

Rural Training Center – Thailand (RTC-TH)



**Community-based Environmental Education
for the Self-sufficiency and Sustainability of
Small Rural Family Farms**



Severe Storms

Photo from the Internet; educational fair use clause

Created by G.K. Lee for the RTC-TH EmComm

EP-6



An Emergency Preparedness Training Series presentation



Rural Training Center-Thailand
Emergency Preparedness Community Service Program

Ready to serve and sustain our community

For other lessons in the series e-mail rtc2k5@gmail.com

www.neighborhoodlink.com/org/rtcth

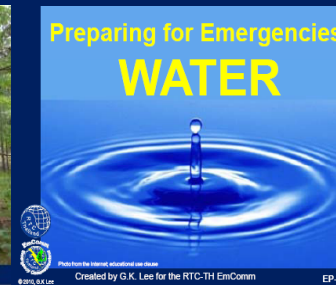
The EP Lesson Series



EP-1



EP-2



EP-3



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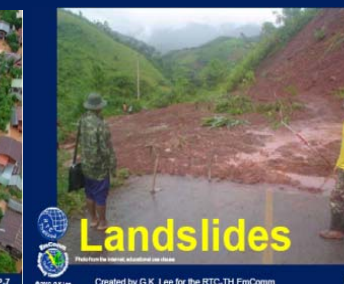
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A part of the RTC-TH EmComm Program

The Rural Training Center-
Thailand Emergency
Preparedness program is a
community service effort to
provide emergency

preparedness training for local
community self-sufficiency and
sustainability in times of need.



The Rural Training Center-Thailand (RTC-TH)

is an all volunteer
organization providing
community-based
environmental education
for self-sufficiency and
sustainability of small
rural family farms



www.neighborhoodlink.com/org/rtcth

E-mail: rtc2k5@gmail.com

The lessons were adapted from existing RTC-TH REEEPP program lessons

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REEEPP

Rural Environmental Education Enhancement Pilot Program



An innovative, non-traditional community-based environmental education program integrating math, science, geography, English language, and technology lessons for environmental stewardship using interactive experiential learning in outdoor settings at Ban Na Fa Elementary School, Nan Province, Thailand.





The Rural Training Center-Thailand was created to honor the life and memory of Mr. Tang Suttisan, a father, farmer and former custodian of Ban Na Fa Elementary School who appreciated and valued education.





What is a Severe Storm?

Severe storms usually have one or more of the following characteristics: strong winds, heavy rainfall, lightning, thunder, and hail.





When do they occur in Nan?

From North Thailand Climate Data During 54 years (1951 - 2004)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Tropical Cyclones	-	-	-	-	5	2	9	17	23	15	1	-	72
Thawangpha Rainfall (mm)	11.0	12.6	29.2	108.0	206.2	202.4	244.1	302.3	175.6	80.4	22.7	5.9	1400.04
Seasons	Winter		Summer			Rainy (SW Monsoon)					Winter (NE Monsoon)		
Ave Temp	23.1°C		28.0°C			27.3°C					23.1°C		
Temp Range	17.1-30.8°C		21.4-35.8°C			23.7-32.2°C					17.1-30.8°C		
Ext Temp	0.8°C		44.5°C								0.8°C		
Rainfall (mm)	105.5		182.5			952.1					105.5		

Tropical Cyclones associated with the SW monsoon season.

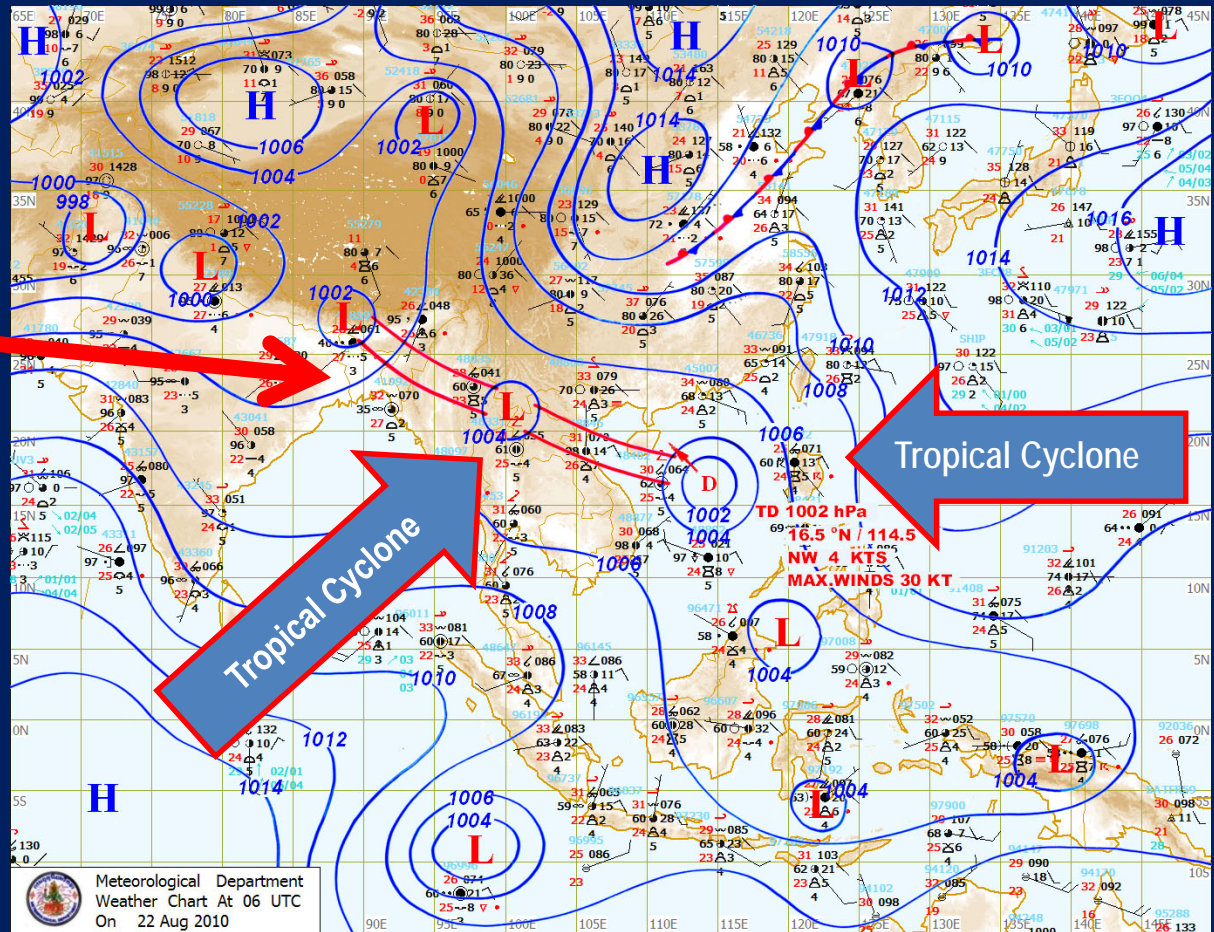
Convective thunderstorms associated with the summer season.



