

Disaster Manual

for International Students

2015 Revised Edition



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0. How to Use This Manual

This booklet tells you what to do when you are confronted by an earthquake, tsunami, or typhoon, and how to prepare for these disasters. In order to be able to calmly and appropriately deal with these emergencies, please look over this information.

This booklet has the following features:

- 1) There is a small round hole in the upper left corner. Put a string through the hole and hang the book on a hook. You will be able to get to it quickly if you need it.
- 2) On the right side, there is an index for each category; you can find needed information easily in case of an emergency.

You can access this booklet from the International Student Center homepage.

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The University of the Ryukyus

International Student Center Consultation Division

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1. Typhoons

1-1. About typhoons

In Okinawa, July through October is generally called typhoon season, but sometimes it starts as early as May. Typhoons are accompanied by high tides, high waves, and heavy rain, and they can cause big disasters like shore, housing, or road disasters, as well as landslides and floods. They bring dangers like strong winds that sometimes create flying debris and take down signboards and tree limbs.

Since the typhoons that come to Okinawa are often slow moving and frequently remain in the area for an extended period of time, you must be careful.

1-2. Preparing for typhoons

- 1) You can check a typhoon's subsequent movements and the storm zone on the Internet and television.
- 2) When a typhoon hits or passes nearby, the power supply might be cut off due to flying debris damaging or cutting electric lines. In addition, water or gas service might sometimes be cut off. To prepare for such situations, it will be useful if you prepare the following:
 - a) A flashlight
 - b) A portable radio
 - c) Extra batteries
 - d) A fully charged cell phone and personal computer
 - e) A one- or two-day supply of food and drinking water
 - f) Water for daily use (keep some water in the bathtub.)
- 3) Because of strong, wind-driven rain, water might come in through windowsills. In such a case, you might stop it by putting newspaper in the windowsills.
- 4) If a window has a ventilation opening, water might get in through it. In that case, you might make it better if you make sure it is completely shut.

1-3. When a typhoon approaches

- 1) Since the rain and wind are very strong, please try to **avoid going out at all if possible. The seashore is especially dangerous because of high waves. You need to be very cautious and stay away from the ocean.**
- 2) Check for warnings on television, the radio, or the Internet.

- a) Check whether a **storm warning (*boufu keiho*)** has been issued or not. If it has been issued, classes will be canceled. (→cf. 7. Emergency contacts)
- b) Also check whether public transportation is moving or not. If bus service is canceled, universities, public institutions like city and town offices, and hospital outpatient reception counters will be closed (except emergency centers).
- c) Check whether an **evacuation order** has been issued or not in the area where you are.

The way to check for evacuation orders is different in different areas. You will be able to check for them on individual municipal homepages or through area electronic alerts.

Municipal homepages:

Ginowan City: By disaster prevention siren • voice announcement
098-896-2401 (You can check radio broadcasts by telephone)

Nakagusuku Village homepage: “Emergency and disaster report”

<http://www.vill.nakagusuku.okinawa.jp/menuIndex.jsp?id=53415&menuid=11674&funcid=28>

Urasoe City homepage: “Disaster report”

<http://www.city.urasoe.lg.jp/categories/bunya/anshin/bosaigai/>

Naha City homepage: “Disaster report”

<http://www.city.naha.okinawa.jp/general/safety/>

Okinawa Disaster Prevention Information Portal *Haisai Bosai Deebiru* All Okinawa: “Okinawa prefecture disaster prevention weather report” <http://www.bousai.okinawa.jp/>

Area electronic alert (→cf. 5. Area electronic alert)

NTT docomo: <https://www.nttdocomo.co.jp/service/safety/areamail/>

Softbank: http://www.softbank.jp/mobile/service/urgent_news/about/disaster_info/

au: <http://www.au.kddi.com/mobile/anti-disaster/kinkyu-sokkuho/>

1-4. Danger of a storm surge

When a typhoon approaches, due to atmospheric conditions or strong wind, ocean water might come over dikes and flood roads and houses. If you live or work near the ocean, be alert to **storm surge emergency warnings, storm surge warnings and storm surge advisories**. **Since rivers can also overflow their banks due to high tides, you must be careful not to go too close to the ocean or rivers.**

1-5. A Warning or an Advisory when a typhoon comes

When a typhoon comes, a warning or an advisory might be issued. Be on the

lookout for them. An emergency warning means there is serious danger, such as a once in several decades event. A warning means there is a strong possibility of a serious disaster. On the other hand, an advisory means there is the possibility of a disaster.

Emergency warning	Heavy rain emergency warning Storm emergency warning Storm surge emergency warning High-wave emergency warning
Warning	Heavy rain warning Flood warning Storm warning Storm surge warning
Advisory	Heavy rain advisory Flood advisory Strong wind advisory Storm surge advisory
Others	Record time heavy rain information ^{※1}
	Earth or sand disaster warning information ^{※2}

- ※1 Record time heavy rain information is a disaster prevention report that will be broadcast when a heavy rain warning is issued. It means the amount of rainfall has reached a level capable of creating a disaster in the area issued.
- ※2 Earth or sand disaster warning information is a disaster prevention report that will be broadcast when a dangerous level of ground saturation has been reached capable of causing cave-ins or landslides.

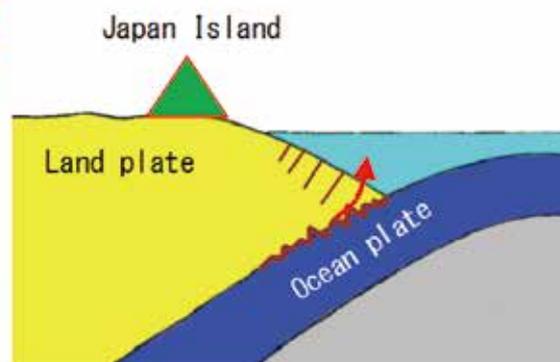
2. Earthquakes

2-1. About earthquakes

The Japanese Islands, located along the boundaries of numerous tectonic plates, have had a lot of big earthquakes in the past. As the illustrations that follow show, on the Pacific side of Japan, the Pacific Plate and the Philippine Plate are sinking under Japan and are scraping against the plates (the North American Plate and the Eurasian Plate) upon which Japan rests. The edges of the top plates, which are being pulled down, gradually store up energy, and when it becomes too great, they will spring back upward. At this moment, an earthquake occurs.

Although you might hear that there are no earthquakes in Okinawa, one registering 5.0 struck the Okinawa mainland in 1926. Even though there have been no other strong ones recorded since then, there is no scientific reason to believe that there will not be another strong earthquake here.

To the east of the Okinawa islands, the Philippine Plate is sinking below the Eurasian Plate, upon which Okinawa is located. In such a location, there is a possibility that a strong trench type earthquake will occur, and in that case, a giant tsunami wave will likely be generated.



NPO Disaster Damage Prevention NPO Miraikai

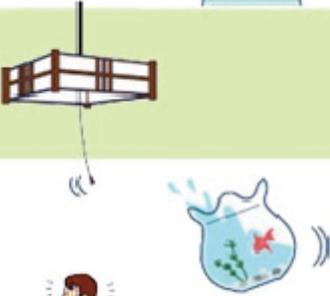
<http://www5d.biglobe.ne.jp/~miraikai/nihonnopureito.htm>

A partially modified illustration of the plates near the Japan Islands

Professor Mamoru Nakamura, from the science department of this university, pointed out that if a big earthquake occurs in Okinawa, damage will converge on buildings built on piling without quakeproofing and buildings that were built before 1981. (*If an Earthquake Occurs in Okinawa*: <http://seis.sci.u-ryukyu.ac.jp/hazard/large-eq/higaiyosoku.html>)

2-2. The size of an earthquake: magnitude and seismic intensity

Magnitude indicates the amount of an earthquake's energy, while seismic intensity indicates the amount of shaking in each place. The equivalence chart between seismic intensity, which is announced by the Japanese Meteorological Agency, and the level of shaking that people feel is as follows:

	Seismic intensity 0	People do not feel it.
	Seismic intensity 1	A few people inside houses might feel a slight shaking.
	Seismic intensity 2	Many people inside houses feel shaking. Some sleeping people will be awakened.
	Seismic intensity 3	Most people in houses will feel shaking. Some people will be afraid.
	Seismic intensity 4	The sensation of fear will be strong, and some people will try to protect themselves. Most sleeping people will be awakened.
	Seismic intensity weak 5	Many people will try to protect themselves. Some people's actions will be impeded.
	Seismic intensity strong 5	People will feel strong fear. People's actions will be impeded.
	Seismic intensity weak 6	It will become hard to stand.
	Seismic intensity strong 6	People will not be able to stand still and cannot move without crawling.
	Seismic intensity 7	People will be tossed about by the shaking and be unable to control their own actions.

<http://www.jma.go.jp/jma/kishou/known/shindo/shindokai.html>

From seismic intensity and shaking circumstances (outline)

2-3. Preparing for earthquakes

An earthquake may occur suddenly someday. In order to be able to act calmly at that time, please prepare for it.

