



Newport News Composite Squadron

December 2010 Safety Briefing
7 Dec 2010





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Safety Education Reminders

- Active members are required to **complete safety education monthly and have it documented**. Documentation required for participation in activities.
- **Operational Risk Safety Briefings are mandatory**. Documentation not required.
- **All current members** must complete, *Introduction to CAP Safety for New Members*, by **31 March 2011**.
- Online Safety Education
 - Intro to CAP Safety Program for New Members, Downed Power Lines, Hurricane Preparedness and Awareness, Flooding, Winter Driving safety. Wind Chill Index
- Safety Alerts _ Online
- Safety Suggestions - Online
- Improvement/Hazard Reports - CAP Form 26 is being phased out
- CAP Form 78 - Online



2011 Safety Blitz

Just when you thought it was safe

- As soon as you complete your Safety Day in 2010, you will get a chance to have another one. The **policy changed at the last National Executive Board to the first three months of each calendar year.** This will allow for the safety day focus to occur during a slower operational time of the year for all CAP units and give **three months of the year to complete it** as opposed to a 30-day period. This should make it easier overall. Content ideas will be provided for the next safety period in the January Safety Beacon.



Safety Beacon

Winter Preparedness



- November Safety Beacon includes a winter preparedness guide from NOAA and American Red Cross.
- Review CAP Safety Alert 10-01 on Cold Weather Aircraft Operations. http://www.capmembers.com/safety/safety_alerts.cfm
- Beacon article discussing jump starting a dead battery
 - POS to POS, NEG to NEG, stay clear of fans, remove in reverse order
- For statewide highway information 24 hours a day, call 511 or go to 511virginia.org.



Safety Beacon



Winter Flying

- Remove all Ice, Snow, Frost
- “Dress for Egress”
- Keep an eye on weather conditions
- FAA Winter Flying
 - http://www.faa.gov/about/office_org/field_offices/fsdo/fai/local_more/a_laskan_articles/media/Winter%20Flying.pdf
 - http://www.faasafety.gov/gslac/ALC/libview_normal.aspx?id=10520
- AOPA Safety “Cold weather Ops”
 - www.airsafetyinstitute.org/webinars





Safety Beacon

Mishaps

- Wind damage. Two vehicles were damaged when a portable basketball hoop was caught by the wind storm and blown onto parked CAP vehicles. The damages occurred in two different wings.
- Flags positioned near an aircraft next to display and recruiting canopies were caught by the wind, lifted out of the stand, and dropped the eagle end of the pole into the adjacent aircraft puncturing the skin.
- A cadet was injured during the shuttle run when he slipped, resulting in a knee injury that required extensive medical assistance to repair.



Safety Beacon

Hear Our Thoughts

- With the winter months approaching, remember to take your time when driving. Keep items in your vehicle such as food, water, blankets, and other items in case you need them when traveling winter roads. It's better to have them and not need them. Also, remember to turn off your cruise control during the winter months. Road conditions in Wyoming can vary several times in a few miles.



Wind Chill Chart



NWS Windchill Chart



Temperature (°F)

Wind (mph)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times

30 minutes

10 minutes

5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01



A Picture Is Worth a 1000 Words!



- THIS WAS NOT A CAP MEMBER MISHAP, BUT ... it does make you ask the questions: Did I get enough sleep? Did my text message get sent? Were the French fries that good? Who is calling me now? Is this going to be on the next episode of "MythBusters?"



Until Next Month

- Discover, report, stop, share, listen, and learn. The things we have read about in this issue already have happened, so you are not allowed to experience these for yourself. **Remember to "Knock It Off" and slow down.** For streaming dialogues on some subjects, remember CAP Safety is on Facebook and Twitter. Have a good month.

See You Next Year!!





November 2010, Vol 1. No. 6

Safety Policy Changes per the CAP National Board

Attached are two policy letters that currently are in effect.

1 November 2010: Introductory Safety Education Requirements

3 November 2010: Safety Education and Operational Risk Briefing Requirements

Here are some frequently asked questions and answers:

- 1) The date in the recent OPEN COCKPIT said the Introduction to CAP Safety for New Members course had to be done by 31 December. Which is correct?

Answer: The National Safety Officer asked the National Executive Committee for an extension to allow additional time for CAP's 61,000 current membership to complete the course.

- 2) If I have completed the Basic Safety Course and the Basic ORM course, do I need to take this course too?

Answer: Yes. This course included a component of individual responsibility and the ability to say "Knock it Off" by any member that was not in the other two courses. Additionally, this course cleans up some of the documentation requirements of the previous safety education policy that were not clear. This course corrects that so all members are on the same "sheet of music."

1

 CAP National and Region Safety Officers	<i>Col Robert Diduch</i> CAP/SE safety@capnhq.gov	<i>Col Charles Greenwood</i> GLR/SE cgreenwo@bsu.edu	<i>Lt Col Jerry Rosendahl</i> NCR/SE Jerry.rosendahl@state.mn.us	<i>Maj Bill Woody</i> SER/SE wwoody@att.net
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	<i>Lt Col Bruce Brown</i> Asst CAP/SE Aircraft safety@capnhq.gov	<i>Lt Col Melanie Ann Capehart</i> SWR/SE MelanieCapehart@peoplepc.com	<i>Lt Col Donald Johanson</i> RMR/SE johansondon@msn.com	<i>Mr. Frank Jirik</i> NHQ Safety safety@capnhq.gov

- 3) Can the Intro Course be taught in the classroom at my local squadron meeting?

Answer: Currently this course can be taught in the classroom as a preparation for testing that is only available online in eServices presently; however, the curriculum and test are being prepared for cadet programs and will be made available so testing officers will be able to support Curry Achievement completions in the classroom. The leaders of cadet programs will be advised when this is available.

- 4) Do I record the name of every member to whom I send a safety-related email as having completed safety education each month?

Answer: No. Sending an email to someone does not meet the requirement of monthly safety education. The new policy is clear on how safety education has to be presented and emailing and receipt of an email does not meet this requirement.

- 5) At my squadron, we read the "Safety Beacon" and document it in the safety education database that we read it to them every month. Does this meet the safety education requirements?

Answer: No. Reading the newsletter does not meet the requirement of safety education. You may use the topics in the newsletter to prepare for your monthly safety education briefing; however, to just read the newsletter and enter it in the safety education database as "Safety Beacon" does not meet this requirement. Your lessons should be educational and should come with questions to get feedback, and you should feel as an instructor that your members learned something from you when you are done. Try to include a little humor with your presentations so members don't fall risk to **SIFL** (**S**elf -**I**nfllicted **F**rontal **L**obotomy : the act of falling asleep during a really bad presentation and impaling yourself on the pencil you left pointy side up).

- 6) When a member does a safety course outside of CAP, can they just send the safety officer an email stating they completed it?

Answer: No. The course has to be deemed a benefit to CAP so it is recommended that they get the course approved by the Commander before taking it, but once it is completed, the member needs to provide certification of completion from the course instructor or proof of completion for online training. CAP accepts all AOPA, FFAST courses, and DoD safety education briefs and we are working to get completions of all FFASTeam Wings courses automatically updated into our database in coordination with the FAA.

7) Does the Intro to CAP Safety Course for New Members replace my requirement to complete ORM training as a leader for cadet activities?

Answer: No. The ORM education requirement for leadership of cadet activities has not changed.

8) The quarterly face-to-face requirement for safety education has been removed, so does this mean I, as a safety officer, still have to provide safety education every month?

Answer: Yes. Safety Officers are required to present safety education every month. In fact, with the online safety education management database, this is easily tracked for compliance. When using this database, you are no longer required to send separate reports to the next higher echelon, it is accomplished automatically and CAP's inspectors have been advised of this technology update.

9) Is the national safety education management database required to be used?

Answer: Yes. With the most recent policy change, the requirement has been put into place that safety education must be documented in the national safety education management database. In fact, safety education must be documented and is required for participation in activities for active members?

10) How can I check my individual currency for safety education?

Answer: If you log into eServices and click on the link "Online Safety Education" You will navigate to your own personal safety education training records page that looks something like this:

Education Type	Date Completed	Subject	Monthly Education Expiration Date
CAP Website Online	13 Oct 2010	Downed Power Lines	30 Nov 2010
CAP In-Person Safety Education	04 Sep 2010	EXECUTIVE SAFETY COURSE	31 Oct 2010
CAP In-Person Safety Education	10 Jul 2010	SAFETY BRIEFING APPLICATION TRAINING	31 Aug 2010
CAP In-Person Safety Education	22 May 2010	FAAST - RUNWAY INCURSION - SER CONFERENCE	30 Jun 2010
CAP In-Person Safety Education	22 May 2010	SAFETY PROGRAMS AND POLICY UPDATE (NHO/SE	30 Jun 2010

The monthly education expiration date is tied only to your monthly education requirement and is done on a rolling month, crediting you to the end of the following month in which education was completed. Software is being updated to inform Incident Commanders, Flight Release Officers, and other activity leaders when safety education requirements are not up to date so the proper action can be taken to ensure compliance.

