



1987 Edgecumbe earthquake

At 1.35pm on 2 March 1987, a magnitude 5.2 earthquake struck the Bay of Plenty region, cutting power and sending many people outdoors. Minutes later, at 1.42pm, a much stronger quake rocked the region. This main shock had a magnitude of 6.3 and was centred north of Edgecumbe. Four aftershocks with magnitudes greater than five occurred in the next six hours, and smaller aftershocks were felt for weeks.

The Edgecumbe earthquake was the first since the 1968 Inangahua earthquake to cause major damage. Although not of an exceptional magnitude, it was damaging because it was very shallow. No one was killed, but several dozen people suffered serious injuries. One woman was hurt by a falling piano in her home, and another was hit by a bull thrown out of its pen at a stock yard. Industrial sites were also badly affected. At the Edgecumbe substation, a 20-tonne transformer was shaken from its mountings during the quake.

Some roads cracked or acquired 'judder bars' as the ground buckled. Railway tracks were twisted and bent, and a diesel-electric locomotive toppled over.

The most spectacular effect of the Edgecumbe earthquake was the seven-kilometre long rift that appeared across the Rangitāiki Plains – the Edgecumbe Fault. A fissure up to three metres wide and 3-4 metres deep opened up along much of the fault, although some sections were marked just by zones of cracks. A woman who had been picking fruit was thrown from a ladder by the quake. Soon after, she was driving hurriedly down a road to check her home when her car became airborne and flew six metres across the rift, landing at the bottom of the scarp.

The earthquake had been caused by movement along the fault; the land to the north-west had dropped by up to two metres. The region which sank downward is now more prone to flooding.

Eileen McSaveney, 'Historic earthquakes', Te Ara – the Encyclopedia of New Zealand, updated 21-Sep-2007.

URL: <http://www.TeAra.govt.nz/EarthSeaAndSky/NaturalHazardsAndDisasters/HistoricEarthquakes/en>

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Photograph: Alexander Turnbull Library.



In the Edgecumbe rail yards, an 80-tonne locomotive lies on its side. The heavier main shock caused the tracks to buckle, toppling the locomotive.

EQC

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RUMBLINGS

FOR THE INSURANCE INDUSTRY

EQC and Heurisko partner up for schools programme

Organising school field trips to places more remote or risky than the local museum is a challenge for schools. And, as greater numbers of people face economic belt tightening, the drawbacks of far-flung field trips are obvious.

But a field trip remains a great way to fire the interest of students and hopefully thereby to encourage them to take their studies beyond school. EQC has long looked at ways to do this in the Earth Science arena.

So we are giving schools the opportunity to go on a virtual field trip – the field trip you take when you're staying in the classroom.

EQC has asked Heurisko, a leader in learning technology, to create a series of three LEARNZ virtual field trips specifically designed for secondary school students.

There will be a trip focusing on a particular natural hazard in each of the next three years. A visit to the Auckland Volcanic Field has just been completed, with a qualified teacher going to the location, supporting interaction between classes of students and experts.

Dr Jan Lindsay, the EQC Research Fellow in Volcanic Hazard and Risk at the University of Auckland, was one of the experts that students talked to on the Auckland Volcanic Field trip. The trips are designed to fit clearly within the curriculum and are supported by an extensive range of classroom activities.

The programme gives students an understanding of the work of the geosciences community and an awareness of career opportunities and qualification pathways within Earth Science. Encouraging more people into the discipline will help build our understanding of the forces that have created New Zealand and thereby reduce our vulnerability to the natural disasters that those forces can produce.

For more information, visit the LEARNZ website (www.learnz.org.nz).



Rangitoto Island in Auckland's Hauraki Gulf.

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Information in this newsletter can be re-used. Please attribute the source as the Earthquake Commission's "Rumblings". We'd like your feedback on the items in "Rumblings", and any questions you'd like answered in future issues.

