19. National CDEM warnings

Summary Warnings are different types of notifications used to advise agencies, authorities, and/or the public of possible events, enabling them to prepare for a potential or actual emergency.

Contents The section contents are:

19.1 Objective

General warnings

60 Objective

(1) The objective is to issue warnings so that local authorities, agencies, and people can take action to reduce loss of life, injury, and damage.

(2) Warnings about predictable events (for example, severe weather, volcanic eruption, tsunami) are to be given as quickly as practicable.

(3) For unpredictable events like earthquakes and some volcanic events, where warning is not possible, the objective is to inform emergency response by providing assessments of the likely impact on any affected areas.

(4) The responsibility for issuing warnings rests with the agency that through its normal function is involved with the identification and analysis of the particular hazard or threat (see Appendix 1).

(5) Relevant government agencies, CDEM Groups, local authorities, and lifeline utilities must maintain arrangements to respond to warnings.

At the national level, warnings or advisories of an event with potentially adverse consequences are to be issued as quickly as practicable. The aim is to forewarn or inform so that authorities, agencies and people can take appropriate readiness or response actions in relation to the potential or actual event or its consequences.

19.2 Scope

61 Scope

(1) Warning systems are to provide warnings about significant hazards with the potential to affect human populations, geographical areas, or social or economic activities.

(2) This plan does not cover—

(a) localised, long-term, or slowly-evolving threats; or

(b) the local actions and procedures required to disseminate or respond to warnings.

(3) The effectiveness of a warning depends on its delivery and receipt, recipients' understanding of what they should do under the particular threats, and readiness and response at all levels.

19.3 National warning system

62 National warning system

(1) The national warning system establishes a process for the receipt of general warnings and communication of civil-defence-emergency-management related information for warning purposes at all hours by MCDEM.

(2) MCDEM maintains the national warning system to issue civil defence warnings received from responsible agencies.

(3) The standard operating procedure under this system specifies the principles and methods for disseminating national warnings.

(4) National warnings must be provided by MCDEM to CDEM Groups, local authorities, police, certain government departments, lifeline utilities, and certain broadcasters.

(5) Different hazards require different types of warnings and procedures. The civil defence emergency management hazards for which national warnings may be issued are listed in Appendix 1.

(6) CDEM Groups are responsible for—

(a) disseminating national warnings to local communities; and

(b) maintaining local warning systems.

(7) If arrangements are made with the duty officer of MCDEM, the national warning system is available to issue warnings with respect to hazards for which warning arrangements are decided and maintained by other responsible agencies.

Plan Appendix 1: National warnings **cls 60(4), 62(5)**

Civil defence emergency management hazards for which national warnings can be issued

Hazard	***Responsible agency***	***Support agency or agencies***
Severe weather	*Meteorological Service of New Zealand Limited (MetService)*	*MCDEM, Ministry of Health, CDEM Groups, police, fire service, and nominated radio and TV*
Earthquake	*Institute of Geological and Nuclear Sciences Limited*	*MCDEM, Ministry of Health, CDEM Groups, and fire service*
Volcanic unrest/ eruption	*Institute of Geological and Nuclear Sciences Limited*	*MCDEM, Ministry of Health, CDEM Groups, police, and fire service*
Tsunami	*MCDEM*	*Ministry of Health, CDEM Groups, police, fire service, and nominated radio and TV*

Note: National warnings can be issued via the national warning system for any type of hazard.

Note! Plan Appendix 1 reference to 'Institute of Geological and Nuclear Sciences Limited': The Institute of Geological and Nuclear Sciences was renamed GNS Science after the making of the National CDEM Plan.

Note! Plan Appendix 1 National warnings – earthquake support agencies: New Zealand Police are also a support agency in addition to the agencies listed.

MCDEM issues warnings or advisories when:

- an event poses a threat or potential threat to people and/or property and may result in an emergency; or
- when it considers there is sufficient public interest to state that an event does not pose a threat.

The type of warning or advisory to be issued will depend on the event type and potential impact. The presentation and contents of warnings or advisories issued via the national warning system is tailored for the specific end users. The national warning system is illustrated in Figure 19.1.

