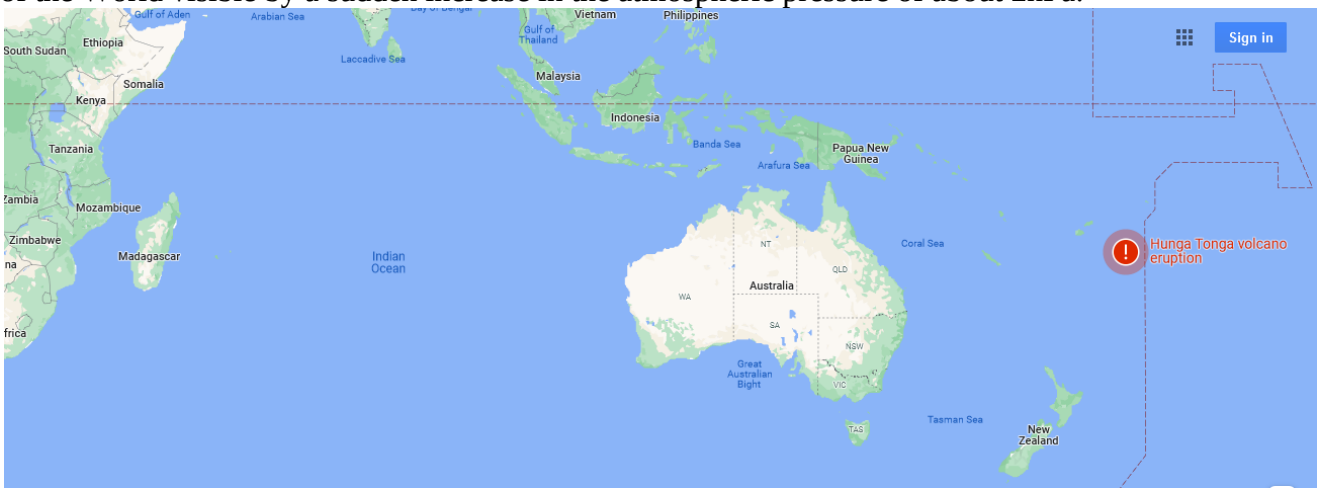
The undersea Volcano of Tonga and its Shock Wave

The eruption of the Volcano in Tonga as reported in caused tsunamis in Tonga, Fiji, American Samoa, Vanuatu, and along the rim of the Pacific Ocean, including damaging tsunamis in New Zealand, Japan, the United States, the Russian Far East, Chile, and Peru. Waves up to 15 m high were generated and a 2 m wave struck the coast. Preliminary data indicated that the event was probably the largest volcanic eruption in the 21st century and the largest since the 1991 eruption of Mount Pinatubo.

The shockwave generated by the massive volcanic eruption in Tonga in the Pacific Ocean on Saturday 15 January 2022, which was felt in many parts of the globe, was recorded in many parts of the World visible by a sudden increase in the atmospheric pressure of about 2hPa.



