Rural Training Center – Thailand (RTC-TH)

F CUS

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

© 2009, RTC-TH. All rights reserved.

A Brief Introduction to

M.E.W.S.

Mobile Emergency Weather Station

Rural Training Center-Thailand
Emergency Communications Program

Ready to serve and sustain our community

For other lessons in the series e-mail hsØzhm@gmail.com
www.neighborhoodlink.com/org/rtcth

© 2009, G.K Lee
HSØZHM

A part of the RTC-TH EmComm Program

The Rural Training Center-Thailand Emergency Communications program is a volunteer effort to provide emergency amateur radio communications for local community self-sufficiency and sustainability in times of need.

E-mail: hsØzhm@gmail.com

© 2009, G.K Lee
HSØZHM

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

© 2009, G.K Lee
HSØZHM

MEWS adapts weather lessons from 2 existing RTC-TH programs

Unless otherwise indicated, photos in this presentation are the exclusive property of the RTC-TH. Use of RTC-TH copyrighted materials are available for private / non-commercial educational use without written permission if no changes are made, no fee is charged, and proper attribution is made to the RTC-TH.

Commercial use of the materials is prohibited without written permission.

E-mail: hsØzhm@gmail.com
www.neighborhoodlink.com/org/rtcth

© 2009, G.K Lee
HSØZHM

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.

© 2009, G.K Lee
HSØZHM

The Need

Disasters disrupt existing infrastructures. Damaged roads cut access, stopping and slowing relief to stricken areas.

© 2009, G.K Lee
HSØZHM

The Need

Transportation, energy, food, water, and communications are often in ruin or short supply after a disaster.

Photos from the Internet; educational fair use clause

© 2009, G.K Lee
HSØZHM

The Need

Many times there is not much left at all.

Photos from the Internet; educational fair use clause

© 2009, G.K Lee
HSØZHM

The Need

Emergency relief workers may lack accurate on-site information especially from isolated areas

Photos from the Internet; educational fair use clause

M.E.W.S. Mobile Emergency Weather Station RTC Thailand

EmComm Emergency Communications RTC Thailand

© 2009, G.K Lee
HSØZHM

Photo from the Internet; educational fair use clause

When disaster strikes, local site specific weather data may not be available.

© 2009, G.K Lee
HSØZHM

Helicopters are important in relief operations

© 2009, G.K Lee
HSØZHM

Photos from the Internet; educational fair use clause

Helicopters bring in critical supplies

© 2009, G.K Lee
HSØZHM

Photos from the Internet; educational fair use clause

Helicopters evacuate the seriously injured

Photos from the Internet; educational fair use clause

M.E.W.S. Mobile Emergency Weather Station RTC Thailand

EmComm Emergency Communications RTC Thailand

© 2009, G.K Lee
HSØZHM

Most helicopters operate only by Visual Flight Rules; Pilots must see the ground

Weather Data For Relief Operations

Photos from the Internet; educational fair use clause

Weather conditions can affect locations of safe zones, survivors, water, food, shelter, and medical needs.

© 2009, G.K Lee
HSØZHM

Weather conditions can affect transportation, routing, and delivery of relief supplies.

© 2009, G.K Lee
HSØZHM

Photos from the Internet; educational fair use clause

Weather conditions can affect emergency helicopter flight operations.

© 2009, G.K Lee
HSØZHM

Photos from the Internet; educational fair use clause

Amateur Radio Operators (HAMs) have always been ready to serve their communities in times of need

Photos from the Internet; educational fair use clause

© 2009, G.K Lee
HSØZHM

Photo courtesy of E20NXT

Amateur radio operators (HAMs) who are trained and equipped to make basic weather observations are valuable members for a community emergency response team.

© 2009, G.K Lee
HSØZHM

HAMs are equipped for EmComm (Emergency Communications)

Photo courtesy of E20NXT

They have a self-contained portable radio station: radio, antenna, power supply, and a trained operator.

© 2009, G.K Lee
HSØZHM

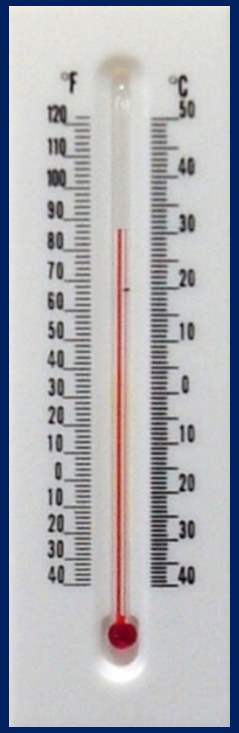
HAMs are equipped for EmComm

Photo courtesy of E20NXT

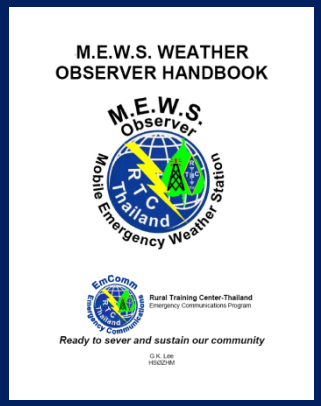
They are prepared for extended deployment with their own tents and daily living supplies.

© 2009, G.K Lee
HSØZHM

The MEWS enHAMcement



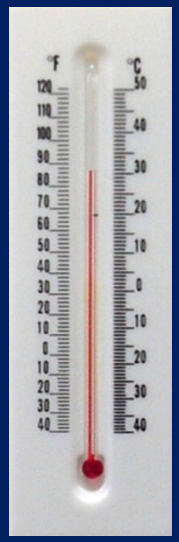
MEWS enhances a HAM with basic weather observation training and equipment