Please write to us at "Rumblings", Earthquake Commission, PO Box 790, Wellington. You can also contact us on **fax** (04) 978 6431, **freephone** 0800 326 243, **email** info@eqc.govt.nz, **web** www.eqc.govt.nz

New Zealand Government



EARTHQUAKE COMMISSION | NEWSLETTER | July 2009



Bruce Glavovic

EQC Fellow in Natural Hazards Planning

Bruce Glavovic was appointed the first EQC Fellow in Natural Hazards Planning in July 2005. Based at Massey University, the EQC-funded fellowship aims to provide vision and leadership for the field of natural hazards planning in New Zealand and to advance understanding of the social dimensions of hazards more generally.

Bruce has a multi-disciplinary education, with degrees in economics and agricultural economics, environmental science, and urban and environmental planning. He has been at Massey University for seven years. For the previous 15 years he worked in academia, private consulting and government in South Africa and the USA.

He has introduced new courses on natural hazards planning at both undergraduate and postgraduate levels at Massey. The courses are part of the core planning curriculum but are also open to other students, including those studying Emergency Management. Bruce supervises postgraduate students doing research on various aspects of hazards.

Among other things, he is working with colleagues on an EQC-funded project about how to deal with post-

disaster debris. He has also been investigating lessons learned from recent floods, notably the 2004 lower North Island floods and the 2007 and 2008 Northland floods. He has conducted extensive interviews in the USA Gulf Coast to learn from their recovery planning efforts after Hurricane Katrina and what is being done about future climate change risks and impacts in this extremely vulnerable region.

Bruce recently facilitated a Memorandum of Understanding between Massey University and the University of North Carolina, Chapel Hill, USA, to enable local scholars to work collaboratively with counterparts at the prestigious Center for the Study of Natural Hazards and Disasters.

Bruce also works closely with colleagues at the Massey-GNS Science Joint Centre for Disaster Research, tackling the challenge of building resilient communities.

They have focused attention on improving dialogue between local social science disaster researchers and between these researchers and emergency management policy-makers and practitioners. These efforts culminated in two workshops that sought to build

a common understanding about the challenges and opportunities for improving dialogue and cooperation. The reports can be downloaded from <http://disasters.massey.ac.nz/pub-reports.htm#GNS>.

Bruce's own research focuses on the role of planning in building sustainable, hazard-resilient communities. His particular areas of interest are natural hazards planning; adapting to climate change; negotiation, collaborative planning and consensus building; understanding poverty-environment linkages and driving forces; and integrated environmental management, with a focus on the coast.



Bruce Glavovic

What a difference a year makes

EQC received 1,003 claims in the first six months of 2009. In the same period last year the Commission received 5,072 claims. These two figures are a stark reminder of the unpredictable influence of Mother Nature on the Commission's workload.

2008 was a particularly busy year for the Earthquake Commission – with almost 9,000 claims received by its end and a brand new claim management system launched.

Earthquakes generated the most claims with 6,589 received at a cost of \$13.7 million. A large proportion of these came from the December 2007 Gisborne earthquake. Many people didn't lodge their claims from the magnitude 6.8 quake until the New Year, and this largely accounts for the difference between this year and last. At the peak of the Gisborne operation, more than 70 staff were handling claims from two field support centres in the city. The two centres merged in May and then finally closed at the end of July.

An earthquake of magnitude 5.9 beneath Hastings on 25 August generated 1,378 claims with settlements at the time of publication totalling \$2 million.

Although landslip, storm and flood damage generated far fewer claims (2,251) than earthquakes, at \$40 million they cost the Commission three times as much.

Nationwide storms in July produced a total of 894 claims with a cost of \$20 million. The damage was spread across the country. Support centres were opened in the worst affected areas of Auckland, Wellington and Blenheim to handle the claims, with the last closing in December.

Of course, there is no law of nature or any other sort that means a busy year is necessarily followed by a quiet year. So far so good, but we remain prepared for the vagaries of New Zealand's climate and the consequences of life lived on less than solid ground.



Harold Williams stands among the fallen bricks from the west wall of his house in Gisborne after the magnitude 6.8 earthquake in December.

Myth or Fact?

EQC launched a new "Natural disasters: myths and facts" series of press and internet advertisements in February.

The ads run on alternate Saturdays in provincial and national daily newspapers and on selected websites such as Stuff, the New Zealand Herald and TVNZ.

