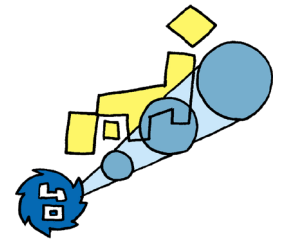


Storm and Flood Damage

The occurrence and courses of typhoons, torrential rains and other wind and flood disasters can be predicted to some degree. Pay regular attention to weather forecasts so that you can avoid the greatest damage.

Typhoons

Typhoons are tropical cyclones that cause strong winds and heavy rainfall, and produce maximum wind speeds of around seventeen meters per second or more. A typhoon's strength and path can be predicted to some degree. Track weather information and be prepared so that you can avoid the greatest damage.



Wind speed and expected damage

Wind Strength (Forecast terminology)	Average wind speed (m/s)	Effect on people	Situation of trees and outside	Buildings	Approximate wind gust speed (m/s)
Moderate gale	10 to 15	Difficult to walk against the wind Difficult to use umbrellas	Trees and power lines begin to sway	Gutters begin to shake	20
Gale	15 to 20	Cannot walk against the wind, and some people are knocked down Activities in high places are very dangerous	Power lines begin to make noise Billboards and galvanized metal sheets may fly off	Roof tiles and other roofing materials may fly off Storm doors and shutters rattle	
Storm	20 to 25	Difficult to stand without holding onto something People may become injured due to flying objects	Thin branches may break and unstable trees may topple Billboards fall or fly off Street signs tilt	Roof tiles and other roofing materials may fly off Unsecured prefabricated huts may move or topple Extensive tearing of plastic greenhouse film (covering material)	40
	25 to 30			Insufficiently secured metal roofing material tear off Temporary scaffolding with inadequate curing collapses	
Violent storm	30 to 35	Being outside is very dangerous	Many trees fall Power poles and streetlights may also fall Concrete block walls may collapse	Exterior materials of many buildings blown off, exposing the substrate material	50
	35 to 40			Some houses may collapse	
	40+			Some steel structures become deformed	60

Note: "Average wind speed" refers to the average for ten minutes while "wind gust speed" refers to the average for three seconds.
Source: Japan Meteorological Agency

Torrential rains

"Torrential rains" refers to brief, concentrated and heavy rainfall on a small area. These often occur around the end of the rainy season. Compared to typhoons, torrential rains are relatively difficult to predict since they are confined to a small area and occur suddenly. Depending on the amount of rainfall, they may cause rivers to overflow or inland flooding, resulting in serious damage. Pay close attention to weather forecasts and make sure you are prepared.



Intensity and level of rainfall

Rainfall intensity (Forecast terminology)	Hourly rainfall (mm)	Level of rainfall	Outside situation
Slightly heavy rain	10 to 20	Rain is pouring down Feet get wet due to the heavy rain hitting the ground	Puddles all over the ground
Heavy rain	20 to 30	Rain is lashing down People get wet even when using an umbrella	Water overflows from small rivers and gutters
Strong rain	30 to 50	Raining like someone overturned a bucket	Roads are flooded
Very strong rain	50 to 80	Raining like a waterfall Umbrellas are useless	Water bursts out of manholes
Torrential rain	80+	The rain feels oppressive and scary	There is a risk of major damage due to the rain, and extreme caution required

Source: Japan Meteorological Agency

Beware of "training" storms

A "training" storm is a series of rainclouds (cumulonimbus clouds) that pass through or stagnate in the same region, generally about 50 to 300 km long and 20 to 50 km wide. Disaster risks increase when these rainclouds do not dissipate and remain in the same area for several hours, resulting in heavy rainfall.

Caution is essential because heavy rainfall due to training storms causes various serious disasters every year.

Tornadoes and thunderstorms



Tornadoes and thunderstorms can cause significant damage in a short period. Pay attention to hazardous wind watches, thunderstorm advisories, and other weather information and atmospheric conditions.

Protecting yourself from tornadoes

- ◆ Close curtains and storm shutters and stay away from windows
- ◆ Shelter in a sturdy building to avoid wind gusts and flying debris. If no such structures are nearby, hide behind a sturdy object or in a ditch and wait for the tornado to pass.
- ◆ Stay away from temporary structures such as prefabricated buildings as well as large trees, which may fall or be blown away

Protecting yourself from lightning

- ◆ Take shelter in a safe place, such as a sturdy building or inside a car
- ◆ If you are in an open area, move away from tall objects such as power poles and trees
- ◆ Stay as low as possible and make sure your belongings are not higher than your body

Tornado Radar Nowcasts (JMA)

<http://www.jma.go.jp/jp/radnowc>



Heavy snowfall

Heavy snowfall can cause public transportation and road stoppages. When heavy snow is forecast, go home early and avoid going out during and after snowfall.