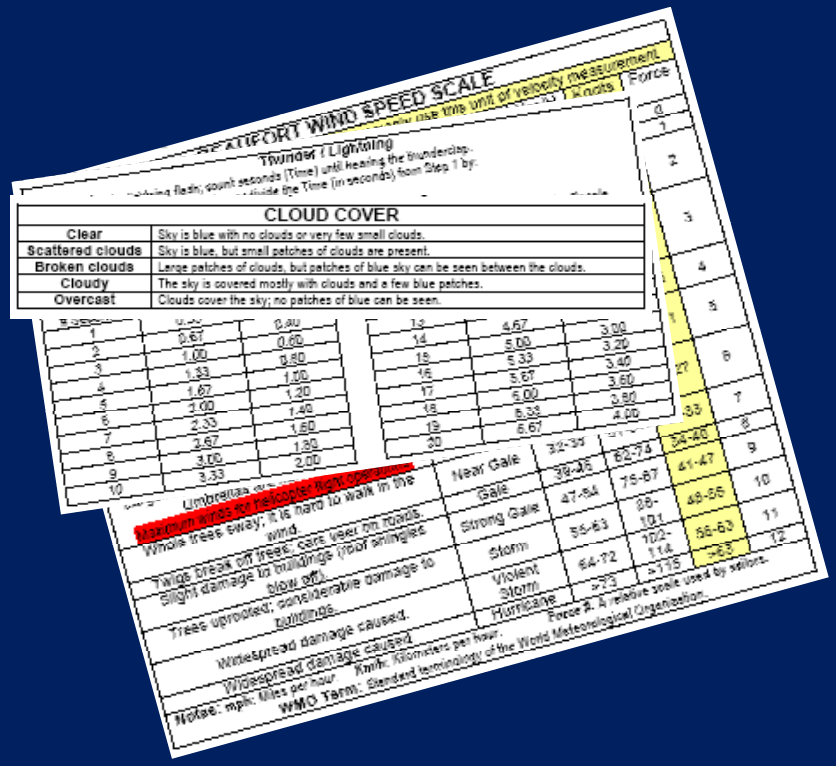


© 2009, G.K Lee
HSØZHM

The RTC-TH Approach

No Tech / Low Tech Weather Observations





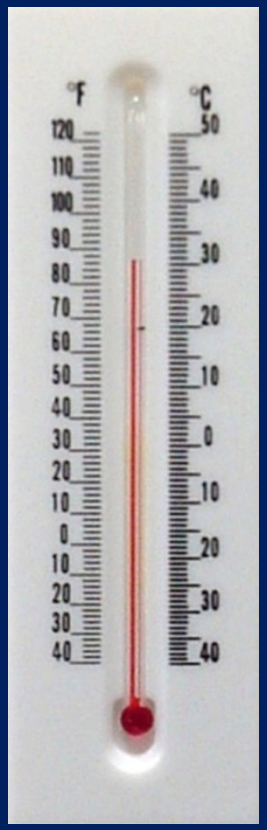
By keeping it simple, there is low cost, less equipment to break, malfunction, or run out of power, and less maintenance.

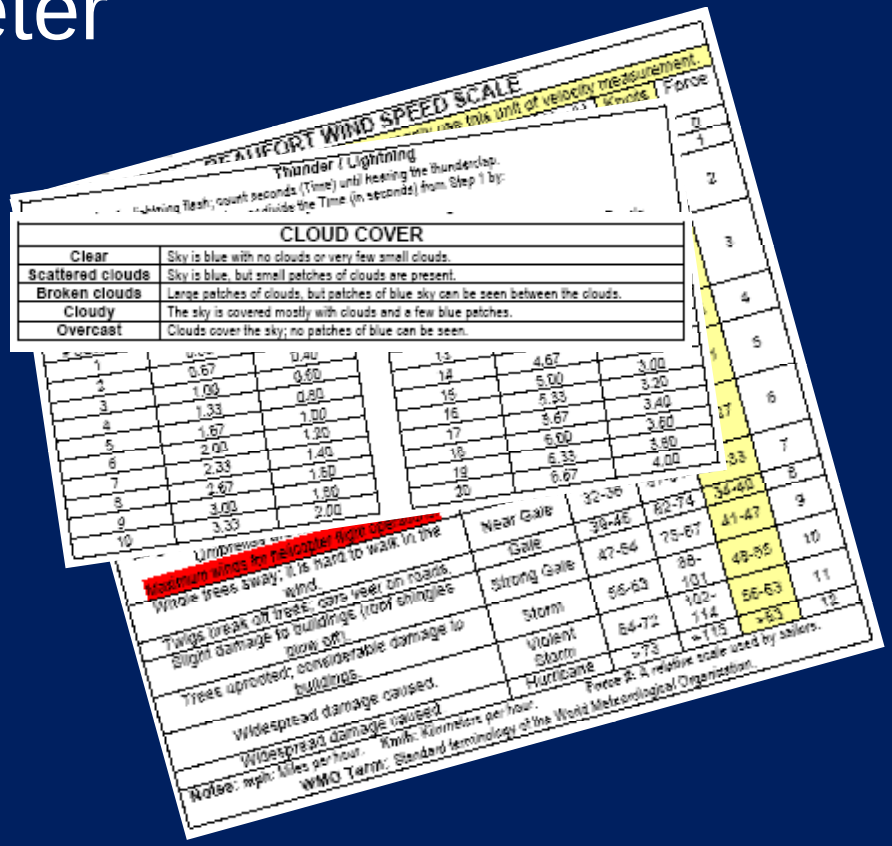
© 2009, G.K Lee
HSØZHM

The Basic Weather Observer’s kit

Magnetic compass

Thermometer





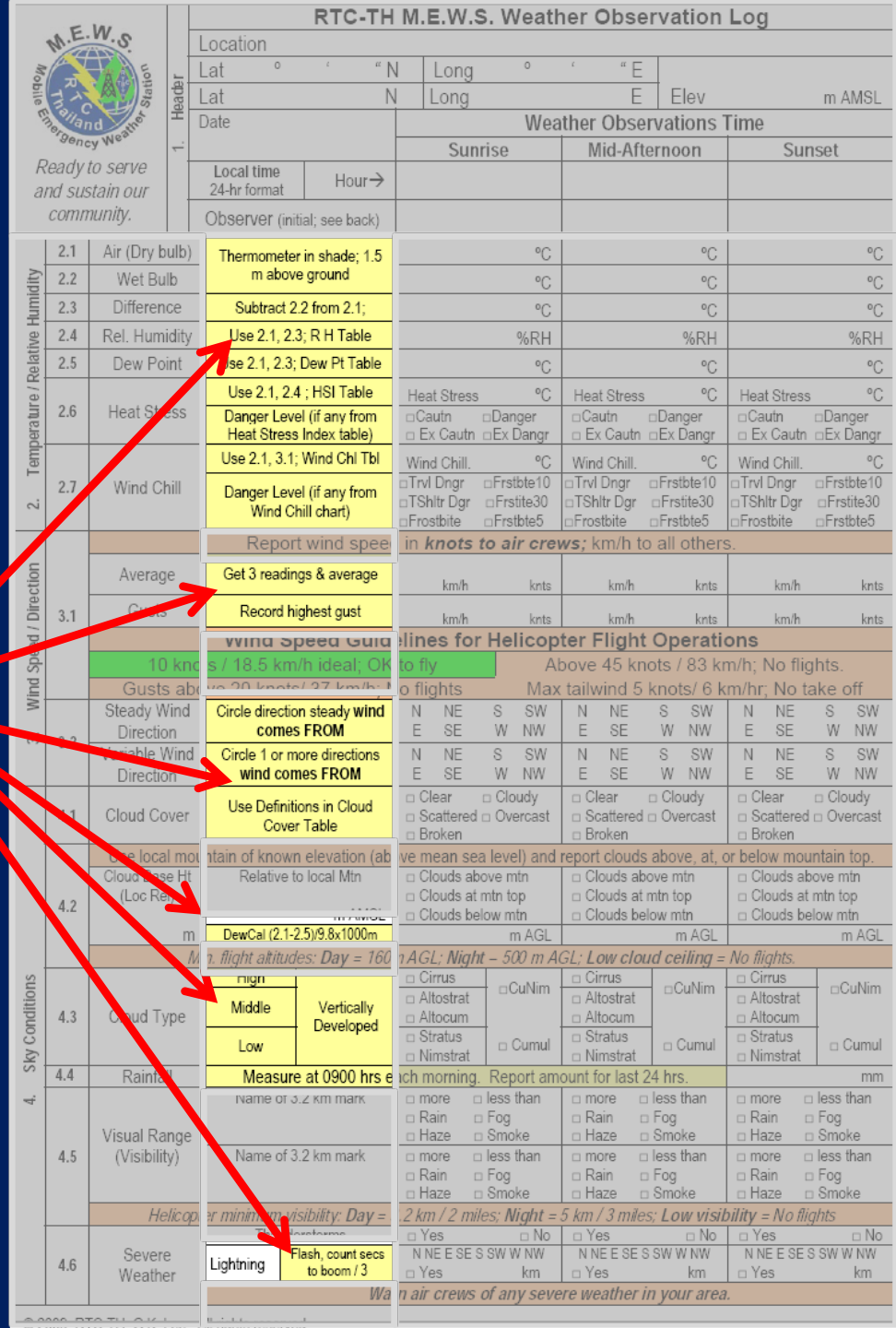
Basic Reference tables

© 2009, G.K Lee
HSØZHM

The MEWS Weather Observation Log

has highlighted notes to guide making observations with minimal training.

