

Experience at Narita International Airport During March 11, 2011 Honshu Earthquake

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EARTHQUAKE SHAKING

When the earthquake struck, we were seated outside Gate 18 in Terminal 1 of the Narita International Airport (see Figure 1). The shaking began as a low rumble for 30 seconds to nearly a minute. At first we thought it might be a plane taking off, but it lasted far too long. The rumble was followed by a rolling, long-period motion that gradually increased in strength. It was several minutes before the shaking was strong enough for people to get under the chairs. Most Japanese people gathered around columns, while some Americans ducked under chairs. The shaking eventually tapered off, but never stopped completely between the main shock and the first aftershock.

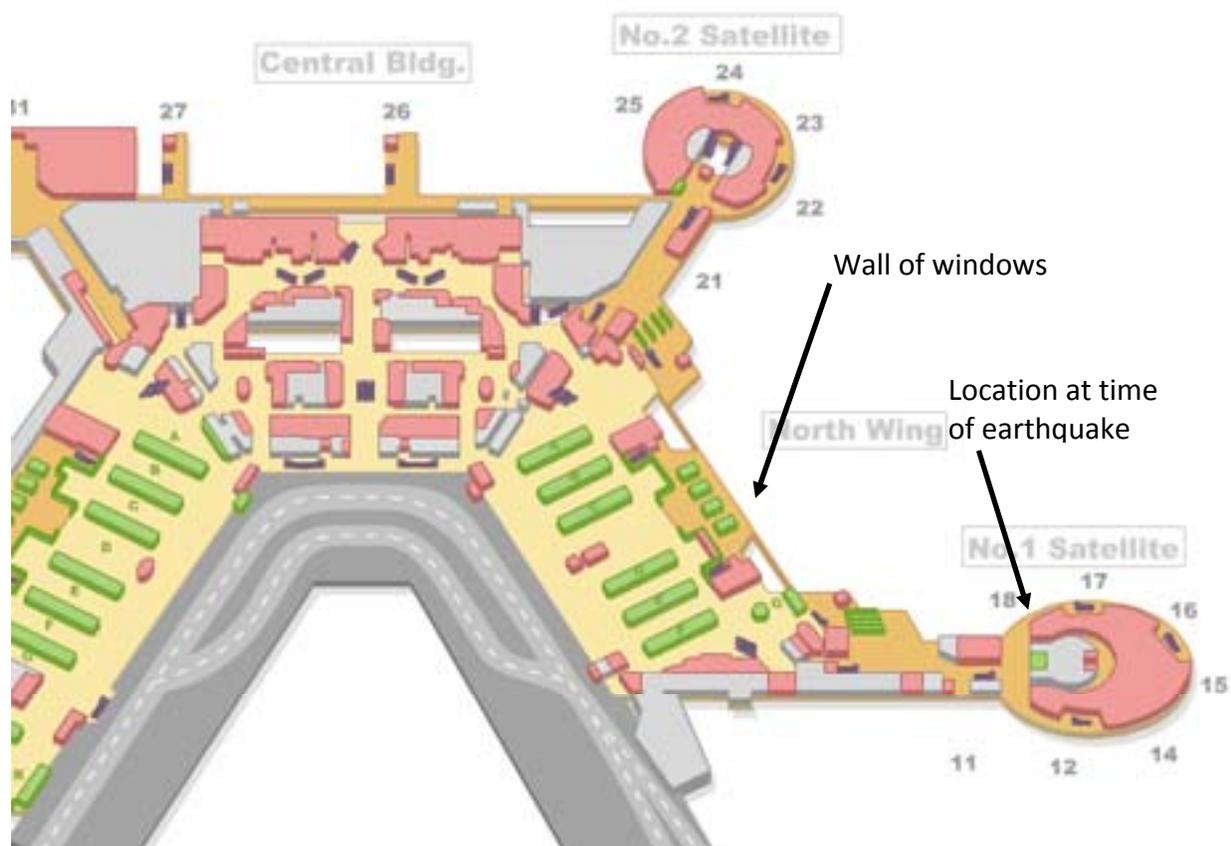


Figure 1: Plan view of Terminal 1

The first aftershock was much the same as the first, but shorter in length and not as strong. For nearly an hour after the main shock, it felt as though we were at sea, constantly rocking back

and forth. There were constant aftershocks for the first few hours. From our location in the terminal we could see a row of windows perpendicular to us (see Figure 1). This allowed us to see the earthquake shaking in the vibrating windows before it arrived at our location. Most of the aftershocks were also preceded by a low rumbling noise.