Before it starts snowing

- ◆ Pay close attention to weather information
- ◆ When heavy snow is forecast, prepare drinking water, food and fuel so you do not have to leave home
- ◆ Put winter tires on your vehicles and check snow equipment such as shovels

After it snows

- ◆ Do not go out unnecessarily. If you have to go out, wear nonslip shoes and avoid carrying anything in your hands.
- ◆ Carports, garages, plastic greenhouses and the like may collapse due to the accumulation of snow. Be wary of that as well as snow falling from roofs.
- ◆ Do not work alone when shoveling snow

Checking evacuation information and required actions

Gyoda City and the Japan Meteorological Agency issue five levels of alerts when a disaster due to a typhoon or torrential rain is threatening. Be sure that you understand what you need to do for each level and take the appropriate evacuation actions.

Alert level	Evacuation information, etc.	Situation	Actions residents should take
5	Emergency safety measures	Disaster in progress or quickly approaching	<ul style="list-style-type: none"> ◆ Safe evacuation is no longer possible and lives may be at danger ◆ Take the best course of action to save your life
Evacuate to safety by alert level 4			
4	Evacuation instruction	High risk of disaster	<ul style="list-style-type: none"> ◆ All residents must evacuate from dangerous locations ◆ If the evacuation site route is dangerous, evacuate to a safe place nearby or within your home
3	Evacuation of the elderly, etc.	Possibility of disaster	<ul style="list-style-type: none"> ◆ Those who need time to evacuate should start doing so ◆ Other residents should start evacuation preparations as necessary ◆ If early evacuation is desirable, start evacuating voluntarily
2	Heavy rain/flood advisories (issued by JMA)	Weather conditions worsening	<ul style="list-style-type: none"> ◆ Review evacuation procedures in case evacuation is necessary
1	Early warning information (issued by JMA)	Weather conditions may worsen	<ul style="list-style-type: none"> ◇ Check the latest weather information and mentally prepare for a disaster

Note: Alert level 5 is not always issued since it is not always possible to accurately assess the disaster situation and for other reasons.

Points to note when evacuating

Prevent water from entering your home

Installing sandbags, water bags and water-stop boards will help prevent rainwater from entering your home. If your home is already flooding, however, focus on evacuation.



Move furniture and other household goods

If there is a risk of flooding, move furniture and other household goods to higher ground, such as the second floor. Also, before it starts raining heavily, move cars and motorcycles to a place that will not be flooded.



Evacuate early

Neighbors should convince each other to evacuate before the area floods. In particular, if heavy rain is expected at night, evacuate while it is still light.



Wear safe and comfortable clothing

Keep your belongings to a minimum, and make sure both your hands are free. Instead of rain boots, which become heavy when filled with water, wear sneakers.



Evacuate on foot

If you evacuate by car, you may block the path of pedestrians and emergency vehicles. In addition, engines can malfunction and cars may become submerged due to the flooding. Evacuate on foot.



Watch your step

When walking through flooded areas, check your path ahead with a cane or long stick to make sure there are no ditches, manholes or other hazards.



Beware of rapidly rising water

Rivers, creeks, irrigation canals and the like are extremely dangerous. Underground spaces such as underpasses and other areas lower than the surrounding area are at a high risk of flooding, so evacuate immediately.



Evacuate to higher ground

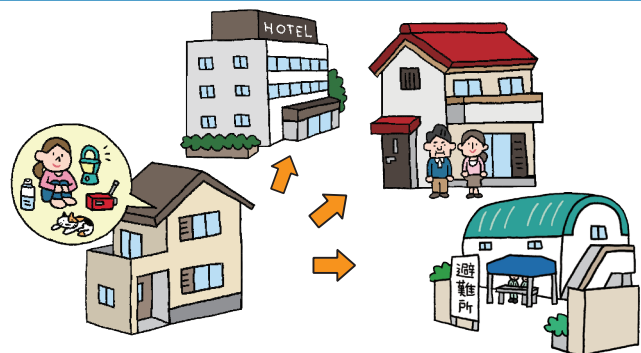
The maximum walkable depth in water is about 50 cm. If the water is flowing fast, even 20 cm can be dangerous to walk in. If you cannot evacuate from your home in time, evacuate to the second floor of your house or a high building in your neighborhood and wait for rescue.



Evacuation shelters are not the only evacuation destination

Going to evacuation centers are not the only places to go in a disaster. Evacuation means avoiding difficulties to secure one's own safety. Evacuation is not limited to city evacuation shelters, but can also include the upper floors of your house or other building, or the homes of relatives or acquaintances in an area unaffected by the disaster.

It is essential to regularly confer with your family members about possible places to temporarily evacuate to until the danger of a disaster has passed.



If at-home evacuation is possible

Vertical evacuation at home, etc.

If you can confirm on hazard maps or other sources that all three conditions below are met, you can stay at home to ensure your safety:

- ① Your home is not in a building collapse flooding risk area
- ② Your home (or part of it) is higher than the estimated depth of flooding
- ③ You are physically/mentally able to stay at home until the water recedes, and you have a sufficient stockpile of food, water and other supplies



When evacuating to a safe location

Evacuating to the home of a relative or acquaintance in an area unaffected by the disaster

Communicate with your relative or acquaintance regularly, and ask if it is possible to evacuate to their home if a disaster occurs.

- ◆ Confirm on hazard maps that the location you are evacuating to is safe

Evacuating to a safe hotel or inn

Confirm that it is safe and register in advance. You will need to pay normal accommodation fees.

