

91191



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

2

SUPERVISOR'S USE ONLY

Level 2 Earth and Space Science, 2012

91191 Demonstrate understanding of the causes of extreme Earth events in New Zealand

2.00 pm Tuesday 27 November 2012

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of the causes of extreme Earth events in New Zealand.	Demonstrate in-depth understanding of the causes of extreme Earth events in New Zealand.	Demonstrate comprehensive understanding of the causes of extreme Earth events in New Zealand.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL

ASSESSOR'S USE ONLY

QUESTION THREE: THE TSUNAMI RISK FROM A PUYSEGUR TRENCH EARTHQUAKE

The Alpine Fault continues down through the South Island and extends under the Tasman Sea as the Puysegur Trench. Movement along the fault line can cause earthquakes to occur.

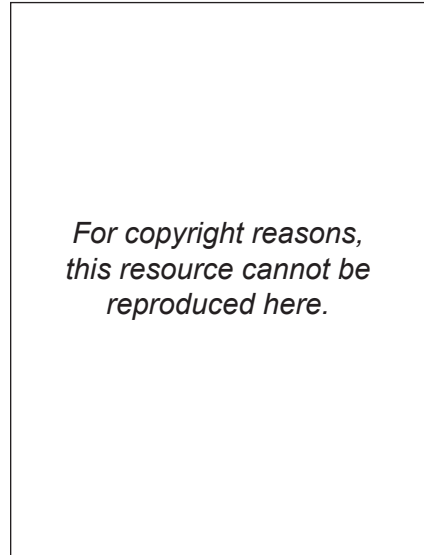
In 2003, a magnitude 7.2 earthquake struck Fiordland and caused two different types of tsunami to occur. One of these was due to landslides in the fiords.

Puysegur Trench Area



<http://earthobservatory.nasa.gov/IOTD/view.php?id=39415&src=coa-iotd>

Fiordland landslide



www.geonet.org.nz/var/storage/images/media/images/news/2003/fiordland-quake-200-02-1/50801-1-eng-GB/fiordland-quake-200-02-1.jpg

Explain how earthquakes cause landslides into the sea and why this can result in tsunamis.

Your answer should include:

- tectonic plate movement and landslide formation
- an explanation of how a tsunami is formed
- the energy transmission from the plate movement
- the size of generated tsunamis.