SW Monsoon & Northern Thailand

A series of Low pressure cells form a “low pressure trough” over northern Thailand

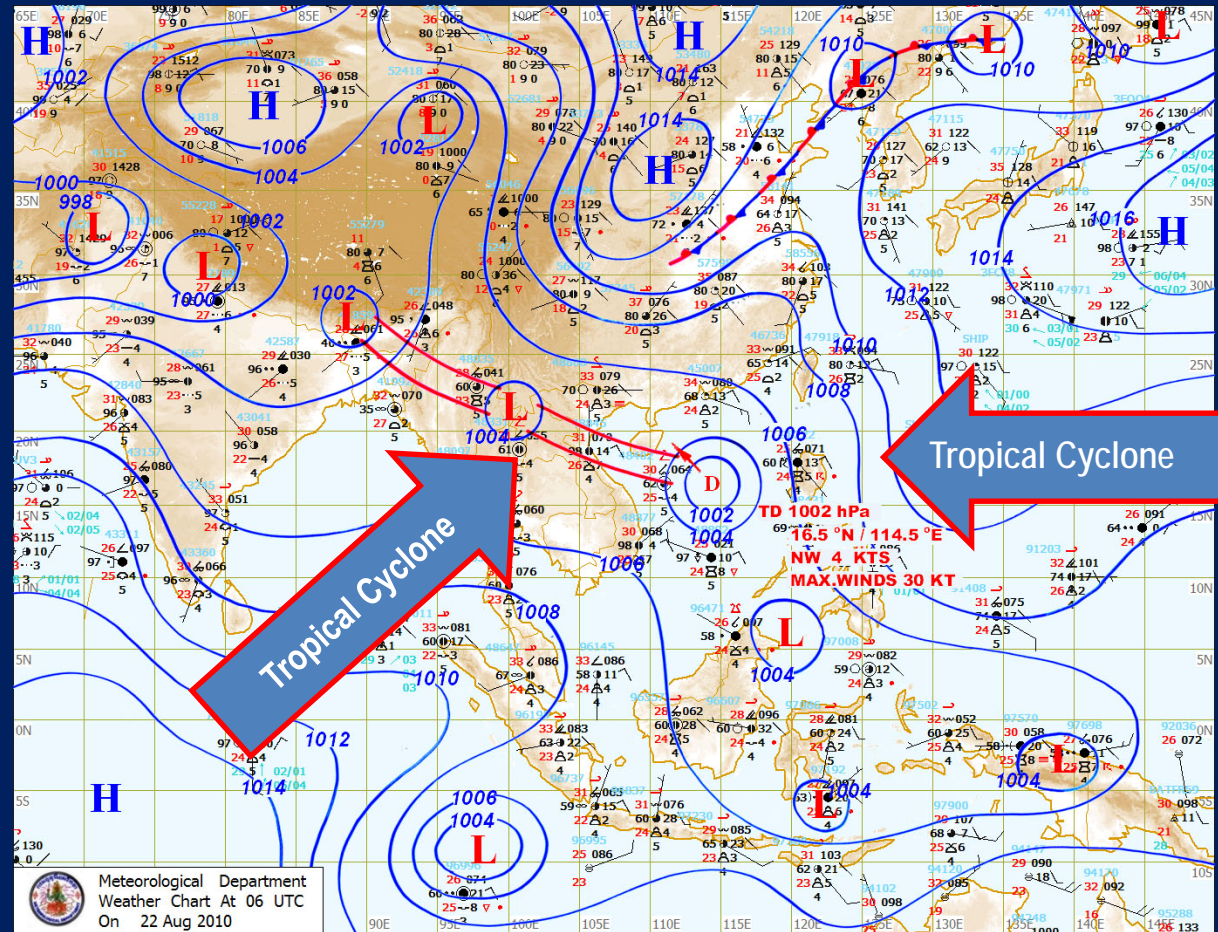
Some tropical cyclones from the Andaman Sea flow to the low pressure trough



Some tropical cyclones from the South China sea flow into low pressure trough

SW Monsoon & Northern Thailand

These storms can bring heavy rain, lightning, and thunder.



The rains can be prolonged (several hours over a few days) producing flooding and landslides.



Summer Thunderstorms

...are created by convection lifting air from the heated surface of the earth.



