

25. National warnings and advisories

Summary Warnings and advisories are used to advise agencies, authorities, and/or the public of threats, enabling them to take appropriate action.

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25.1 Introduction

Part 8 Response

National warnings and advisories

117 Introduction

- (1) *National warnings and advisories provide information about the potential or actual threat to people, property, areas, or social or economic activities.*
- (2) *National warnings and advisories do not cover—*
 - (a) *long-term or slowly evolving threats about which information is disseminated through the usual communications of relevant agencies; or*
 - (b) *the actions to be taken by agencies and the procedures for responding to national warnings and advisories.*
- (3) *The effectiveness of a warning or an advisory depends on—*
 - (a) *the timeliness of the warning or advisory; and*
 - (b) *the delivery and receipt of the warning or advisory; and*
 - (c) *the recipients' understanding of the necessary action to be taken in respect of the particular threat or threats; and*
 - (d) *the readiness and response at the national, CDEM Group, and local levels.*

25.2 Objective

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- (1) *The objective in respect of potential or actual threats is to issue national warnings and advisories in a timely manner so that agencies, CDEM Groups, local authorities, and people can take action to reduce loss of life, injury, and damage.*
- (2) *Warnings and advisories are to be given as quickly as practicable.*
- (3) *Where a warning is not possible, the objective is to inform the response by indicating the likely magnitude of an emergency and the extent of the affected areas.*

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 threat.

25.3 Principles

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- (1) *Monitoring, identification, and analysis of geological and meteorological hazards and threats and subsequent issuing of hazard information is to be undertaken at all times by the following agencies:*
 - (a) *the Meteorological Service of New Zealand Limited (severe weather); and*
 - (b) *GNS Science (earthquake, volcanic activity, and landslides); and*
 - (c) *the MCDEM (tsunamis).*
- (2) *Relevant government agencies, CDEM Groups, local authorities, and lifeline utilities are to maintain arrangements to receive and respond to hazard information.*

25.4 National warning system

General	<p>120 National warning system</p> <p>(1) <i>The national warning system is a 24/7 process for communicating hazard information to alert recipients to the need for readiness and possible response to a potential or an imminent threat that may result in an emergency.</i></p> <p>(2) <i>The MCDEM is responsible for overseeing the maintenance and function of the national warning system.</i></p> <p>(3) <i>The standard operating procedure under this system specifies the principles underlying and methods of disseminating national warnings.</i></p> <p>(4) <i>National warnings and advisories are provided by the MCDEM to CDEM Groups, local authorities, emergency services, agencies, lifeline utilities, and broadcasters.</i></p>
CDEM Groups	<p>(5) <i>CDEM Groups are responsible for—</i></p> <p>(a) <i>disseminating national warnings to local communities; and</i></p> <p>(b) <i>maintaining local warning systems.</i></p>
Other agencies	<p>(6) <i>If arrangements are made with the MCDEM, the national warning system can be used to issue national warnings about hazards for which warning arrangements are decided and maintained by other agencies.</i></p>

25.4.1 Use of the national warning system

Warnings or advisories may be issued for any type of hazard (see Appendix 1 of the *National CDEM Plan 2015*). The type of warning or advisory to be issued will depend on the hazard type and potential impact.

MCDEM issues warnings or advisories for hazards for which CDEM is the lead agency. Warnings or advisories may be issued when:

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

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 25.1**.

