



Working from the same page consistent messages for CDEM

PART B: Hazard-specific information



Snow-covered farmland, South Island snow event 2006

Snow storms

- ▶ Learn about your community's risks from hazards created by snow.
- ▶ Contact your local council to find out if you live in an area prone to snow-related hazards or visit the MetService website, www.metservice.co.nz to find out about risks from snow.

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CORE ACTION MESSAGES IN THIS CHAPTER (p5)

- ▶ **Determine your risk.**
- ▶ **Get your household ready.**

For general readiness, every household should create and practice a Household Emergency Plan and assemble and maintain Emergency Survival Items and a Getaway Kit. In addition, every household should take snow-specific precautions and plan for and practice what to do if the prolonged, high snowfall happens.

Please note: Core Action Messages should be read in conjunction with the rest of the text in this chapter.

Awareness messages

Why talk about snow?

Even in small quantities, snow can be hazardous. It only takes a few centimetres on a road to make driving dangerous. In large quantities, snow can immobilise regions by disrupting communications, transport and supply lines, hampering the operation of emergency services, isolating communities, causing the death of large numbers of livestock, damaging forests, and causing buildings to collapse under its weight. In the depths of winter, heavy snow can lie on the ground for weeks, denying livestock the ability to graze, keeping temperatures low and increasing risks to the most vulnerable members of the community.

While the coldest winter outbreaks tend not to bring very large quantities of snow, the combination of very low air temperatures and strong winds results in extreme wind chill. Because this can occur even on sunny days, one of the dangers it poses – hypothermia – may not be all that apparent. Strong cold winds together with rain or snow make for cold conditions inside many New Zealand houses because of their poor insulation. Those winds occasionally cause the death of large numbers of young livestock.

What causes snow?

Perhaps surprisingly, the heaviest snowfalls seldom occur in the coldest outbreaks. Major storms produce a lot of snow high up in the atmosphere but most often this melts before reaching the ground. In winter, conditions near the ground are cold enough for snow to fall all the way to the land surface.

Heavy snow in the mountains often increases the incidence of avalanche. Avalanches are a major hazard on the road from Te Anau to Milford Sound, for example, and it is only the operation of an active and world-leading avalanche management programme that has kept the road free from fatalities for many years. There is a risk of avalanches in some ski areas, as well.

Forecasting / warning

Whenever there is a likelihood of snow settling on one or more of the Desert Road, the Porter's Pass Road, the Lindis Pass Road, the Rimutaka Hill Road, the Milford Road, Arthur's Pass, or Lewis Pass, MetService will issue a Road Snowfall Warning. Road Snowfall Warnings may be issued at any time but usually at around 8–9am and 8–9pm. They are updated every 12 hours until cancelled.

The combination of strong winds, low temperatures and rain/snow (where the snow is not expected to be heavy) is often described in forecasts using terms like "bitterly cold". The most notable cases will be covered by a Special Weather Advisory. Special Weather Advisories may be issued at any time, but usually around the middle of the day. They are updated every 24 hours until cancelled.

The likelihood of heavy snow is described in the Severe Weather Outlooks, Watches and Warnings issued by MetService.

In New Zealand, MetService defines broad-scale severe weather as widespread (that is, over an area of 1000 square kilometers or more):

- Rainfall greater than 50 millimetres within six hours or 100 millimetres within 24 hours; and/or
- Snowfall below 1000 metres on the North Island or 500 metres on the South Island with a snow depth of 10 centimetres within six hours or 25 centimetres within 24 hours; and/or
- Severe gales with a minimum mean speed of 90 km/hr or frequent gusts exceeding 110 km/hr.

Every afternoon, MetService publishes a Severe Weather Outlook for all of New Zealand for the three days after tomorrow at www.metservice.co.nz/default/index.php?alias=severeweatheroutlook.

The Severe Weather Outlook states, in broad terms, the risk that broad-scale severe weather will occur.

If confidence of broad-scale severe weather remains moderate to high within 48–72 hours of the event occurring, MetService will issue a Severe Weather Watch. A Severe Weather Watch may also be issued if there is a high level of uncertainty within the next 24 hours. Severe Weather Watches may be issued at any time but usually at around 8–9am and 8–9pm. They are updated every 12 hours until cancelled.

MetService will issue a Severe Weather Warning whenever it is expected that weather conditions meeting the severe weather criteria will occur within the next 24 to 36 hours. Severe Weather Warnings may be issued at any time but usually at around 8–9am and 8–9pm. They are updated every 12 hours until cancelled.

Most often, the risk of heavy snowfall will be first signalled some days ahead in the Severe Weather Outlook and then carry through to a Severe Weather Watch and finally to a Severe Weather Warning. However, in situations where the predictability is low this will not be the case and the first advice of likely broad-scale severe weather may be the Severe Weather Warning.