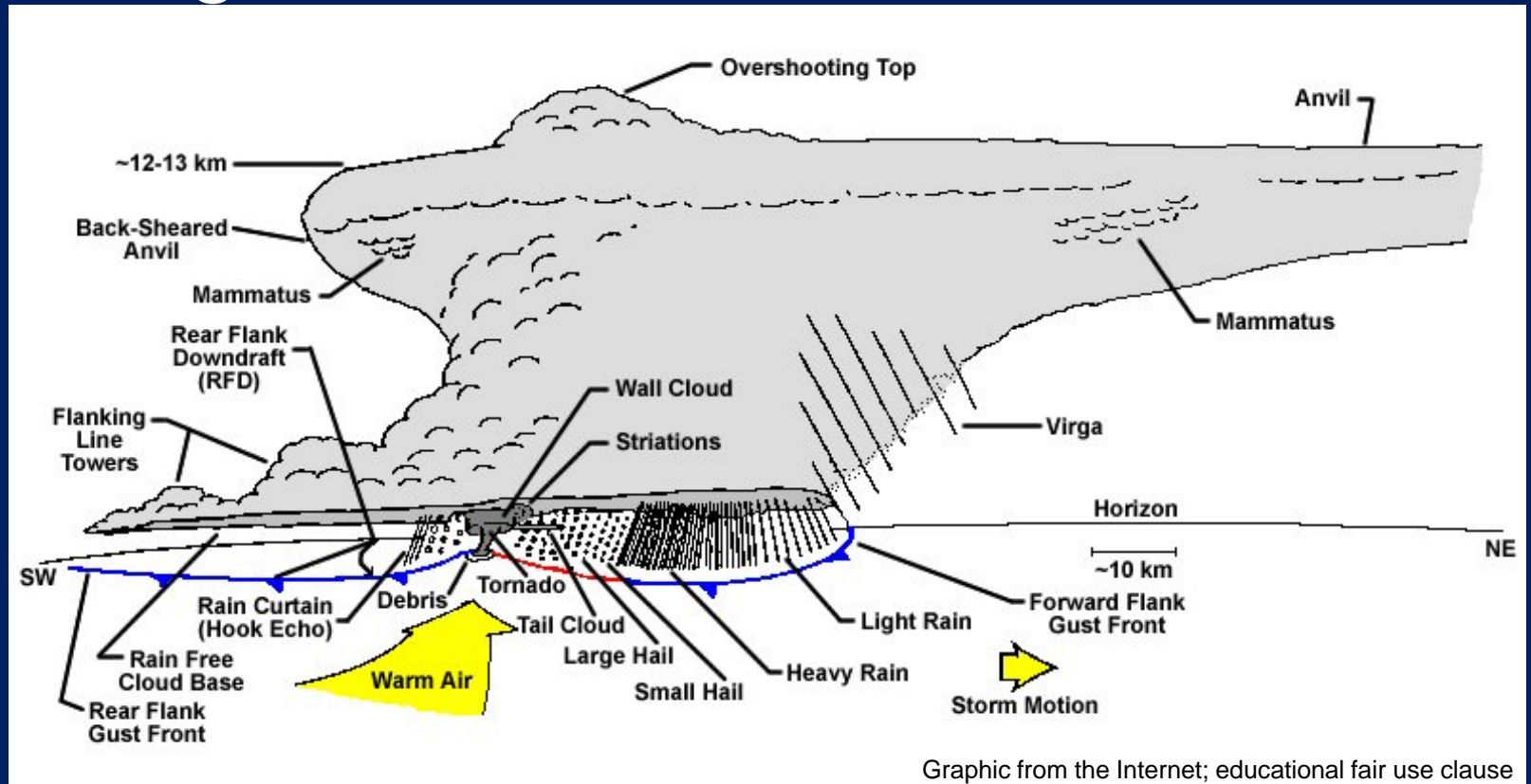
Photo from the Internet; educational fair use clause

These storms can be local; affecting one part of a town or the whole town.



Summer Thunderstorms

can bring strong winds, heavy rain, lightning, thunder, and sometimes hail.



Graphic from the Internet; educational fair use clause

The rains can be brief but very intense producing flash floods and landslides.





Severe Storm Hazards

- Strong winds
- Heavy rains
 - Flooding
 - Landslides
- Lightning
- Hail



Severe Storms and Related Disasters

Severe storms can lead to other disasters. These can occur simultaneously or in close association.

Action Result	Floods	Landslides	Lightning	Wildfire	Disease	Earthquake
Severe storms	X	X	X	X	X	---

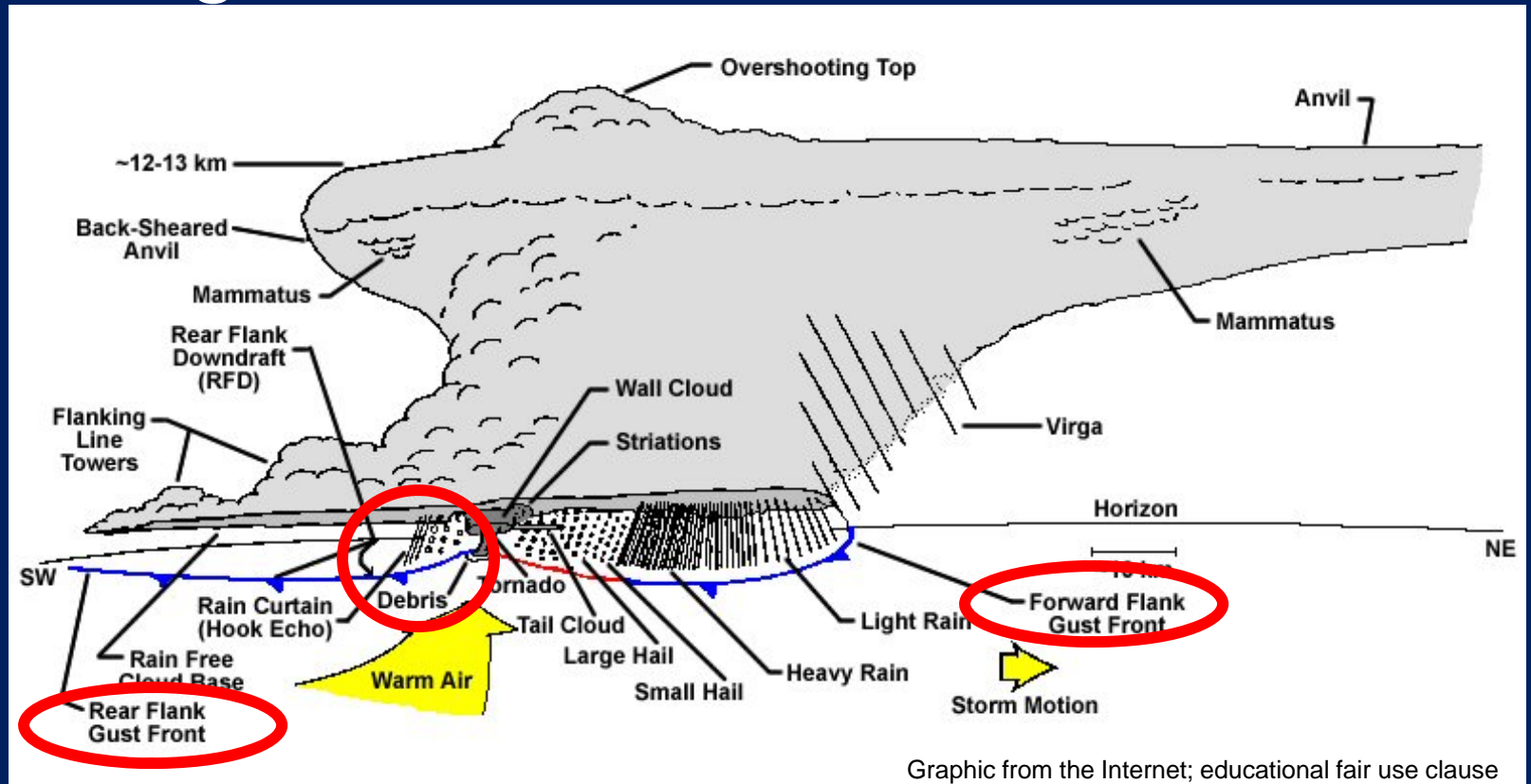
There is no rule that disasters can only happen one at a time. Storms can set the stage for more than one kind of disaster.

