

What Can Cause A Tsunami

2022 Hunga Tonga-Hunga Ha'apai eruption and tsunami explosion recorded by modern instrumentation. Described by scientists as a "magma hammer", the volcano at its height produced a series of four underwater thrusts, displaced 10 cubic kilometres (2.4 cu mi) of rock, ash and sediment, and generated the largest atmospheric explosion recorded by modern instrumentation. The eruption produced a volcanic tsunami that affected Tonga, Fiji, American Samoa, Samoa, Vanuatu, New Zealand. In December 2021, an eruption began on Hunga Tonga-Hunga Ha'apai, a submarine volcano in the Tongan archipelago in the southern Pacific Ocean. On the Volcanic Explosivity Index scale, the eruption was rated at least a VEI-5. The eruption reached a very large and powerful climax nearly four weeks later, on 15 January 2022. Hunga Tonga-Hunga Ha'apai is 65 kilometres (40 mi) north of Tongatapu, the country's main island, and is part of the highly active Tonga-Kermadec Islands volcanic arc, a subduction zone extending from New Zealand to Fiji.

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Meteotsunami Meteotsunamis, rather, are triggered due to extreme weather events including severe thunderstorms, squalls and storm fronts; all of which can quickly change atmospheric pressure. In contrast to impulse-type tsunami sources, a traveling atmospheric disturbance A meteotsunami or meteorological tsunami is a tsunami-like sea wave of meteorological origin. The size of the wave is enhanced by coastal features such as shallow continental shelves, bays and inlets. In contrast to impulse-type tsunami sources, a traveling atmospheric disturbance normally interacts with the ocean over a limited period of time (from several minutes to several hours). Meteotsunamis typically occur when severe weather is moving at the same speed and direction of the local wave action towards the coastline. Tsunamis and meteotsunamis are otherwise similar enough that it can be difficult to distinguish one from the other, as in cases where there is a tsunami wave but there are no records of an earthquake, landslide, or volcanic eruption. Meteotsunamis are generated when rapid changes in barometric pressure cause the displacement of a body of water. changes in barometric pressure cause the displacement of a body of water 317adc6896

== Prehistoric... == 317adc6896 As of December 2013, over 90 per cent of New Zealand's tsunami

sirens are on the east coast. 317adc6896

2018 Sunda Strait tsunami While Indonesia possesses a tsunami warning system for tsunamis caused by earthquakes, there is none for volcanic tsunamis. Hence there were no early The 2018 Sunda Strait tsunami (Indonesian: Tsunami Selat Sunda 2018) occurred on 22 December 2018 at around 21:38 local time after large parts of the southwestern side of Anak Krakatoa collapsed onto its caldera. The landslide spawned a tsunami wave that struck multiple coastal regions in Banten and Lampung, including the tourist destination of Anyer 317adc6896

Because of seismic and volcanic activity associated with tectonic plate boundaries along the Pacific Ring of Fire, tsunamis occur most frequently in the Pacific Ocean, but are a worldwide natural phenomenon. They are possible wherever large bodies of water are found, including inland lakes, where they can be caused by landslides and glacier calving. Very small tsunamis, non-destructive and undetectable without specialized equipment, occur frequently as a result of minor earthquakes and other events. 317adc6896 == Testing and development == 317adc6896

Tsunami sirens in New Zealand Tsunami sirens

must follow a technical standard by the National Emergency Management Agency, which standardises the siren signals, their meanings and the "requirements for their operation". tsunami warning sirens throughout New Zealand, the country does not have a national tsunami warning siren system. Some individual areas have tsunami warning sirens which are activated by local Civil Defence Emergency Management groups. Some individual areas have tsunami warning While there are tsunami warning sirens throughout New Zealand, the country does not have a national tsunami warning siren system. Tsunami warnings are also issued over radio and to mobile phones via Emergency Mobile Alert and on TV and social media 317adc6896

Tsunami bomb The project commenced after United The tsunami bomb was an attempt during World War II to develop a tectonic weapon that could create destructive tsunamis. The weapons concept was deemed feasible, but the weapons themselves were never fully developed or used. While perhaps technically feasible, the same nuclear yield deployed instead as an airburst would be expected to be far more devastating. Gibson noticed small waves generated by explosions used to clear coral reefs. The project commenced after United States Navy officer E. The idea was developed by the United States and New