- 11) I took the Introduction to CAP Safety for New Members course and my safety education record now shows it has expired. Do I have to take it again to make sure I am current on this course by 31 March 2011?

Answer: No. In the online safety education training records, this is for monthly safety education requirements only. When you take this course, it gives you credit here for your monthly requirements (Fig. A) and also in your permanent professional development page (Fig. B). All members will have it tracked in their permanent professional development page and this is what your commander and other CAP databases will be checking to ensure completion.

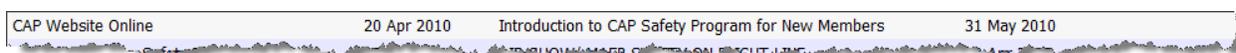


Fig. A



Fig. B

- 12) If I have any more questions about this process, should I send an email to the National Safety Team for clarification?

Answer: We would really like to say yes, but we really need our 61,000 members to work with your unit and wing safety officers through the region safety officer. While the National Safety Team is always available, we are improving our education and awareness at all levels and we want you to get the most positive, prompt, and correct answer; hence, we have had to pull in the team closest to you to help with these answers. A little secret: a common place for information for members is on the safety page of Facebook as a dialogue section, come be our friend at Civil Air Patrol Safety – U.S. Air Force Auxiliary; it also links to Twitter for automatic updates to your cell phone if you have the technology installed.

- 13) Do I have to take all of the online computer-based education modules at the same time?

Answer: No. Actually you only have to take one per month to meet safety education MINIMUM requirements. You can take them all; however, they time out for 180 days and prevent you from taking them again for that duration to prevent the same course from being taken over and over again. After 180 days, these courses will be reset so you can take the course as refresher. There are many more courses coming with a forecast library of

75-100 modules that will eventually be updated with audio and video. Additionally, these courses are available online so anyone can review or download them for classroom safety education presentations: .

http://www.capmembers.com/safety/safety_training/online_safety_training_references.cfm

Hazard Reporting

Were you aware that the Form 26, in paper form, is no longer required? In fact, the reference to Form 26 is being removed from CAP's regulations. Are you thinking, "Really?"

Actually, the reference to the form number has been removed and the form itself is being removed from the forms pages of the national website. To file a Hazard report, you would go into eServices and click on Safety Forms under My Favorites on the CAP utilities drop down on the left of your screen:



From the Form 78 entry screen, as seen here, click on Hazard Report:



You will get this screen where you will click on:

Safety Form - Hazard Report

About Safety Form This form may be used to make safety improvement s

Overview

Modules ***What would you like to do?**

New Improvement Suggestion/Hazard Report Entry

Hazard Report Form 78

Hazard Report Form 79

You will see the screen above. Once this screen is completed, click submits and the Hazard Report then will be filed. A couple of notes for your information on the use and where it goes though:

- a) The Hazard Report is defaulted to your home unit of assignment and when you send it as a current member, it sends a copy of the Hazard Report to your unit commander, safety officer, the wing command and safety officer, the region commander and safety officer, and the National Safety Team. For safety improvements to local unit facilities, this is a great place to make this recommendation, but for national best practices it still is recommended that you file on the Online Safety Suggestion tool. If you file as a current member, this will let the chain of command know who to get back to if there are any questions. It is acceptable for anyone to file a Hazard Report at any time.. Members should be praised for filing items of risk and hazard; it is the right thing to do.
- b) You can select anonymous if you feel you want to remain unknown; however, there would be no follow-up to you for items that are corrected. The same chain of command is notified.
- c) What if the hazard or at-risk behavior is being done by a member of the chain of command or your safety officer or one of the programs they want to implement? Good question. You can click the box that states "Send Advisory Note to NHQ Safety Only" and this will go only to the National Headquarters Executive Assistant for Safety and, depending on the nature of the risk or hazard, the appropriate action will be taken in total confidence.
- d) What is the box, "Complete Entered Improvement Suggestions/Hazard Reports" on the example below? Another good question. This is a box that only the commanders and safety officers have in their Hazard Report log in. This system requires complete accountability and all Hazard Reports must be closed with comments the system logs the name of the person that has taken the action to close the loop on all Hazard Reports.

Hazard Report

e-Services | Sign Out

This form may be used to make safety improvement suggestions or to report unsafe equipment, conditions, practices, rules, attitudes, etc., which may constitute a hazard to CAP personnel or equipment.

***What would you like to do?**

New Improvement Suggestion/Hazard Report Entry Complete Entered Improvement Suggestions/Hazard Reports

*Use this space to make safety improvement suggestions or to report a hazard. If you are reporting a hazard, state what it is, where it is, and when it was noticed.

max. 0/750 characters

***Input this Request As**

As Current Member Anonymous

***Input for Organization**

AL-032 Select Organization

***Entry Type**

Hazard Entry New Improvement Suggestion

Send Advisory Note to IHQ Safety Only

Submit

The Hazard Reporting system can be used for identifying static risks and for identifying at-risk behaviors about a person or actions of a person. The intent is to mitigate the risk, create awareness, and to appropriately handle and document actions taken to ensure the health and welfare of CAP's members and its programs.

If you have any questions about the program, please contact your Wing Safety Officer and they will help you with all your answers. The desired result of CAP's safety program is one that is voluntary, self-correcting, and trustworthy. Your positive support is truly appreciated.

Safety Day 2011

As soon as you complete your Safety Day in 2010, you will get a chance to have another one. The policy changed at the last National Executive Board to the first three months of each calendar year. This will allow for the safety day focus to occur during a slower operational time of the year for all CAP units and give three months of the year to complete it as opposed to a 30-day period. This should make it easier overall. Content ideas will be provided for the next safety period in the January Safety Beacon.

Safety Officer College



The dates have been locked in for the first CAP Safety Officer College at Kirtland AFB:

June 6-10, 2011 Travel dates June 5th and 11th.

More information will be coming on eligibility, the selection process, and course content.

As a preview, it will be full of education on mishap investigations, photography, human factors, crash lab work, safety philosophy, risk mitigation, and regulatory learning.

WINTER PREPAREDNESS with a contribution by the Michigan Wing

As we roll into the winter months, well maybe not so much in Puerto Rico or the Florida Keys, there are some things we will see across most of the United States. Attached to this month's newsletter is a winter preparedness guide from the NOAA and the American Red Cross that has relevance as we approach colder weather. Please remember to review the Safety Alert 10-01 on Cold Weather Aircraft Operations also.

http://www.capmembers.com/safety/safety_alerts.cfm

Thank you to the Blue Water Composite Squadron of the Michigan Wing for their contribution of the following:

Jump-Starting a Weak or Dead Automobile Battery Correctly

When a motor vehicle battery fails, a jump start often is the best short-term way to get the motor going. It is important that jump starting be done properly, and the National Safety Council recommends the following procedure:

- Position another vehicle with a healthy battery and your car so they do not touch each other; be sure both batteries are of the same voltage.
- Read the owners' manuals for both vehicles for any special directions.
- Turn off the ignition of the dead vehicle and set the parking brakes of both vehicles. Place automatic transmissions in "Park" and standard transmissions in neutral.
- Wear safety glasses and gloves while using cables.

- Unless given different directions in the owner's manual, use the booster cables in this order:
 - Clamp/connect one end of the positive (+) booster cable to the positive (+) post of the dead battery.
 - Connect the other end of the same cable to the same marked post (+) of the booster battery.
 - Connect the second, negative (-) booster cable to the other post of the booster battery.
 - Make the final negative (-) booster cable connection on the engine block of the stalled vehicle away from the battery.
- Allow the booster vehicle to run for a few minutes. Then, start the disabled vehicle.
- Remove the cables in the reverse order of connection, being very careful not to let the booster cable clamps touch each other or come into contact with car parts. Also, avoid the fans of the engine. Electric fans may run without the engine being on.

Winter Flying Conditions by Lt Col Al Matson, MN Wing DOV

There are a number of hazards associated with winter flying operations that a pilot will not encounter during other seasons. In addition to the numerous hazards associated with winter weather, this time of year also brings increased hours of darkness. All phases of flight operations are affected in some manner by the conditions that winter brings.

Pre-Flight Preparation

Preparing for a flight during the winter months should include consideration of the following items:

- *Aircraft Preparation*

There are a number of things to consider in preparing an aircraft for flight during the winter:

- *Keeping the engine warm*

Cold air temperatures can cause a number of problems for engines. A cold engine may be impossible to start, which is why most aircraft that are operated in cold climates will have some means of pre-heating the engine. Most aircraft with piston engines will have some type of plug-in crankcase heater. Many manufacturers recommend engine baffling and oil cooler plates be installed to maintain proper engine temperatures during flight. Baffling is especially important for letdown from altitude, as the required low power settings would otherwise cause excessive cooling. Cracked cylinder heads could

cause engine failures and a variety of other problems, including a potential for in-flight fires.