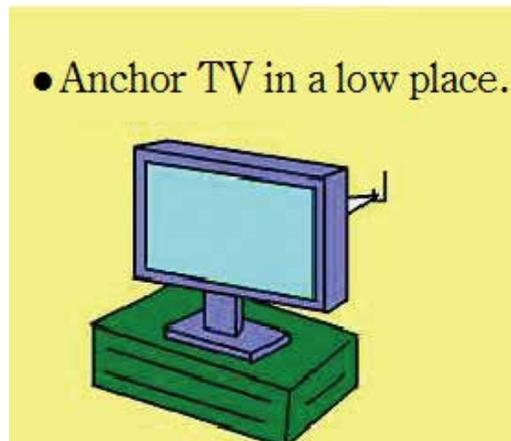
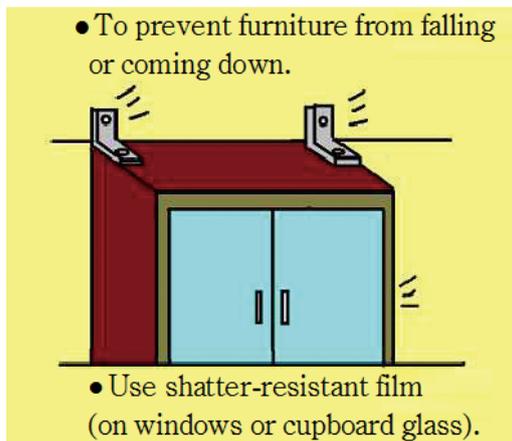
- 1) To prevent furniture or electrical appliances from falling on you when you are sleeping, keep them in safe places (put them as close to the floor as you can). Also, do not put things that might block your escape near entrances.

Check!!

☑Check!

① Is furniture secured so it will not fall down?	
② Will glasses and dishes be prevented from falling and shattering?	
③ Are electrical appliances (e.g., computer) secured to not fall?	
④ Are entrances free from possible obstructions?	

※You can buy adhesive rubber pads that are a tip-over safety device for furniture and shatter-resistant film for glass at a home center.



From Ginowan City handbook for times of emergency

http://www.city.ginowan.okinawa.jp/DAT/LIB/WEB/1/bousaitetyou_tuujyou.pdf

- 2) Prepare a *hijou bukuro*, an emergency bag.

In order to evacuate immediately, keep these necessities in a travel bag.

- ① a flashlight
- ② batteries (for replacement)
- ③ a portable radio
- ④ a cloth
- ⑤ a towel
- ⑥ a mask
- ⑦ a pair of gloves (cotton work gloves)
- ⑧ a helmet
- ⑨ a packet of wet tissues
- ⑩ a plastic bag
- ⑪ cash (small bills and change)

※Since *hijou bukuro*, emergency bags, are available at home centers in Okinawa, it would be a good idea to buy one.

- 3) Prepare emergency supplies. A standard amount is for about three days.

- ① drinking water
- ② food like biscuits that can keep for a long time and be eaten without cooking

- ③ powdered milk and disposable diapers if you have a baby
- ④ The electricity might be cut off due to an earthquake. To prepare for a nighttime earthquake, keep a flashlight, extra batteries, and a radio near your bedside.
- ⑤ Because of a falling cupboard and breaking glass, pieces of glass might be scattered inside the house. To prevent injury to your feet, keep a pair of slippers or shoes by your bedside.
- ⑥ Plan how to contact your family in emergency.
There are some emergency contact service sites like NTT Saigai Dengon Dial 171 (disaster message dial 171) and cellphone Saigai-yo Dengon-ban (message board for disasters). Please check how to use them.

2-4. When an earthquake occurs

- 1) If you are inside a building (at home, in an office, a classroom, etc.) Furniture, appliances, bookshelves, or cabinets might topple over. There is also a danger that books on bookshelves or dishes in cupboards might fall. Hide under a table or a desk and wait until the quaking stops.



If an earthquake occurs during class time, hide under a desk to protect yourself and wait until the shaking stops. Do as instructed by the teacher, and do not decide on your own to go outside.

- 2) If you are using gas, turn it off!
※A spilled pot might severely injure you. As it is very dangerous, if a quake is strong, move away from the stove quickly, and turn off the gas when the quake has stopped.
- 3) If you are in a supermarket
- a) Shelves might topple over or goods might be falling from the shelves. Cover your head with a bag or something, and move away from the shelves immediately.
 - b) Follow the instructions of the person in charge.
- 4) If you are inside an elevator
- a) Newer elevators have an earthquake sensor and will stop automatically near a floor. Stay calm and get off the elevator on that floor. If the elevator does not have an earthquake sensor, push all the floor buttons and get off wherever it stops.
 - b) If you are stuck inside an elevator, push the emergency button, the *hijou-yo yobidashi* button, to contact help and follow the instructions of the person in charge.

- 5) If you are outside (on campus or in town)
 - a) If you are walking near a building, it is possible that glass windows, signs, walls, or outdoor air conditioner units will fall. Protect your head with a bag or something and move away from the building.
 - b) Since a concrete block wall might fall, move away immediately.



- 6) If you are driving a car, **no sudden braking!**
Slow down gradually, stop your car along the left shoulder of the road, and stop the engine.
- 7) If you are on a bus or the monorail
 - a) If you are sitting on a seat, lean forward and protect your head with a bag or something if possible.
 - b) If you are standing, hold on to a handrail or a strap tightly.
 - c) Follow the instructions of the person in charge.

2-5. When an earthquake stops → When you need to evacuate

- 1) If you are inside a building (your home, in an office, a classroom, etc.)
 - a) Make sure all flames, such as stove burners, are extinguished.
 - b) Wear shoes.
 - c) Confirm emergency information on the television or radio.
[Okinawa Prefecture disaster damage prevention information and weather access from cell phones/smart phones: http://www.bousai.okinawa.jp/sp/](http://www.bousai.okinawa.jp/sp/)
 ↓If you have to evacuate ... **Do not evacuate by car!**
 - d) Evacuate with an emergency bag. Do not forget your passport, alien registration card, and student ID.
 - e) In order to prevent fires, close the gas main tap and shut down the electricity circuit breaker.
- 2) If you are near the ocean
 A tsunami might hit you; **leave the area immediately and evacuate to high ground or a high building.**
 (→See 3. Tsunami in detail)
Caution: On Miyako Island and Ishigaki Island, there are signs that a tsunami rose 40 meters above sea level, so you have to evacuate high enough from the ocean level.
- 3) If you are driving a car ... **Do not evacuate by car!**
 Confirm emergency information with the car radio.
[Okinawa prefecture disaster damage prevention information and weather access from cell phones/smart phones: http://www.bousai.okinawa.jp/sp/](http://www.bousai.okinawa.jp/sp/)

↓If you have to evacuate:

- a) Leave the car without locking the door and the engine key in the car.
- b) Remember to bring all important things with you.
- c) Evacuate carefully so as not to be hit by another car.

2-6. If a fire occurs because of an earthquake

Even if a fire starts, if there are no synthetic materials around to burn, it might not spread rapidly, so be calm and try to put the fire out with a fire extinguisher or water.

- 1) In a loud voice, let the neighbors know about the fire.
- 2) Attempt to put out the fire with a fire extinguisher or water before the fire reaches the ceiling.
- 3) If the fire reaches the ceiling, get out and call 119.



2-7. Earthquake early warnings

The Earthquake Early Warning system provides an advance announcement of estimated seismic intensities just after an earthquake occurs. These are not earthquake predictions! Since August 30, 2013, an earthquake early warning for a quake stronger than a weak 5 has become an early emergency warning.

Earthquake scale	Type of warning	Type of prompt
More than 6-weak	Emergency warning	Urgent earthquake prompt (Warning)
More than 5-weak	Warning	
More than 3 or magnitude of 3.5	Forecast	Urgent earthquake prompt (Forecast)

From Meteorological Agency emergency warning announcement standards:
<http://www.jma.go.jp/jma/kishou/known/tokubetsu-keiho/kizyun.html>

The above information will be available in the following ways:

- a) On a cellphone
 - NTT docomo, Softbank, and au distribute earthquake early warnings. Make sure whether your cellphone can receive them or not. Check how to set yours up for receiving them.
 - NTT docomo https://www.nttdocomo.co.jp/service/safety/areamail/earthquake_warning
 - Softbank http://www.softbank.jp/mobile/service/urgent_news/about/disaster_info/
 - au <http://www.au.kddi.com/mobile/anti-disaster/kinkyu-sokuho/>
- b) From TV or radio
 - First, you will hear the sound of a chime, and a visual and oral broadcast. As

commercial radio and TV stations use the same chime sound as NHK uses, try to learn the NHK chime sound to recognize the warning sound immediately.

NHK chime sound <http://www.nhk.or.jp/sonae/bousai/>

c) From disaster prevention administration radio

After October 1st, 2007, disaster prevention administration radio using the all Japan instant warning system, J-ALERT, is provided in municipalities. Check whether this system is provided in your town.

※For more information about Earthquake Early Warnings, see following home pages.

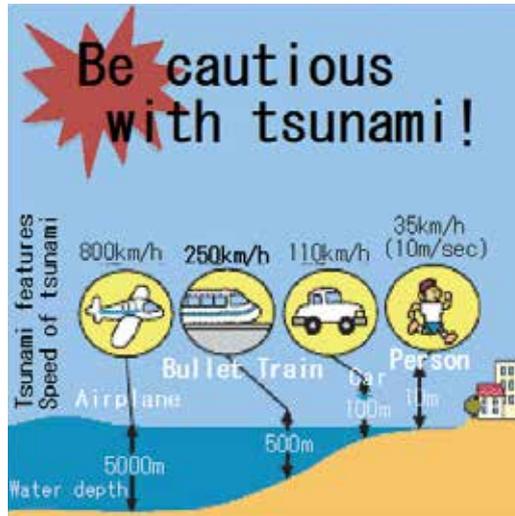
The Meteorological Agency, Earthquake Early Warnings

<http://www.data.jma.go.jp/svd/eew/data/nc/koudou/koudou.html>

3. Tsunami

3-1. About tsunami

When an earthquake occurs on the ocean floor, the movement of the ocean floor produces a tsunami. A tsunami that is created like this can come as fast as a jet across the deep ocean. Even a tsunami that has reached shore can sometimes travel faster than 36 km/h (10m/sec.).



