

= 2014 Orkney earthquake =

The 2014 Orkney earthquake occurred at 12 : 22 : 33 SAST on 5 August , with the epicentre near Orkney , a gold mining town in the Klerksdorp district in the North West province of South Africa . The shock was assigned a magnitude of 5 @. @ 5 on the Richter scale by the Council for Geoscience (CGS) in South Africa , making it the biggest earthquake in South Africa since the 1969 Tulbagh earthquake , which had a magnitude of 6 @. @ 3 on the Richter scale . The United States Geological Survey (USGS) estimated a focal depth of 5 @. @ 0 km (3 @. @ 1 mi) . According to the USGS , the earthquake was " severely dangerous " as the epicentre was located near Orkney and Klerksdorp . The CGS reported 84 aftershocks on 5 August and 31 aftershocks on 6 August , with a magnitude of 1 @. @ 0 to 3 @. @ 8 on the Richter scale . According to the CGS , the earthquake is the biggest mining @-@ related earthquake in South African history .

= = Cause = =

= = = Historical seismicity = = =

While earthquakes are uncommon in South Africa in general , the earthquake occurred in a mining belt where earthquakes are relatively common . The CGS had described a 2005 earthquake with a magnitude of 5 @. @ 3 on the Richter scale in the same area as Orkney as " the largest mining @-@ related earthquake in South Africa " . The earthquake occurred on 9 March 2005 at DRDGOLD 's Hartebeesfontein mine in Stilfontein , killing two miners underground and resulting in the closure of the mine . An investigation by the mining regulator following the incident found that it was caused by mining and further seismic events would occur while mining continued . The report on the investigation recommended improvements in seismic monitoring among other things , and some of the recommendations had been implemented before the 2014 earthquake . The USGS recorded a 4 @. @ 9 moment magnitude earthquake on 15 June 2014 in the same area , which earth science consultant Dr Chris Hartnady believes may have been a foreshock .

= = = Expert opinions = = =

While both mining activity and natural faults could be causative factors , it is difficult to establish a precise cause . According to Professor Andrzej Kijko from the University of Pretoria 's Natural Hazard Centre , mining can activate natural faults . He believes that more than 90 % of South Africa 's earthquakes are caused by mining , especially around the areas of Klerksdorp , Carletonville and Welkom . According to Hartnady , " This part of Africa is in the vicinity of the East African Rift system , which is being pulled apart by a few millimetres annually . " He says " earthquakes are caused by a slip on a fault line and the release of stored elastic energy " and mining activity could have triggered the earthquake . Kijko and Hartnady believe that ? unlike the 1969 Tulbagh earthquake ? this event was a mining @-@ related earthquake which is a relatively more common occurrence than a natural earthquake in South Africa . Professor Ray Durrheim , a seismologist at Wits University , said seismic events will continue while there is mining activity in the area , and even long afterwards . He said the flooding of inactive mines could also compound pressure on geological faults , triggering further seismic events . According to Durrheim , the link between mining and earthquakes lies " on a continuum , from where it 's purely induced by mining activities to where you are triggering a natural earthquake " .

= = = Council for Geoscience = = =

According to Michelle Grobbelaar from the CGS , " There 's a rule of thumb that if you experience an earthquake with a certain magnitude in the past , you can always expect an earthquake of a similar magnitude in that same area . " Grobbelaar and Denver Birch , also from the CGS , said that

the cause of the earthquake was difficult to determine given that it occurred in a mining area and the lack of historical seismic data for the area . Ian Saunders from the CGS confirmed that a team would be sent to the area for further investigation , and Eldridge Kgaswane from the CGS said they should be able to determine the cause within a month . According to Kgaswane , " The fact that the deepest mine shafts are shallower than the epicentre doesn 't mean mining can be ruled out as a cause . Blasting in the vicinity of a big fault could have activated seismic activity . " On 18 August 2014 at a Council for Scientific and Industrial Research (CSIR) seminar in Pretoria , the CGS confirmed that the earthquake was caused by mining @-@ related activity , making it the biggest ever mining @-@ related earthquake recorded in South Africa .