You need to carefully assess the major hazards in your area in order to make an effective emergency plan.



Summer Thunderstorms

can bring **strong winds**, heavy rain, lightning, thunder, and sometimes hail.



The winds can be strong and steady or very strong, sudden gusts.





Strong winds make it hard to walk



...and flying debris can be very dangerous to be outdoors.





Strong winds can destroy homes



...and create
dangerous
flying debris of
various sizes.





Preparing for Strong Winds



Before a storm, do these things:

- Trim trees / branches that could fall on your home.
- Repair or secure any loose parts of the house (e.g. roofing materials, etc.)
- Secure or store any loose objects in your yard (e.g. chairs, awnings, etc.)
- Prepare tarps / ropes to repair roof leaks to limit water damage in your home
- Prepare all emergency kits and important papers in case you need to evacuate.





Preparing for Strong Winds



Photo from the Internet; educational fair use clause

With adequate materials and supplies on hand, emergency shelter is quickly ready.





Blowing Dust & Debris





Preparing for Strong Winds



Before a storm, do these things:

- Secure or store any construction materials, fire wood, etc. to keep them from being blown away
- Protect large glass windows by covering them with wood.
- Prepare to secure doors and windows from being blown open.
- Have adequate food, water, fuel to avoid having to go out during the storm





Beware of Overhead Hazards



High winds can blow down trees and signs.

Watch out for danger falling from above.



**Seek shelter and
avoid going outdoors**

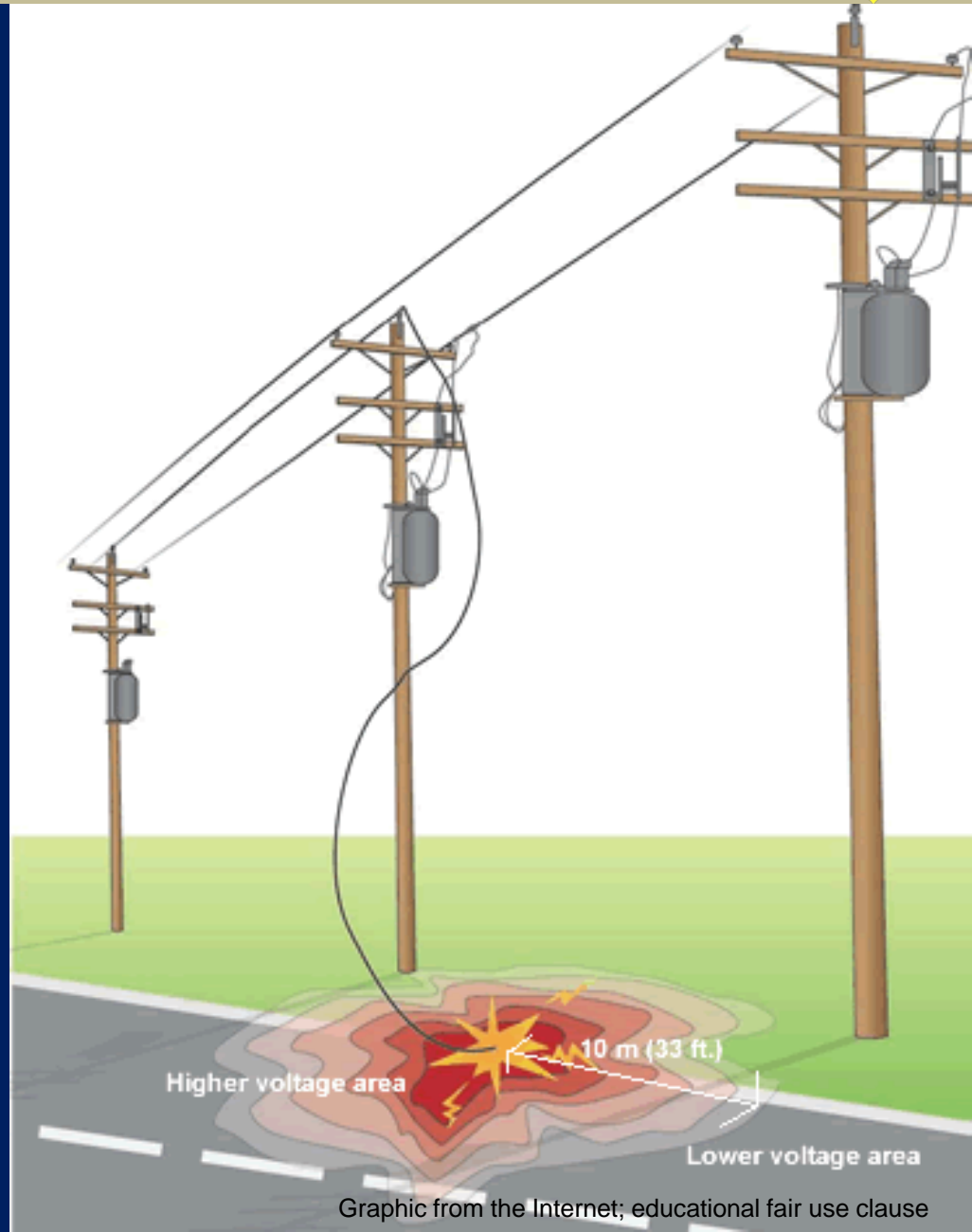




Storms can knock down power lines



Keep a minimum of 10 m away from fallen power lines. If the ground is wet, you may need to keep farther away.



Graphic from the Internet; educational fair use clause



Storms can knock down power lines



Stay away from all downed lines. Even if they are NOT power lines, they could be touching electrified lines.

Assume all downed wires, sparking or not, to be live. Power could be turned on again automatically.