Excerpt from: *Asahi Gakusei Shimbunsha Junior Asahi—Japan Is an Earthquake Country*
 For information about the propagation velocity of tsunami and ocean depth, visit this Website:
http://www.asagaku.com/kokoku/jishin_tsunami/nihonwajisintaikoku.html

As a tsunami reaches shallow water and hits land, its height will increase dramatically. For example, a 5-meter high tsunami offshore can rise to 20 to 30 meters high when it reaches land. The relationship between the height of a tsunami and the damage caused is explained below:

The height of a tsunami and damage:

Height of tsunami	Estimated damage and recommended action
0.2m~1m	Swimmers will be carried out to sea, aquaculture fixtures will be carried away, and small ships will be capsized. → Get out of water immediately and leave the seacoast.
1m~3m	There is danger of flood damage in low-lying areas. Anyone near the sea in a place without a breakwater will be dragged into the ocean. → Anyone on the seacoast or near a river should evacuate to a safe place like high ground or an evacuation area immediately.
3m~	Wooden houses will be totally destroyed and washed away. People will be washed away in the tsunami surge. → Anyone on the seacoast or near a river should evacuate to a safe place like high ground or an evacuation area immediately.

From Meteorological Agency tsunami warning advisory* tsunami information* tsunami prediction:
<http://www.data.jma.go.jp/svd/eqev/data/joho/tsunamiinfo.html>

3-1-1. Features of tsunami

- 1) Tsunami **can strike repeatedly**. (There is a threat of additional waves for a few hours after the first tsunami arrives.)
- 2) The first wave is not always the biggest one.
- 3) A tsunami does not always start with a backwash.
- 4) Even just a knee-high tsunami can easily carry people away.
- 5) When the tsunami has a backwash, it has a strong current dragging things offshore.
- 6) A tsunami **can reach far inland**, not necessarily across land but rather up rivers or waterways.
- 7) **The projected arrival time and height of a tsunami are different** based on its birthplace and the size of the earthquake.

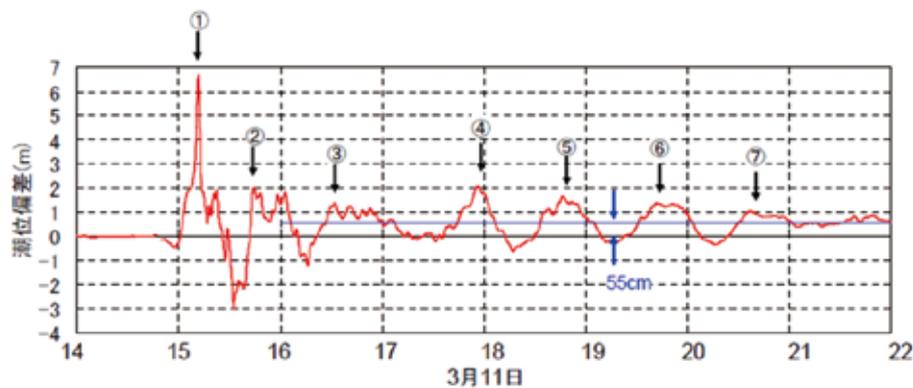


図-1 岩手南部沖GPS波浪計で捉えた津波の初期の波形

Waveform of a tsunami on GPS offshore south of Iwate Prefecture on March 11, 2011
(Extract from documents by Harbor and Airport Technical Research Institute)

After the first wave arrived, tsunami repeatedly struck within a cycle of 50 minutes. It was actually six hours after the first wave arrived that the tsunami died down.

3-2. Tsunami prediction

If an earthquake occurs and a tsunami is forecast, **within three minutes after the earthquake, the Meteorological Agency** will announce a tsunami prediction with a warning or alarm, announcing the tsunami's predicted arrival time and strength. In the case of a huge earthquake such as over magnitude 8, it is not possible to announce with high precision the magnitude of the earthquake immediately. Therefore, the announcement of its magnitude will be made in two steps. Its height will be announced as *kyodai*, huge, or *takai*, high; after that, numbers will be announced. In a very hazardous situation, such as a once-every-few-decades event, *tokubetsu keiho*, an emergency warning, will be issued.

Types of tsunami warnings and advisories

	Report criterion	Description of huge earthquake	Issued by numbers
Major tsunami warning (Emergency warning)	More than 3-meter-high tsunami	Huge (<i>kyodai</i>)	5m, 10m, more than 10m
Tsunami warning	More than 1m but less than 3m	High (<i>takai</i>)	3m
Tsunami advisory	More than 0.2m but less than 1m with a possibility of tsunami damage	(none)	1m

From Meteorological Agency tsunami warning advisory* tsunami information* tsunami prediction:
<http://www.data.jma.go.jp/svd/eqev/data/joho/tsunamiinfo.html>

3-3. Saving lives by evacuation



Before the disaster



After the disaster

Damage caused in the East Japan disaster on March 11, 2011

(Minami Sanriku-cho Miyagi Prefecture, touched up Google Earth picture; red line shows 5 meters above sea level) From the coastline to 3km inland and over 20m altitude, all man-made structures were washed away by the tsunami.

Comparing these two pictures, you can see that most of the man-made structures in the area under 20 meters above sea level were destroyed by the tsunami. The best way to protect your life is to evacuate to high ground. Northeast Japan has been hit by a big tsunami that reached over 40 meters above sea level a few times in the past.

The Okinawa area has suffered big earthquakes in the past. A clear record remains of the damage caused by the Showa Major Tsunami in 1771; about ten thousand people lost their lives. It was reported that the tsunami at that time reached 40 meters high. That is to say, the highest-level tsunami in the world has occurred in Okinawa.

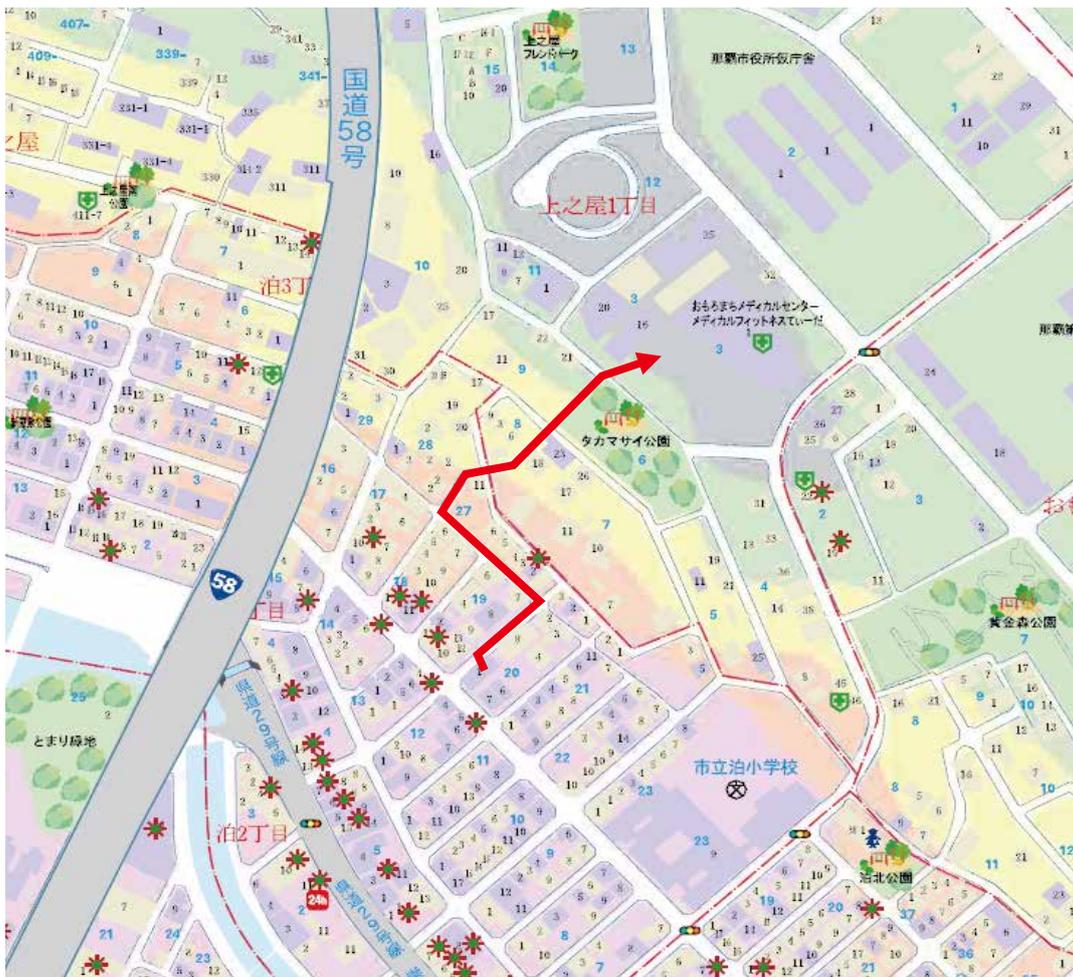
There is a lot of evidence that shows there were major tsunamis in Okinawa in the past. One piece is the following picture. Many of the rocks that dot the picture are called *tsunami ishi*, or tsunami rocks. It is estimated that coral rocks from the sea on the left of the picture were moved over the land and into the sea on the right side. As the height of the land is 15 meters above sea level, it means that pieces of rock

weighing more than one thousand tons were thrown as high as the roof of a five-story building. This tells the fearsome power of a tsunami.



Tsunami-stone that are scattered in Higashi Hennesaki on Miyako Island (It is believed that a tsunami carried the rocks from the sea to the left across the land to the sea on the right. You can judge the size of the rocks compared to the height of the people in the photo. The land height is 15 meters above sea level.)