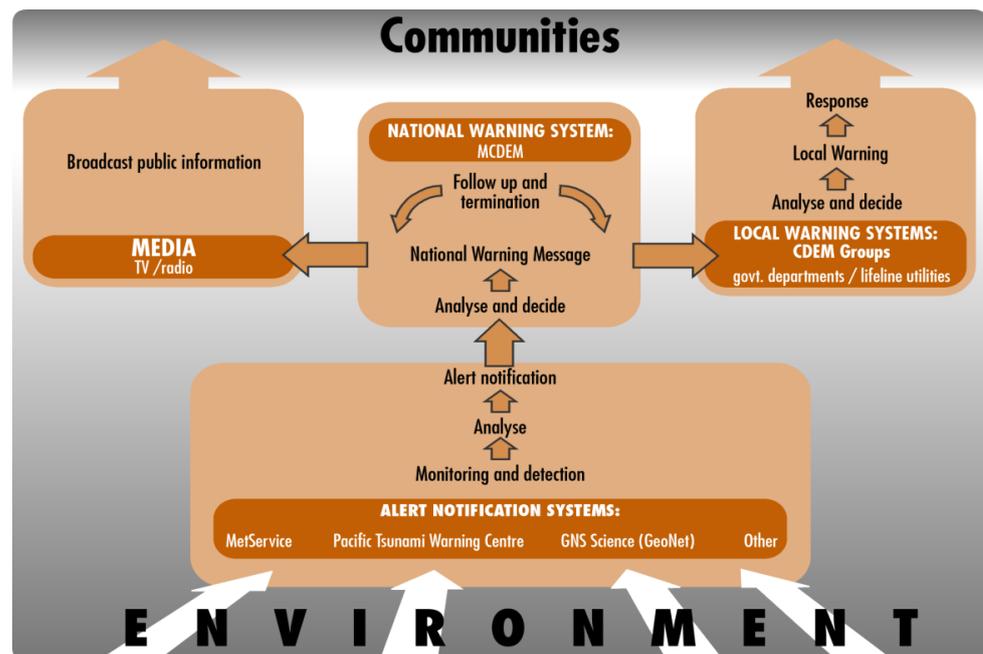


Figure 25.1 The national warning system.

25.4.2 Types of warnings and advisories 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 Advisory – Large Pacific earthquake (holding message)
- ◆ National Warning – [Type of Hazard]: Threat to NZ
- ◆ National Warning – Volcanic Activity: Moderate Volcanic Eruption
- ◆ National Warning – Volcanic Activity: Major Volcanic Eruption
- ◆ National Warning – Tsunami: Beach and Marine Threat
- ◆ National Warning – Tsunami: Land and Marine Threat
- ◆ National Advisory – [Type of Hazard]: Cancellation Message
- ◆ National Warning – [Type of Hazard]: Cancellation Message, or
- ◆ National Warning – Test Message.

A National Advisory – [Type of Hazard] Potential Threat to NZ will be followed with one of the following:

- ◆ National Warning – [Type of Hazard] Threat to NZ, or
- ◆ cancellation message.

A National Advisory – Large Pacific earthquake (holding message) will be followed with one of the following:

- ◆ National Warning – Tsunami: Beach and Marine Threat
- ◆ National Warning – Tsunami: Land and Marine Threat
- ◆ National Advisory – Tsunami No Threat to NZ.

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

- ◆ for tsunami messages only, hourly update messages (except between 10pm and 5am, when updates will only be issued if there is a significant change), or
- ◆ cancellation message.

25.4.3 Recipients of warnings and advisories issued via the national warning system

Registered recipients

Warnings and advisories 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 25.4.4.

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

Media

The news media is included in the dissemination of 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 28, Public information management).

25.4.4 Standards for participation in the national warning system

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

Effective delivery of warnings and advisories is dependent on recipients meeting the performance standards specified in **Table 25.1**.

Table 25.1: Standards for registration with the national warning system.

Output	Performance standard
Capability to receive and respond to warnings and advisories	<ul style="list-style-type: none"> ◆ All hours. ◆ Procedures are in place to facilitate an effective response to warnings and advisories.
Maintenance of communication systems	Landline telephone or cell phone, and email must be accessible at all hours.
Provision of contact details	<p>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.</p> <p>Agencies must provide the following contact details:</p> <ul style="list-style-type: none"> ◆ point of contact email address ◆ duty telephone number ◆ duty email address ◆ duty mobile number for SMS text message <p>Recipient agencies are to ensure contact details are current and correct, and are to manage the recipients under any address.</p>
Participation in national warning message tests	Participate in national warning system tests (four per year).

Note: Effective delivery of warnings and advisories 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.

25.4.5 Monitoring and review of the national warning system

Procedures for the dissemination and receipt of warnings and advisories, 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.

25.4.6 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:

- ◆ tests could be at any time, including out of office hours, 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.