Photo from the Internet; educational fair use clause

If a fallen power line is touching your car, stay inside the car. **Do not touch anything metal.**

If a fallen power line is under your car, stay inside the car. **Do not get out.**



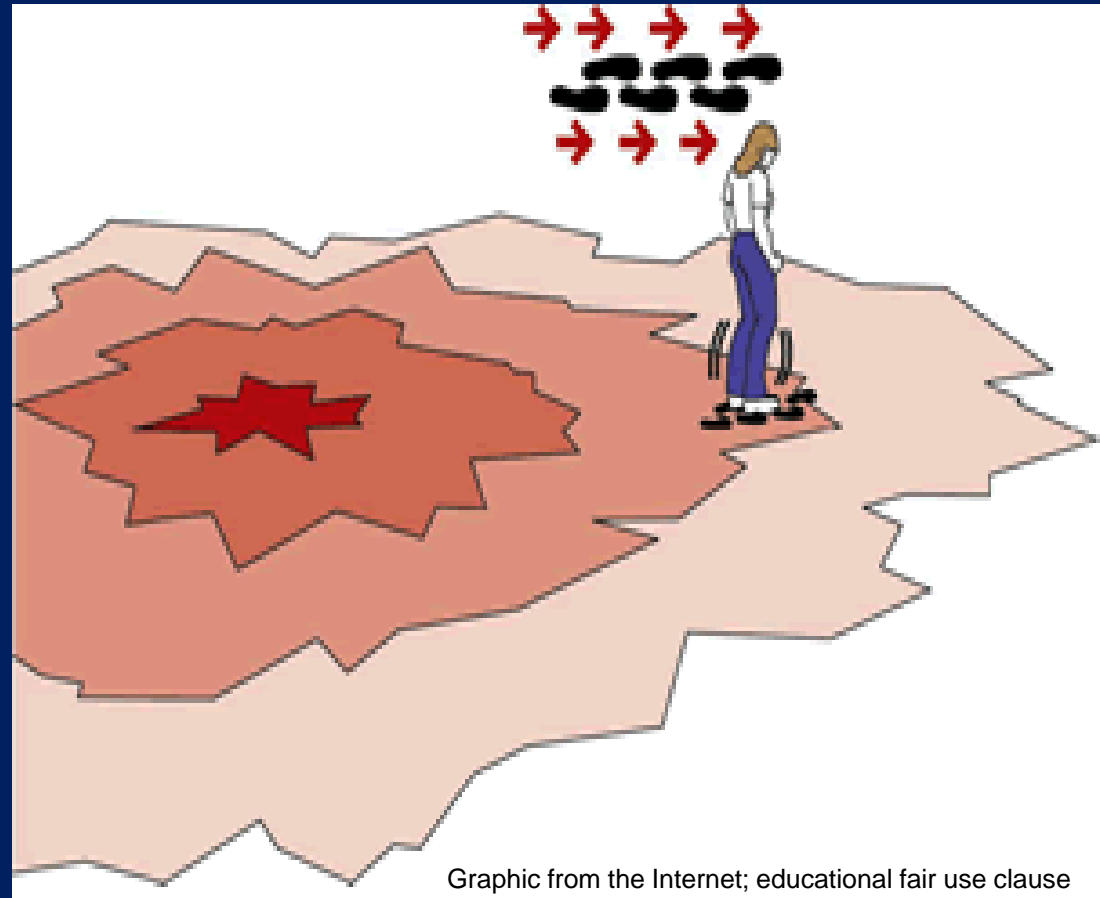


Storms can knock down power lines



If you must exit your car, jump out so both feet touch the ground at the same time; do not hold on to the car.

Keep both feet on the ground and shuffle away to a safe distance.



Graphic from the Internet; educational fair use clause



Use the same shuffle technique to move out of the danger zone of any fallen power line.



Storms Can Knock Down Power Lines



Photo from the Internet; educational fair use clause

Water is a “channel” for electricity in a downed power line. You can get electrocuted even if you do not directly touch the wire.

Do not touch a person or any conducting material touching them. You may be electrocuted.

Use dry, non-conductive material to separate a person from an electrical source.



Once disconnected, check for a pulse, restore breathing, and begin CPR if needed.





Preparing for Strong Winds



Before a storm, do these things:

- ***Be sure everyone knows the safety rules for fallen power lines.***
- Prepare flash lights and portable radio with extra batteries.
- Expect phones / cell phones to stop working.
- It may take a few days for electricity to be restored.
- Prepare emergency supplies of fuel; store them properly and safely.
- Have alternative methods to cook food.





Storms can knock down power lines



Fallen power lines can cause fires.





Preparing for Strong Winds



Before a storm, do these things:

- If needed, know how to cut off the electrical power in your house
- Have a fire extinguisher handy
- Prepare a fire evacuation plan for your home
- Keep your property clear of trash and clutter that could be fuel for a fire
- Think about where fires may possibly start and plan appropriate protective action
- Be prepared to help a neighbor; a fire next door can threaten your home





Storms can knock down towers



Cell phones and TV and radio broadcast services may not be available.





Preparing for Strong Winds



Before a storm, do these things:

- Have a portable battery operated radio.
- Know what distant stations to listen for if local stations are not on the air
- Assign a family member to listen to the radio for important announcements
- Check on and share the news with your neighbors, especially the elderly, the very young, and those who are infirm.





Unsafe Driving Conditions



Photos from the Internet; educational fair use clause

Blowing dust can reduce visibility to less than 11 km / 7 miles. At night, using the vehicle lights will reduce visibility more; like driving in fog.





Preparing for Strong Winds



Before a storm, do these things:

- Prepare supplies ahead of time to avoid going out during the storm.
- Fill your vehicle gas tank. Fuel may be hard to get during / after the storm; conserve your fuel.
- Road conditions may be very hazardous. Don't risk damaging or losing your vehicle. You may need it later to evacuate.
- Prepare / load your vehicle; park it so you don't have to back up to get to the road.





Unsafe Flying Conditions



Photos from the Internet; educational fair use clause



Helicopter pilots fly visually; they need to see where they are going.
Most helicopters do not have radar.





Preparing for Strong Winds



Before a storm, do these things:

- If traveling by air, check the weather at your departure & destination cities before the flight.
- Be prepared to change your travel plans.

Most air crashes are caused by human error.
Weather bad can add to human errors.

Emergency flight crews often have to fly in poor weather conditions.