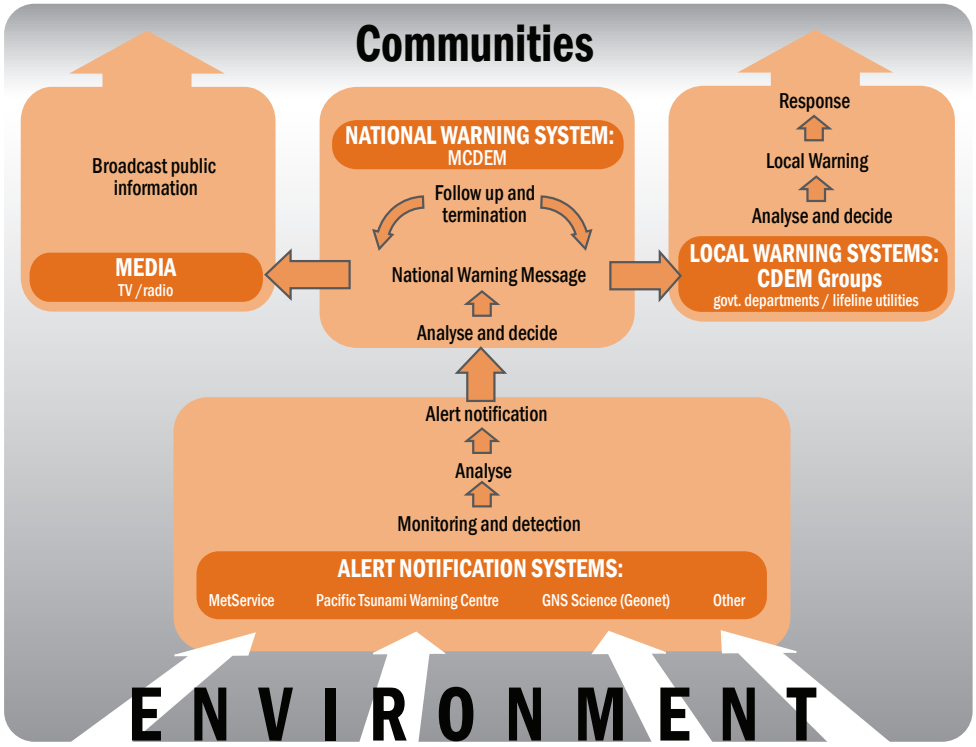

Figure 19.1 *The national warning system.*

19.3.1 Types of warnings issued via the national warning system

Notifications

Depending on the assessment of the information, MCDEM may issue one or more of the following notifications (warnings or advisories) via the national warning system:

- National Advisory – Earthquake
- National Advisory – [Type of Hazard]: No Threat to NZ
- National Advisory – [Type of Hazard]: Potential Threat to NZ
- National Advisory – Volcanic Activity: Minor volcanic eruption
- National Warning – [Type of Hazard]: Threat to NZ
- National Warning – Volcanic Activity: Moderate volcanic eruption
- National Warning – Volcanic Activity: Major volcanic eruption
- National Advisory – [Type of Hazard]: Cancellation Message
- National Warning – [Type of Hazard]: Cancellation Message
- Media Release
- National Warning – Test Message

MCDEM will follow up a National Advisory – [Type of Hazard] Potential Threat to NZ with one of the following:

- Hourly (or more frequent) updates (for tsunami messages only)
- National Warning – [Type of Hazard] Threat to NZ
- Cancellation Message

A National Warning – [Type of Hazard] Threat to NZ will be followed up by either one of the following:

- Hourly (or more frequent) updates (for tsunami messages only)
- Cancellation Message

Media releases

Media releases are issued in conjunction with all warning, advisory or cancellation messages issued via the national warning system. In addition to this national arrangements are in place for the broadcast of emergency announcements via radio and television networks (for further information see Section 22, Public information management).

19.3.2 Recipients of warnings issued via the national warning system

Warnings are issued via the national warning system to CDEM Groups and their constituent members, government agencies and lifeline utilities registered with the national warning system. All recipients are to respond to the information in accordance with their own arrangements, including dissemination of local warnings as required.

The prerequisites for participation in the national warning system are described in the standards outlined in 19.3.3.

Agencies that meet the required standards and wish to receive warnings via the national warning system must register with MCDEM.

19.3.3 Standards for participation in the national warning system.

It is the responsibility of all agencies receiving warnings via the national warning system to maintain systems to receive, disseminate and respond to warnings.