Detailed instructions are in the MEWS manual



© 2009, G.K Lee
HSØZHM

The MEWS Weather Observation Log

back of form has expanded notes for doing observations with minimal training.

Detailed instructions are in the MEWS handbook

© 2009, G.K Lee
HSØZHM

All weather observers write their initials and clearly print their name using block letters

M.E.W.S. Summary Weather Observation Log Instructions

Header

Location: Local Place Name
Latitude, Longitude from GPS, survey records or map measurement.
Elevation: Survey records or map measurement (GPS elevations are not reliable).
Date/Hour: Use local Thai standard time in 24-hour format.
Observer: initials in box. Full name (print clearly) on top/back of form

Ready to serve and sustain our community.

RTC-TH M.E.W.S. Weather Observation Log			
Location			
Lat ° ' " N	Long ° ' " E		
Lat N	Long E	Elev m AMSL	
Date	Weather Observations Time		
	Sunrise	Mid-Afternoon	Sunset
Local time (24-hr format) / Hour->			
Observer (initial, see back)			

Temperature / Relative Humidity

2.1 Air (Dry Bulb) Temp: Read thermometer kept in the shade, 1.5 m above the ground.
2.2 Wet Bulb Temp from hyrgrometer kept in the shade, 1.5 m above the ground.
2.3 Difference between Dry and Wet Bulb temperatures.

2. Temperature / Relative Humidity						
2.1	Air (Dry bulb)	Thermometer in shade; 1.5 m above ground	°C	°C	°C
2.2	Wet Bulb		°C	°C	°C
2.3	Difference	Subtract 2.2 from 2.1;	°C	°C	°C
2.4	Rel. Humidity	Use 2.1, 2.3; RH Table	%RH	%RH	%RH
2.5	Dew Point	Use 2.1, 2.3; Dew Pt Table	°C	°C	°C
2.6	Heat Stress	Use 2.1, 2.4 ; HSI Table	Heat Stress °C	Heat Stress °C	Heat Stress °C
		Danger Level (if any from Heat Stress Index table)	□Caution □Danger □Ex Caution □Ex Dangr	□Caution □Danger □Ex Caution □Ex Dangr	□Caution □Danger □Ex Caution □Ex Dangr
2.7	Wind Chill	Use 2.1, 3.1; Wind Chi Tbl	Wind Chill °C	Wind Chill °C	Wind Chill °C
		Danger Level (if any from Wind Chill chart)	□Trvl Dngr □Frstbite10 □TSnWr Dgr □Frstbite30 □Frostbite □Frstbite5	□Trvl Dngr □Frstbite10 □TSnWr Dgr □Frstbite30 □Frostbite □Frstbite5	□Trvl Dngr □Frstbite10 □TSnWr Dgr □Frstbite30 □Frostbite □Frstbite5

2.4 Relative Humidity: Use Dry Bulb Temp (2.1), Difference (2.3) and Relative Humidity table to find % Relative Humidity.
2.5 Dew Point Temperature: Use Dry Bulb Temp (2.1), Difference (2.3) and Dew Point Temp table to find Dew Point Temp.
2.6 Heat Stress Temperature: Use Dry Bulb Temp (2.1), % Relative Humidity (2.4) and Heat Stress Index Table to find Heat Stress Temperature and relevant advisory warning.
2.7 Wind Chill: Use the Dry Bulb Temp (2.1) and Wind Speed (3.1) and Wind Chill Table to find the Wind Chill Temperature and relevant advisory warning.

Wind Speed / Direction

3.1 Average and Gust Wind speeds: Use Beaufort Table or direct measurements 3 times and average results. Gusts are short, strong blasts of wind. *Report wind speeds in knots to air crews. Advise air crews when wind speeds are close to affecting helicopter flight operations.*
3.2 Steady or Variably blowing winds. If steady, circle letter for direction. If variable, circle all appropriate letters for directions.

3. Wind Speed / Direction						
		Report wind speed in *knots to air crews*; km/h to all others.				
3.1	Average	Get 3 readings & average	km/h knts	km/h knts	km/h knts	
	Gusts	Record highest gust	km/h knts	km/h knts	km/h knts	
		Wind Speed Guidelines for Helicopter Flight Operations				
		10 knots / 18.5 km/h ideal; OK to fly	Above 45 knots / 83 km/h; No flights.			
		Gusts above 20 knots/ 37 km/h; No flights	Max tailwind 5 knots/ 8 km/hr; No take off			
3.2	Steady Wind Direction	Circle direction steady wind comes FROM	N NE S SW E SE W NW	N NE S SW E SE W NW	N NE S SW E SE W NW	
	Variable Wind Direction	Circle 1 or more directions wind comes FROM	N NE S SW E SE W NW	N NE S SW E SE W NW	N NE S SW E SE W NW	

Sky Conditions

4.1 Cloud cover: Look at the sky and follow the definitions for each cloud cover classification.
4.2 Cloud Base Height: If relative to a local mountain, give its name and elevation above mean sea level. Note Local Relief in meters. If using the Dew Point method, subtract Dew point temp (2.5) from Dry temp (2.1) and divide result by 9.8; multiply quotient by 1000m. *Advise air crews when cloud base height (ceiling) are close to affecting helicopter flight operations.*
4.3 Cloud Type: Check the appropriate box based on cloud description in the guide book

4. Sky Conditions						
4.1	Cloud Cover	Use Definitions in Cloud Cover Table	□Clear □Cloudy □Scattered □Overcast □Broken	□Clear □Cloudy □Scattered □Overcast □Broken	□Clear □Cloudy □Scattered □Overcast □Broken
		Use local mountain of known elevation (above mean sea level) and report clouds above, at, or below mountain top.			
4.2	Cloud Base Ht (Loc Ref)	Relative to local Mtn in AMSL	□Clouds above mtn □Clouds at mtn top □Clouds below mtn	□Clouds above mtn □Clouds at mtn top □Clouds below mtn	□Clouds above mtn □Clouds at mtn top □Clouds below mtn
	m	DewCal (2.1-2.5)/9.8x1000m	m AGL	m AGL	m AGL
		Min flight altitudes: Day = 161m AGL; Night – 500 m AGL; Low cloud ceiling = No flights.			
4.3	Cloud Type	High / Middle / Low; Vertically Developed	□Cirrus □Altostrat □Altocum □Stratus □Nimbstrat □CuNim □Cumul	□Cirrus □Altostrat □Altocum □Stratus □Nimbstrat □CuNim □Cumul	□Cirrus □Altostrat □Altocum □Stratus □Nimbstrat □CuNim □Cumul
4.4	Rainfall	Measure at 0900 hrs each morning. Report amount for last 24 hrs.			mm
4.5	Visual Range (Visibility)	Name of 3.2 km mark	□more □less than □Rain □Fog □Haze □Smoke	□more □less than □Rain □Fog □Haze □Smoke	□more □less than □Rain □Fog □Haze □Smoke
		Name of 3.2 km mark	□more □less than □Rain □Fog □Haze □Smoke	□more □less than □Rain □Fog □Haze □Smoke	□more □less than □Rain □Fog □Haze □Smoke
		Helicopter minimum visibility: Day = 3.2 km / 2 miles; Night = 5 km / 3 miles; Low visibility = No flights.			
4.6	Severe Weather	Thunderstorms	□Yes □No	□Yes □No	□Yes □No
		Lightning / Flash, count secs to boom / 3	N NE E SE S SW W NW □Yes km	N NE E SE S SW W NW □Yes km	N NE E SE S SW W NW □Yes km
		Warn all crews of any severe weather in your area.			