They take a look at common myths about natural disasters and provide the facts, supported by a relevant expert. They also encourage people to take action to prevent natural disaster damage to their homes.

The aim of the ads is to pique people's interest, reinforce EQC as a credible source of information on natural disasters and, of course, to persuade people to prepare.

NATURAL DISASTERS: myths & facts

Fact. Shelter under a solid object during an earthquake

John Hamilton, Director of Civil Defence says that in an earthquake the best advice is to **drop, cover and hold under** a table or desk, so as to protect against falling objects and debris.

A widely circulated email suggests incorrectly that, during an earthquake, people should shelter next to solid items to create a protective void, a 'triangle of life'.

Relying on information from unrecognised sources could put you, or your family in danger. Far better to go to getthru.govt.nz and eq-iq.co.nz to get some good advice on how to be safe in an earthquake and how to make your home quake safe.

BROUGHT TO YOU BY



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New Zealand Government

This press advertisement from EQC's new "Myths & Facts" series debunks the "triangle of life" myth and provides advice on what to do during an earthquake. The head of Civil Defence, John Hamilton, provided the expert advice and the ad encouraged people to visit both the EQC and Civil Defence preparedness websites.

Tephra Trouble: Volcanic Hazards Road Show

In 2008 an EQC-supported travelling road show called Tephra Trouble visited centres in the north of the North Island and Christchurch to communicate 15 years worth of knowledge of volcanic hazards, and their potential impact on New Zealand. Shows were held in Hamilton, New Plymouth, Auckland, Tauranga and Christchurch.

They were run by Associate Professor David Johnston (Massey University and GNS Science), PhD student Tom Wilson (University of Canterbury), Associate Professor Shane Cronin (Massey University) and environment scientist Dr Carol Stewart.

Over the past 10 – 15 years, considerable research has been undertaken on the impact that a volcanic eruption would have on New Zealand.

In addition to work in New Zealand, a series of post-impact assessment reconnaissance trips have been undertaken, many funded by EQC, to document impacts from volcanic eruptions in Argentina, Chile, Ecuador, USA, Italy, Iceland, Philippines, Japan and Indonesia.

These trips have considerably increased our understanding of likely impacts to lifelines, communities and key primary industries. Testing of the impact of volcanic ash on the operation of equipment, essential for the successful operation of lifelines and agriculture, has also been undertaken.

The Tephra Trouble road shows presented this wealth of knowledge to interested audiences, including the general public, to help improve volcanic hazard awareness.

Smoke and ash rises from the Chaiten volcano near the flooded town of Chaiten in southern Chile, 17 June 2008.

Reviewing EQC's Catastrophe Response Programme

EQC's day-to-day resources cope with a workload of around 3,000 claims per year. However, a large earthquake or prolonged volcanic eruption could generate more than 150,000 claims.

Clearly there will be a requirement to increase the size of the organisation at such a time. The Commission's Catastrophe Response Programme (CRP) sets out the arrangements in place to manage these situations. Following this logic, a "catastrophe" is defined as something which EQC's normal routines are insufficient to deal with. The programme includes an alternative operations site and the provision of additional staff and equipment.

The CRP is continuously evolving and improving. Its documentation is of necessity long, detailed and complex. Furthermore, experience, knowledge and technology do not stand still and EQC must keep pace with change in these areas and also with the changing environment in which it will operate.

EQC recently had its CRP, and the way it has been practised, reviewed externally to provide confidence that the programme will achieve its objectives.

"EQC needs to know whether, in the event of a major and widespread natural disaster, the CRP and the way it is implemented will enable EQC to meet its obligations, as set out in the Earthquake Commission Act, to a

standard acceptable to the government and public of New Zealand," says EQC's chief executive, David Middleton.

The review panel comprised five experts including General Peter Cosgrove, formerly of the Australian army.

The review involved a week-long process of interviewing people both inside and outside EQC, researching the documentation and investigating processes set out in the programme.

EQC has received the panel's report and it has been presented to the Board. In summary, the findings provide the Board with assurance that the Commission's planning and implementation is well up to the mark. There are of course suggestions for further investigation and the Commission will be working through them over the coming months, evaluating each one carefully and recommending a course of action where required.