A Podcast Guided Tour of Shanghai Earthquake Museum

Leave the traditional guided tours behind and strike out at your own pace with an audio guide. This bilingual podcast is presented by Shanghai Daily and supervised by the Shanghai Science and Technology Committee.

The 2004 Tsunami caused devastating damage across the Indian Ocean, but did you know it was caused by an earthquake? And if you think it was a once off, or even a rare occurrence, think again! Earthquakes happen somewhere in the world every day, with major ones happening on average once a year, and smaller ones 8000 times a day. China is frequently prone to earthquakes, and the casualties are often enormous. Let's find out more about this threat in the Shanghai Earthquake Museum.

Let's begin in the Introduction Hall, take a seat for a short film about the largest and most devastating earthquake in recent history, the 2004 tsunami.

Before we go, have a look at the back of the room. The people featured are major earthquake scientists from China and abroad.

Now let's turn left for the Picture Information Hall.

This section explains the geological causes of earthquakes, how they can be predicted, and what can be done to prepare for them and reduce their damage.

On your immediate right is a map of tectonic plate movement across China, the longer the arrows the greater the movement. The Chinese landmass covers several plate borders , and it's well known that earthquakes are caused by the movement of tectonic plates in the Earth's crust. No wonder

China as a single country has been the site of one third of the world's earthquakes in the last 100 years.

Straight in front is a dissection of the earth. Tectonic plate movements occur usually at a depth of 33km-100km, which means it is extremely difficult to detect and there are no proven ways to accurately predict earthquakes. However China once accurately predicted an earthquake. Turn left and walk down the corridor, on the wall in front is a display of the Liaoning Province's 1975 quake in which Chinese scientists predicted the time, location and severity. This was the first time in world history that all three facts were accurately predicted.

As prediction cannot always be relied on, being adequately prepared for earthquakes and developing disaster relief systems is crucial in reducing its damage. In the last century, nearly half the world's earthquake victims have been Chinese. The reason? Less developed precautionary systems and disaster relief. With China's recent development however this is changing. Walk around the corner and a display facing you on the right shows Shanghai's quake-proof buildings including the Oriental Pearl Tower and Jinmao tower.

Turn the corner again for more displays on the harm caused by earthquakes worldwide and what can be done to reduce it. The wall in front of you shows the earthquake monitoring stations in the Shanghai district.

Turn right out of this section and down a flight of steps. Take a rest in this corridor, there's a light-hearted cartoon about earthquakes to watch here at the same time.

Turn right and walk down the corridor for the Scientific Instruments room. Before you go in though, take a look at the machine just in front.

It’ s a working seismograph used to measure the waves produced by Earthquakes. Want to see a seismogram being produced? Try stamping the ground, the machine will record your movement live.

Also notice above the seismometer a map. This is the first map of China that was made using the earth’ s electromagnetic field, a method brought to China by missionaries during China’ s last Imperial dynasty, the Qing Dynasty.

Let’ s turn right into the instruments room. Here we see a collection of ancient European instruments for the measurement of seismic waves and electromagnetic fields. But how did these end up in Sheshan of all places? The answer is: they were brought to China by missionaries, who were the original founders of the Sheshan Seismic Monitoring Station 133 years ago. Through its long history the station has retained many of the instruments which were once in use there. The earliest of these date back to the late 1800’ s.

A display on the way out of the room shows the station’ s origins in Xujiahui in 1904, where it had started as an astronomical and meteorological observatory. But we will come back to this later. First have a look at the display on your immediate left.

Made by the London scientific instrument makers Elliott Bros. in 1879, this electromagnetic field detector was originally used for globe navigation. Being the museum’ s oldest exhibit, it is one of the most valuable artefacts. It is also one of the only two left in the world. The other one is in the British Museum in London.