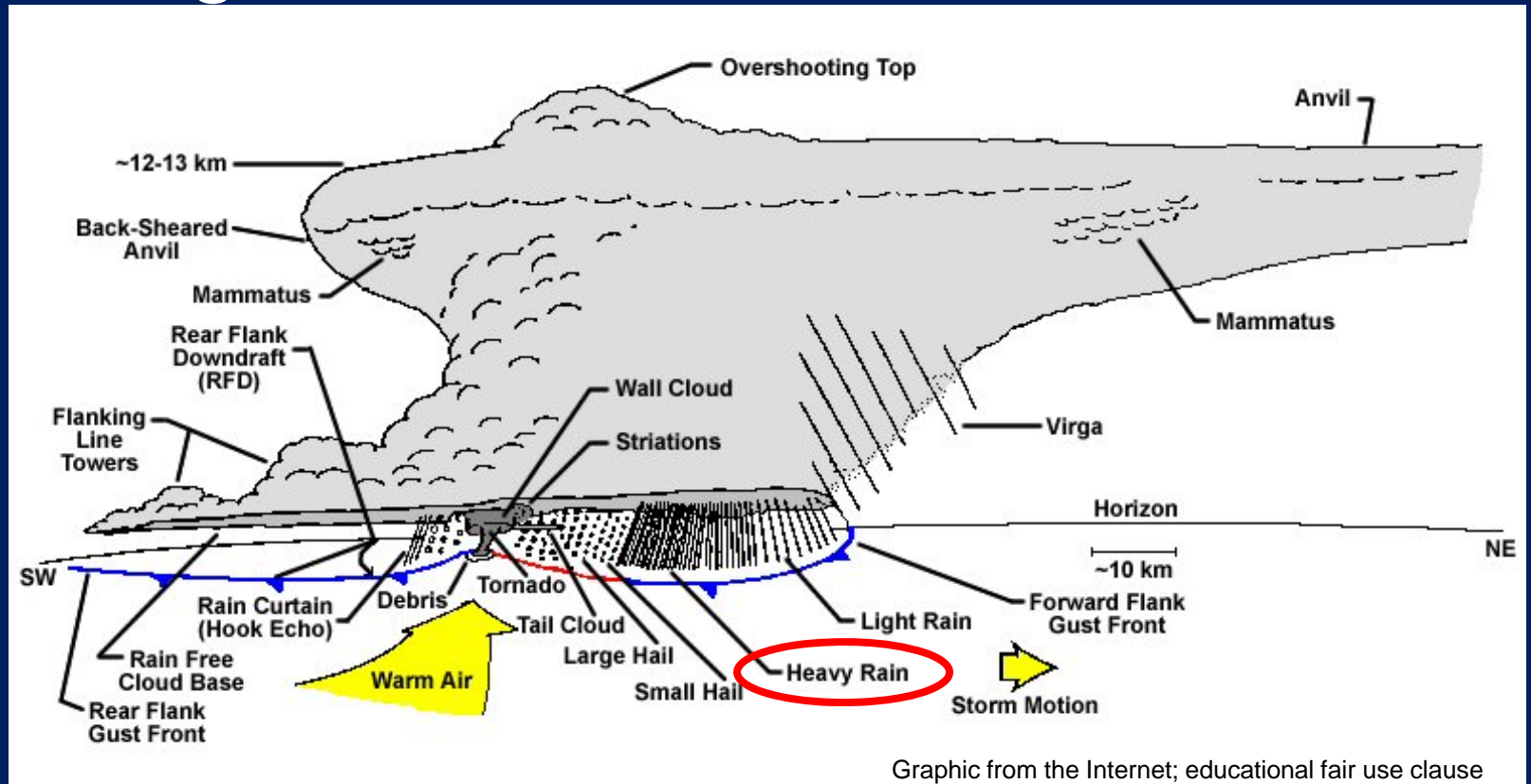
Don't make them risk their lives unnecessarily.

Don't put yourself at risk and in need of rescue because you didn't prepare properly!



Summer Thunderstorms

can bring strong winds, **heavy rain**, lightning, thunder, and sometimes hail.



Graphic from the Internet; educational fair use clause

The rains can be brief but very intense producing flash floods and landslides.





Wind + Rain = Hypothermia



Photo from the Internet; educational fair use clause

If you are wet and without shelter, winds will make you feel colder than the temperature shown on the thermometer. Lack of food will only make things worse.





Preparing for Heavy Rain

Before a storm, do these things:

- Prepare shelter materials in case your home is damaged or destroyed.
- Know a safe place to go to set up shelter if your home is damaged or destroyed.



Learn more about Space in Lesson EP-2 and about Shelter in EP-5.



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EP-2



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EP-5



Heavy Rain Hazards





Heavy Rain: Flooding



Avoid or get out of low areas near rivers, streams, and other water bodies.



Photos from the Internet; educational fair use clause



During storms:

- Listen to weather reports; pack emergency supplies
- Be ready to evacuate if told to do so; know where to go and how to get there.



Learn More About Flooding



Floods are a major cause of emergencies in Nan. Learn more about Floods in Lesson EP-7.



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EP-7



Floods can occur in the rainy season and the summer season or any time a dam fails.



Flooding and Diseases



Diseases can rise during and after floods.

- Contaminated drinking water supply causing diarrhea, cholera, typhoid, staph infections, leptospirosis (among others)
- Flood waters help increase mosquito breeding
- Lack of sanitation helps increase flies
- Hypothermia due to lack shelter and warm clothes
- Malnutrition due to lack of food
- Dehydration due to lack of water





Flooding and Diseases



Learn more about Diseases in
Lesson EP-11



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EP-11





Heavy Rain and Landslides



Heavy rains can cause landslides.



Even light rain over a few hours totally 100 mm can increase the danger of landslides.





Learn more about landslides



Landslides are often part of emergencies in Nan.
Learn more about Landslides in Lesson EP-8.