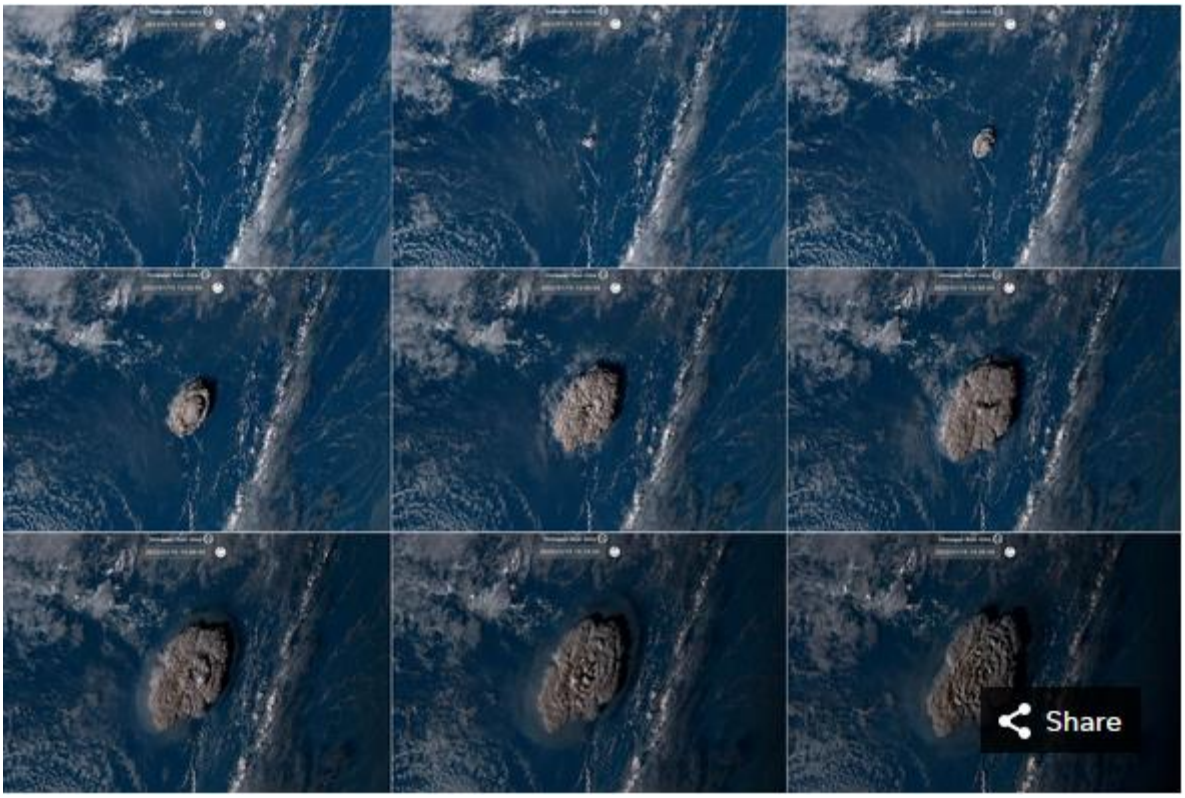
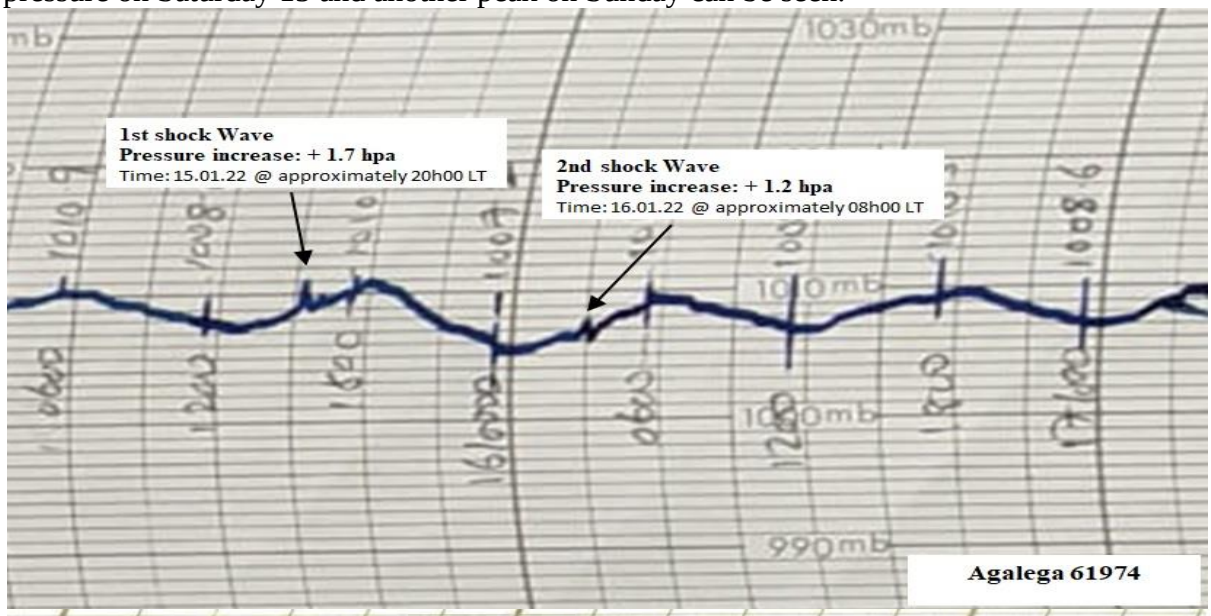