- *Engine lubrication*

Aircraft operating manuals list the proper weight of engine oil to be used for different temperature ranges. Failure to use the proper weight of oil for colder temperatures could prevent an engine start, and if the engine does start, may prevent adequate lubrication. Inadequate lubrication of the engine could lead to engine failure. Another consideration is the oil breather in piston engines. As stated in *Tips on Winter Flying* (Federal Aviation Administration [FAA], 2007), "A number of engine failures have resulted from a frozen crankcase breather line which caused pressure to build up, sometimes blowing the oil filler cap off or rupturing a case seal, which caused the loss of the oil supply." A winter preflight should include ensuring that your engine breather system is free of ice.

- *Cabin heat*

There are several methods for heating the cabin of an aircraft. Some aircraft have a system of shrouds that surround the engine exhaust, and then duct this heated air into the cabin. An obvious problem here is the potential for carbon monoxide to be introduced into the cabin. Many accidents have resulted from pilots being overcome by this deadly gas, so it is very important to have a method of detecting carbon monoxide in the cabin. There are several devices available for this purpose. Many twin-engined aircraft have fuel-fired heaters installed in the nose. In addition to potential for carbon monoxide poisoning, these type heaters could cause an in-flight fire if they are not properly maintained. Pilots should conduct a thorough preflight inspection of cabin heater systems.

- *Landing gear*

Retractable gear aircraft have problems with mud and slush that adhere to the gear, and when retracted may freeze inside the wheel wells. The best advice to avoid having to do a gear up landing is for pilots to avoid runways that have these types of contamination. Fixed gear aircraft should have their wheel pants removed, as mud and slush can accumulate inside these devices and freeze the wheels in position. A landing made with the wheels frozen can cause loss of directional control.

- *Snow, frost, and ice removal*

This is one of the most important areas to have a full understanding of the associated risks involved. Many accidents could have been prevented if the pilot had ensured that the flying surfaces were clear of snow, frost and ice. A very slight accumulation of contaminant roughness is sufficient to cause airflow separation and loss of up to fifty percent of lift. With a contaminated wing, the time interval from controlled flight to unpredictable aircraft behavior can be very short. The FAA had previously stated that polishing frost smooth was an

acceptable practice but this no longer is their policy. Pilots must be sure to *remove* all frost, snow, and ice from the flying surfaces before attempting takeoff.

- *Taxi considerations*

Most vehicles have difficulty maneuvering on surfaces contaminated with snow and ice. Airplanes are worse than automobiles in this regard, and so special precautions should be taken. It is advisable to taxi at reduced speeds so as to improve the ability to stop. Turns should be made more slowly so as to not slide through the turn.

Aircrew and Passenger Preparation

Pilots and passengers must take extra precautions when dealing with winter flying by considering:

- *Proper attire*

Occupants should be attired as though expecting to spend time on the ground in the prevailing conditions. It does little good to survive an off-field landing only to succumb to hypothermia while waiting for rescue. Proper attire for extremely cold conditions would include well-insulated headgear, boots, gloves or mittens, leg coverings such as ski pants, and a good parka.

- *Emergency items*

Surviving a remote area emergency landing in extreme cold weather conditions depends on proper preparation. A survival kit that provides for shelter, warmth, food, and signalling devices would be a must. A blanket or sleeping bag for each occupant of the aircraft would allow the aircraft occupants to stay warm for extended periods. Fire starting devices such as matches or lighters would allow for heat generation and signaling to searchers. A supply of food must include enough calories for occupants to survive long enough to be rescued.

- *Weather Considerations*

As with any flight, a pilot must have an adequate picture of the weather to be expected during the flight. Pre-flight preparation should include a thorough briefing on the conditions along the route. It may become apparent that a flight should not be attempted, or that a delay may create safer conditions. Pilots should be especially vigilant in looking for:

- *Icing potential*

There is a macabre joke that circulates amongst pilots: Don't worry about icing. The resulting crash will get rid of most of it, and anything left will burn off in the post-crash fire. Icing is a serious hazard that must be well understood by pilots. Even aircraft that are certified for flight in known icing conditions should not fly when certain icing conditions exist. Ice adhering to the aircraft

structure adds weight and drag, and when it adheres to the aircraft's lift producing surfaces it decreases lift and increases the aircraft's stall speed. Ice that accumulates on engine air intakes can reduce the air flow enough to cause a partial or total loss of power. Ice accumulation on propellers can reduce thrust. Ice on the horizontal tail surface can cause a tail plane stall, where the nose of the aircraft pitches down violently under certain conditions. Avoiding icing conditions may be difficult in winter, but it certainly is worth the effort.

There are excellent products available to help pilots determine potential icing conditions, foremost of which is the Aviation Digital Data Service (ADDS) website (<http://adds.aviationweather.noaa.gov/icing>). At this site, a pilot can find current icing advisories, pilot reports of icing, and various graphics (fig. 1) that are helpful in avoiding this hazard to flight.

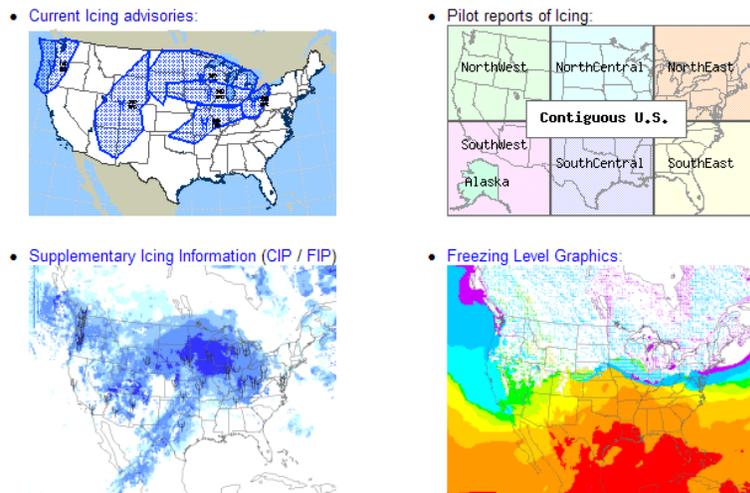


Fig. 1 ADDS icing potential site images.

- *Marginal ceilings and visibilities*

These are a hazard at any time, but they are generally more prevalent during the winter months. In normal operations, low ceilings and visibilities have contributed to many accidents. During an in-flight emergency, these conditions make a difficult situation much worse. Accidents that occur in instrument meteorological conditions are known to produce more fatalities, due to either loss of control or controlled flight into terrain.

- *Airport conditions*

It is imperative for pilots to know the forecast conditions at each airport where the pilot will operate. In addition to the forecast weather, a pilot must consider the possibility of taxiway and runway contamination. Airports can close for extended periods of time to clean heavy snow from operating

surfaces. Arriving at an airport that has just closed for runway plowing when at minimum fuel leaves few options.

- *Lighting conditions*

According to the AOPA Air Safety Foundation *Nall Report* (AOPA, 2006), "Accidents at night and in IMC are more likely to be fatal. Only 18.8 percent of daytime accidents resulted in fatalities, but more than one-third (35.9 percent) of all night accidents were fatal." Winter days have far fewer hours of daylight. Planning flights during daylight hours can increase the safety margin. If planning a flight at night, a pilot should consider:

- *Potential for electrical failure.*

An electrical failure during daylight is easily manageable, but at night it becomes a critical problem without backup lighting. Bringing a flashlight and an extra set of batteries along can prove to be life saving. A highly reliable flashlight would be one using light emitting diodes (LEDs) as a light source, and a better choice would be a head mounted LED light as this illuminates the area where the pilot is looking, while freeing up his/her hands for other tasks.

- *Off-field landings at night*

A forced off-field landing at night is one of the most hazardous events a pilot could face. Many forced off-field landings at night end in accidents due to the inability to see obstacles in the landing path. Planning the flight route to include well-lit airports as waypoints would be a good idea for pilots.

- *Route of flight*

Planning a flight over unpopulated areas should be avoided if possible. An emergency landing in remote areas is especially dangerous in winter conditions. Once again, planning a route of flight that includes airports as waypoints would be the best idea. Flight plans should be created to stay near locations where help would be available if needed and improves chances of surviving a forced landing.

Enroute Considerations

- *Fly the planned route*

As mentioned, planning the flight to maintain proximity to populated areas is a good safety consideration. It is important for a pilot to actually fly the planned route. During a recent high-visibility search for a missing pilot, Steve Fossett, and his aircraft, eight missing airplanes were located, none of which were the intended target. Many of these airplanes (and their crews) had been missing for many years, and they were only located at this point due to the large number of search aircraft employed to find Mr. Fossett. After a multiple aircraft, multi-agency search of nearly 17,000 square miles of terrain,

neither Fossett nor his airplane were located (Civil Air Patrol [CAP], September 8, 2007).