3-4. Confirm an evacuation route



An example of confirming an evacuation route using the disaster reduction map that has height above sea level and addresses. (From the super disaster reduction map by Prof. Nakaza, University of the Ryukyus and the Life Map Company cooperative project)

After the East Japan Disaster, each area in Okinawa started to indicate its **altitude above sea level**. However, those indications are still not enough. It is absolutely necessary to check the height above sea level of your living area in advance in order to evacuate precisely. (→To know how to check sea level altitude, refer to 3-5, preliminary information to prepare for a tsunami, 4) Mapion map and all-Okinawa elevation map.) The map on the previous page is an example of a **disaster reduction map**, which shows altitude above sea level in different colors. It is very important to check in advance the route by which you can evacuate immediately by using such a disaster reduction map.

During the Sumatra offshore earthquake tsunami in 2004 and the Samoa offshore earthquake tsunami in 2009, so many people lost their lives because they tried to escape too late. In the East Japan Earthquake tsunami, there was a sharp difference between those people who had drilled their evacuation route and escaped successfully and those who didn't. Being able to evacuate successfully is the primary concern, and for that purpose, it is very important to check in advance.

In an evacuation, evacuating to a high place more than 40 meters above sea level is the best way, but if there is no place high enough to which you can evacuate, finding a high building is your next best option. Nevertheless, some buildings are built on pilings, and they are weak against earthquakes because some do not have an aseismic structure. It is necessary to check these points in advance.

3-5. Preliminary information to prepare for a tsunami

1) Remember the following signs that are installed in tsunami danger areas.



From the Urasoe City homepage: Do you know about tsunami? ②

Predicted types and signs

<http://www.city.urasoe.lg.jp/saigai/2014110100664/>

2) Check the tsunami hazard map of the town where you live on their homepage and confirm whether it is in a tsunami danger area or not.

Ginowan City tsunami/landslide hazard map:

<http://www.city.ginowan.okinawa.jp/sisei/emergency/02/dosuyasaigaisyuuti.html>

Nishihara Town http://www.town.nishihara.okinawa.jp/link/2013_bousai.html

Naha City <http://www.gis.city.naha.okinawa.jp/BousaiMap/>

Urasoe City <http://www.city.urasoe.lg.jp/docs/2014111300247/>

Okinawa Prefecture Tsunami-High Tide Damage Prediction Research

(Caution: It is research from before the East Japan Earthquake occurred.)

※Okinawa Prefecture is conducting operations to review countermeasures in response to earthquakes and tsunami after the East Japan Disaster. Hence, there is a possibility that the tsunami hazard maps on the homepages listed above may

change in the near future.

3) Check evacuation places in the town where you live now on its homepage.

→City, town, and village homepages that show evacuation places

Nishihara Town: <http://www.town.nishihara.okinawa.jp/goven-service/04-shelter.html>

Ginowan City (Evacuation places are written on the disaster damage prevention map):

http://www.city.ginowan.okinawa.jp/sisei/emergency/02/31_521.html

<http://www.city.ginowan.okinawa.jp/sisei/emergency/02/dosuyasaigaisyuuti.html>

Urasoe City: <http://www.city.urasoe.lg.jp/docs/2014111300247/>

Naha City: <http://www.city.naha.okinawa.jp/kakuka/bousai/hinannbasho.html>

※For example, the mark to the right indicates an evacuation site in Ginowan City.

(From *Notebook on Disaster Damage Prevention* on Ginowan City's homepage

http://www.city.ginowan.okinawa.jp/DAT/LIB/WEB/1/bousaitetyou_tuujyou.pdf).



4) Check the height above sea level of the area where you live.

Sites where you can check height above sea level are:

Mapion map (after the destination map appears, right click the mouse): <http://www.mapion.co.jp>

Okinawa Prefectural Police All-Okinawa elevation map <http://www.police.pref.okinawa.jp/docs/2015042100012/>

※The Okinawa Prefecture Earthquake and Tsunami Assumption Consideration Committee, which was inaugurated after the East Japan Disaster, set the lowest tsunami flood line at five meters above sea level. Incidentally, the area around the University of the Ryukyus' Senbaru campus is located 126 meters above sea level, and the area around the Nishihara Town office is five meters above sea level.

※After the East Japan Disaster, the number of cities, towns, and villages that have set up height above sea level indicators at public buildings or on electric poles as a tsunami protection measure is increasing. Check for them when you go out. For example, Nakagusuku Village set up noticeboards like below.



Less than 5m is indicated in red, from 6-19m in yellow, and over 20m in blue.

From Nakagusuku Village homepage.

Emergency disaster sea-level posters displayed

<http://www.vill.nakagusuku.okinawa.jp/menuIndex.jsp?id=53415&menuid=11674&funcid=28>

3-6. When a tsunami occurs: If a big earthquake occurs outside of Okinawa

If a big earthquake occurs outside of Okinawa, including overseas, and a tsunami arises, the Meteorological Agency will issue a tsunami warning or a tsunami advisory, so make sure that you check the estimated arrival time of the tsunami and its estimated height. Along with this warning or advisory, cities, towns, or villages may

issue their own **evacuation warning** or **advisory**. If a **warning to evacuate** is issued for the area in which you live, follow their advice.

If the earthquake that caused the advisory is outside of the prefecture, it will take time for the tsunami to arrive here, so take action calmly.

The difference between an evacuation warning and an evacuation advisory

Classification	Binding	
Information to prepare for evacuation		Depending on how things develop, either an evacuation advisory or an evacuation warning may be forthcoming, so this is to warn people to start preparing for evacuation.
Evacuation advisory		This recommends and urges that residents evacuate. (It does not force them to evacuate.)
Evacuation warning		When the danger of damage becomes critical, this will be issued. It is more binding than an evacuation advisory, but residents who do not obey the order will not be legally punished.

From Shimonoseki City Fire Brigade:
<http://www.svfc.jp/blog110907150222.html>

3-7. When a tsunami occurs: If a big earthquake occurs in Okinawa

According to the strength of possible earthquakes under the ocean near Okinawa, the Okinawa Prefecture Disaster Prevention Department has made predictions about how big a tsunami will come and has made this information available to the public. How long it will take from the time the earthquake occurs until a tsunami arrives onshore in Okinawa is predicted. However, after the East Japan Disaster, tsunami flood predictions must be reconsidered. The necessity of reviewing historical tsunami heights was also pointed out.

The highest tsunami that has occurred in Okinawa in the past was assumed to have been a full 10 meters, and the furthest upstream height was over 40 meters above sea level. Therefore, it is recommended that you evacuate to a high place that is higher than 40 meters above the sea in Okinawa.

The following is a public perusal site for the results of a tsunami simulation by the Okinawa Prefecture Coastal Disaster Prevention Department. (Caution: tsunami heights need to be reconsidered.) <http://www.pref.okinawa.jp/kaigannbousai/con11/index.html>

3-8-1. If you are on the Ryukyu University campus

The Ryukyu University campuses (Senbaru campus and Uehara campus) are located 126 meters above sea level, and the threat of damage from a tsunami is very low. As is mentioned in section 3-1-1 Features of tsunami, tsunami **can strike repeatedly, so do not go back to a low-level zone until a tsunami warning has been terminated. If an earthquake occurs during a class period, follow your teacher's instructions.**

3-8-2. If you are outside the Ryukyu University campus

It is important to **evacuate to a high place**. You need to have checked the **disaster prevention map** for where you live. When you check it, check about tsunami evacuation buildings, other evacuation places, and the way to get to those places.

1) If you are near the coast:

As soon as the earthquake stops, **leave the coast immediately without waiting for an earthquake warning or advisory. Evacuate to high enough ground or a high building as far as possible away from the water.**

2) If you are away from the coast but in a low place:

Since tsunami waves are very long, even if you are away from the ocean, it is not safe enough. For example, in the case of the East Japan Earthquake, there were places where the tsunami went six kilometers over land and 12 kilometers in places along a river. **If you are in a low place, five meters above sea level or less, go as far as possible away and evacuate to high ground or a high building.**

※In Urasoe City, look for signs that show a “tsunami evacuation building.” Before The East Japan Earthquake occurred, a good evacuation building was considered to be higher than three stories, but after the disaster, a **five-story one is now considered suitable.**



From Urasoe City Industrial Promotion Center *Yuinomachi* homepage: Tsunami Evacuation building signs posted

<http://yuinomachi.jp/?p=15125>

Urasoe City Public Relations pamphlet *Koho Urasoe*, September 2010 (No. 609 p. 8)
Raise Awareness of Disaster Prevention to Prepare for Disasters

<http://www.city.urasoe.lg.jp/docs/2014110100919/>

Ginowan City Tsunami Evacuation Sites:

<http://www.city.ginowan.okinawa.jp/sisei/emergency/02/tsunami.html>

Naha City Resident Protection Section:

<http://www.city.naha.okinawa.jp/kakuka/bousai/index.html>

Tsunami Evacuation Building Site Agreement:

[http://www.city.naha.okinawa.jp/cms/kakuka/bousai/tunami\(0805\).pdf](http://www.city.naha.okinawa.jp/cms/kakuka/bousai/tunami(0805).pdf)

3) If you are somewhere other than the places mentioned above:

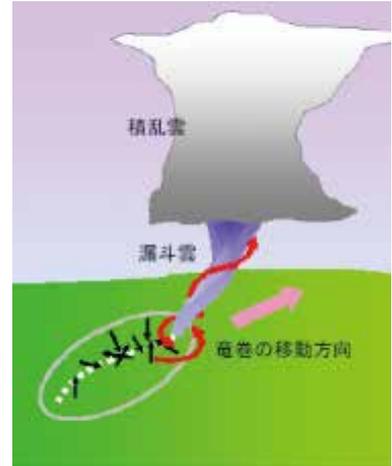
Five meters above sea level is the **minimum** safe level that the Okinawa Prefecture Earthquake and Tsunami Assumption Examination Committee has set for tsunami flooding. If an occasion arises to do so, the Meteorological Agency **will issue a tsunami warning or advisory within three minutes** after an earthquake occurs. If you feel a big earthquake, check for information on the radio or TV immediately. **If a warning has been issued for where you are, evacuate immediately.**

4. Tornadoes

4-1. About tornadoes

A tornado is a violent spiral storm that is generated from a developed cumulonimbus cloud and accompanied by a funnel-shaped or column-shaped cloud. In a short time, it can damage an area from several tens to several hundreds of meters wide and several kilometers long, with concentration.