4.4 Rainfall: Measure water in rain gauge each day at 0900 hrs. Rain gauge should be in open area, away from tall objects, with top of gauge 50 cm above ground to avoid splash water from entering gauge.
4.5 Visual Range: Pick landmarks 3.2 km and 5 km from your observation site. Report when visual range is more or less than the known distances to these landmarks. *Advise air crews when visual range is close to affecting helicopter flight operations.* Check appropriate boxes for reasons of reduced visibility.
4.6 Severe Weather: Primary concerns and thunderstorms and lightning. Check the appropriate boxes. If lighting, watch for flash, count seconds until you hear the thunder, divide by 3 = approximate distance in km. Circle direction to storm.

Basic Weather Observer Tasks

- Temperature
- Estimate Wind Speed
- Wind direction
- Cloud cover
- Estimate cloud height
- Visibility
- Thunder / Lightning

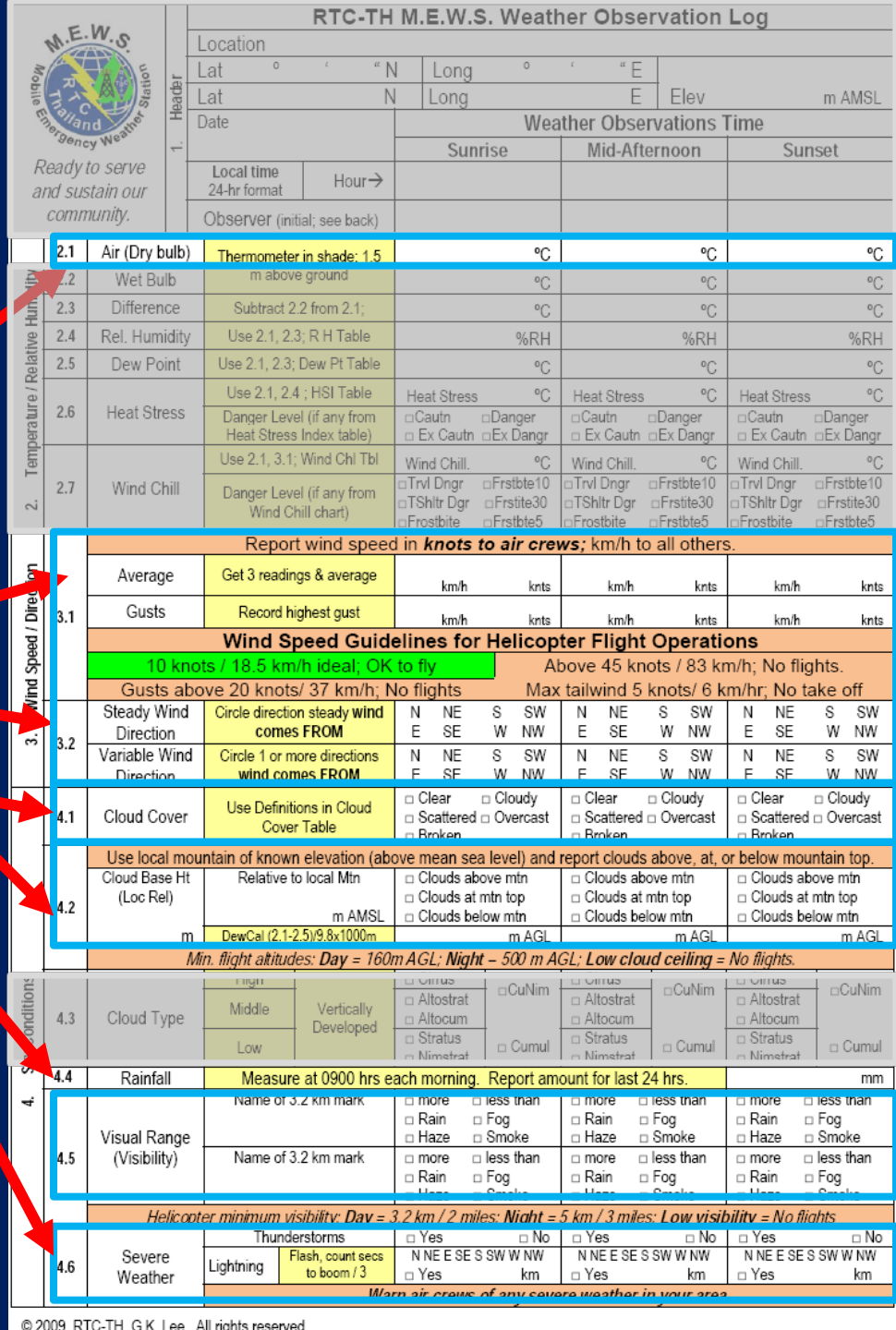
- Useful for planning and setting priorities according to local environmental conditions
- Give general flight weather data at the landing zone

© 2009, G.K Lee
HSØZHM

Basic MEWS Observations are recorded here on the Log Form

- Temperature
- Estimate Wind Speed
- Wind direction
- Cloud cover
- Estimate cloud height
- Visibility
- Thunder / Lightning

Detailed instructions are in the MEWS handbook



© 2009, G.K Lee
HSØZHM

Instructional notes let you make observations with minimal training

2. Temperature / Relative Humidity	2.1	Air (Dry bulb)	Thermometer in shade; 1.5 m above ground	°C
	2.2	Wet Bulb		°C
	2.3	Difference	Subtract 2.2 from 2.1;	°C
	2.4	Rel. Humidity	Use 2.1, 2.3; R H Table	%RH
	2.5	Dew Point	Use 2.1, 2.3; Dew Pt Table	°C
	2.6	Heat Stress	Use 2.1, 2.4 ; HSI Table	Heat Stress °C
			Danger Level (if any from Heat Stress Index table)	□Cautn □Danger □ Ex Cautn □Ex Dangr
	2.7	Wind Chill	Use 2.1, 3.1; Wind Chl Tbl	Wind Chill. °C
			Danger Level (if any from Wind Chill chart)	□Trvl Dngr □Frstbte10 □TShltr Dgr □Frstite30 □Frostbite □Frstbte5

