In 1867, a Magnitude 7.5 Earthquake Caused Tsunamis in the USVI (Danish West Indies) That Destroyed Charlotte Amalie and the Frederiksted Waterfront

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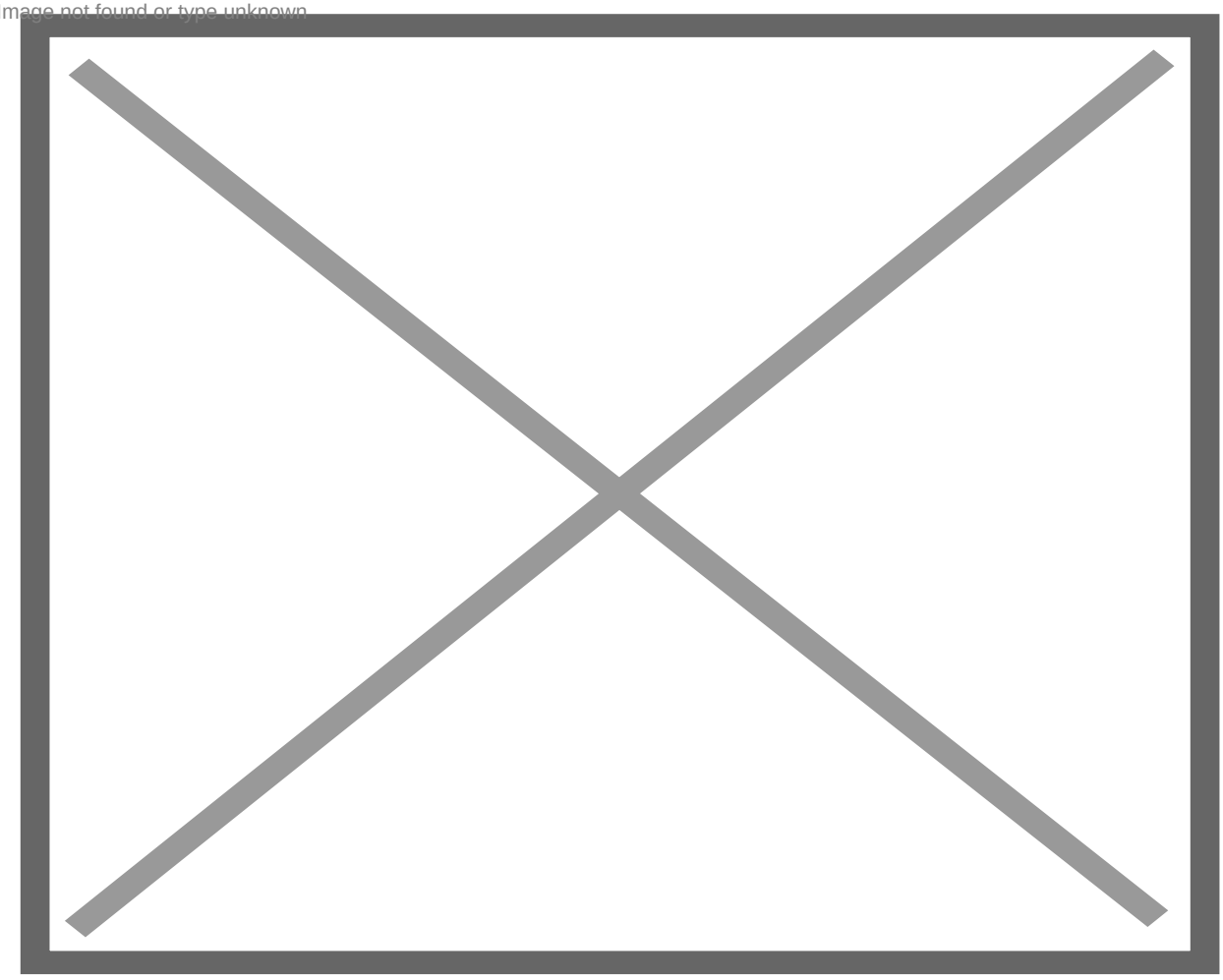