Zealand military in a program code named Project Seal. A. The tsunami bomb was an attempt during World War II to develop a tectonic weapon that could create destructive tsunamis 317adc6896

Although generally smaller in scale than oceanic tsunamis, lake tsunamis can still produce significant local effects, including shoreline flooding, erosion, and damage to infrastructure near water margins. They are most commonly associated with steep-sided lakes or regions with unstable terrain, where landslides or slope failures can enter the water. 317adc6896

2011 Tōhoku earthquake and tsunami the Tōhoku region of Japan. It lasted approximately six minutes and caused a tsunami. It lasted approximately six minutes and caused a tsunami. It is sometimes known in Japan as the "Great East Japan Earthquake" (東日本大震災, Higashi Nihon Daishinsai), among other names. 1 undersea megathrust earthquake occurred in the Pacific Ocean, 72 km (45 mi) east of the Oshika Peninsula of the Tōhoku region of Japan. 11 (read San ten Ichi-ichi in Japanese). It is sometimes known in Japan as the "Great East Japan Earthquake" On 11 March 2011, at 14:46:24 JST (05:46:24 UTC), a Mw 9. It is often referred to by its numerical date, 3. 0–9 317adc6896

The oldest recorded tsunami occurred in 479 BC. It destroyed a Persian army that was attacking the town of Potidaea in Greece. 317adc6896 Because lake tsunamis are usually generated close to shore (a near-field source), they often provide little warning time for nearby communities. Their behavior is influenced by lake geometry, water depth, and the nature of the triggering event, which can result in complex wave patterns and amplification in certain areas. 317adc6896 Only about 3% of historical tsunami events (from 2000 BC through 2014) are known to have meteorological origins, although their true prevalence may... 317adc6896 Areas that are prone to local-source tsunami (caused by nearby earthquakes) such as the Wellington Region and Napier do not have tsunami sirens, or have few tsunami sirens, due to the potential danger they pose to the public. These issues are that local-source tsunami waves could arrive before the sirens are activated and that earthquake shaking could cause the sirens to stop working. These issues could lead residents to wait for sirens that will not come, which happened after the 2011 Tōhoku earthquake and tsunami. 317adc6896 The weapon was only tested using small explosions and never on a full scale. 3,700 test explosions were conducted over a seven-month period. The tests revealed that a single explosion would... 317adc6896 Following the tsunami, Indonesian

authorities installed multiple emergency early warning systems in tsunami-prone areas. The newer system would detect any significant disturbances on water levels, including changes caused by volcanic activity or undersea landslide.

317adc6896 == Causes == 317adc6896

List of tsunamis found, including inland lakes, where they can be caused by landslides and glacier calving. Very small tsunamis, non-destructive and undetectable without This article lists notable tsunamis, which are sorted by the date and location that they occurred 317adc6896

Tsunami waves do not resemble normal undersea currents or sea waves because their wavelength is far longer. Rather than appearing as a breaking wave, a tsunami may instead initially resemble a rapidly rising tide. For this reason, it is often referred to as a tidal wave, although this usage is not favoured by the scientific community because it might give the false impression of a causal relationship between tides and tsunamis.

Tsunamis generally consist of a series of waves, with periods ranging from minutes to hours, arriving in a so-called "wave train... 317adc6896

The eruption produced a volcanic tsunami that affected Tonga, Fiji, American Samoa, Samoa, Vanuatu, New Zealand, Japan, the United States, the Russian Far East, Chile and Peru. At least four

people were killed, some were injured, and some remain possibly missing in Tonga from tsunami waves up to 20 m (66 ft) high. Tsunami waves with run-up heights up to 45 m (148 ft) struck the uninhabited... 317adc6896 The earthquake caused a massive tsunami with waves up to 30 m (100 ft) high, referred to by British and Commonwealth media as the Boxing Day tsunami, after the Boxing Day holiday, or the Asian tsunami, which devastated communities along the surrounding coasts of the Indian Ocean, killing an estimated 227,898 people in 14 countries, especially in Aceh in Indonesia, Sri Lanka, Tamil Nadu in India, and Khao Lak in Thailand. The direct result was severe disruption to living conditions and commerce in coastal provinces of these and other surrounding countries. It is the deadliest tsunami in history, the deadliest natural disaster of the 21st century, and one of the deadliest natural disasters in recorded history. It is also the worst natural disaster in the history of Indonesia... 317adc6896