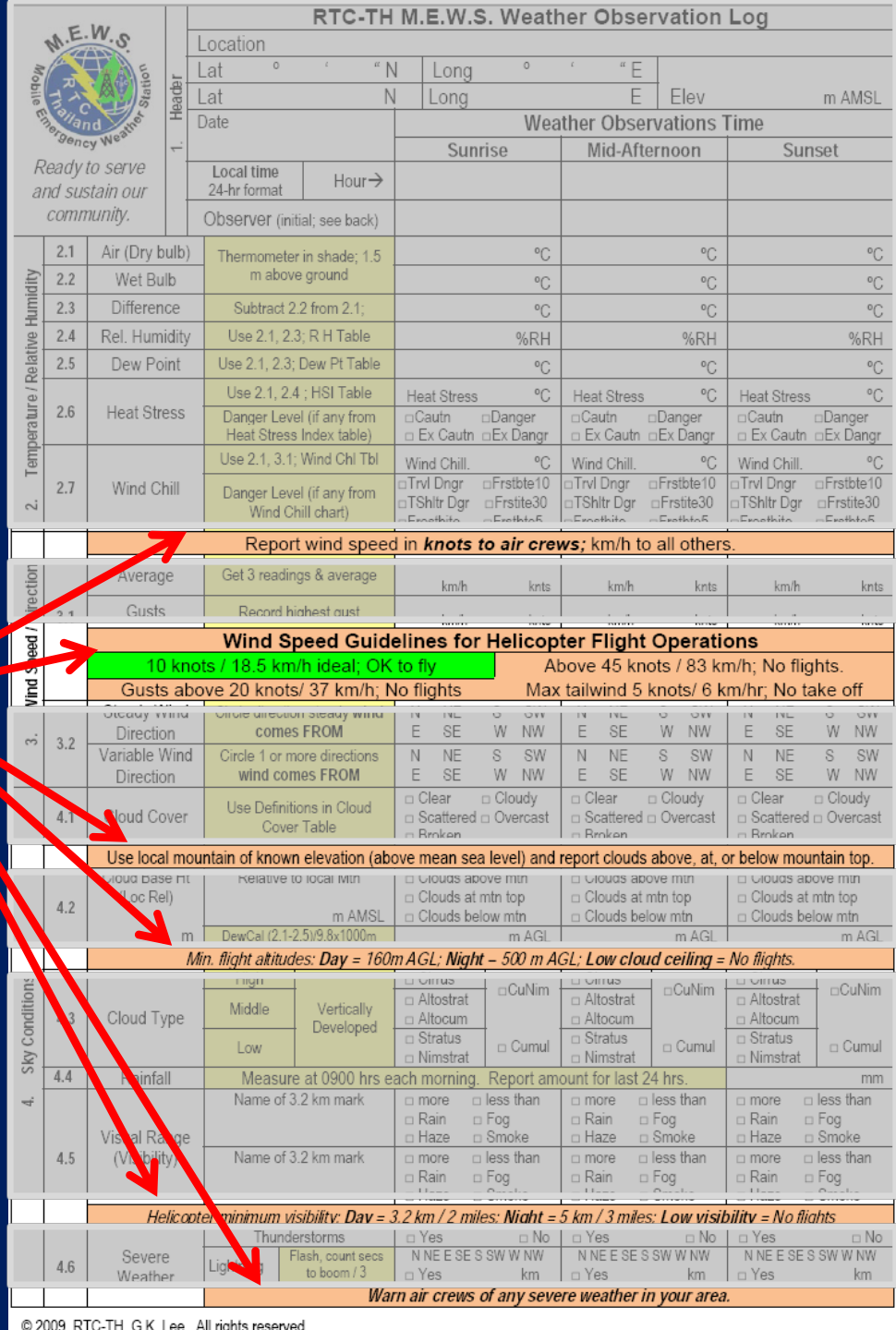
1. Get air temp
2. Get wet bulb temp
3. Subtract #2 from #1 and record
4. Look up % RH in table using #1 and #3; and record % RH

© 2009, G.K Lee
HSØZHM

The MEWS Weather Observation Log

has highlighted items critical for helicopter flight operations.

Photo from the Internet; educational fair use clause



RTC-TH M.E.W.S. Weather Observation Log

Ready to serve and sustain our community.

1. Header

Location

Lat ° ' " N | Long ° ' " E

Lat N | Long E | Elev m AMSL

Date | Weather Observations Time: Sunrise | Mid-Afternoon | Sunset

Local time 24-hr format | Hour→

Observer (initial; see back)

2. Temperature / Relative Humidity

2.1	Air (Dry bulb)	Thermometer in shade; 1.5 m above ground	°C	°C	°C
2.2	Wet Bulb		°C	°C	°C
2.3	Difference	Subtract 2.2 from 2.1;	°C	°C	°C
2.4	Rel. Humidity	Use 2.1, 2.3; R H Table	%RH	%RH	%RH
2.5	Dew Point	Use 2.1, 2.3; Dew Pt Table	°C	°C	°C
2.6	Heat Stress	Use 2.1, 2.4 ; HSI Table	Heat Stress °C	Heat Stress °C	Heat Stress °C
		Danger Level (if any from Heat Stress Index table)	□Cautn □Danger □ Ex Cautn □Ex Dangr	□Cautn □Danger □ Ex Cautn □Ex Dangr	□Cautn □Danger □ Ex Cautn □Ex Dangr
2.7	Wind Chill	Use 2.1, 3.1; Wind Chl Tbl	Wind Chill. °C	Wind Chill. °C	Wind Chill. °C
		Danger Level (if any from Wind Chill chart)	□Trvl Dngr □Frstbte10 □TShltr Dgr □Frstite30	□Trvl Dngr □Frstbte10 □TShltr Dgr □Frstite30	□Trvl Dngr □Frstbte10 □TShltr Dgr □Frstite30

Report wind speed in ***knots to air crews***; km/h to all others.

3. Wind Speed / Direction

3.1	Average	Get 3 readings & average	km/h knts	km/h knts	km/h knts
	Gusts	Record highest gust			

Wind Speed Guidelines for Helicopter Flight Operations

10 knots / 18.5 km/h ideal; OK to fly | Above 45 knots / 83 km/h; No flights.

Gusts above 20 knots/ 37 km/h; No flights | Max tailwind 5 knots/ 6 km/hr; No take off

3.2	Steady Wind Direction	Circle direction steady wind comes FROM	N NE S SW E SE W NW	N NE S SW E SE W NW	N NE S SW E SE W NW
	Variable Wind Direction	Circle 1 or more directions wind comes FROM	N NE S SW E SE W NW	N NE S SW E SE W NW	N NE S SW E SE W NW

4. Sky Conditions

4.1	Cloud Cover	Use Definitions in Cloud Cover Table	□ Clear □ Cloudy □ Scattered □ Overcast □ Broken	□ Clear □ Cloudy □ Scattered □ Overcast □ Broken	□ Clear □ Cloudy □ Scattered □ Overcast □ Broken

Use local mountain of known elevation (above mean sea level) and report clouds above, at, or below mountain top.

