



The Giant Lake Geneva Tsunami

" Monster lake tsunamis happened before and could happen again"

A 52' documentary film directed Laurent Graenicher



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Tsunamis can occur both in lakes and in the sea. A millennium-and-a-half ago, Geneva was destroyed by a giant wave. Recent geologists from the University of Geneva fear it could happen again.

Presentation

In 563AD a tsunami devastated Geneva. Two accounts of the disaster, one by Gregory of Tours and the other by Marius of Avenches, have survived.

The risks associated with tsunamis have come into focus. Most tsunamis occur in the marine realm and are associated with large earthquakes. However, landlocked communities in regions without mega-earthquakes are not exempt from their destructive effects....

"It's certainly happened before and I think we can expect that it will probably happen again sometime," says Professor Jean-Jacques Wagner, Swiss seismologist at the University of Geneva. The Swiss city could face a new flooding, should a major rock fall triggers a tsunami on Lake Geneva, as seems to have happened a 1.500 years ago.

An old story

The "Tauredunum event" was recorded in some detail by Gregory of Tours in his History of the Franks. He wrote:

"A great prodigy appeared in Gaul at the fortress of Tauredunum, which was located on high ground above the River Rhône. Here a curious bellowing sound was heard for more than sixty days: then the whole hillside was split open and separated from the nearest mountain, and it fell into the river, carrying with it men, churches, property and houses."

In AD 563, more than a century after the Romans gave up control of what Geneva, Switzerland is now, a deadly tsunami on Lake Geneva poured over the city walls. Originating from a rock fall where the River Rhône enters at the opposite end of the lake to Geneva, the tsunami destroyed surrounding villages, people and livestock, according to two known historical accounts...

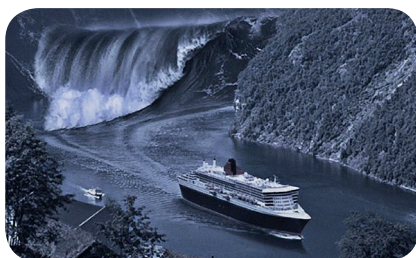
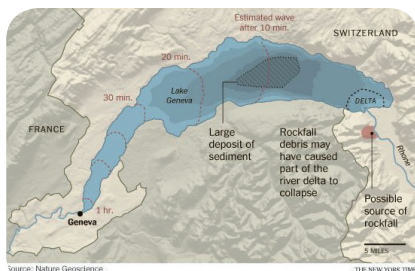


The research

For the very first time, a team of researchers from Geneva led by Stéphanie Girardclos and Guy Simpson reports geological evidence supporting these ancient accounts.

Creating high-resolution profiles of the lake Geneva's sediment composition and using seismic reflection from a ship, the team has found that the 563-tsunami may not have been directly caused by the landslide, but by the collapse of sediments on the lake bed.

Researchers also used the geological information gathered in the survey to recreate how the wave might have behaved. Their model predicted that a 13-metre-high wave would have hit Lausanne 15 minutes after the rock fall, with an 8-metre-high wave reaching Geneva after 70 minutes.

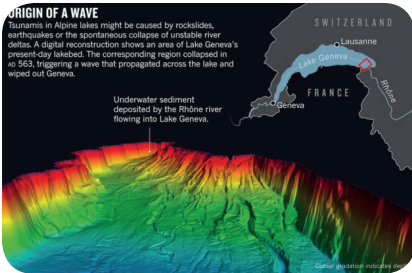


A tsunami could happen again

This investigation proves that the region would be wise to evaluate the risk today, with more than one million inhabitants living on the lake's shores, including 200,000 people in Geneva alone. Dr. Simpson said the Rhone delta sediments might collapse again someday, perhaps from an earthquake or even their own weight, and a resulting tsunami could be far more devastating.

« If this has happened five to six times since the last glaciation, there's reason to believe it could happen again in the future » said geologist Stéphanie Girardclos.

The study is a reminder that even a landlocked nation like Switzerland is not immune to catastrophic waves.



The scientists & the experts

- Stéphanie Girardclos from the Institute for Environmental Sciences at the University of Geneva, Switzerland studies paleoclimatology and geomorphology.

Stephanie and her team work on tsunami risks and were among the first researchers to discover the origins of the 563 Tsunami in the Geneva Lake. They use new technologies and an earthquake simulator to learn more about the seismic risks in Switzerland.

- Flavio Anselmetti, geologist at the University of Bern

A new program led by the Centre for marine environmental sciences in Bremen, the Swiss seismology service and the Swiss environment launch a two-million-Swiss-franc research project to investigate how likely it is that the country could be struck by a tsunami again,

- The École polytechnique fédérale de Lausanne (EPFL) is a research institute and university in Lausanne, Switzerland, that specializes in natural sciences.

The data obtained by the survey will be fed into a computer simulation programme giving scientists an idea of the effects of a tidal wave and its potential magnitude.



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