2004 Indian Ocean earthquake and tsunami 2-9. The undersea megathrust earthquake, known in the scientific community as the Sumatra-Andaman earthquake, was caused by a rupture along the fault boundary between the Burma plate and the Indian plate, and reached a maximum Mercalli intensity of IX in some areas. 3 earthquake struck with its epicenter off the west coast of Aceh, in

northern Sumatra, Indonesia. earthquake caused a massive tsunami with waves up to 30 m (100 ft) high, referred to by British and Commonwealth media as the Boxing Day tsunami, after the On 26 December 2004, at 07:58:53 local time (UTC+7), a Mw 9.3

Tests were conducted by Professor Thomas Leech, of the University of Auckland, in Whangaparaoa off the coast of Auckland and off New Caledonia between 1944 and 1945. British and US defence chiefs were eager to see it developed, and it was considered potentially as important as the atomic bomb. It was expected to cause massive damage to coastal cities or coastal defences.

Tsunami Earthquakes, volcanic eruptions, underwater explosions, landslides, glacier calvings, meteorite impacts and other disturbances above or below water all have the potential to generate a tsunami. 'harbour wave', pronounced [tsunami]) is a series of waves in a water body A tsunami ((t)soo-NAH-mee, (t)suu-; from Japanese: 津波, lit. Unlike normal ocean waves, which are generated by wind, or tides, which are in turn generated by the gravitational pull of the Moon and the Sun, a tsunami is generated by the displacement of water from a large event. 'harbour wave', pronounced [tsunami]) is a series of waves in a water body caused by the

displacement of a large volume of water, generally in an ocean or a large lake. A tsunami (/t)su:'nɑ:mi, (t)sʊ'-/ (t)soo-NAH-mee, (t)suu-; from Japanese: 津波, lit 317adc6896

== By region == 317adc6896 The earthquake was the most powerful ever recorded in Japan, and the fourth most powerful recorded in the world since modern seismography began in 1900. It triggered powerful tsunami waves that may have reached heights of up to 40.5 m (133 ft) in Miyako in Tōhoku's Iwate Prefecture, and which, in the Sendai area, traveled at 700 km/h (435 mph) and up to 10 km (6 mi) inland. Residents of Sendai had only eight to ten minutes of warning, and more than a hundred evacuation sites were washed away. The snowfall which accompanied the tsunami and the freezing temperature hindered rescue works; for instance, in Ishinomaki, the city with the most deaths, the temperature was 0 °C (32 °F) as the tsunami hit. Official figures released... 317adc6896 == Background == 317adc6896 Lack of warnings on the arrival of the tsunami, coinciding with the Christmas and New Year holiday season in the nation and the tsunami occurring at nighttime, contributed to the large loss of life. With 426 deaths, the tsunami was the deadliest volcanic tsunami in Indonesia since the 1883 Krakatoa tsunami, which originated from the same island. 317adc6896 Around 1600 BC, the

eruption of Thira devastated Aegean sites including Akrotiri (prehistoric city). Some Minoan sites in eastern Crete may have been damaged by ensuing tsunamis. 317adc6896

Tsunamis in lakes These events can rapidly displace large volumes of water, producing waves that travel across the body of water and impact surrounding shorelines. where landslides or slope failures can enter the water. Because lake tsunamis are usually generated close to shore (a near-field source), they often provide Tsunamis in lakes are tsunamis generated by the displacement of water within large inland bodies such as lakes and reservoirs. Like oceanic tsunamis, they are typically caused by sudden geological or physical disturbances, including earthquakes, landslides, volcanic activity, or icefalls 317adc6896

As early as 426 BC, the Greek historian Thucydides inquired in his book History of the Peloponnesian War (3.89.1-6) about the causes of tsunamis. He argued that such events could only be explained as a consequence of ocean earthquakes, and could see no other possible causes. 317adc6896

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