Road Snowfall Warnings, Special Weather Advisories, Severe Weather Outlooks, Watches and Warnings are published on MetService's web site (www.metservice.com), available through the broadcast media and by email.

CORE ACTION MESSAGES

- ▶ Determine your risk.
- ▶ Get your household ready.

For general readiness, every household should create and practice a Household Emergency Plan and assemble and maintain Emergency Survival Items. In addition, every household should take snow-specific precautions and plan for and practice what to do if the prolonged, high snowfall happens.

How can I protect myself from snow?

At home and at work:

1. Primary concerns are the potential loss of heat, power, telephone service, and a shortage of supplies if storm conditions continue for more than a day. Therefore, have Emergency Survival Items on hand (**see** Emergency Survival Items and Getaway Kit section).
2. Ensure you drink enough water. Bodies exposed to extreme temperatures – hot or cold– use more water to maintain normal temperatures.
3. Listen to your radio, or television, for weather reports and emergency information.
4. Eat regularly and drink ample fluids, but avoid caffeine and alcohol.
5. Watch for signs of frostbite. These include loss of feeling and white or pale appearance in extremities, such as fingers, toes, ear lobes, and the tip of the nose. If symptoms are detected, get medical help immediately.
6. Watch for signs of hypothermia. These include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion. If symptoms of hypothermia are detected, get the victim to a warm location, remove wet clothing, warm the centre of the body first, and give warm, non-alcoholic beverages if the victim is conscious. Get medical help as soon as possible.
7. Conserve fuel, if necessary, by keeping your residence cooler than normal. Temporarily close off heat to some rooms.
8. Maintain ventilation when using gas or kerosene heaters to avoid build-up of toxic fumes.
9. Have chimneys and wood stoves inspected annually and cleaned if necessary. Chimneys and wood stoves build up creosote, which is the residue left behind by burning wood. Creosote is flammable and needs to be professionally removed periodically. Store ashes in a metal container with a tight-fitting lid.
10. Drive only if it is absolutely necessary. If you must drive, consider the following:
 - Travel in the day, don't travel alone, and keep others informed of your schedule
 - Stay on main roads; avoid back road shortcuts

- Take or fit tyre chains if the roads are not cleared and the snow is deep or the roads are icy.

If you live in an area where severe winter weather is possible

Getting your household ready:

11. Make sure your home is properly insulated. If necessary, insulate the walls and attic to reduce your home's power demands for heat. Caulk and weather-strip doors and windowsills to keep cold air out.
12. Protect pipes from freezing by wrapping pipes in insulation or layers of newspaper and then covering them with plastic to keep out moisture.
13. Know how to shut off the main water valve.
14. Install heat tape on water pipes. Put the tape on all exterior water pipes and interior pipes located on outside walls or anywhere else that temperatures could go below freezing.
15. If the pipes freeze, remove any insulation or newspaper and wrap the pipes in rags. Completely open all taps and pour hot water over the pipes, starting where they were most exposed to the cold or where the cold most likely penetrated. A hand-held hair dryer, used with caution to prevent overheating, also works well.
16. Consider buying emergency heating equipment, such as a wood- or coal-burning stove or an electric, gas or kerosene heater.
17. If you have a fireplace, consider keeping a supply of firewood or coal.
18. If you are farming, ensure you have arrangements in place to provide electricity (e.g. a generator) in case of power outage.
19. Ensure you have surplus livestock feed.

In cars and trucks:

20. Plan your travel and check the latest weather reports to avoid the storm;
21. Fully check and prepare your vehicle before the winter season begins.
22. If driving in bad conditions carry Emergency Survival Items (**see** Emergency Survival Items and Getaway Kit section).
23. Keep your fuel tank near full to avoid ice in the tank and fuel lines.
24. Try not to travel alone.
25. Let someone know your timetable and primary and alternate routes.
26. Your car's battery and ignition system should be in top condition, and battery terminals clean.
27. Ensure antifreeze levels are sufficient to avoid freezing.
28. Ensure the heater works properly.

If you live in an area where severe winter weather is possible (continued)

On the farm:

29. Move animals to sheltered areas. Shelter belts, properly laid out and oriented, are better protection for cattle than confining shelters, such as sheds.
30. Have a water supply available. Most animal deaths in winter storms are from dehydration.
31. Make sure your livestock are secure if there is no power.

Note: Cold weather puts a strain on your heart, even without exercise. Be careful when shovelling snow, pushing a car, or performing other tasks. Regardless of your age or physical condition, avoid overexertion in the winter.

