

In recent years there have been landslides and floods in various parts of the nation due to localized torrential rains. In Sapporo, we have not experienced any major flooding since 1981, but there is always the possibility of disaster due to localized torrential rains. Also, in 2004, strong winds from a typhoon caused many casualties including some deaths.

**Storms and Flooding in Sapporo**

In August 1981, a low pressure system front sent forth torrential rains, and two weeks later typhoon 15 hit, bringing with it more torrential rains which caused flooding, resulting in one death, 1 injured and 13 houses partially or totally destroyed. Typhoon 18 in 2004 which swept along the west coast of Hokkaido toward the north, brought strong winds which killed 4, injured 92 and partially destroyed 12 houses.

## Gather plenty of information in advance to perceive danger.

Storm and flooding disasters which are caused by typhoons, torrential rains and melting snow are not sudden, so it is important to be prepared, and to pay attention to weather reports to perceive danger and avoid it.

### Amount of rain in 1hour

<p><b>10 - 20mm</b> [Rather heavy rain]</p> <p>Puddles form on the ground, water splashes and wets feet.</p>	<p><b>20 - 30mm</b> [Heavy rain]</p> <p>Water drains and small creeks overflow, small landslides begin.</p>	<p><b>30 - 50mm</b> Very heavy rain</p> <p>The road becomes a river.</p>	<p><b>50 - 80mm</b> [Extremely heavy rain]</p> <p>In large cities, rainwater runs into basements and underground malls.</p>	<p><b>Over 80mm</b> [Violent rain]</p> <p>Possibility of large-scale disasters increases.</p>
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### Amount of wind velocity

<p>wind velocity <b>10 - 15m/s</b> [Rather strong winds]</p> <p>Cannot open umbrella</p>	<p>wind velocity <b>15 - 20m/s</b> [Strong winds]</p> <p>Cannot walk toward the wind, some people fall down.</p>	<p>wind velocity <b>20 - 25m/s</b> [Very strong winds]</p> <p>Thin branches break, signboards fall or fly around.</p>
<p>wind velocity <b>25 - 30m/s</b> [Extremely strong winds]</p> <p>Vinyl coverings on green houses tear.</p>	<p>wind velocity <b>30 - 35m/s</b> [Fierce winds]</p> <p>Trucks in motion are toppled over.</p>	<p>wind velocity <b>Over 35m/s</b> [Extremely fierce winds]</p> <p>Telephone poles and street lights fall over, concrete fences fall over.</p>

### Information released by the Meteorological Agency

**Warnings (possibility of disaster)**

<b>Heavy Rain Advisory</b>	→	<b>Heavy Rain Warning</b>	
<b>Flood Advisory</b>	→	<b>Flood Warning</b>	
<b>High Wind Advisory</b>	→	<b>Strong Wind Warning</b>	
<b>Thunder and Lightning Advisory</b>	→	<b>Tornado Advisory</b>	

Details concerning tornadoes → Pg. 13

When torrential rains and winds that only happen once in several decades are expected a [Special Warning] is announced. → **Take immediate life-saving action.**

**Disasters can occur without a [Special Warning] in effect.**

**Be sure to stay tuned to television, radio or Internet to gather all of the latest weather information.**



**Information on the Internet.**

- Weather (Weather reports, advisories, warnings and etc.)
  - Meteorological Agency <http://www.jma.go.jp>
- Rivers (amount of rainfall, water levels and etc.)
  - Ministry of Land, Infrastructure, Transport and Tourism [River Disaster Prevention Information] <http://www.river.go.jp> (mobile: <http://i.river.go.jp/>)
- Information concerning Evacuation
  - Sapporo Crisis Management and Control Center <http://www.city.sapporo.jp/kikikanri/>

# Prompt action is essential

Storm and flood damages increase and become more severe with each passing hour. Be sure to evacuate before this happens.

## When a typhoon is near or rain continues



When a typhoon is near

Be sure to bring in pots and other items that can be tossed around by the wind and become dangerous. Refrain from going outdoors.



do not go to see how the river looks.

It is dangerous to fall into a river that has risen in water level and become fast flowing.



Preparation of Emergency Bags

Keep emergency bags to minimum necessities, so that mobility is maintained.