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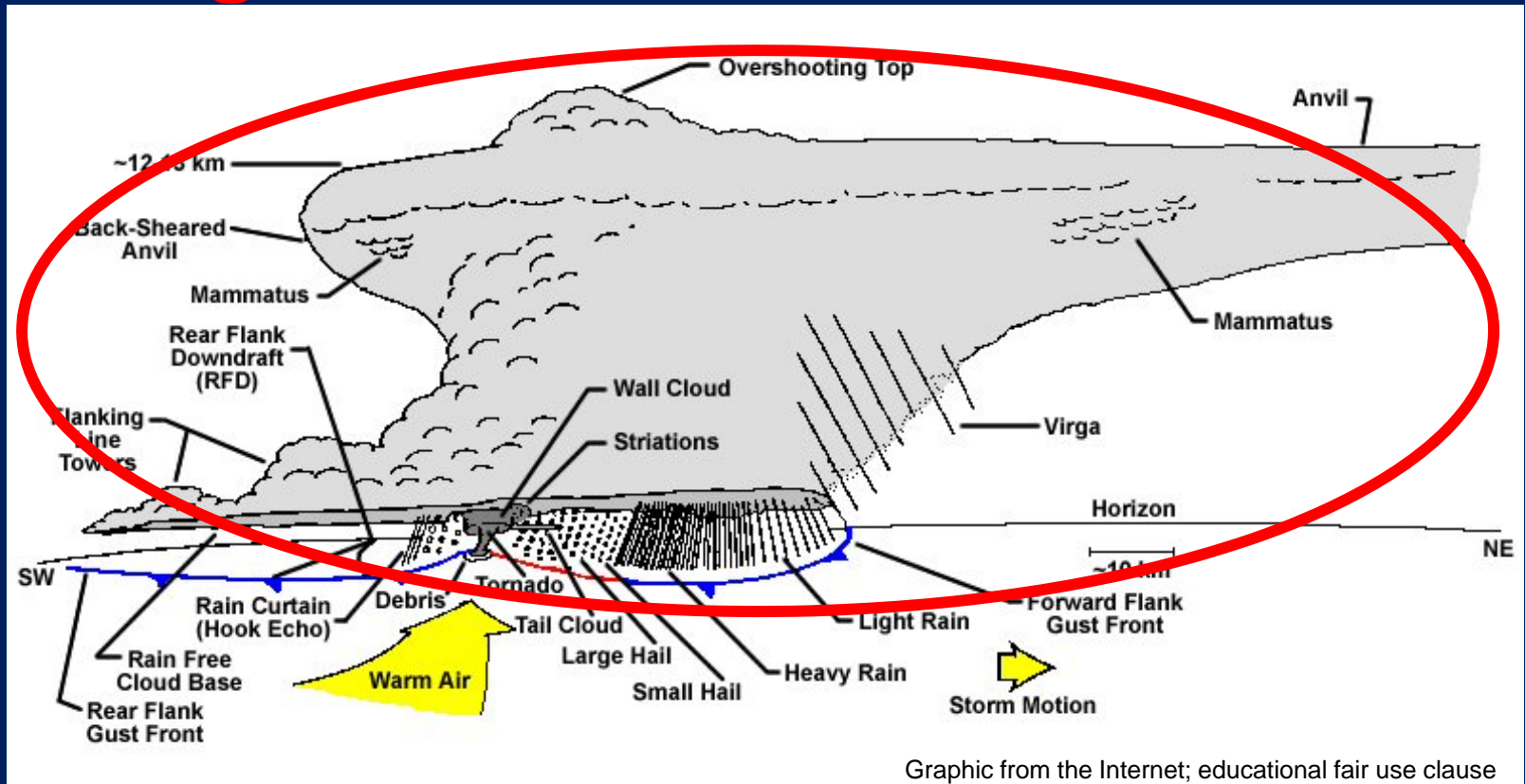
EP-8

Landslides can occur in mountain areas in the rainy season or with thunderstorms and flash floods in the summer season.



Summer Thunderstorms

can bring strong winds, heavy rain, **lightning**, thunder, and sometimes hail.



Graphic from the Internet; educational fair use clause

Lightning can strike up to 45 km from the storm even when you have clear skies overhead.





Lightning Hazards



Lightning is a high energy discharge that can destroy antennas, buildings, start fires, and kill.





Lightning Hazards



Lightning is a serious hazard for emergency radio operators. Failure to take proper precautions can result in damaged or destroyed radio equipment and even death to the operator.



Learn more about Lightning in Lesson EP-9.





Lightning can create fires



Learn more about Wildfires in Lesson EP-10.



Wildfires

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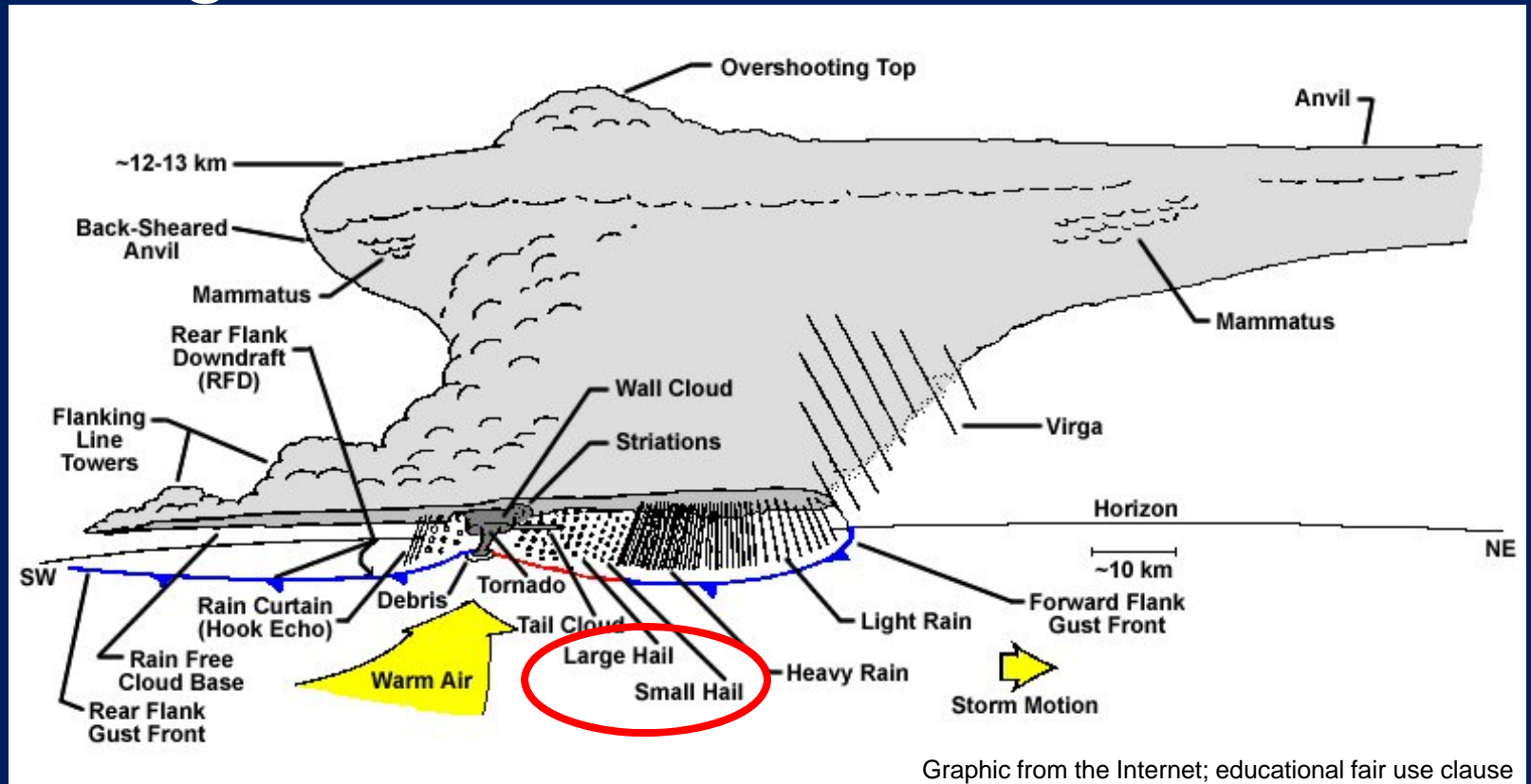
EP-10

