, it must be ideal to issue tsunami warnings from national center(s), remotely.

3. Action by the meeting

3.1 The group is invited to note the contents of this information paper.