Spending several days in winter weather conditions while awaiting rescue greatly decreases odds of survival. Planning flights, and then following that plan, to avoid remote areas vastly improves chances of rescue should a forced landing become necessary.

- *Informing others of the planned flight*

A flight plan can truly be a life or death matter in winter flying. Due to the extreme temperatures that could be encountered, waiting a prolonged time for rescue diminishes chances of survival. While filing a flight plan with the FAA is the preferred method, providing a detailed plot of the route to be flown to a person who would know if the flight arrived at its destination also could work. The important thing is that a responsible party knows the route of flight and the expected arrival time at the destination. Should an aircraft go missing, the search and rescue effort would be focused to a much smaller area. This improves an aircrew's chances of survival significantly.

- *Enroute weather*

During the enroute phase of a winter flight pilots must stay aware of the weather systems through which they will be flying. Weather can change quickly, and seldom seems to be exactly as forecast. Hazards such as freezing rain or icing encountered while in clouds have been known to cause many accidents. While a good preflight weather briefing should help to avoid these hazards, a pilot must constantly "look ahead" at the weather, and looking ahead can be accomplished in many ways. A pilot can receive FAA provided weather information via radio in several ways, such as through Hazardous Weather Advisory Service (HIWAS) or via AIRMETS, or by using more sophisticated services such as XM weather. In any case, a pilot must do whatever is necessary to avoid icing situations for which the aircraft is not equipped to handle.

Post-flight Considerations

When arriving at the destination, it is important to consider the condition of the movement surfaces. Maintaining the center line during landing becomes very important if there is snow plowed high along the runway edges. Sliding to one side or the other could cause a wingtip to strike a snowbank and cause the aircraft to go into an uncontrollable spin.

If the aircraft will remain at the destination airport for more than a short period, it is wise to store the aircraft in a hangar, or at least under a covering of some sort. This reduces the chance of ice melting and then refreezing in places that are not easy to see on a preflight. Iced up control actuating devices can cause a loss of control on a subsequent takeoff. Providing some means to heat the

engine also will improve the odds of getting the engine to start when desired. Cold reduces the power available from any battery, and engine oil thickens considerably. These two problems make for difficult engine starts in winter.

Summary

Winter brings a particular set of hazards that must be considered before engaging in flight activities. Cold temperatures, low visibility conditions, and problems associated with frost, ice, and snow all contribute to making this time of year challenging for flight operations. Proper preparation, planning, and execution greatly enhance the safety of flight operations at any time of year, and the additional hazards introduced in winter easily can be addressed if they are well understood.

References

Federal Aviation Administration (2007), Tips on winter flying (FAA-P-8740-24) Retrieved December 1, 2007, from: <http://www.aopa.org/members/files/topics/winter-tips.html>

Federal Aviation Administration (2007), Winter flying. Retrieved December 1, 2007, from:
http://www.faa.gov/about/office_org/field_offices/fsdo/fai/alaskan_articles/media/Winter%20Flying.pdf

AOPA Air Safety Foundation, (2006), Nall report, Frederick, MD

Civil Air Patrol News Online (September 8, 2007), CAP searchers still hoping for search results on Fossett search efforts, Retrieved December 1, 2007, from:
http://www.cap.gov/visitors/news/cap_news_online/index.cfm?fuseaction=display&nodeID=6192&newsID=3490&year=2007&month=9

Aviation Digital Data Service (ADDS), <http://adds.aviationweather.noaa.gov/icing>

Mishaps

The following are based on true stories and resemblance of these events that may have occurred in a CAP unit near you are coincidental.

VEHICLE

- Wind damage. Two vehicles were damaged when a portable basketball hoop was caught by the wind storm and blown onto parked CAP vehicles. The damages occurred in two different wings.
- A van towing a trailer was struck by a private automobile entering the same road from a side street.
- Deer strike. The member operating the vehicle saw the deer running down the embankment to the point where it stopped in the roadway and the van impacted the deer with the driver stating it was impossible to miss.

Ask yourself the next time you park a van, "Is it okay to park so I can drive out of my parking spot and am I parked so something will not blow onto my vehicle?" "Did I check the weather before I left?" "What are the risks?" "Did I talk about these with my passengers before I departed?"

AIRCRAFT

- On departure, with a steady state wind 5-7 knots, crosswinds increased to 10 knots after the take-off roll of a glider in tow, the pilot over-compensated with right a right aileron input resulting the wing wheel contacting the runway. This resulted in a dented wing and wheel spring damage.
- Visual inspection during aircraft preflight identified crack in the leading edge fairing. Cause and source of crack unknown.
- Bird strike. Pilot attempted to miss two birds, missed one, and creamed the other with the leading edge of the right wing. Aircraft safely landed at the nearest airport.
- Flags positioned near an aircraft next to display and recruiting canopies were caught by the wind, lifted out of the stand, and dropped the eagle end of the pole into the adjacent aircraft puncturing the skin.
- Damage to the trailing edge of the horizontal stabilizer was noted on pre-flight prior to moving the aircraft out of the hangar.

Ask yourself questions the next time you get out of an aircraft: Is it okay for me to do a postflight walk-around? What are the risks if I don't? Did we talk about these during our pre-flight?

BODILY INJURY

- Climbing out of the back of a 15-passenger van after unloading, a member lost his footing and fell to the pavement. The resulting injury was a fractured arm.
- A member fell in his hotel room, tripping over a suitcase, resulting in a head injury.
- A member was injured when a member-owned ATV jumped unexpectedly when it was started.
- A cadet was injured during the shuttle run when he slipped, resulting in a knee injury that a required extensive medical assistance to repair.
- A cadet, using an unapproved pocket knife, was cut during a cadet activity due to incorrect handling of the blade.

Ask yourself questions the next time you are participating in an activity: Am I wearing the proper attire to participate in this activity? Are my shoes or boots tied? Is the surface appropriate for the activity we are participating in? What are the risks? Did we check these and talk about them before we started?

Hear Our Thoughts, Hear Our Experiences By Members of the Civil Air Patrol Nationwide

Here are some of the words of wisdom often overlooked in our daily lives. Complacency can slide into our world in simple ways that we miss in the hustle and bustle of daily life. Thank you for your submissions. If you have a practice or safety awareness topic to share, the instructions are in the January 2010 "Sentinel" for your reference. Keep in mind these are ideas, not CAP policy.

R Victor Sabatini	CO-136	November 2010	Pilot should consider having smoke goggles in CAP aircraft, not only in case of engine fire or fire in the cockpit, but also to mitigate irritation or impaired vision when operating near forest fires, or if exposed to the other suspended particulates or irritants that may be associated with natural or man-made events.
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Roy A Long	PA-006	November 2010	Safety related posters would be an excellent addition to every squadron, and airplane hangar across CAP. Much like the DDR posters spread the message to stay off drugs, Safety posters would promote a positive safety mindset on any topic. Posters for ground handling, vehicle safety, awareness of spinning propellers, and reminders to attend face-to-face briefing could be prominently displayed at every squadron and HQ. With our push to keep safety at the forefront of all we do, these posters would be an immediate eye-catcher to remind members to stay safe and keep current.
John C Wigginton III	LA-093	November 2010	Monthly safety briefing challenge and award: At random times during each month after the safety briefing has been held have the safety officer challenge cadets and seniors for an overview of the topic of the month. If able to correctly recount the briefing, award them a challenge coin, token, or item of use related to CAP. This will promote retaining the safety information and mindset.
Kevin James Berry	PA-190	November 2010	If using an unvented combustion heater, e.g. kerosene, propane, to warm occupied spaces, be sure to have a functional carbon monoxide detector in the same space. Check both the heater and CO detector according to manufacturer instructions to make certain they are working properly. Never ignore an alarming CO alarm! It is warning you of a potentially deadly hazard. If the alarm signal sounds do not try to find the source of the CO. Immediately move outside to fresh air. Call your emergency services, fire department, or 911. After calling 911, do a head count to check that all persons are accounted for. DO NOT re-enter the premises until the emergency services responders have given the all clear.
Mark T Westby	WY-002	November 2010	With the winter months approaching, remember to take your time when driving. Keep items in your vehicle such as food, water, blankets, and other items in case you need them when traveling winter roads. It's better to have them and not need them. Also, remember to turn off your cruise control during the winter months. Road conditions in Wyoming can vary several times in a few miles.

A Picture Is Worth a 1000 Words!



THIS WAS NOT A CAP MEMBER MISHAP, BUT ... it does make you ask the questions: Did I get enough sleep? Did my text message get sent? Were the French fries that good? Who is calling me now? Is this going to be on the next episode of "MythBusters?"

Until Next Month

Discover, report, stop, share, listen, and learn. The things we have read about in this issue already have happened, so you are not allowed to experience these for yourself. Remember to "Knock It Off" and slow down. For streaming dialogues on some subjects, remember CAP Safety is on Facebook and Twitter. Have a good month.