Dress for the weather

32. Wear several layers of loose fitting, lightweight, warm clothing rather than one layer of heavy clothing. The outer garments should be tightly woven and water repellent.
33. Wear mittens, which are warmer than gloves.
34. Ensure your head is well covered.
35. Cover your mouth with a scarf to protect your lungs.

During a winter storm

If you are outside:

36. Find shelter.
37. Try to stay dry.
38. Cover all exposed parts of the body.
39. If no shelter is available:
 - prepare a lean-to, wind-break, or snow cave for protection from the wind.
 - build a fire for heat and to attract attention.
 - place rocks around the fire to absorb and reflect heat.
 - do not eat snow: it will lower your body temperature. Melt it first.

If you are in a car or truck:

40. Stay in your car or truck. Disorientation occurs quickly in wind-driven snow.
41. Run the engine and heater about 10 minutes each hour to keep warm.
42. Open the window a little for fresh air to avoid carbon monoxide poisoning.
43. Make sure the exhaust pipe is not blocked.
44. Make yourself visible to rescuers:
 - Tie a coloured cloth (preferably red) to your radio aerial or door.
 - Raise the vehicle hood indicating trouble after snow stops falling.

45. Exercise from time to time by vigorously moving arms, legs, fingers, and toes to keep blood circulating and to keep warm. In extreme cold, use road maps, seat covers, and floor mats for insulation. Huddle with passengers and use your coat for a blanket.
46. Take turns sleeping. One person should be awake at all times to look for rescue crews.
47. Drink fluids to avoid dehydration.
48. Be careful not to waste battery power. Balance electrical energy needs – the use of lights, heat, and radio – with supply.
49. Turn on the inside light at night so work crews or rescuers can see you.
50. If stranded in a remote area, stomp large block letters in an open area spelling out HELP or SOS and line with rocks or tree limbs to attract the attention of rescue personnel who may be surveying the area from the air.

If you are at home or in a building:

51. Stay inside.
52. When using alternative heat from a fireplace, wood stove, space heater, etc. use fire safeguards and ventilate properly.
53. If no heating is available:
 - Close off unneeded rooms.
 - Stuff towels or rags in cracks under doors.
 - Cover windows at night.
 - Eat and drink. Food provides the body with energy for producing its own heat. Keep the body replenished with fluids to prevent dehydration.
 - Wear layers of loose-fitting, lightweight, warm clothing. Remove layers to avoid overheating, perspiration, and subsequent chill.
54. During a power failure, cooking and eating habits must change to fit the situation. You may have no heat, no refrigeration and limited water. In addition, there are greater health risks from eating contaminated or spoiled food. When preparing food during a power outage, conserve fuel, conserve water and take health precautions.
55. Consider the amount of cooking time needed for each food. If you have limited heat for cooking, choose foods that cook quickly. Alternate cooking methods include:
 - LPG camp stoves or grills (for outside cooking only). These can be used any time of the year. Use foil to wrap a variety of foods, including vegetables, for easy cooking and cleanup. Grill and toast other foods as you would for a barbeque. Make sure you close the LPG tank when you're done cooking to prevent gas from escaping during cold weather.
 - Fireplace. Many foods can be skewered, grilled or wrapped in foil and cooked in a fireplace.

- Candle warmers and fondue pots. These may be used if no other heat sources are available. Use safety precautions with these devices.
 - Wood stove. Cooking on top of the wood stove may be an option. Depending on the amount of heat you have available, preparing one-dish meals, breads and soups may be possible.
56. Do not cook frozen foods unless you have ample heat for cooking. Most frozen foods need a lot more cooking time than fresh or canned foods. Also, if power is off, it is best to leave the freezer door closed to keep food from thawing.
57. Conserve water.
58. Save liquids from canned vegetables. Substitute these for water in cooked dishes. Drain and save liquids from canned fruits, too. Use these for water in salads and vegetables.
59. Take health precautions:
- Boil all water used in food preparation for at least 10 minutes.
 - If you are without refrigeration, open only enough food for one meal. Some foods can be kept a short time without refrigeration. In an emergency, cooked vegetables, cooked meats and meat dishes can be kept unrefrigerated for two hours. Do not keep these dishes overnight without refrigeration.
 - Do not serve foods that spoil easily, such as ground meats, creamed foods, hash, custards, meat pies and any food containing mayonnaise. These are potential sources of botulism poisoning and other food borne pathogens.
 - When feeding babies and toddlers, open fresh foods for each meal. There may be waste, but safety is important.
 - If necessary, substitute canned and powdered milk for fresh milk. Canned milk will keep safely for a few hours after you open the can. Use only boiled or disinfected water to mix powdered milk. Use powdered milk immediately after it is mixed. If you are using canned formula to feed your baby, use ready-to-use or mix only enough for one feeding. Never use formula that is not stored cooled and refrigerated.
 - If safe water or water disinfecting materials are not available, use canned or bottled fruit juices instead of water.
 - Prepare and eat foods in their original containers, if possible. This will help if dishwashing is not possible.

