



## 2 In case of natural disasters

### 2-2 Typhoons

Typhoons occur between July and October, bringing torrential rain and extremely strong winds. Landslides and flooding can occur due to typhoons. There is also a risk of injuries due to fragments that have been blown about, and flood tides.

#### (1) Typhoons

Tropical cyclones occurring at a longitude of 100-180 degrees east in the Pacific Ocean or East China Sea with minimum wind speed of 17.2m/s near the center are called "typhoons." They are the same as hurricanes and cyclones. Caution is necessary, because typhoons can cause a great deal of damage.

The mean pressure of the surrounds of Japan is 1013hPa (Hectopascal); when a typhoon approaches, the air pressure goes down. The lower the air pressure, the stronger the wind and rain tend to become.

The winds of a typhoon in Japan blows in an anticlockwise direction. Moving towards the right-hand side in the direction of the typhoon, this side is even stronger than the left-hand side because the wind which is generated by the typhoon itself blows in the same direction as the wind which is moving the typhoon. The extent of the damage varies considerably depending on the path which the typhoon takes, so you should prepare for typhoons by measures such as watching the weather forecast.

It is essential to be careful of flood tides around the coastline due to rises in sea levels and strength of the wind caused by the low air pressure. Sea levels go up 1cm for every 1hPa that air pressure drops, and grows higher by square in proportion to the power of the wind speed. When the effect of the high water levels is added to high tide, this can result in serious damage; you should avoid going near the sea at such times.



### (2) Strength of typhoons

The strength of the winds of a typhoon are measured primarily in terms of maximum wind speed, with reference to the center of the typhoon and air pressure.

Type of strength	Air pressure at the center (hPa)	Maximum wind speed
Low-level typhoon	990~	17.2~25m
Regular typhoon	950~989	25~33m
Strong typhoon	930~949	33~45m
Very strong typhoon	900~929	45~50m
Extreme typhoon	~900	Over 50m

### (3) Level of typhoons (size)

The size of typhoons is shown as follows. The term "area affected by strong winds" refers to the area where wind speed reaches 15m/s. Areas where winds are stronger than this are referred to as the "storm area."

Level	Scope of the area affected by strong winds
(No phrase)	Under 500km
Moderately large/Large	Over 500km, under 800km
Very large/Extremely large	Over 800km



### (4) Strength of winds

The winds of typhoons and the damage forecast are as follows.

Average wind speed	Effect on people/ damage to buildings etc.
Wind speed of 10m/s	People cannot put up umbrellas. Signs and corrugated sheeting that have not been put up properly start to be blown about.
Wind speed of 15m/s	Plastic greenhouses start to experience breakage. Signs and corrugated sheeting start to be blown about.
Wind speed of 20m/s	Children are almost blown off their feet. People cannot stand without leaning at an angle of about 30 degrees.
Wind speed of 25m/s	Branches are broken. Steel shutters begin to experience breakage. Window glass is broken by objects being blown about. Roof tiles are blown about, and television aerials and chimneys fall over. Brick walls are broken, and external fittings on buildings that have not been properly attached are torn off, and blown about.
Wind speed of 30m/s	Weather-proof shutters come loose, roofs begin to be blown off and wooden houses begin to be destroyed. Electricity poles sometimes fall over.
Wind speed of 35m/s	Passenger cars of train sometimes fall over.
Wind speed of 40m/s	People cannot stand without leaning at an angle of about 45 degrees. Small rocks are blown about.
Wind speed of 50m/s	Most wooden houses fall over. Trees are torn up by the roots and blown over.
Wind speed of	Steel towers are bent.



60m/s

### (5) Indications of levels of precipitation

The levels of precipitation and actual situations caused by typhoons are as follows.

Levels of precipitation per hour	Actual situation
5~10mm	Puddles form. The sound of rain can be heard clearly.
10~20mm	Conversation may not be heard due to the sound of the rain. Disaster warnings become necessary should this rain continue for a long time.
20~30mm	Drain overflow, and small rivers can flood. There is a risk of landslides.
Over 30mm	Torrential rain, as though buckets of water were being overturned. Prepare for evacuation, and evacuate on your own initiative if you think there is a danger.

### (6) When a typhoon occurs

- 1 If you have weather-proof shutters or ordinary shutters, close them.
- 2 If the wind is strong, do not go outside.
- 3 Frequently check the latest weather information. Notwithstanding point (a), evacuate promptly if an evacuation advisory is given.
- 4 Keep away from broken electricity poles or electricity cable that are hanging down.