OFFICE OF THE NATIONAL COMMANDER
CIVIL AIR PATROL
UNITED STATES AIR FORCE AUXILIARY
MAXWELL AIR FORCE BASE, ALABAMA 36112-6332

1 November 2010
(Corrected Copy)

MEMORANDUM FOR ALL CAP UNIT COMMANDERS

FROM: CC

SUBJECT: INTERIM CHANGE LETTER – Introductory Safety Education Requirement

1. In accordance with the policy approved by the National Board, every active CAP member (seniors, cadets, cadet sponsors, 50 year, and life members) who attends CAP meetings, participates in any flight and/or vehicle operation or participates in cadet or any ES missions, shall complete introductory safety education. The policy implementation for all current members and new members is as follows:

a. All current members must complete the current introductory safety education module, *Introduction to CAP Safety for New Members*, by 31 March 2011. This includes all members that have previously completed the Basic Safety course or have earned a specialty track rating in safety.

b. Effective 1 January 2011, all members, upon joining CAP, will complete this introductory safety education as a part of their Level I requirements for senior members and as a part of the Curry Achievement for cadets.

2. As an administrative note, this education module is available in eServices under the “Online Safety Education” application in “My Favorites” on the unrestricted side of “CAP Utilities.”

3. This change will be incorporated in CAPR 62-1, *Civil Air Patrol Safety Responsibilities and Procedures*, in accordance with CAPR 5-4, *Publications and Forms Management*. If you have questions or require additional information on this policy change, please contact the National Safety Team at safety@capnhq.gov.


AMY S. COURTER
Major General, CAP
Commander



OFFICE OF THE NATIONAL COMMANDER
CIVIL AIR PATROL
UNITED STATES AIR FORCE AUXILIARY
MAXWELL AIR FORCE BASE, ALABAMA 36112-6332

3 November 2010

MEMORANDUM FOR ALL CAP UNIT COMMANDERS

FROM: CC

SUBJECT: INTERIM CHANGE LETTER – Safety Education and Operational Risk Safety Briefing Requirements

1. In accordance with the policy approved by the National Executive Committee (NEC), every active CAP member (seniors, cadets, cadet sponsors, 50 year, and life members) who attends CAP meetings, participates in any flight and/or vehicle operation or participates in cadet or any Emergency Services (ES) missions, shall be subject to the following safety policies.

2. The following definitions apply:

a. **Safety Education:** A learning opportunity where a topic is presented and there is interaction or an assessment to measure comprehension and content retention. Safety education provides lessons to promote a strong safety mindset and culture; namely, risk recognition, risk mitigation, risk avoidance and establishing safe habit patterns.

b. **Operational Risk Safety Briefing:** A briefing that discusses the risks associated with a particular activity and/or sub-activity and must be conducted “in-person” with the member(s) that is/are about to engage in such activity or sub-activity.

c. **In-Person:** A session where a participant can interact, ask questions, and contribute to the session. The participant does not have to be physically at the same location but the communications method must be interactive between the participant and the educator/briefer. This may be a meeting or session where multiple participants are physically located in the same room and provided the ability to interact in real time, ask questions, and contribute to the meeting. Participation in a meeting held using telephonic or other technology that permits each participant to simultaneously hear and speak with each other participant also constitutes “in-person” attendance.

3. **Safety Education Requirements.** The quarterly face-to-face safety education requirement for all CAP members is no longer required; however, safety education is important to all CAP members and it is required that active members complete safety education monthly and have it documented in the National online safety education database. There are no restrictions to the method in which safety education is received or the topics being presented, as long as the topic maintains relevance to CAP’s mission scope. Safety education documentation is required for participation in activities for active members. CAP safety officers are still required to provide monthly safety education as it is currently described in CAP regulations.

4. **Operational Risk Safety Briefing Requirements.** These briefings, as defined above, are mandatory. Physical documentation of accomplishment is not required.

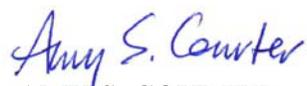
a. An example of an operational risk safety briefing would be a briefing by a flight release officer that advises an aircrew that wind shear is present and the steps to mitigate the risk, such as what should be done at the controls of the aircraft to recover from or avoid it.

b. An example of a sub-activity would be having an operational risk safety briefing before an obstacle course at an encampment, a risk brief for working in an encampment kitchen, or discussion of terrain hazards before entering a land navigation lane at a search and rescue exercise.

c. At the start of each new day operational risk safety briefings must be re-accomplished to ensure new participants are included and members that were present are updated on the hazards of the day. Additionally, new participants that arrive throughout an activity or sub-activity must receive the same mandatory operational risk safety briefing before participating.

d. The National Safety Team will work with region and wing leadership, safety officers, and NHQ directorates to establish a list of approved activities and sub-activities that require operational risk safety briefings, to include who is authorized to give those briefings. Until such time that this list is available, it is expected that operational risk safety briefings will be completed before all flight operations and before all activities and sub-activities where deemed necessary by the commander(s) and/or activities director(s)/officer(s).

5. This change will be incorporated in CAPR 62-1, *Civil Air Patrol Safety Responsibilities and Procedures*, in accordance with CAPR 5-4, *Publications and Forms Management*. If you have any questions or require additional information on this policy change, please contact the National Safety Team at safety@capnhq.gov.


AMY S. COURTER
Major General, CAP
Commander

WINTER STORMS

THE DECEPTIVE KILLERS



A PREPAREDNESS GUIDE

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

JUNE 2008



WINTER STORMS

THE DECEPTIVE KILLERS

This preparedness guide explains the dangers of winter weather and suggests life-saving action **YOU** can take. With this information, **YOU** can recognize winter weather threats, develop an action plan and be ready when severe winter weather threatens. Remember...your safety is up to **YOU**.

WHY TALK ABOUT WINTER WEATHER?

- Each year, dozens of Americans die due to exposure to cold. Add to that number, vehicle accidents and fatalities, fires due to dangerous use of heaters and other winter weather fatalities and you have a significant threat.
- Threats, such as hypothermia and frostbite, can lead to loss of fingers and toes or cause permanent kidney, pancreas and liver injury and even death. You must prepare properly to avoid these extreme dangers. You also need to know what to do if you see symptoms of these threats.
- A major winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall and cold temperatures.
- People can become trapped at home or in a car, without utilities or other assistance.
- Attempting to walk for help in a winter storm can be a deadly decision.
- The aftermath of a winter storm can have an impact on a community or region for days, weeks or even months.
- Extremely cold temperatures, heavy snow and coastal flooding can cause hazardous conditions and hidden problems.



James Wiesmueller

FOR MORE INFORMATION

Contact your local National Weather Service (NWS) office, American Red Cross chapter or local emergency management agency for more weather-related brochures.

You can find more information on flash flooding in the *Floods... The Awesome Power* brochure. Contact your local Red Cross chapter or NWS office for copies. You can download a copy at this NWS Web site http://www.nws.noaa.gov/om/water/ahps/pdfs/Floodsbrochure_02_06.pdf. To find additional materials on winter safety, try the following Web sites:

NWS: www.nws.noaa.gov

FEMA: www.fema.gov

Red Cross: www.redcross.org



HEAVY SNOW

Heavy snow can immobilize a region and paralyze a city, stranding commuters, closing airports, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Homes and farms may be isolated for days and unprotected livestock may be lost. In the mountains, heavy snow can lead to avalanches. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns.



Before and after photo at Mt. Baker, WA, Ski Summit. Early June snow depth in 1999 measured 228 inches. The world record seasonal snowfall of 1,141 inches was recorded at Mt. Baker that year. Photos courtesy of Mt. Baker Ski Area.



BLIZZARD: Winds of 35 mph or more with snow and blowing snow reducing visibility to less than $\frac{1}{4}$ mile for 3 hours or more.

BLOWING SNOW: Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.

SNOW SQUALLS: Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.

SNOW SHOWERS: Snow falling at varying intensities for brief periods of time. Some accumulation is possible.

SNOW FLURRIES: Light snow falling for short durations with little or no accumulation.

