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Coalmining set off Newcastle earthquake: researchers

Wendy Frew Environment Reporter
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TWO hundred years of underground coalmining triggered the Newcastle earthquake that killed 13 people in 1989 and caused damage that ran to billions of dollars, researchers in the US have found.

Christian Klose, from Columbia's Lamont-Doherty Earth Observatory, said a major fault beneath Newcastle's coalfields was reactivated after coal was extracted and water was pumped out to keep the longwall mines dry.

In his paper, presented to the American Geophysical Union in San Francisco last month, Dr Klose said geomechanical pollution - the removal of millions of tonnes of coal and four times as much water - had significantly changed the stress field in the earth's upper crust below the Newcastle coalfield since 1801.

He estimated the \$US3.5 billion damage done by the earthquake exceeded the total value of the coal extracted in the area.

He said his research also had implications for geosequestration (burying carbon dioxide underground) because earthquakes could release the gas.

"That [injection of carbon dioxide underground] alters stress in the crust," Dr Klose told the American Geophysical Union, *National Geographic* reported. He told the audience the risk of earthquakes should be taken into account in planning where such facilities were located. "Don't put the injection fields close to large cities," he said.

A number of countries are researching geosequestration as a way of coping with the huge amounts of greenhouse gases released into the atmosphere when fossil fuels are burned to produce energy. The hope is to develop technology that will capture the greenhouse pollution and inject it underground.

A senior seismologist at the Federal Government's research unit, Geoscience Australia, Dr Phil Cummins, said Dr Klose's research was interesting but there was still a lot of uncertainty about the exact cause of the Newcastle earthquake.

"The work seems credible but I think the conclusions are somewhat overstated," he said.

There are nine large full-cycle carbon capture and storage experiments under way around the world, according to an international coal lobby group, the World Coal Institute.

There are still questions about the viability of the technology.

Dr Klose said a change to mining practices could reduce the risk of earthquakes, but he did not know of any mining engineers researching the topic because they were not aware of the

risk.

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