Although tornadoes can be generated anywhere in Japan, past confirmed production data show that most tornados have occurred along coasts in September.



From “Varieties of main gusts” by the Meteorological Agency
From <http://www.jma.go.jp/jma/kishou/known/toppuu/tornado1-1.html>

4-2. If a tornado occurs

When a tornado is approaching, these features are seen:

- 1) A funnel-shaped cloud extends from the bottom of a cloud to the ground.
- 2) Objects fly up into the air in the funnel.
- 3) A rumbling sound is heard.
- 4) There is unusual pressure in the ears because of changing air pressure.

If this happens, take action to protect yourself.

1. If you are outside:
 - a) Go behind a strong building, crouch behind something, and cover your head.
 - b) Since there is a danger of falling debris, stay away from telephone poles and trees.
 - c) As there is a danger of collapse, do not enter garages or sheds.
2. If you were inside:
 - a) Shut windows and curtains, and stay away from windows (glass windows might break).
 - b) If possible, move to a room that has no windows, and hide under a hard desk or table.

The Meteorological Agency leaflet “Protect yourself from tornadoes”:

<http://www.jma.go.jp/jma/kishou/books/tatsumaki/index.html>

4-3. Tornado warning information

When there is severe weather that is likely to generate a tornado, the Meteorological Agency will announce tornado warning information. In addition to tornado warnings, warnings will be given for down bursts, intense gusts of descending air flowing down from a cumulonimbus cloud to the earth’s surface, and gust fronts, gusts made by the movement of cold air under a cumulonimbus cloud to warmer air. After such a warning, you need to be alert for the next hour.

5. Area electronic alert

5-1. What is an area electronic alert?

An area electronic alert sends an early earthquake warning or tsunami warning that has been announced by the Japan Meteorological Agency, or disaster information or evacuation information from Japanese or local public authorities, **to users in a specific area free of charge on their cell phone**. Since it is not affected by congestion on the line, you will be able to receive urgent information promptly. This is limited to inside Japan.

Subscription is not required, but some models require set-up in advance. See the appropriate homepage to check whether your mobile phone is ready to receive area electronic alerts or not.

NTT docomo <https://www.nttdocomo.co.jp/service/safety/areamail/>

Softbank http://www.softbank.jp/mobile/service/urgent_news/about/disaster_info/

au <http://www.au.kddi.com/mobile/anti-disaster/kinkyu-sokuho/>

5-2. Electronic-alert messages

The following is an example of an area electronic-alert message from NTT docomo. When a phone receives an urgent message, you will hear a dedicated ringtone, and an earthquake early warning, a tsunami warning, or disaster evacuation information will be pop up on the screen; after that, they will be saved in your “received messages” box. **Whether you hear a ringtone or not while your phone is in “manners” mode or in “normal” mode depends on the model you have**. Please check for information on your mobile phone through your service provider’s homepage.



From https://www.nttdocomo.co.jp/service/safety/areamail/disaster_evacuation/

6. Other dangers

There are other things that you have to be careful about when you live in Okinawa besides natural disasters.

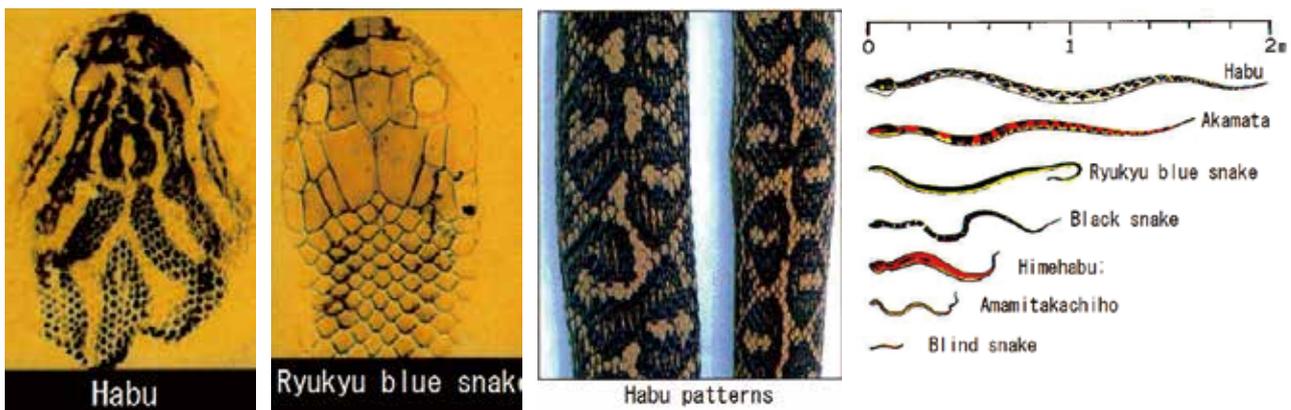
6-1. Beware of *habu* snakes

There are deadly poisonous snakes in Okinawa. They are called *habu*. *Habu* snakes live in the woods and the grass. Since they are nocturnal in their habits, they start moving after it gets dark. They will be especially active in high humidity and on warm nights. During the winter, they move slowly, but they do not hibernate.

Be careful, even in the daytime, for they might be in shady places like in the grass, in a tree, or in the woods.

6-1-1. How to distinguish *habu* snakes

The head and body of *habu* snakes are covered with fine scales while other kinds of snakes are covered with big scales. They can also become very long, sometimes more than two meters.



Okinawa Prefecture* Medical Hygiene* Sanitary Environment Research Institute: How to distinguish a *habu* snake: <http://www.pref.okinawa.lg.jp/site/hoken/eiken/eisei/habumiwakekata.html>

6-1-2. In order to not be bitten by a *habu* snake

1) If you see a *habu* snake, dial 110, and let them catch it.

※Never try to catch it yourself.

2) Avoid areas with tall grass.

6-1-3. *Habu* snakes' nature

1) *Habu* snakes cannot jump. If you are more than 1.5 meters away from a *habu*, it will not attack you.

2) *Habu* do not chase humans.

6-1-4. If you are bitten by a *habu* snake

- 1) Keep calm and make sure whether it is a *habu* or not. If it is a *habu*, there are usually two fang marks, and **it will become swollen in less than five minutes and be very painful.**
- 2) If it is a *habu*, yell for help, and ask someone to take you to a hospital, or dial **119** for an ambulance. (In Japan ambulances are free of charge.)
 - ※**If you run, the poison can take effect more quickly, so walk slowly.** Even if a few hours have passed after you were bitten, anti-venom serum can work.
 - ※If you go to a hospital, call the hospital before you arrive to make sure whether they have anti-venom serum or not. (→see reference data 1)
- 3) Suck out the poison with blood from the wound.
 - ※There is a special aspirator for this. If you don't have one, suck with your mouth. Even if you have a cut inside your mouth or **if you swallow the poison, it will be harmless.**
- 4) **Lightly** tie a tourniquet between the bite and your heart. If you tie it too tightly, you might lose a limb. Every fifteen minutes, briefly loosen the tourniquet.
- 5) **Do not take medication to relieve pain and do not drink alcohol.**

6-2. Beware of dangerous marine organisms

In the ocean around Okinawa, there are poisonous creatures. Be cautious while playing along the coast and doing marine sports. Notable marine organisms are introduced here.

6-2-1. Habu jellyfish

A habu jellyfish's umbrella size is about 10cm to 14cm, and its tentacles are about 1.5m in length. They are found at beaches, seaside swimming areas, and fishing ports. Since its umbrella part is semitransparent and hard to see in the water, it is **better to swim at a beach that has a safeguard net for habu jellyfish.** (See reference data 2: beaches with safeguard nets.) Do not touch safeguard nets or buoys. Sometimes there are tentacles attached to them.



If you are stabbed by a habu jellyfish:

- 1) Pour table vinegar over the wound. (Do not rub it.)
- 2) Remove the tentacle.
- 3) Cover the wound with a towel that is soaked in table vinegar and then pour vinegar over the towel.
- 4) Keeping the wound cool with ice or cold water and go to a hospital.

6-2-2. Crown of thorns

Crown of thorns are huge starfish that are 15cm to 60cm long. Their whole body is covered with poisonous spines. They live on reefs or coral reefs from 1m to 10m deep.



If you are stabbed by a crown of thorns,

- 1) Pull the spine out straight. (Since it is easy to break, be careful not to leave part of the spine behind in the skin.)
 - 2) Soak affected spot in 40 to 45 degree hot water for 30 to 60 minutes. →The pain will ease.
- ※If the condition is serious, go to a hospital.

6-2-3. Anboina snails

The Anboina snail is a Conidae, or cone snail, that is nocturnal in its habits. It is 10 to 13cm in size and inhabits shallow coral reefs and rocks in the sea. Since it has poisonous arrows to paralyze its prey, people gathering shellfish might become a victim because of lack of knowledge.



If you are stung,

- 1) Squeeze the poison out of a wound. (Do not suck it out with your mouth.)
- 2) In order to prevent the poison from spreading, tie the bite tightly.
- 3) Go to a hospital immediately.

6-2-4. Sea snakes

There are eight kinds of poisonous sea snakes in Okinawa. Even though they do not attack swimmers aggressively, they have a poison that is 10 to 20 times as strong as habu snake poison, so do not try to catch them or disturb them.