Injuries Due To Ice and Snow

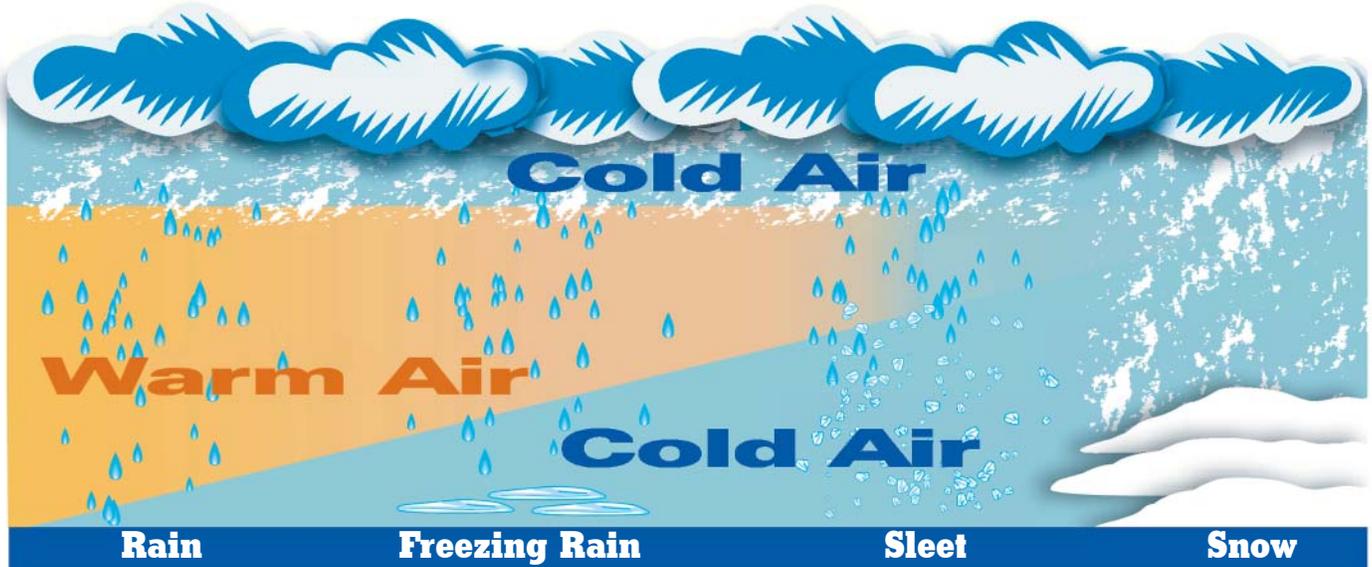
- About 70% result from vehicle accidents
- About 25% occur in people caught out in a storm
- Most happen to males over 40 years old

An avalanche is a mass of tumbling snow. More than 80 percent of midwinter avalanches are triggered by a rapid accumulation of snow, and 90 percent of those occur within 24 hours of snowfall. An avalanche may reach a mass of a million tons and travel at speeds up to 200 mph.



ICE

Heavy accumulations of ice can bring down trees and topple utility poles and communication towers. Ice can disrupt communications and power for days while utility companies repair extensive damage. Even small accumulations of ice can be extremely dangerous to motorists and pedestrians. Bridges and overpasses are particularly dangerous because they freeze before other surfaces.



Rain
Frozen precipitation melts into rain

Freezing Rain
Frozen precipitation melts in warm air...
...rain falls and freezes on cold surfaces as a sheet of ice

Sleet
Frozen precipitation melts...
...refreezes into sleet before hitting ground

Snow
Snow falling into cold air never melts

WINTER FLOODING

Winter storms can generate coastal flooding, ice jams and snow melt, resulting in significant damage and loss of life.

COASTAL FLOODS: Winds generated from intense winter storms can cause widespread tidal flooding and severe beach erosion along coastal areas.

ICE JAMS: Long cold spells can cause rivers and lakes to freeze. A rise in the water level or a thaw breaks the ice into large chunks which become jammed at man made and natural obstructions. Ice jams can act as a dam, resulting in severe flooding.

SNOW MELT: Sudden thaw of a heavy snow pack often leads to flooding.



Large wave action in Marquette Harbor, MI/Jack Pellet



Ship survey of ice in shipping channels/NOAA



Wind Chill Chart

Wind (mph)	Temperature (°F)																		
	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	-98

Frostbite Times: ■ 30 minutes ■ 10 minutes ■ 5 minutes

Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})
 Where, T= Air Temperature (°F) V= Wind Speed (mph) Effective 11/01/01

Exposure to cold can cause frostbite or hypothermia and become life-threatening. Infants and elderly people are most susceptible. What constitutes extreme cold varies in different parts of the country. In the South, near freezing temperatures are considered extreme cold. Freezing temperatures can cause severe damage to citrus fruit crops and other vegetation. Pipes may freeze and burst in homes that are poorly insulated or without heat. In the North, extreme cold means temperatures well below zero.

NOAA

Wind Chill is not the actual temperature but rather how wind and cold feel on exposed skin. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Animals are also affected by wind chill; however, cars, plants and other objects are not.

Injuries Related to Cold

- 50% happen to people over 60 years old
- More than 75% happen to males
- About 20% occur in the home

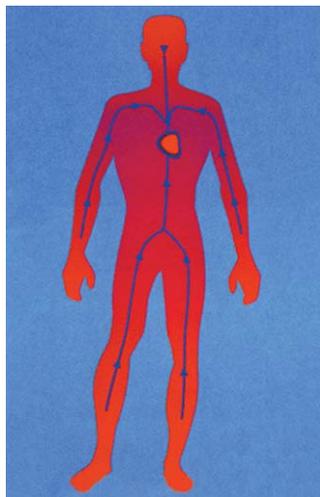
Frostbite is damage to body tissue caused by extreme cold. A wind chill of -20° Fahrenheit (F) will cause frostbite in just 30 minutes. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes or the tip of the nose. If symptoms are detected, get medical help immediately! If you must wait for help, slowly rewarm affected areas. However, if the person is also showing signs of hypothermia, warm the body core before the extremities.

Hypothermia is a condition brought on when the body temperature drops to less than 95°F. It can kill. For those who survive, there are likely to be lasting kidney, liver and pancreas problems. Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and apparent exhaustion. Take the person's temperature. If below 95°F, seek medical care immediately!

If Medical Care is Not Available, warm the person slowly, starting with the body core. Warming the arms and legs first drives cold blood toward the heart and can lead to heart failure. If necessary, use your body heat to help. Get the person into dry clothing and wrap in a warm blanket covering the head and neck. Do not give the person alcohol, drugs, coffee or any hot beverage or food. Warm broth is the first food to offer.



Hypothermia occurs when the extremities are excessively cold (blue)

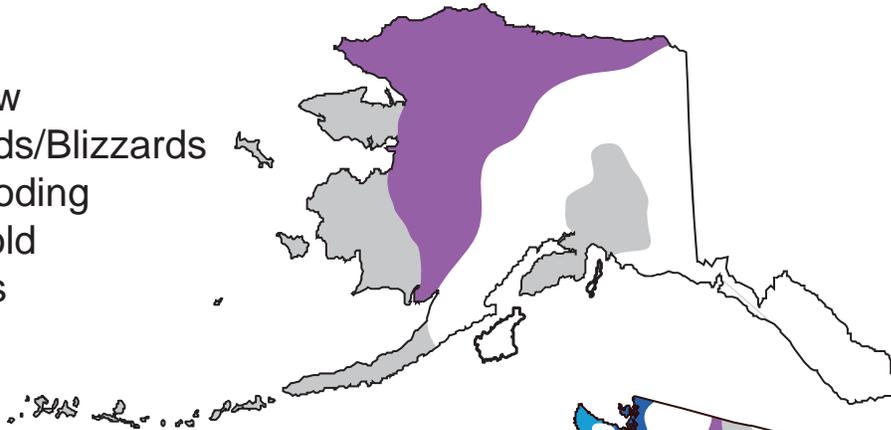


Improperly warming the body will drive cold blood from the extremities to the heart, leading to heart failure

WINTER STORM HA

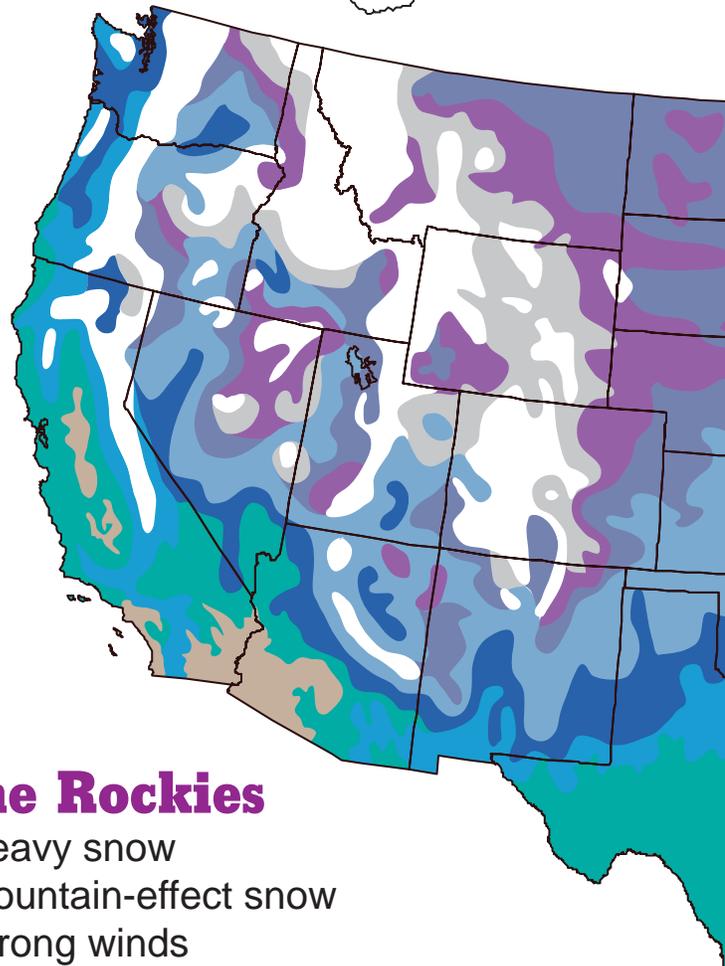
Alaska

- Heavy snow
- Strong winds/Blizzards
- Coastal flooding
- Extreme cold
- Avalanches
- Ice jams
- Ice fog