Effective delivery of warnings is dependent on recipients meeting the performance standards specified in **Table 19.1.**

Output	Performance standard
Capability to receive and respond to warnings	All hours. Procedures are in place to facilitate an effective response to warnings.
Maintenance of communication systems	Landline telephone, cell phone, and/or email must be accessible at all hours.
Provision of numbers/ addresses	A recipient agency must as far as possible register a single address for the receipt of warnings or advisories. The contact address can connect to one or more individual recipients within the participant agency. • Agencies must provide the following contact details: • email address • duty telephone number • duty email address • duty cellular number for SMS text message Recipient agencies are to ensure contact details are current and correct, and are to manage the recipients under any address.
Participation in national warning message tests	Participate in national warning system tests (4 per year).

Table 19.1 *Standards for registration with the national warning system*

Note: Effective delivery of warnings is also dependant on the public telecommunication infrastructure underpinning the warning system being functional at the time. When this is not the case alternative but less effective means will be applied in order to warn agencies.

19.3.4 Monitoring and review of the national warning system

Procedures for the dissemination and receipt of warning messages via the national warning system are subject to continuous review and improvement.

If changes occur that impact on recipients, all recipients will receive sufficient notification (at least one month) before the changes take effect.

19.3.5 Testing the national warning system

MCDEM will send a national warning system test message to all recipients four times per year. Testing includes the following:

- two of these tests are to be conducted after normal working hours (normal working hours being 0800–1700 Monday to Friday, statutory holidays excluded); and
- tests are conducted without prior notice.

Note: a test message is not followed up by a cancellation message.

Participants are encouraged to use national warning system tests to test/exercise their own local or agency warning arrangements.

19.3.6 Contact lists

MCDEM maintains lists of all recipients' contact details. The lists are regularly reviewed. All recipients are required to forward changes of contact details to MCDEM as they occur.

19.3.7 Procedures for the issue and receipt of warnings or advisories

MCDEM

Following instruction by the Director of CDEM or the National Controller to issue a warning, MCDEM will:

- send the appropriate type of warning, advisory or cancellation message by email and SMS text message to those registered with the national warning system;
- contact the MCDEM Regional Emergency Management Advisors (REMAs) to advise them that a warning has been issued and allow them to call the relevant CDEM Groups to ensure they have received the message;
- send a request for broadcast message to the listed public broadcasters;
- monitor the delivery of the message; and
- send updates (at least hourly for tsunami) with further information or a cancellation message via the same system (note, a Cancellation Message will not be issued for a National Advisory – [Type of Hazard]: No Threat to NZ, a National Advisory – Earthquake, and National Warning – Test Message).

All recipients

Upon receipt of a warning or advisory sent via the national warning system all recipients must respond as per their individual emergency response procedures.

19.4 Specific hazards monitoring and warning

A number of agencies are entrusted with the responsibility of monitoring specific hazards and issuing or supporting the issue of warnings for specific hazards at the national level.

Warnings for specific hazards are issued in accordance with the actions set out below.

19.4.1 Severe weather

Lead agency: MetService

Support agency: MCDEM

Warning scope/content: Pre- and during event

MetService is the official source of meteorological warnings in New Zealand. A contract between MetService and the Minister of Transport specifies the requirements.

Messages about severe weather issued by MetService fall into three general groups:

- Outlooks, Watches and Warnings of widespread severe weather
- Outlooks, Watches and Warnings of local severe weather
- Advice about severe weather which is not captured by the widespread or local severe weather messages above.

Table 19.2: Outlooks, Watches and Warnings of widespread severe weather:

Message...	Issued...
Severe Weather Outlook	Every day, in the early afternoon It describes the likelihood of widespread heavy rain, heavy snow or severe gales occurring in the 3–6-day period.
Severe Weather Watch	Whenever it is likely that conditions will deteriorate to those requiring the issue of a Severe Weather Warning after the immediate 24-hour period but within 48-72 hours, or Whenever it is possible that conditions will be close to severe within the next 24-48 hours, particularly if there is a high level of uncertainty.
Severe Weather Warning	Whenever it is likely that widespread heavy rain, heavy snow or severe gales will occur in the next 24-36 hours. Sent to MCDEM, CDEM Groups, New Zealand Police, Transpower and the media, etc., are published on the MetService's website (www.metservice.com), and are available by publicly subscribable email list. MCDEM, Regional Councils and Transpower controllers receive a telephone call from MetService on first issue of Severe Weather Warnings and may receive subsequent calls if the forecast changes significantly. Severe Weather Watches and Warnings may be issued any time but are usually issued around 0900 and 2100 hours. The Severe Weather Outlook is published on MetService's website and the text of it is available by publicly-subscribable email list. MCDEM reacts to severe weather warnings by checking on CDEM readiness with the relevant REMA and CDEM Group when it is apparent that an extraordinary event is forecast.