25.4.7 Contact lists

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

25.4.8 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 or advisory, MCDEM will:

1. send the appropriate type of warning, advisory or cancellation message by email and SMS text message to those registered with the national warning system and the news media
2. contact the MCDEM Regional Emergency Management Advisors (REMAs) to advise them that a warning or advisory has been issued and allow them to call the relevant CDEM Groups to ensure they have received the message
3. send a request for broadcast message to the listed public broadcasters (for certain warnings)
4. monitor the delivery of the message, and
5. send updates (at least hourly for tsunami, except between 10pm and 5am, when updates will only be issued if there is a significant change) 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.

25.5 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 or advisories for specific hazards at the national level.

25.5.1 Severe weather

Lead agency	MetService
Support agency	MCDEM
Coverage	Pre- and during event

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

Types of severe weather messages

Information about severe weather issued by MetService fall into three general groups (shown in **Tables 25.2 to 25.4** on the next page):

- ◆ 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 25.2: *Outlooks, Watches and Warnings of widespread severe weather.*

Message	Issued
Severe Weather Outlook	Every day It describes the likelihood of widespread heavy rain, heavy snow or severe gales occurring in the 3–6-day period.
Severe Weather Watch	<ul style="list-style-type: none"> ◆ 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	<p>Whenever it is likely that widespread heavy rain, heavy snow or severe gales will occur in the next 24-36 hours. Severe Weather Forecasters discuss significant aspects of the weather situation with key stakeholders as appropriate.</p> <p>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.</p> <p>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.</p>
Severe Weather Outlooks, Watches and Warnings are made widely available via MetService websites, and/or smart phone apps and/or publicly subscribable email.	

Table 25.3: *Outlooks, Watches and Warnings of local severe weather.*

Message	Issued
Thunderstorm Outlook	Twice daily, usually mid-morning and mid-evening. It describes the likelihood of localised heavy rain, heavy hail or strong winds (including tornadoes) occurring in the next 24-36 hours.
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 150 km radius of a MetService weather radar and it is possible to track and predict the expected path of the thunderstorm.
Thunderstorm Outlooks, Watches and Warnings are made widely available via MetService websites, and/or smart phone apps and/or publicly subscribable email. Thunderstorm Outlooks, Watches and Warnings are not issued for the Chatham Islands.	

Table 25.4: 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.
Road Snowfall Warning	Whenever there is a likelihood of snow settling and causing disruption within the next 24 hours on the following roads: Napier-Taupo Road (SH5), Desert Road (SH1), Rimutaka Hill Road (SH2), Lewis Pass (SH7), Arthur's Pass (SH73), Porters Pass (SH73), Lindis Pass (SH8), Haast Pass (SH6), Milford Road (SH94), Dunedin to Waitati Highway (SH1).
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.
Special Weather Advisories, Road Snowfall Warnings and Snow Otago Warnings are made widely available via MetService websites, and/or smart phone apps and/or publicly subscribable email.	
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 for selected parts of the New Zealand coast by arrangement with Regional Councils. Sent to relevant Regional Councils, but not published on the MetService website or made available to the media.
Advice of Abnormally High Sea Water	Whenever the seas level on the coast from Opotiki to the Bay of Islands is expected to be abnormally high. Sent to relevant Regional Councils, but not published on the MetService website or made available to the media.

25.5.2 Volcanic unrest or eruption

Lead agency	GNS Science
Support agencies	MCDEM, MetService, Ministry of Health, CDEM Groups, Police and Fire Service.
Coverage	Pre, during and post-event

New Zealand Volcanic Alert Level System

GNS Science, through the GeoNet Project, is the national source of volcanic monitoring. GeoNet issues notifications of any change in volcanic alert level status through Volcanic Alert Bulletins to MCDEM, other agencies, and the media. See www.geonet.org.nz.

The New Zealand Volcanic Alert Level System is illustrated in **Figure 25.2**.