Wrecked ships in the harbor of St. Thomas, Danish West Indies, a result of the tsunami that followed an earthquake in the ocean between St. Thomas and St.Croix, 18 November 1867. Wood engraving from a contemporary English newspaper By. GRANGER NYC (PURCHASED VIA ALAMY)

In light of the apparently incessant earthquakes that continue to pummel Puerto Rico, especially the island's southern portion (just this morning at 4:00, a magnitude-4.9 earthquake struck PR), we thought it prudent to do some research on the U.S. Virgin Islands' (then the Danish West Indies) most destructive earthquake and subsequent tsunamis on record, as residents continue to pay close attention to the events unfolding in neighboring PR.

This information was gathered and published by the University of South Carolina's Tsunami Research Center

On the afternoon of November 18, 1867, a magnitude 7.5 earthquake occurred in the Anegada trough, located between St. Croix, and St. Thomas. The earthquake actually consisted of two shocks, separated by ten minutes. These shocks generated two tsunami waves that were recorded at several island locations across the eastern Caribbean region, most notably on the Islands of St. Thomas and St. Croix.

The first tsunami wave struck the town of Charlotte Amalie, on the island of St. Thomas, approximately 10 minutes after the first shock, and the second wave approximately 10 minutes after the second shock. Both waves struck the harbor at Charlotte Amalie first as a large recession of water, followed by a bore, which eyewitness accounts describe as a 4.5 to 6.1 meter (14.7-20 foot) wall of water. At the southern point of Water Island located approximately four kilometers from Charlotte Amalie, the bore was reportedly 12.1 meters high. That's 39. 6 feet high.

The waves destroyed many small boats anchored in the harbor, leveled the town's iron warf, and either flooded out or destroyed all buildings located along the waterfront area. The waves also damaged a United States Navy ship De Soto, that happened to be anchored in the harbor at the time of the event. The tsunami produced an estimated 2.4 meters of runup at Charlotte Amalie, and a maximum 75 meter inland inundation.

Fredriksted St. Croix was struck by two large tsunami waves, each approximately 7.6 meters high (24.9 feet), according to eyewitness accounts. These waves caused severe damage along the waterfront, washing several wooden houses and other structures a considerable distance inland. The waves destroyed many of the smaller boats anchored in the harbor, and beached a large United States Navy ship, the Monongahela. A total of five people died as a result of the tsunami. Eyewitness accounts from Frederiksted indicated that the water withdrew from the harbor almost immediately after the earthquake, which suggests that the first wave to strik might have been a local tsunami produced by a submarine landslide.

Reports from Christiansted, St. Croix, indicate that the tsunami inundated an area up to 91 meters inland. The greatest damage in Christiansted occurred at Gallows Bay, where the waves destroyed 20 houses and beached many boats.

Effects of the 1867 Tsunami at Other Caribbean Locations, according to the University of the West Indies

The 1867 Virgin Islands tsunami was recorded at several other islands in the eastern Caribbean region.The tsunami produced 1.2 to 1.5 meters of run-up, and washed away most of the smaller buildings on the island of Tortola in the British Virgin Islands. In St. John on the Island of Antigua, the tsunami produced a 2.4 to 2-meter run-up. At St. Rose on the island of Guadeloupe, the tsunami reportedly struck as a 18.3 meter wave, flooding houses and damaging boats. This extreme value however, is most likely an exaggeration, as it exceeds the maximum wave heights reported at the locations closest to the earthquake's epicenter, and the tsunami waves reported at nearby Basse-Terre where only 2 meters high. At Bequia Island the tsunami washed in as a 1.8 meter wave. At St. George, on the island of Grenada, 1.5 meter tsunami waves damaged boats and buildings. The tsunami was also observed at several locations on the eastern shore of Puerto Rico. At all location the tsunami was marked by an initial recession of water from the shore.