= = Impact = =

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= = = Areas affected = = =

The earthquake was felt as far as 600 km (370 mi) from Orkney . It was felt in neighbouring countries Botswana , Swaziland , Lesotho and Mozambique . The two tallest buildings in Bloemfontein , the former CR Swart Building and the Lebohang building , as well as tall buildings and University of Pretoria halls in Pretoria and offices of the South African Revenue Service in Durban were evacuated . According to Michelle Grobbelaar , manager of the CGS 's seismology unit , the earthquake was felt in Durban because " the beach sand tends to amplify the ground motion " . Buildings in Maputo in Mozambique were also evacuated . The Meteorological Services of Zimbabwe confirmed that Zimbabwe was not affected by the earthquake .

= = = Casualties = = =

There was a single fatality , 31 @-@ year @-@ old Mosotho man Leshomo Makhaola , who died when a wall of an old mining house collapsed on him in Kanana , North West . An ER24 spokesperson said that miners had reportedly been trapped in 11 mine shafts at a mine in Orkney ; however , subsequent inspections revealed that the miners at that location were safe . All 3 @, @ 300 AngloGold Ashanti miners underground at its Great Nologwa and Moab Khotsoeng mines near Orkney had been brought to the surface by 19 : 30 SAST on 5 August , including 34 who had been injured . All 34 miners were treated for minor injuries , including lacerations , contusions and a broken leg , and discharged from hospital on 6 August . AngloGold Ashanti management had proceeded with the evacuation after their temporarily interrupted power supply was mostly restored , mine management had contacted the mine crew underground by telephone and mine engineers had ensured that the shaft infrastructure was in working order . AngloGold Ashanti emergency medical staff had treated injured miners , and counsellors had treated some employees for shock . Mining operations at their Great Nologwa and Moab Khotsoeng mines were subsequently suspended pending safety checks .

= = = Damage = = =

There was extensive damage to buildings in Orkney and the surrounding areas , partly due to

inadequate building construction vulnerable to earthquake damage . The Khuma township near Stilfontein was one of the worst affected areas , with more than 600 homes damaged by the earthquake . An aftershock occurred in Khuma in the afternoon of 5 August while residents were assessing the damage to their homes . Three clinics in the North West province were damaged , leading to the closure of two of them . Two schools were damaged and some pupils were unable to attend classes as the classrooms were too badly damaged .

In the days following the earthquake , most of South Africa 's major banks and insurance companies had begun receiving insurance claims . By 6 August 2014 , ABSA had received 200 claims , Standard Bank had received 129 claims and Mutual & Federal had received 11 claims . A survey of 17 insurance companies done by finance website Justmoney showed that 5 out of the 17 companies surveyed would reject insurance claims related to the earthquake if it was proven to be mining @-@ related . In a response to the Survey , ABSA , who was on the list of 5 , affirmed that they have received approximately 1100 claims and were in the process of finalising them .

= = Response = =

The CGS warned that aftershocks were expected in the days following the earthquake and they could possibly continue for months . They recommended that buildings be evacuated in the event of an aftershock . The mining regulator 's chief inspector of mines David Msiza asked mining companies in affected areas , including Klerksdorp , Carletonville and Rustenburg , to undertake underground inspections to ensure no miners were trapped and the working conditions were safe for miners . AngloGold Ashanti denied responsibility for the earthquake , saying it occurred away from its mining infrastructure .

Premier of North West Supra Mahumapelo promised residents that all who were affected by the earthquake would receive help . Mahumapelo said that counselling , social relief and temporary accommodation were being provided , and that the buildings and infrastructure damaged in the earthquake might take years to repair . The North West provincial government started the North West Disaster Relief Fund to help residents affected by the earthquake . Teams were sent to investigate damage to parts of the Dr Kenneth Kaunda District Municipality by the municipality . The Cabinet of South Africa sent its condolences to the family of the man who was killed by the earthquake .

On 30 September 2014 , the Inkatha Freedom Party expressed its concern for the residents of Khuma as repairs to their homes were delayed and had not yet commenced . Provincial government spokesperson , Bonolo Mohlakoana said that construction was delayed partly due to a lack of structural engineers , which were needed to assess the structural damage caused to the houses . Several families affected by the earthquake moved to a community centre while waiting for their houses to be repaired after affected families were instructed to move to safer locations .