4.2	Cloud Base Ht (Loc Rel)	Relative to local Mtn m AMSL	□ Clouds above mtn □ Clouds at mtn top □ Clouds below mtn	□ Clouds above mtn □ Clouds at mtn top □ Clouds below mtn	□ Clouds above mtn □ Clouds at mtn top □ Clouds below mtn
	m	DewCal (2.1-2.5)/9.8x1000m	m AGL	m AGL	m AGL

*Min. flight altitudes: **Day** = 160m AGL; **Night** – 500 m AGL; **Low cloud ceiling** = No flights.*

4.3	Cloud Type	High	□ Cirus □ Altostrat □ Altocum □ Stratus □ Nimstrat □CuNim □ Cumul	□ Cirus □ Altostrat □ Altocum □ Stratus □ Nimstrat □CuNim □ Cumul	□ Cirus □ Altostrat □ Altocum □ Stratus □ Nimstrat □CuNim □ Cumul
		Middle			
		Low			
		Vertically Developed			
4.4	Rainfall	Measure at 0900 hrs each morning. Report amount for last 24 hrs.			mm
4.5	Visual Range (Visibility)	Name of 3.2 km mark	□ more □ less than □ Rain □ Fog □ Haze □ Smoke	□ more □ less than □ Rain □ Fog □ Haze □ Smoke	□ more □ less than □ Rain □ Fog □ Haze □ Smoke
		Name of 3.2 km mark	□ more □ less than □ Rain □ Fog	□ more □ less than □ Rain □ Fog	□ more □ less than □ Rain □ Fog

*Helicopter minimum visibility: **Day** = 3.2 km / 2 miles; **Night** = 5 km / 3 miles; **Low visibility** = No flights*

4.6	Severe Weather	Thunderstorms	□ Yes □ No	□ Yes □ No	□ Yes □ No
		Lightning: Flash, count secs to boom / 3	N NE E SE S SW W NW □ Yes km	N NE E SE S SW W NW □ Yes km	N NE E SE S SW W NW □ Yes km

Warn air crews of any severe weather in your area.

© 2009, RTC-TH, G.K Lee. All rights reserved

© 2009, G.K Lee
HSØZHM

Wind Advisory Notes for Helicopters

3. Wind Speed / Direction	3.1	Report wind speed in *knots to air crews;* km/h to all others.													
		Average	Get 3 readings & average	km/h		knts		km/h		knts		km/h		knts	
		Gusts	Record highest gust	km/h		knts		km/h		knts		km/h		knts	
		Wind Speed Guidelines for Helicopter Flight Operations													
		10 knots / 18.5 km/h ideal; OK to fly						Above 45 knots / 83 km/h; No flights.							
		Gusts above 20 knots/ 37 km/h; No flights						Max tailwind 5 knots/ 6 km/hr; No take off							
	3.2	Steady Wind Direction	Circle direction steady wind comes FROM	N	NE	S	SW	N	NE	S	SW	N	NE	S	SW
				E	SE	W	NW	E	SE	W	NW	E	SE	W	NW
		Variable Wind Direction	Circle 1 or more directions wind comes FROM	N	NE	S	SW	N	NE	S	SW	N	NE	S	SW
				E	SE	W	NW	E	SE	W	NW	E	SE	W	NW

- Operating limits are on the form for ready reference
- Color coded for OK or warning
- Operator looks at form, reads off weather data and relevant flight crew warning.

© 2009, G.K Lee
HSØZHM

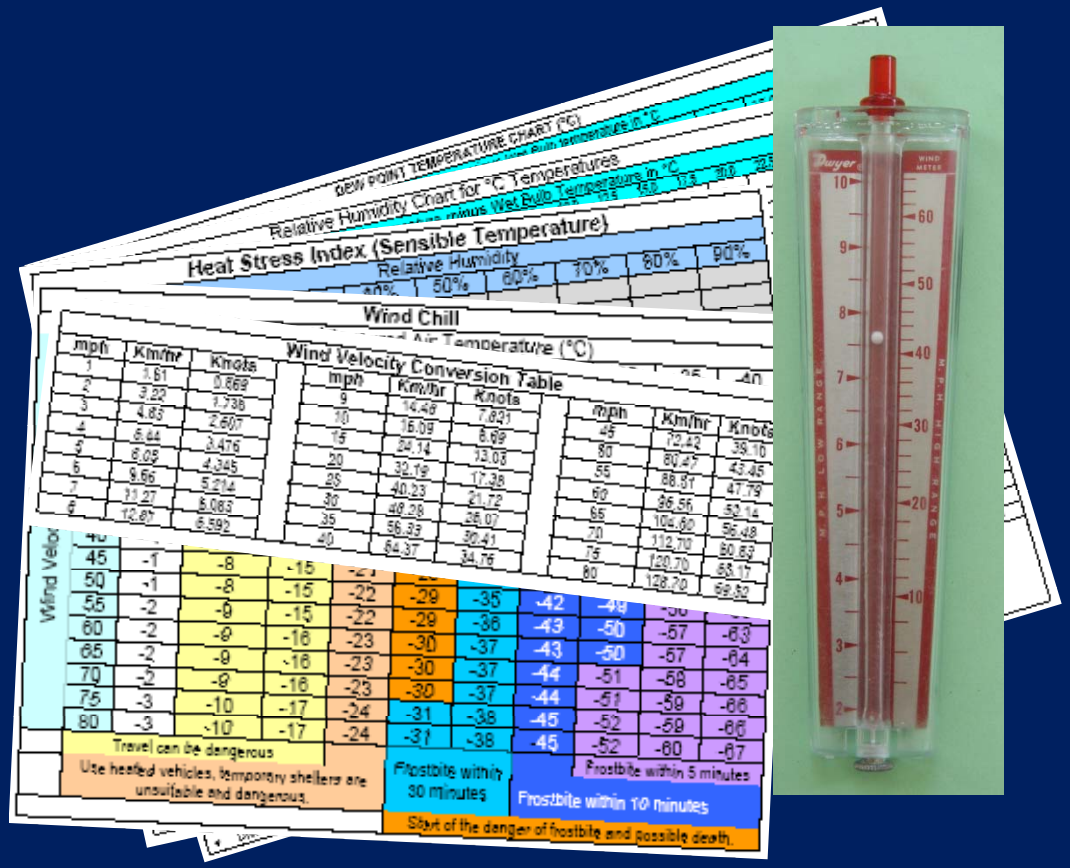
Advanced Weather Observer's kit

Rain Gauge

Hygrometer

Calculator

Dwyer wind gauge



Advanced Reference tables

© 2009, G.K Lee
HSØZHM

Advanced Weather Observer Tasks

All the Basic observations plus:

- Relative Humidity
- Dew Point
- Heat Stress Index
- Wind Chill Factor
- Measured wind speed
- Calculate cloud height
- Cloud type
- Rainfall