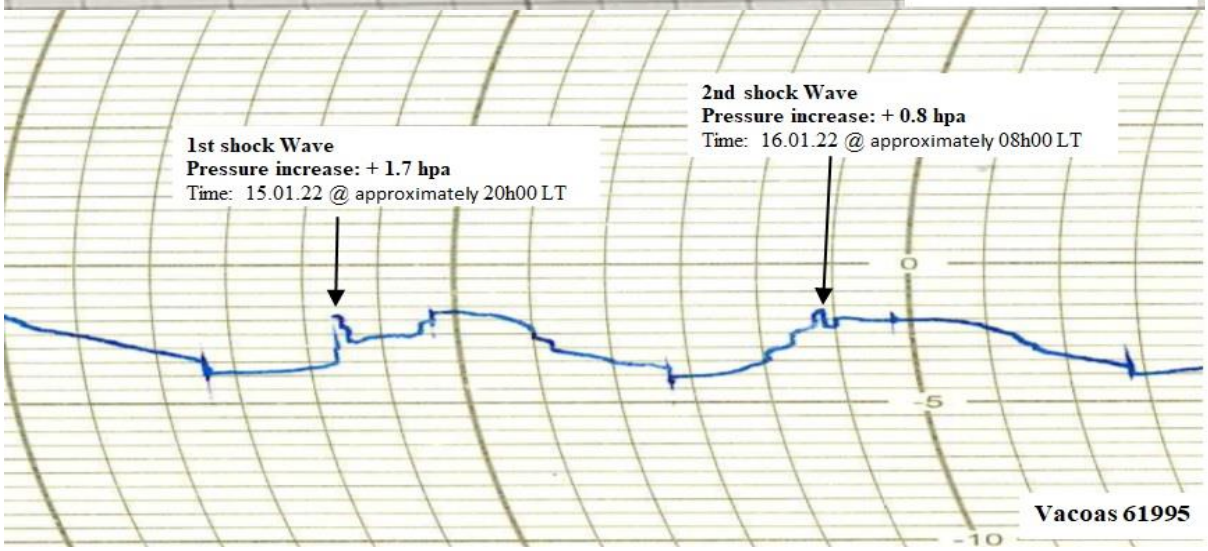
Figure 1: Himawari-8, a Japanese weather satellite operated by Japan Meteorological Agency and released by National Institute of Information and Communications Technology (NICT), shows an undersea volcano eruption of the Pacific nation of Tonga Saturday, Jan. 15