If you are bitten:

- 1) Squeeze the poison out of the wound.
- 2) In order to prevent the poison from spreading, tie the bite tightly.
- 3) Go to a hospital immediately.

6-2-5. Other dangerous marine organisms

In addition to the above, there are dangerous creatures and fish that do not have poison but will attack humans.

1) Poisonous creatures, non-fish:



Long-spined sea urchin lives in coral reefs.



Flower sea urchin lives in the rocks of coral reefs.



Mirebora coral lives near coral reefs at a depth of 30cm.



Unbachi sea anemone lives at a depth of about 20cm inside reefs.



Iramo (a type of jellyfish) lives near coral reefs and shallow shore reefs and swims in the sea.



Portuguese man-of-war (also known as *denki kurage*) lives in the ocean but is driven ashore to beaches and coves by wind and waves.



Rubus fritillary octopus lives in tidal pools, shallow shore reefs, or in gravel.

2) Poisonous fish with fins:



Demon daruma stinger lives in shallow coral reefs or shore reefs.



Euscaphis japonica



Lion fish



Stingray lives near shallow, sandy beaches, muddy seabeds

3) Fish that attack humans:



Needlefish (When startled by a light at night, will sometimes attack and bite humans.)



Shark (Many tiger sharks are seen near Okinawa.)

Pictures are copied from the following sites:

Amami Ocean Exhibition Hall – Dangerous Ocean Creatures:

<http://www.michinoshima.jp/node/29>

Outdoor Hobby Information Site – Dangerous Creatures Information (Poisonous Creatures/ Deadly Creatures):

<http://outdoor.ymnext.com/topnavi-01.html>

Nakijin Beach Nature School – Dangerous Ocean Creatures in Okinawa:

<http://www.umibe-nature.com/040108ka.htm>

Illustrated Guide to Fish and Shells by Bouz Konyaku:

<http://www.zukan-bouz.com/fish/datu/datu.html>

Wikipedia.org - Amboinagai

<https://ja.wikipedia.org/wiki/アンボイナガイ>

6-3. Beware of heatstroke

Heatstroke is a disorder that occurs when you lose the balance between your body water and salt, and your body loses the ability to regulate heat; it sometimes leads to death. As **heatstroke is especially common between the end of the rainy season and the end of September** in Okinawa, beware.

6-3-1. Conditions that lead to heatstroke

- 1) When the temperature and humidity are high.
- 2) When there is little wind and strong sunshine.
- 3) When there is a lot of reflected heat.
- 4) When you quickly become overheated.

6-3-2. Heatstroke symptoms

- 1) High body temperature
- 2) Dry skin (heat exhaustion, a precursor to heatstroke, includes profuse sweating)

- 3) Headache
- 4) Throbbing head pain
- 5) Dizziness
- 6) Nausea
- 7) Mental confusion

6-3-3. In order to avoid heatstroke

- 1) If you are inside
 - a) Drink water and eat enough salt. **Alcohol doesn't count as a liquid!**
 - b) Block direct sunlight with a curtain.
 - c) Open a window for ventilation or use a fan or an air conditioner.
 - ※Set the air conditioner at around 26 degrees.
 - d) Wear clothes that are highly hygroscopic (that breathe).
- 2) If you are outside
 - a) Drink water and eat sufficient salt.
 - ※**Alcohol doesn't count as a liquid!**
 - b) Use a parasol or wear a hat.
 - c) Do not exercise or work under the blazing sun for a long time. When you work, pitch a tent or do something to create shade, and also take a rest occasionally.
 - d) Wear cloths that are highly hygroscopic (that breathe).
 - ※**Avoid black clothes because black absorbs solar heat.**

6-3-4. If heatstroke is suspected

If you think someone near you has heatstroke, do the following:

- 1) Dial **119** and ask for an ambulance.
- 2) Move the person to a cool place like in the shade of a tree or a room with an air conditioner.
- 3) Cool the body (by pouring water over the skin, fanning, or putting an ice bag on the neck, under the armpit, or in the crotch area).
- 4) If the person can drink, give them cold water to drink.
 - ※If the person has been sweating a lot, a **sport drink is effective.**

7. Emergency contacts

When a big disaster occurs, not only gas and water but also telephone service often stops. Cell phones and mail cannot be used. When the East Japan Disaster struck in March 2011, because of a power breakdown, not only the Internet but also both fixed-line phones and cell phones couldn't be used for a few days to one week.

7-1. Beware of emergencies

- 1) If a big disaster occurs, the university will check your safety, mainly through e-mail or a text message. [Register your mail address or cell phone address with the office if possible, so we will be able to contact you.](#) If you change your mail address, inform us promptly.
- 2) If you are living with your family, discuss how you will reach each other in case of a disaster. (For example, decide on a meeting place, etc.)

7-2. In case of a big disaster

- 1) The university will contact you to check on your safety.
- 2) If a big disaster occurs, because not only the campus but also the university staff will suffer from the disaster, it is possibility that we cannot contact you immediately. Contact the university yourself if you can.
- 3) Contact each other and check on each other's safety.
- 4) The university will try to contact you through the university homepage. If you can use the Internet, try to access the university homepage.
- 5) When the university homepage is down, connect to the International Center or the International Collaboration Section General Strategic Planning Division on Twitter.
International Center: twitter.com/isc_ryudai
International Collaboration Section General Strategic Planning Division:
twitter.com/ICS_UoR

7-3. Things you should be careful of

When the East Japan Disaster occurred in March 2011, the Internet and chain mail spread untrue information to the effect that one country would send a charter jet to save people from their country, so come to the airport on such and such day. It confused many people. It is common for such rumors to spread abroad in a disaster. [In order to not be confused by false rumors, get information from trusted sites \(like the university homepage, the Meteorological Agency homepage, the NHK homepage, or your country's governmental homepages.\)](#)

7-4. How to make contact using a cell phone, a fixed-line phone, a smart phone, or a tablet

- 1) A bulletin board for disasters will be shown in the top menu on NTT docomo, au, and Softbank phones; register your safety status there. Registered Messages will be seen through other companies' cell phones and PHS.

NTT docomo https://www.nttdocomo.co.jp/info/disaster/disaster_board/

au <http://www.au.kddi.com/mobile/anti-disaster/saigai-dengon/>

Softbank iPhone, SoftBank smart phone, tablet

<http://www.softbank.jp/mobile/service/dengon/boards/>



- 2) When an earthquake registering 6-weak or more on the Japanese seismic scale occurs, NTT will start a bulletin board for disaster service. Dial 177 to register or play messages.

Bulletin board for disaster (Web171) NTT West Japan provided from August 30, 2012

<http://www.ntt-west.co.jp/dengon/web171/>

8. Reference data and sites

(Typhoons)

Urasoe City homepage: “Measures against natural disasters ②Typhoons and landslides”

<http://www.city.urasoe.lg.jp/article.php/s20090306091125824>

Nakagusuku Village disaster prevention small memo: A natural phenomenon, a storm surge

<http://www.vill.nakagusuku.okinawa.jp/menuIndex.jsp?id=53415&menuid=11674&funcid=28>

<http://www.vill.nakagusuku.okinawa.jp/UserFiles/File/saigai/bousaitakasio.pdf>

Sediment The Meteorological Agency: Disaster alert information

<http://www.jma.go.jp/jma/kishou/knownow/bosai/doshakeikai.html>

Meteorological Agency: Record short-time heavy rain information

<http://www.jma.go.jp/jma/kishou/knownow/bosai/kirokuame.html>

(Earthquakes)

NPO Disaster Damage Prevention NPO Miraikai “Plates around the Japanese islands”:

<http://www5d.biglobe.ne.jp/~miraikai/nihonnopureito.htm>

Asahi Gakusei Shimbunsha Junior Asahi “Japan is a major earthquake nation”:

http://www.asagaku.com/kokoku/jishin_tsunami/nihonwajisintaikoku.html

Are there few earthquakes in Okinawa? (Science Department, Dr.Mamoru Nakamura’s laboratory homepage):

http://seis.sci.u-ryukyu.ac.jp/hazard/large-eq/okinawa_earthquake.html

Okinawa prediction map for the probability of seismic vibration (Science Department, Dr. Mamoru Nakamura’s laboratory homepage):

<http://seis.sci.u-ryukyu.ac.jp/hazard/hazard-eq/index.html>

Editorial in the *Ryukyu Shimpou* (February 28, 2010): *An earthquake off the Okinawa mainland: It is necessary to be prepared for a state of emergency*

<http://ryukyushimpo.jp/news/storyid-158368-storytopic-11.html>

Editorial in the *Ryukyu Shimpou* (February 28, 2010): *An earthquake off the Okinawa mainland: A comment by an informed person—It is a superstition that there are few earthquakes*

<http://ryukyushimpo.jp/news/storyid-158384-storytopic-1.html>

Editorial in the *Ryukyu Shimpou* (February 28, 2010): *An earthquake off the Okinawa mainland: If an earthquake occurs....*Manual of Earthquake Disaster Prevention:

<http://ryukyushimpo.jp/news/storyid-158391-storytopic-1.html>

Results of Okinawa Prefecture tsunami/high tide damage prediction research in 2013:

<http://www.pref.okinawa.jp/site/chijiko/bosai/h25jishinhigaisoutei.html>

Urasoe City homepage: “Precautions against an earthquake ①Preparing for an earthquake”:
<http://www.city.urasoe.lg.jp/saigai/2014110100670/>

Urasoe City homepage: “Precautions against an earthquake Response just after an earthquake Part 1”
<http://www.city.urasoe.lg.jp/saigai/2014110100683/>

Urasoe City homepage: “Precautions against an earthquake Response just after an earthquake Part 2”
<http://www.city.urasoe.lg.jp/saigai/2014110100654/>