New Zealand Volcanic Alert Level System			
	Volcanic Alert Level	Volcanic Activity	Most Likely Hazards
Eruption	5	Major volcanic eruption	Eruption hazards on and beyond volcano*
	4	Moderate volcanic eruption	Eruption hazards on and near volcano*
	3	Minor volcanic eruption	Eruption hazards near vent*
Unrest	2	Moderate to heightened volcanic unrest	Volcanic unrest hazards, potential for eruption hazards
	1	Minor volcanic unrest	Volcanic unrest hazards
	0	No volcanic unrest	Volcanic environment hazards
<p>An eruption may occur at any level, and levels may not move in sequence as activity can change rapidly.</p> <p>Eruption hazards depend on the volcano and eruption style, and may include explosions, ballistics (flying rocks), pyroclastic density currents (fast moving hot ash clouds), lava flows, lava domes, landslides, ash, volcanic gases, lightning, lahars (mudflows), tsunami, and/or earthquakes.</p> <p>Volcanic unrest hazards occur on and near the volcano, and may include steam eruptions, volcanic gases, earthquakes, landslides, uplift, subsidence, changes to hot springs, and/or lahars (mudflows).</p> <p>Volcanic environment hazards may include hydrothermal activity, earthquakes, landslides, volcanic gases, and/or lahars (mudflows).</p> <p>*Ash, lava flow, and lahar (mudflow) hazards may impact areas distant from the volcano.</p>			
<p>This system applies to all of New Zealand's volcanoes. The Volcanic Alert Level is set by GNS Science, based on the level of volcanic activity. For more information, see geonet.org.nz/volcano for alert levels and current volcanic activity, gns.cri.nz/volcano for volcanic hazards, and getthru.govt.nz for what to do before, during and after volcanic activity. Version 3.0, 2014.</p>			

Figure 25.2: New Zealand Volcanic Alert Level System.

Eruption imminent/occurred

MCDEM receives Volcanic Alert Bulletins about an imminent eruption from GNS Science. MCDEM forwards these via 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 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, 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.com>).

25.5.3 Earthquake

Lead agency	GNS Science
Support agencies	MCDEM
Coverage	Post-event

While no reliable means exist in New Zealand for forewarning of earthquake events, GNS Science through the GeoNet Project is the national source of earthquake monitoring and notifications (including Operational Earthquake Forecasting). These notifications can assist with assessing likely consequences to inform response actions. GNS Science provides information via web service and RSS, email and smartphone apps.

GNS Science notifies MCDEM and subscribers of all felt earthquakes through earthquake reports, issued within 5 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 MMVI¹ and higher, MCDEM checks on damage levels in the impacted areas. Where the impact seems significant, MCDEM will issue an advisory via 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.

25.5.4 Tsunami

Distant and regional sources

Lead agency	MCDEM
Support agencies	GNS Science, PTWC, CDEM Groups
Coverage	Pre- and post-event

MCDEM and GNS Science receive tsunami information statements or tsunami threat messages 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 information 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. 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 the 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.

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

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

¹ Modified Mercalli scale of earthquake intensity, level VI

Local source

Natural, felt signs are the primary warning for local source tsunami. If possible, MCDEM will issue official warnings as soon as practicable, noting that the first waves may arrive before these official warnings are issued.

Local source tsunami have no lead agency, as natural signs serve as the primary warning.

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

Coverage 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:

People in coastal areas 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. Natural signs include:

- 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.

The first official warnings will be the result of a preliminary assessment only, based on initial available data. If possible, MCDEM will broadly indicate where evacuations should be undertaken. CDEM Groups may then refine this information to determine which zones to evacuate.

25.6 References and links

Other sections of the Guide

- ♦ Section 2, Hazards and risks
- ♦ Section 5, Ministry of Civil Defence & Emergency Management (MCDEM)
- ♦ Section 6, Civil Defence Emergency Management Groups (CDEM Groups)
- ♦ Section 16, Science and research organisations
- ♦ Section 24, Response
- ♦ Section 26, National Crisis Management Centre
- ♦ Section 27, Emergency information management
- ♦ Section 28, Public information management.
- ♦ Section 29, Logistics
- ♦ Section 30, Mass evacuation
- ♦ Section 31, International assistance for New Zealand
- ♦ Section 32, Recovery

Other documents

- ♦ Ministry of Civil Defence & Emergency Management (2009) (revised October 2010) *Tsunami Advisory and Warning Supporting Plan [SP 01/09]*; ISBN 978-0-478-43503-0 (www.civildefence.govt.nz – search for 'tsunami advisory')
- ♦ MCDEM National Duty System standard operating procedures