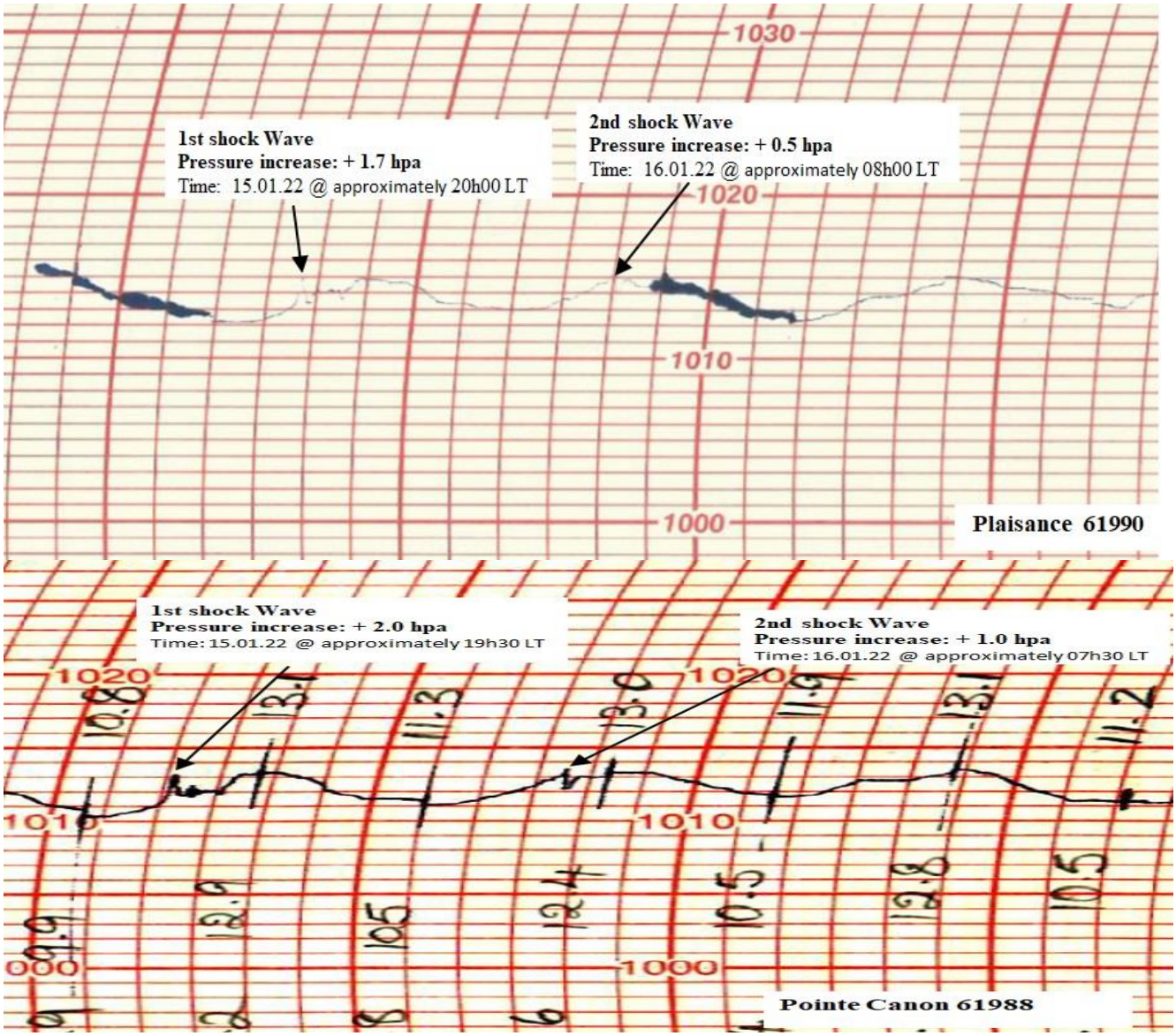
It was recorded as a blip in the atmospheric pressure that suddenly spiked by around two hectoPascals(hPa). The eruption of the submarine volcano, believed to be one of the largest in recent history, took place at 5.15 p.m. local time (Tonga) on Saturday (08h45a.m-Mauritius), triggering tsunami waves of varying intensity along the coasts of many countries on the Pacific Ocean.

The sound was heard in some places in New Zealand, located roughly 2,500 km away. The Alaska Volcano Observatory in the United States, located more than 9,500 km away from the site of the eruption, reported that a part of the shockwave measured there was in the audible range. The observatory tweeted one of their scientists saying, “The very large signal is not that surprising considering the scale of the eruption, but the audible aspect is fairly unique.”
While it could not be heard in the Republic of Mauritius, it was recorded as a sharp but minor increase in atmospheric pressure.
The speed of travel is estimated to be around 1,200km/h.
The rise in pressure was recorded at La Reunion also.

The barograms of Vacoas, Plaisance Agalega and Rodrigues are attached where the increase in pressure on Saturday 15 and another peak on Sunday can be seen.







Ref: https://www.thehindu.com/news/cities/chennai/shockwave-from-tonga-volcanic-eruption-recorded-in-chennai/article38281020.ece
https://edition.cnn.com/2022/01/15/asia/tsunami-warning-tonga-volcano-intl-hnk/index.html

https://www.usatoday.com/picture-gallery/news/world/2022/01/18/before-after-images-tonga-volcano-eruption-and-tsunami/6561258001/

https://en.wikipedia.org/wiki/2022_Hunga_Tonga_eruption_and_tsunami

Director, Meteorological Services,
St Paul; Road Vacoas,
***Tel*: 6861031/32, Fax: 6861033, *email*: meteo@intnet.mu**

Updated on: 21 Jan 2022