What to do after a snow storm

60. Keep listening to a radio or television station for updated information and instructions. Access to some parts of the community may be limited or roads may be blocked.
61. Help people who require special assistance – infants, elderly people, those without transportation, families who may need additional help in an emergency situation, people with disabilities, and the people who care for them.

62. Avoid driving and other travel until conditions have improved. Roads may be blocked by snow or emergency vehicles.
63. If farming, check on your animals and ensure that their access to food and water is unimpeded by drifted snow, ice, or other obstacles. Clear driveways and tracks for service vehicles.

Insurance

Ring your insurer as soon as possible. In almost all cases the insurance company will send an insurance assessor to look at your property. They will confirm what repairs and replacements are needed and covered by your policy.

Ask the insurance company:

64. How long it will be before an insurance assessor visits.
65. If you are to clean your property or if they will get a company to do it for you.
66. Always make your own record of your damaged property using photographs or video.
67. List the damage to your property and belongings.
68. Ask your insurance company or landlord if they will provide you with temporary accommodation. This could be a nearby motel, bed and breakfast, a static caravan or a rented house.

Things to help with your insurance claim:

69. Confirm the insurance company will pay for any service or equipment you need.
70. Make a note of all telephone calls. Record the date, name and what was agreed.
71. Keep copies of all letters, emails and faxes you send and receive.
72. Keep receipts.
73. Don't throw anything away until told (except ruined food).
74. Depending on your policy, the insurance company may only offer to clean and repair something, not replace it.
75. If you rent your property, contact your landlord and your contents insurance company as soon as possible.
76. If you do not have insurance, your local council should be able to provide information on hardship grants or charities that may be able to help you.

Snow storms general information

Media and community education ideas

77. Publish a special section in your local newspaper with emergency information about snow storms. Included contact information for local emergency services and the nearest hospitals.
78. Conduct a series on how to protect yourself during a snow storm in case you are at home, in a car, at the office, or outside.
79. Teach children about snow hazards in your area.

Fiction and facts

Fiction: If you are stuck in a car in a snowstorm, the best thing to do is to get out and look for help.

Fact: You should stay in your vehicle and wait for rescuers. If you leave your vehicle in wind-driven snow, you could quickly become disoriented. Make the vehicle visible to rescuers (tie a coloured cloth to the aerial or door, turn on the dome light when running the engine for heat, raise the hood when the snow stops falling). If you have a cell phone, call a towing company or 111.

Fiction: In severe cold, it is best to stay warm by wearing a very heavy coat.

Fact: You should wear loose, lightweight, warm clothes in layers. Trapped air insulates. Remove layers to avoid perspiration and subsequent chill. Outer garments should be tightly woven, water repellent, and hooded. Ensure your head is well covered as half your body-heat loss can be from the head. Cover your mouth to protect your lungs from extreme cold. Mittens, snug at the wrist, are better than gloves. Try to stay dry.

Useful links

Facts about snow

- www.nws.noaa.gov/om/brochures/wntrstm.htm
- www.urbanext.uiuc.edu/winter/
- www.niwa.co.nz/our-science/natural-hazards

Insurance companies

- www.ami.co.nz/products/contents/
- www.state.co.nz/
- www.tower.co.nz/Web_Home.asp
- www.vero.co.nz/
- www.icnz.org.nz/

Maps and weather

- www.metservice.co.nz/public/weatherWarnings/warningMap.html
- www.niwa.co.nz/news-and-publications/publications/all/wa/16-3/news1

Snow storms general information

Preparedness

- www.getthru.govt.nz
- www.fema.gov/areyouready/winter.shtm
- www.nws.noaa.gov/om/brochures/wnttrstm.htm
- www.urbanext.uiuc.edu/winter/
- web.extension.uiuc.edu/disaster/winter/ws_cont.html
- www.maf.govt.nz/mafnet/rural-nz/adverse-events/snow/index.htm
- www.rural-support.org.nz/
- www.maf.govt.nz/mafnet/rural-nz/adverse-events/

Useful numbers

Your important Household Emergency Plan telephone numbers. Fill this out and keep this leaflet with your emergency items.

Contact	Details
Local authority emergency helpline	
Insurance company 24-hour	
Insurance number and policy number	
Local radio station (Frequency)	
School	
Family and neighbours	
Bank phone number and details	
Work phone numbers	
Medical Center/GP	
Local police station	
Vet/kennel/cattery/livestock transporter	
Local hotel or B&B	
Gas supplier and meter number	
Electricity supplier and meter number	
Water supplier and meter number	
Electrician	
Plumber	
Builder	