Urasoe City homepage: “Prepare items to be taken in case of emergency and emergency reserves!”
<http://www.city.urasoe.lg.jp/saigai/2014110100711/>

Manual on earthquake damage prevention by the Fire and Disaster Management Agency:
http://www.fdma.go.jp/bousai_manual/index.html

Foundation Institute for Fire Safety & Disaster Preparedness: “Have confidence against an earthquake”
http://www.bousaihaku.com/cgi-bin/hp/index2.cgi?ac1=B107&ac2&ac3=3907&Page=hpd2_view

Kouchi Prefecture General Affairs Department Crisis Management the *Nankai* Trough Earthquake Countermeasure Division: “Prepare for the *Nankai* Trough earthquake and for living through it”
<http://www.pref.kochi.lg.jp/sonaetegood/research/etc.html>
http://www.pref.kochi.lg.jp/_files/00014717/sonaechoki2014.pdf

Meteorological Agency Earthquake Early Warnings:
<http://www.data.jma.go.jp/svd/eew/data/nc/koudou/koudou.html>

NHK Ringtone:
<http://www.nhk.or.jp/sonae/bousai/>

(Tsunami)

Urasoe City homepage: “Do you know about tsunami?”
<http://www.city.urasoe.lg.jp/saigai/2014110100664/>

The Meteorological Agency: “About tsunami warnings, advisories, tsunami information, and tsunami forecasts”
<http://www.data.jma.go.jp/svd/eqev/data/joho/tsunamiinfo.html>

Prediction of tsunami height in case an earthquake occurs off Okinawa (Science Department, Dr. Mamoru Nakamura’s laboratory homepage):
<http://seis.sci.u-ryukyu.ac.jp/hazard/tsunami/index.htm>

Okinawa Prefecture tsunami/high tide damage prediction research:
<http://www.pref.okinawa.jp/kaigannbousai/con11/index.html>

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The Okinawa Prefectural Police Department: All-Okinawa altitude map
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signs posted
<http://yuinomachi.jp/?p=15125>

Nakagusuku Village homepage: “Height above sea level indication posted”
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(Tornadoes)

The Meteorological Agency: What severe gusts like tornadoes are
<http://www.jma.go.jp/jma/kishou/know/toppuu/tornado1-1.html>

The Meteorological Agency: How to protect yourself from a tornado
<http://www.jma.go.jp/jma/kishou/know/toppuu/tornado4-3.html>

Meteorological Agency leaflet: “Protect yourself from tornadoes: tornado watch
information”
<http://www.jma.go.jp/jma/kishou/books/tatsumaki/index.html>

The Meteorological Agency Tornado-producing probability, “now-cast”:
<http://www.jma.go.jp/jma/kishou/know/toppuu/tornado3-1.html>

(Habu snakes)

Okinawa Prefecture Health Medical Service Section, Sanitation Environment
Research Institute: Beware of *habu* snakes:
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Amami Marine Exhibition Hall: “Dangerous organisms in the sea”:
<http://www.michinoshima.jp/node/29>

General Information about outdoor hobbies site, Information of life-threatening creatures:

<http://outdoor.ymnnext.com/topnavi-01.html>

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<http://www.umibe-nature.com/040108ka.htm>

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<http://www.pref.okinawa.jp/site/hoken/yakumu/yakumu/uminokikenseibutunituite.html>

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(Heatstroke)

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Ministry of the Environment heatstroke Prevention information:

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Nakagusuku Village homepage: Tips on emergency, disaster damage prevention

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<http://www.vill.nakagusuku.okinawa.jp/UserFiles/File/saigai/bousainettyuusyo.pdf>

(Sources for the latest information about typhoons, earthquakes, and tsunami)

Nakagusuku Village homepage: "Emergency and disaster report"

<http://www.vill.nakagusuku.okinawa.jp/menuIndex.jsp?id=53415&menuid=11674&funcid=28>

Urasoe City homepage: "Disaster prevention and disaster report"

<http://www.city.urasoe.lg.jp/categories/bunya/anshin/bosaigai/>

Naha City homepage: "Disaster prevention and safety report"

<http://www.city.naha.okinawa.jp/>

Okinawa Prevention Disaster Information Portal site '*Haisai! Boosai Debiru*', All Okinawa : Okinawa Prefecture disaster damage prevention weather report

<http://www.bousai.okinawa.jp/>

Okinawa Prefecture homepage: Information about disasters

<http://www.pref.okinawa.jp/site/chijiko/bosai/2015taifu0724.html>

(Maps of disaster damage prevention)

Ginowan City, Emergency and Disaster Prevention:

<http://www.city.ginowan.okinawa.jp/sisei/emergency/index.htm>

Tsunami, Landslide hazard map:

<http://www.city.ginowan.okinawa.jp/maltupumen2.pdf>

Nishihara Town:

http://www.town.nishihara.okinawa.jp/link/2013_bousai.html

Naha City:

<http://www.gis.city.naha.okinawa.jp/BousaiMap/>

Urasoe City:

<http://www.city.urasoe.lg.jp/docs/2014111300247/>

(Evacuation places)

Nishihara Town:

<http://www.town.nishihara.okinawa.jp/goven-service/04-shelter.html>

Ginowan City (Evacuation places are shown on a disaster damage prevention map):

http://www.city.ginowan.okinawa.jp/sisei/emergency/02/31_521.html

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Urasoe City:

<http://www.city.urasoe.lg.jp/docs/2014111300247/>

Naha City:

<http://www.city.naha.okinawa.jp/kakuka/bousai/hinannbasho.html>

(Nearby cities, towns, and villages)

Ginowan City homepage:

<http://www.city.ginowan.okinawa.jp/>

Nishihara Town homepage:

<http://www.town.nishihara.okinawa.jp/>

Nakagusuku Village homepage:

<http://www.vill.nakagusuku.okinawa.jp/>

Urasoe City homepage:

<http://www.city.urasoe.lg.jp/>

Naha City homepage:

<http://www.city.naha.okinawa.jp/>

Okinawa Prefecture homepage:

<http://www.pref.okinawa.jp/>

(Disaster damage prevention as a whole)

Ginowan City homepage: “Disaster damage prevention”

<http://www.city.ginowan.okinawa.jp/pageRedirect.php?url=/2556/2583/42003/36901/38403.html>

Ginowan City: “Disaster handbook”

http://www.city.ginowan.okinawa.jp/sisei/emergency/02/31_521.html

http://www.city.ginowan.okinawa.jp/DAT/LIB/WEB/1/bousaitetyou_tuujoyou.pdf

Urasoe City homepage: “Disaster damage prevention and disaster information”

<http://www.city.urasoe.lg.jp/categories/bunya/anshin/bosaigai/>

(Area electronic alert)

NTT docomo <http://www.nttdocomo.co.jp/service/safety/areamail/>

Softbank http://www.softbank.jp/mobile/service/urgent_news/about/disaster_info/

au http://www.au.kddi.com/notice/kinkyu_sokuho/jishin_sokuho/index.html

(Others)

Shimonoseki City Fire Brigade homepage: The difference between an evacuation “recommendation” and an evacuation “order”

<http://www.svfc.jp/blog110907150222.html>

University of the Ryukyus homepage: Arrangements for handing classes and final examinations in the event of a storm-warning announcement

http://www.u-ryukyu.ac.jp/internal/campus_life/infomation/typhoon.html

Okinawa Convention & Visitors Bureau: Okinawa sightseeing safety guide:

<http://www.okinawastory.jp/dc/>

http://www.okinawastory.jp/dc/SafeEnjoyableStay2015_jp.pdf

http://www.okinawastory.jp/dc/SafeEnjoyableStay2015_en.pdf

(Means of contact in case of emergency)

Kadokawa shoten weekly aski; Summary of the means of contacting people in a disaster area through the Internet or by telephone:

<http://weekly.ascii.jp/elem/000/000/037/37110/>

Northeast Disaster Discussion Session Report, September 2011

KDS National University Association Service: “National university risk management information,” October 2011, confirmation of students and school personnel safety:

http://www.janu-s.co.jp/mail_magazine_html_data/111030.html

Reference data 1: Medical institutions that provide antitoxin for *habu* snakebites as of March 2011

