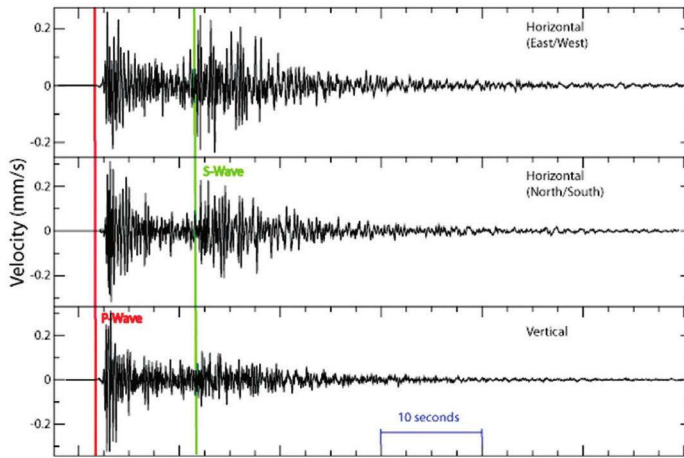


# Beersheba researchers predict equakes by measuring electromagnetic instead of seismic radiation

• By JUDY SIEGEL

Earthquake forecasting and warning systems are inaccurate and ineffective, according to researchers at Ben-Gurion University of the Negev and the Sami Shamoon College of Engineering, both in Beersheba.

Prof. Avinoam Rabinovitz of BGU's physics department, Prof. (emeritus) Dov Bahat of the geological and environmental sciences department, and Dr. Vladimir Fried of Shamoon College's structural engineering department said that hundreds of millions of dollars have been spent around the world over several decades to measure seismic (acoustic) radiation to predict deadly earthquakes, but they have been "wasted" because this



AN ISRAELI STUDY proves that seismic waves like these can't be used to predict earthquakes. (Wikimedia Commons)

radiation is absorbed into the earth days before it occurs.

In Israel alone, tens of millions of dollars have been invested in such monitoring,

even though it is not effective and has not prevented human and property damage from earthquakes. Instead, they suggest measuring

electromagnetic radiation, which may warn of a deadly earthquake hours or even days in advance.

Their research suggests that earthquakes can be predicted successfully this way, taking into account the special shape of the pulses analyzed and measured in the past by the researchers.

Their study - which has just been published in the Cambridge University journal *Geological Magazine* - proved, contrary to the prevailing assumption, that future earthquakes cannot be predicted by seismic radiation. This is because although such radiation is high in the prelude to an earthquake, it is absorbed by the Earth's rock. As a result, it is not possible to detect it at a distance of several kilometers from the center of the quake. At the same time, the radiation frequency is reduced and measured, but it is too late to warn against the catastrophe.

However, they found that electromagnetic radiation emitted by earthquakes at high frequencies in their early nucleation stages is absorbed much less in the rock and can therefore be measured.

"We showed how a huge investment of hundreds of millions of dollars or more in seismic measurements to predict earthquakes over the years was unsuccessful," Rabinowitz said.

"The innovative seismic warning systems, such as those currently installed in Israel, relate to the treatment of an earthquake when it actually occurs and only serve as a kind of [late] alarm, similar to an alarm that warns of a missile that has already been launched."

Instead, he suggested monitoring electromagnetic radiation as a function of time to sift the data from the earthquake's nucleation processes to be able to predict its arrival. "Such action would bring blessing to the world in preventing damage caused by a lack of early warning against earthquakes," Rabinowitz said.