The West Coast

- Heavy precipitation
- High winds
- Coastal flooding
- Beach erosion



Inches

0.0
0.1 - 3.0
3.1 - 6.0
6.1 - 12.0
12.1 - 24.0
24.1 - 36.0
36.1 - 48.0
48.1 - 72.0
> 72.0

The Rockies

- Heavy snow
- Mountain-effect snow
- Strong winds
- Avalanches
- Extreme cold
- Blizzards

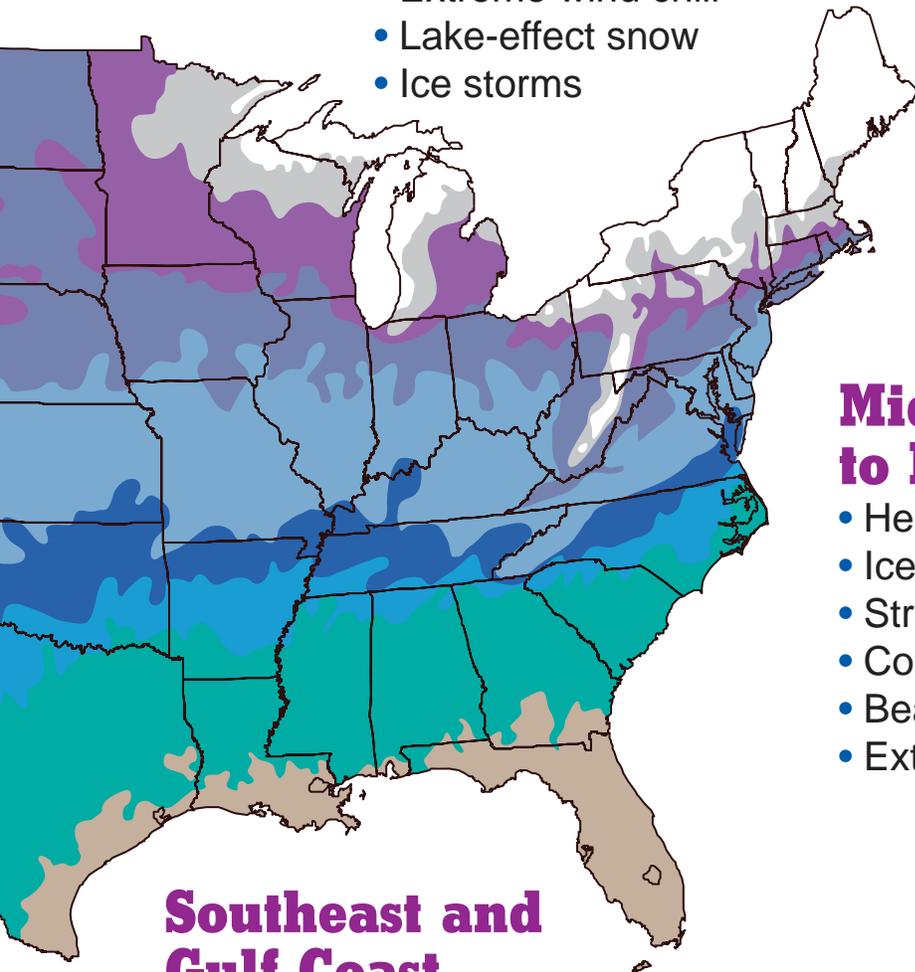


ZARDS IN THE U.S.

ANNUAL MEAN SNOWFALL

Midwest and Plains

- Heavy snow
- Strong winds/Blizzards
- Extreme wind chill
- Lake-effect snow
- Ice storms



Mid-Atlantic to New England

- Heavy snow
- Ice storms
- Strong winds
- Coastal flooding
- Beach erosion
- Extreme cold

Southeast and Gulf Coast

- Ice storms
- Crop-killing freezes
- Occasional snow



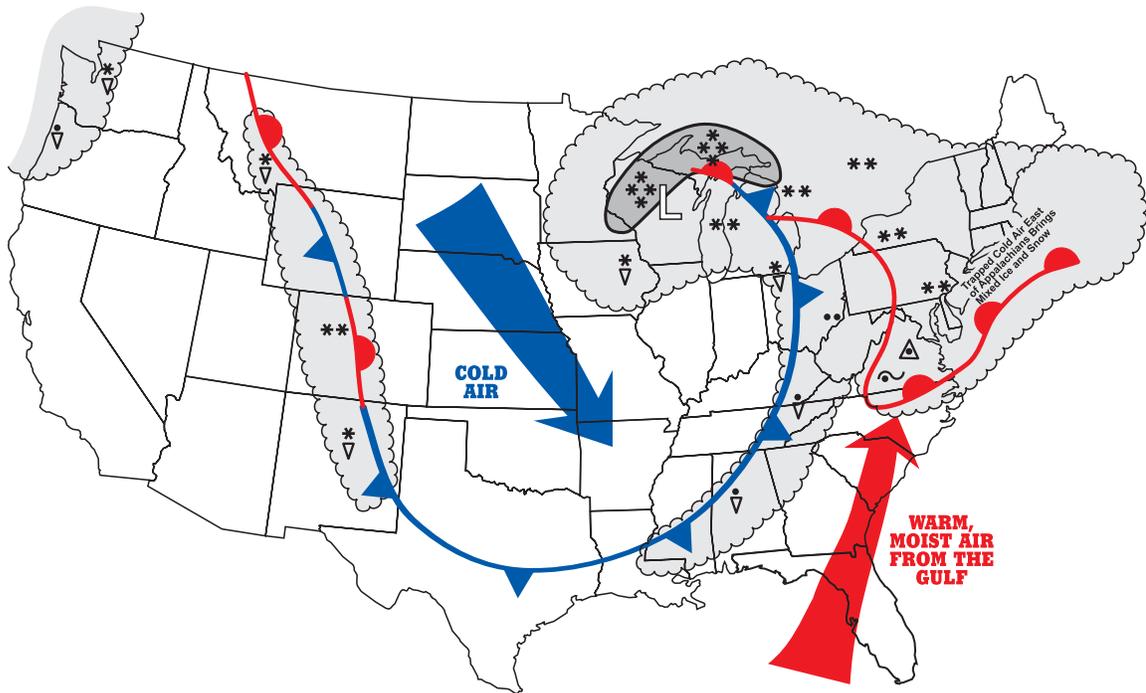
HOW WINTER STORMS FORM

There are many ways for winter storms to form; however, all have three key components.

COLD AIR: For snow and ice to form, the temperature must be below freezing in the clouds and near the ground.

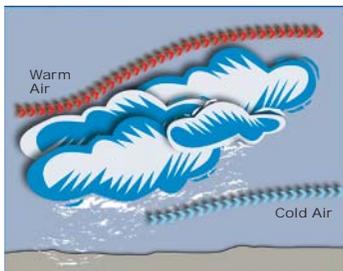
MOISTURE: Water evaporating from bodies of water, such as a large lake or the ocean, is an excellent source of moisture.

LIFT: Lift causes moisture to rise and form clouds and precipitation. An example of lift is warm air colliding with cold air and being forced to rise. Another example of lift is air flowing up a mountain side.

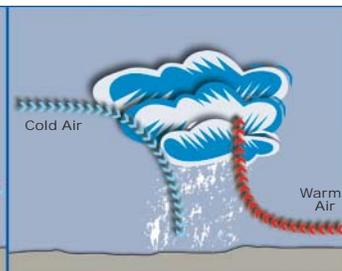


- | | | |
|--------------------|-----------------|------------------|
| *
▽ Snow Shower | ~ Freezing Rain | Cold Front |
| ▽ Rain Shower | △ Sleet | Warm Front |
| ** Light Snow | ** Heavy Snow | Stationary Front |
| •• Light Rain | | |

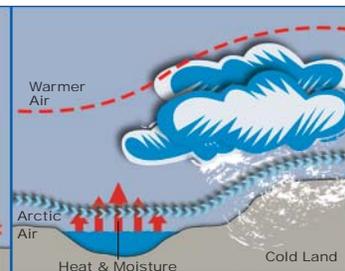
Warm Front



Cold Front



Lake Effect



Mountain Effect



STAY INFORMED!