- ◆ Confirm on hazard maps that the location you are evacuating to is safe

Evacuating to a designated evacuation shelter

Evacuate to an elementary/junior high school, community hall or other location designated as a shelter.

Refer to p.2 about preparing emergency supplies and bringing them with you.

My Timeline

My Timeline is a personal evacuation action plan for heavy rains due to approaching typhoons and other disasters that organizes “when,” “who” and “what” in chronological order according to household composition, neighborhood characteristics and so on. We recommend preparing your personal plan in advance so you can react calmly in an emergency.

Please refer to the following points to note and samples to consider how to evacuate safely, and fill in the My Timeline Entry Sheet on the back cover.

Points to note when creating a My Timeline

Check your home’s potential disaster risks and those of surrounding areas on flood hazard maps.

- ◆ Refer to the flood hazard map and the information on p.16 and beyond to assess whether your home and surrounding area are at risk of flooding
- ◆ Decide on multiple evacuation destinations and the relevant evacuation routes. If you can remain safe at home, consider at-home evacuation.



Gyoda City Flood and Inland Flood Hazard Map

Consider the “when,” “who” and “what” for each alert level.

- ◆ Discuss with your family and fill in the “when,” “who,” and “what.” Consider the time it takes to complete each task and create your plan so you have enough time to act safely.
- ◆ Review the weather and evacuation information issued during a disaster, and decide when to begin your evacuation. This should be based on your family situation, such as household composition and distance from shelter.
- ◆ Review your My Timeline once a year to make additions or changes

Decide what to bring when evacuating

- ◆ Designated shelters usually do not distribute food and other goods during windstorm and flood disasters. Refer to p. 2 and prepare emergency supplies based on your household composition.

Confirm how to obtain disaster preparedness information

- ◆ Having the latest information can ensure a prompt evacuation during a disaster. Refer to p. 4 to check multiple ways to obtain information.

My Timeline (sample)

My Timeline for the Gyoda family		Household composition		Taro Gyoda 36 Child Jiro Gyoda 6		Wife Hanako Gyoda 35 Mother Hanae Gyoda 70		Situation	
								Our home is in a projected flooding zone, and the maximum flood depth is five meters. Older brother lives in XX city (outside the expected flooding zone).	
Timeline	3 days before typhoon	2 days before	1 day before	Rain and wind get stronger and stronger				0 hours before	
Announcements from the government	Typhoon forecast Equivalent to alert level 1	Heavy rain advisory Flood advisory Equivalent to alert level 2	Heavy rain warning Flood warning	Alert level 3 Issued	Evacuation of the elderly, etc.	Alert level 4 Issued	Evacuation instruction	Heavy rain emergency warning	Alert level 5 Issued Emergency safety measures
My Timeline	<ul style="list-style-type: none"> ● Prepare things to bring ● Bring objects that may be blown away into the house ● Check weather information 	<ul style="list-style-type: none"> ● Confirm evacuation routes on the hazard map ● Charge cellphones ● Contact older brother (inform him of the possibility of evacuating to his house) ● Begin checking river water level and evacuation information 	<p>Begin evacuation</p> <ul style="list-style-type: none"> ● Begin evacuation to older brother's house and try to convince neighbors to evacuate 	<ul style="list-style-type: none"> ● The whole family successfully evacuates to older brother's house (Evacuate to XX Elementary School if older brother's house is not available.) 				<p>Complete evacuation by alert level 4</p>	<p>If evacuation is not possible</p> <p>Life is in danger Secure safety immediately (move to the second floor of the house)</p>
Point	<p>Examples of items to bring</p> <input type="checkbox"/> Food <input type="checkbox"/> Drinking water <input type="checkbox"/> Cellphones <input type="checkbox"/> Portable chargers <input type="checkbox"/> Medicine, medicine handbook <input type="checkbox"/> Towels <input type="checkbox"/> Plastic bags <input type="checkbox"/> Slippers <input type="checkbox"/> Cash <input type="checkbox"/> Bankbook, personal seal <input type="checkbox"/> Blankets <input type="checkbox"/> Masks, disinfectant	<p>Confirm in advance</p> <ul style="list-style-type: none"> • Depth at which home is flooded: [5]m • Distance to river at risk of flooding: [1,000]m • Distance to nearest designated evacuation shelter [XX Elementary School]: [800]m, [20]min. on foot • Possible locations to evacuate to: (1) [Older brother's house]: [50]min. (2) [XX Elementary School]: [20]min. 	<p>Obtaining information</p> <ul style="list-style-type: none"> ○ Weather information TV, JMA website ○ Evacuation information Gyoda City official SNSs 	<p>Decision to evacuate</p> <ul style="list-style-type: none"> ○ Our trigger for evacuation <p>Start to evacuate when alert level 3 is issued.</p>					
<p>Enter the things you can do in advance</p>		<p>Enter when you will start evacuation (All residents must evacuate from dangerous locations by alert level 4.)</p>				<p>Since alert level 3 may not be issued, begin evacuating if you feel you are in danger</p>			