In general, people remained very calm during the shaking. Announcements were made immediately (in both English and Japanese) that there had been an earthquake and that people should move away from windows and objects that could fall during future aftershocks. Visible damage to the North Wing of the Terminal 1 building was minor: small chunks of acoustic tile fell from the ceiling where a hanging sign had pounded against its supports; a fluorescent light cover fell from the ceiling; the waiting area near Gate 11 was flooded (presumably because of a broken water pipe). However, nothing fell off store shelves, no computers were knocked over, and there were no visible cracks or broken windows. There was also no loss of electricity, water, or other utilities in the airport following the earthquake.

IMMEDIATE RESPONSE

Within 25 minutes of the initial shaking, teams of inspectors (likely airport employees) wearing hard hats and carrying clipboards began walking through the airport to check for damage (see Figure 2). The airport made announcements after almost every major aftershock, warning people to stay away from dangerous objects. Approximately 30 minutes after the initial earthquake, there was an announcement that the airport would be evacuated. All flights into Narita International Airport were diverted to nearby airports or held before they left for Tokyo, while all flights leaving Narita were grounded. Those passengers inside the secure area were evacuated onto the tarmac (see Figure 3), however some of the evacuation areas were not sufficient distance from windows or other objects that could potentially fall or collapse (buildings, light poles, airplanes, jet ways, etc.). People were given blankets to stay warm and a bus was brought over for the elderly to sit in.

INTERMEDIATE RESPONSE

After approximately an hour on the tarmac, as the temperature dropped and rain threatened, airport staff allowed the crowd to move into the first floor of the terminal. It is unclear whether the area had been certified as safe or not. Announcements were made saying that the airport was waiting for certification of the safety of the second floor of the terminal so operations could resume. They were also checking the condition of the runway. We believed that airport staff was waiting for an engineer to come to certify the safety of the building. Several engineers at the airport made offers to help with the evaluation, but were turned down. It is unclear if an engineer made an assessment or not before the second floor was opened several hours later. All of the fallen debris and water damage that resulted from the earthquake had been cleaned up by that time. At different times after the earthquake, airport maintenance turned off the heat, A/C and water as a safety precaution.



Figure 2: Inspection teams

The airlines all had slightly different emergency protocol, but all made food, water, and blankets quickly available. Airline supplies were supplemented with airport supplies. Priority was given to children and elderly. Diapers and baby food were also immediately available to mothers, as well as a first aid station. Most shops and restaurants at the airport opened the next morning, at which point passengers were expected to purchase their own food.

TVs in the waiting room showed footage of the damage, but little other official information was provided about the scale of the disaster. Most information passengers received was second-hand or from internet sources. This information would have been useful for people to understand that the temporary closure of the airport was a minor inconvenience compared with the scale of the damage elsewhere. Frequent announcements were made in Japanese, English, and Spanish updating passengers on the situation as it unfolded. The announcements came from various airport and airline staff, including one pilot who was particularly proactive. Passengers were generally calm, but became frustrated with lack of information about resumption of flights and how the flights would be booked.



Figure 3: Evacuation to tarmac

After a few hours, the airport opened its wireless network for free and allowed free, unlimited international calls on its payphones. This made a huge difference for people to be able to communicate with family at home and make alternate travel arrangements.

The runway had no damage and was certified quickly. However, it is unknown who made that decision. Flights that were boarded before the disaster took off after about 6 hours (the passengers never deplaned). A few additional flights left after that, but most travelers had to wait until morning for any additional information. Most flights left within 24 hours of the earthquake. There were some issues with crew labor hours and the ability of flights to take off. No ground transportation to or from the airport was available for the first 24 hours, so no new passengers were arriving at the airport.

At least one flight was diverted to a nearby American Air Base after the earthquake. Passengers spent the night at the base and then were flown to Narita International Airport in the morning to connect with their flights. Security was maintained the entire time, and passengers were not required to go through security twice.