**KEEP AHEAD
OF THE STORM**
by listening to
**NOAA Weather Radio,
commercial radio
and television for the
latest winter storm
warnings, watches
and advisories**



*Electronic equipment available to receive weather information/NOAA
(Weather Radio, Radio, TV, Pager, Cell Phone, Two-Way Radio)*

NOAA Weather Radio is the best means to receive warnings from the National Weather Service.

The National Weather Service continuously broadcasts warnings and forecasts that can be received by NOAA Weather Radios, which are sold in many stores. The average range is 40 miles, depending on topography. Purchase a radio that has a battery back-up and a Specific Area Message Encoder feature, which automatically alerts you when a watch or warning is issued for your county or parish.

WHAT TO LISTEN FOR

The National Weather Service issues outlooks, watches, warnings and advisories for all winter weather hazards. Here's what they mean and what to do. Use the information below to make an informed decision on your risk and what actions should be taken. Remember to listen to your local officials' recommendations and to NOAA Weather Radio for the latest winter storm information.

OUTLOOK: Winter storm conditions are possible in the next 2-5 days. Stay tuned to local media for updates.

WATCH: Winter storm conditions are possible within the next 36-48 hours. Prepare now!

WARNING: Life-threatening severe winter conditions have begun or will begin within 24 hours. Act now!

ADVISORY: Winter weather conditions are expected to cause significant inconveniences and may be hazardous. If you are cautious, these situations should not be life threatening.



BE PREPARED!

BEFORE THE STORM STRIKES

At Home and Work

Primary concerns are loss of heat, power and telephone service and a shortage of supplies if storm conditions continue for more than a day.

Have available:

Flashlight and extra batteries.

Battery-powered NOAA Weather Radio and portable radio to receive emergency information. These may be your only links to the outside.

Extra food and water. Have high energy food, such as dried fruit, nuts and granola bars, and food requiring no cooking or refrigeration.

Extra medicine and baby items.

First-aid supplies.

Heating fuel. Refuel before you are empty. Fuel carriers may not reach you for days after a winter storm.

Emergency heat source: fireplace, wood stove, space heater.

- Use properly to prevent a fire.
- Ventilate properly.

Fire extinguisher, smoke alarm.

- Test smoke alarms once a month to ensure they work properly.

Make sure pets have plenty of food, water and shelter.

In Vehicles

Plan your travel and check the latest weather reports to avoid the storm!

Fully check and winterize your vehicle before the winter season begins.

Carry a WINTER STORM SURVIVAL KIT:

- Mobile phone, charger, batteries
- Blankets/sleeping bags
- Flashlight with extra batteries
- First-aid kit
- Knife
- High-calorie, non-perishable food
- Extra clothing to keep dry
- Large empty can to use as emergency toilet. Tissues and paper towels for sanitary purposes
- Small can and waterproof matches to melt snow for drinking water
- Sack of sand or cat litter for traction
- Shovel
- Windshield scraper and brush
- Tool kit
- Tow rope
- Battery booster cables
- Water container
- Compass and road maps.

Keep your gas tank near full to avoid ice in the tank and fuel lines.

Avoid traveling alone.

Let someone know your timetable and primary and alternate routes.

On the Farm/Pets

Move animals to sheltered areas.

Shelter belts, properly laid out and oriented, are better protection for cattle than confining shelters, such as sheds.

Haul extra feed to nearby feeding areas.

Have water available. Most animals die from dehydration in winter storms.

Make sure pets have plenty of food, water and shelter.



Glenn Field/NOAA

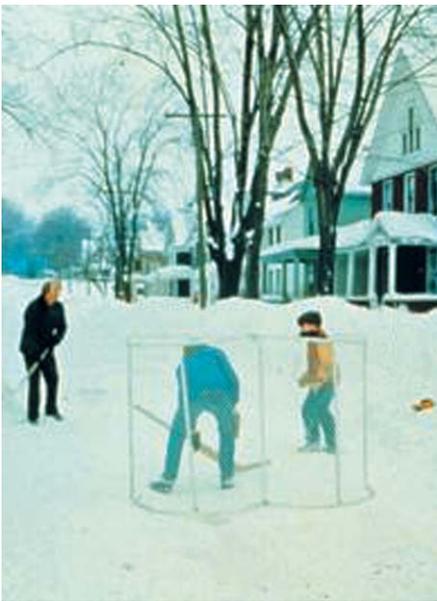


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Dress for the Season

Wear loose, lightweight, warm clothes in layers. Trapped air insulates. Remove layers to avoid perspiration and subsequent chill. Outer garments should be tightly woven, water repellent, and hooded. Wear a hat. Half your body heat loss can be from the head. Cover your mouth to protect your lungs from extreme cold. Mittens, snug at the wrist, are better than gloves. Try to stay dry.

WHEN CAUGHT IN A WINTER STORM



Courtesy of American Red Cross



Courtesy of American Red Cross



NOAA

Outside

Find shelter:

- Try to stay dry.
- Cover all exposed body parts.

No shelter:

- Build a lean-to, windbreak or snow cave for protection from the wind.
- Build a fire for heat and to attract attention.
- Place rocks around the fire to absorb and reflect heat.

Melt snow for drinking water:

- Eating snow will lower your body temperature.

In a Vehicle

Stay in vehicle:

- You will become quickly disoriented in wind-driven snow and cold.
- Run the motor about 10 minutes each hour for heat.
- Open the window a little for fresh air to avoid carbon monoxide poisoning.
- Make sure the exhaust pipe is not blocked.

Be visible to rescuers:

- Turn on the dome light at night when running the engine.
- Tie a colored cloth, preferably red, to your antenna or door.
- After snow stops falling, raise the hood to indicate you need help.

Exercise:

- From time to time, move arms, legs, fingers and toes vigorously to keep blood circulating and to keep warm.

Inside

Stay inside:

- When using alternate heat from a fireplace, wood stove, space heater, etc., use fire safeguards and properly ventilate.

No heat:

- Close off unneeded rooms.
- Stuff towels or rags in cracks under doors.
- Cover windows at night.
- Eat and drink. Food provides the body with energy for producing its own heat. Keep the body replenished with fluids to prevent dehydration.
- Wear layers of loose-fitting, lightweight, warm clothing. Remove layers to avoid overheating, perspiration and subsequent chill.

AVOID OVEREXERTION, such as shoveling heavy snow, pushing a car or walking in deep snow. The strain from the cold and the hard labor may cause a heart attack. Sweating could lead to a chill and hypothermia. Take Red Cross Cardiopulmonary Rescue (CPR) and Automated External Defibrillator (AED) training so you can respond quickly to an emergency.





FAMILY DISASTER PLAN

Prepare for hazards that affect your area with a Family Disaster Plan. Where will your family be when disaster strikes? They could be anywhere at work, at school or in the car. How will you find each other? Will you know if your children are safe? Disasters may force you to evacuate your neighborhood or confine you to your home. What would you do if basic services – water, gas, electricity or telephones – were cut off?

Steps to Take

I Gather information about hazards. Contact your local National Weather Service office, emergency management office, and American Red Cross chapter. Find out what type of disasters could occur and how you should respond. Learn your community's warning signals and evacuation plans. Assess your risks and identify ways to make your home and property more secure.

II Meet with your family to create a plan. Discuss your plan with your family. Pick two places to meet: a spot outside your home for an emergency, such as fire, and a place away from your neighborhood in case you can't return home. Choose an out-of-state friend as your "family check-in contact" for everyone to call if the family gets separated. Discuss what you would do if advised to evacuate.

Implement your plan.

- III**
1. Post emergency telephone numbers by the phone.
 2. Install safety features in your home, such as smoke alarms and fire extinguishers.
 3. Inspect your home for potential hazards (items that can move, fall, break or catch fire) and correct them.
 4. Have your family learn basic safety measures, such as CPR, AED and first aid; how to use a fire extinguisher; and how and when to turn off water, gas and electricity in your home.
 5. Teach children how and when to call 911 or your local Emergency Medical Services number.
 6. Keep enough supplies in your home for at least 3 days. Assemble a disaster supplies kit. Store these supplies in sturdy, easy-to-carry containers, such as backpacks or duffel bags. Keep important documents in a waterproof container. Keep a smaller disaster supplies kit in the trunk of your car.

A Disaster Supplies Kit Should Include:

- A 3-day supply of water (one gallon per person, per day)
- Food that won't spoil
- One change of clothing and shoes per person
- One blanket or sleeping bag per person
- First-aid kit
- Prescription medicines
- Emergency tools
- Battery-powered NWR
- Portable radio
- Flashlight with extra batteries
- Extra set of car keys
- Cash and a credit card
- Special items for infant, elderly or disabled family members.

IV Practice and maintain your plan. Ensure your family knows meeting places, phone numbers and safety rules.

Conduct drills. Test your smoke alarms monthly and change the batteries at least once each year. Test and recharge your fire extinguisher(s) according to manufacturer's instructions. Replace stored water and food every 6 months. Contact your local National Weather Service office, American Red Cross chapter or emergency management office for a copy of "Your Family Disaster Plan" (L-191/ARC4466).

Local Sponsorship: