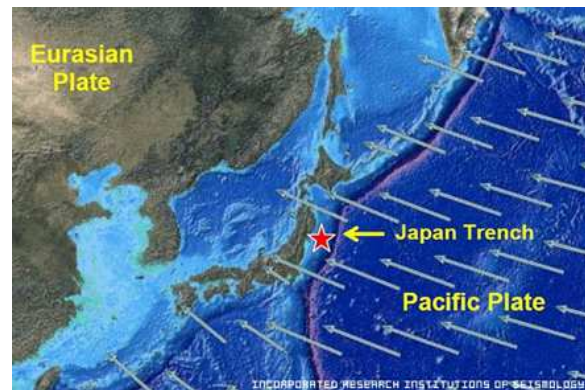


2011 Japanese Earthquake and Tsunami

▲ At 14:46 (local time) on 11 March 2011 magnitude 9.0 earthquake struck 70km off the coast of Japan. The epicentre of the quake was 32km down with the main shock lasting for over five minutes. Due to the intensity of the earthquake, it was felt across almost the whole of Japan, being the most powerful earthquake to ever hit Japan. ▲ Also, the fact that such a large earthquake happened at sea meant a devastating tsunami ensued.

Causes

Due to Japan lying on the boundary between two major plates (Eurasian and Pacific), it receives earthquakes quite frequently. This specific earthquake was caused when the Eurasian plate is dragged down by the Pacific plate until the pressure is too great and the plate 'unzips'. This causes a massive displacement of the water at the epicentre sending large amounts of water thrust towards land. While the plates settled back down again, over 1,000 aftershocks were caused, some happening weeks after the initial shock.



Effects

▲ Although the earthquake was very large, its positioning and Japan's high standard building prevented the earthquake from doing considerable damage. The majority of the damage was caused by the ensuing tsunami.

The total death toll is believed to be around 15,800 with almost 6,000 injured and 3,800 missing. ▲ Although Japan spends billions of dollars on anti-tsunami sea walls, the tsunami simply washed over the top of some seawalls, collapsing a few in the process. Over 45,000 buildings were destroyed by the disaster including 11 hospitals as well as 230,000



vehicles being damaged or destroyed by the tsunami. ▲ All of Japan's ports were closed. Immediate power outages in Tokyo and eight other areas

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reportedly affected some 4 million homes. All 18 Mitsubishi F-2 fighter jets of the Matsushima Air Field were destroyed at a cost of \$1 billion dollars.

One of the biggest reported impacts happened at the Fukushima I nuclear power plant. Although the reactors shut down automatically when the earthquake struck, the resultant tsunami disabled emergency generators required to cool the reactors. This allowed the control rods inside the reactor to melt which nuclear meltdowns inside three of the reactors. The IAEA has rated the events at level 7, the same as Chernobyl, and the highest on the scale – meaning that there is a major release of radioactive material with widespread health and environmental effects.



It is thought that the overall cost of the disaster to be somewhere in the realms of \$300 billion making it the most expensive natural disaster ever recorded. Due to the building collapses, over 500,000 people were left homeless and had to live in temporary evacuation shelters.

Response

Immediately after the earthquake hit, a tsunami warning was issued which may have saved many lives. Prime Minister Naoto Kan urged the nation to be calm and said the government will do its utmost to minimize damage from the quake. The governor of the Miyagi prefecture asked for Japanese military forces to be sent in to help. 128 countries offered aid, from blankets and food, to search dogs and military transport. It also received large amounts of money from various nations including \$120 million from USA and \$51 from South Korea. Fifty-nine search and rescue experts, four medics and two sniffer dogs flew out on a private charter plane with 11 tonnes of equipment on board.

In response to the nuclear disaster at Fukushima I, a nuclear exclusion zone was created and anyone within 20 km of the plant was ordered to leave and anyone within 30 km was urged at first to stay indoors and later evacuated.

Recovery

Following the earthquake, the Japanese stock market plummeted and many companies lost thousands of Yen due the disaster. The stock market has recovered however many smaller businesses



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haven't. ▲Already, many places affected by the tsunami are being recovered and rebuilt. The town of Rikuzentakata, which was hit extremely hard, started having rubble cleared away in September but no sign of reconstruction has begun yet. The exclusion zone surrounding the power plant has started to be reduced and restrictions on residents living between 20-30 km of the plant have been eased but not completely lifted.