Table 19.3: Outlooks, Watches and Warnings of local severe weather:

Message...	Issued...
Severe Thunderstorm Outlook	Twice daily, mid-morning and mid-evening. It describes the likelihood of severe thunderstorms bringing localised heavy rain, heavy hail or strong winds (including tornadoes) occurring in the next 24-36 hours. The Severe Thunderstorm Outlook is published on MetService's website.
Severe Thunderstorm Watch	Whenever there is a moderate or high likelihood that severe thunderstorms bringing localised heavy rain, heavy hail or strong winds (including tornadoes) will occur over the New Zealand landmass within the next 24 hours.
Severe Thunderstorm Warning	Whenever information from the MetService weather radar or some other reliable source indicates that a severe thunderstorm (bringing localised heavy rain, heavy hail or strong winds (including tornadoes)) exists within a 180 km radius of a MetService weather radar and it is possible to track and predict the expected path of the thunderstorm. Severe Thunderstorm Watches and Warnings are sent to MCDEM, CDEM Groups, New Zealand Police, the media, etc., are published on MetService's website (www.metservice.com), and are available by publicly-subscribable email list. Because of the short lead time on Severe Thunderstorm Watches and Warnings, MCDEM, Regional Councils and Transpower controllers do not receive a telephone call from MetService when issued.
Severe Thunderstorm Outlooks, Watches and Warnings are not issued for the Chatham Islands.	

Table 19.4: Advice about severe weather which is not captured by the widespread or local severe weather messages:

Message...	Issued...
Special Weather Advisory	Whenever a weather event is likely to cause significant disruption to the general public or specific industry groups within the following 48 hours but does not meet the criteria for issuing a Severe Weather Warning. A Special Weather Advisory may also be issued following a significant weather event which caused widespread damage and disruption in order to assist with post-storm operations. Sent to specific users, including the media, published on MetService's website and available by publicly-subscribable email list.
Road Snowfall Warning	Whenever there is a likelihood of snow settling and causing disruption within the next 24 hours on the following roads: Desert Road, Rimutaka Hill Road, Lewis Pass, Arthur's Pass, Porters Pass, Lindis Pass and the Milford Road. Sent to specific users, including the media, published on MetService's website and available by publicly-subscribable email list.

Message...	Issued...
Snow Otago Warning	Whenever heavy snow is expected to affect South Canterbury and Otago in the next 24 hours, such that snow accumulation exceeds 20 cm at or below 1500 metres within 24 hours but is not sufficient to warrant the issue of a Severe Weather Warning. Sent to specific users, including the media, published on MetService's website and available by publicly-subscribable email list.
Swell Warning	Whenever the swell or the combined waves (depending upon the area) on a prescribed coast is expected to reach above warning limits within the forecast period, before midnight the following day. Swell warnings are issued only for parts of the New Zealand coast. Sent to MCDEM and specific users but not published on the MetService website or made available to the media.
Advice of Abnormally High Sea Water	Whenever the sea level on a prescribed coast is expected to be abnormally high. Only issued for a limited part of the New Zealand coast. Sent to MCDEM and specific users but not published on the MetService website or made available to the media.

19.4.2 Volcanic unrest or eruption

Lead agency: GNS Science

Support agencies: MCDEM, MetService, Ministry of Health, CDEM Groups, Police and Fire Service.

Warning scope/content: Pre, during and post-event

Volcanic unrest

GNS Science, through the GeoNet Project, is the national source of volcanic monitoring and alerts. GNS Science (GeoNet) notifies MCDEM of any change in volcanic alert level status (see Table 19.5) through Volcanic Alert Bulletins.