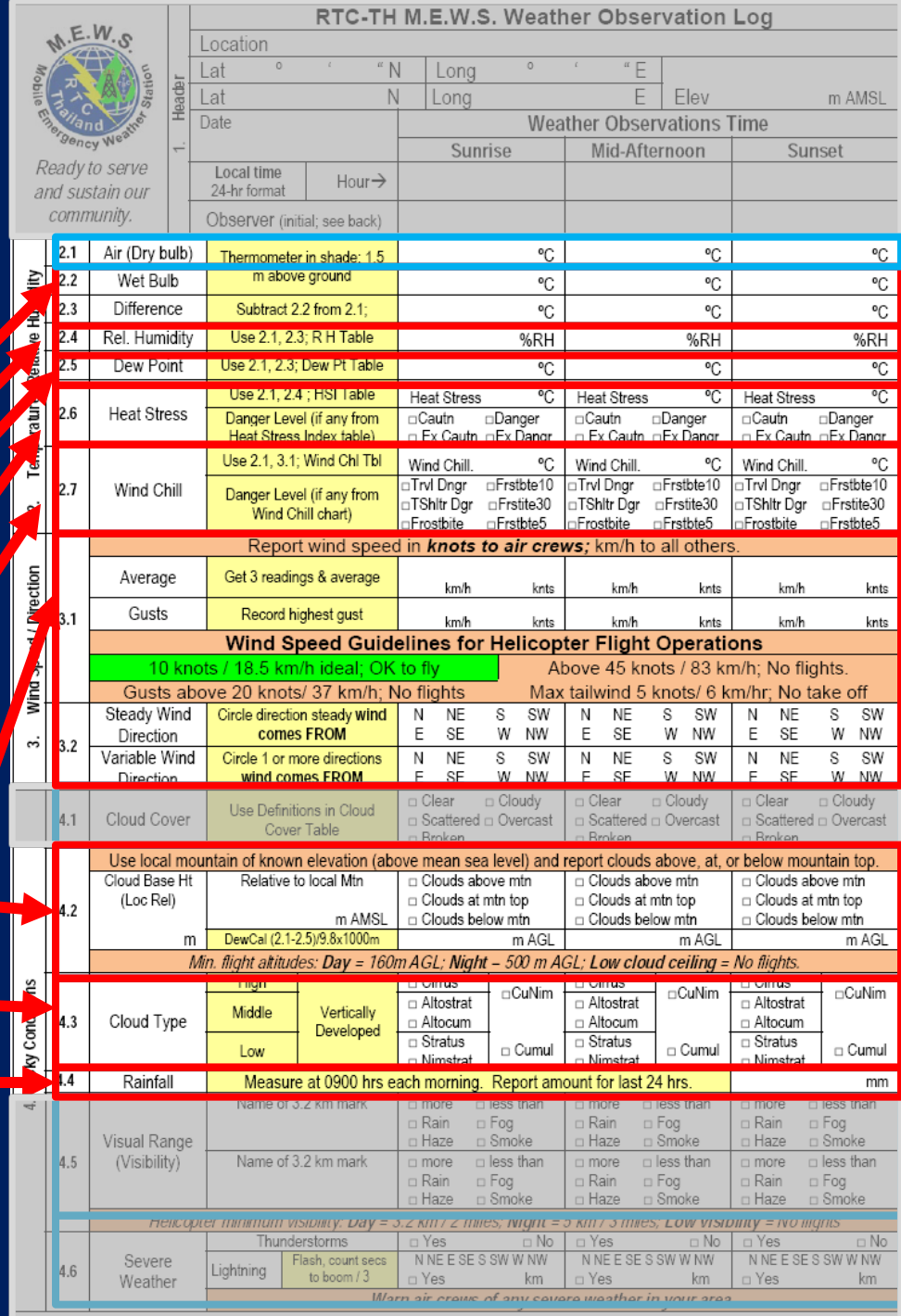
- More detailed local environmental conditions affecting survivors
- More accurate cloud ceiling which could affect flight operations
- Give specific flight weather data at the landing zone
- Gives basic weather forecasting capability

© 2009, G.K Lee
HSØZHM

Advanced MEWS Observations are recorded here on the Log Form

- Temp calculations
- Relative Humidity
- Dew Point
- Heat Stress Index
- Wind Chill Factor
- Measured wind speed
- Calculate cloud height
- Cloud type
- Rainfall

Detailed instructions are in the MEWS handbook



© 2009, G.K Lee
HSØZHM

Other Advanced Equipment

Digital Thermometer

Digital Hygrometer

Analog Weather Station

Sling Psychrometer

Digital Weather Station

Photos from the Internet; educational fair use clause

Some HAMs may already have some of these

© 2009, G.K Lee
HSØZHM

More Advanced Equipment

Kestrel Pocket Weather Station

SkyScan Lightning Detector

GPS

Strike Alert Lightning Detector

Photos from the Internet; educational fair use clause

Some HAMs may already have some of these

M.E.W.S. Mobile Emergency Weather Station RTC Thailand

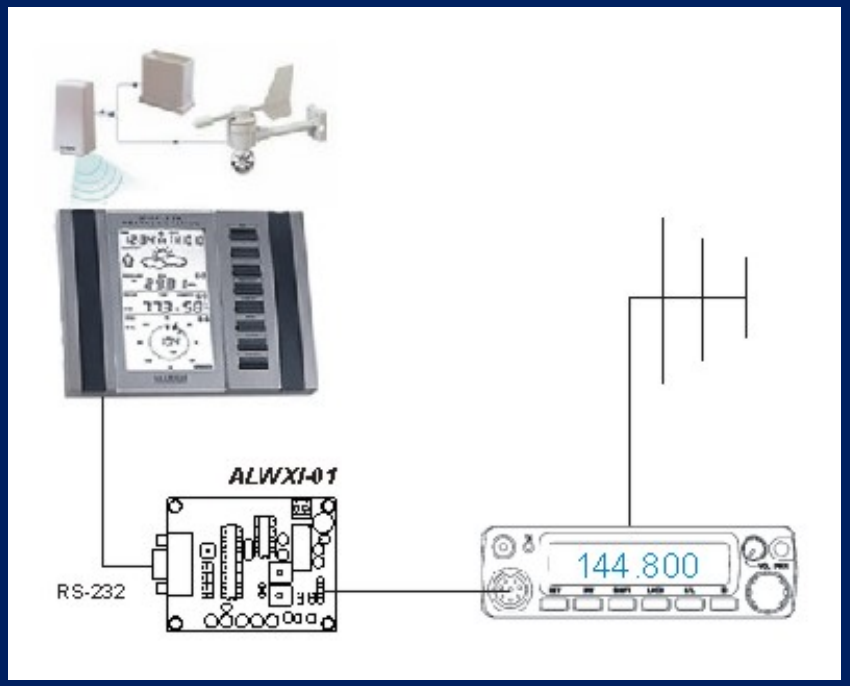
EmComm Emergency Communications RTC Thailand

© 2009, G.K Lee
HSØZHM

Even More Advanced Equipment

Portable
Weather Station

APRS Weather Station



This type of automated digital equipment could be added to MEWS if funds were available

© 2009, G.K Lee
HSØZHM

Photos from the Internet; educational use clause

What Can You Do?

If you are **not a HAM**

- Get involved
- Join a radio club
- Join RAST
- Get a license
- Get a radio

If you **are a HAM**

- Join a radio club
- Join RAST
- Learn EmComm
- Learn MEWS
- Make an emergency plan

© 2009, G.K Lee
HSØZHM

You can learn MEWS free by mentor or self-study

Photo courtesy of N7YLA

© 2009, G.K Lee
HSØZHM

Mentoring

can be done face-to-face (individually or in small groups on-site at cost) or free over the Internet

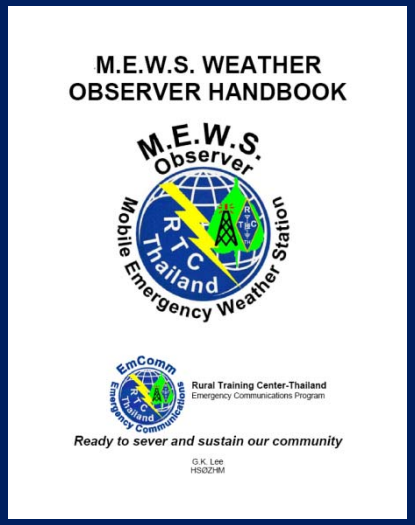
Via E-mail / video chat
hs0zhm@gmail.com

Via Skype video conference call: rtc_th

© 2009, G.K Lee
HSØZHM

Free Self-Study Materials by Internet

- RTC-TH Weather Observer handbook
- Illustrated PDF topical lessons



All of the lessons have been classroom and field proven.

