Chile eyes quake fault that could strike capital

August 11 2017, by Giovanna Fleitas

The National Seismological Center (CSN) of the University of Chile is in charge of monitoring seismic activity in Chile

Earthquake-prone Chile may be one of the countries best prepared for seismic shocks, but officials are nervously watching a major fault line that could shift any time, threatening the capital.

Long accustomed to quakes such as the 8.8 monster that killed some 500

people in 2010, Chile has strict building norms aimed at limiting damage from the shifting of tectonic plates.

But seismologists are now closely monitoring a more unusual earthquake threat: the San Ramon fault.

Underground near the capital Santiago and its seven million inhabitants, a thrust from San Ramon could tear open the teeming eastern side of the city.

The government insists its earthquake precautions are impeccable—but experts are urging it to make sure no more new buildings are built over the fault.

'Major earthquake' due

Most of Chile's quakes come from the boundary of the Nazca and South American tectonic plates south of the capital, the source of the 2010 disaster.

San Ramon has not caused a major quake for thousands of years. But experts warn it may be gearing up for a new one.

They started monitoring this breach in the earth's crust in October in a program scheduled to run until 2019.

Their findings so far indicate the fault is moving and producing minor quakes of magnitude two, so small they are generally imperceptible to humans.

"Enough tectonic force has built up to generate another major earthquake" at the fault, said geologist Gabriel Vargas, director of the monitoring project.

"It could happen in the next few minutes or in the next 100 or 1,000 years."

The San Ramon fault, which is 30 kilometers (19 miles) long, could generate tremors "at least two or three times more intense than what we felt during the 2010 earthquake," he said—even though the magnitude of the quake at its source may be less.

The magnitude of the great 2010 quake was measured as 8.8 at the epicenter, 500 kilometers south of Santiago, and 8.3 in the capital itself.

Officials estimated the cost of the damage at $30 billion. But for such a violent quake, the death toll of just over 500 people was considered relatively low.

Prepare for the worst

Chile is one of the world's most earthquake-prone countries.

In the past seven years it has had three quakes of a magnitude greater than eight.

The 1960 Valdivia earthquake in Chile was the strongest quake ever recorded at 9.5 on the magnitude scale, according to the US Geological Survey.

The country has therefore developed an intensive seismic monitoring system and strict building safety norms. Citizens are accustomed to feeling their homes shake during tremors.

Mario Pardo, deputy head of Chile's National Seismology Center, said authorities must be prepared for the worst in the case of San Ramon.

Seismologists have placed 12 underground monitoring stations near the fault, and a 13th is soon to be installed.

"This helps us assess the fault to find out... how big an earthquake could occur on the fault, and whether the whole of the fault is active," said Pardo.

Based on the observations of Vargas and other international experts, the team estimates that San Ramon could generate a quake of up to magnitude 7.5. But they cannot rule out a bigger one.

Ground opens up

At the fault, one side of the breach in the earth's crust risks being forced upwards and crunching over the other, Vargas said.

That could rupture the very surface of the ground in districts on the eastern side of Santiago, home to 1.7 million people.

"We have been saying for years that nothing should be built over the San Ramon fault, because of this risk," Vargas said.

Yet construction in the city has continued to spread eastward.

While a building may be designed to withstand tremors, the opening-up of the ground itself is a different risk entirely.

Vargas urged authorities to take the fault line into account.

"Systems must be developed to respond to the risk of a rupture in the surface in the event of a major quake at the fault," he said.