## If you fear your house may flood



Begin preparations to keep water from entering.

Have sand bags or water bags always on hand. If you fill a double garbage bag with water, it will act as a water bag. Place them in cardboard boxes to increase the effect.



Early individual evacuation

If you sense danger, evacuate immediately.



Advise neighbors to evacuate

Elderly people and children who require more time to evacuate must evacuate sooner. Be sure to help others in your neighborhood to evacuate.

## Dangers in underground spaces and facilities

Underground malls, subways and basements are extremely dangerous in torrential or heavy rains. Evacuate as soon as possible if there is danger of flooding.

If the ground above floods, the water rushes underground at once!



Stairways cannot be climbed when water is rushing down. Water may also begin flowing through exhaust vents, light windows and other unexpected places.

Blackouts occur during floods.



The lights go out leaving the area in complete darkness, and elevators no longer operate.

It is impossible to know what is happening outside when you are in the basement.



Be aware of the dangers of each basement in advance, and pay attention to weather reports. Persons above ground should notify persons underground if there is a change in the situation.

Water pressure prevents doors from opening!



Even if the water level is not high, water pressure will prevent doors from opening. Please be sure to evacuate early.

### There have been sad cases of people drowning in basements during a flood.

In June 1999, offices near Hakata Station in Fukuoka flooded, and people trapped in the first basement floor drowned. Water began to pour in from the entrance of the parking lot at rapid speed. After a phone call stating, "I can't get out," a scream was heard and the line went dead.

In July of 1999, houses in lower areas of Shinjuku, Tokyo flooded. A homeowner who used the house elevator to check on the basement was trapped inside the flooded basement and drowned.

## Issuance of Evacuation Information

When danger is eminent, the ward office or fire department will send out an announcement to evacuate. If you hear an announcement or hear of information concerning evacuation, please evacuate immediately



## Evacuation Order

Issued when the possibility of a disaster is eminent. ⇒ **Evacuate immediately**

## Evacuation Instruction

Issued when possibility of human casualty is extremely high, or has already occurred. ⇒ **If you have not yet evacuated, do so immediately. If you do not have time, take the measures you can to save your life.**

## When evacuating



Wear clothes that are easy to move in, and travel in pairs or groups.

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Find a safe route and watch your step!

Stay away from riversides, bridges, sewer ways and man holes when evacuating. Beware of landslides as well.



Do not enter basements or underpasses.

Basements, underpasses and low areas fill up with water quickly, and you may be trapped.



Avoid evacuation by car, and do not leave your car on the riverbank.

Vehicles can become an obstacle for emergency vehicles, so do not evacuate by car, unless unavoidable.



Evacuation after inundation is extremely dangerous.

Generally speaking, walking becomes difficult for men when the water level is over 70cm, and for women over 50 cm. There is also the danger of being swept away by fast currents. There is also the danger of falling into a man hole.



If you fall behind Evacuate to the second floor of your house, or to a strong building nearby.

# Protecting yourself from landslides

There is the possibility that landslides may occur during heavy rains. If it rains more than 20 mm in one hour, or over 100mm of rainfall is recorded from when the rains begin, take extra caution.

Type of landslides

**Landslides**



The side of a steep slope will suddenly slide.

**Debris Flow**



Large amounts of debris flow at once.

**Land creep**



A Large mass of a slope will slide down.

When a landslide occurs, there are often premonitory phenomena present. If you notice any of these premonitory phenomena, evacuate immediately.

Premonitory Phenomena



Water flows from the side of a slope



River water becomes murky and drift wood appears



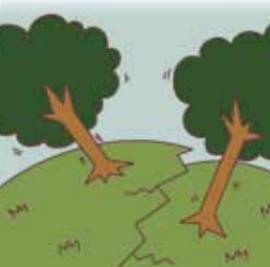
Well water and mountain streams become murky