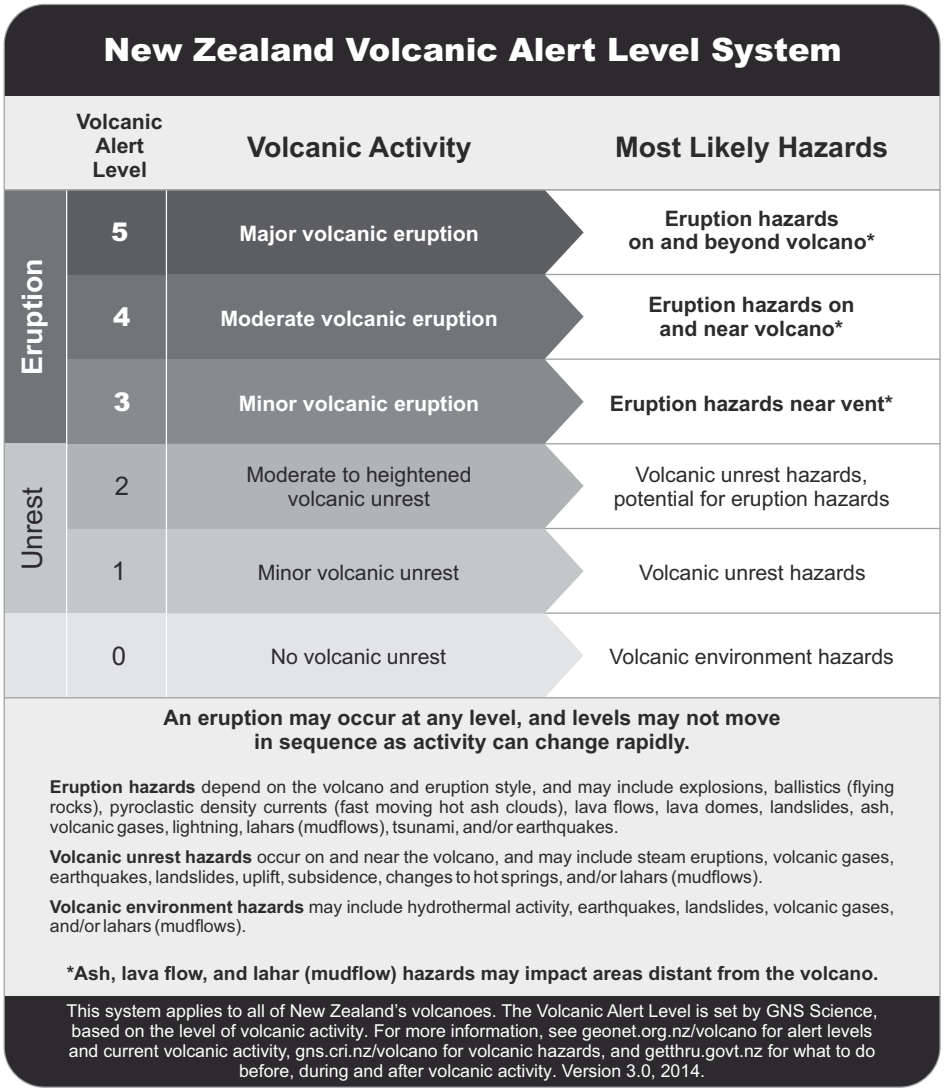

Table 19. 5 *New Zealand Volcanic Alert Level System*

MCDEM then forwards this information to potentially affected CDEM Groups (see **Table 19.6**). GNS Science (GeoNet) also provides information to other agencies and the media (see www.geonet.org.nz).

Volcano	CDEM Groups Notified
Auckland	All
Kermadecs	Northland, Auckland, Waikato, Bay of Plenty, Gisborne, Hawke's Bay
Mayor/White Island	Bay of Plenty, Gisborne, Hawke's Bay, Waikato
Northland	All
Okataina, Taupo, Rotorua	All
Ruapehu, Tongariro, Ngauruhoe	Gisborne, Hawkes Bay, Manawatu-Wanganui, Waikato, Bay of Plenty, Auckland, Taranaki, Wellington
Taranaki	All

Table19.6 *CDEM Groups notified of Volcanic Alert Bulletins by MCDEM for volcanic unrest*

Eruption imminent/ occurred

MCDEM receives Volcanic Alert Bulletins from GNS Science (GeoNet) in the same way as for volcanic unrest. MCDEM disseminates these to all agencies that are registered with the national warning system. Additionally, the GNS Science Duty Officer may notify the MCDEM Duty Officer of significant volcanic activity by telephone. In consultation with GNS Science (GeoNet) or if deemed appropriate, MCDEM issues an appropriate advisory or warning via the national warning system.

Volcanic Ash Advisories

Following a volcanic eruption and in addition to Volcanic Alert Bulletins issued by GNS Science (GeoNet), MetService is responsible for the issue of Volcanic Ash Advisories for the civil aviation industry over an area covering New Zealand and from the Equator to the South Pole between 160E and 140W. Volcanic ash advisories forecast the distribution and spread of the airborne ash cloud from an erupting volcano for the purpose of aviation safety. They are issued directly to MCDEM, to the international aviation and meteorological communities and published on the Wellington Volcanic Ash Advisory Centre (VAAC) website (http://vaac.metservice.wellington).