P U B L I C H E A L T H C E N T E R R E G I O N S	H O K U B U	1	<i>Kenritsu Hokubu Byoin</i>	<i>Nagoshi Oonaka 2-12-3</i>	0980-52-2719	
		2	<i>Kokuritsu Rryouyoujo Okinawa Airakuen</i>	<i>Nagoshi Aza Sumuide 1192</i>	0980-52-8331	
		3	<i>Hokubu Chiku Ishikai Byoin</i>	<i>Nagisgu Aza Umusa 1712-3</i>	0980-54-1111	
		4	<i>Kenritsu Hokubu Byoin Fuzoku Iheya Shinryosho</i>	<i>Iheyamura Aza Gakiya 217</i>	0980-46-2116	
	N O R T H	5	<i>Ie Sonritsu Shinryosho</i>	<i>Iemura Aza Higashiema 459</i>	0980-49-2054	
		6	<i>Kunigami Sonritsu Shinryosho</i>	<i>Kunigamison Aza Hedona 1437</i>	0980-41-5380	
		7	<i>Kitayama Byoin</i>	<i>Nakijinson Aza Imadomari 280</i>	0980-56-2339	
	C H U B U C E N T R A L	8	<i>Kenritsu Chubu Byoin</i>	<i>Ueumahi Aza Miyazato 281</i>	098-973-4111	
		9	<i>Iryohojin Okinawa Jukokai Yokatsu Byoin</i>	<i>Ueumahi Aza Katsuren Haebaru 3584</i>	098-978-5235	
		10	<i>Iryohojin Ryokusuikai (Ginowan Kinen Byoin)</i>	<i>Ginowanshi Ginowan 3-3-13</i>	098-893-2101	
		11	<i>Shakai Iryou Hojin Keiaikai Nakagami Byoin</i>	<i>Okinawashi Chibana 6-25-5</i>	098-939-1300	
		12	<i>Tokutei Iryo Hojin Okinawa Tokushukai Byoin</i>	<i>Okinawashi Teruya 3-20-1</i>	098-937-1110	
		13	<i>Iryo Hojin Jinseikai Naka Byoin</i>	<i>Kadenacho Kadena 258</i>	098-956-1161	
		14	<i>Tokutei Iryo Hojin Kariyushikai Heart Life Byoin</i>	<i>Nakagusukuson Iju 208</i>	098-895-3255	
		N A N B U	15	<i>Iryo Hojin Wa no Kai Yonabaru Chuou Byoin</i>	<i>Yonabarucho Aza Yonabaru 2905</i>	098-945-8101
			16	<i>Tokutei Iryo Hojin Okinawa Tokushukai Byoin</i>	<i>Yaesecho Aza Hokama 171-1</i>	098-998-3221
			17	<i>Iryo Hojin Yuaikai Nanbu Byoin</i>	<i>Itomanshi Aza Maezato 870</i>	098-994-0501
			18	<i>Iryo Hojin Yuaikai Tomigusuku Chuo Byoin</i>	<i>Tomigusukushi Aza Ueda 25</i>	098-850-3811
			19	<i>Kenritsu Nanbu Iryo Center·Kodomo Iryo Center</i>	<i>Haebarucho Aza Arakawa 118-1</i>	098-888-0123
			20	<i>Okinawa Sekijuji Byoin</i>	<i>Nahashi Yogi 1-3-1</i>	098-853-3134
		S O U T H	21	<i>Jieitai Naha Byoin</i>	<i>Nahashi Toma 301</i>	098-857-1191
	22		<i>Naha Shiritu Byoin</i>	<i>Nahashi Furujiima 2-31-1</i>	098-884-5111	
	23		<i>Shakai Iryo hojin Jinaikai Urasoe Sogo Byoin</i>	<i>Urasoeshi Iso 4-16-1</i>	098-878-0231	
	24		<i>Koritsu Kumejima Byoin</i>	<i>Kumejimacho Aza Kadekaru 572-3</i>	098-985-5555	
	25		<i>Kenritsu Nanbu Iryo Center Fuzoku Tokashiki Shinryosho</i>	<i>Tokashikimura Aza Tokashiki 277</i>	098-987-2028	
	26		<i>Kenritsu Nanbu Iryo Center Fuzoku Tonaki Shinryosho</i>	<i>Tonakimura 1916-1</i>	098-989-2003	
	27		<i>Okinawa Kyodo Byoin</i>	<i>Nahashi Kohagura 4-10-55</i>	098-853-1200	
	C H U O	28	<i>Kenritsu Yaeyama Byoin</i>	<i>Ishigakishi Aza Ookawa 732</i>	0980-83-2525	
		29	<i>Kenritsu Yaeyama Byoin Fuzoku Iriomote Seibu Shinryosho</i>	<i>Taketomicho Iriomote 694</i>	0980-85-6268	
		30	<i>Kenritsu Yaeyama Byoin Fuzoku Oohara Shinryosho</i>	<i>Taketomijima Aza Haemi 201-131</i>	0980-85-5516	
		31	<i>Kenritsu Yaeyama Byoin Fuzoku Kohama Shinryosho</i>	<i>Taketomicho Aza Kohama 30</i>	0980-85-3247	

<http://www.pref.okinawa.jp/site/hoken/yakumu/yakumu/habu.html> (Okinawa Prefecture homepage)

Reference data 2:

Beaches that are equipped with jellyfish nets

Okinawa Main Island

West coast		East coast
JAL Private Resort Okuma	Sun Marina Beach	<i>Kanucha Beach</i>
<i>Uppama Beach</i>	Renaissance Beach	<i>Kanna Beach</i>
Emerald Beach	<i>Sonei Zanpa Beach</i>	<i>Uken Kaihin Koen</i>
<i>Sesoko Beach</i>	<i>Sonei Nirai Beach</i>	<i>Ikei Beach</i>
<i>Risoneto Nago Beach</i>	<i>Chatan Koen Sunset Beach</i>	<i>Tsuken-Jima Tomai Hama</i>
<i>Kise Beach</i>	<i>Araha Beach</i>	<i>Nishihara Kirakira Beach</i>
<i>Busena Beach</i>	<i>Ginowan Tropical Beach</i>	<i>Azama Sansan Beach</i>
<i>Kariyushi Beach</i>	<i>Naminoue Beach</i>	
<i>Manza Beach</i>	<i>Toyosaki ChuraSUN Beach</i>	
<i>Onna Kaihin Kouen Nabii Beach</i>	<i>Bibi Beach Itoman</i>	
<i>Rizzan Sea-Park Hotel Mae Beach</i>		

Ishigaki Island	Miyako Island	Kohama Island
<i>Ishigaki-Jima Sunset Beach</i>	<i>Miyako Sunset Beach</i>	<i>Haimurubushi Beach</i>
<i>Club Med Kabira Beach</i>	<i>Yonaha Maehama Beach</i>	
<i>Moramora Beach</i>		
<i>Sokochi Kaisuiyokujou</i>		
<i>Fusaki Beach</i>		
<i>Maesato Beach</i>		

From Okinawa Prefecture homepage:

<http://www.pref.okinawa.jp/site/hoken/yakumu/yakumu/uminokikenseibutunituite.html>

<http://www.pref.okinawa.jp/site/hoken/yakumu/yakumu/documents/nettosetti.pdf>

Reference data 3:

University of the Ryukyus homepage: Arrangements for handling classes and final examinations in the event of a storm-warning announcement

1. These regulations lay down necessary rules about the handing of classes and final examinations in the event of a storm warning (*boufu keiho*).
2. In order to avoid accidents caused by a storm, classes will be canceled under a storm warning, and final examinations will be put off until the test makeup day.
3. The test makeup day(s) will be the number of weekdays after final examinations end that are necessary to make up for days missed because of typhoons.
4. When a storm warning for all of the Okinawa main island is lifted, classes or tests that start one hour or later after the warning is canceled will resume. However, all classes will be canceled or final examinations will be postponed if a warning is canceled after 3:00 p.m. for day school (periods 1-5) and after 6:30 p.m. for night school (periods 6-8).

Additional rules (12/16/2003)

This arrangement will be enforced from December 16, 2003)

Note:

When a typhoon is approaching, you are advised to keep current on information about the typhoon through television or radio.

Reference example:

- (1) If a typhoon warning is canceled at 7:30 a.m. (or earlier), classes that start one hour or later after the warning was called off will be held, which means that classes start at 8:30 a.m., the first period class.

	7:30	8:30
A storm warning is canceled at 7:30 →	One hour after cancelation →	※Classes start from first period.

- (2) If a typhoon warning is canceled at 7:31 a.m., classes that start at or after 8:31 a.m. will be held, so classes begin at 10:20 a.m., the second period.

	7:31	8:31	10:20
A storm warning is canceled at 7:31 →	One hour after cancelation →		※Classes start from second period.

Note: The times used to determine when a warning is issued and when it is called off are those announced by the Okinawa Meteorological Observatory.

Reference data 4:

Disaster words that is useful to memorize in Japanese

カテゴリー category	にほんご 日本語 Japanese	English
たいふう 台風 Taifuu a typhoon	たいふう 台風 Taifuu	a typhoon
	ぼうふうけいほう 暴風警報 Boofuu keehoo	a storm warning
	ぼうふうとくべつけいほう 暴風特別警報 Boofuu tokubetsu keehoo	a storm emergency warning
	おおあめとくべつけいほう 大雨特別警報 Ooame tokubetsu keehoo	a heavy rain emergency warning
	はろうとくべつけいほう 波浪特別警報 Haroo tokubetsu keehoo	a high waves emergency warning
	たかしおとくべつけいほう 高潮特別警報 Takashio tokubetsu keehoo	a storm surge emergency warning
	きょうふうちゅういほう 強風注意報 Kyoofuu chuuihoo	a gale advisory
じしん 地震 Jishin an earthquake	じしん 地震 Jishin	an earthquake
	しんど 震度 Shindo	seismic intensity
	マグニチュード Magunichuudo	magnitude
	きんきゅうじしんそくほう 緊急地震速報 inkyuu jishin sokuhoo	an earthquake early warning
つなみ 津波 Tsunami a tsunami	つなみ 津波 Tsunami	a tsunami
	おおつなみけいほう 大津波警報 Ootsunami keehoo	a major tsunami warning
	つなみけいほう 津波警報 Tsunami keehoo	a tsunami warning
	つなみちゅういほう 津波注意報 Tsunami chuuihoo	a tsunami advisory
たつまき 竜巻 Tatsumaki a tornado	たつまき 竜巻 Tatsumaki	a tornado
きょうつう 共通	とくべつけいほう 特別警報 Tokubetsu keehoo	an emergency warning
	けいほう 警報 Keehoo	a warning
	ちゅういほう 注意報 Chuuihoo	an advisory
	ひなんしじ 避難指示 Hinan shiji	an evacuation direction
	ひなんかんこく 避難勧告 Hinan kankoku	an evacuation recommendation
	はっせい ～が発生しました ～ ga hassee shimashita	~ develop Ex. A typhoon develops.
	はつれい ～が発令されました ～ ga hatsuree sare mashita	be issued Ex. A storm warning was issued.
	はつれい 例) 暴風警報が発令されました。 Ex. Boofuu keehoo ga hatsuree sare mashita.	

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