The museum’ s other most famous exhibit is a German seismograph invented by Emil Weichert and built in 1909. This is not on public display

due to its delicate nature, though a viewing may be available on request. The impressive, 1200kg machine is a rare example of a groundbreaking invention in 20th Century seismograph technology. Using an inverted and mechanically damped pendulum, it dramatically improved the accuracy and range of seismographs at that time.
Take your time looking around the other instruments on display. Most of them are turn of the century, foreign ones from England, Germany or Russia. But have a look at the one in the centre of the room. This is a 1970's, Chinese built, digital DD-1 Seismograph.

As well as scientific instruments there are also historic documents of seismic activity from the last century. These are in the cabinets on either ends of the room. On the right end there are records for the 1906 earthquake in San Francisco that registered magnitude 8.0, and the 1923, M8.2 Tokyo earthquake. On the other side there are reports on seismic activity and magnetic fields made by missionaries at Xujiahui, where the earthquake observatory was stationed at the time.

Now let's go to the multimedia room through the door on your left. If you're tired don't worry, you can have a rest whilst watching some film clips here. Find a computer in a cubicle and choose from documentaries about quakes in China, abroad and general information.

Next walk down the room and find a computer not in a cubicle. Test your knowledge by answering questions on earthquakes and the displays you've just seen.

At the end of the room there is a replica of the world's most ancient seismometer – the Houfeng Seismometer. Invented in China in 132 A.D. by Han Dynasty astronomer and mathematician Zhang Heng, it predated those of Western countries by more than a millennium. Try stepping on one

of the buttons around the replica. The pearl in the dragon' s mouth will fall into that of the frog underneath. In the original machine this indicated the direction of an impending earthquake. The original machine worked through a pendulum that swung inside a jar much like this replica. During an earthquake the pendulum would swing away from the approaching seismic waves, hit one of the dragons, causing it to drop its pearl and thus indicating the direction the shock waves will travel in.

In the past this method accurately predicted an earthquake in a Western province of China. Since then however the original machine has been lost, but it is believed to be three times the size of this replica.

Let' s move onto the last room by entering the door on the right. Inside you might be surprised to find 8 people lying on the ground. Don' t be alarmed! These are dummies provided for you to try your hand at first aid. In case of an earthquake it is important to know how to look after yourself and others – hence the name of this room: 'save yourself save others'.

Look at the TV screen directly ahead, it shows you the correct way to resuscitate someone and wrap bandages. Try resuscitating a dummy now by imitating what' s onscreen. But first turn on the machine on its left that looks like a remote control. The green light will light up if you do the resuscitation correctly, and the red one will light if you either use incorrect pressure, or push on the wrong part of the body.

Try bandaging as well. The materials are on the shelf opposite the dummies.

That' s about it for our tour today. We hope you enjoyed your visit to the Shanghai Earthquake Museum.

Museum address: Sheshan Earthquake Observation Station, Huanshan Rd, Sheshan in Songjiang District.
Opening times: Daily 9am – 4pm
Admission: For the months of July and August admission is free. Usually 5 yuan adult, 2 yuan student, 4 yuan each for groups. Students and groups need to call ahead to get these prices.
Bus routes to the museum: Take the tourist bus line 1B from Shanghai Stadium, Gate 5, get off at Tianwentai.
For more details contact the museum at: 5765-2473 or check out www.shdzkp.cn

Key Words:

1. Earthquake (n). a series of vibrations at the earth's surface caused by movement of the earth's crust. 地震

2. Electromagnetic field (n). The field of force associated with electric charge in motion, having both electric and magnetic components and containing a definite amount of electromagnetic energy. 地磁

3. Seismometer or seismograph (n). An instrument that records the intensity and duration of earthquakes. 地震仪器

4. Tectonic plate (n). Large plates making up the earth's lithosphere - or solid surface - they underly oceans and continents. Often larger than continents and oceans there are seven major and many minor plates on earth. 地壳板块

5. Magnitude (n). As used in geology - a measure of the amount of energy released by an earthquake, as indicated on the Richter Scale. 震级

6. Epicenter (n). A geological term identifying the point of the earth's surface directly above the point of origin of an earthquake.震中