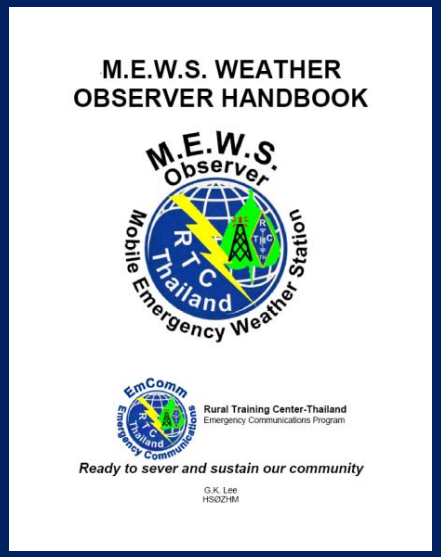
Send e-mail to hsØzhm@gmail.com to request free training materials for non-commercial use only.

© 2009, G.K Lee
HSØZHM

These materials are in English. Volunteer assistance for translation to Thai is welcome and will be acknowledged and cited.

Questions or Comments

Refer to the MEWS Weather Observer Handbook for more details on any of the procedures in this lesson.



You may also contact us by e-mail:
hsØzhm@gmail.com
We are always trying to improve our lessons. Your comments and suggestions are welcomed.

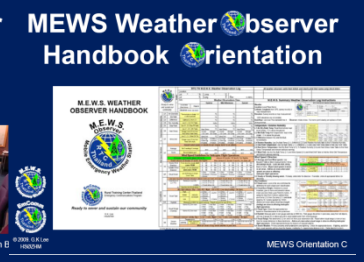
© 2009, G.K Lee
HSØZHM

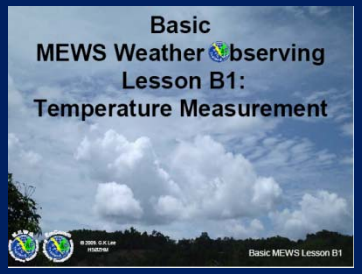
Basic MEWS PDF Lessons

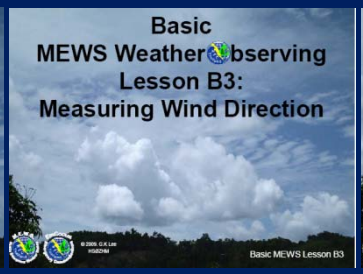
B 1: Measuring Temperature
B 2: Estimating wind speed
B 3: Measuring Wind Direction
B 4: Estimating Cloud Cover
B 5: Estimating Cloud Base Height
B 6: Identifying Cloud Types
B 7: Estimating Visual Range
B 8: Severe Weather Conditions

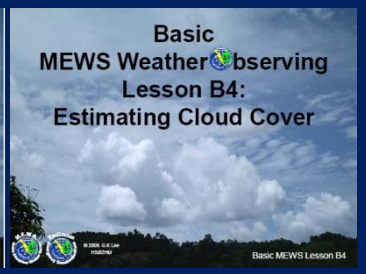
© 2009, G.K Lee
HSØZHM

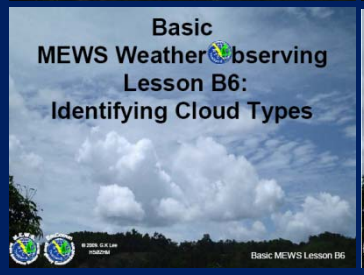
Basic MEWS PDF Lessons

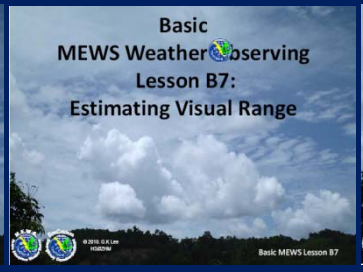












3 Orientation and 8 Basic lessons.
Some show how to build your own weather equipment.

© 2009, G.K Lee
HSØZHM

Advanced MEWS PDF Lessons

A 1: Measuring Relative Humidity and Heat Stress

A 2: Measuring Wind Speed and Wind Chill

A 3: Using Dew Point Temperature to Calculate Cloud Base Height

A 4: Measuring Rainfall

A 5: Reporting Severe Weather

A 6: Weather Forecasting

© 2009, G.K Lee
HSØZHM

Advanced MEWS PDF Lessons

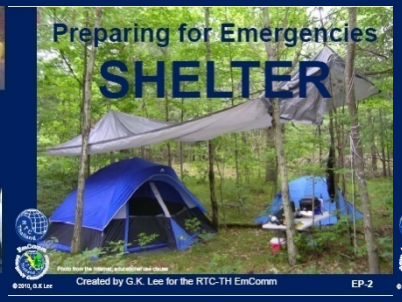
Six slide show lessons

Some show how to build your own weather equipment

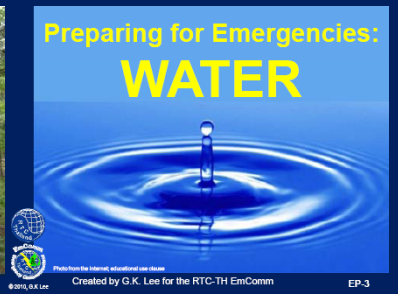
© 2009, G.K Lee
HSØZHM

The RTC-TH Emergency Preparedness lesson series

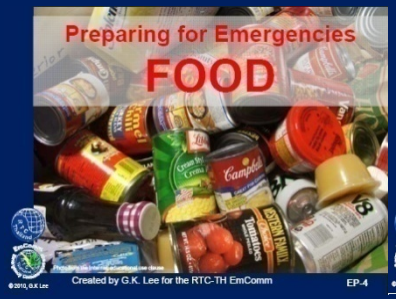
EP-1



EP-2



EP-3



EP-4

EP-5

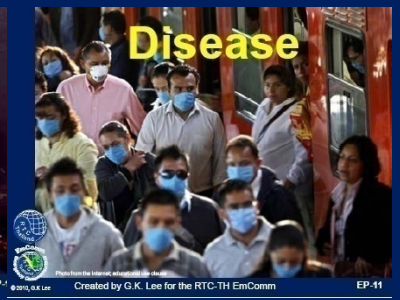
EP-6

EP-7

EP-8

EP-9

EP-10



EP-11

© 2009, G.K Lee
HSØZHM

For More Information about M.E.W.S.

Contact
Greg HSØZHM
MEWS Creator / Mentor

Via E-mail / video chat
hsØzhm@gmail.com

Via Skype video
conference call: rtc_th

© 2009, G.K Lee
HSØZHM

Future RTC-TH EmComm Lessons

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

© 2009, G.K Lee
HSØZHM

I EmComm, therefore I am.

I didn't, therefore I am not

© 2009, G.K Lee
HSØZHM

Community-based Environmental Education for

Self-sufficiency and Sustainability for Small Rural Family Farms

RTC Thailand
Rural Training Center Thailand

The End

M.E.W.S.
Mobile Emergency Weather Station
RTC Thailand

EmComm
Emergency Communications
RTC Thailand

© 2009. G.K Lee
HSØZHM