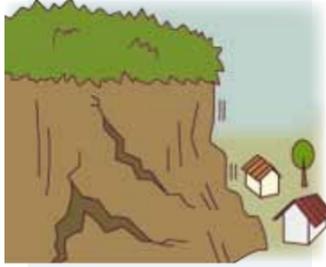
Small rocks fall



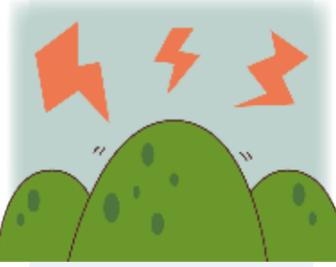
The water level in the river suddenly recedes even though there is heavy rainfall



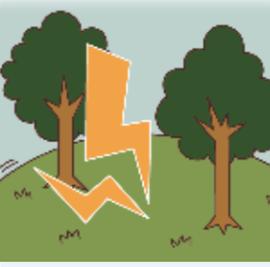
Cracks appear in the ground, cave-ins can be found, trees lean



A crack appears on the slope



The mountain rumbles

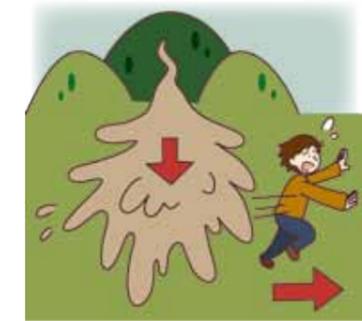
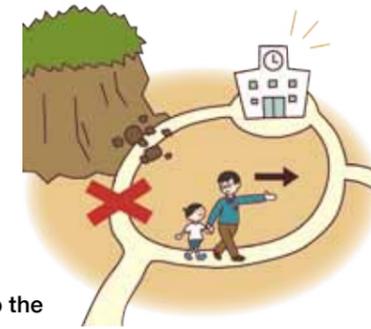


The ground or mountain rumbles

\* In some cases, landslides tend to occur quite a while after the premonitory phenomena is evident.

## In order to evacuate safely

Be sure to regularly check areas that could potentially slide, where the evacuation shelter is, and how to get to the shelter safely.



If you are caught in a landslide, be sure to run perpendicularly to the flow of the landslide.

## Potential Danger Zones for Landslides

- Hokkaido Sapporo Construction Management  
<http://www.sorachi.pref.hokkaido.lg.jp/kk/sk/k/prevent/main.htm>
- Sapporo Crisis Management and Control Center  
<http://www.city.sapporo.jp/kikikanri/>

## Concerning Landslide Warnings

Hokkaido and the Meteorological Agency for Sapporo District share information to announce necessary information and guidelines as to when there is a possibility for landslides to occur during heavy rains. Whether or not information or warnings are announced, if you feel in danger do not hesitate to evacuate individually.

# Protect yourself from tornadoes

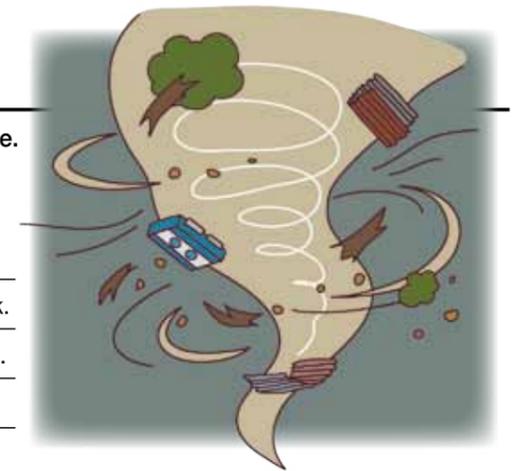
Tornadoes that occur with cumulonimbus clouds bring forth great damage. If a tornado appears, take action to protect yourself immediately.

## Thunder and Lightning Advisory

### Indication that cumulonimbus clouds are spawning

- ◆Dark clouds hang low, and the area becomes dark.
- ◆Thunder can be heard, lightening can be seen.
- ◆A sudden cold breeze begins to blow.
- ◆Large raindrops or hail begins to fall.

## Tornado Advisory (updated every hour)



## If a tornado occurs

### Indoors

- Move to the basement or room on the first floor that does not have windows.
- Close curtains and windows and stay away from the windows.
- Take cover under large desks or tables, and keep yourself low to the floor, and protect your head.



### Outdoors

- Evacuate to a strong building nearby.
- DO NOT evacuate to storage rooms, garages or prefab buildings.
- Beware of falling telephone polls and trees.