19.4.3 Earthquake

Lead agency: GNS Science

Support agencies: MCDEM

Warning scope/content: Post-event

While no reliable means exist for forewarning of earthquake events, GNS Science through the GeoNet Project is the national source of earthquake monitoring and notifications. These notifications can assist with assessing likely consequences to inform response actions. GNS Science also provides information to other agencies and the media via web service and RSS, Pager, SMS, and email.

GeoNet notifies MCDEM and subscribers of all felt earthquakes through earthquake reports, delivered within 60 minutes of the event. Additionally, the GNS Science Duty Officer may notify the MCDEM Duty Officer of significant earthquakes by telephone. For earthquakes of maximum felt intensity of MMVI and higher, MCDEM checks on damage levels in the impacted areas. Where the impact seems significant, MCDEM notifies all agencies that are registered with the national warning system.

Territorial authorities must report damage causing earthquakes to their appropriate CDEM Group Duty Manager, including a summary of damage and other effects. The CDEM Group Duty Manager must then inform their MCDEM Regional Emergency Management Advisor who will then inform the MCDEM Duty Officer.

19.4.4 Tsunami

Distant and Regional Source

Lead agency: MCDEM

Support agencies: GNS Science, PTWC, CDEM Groups

Warning scope/content: Pre- and post-event

MCDEM and GNS Science (GeoNet) receive tsunami information bulletins, watches or warnings from the Pacific Tsunami Warning Centre (PTWC) for earthquakes equal to or higher than magnitude 6.5 in the Pacific. GNS Science is also responsible for local sea level monitoring.

The MCDEM Duty Officer gives immediate consideration to all messages received from the PTWC by applying standard criteria related to the locality, magnitude and depth of the earthquake in question and by consulting with GNS Science (GeoNet). If time permits, GNS Science will convene a panel of national tsunami experts to give on-going advice to MCDEM as the situation develops.

Depending on assessment of the information, a recommendation is made to the National Controller or Director of CDEM and at their direction MCDEM issues an

appropriate advisory or warning via the national warning system. Apart from the information received from the PTWC, such messages also include local interpretations or considerations.

CDEM Groups activate their respective local warning systems in response to warnings issued by MCDEM and decide on appropriate further action. Decisions about local responses are encouraged to be made in consultation with the National Controller.

The National Tsunami Advisory & Warning Plan describes the processes, procedures, considerations and the types of warnings sent for tsunami under the national warning system. The Plan is available on the MCDEM website (www.civildefence.govt.nz).

Tsunami–Local Source

Lead agency: CDEM Groups

Support agencies: MCDEM, PTWC, GNS Science, NIWA, New Zealand Police, media

Warning scope/content: Pre- and post-event

A tsunami generated in conjunction with a local large earthquake or undersea landslide may not provide sufficient time to implement official warning procedures. This is because the proximity of the tsunami source and its travel speed combine to give very little time for meaningful warnings to the areas closest to the source.

Proper public education is therefore the principal preparedness measure for local source tsunami. The recommended public message in this regard is:

Persons in coastal areas who:

- *experience strong earthquakes (hard to stand up);*
- *experience weak earthquakes lasting for a minute or more; or*
- *observe strange sea behaviour such as the sea level suddenly rising and falling, or hear the sea making loud and unusual noises or roaring like a jet engine;*

should not wait for an official warning. Instead, let the natural signs be the warning. They must take immediate action to evacuate predetermined evacuation zones, or in the absence of predetermined evacuation zones, go to high ground or go inland.

As the tsunami propagates along the coast to other regions (depending on its nature), warnings to other parts of New Zealand may still be meaningful and may be issued via the national warning system.

MCDEM receives earthquake notifications from GNS Science through the GeoNet Project. When an earthquake is located offshore MCDEM is to be advised by GNS Science on the probability of a tsunami having been generated.

19.5 References and links

Other sections of the Guide

- Section 22, Public information management.

Other documents

- Ministry of Civil Defence & Emergency Management (revised May 2012) Tsunami Advisory and Warning Plan: Supporting Plan [SP 01/09]; ISBN 978-0-478-355559-8 (www.civildefence.govt.nz).
- MCDEM National Duty System Standard Operating Procedures.