This is more likely during the summer
(hot / dry) season in Nan.



Summer Thunderstorms

can bring strong winds, heavy rain, lightning, thunder, and sometimes **hail**.



Graphic from the Internet; educational fair use clause

Imagine being hit by a golf ball made of ice; that's what it's like to be hit by a hail stone.





Hail Hazards

Hail is a ball of ice falling from a cloud.

Hail is associated with convective thunderstorms and cumulonimbus cloud formations.



Seek shelter immediately or risk possible serious injury from larger hail stones.





How big is it?

Hail can
range in size
from 0.635
cm to 11.43
cm in
diameter.

Relative sizes, not to scale.





Can it happen in Thailand?

1989 Chiang Mai

2002 Hail fell on the towns of
Mae Kaotom, Chaing Rai,
Chiang San, Pan, Mae Jan,
and Wieng Chai

2006 Hail fell on a Thai village
on the Cambodian border

2010 Chiang Mai



Imagine getting
hit by on of
these going
over 90 km/h!





Hail can be very damaging



Seek shelter
or suffer.





Preparing for Severe Storms

Before a storm, do these things:

- Check weather reports for severe storm warnings.
- Keep indoors; make sure your family knows the danger of falling hail.
- Get animals under a roofed structure.
- Park your vehicle under a roofed structure.
- If caught in the open, find any shelter you can; protect your head as much as possible.



Remember: You are responsible for your safety and survival in a disaster.



Take action today:

- Make an Emergency Plan
- Prepare your Emergency Kits
- Encourage others to prepare



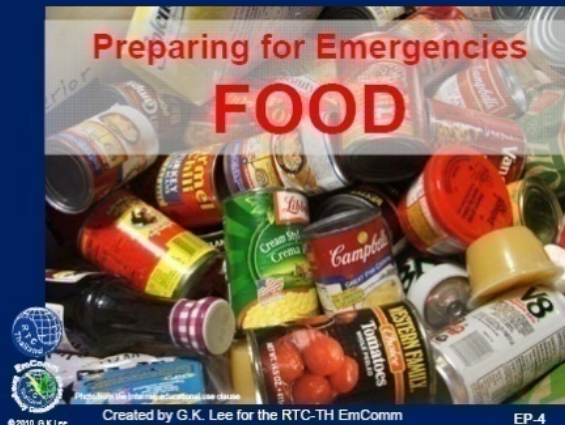
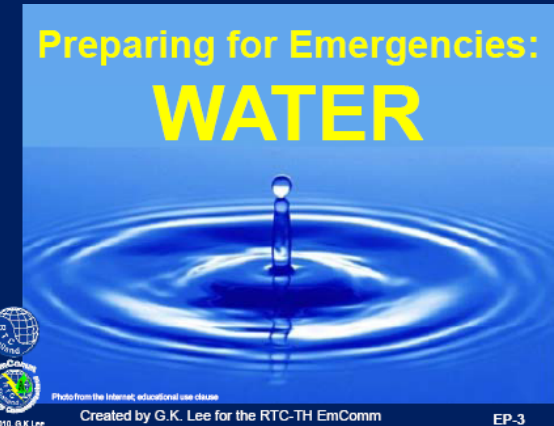
Once a disaster strikes, it is too late to try to prepare!





Preparing for Severe Storms

Listen to the weather reports and review lessons
EP 1 – 5.



The next lesson in the Emergency Preparedness Series is EP-7



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Rural Training Center-Thailand RTC-TH

is dedicated to
providing
community-based
environmental
education for the self-sufficiency
and sustainability of small rural
family farms



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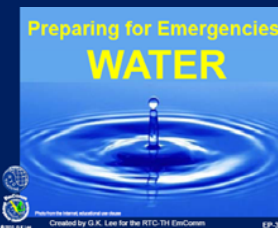
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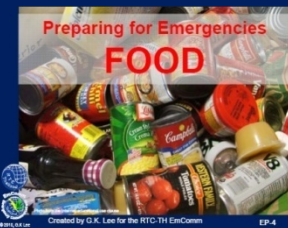
EP-1



EP-2



EP-3



EP-4



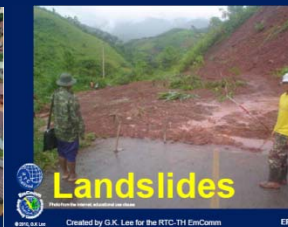
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Questions or Comments

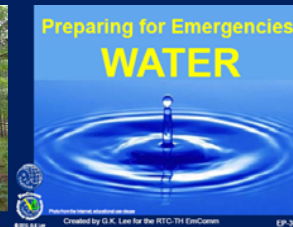
We are
always trying
to improve
our lessons.
Your
comments
and
suggestions
are
welcomed.



EP-1



EP-2



EP-3



EP-4



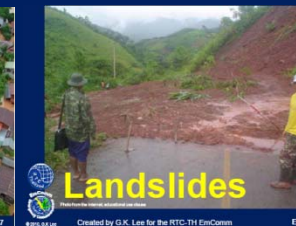
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You may contact us by e-mail:
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For Emergency Preparedness Training



Contact
Greg, HSØZHM
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Via E-mail / video chat
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Via Skype video
conference call: [rtc_th](#)

Future RTC-TH Emergency Preparedness Lessons

- Identifying local Geo-Hazards
- Finding safe evacuation / shelter sites
- Identifying main supply routes and alternate routes
- Finding Helicopter Landing Zones
- Helicopter landing zone hand signals
- Ground to air communication without radios



Community-based Environmental Education for



The End

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