MailOnline

Chile earthquake moved whole city 10 feet to the west

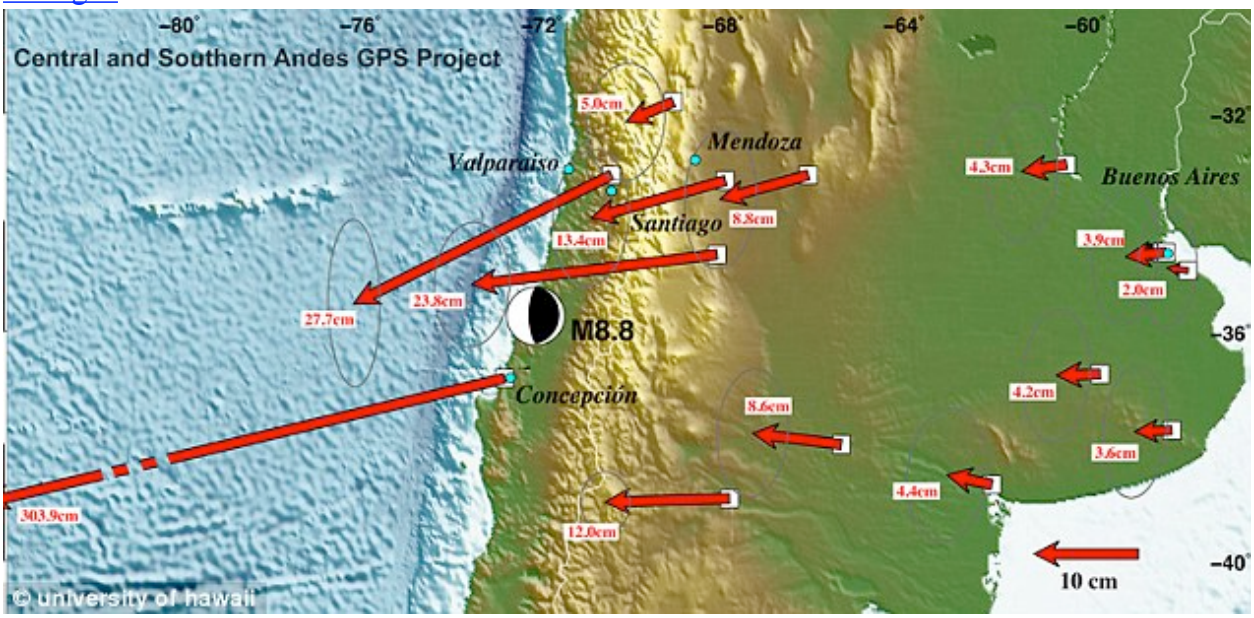
By Claire Bates

Last updated at 12:08 AM on 10th March 2010

The massive earthquake that struck near Maule in Chile, moved the entire city of Concepcion at least 10 feet to the west, experts have revealed.

The destructive event, which measured a magnitude of 8.8, also shifted other parts of South America as far apart as the Falkland Islands and Fortaleza, Brazil.

Enlarge



A graphic created by the Central and Southern Andes GPS Project. It shows the displacement in centimetres of the area surrounding the Chile earthquake epicentre. Concepcion moved the furthest at 303.9cm

Scientists measured the impact of the February 27 earthquake by comparing precise GPS locations from before the event to those 10 days later.

These revealed Chile's capital, Santiago, moved about 11 inches to the southwest. Even Argentina's capital, Buenos Aires, which is 800miles from the epicentre, moved an inch.

The earthquake is believed to be the fifth most powerful since seismic measurements began.

It even knocked Earth a little off its axis. Nasa's Dr Richard Gross calculated the tremors moved the axis about which Earth's mass is balanced by about three inches. It even shortened the length of the day by about one-millionth of a second.

More...

- Chile earthquake knocked Earth off its axis and made days shorter, says Nasa

The quake’s epicentre was in a region of South America that’s part of the so-called 'ring of fire', an area of major seismic stresses which encircles the Pacific Ocean.

All along this line, the tectonic plates on which the continents move press against each other at fault zones.

Soldiers patrol the earthquake damaged streets of Dichato, Chile. Two million people have been displaced the event

A destroyed building in Concepcion, Chile. The whole city shifted 10feet to the west as a result of the February earthquake

Dr Mike Bevis from Ohio University, has led the CAP project since 1993 that uses GPS to analyse the crust of Chile.

The area is of particular interest because it is an active subduction zone where the Nazca oceanic plate is colliding with the South American continental plate and being squeezed into the Earth's molten mantle below.

This creates a build up of geologic pressures, which caused the Chilean quake in February.

The US Geological Survey reported that there have been dozens of aftershocks, many exceeding a magnitude 6.0 or greater, since the initial event February 27.

Dr Bevis' team, made up of scientists from U.S and Argentinian universities, hopes to add 50 extra GPS stations to its current 25. This should help them to measure the ongoing movement and deformation of the crust.

The earthquake shifted land as far apart as the Falkland Islands and Fortaleza, Brazil

Team member Ben Brooks, from the University of Hawaii said: 'The Maule earthquake will arguably become one of the, if not the most important great earthquake yet studied.

'We now have modern, precise instruments to evaluate this event, and because the site abuts a continent, we will be able to obtain dense spatial sampling of the changes it caused.

'As such the event represents an unprecedented opportunity for the earth science community if certain observations are made with quickly and comprehensively.'

Read more: http://www.dailymail.co.uk/sciencetech/article-1256597/Chile-earthquake-moved-Concepcion-city-10ft-west.html#ixzz0hjmgUKxU