

# Emergency Communications Level 1 Course

The following corrections and updates have been made to the 3<sup>rd</sup> edition of the Emergency Communications Level 1 online course. The changes summarized here reflect previous changes as well as more recent ones. All of these changes have been incorporated in the online course as of August 1, 2008.

The course book is a transcript of the Emergency Communications Level 1 online course at a given point in time. Publications of course content are not updated as frequently as the online courses. This Notes Page summarizes any updates to printed course material that have occurred since the most recent printing.

The corrections and updates summarized here are included in the Emergency Communications Level 1 course book which will be re-issued Summer 2008 as the 3<sup>rd</sup> edition, 3<sup>rd</sup> printing.

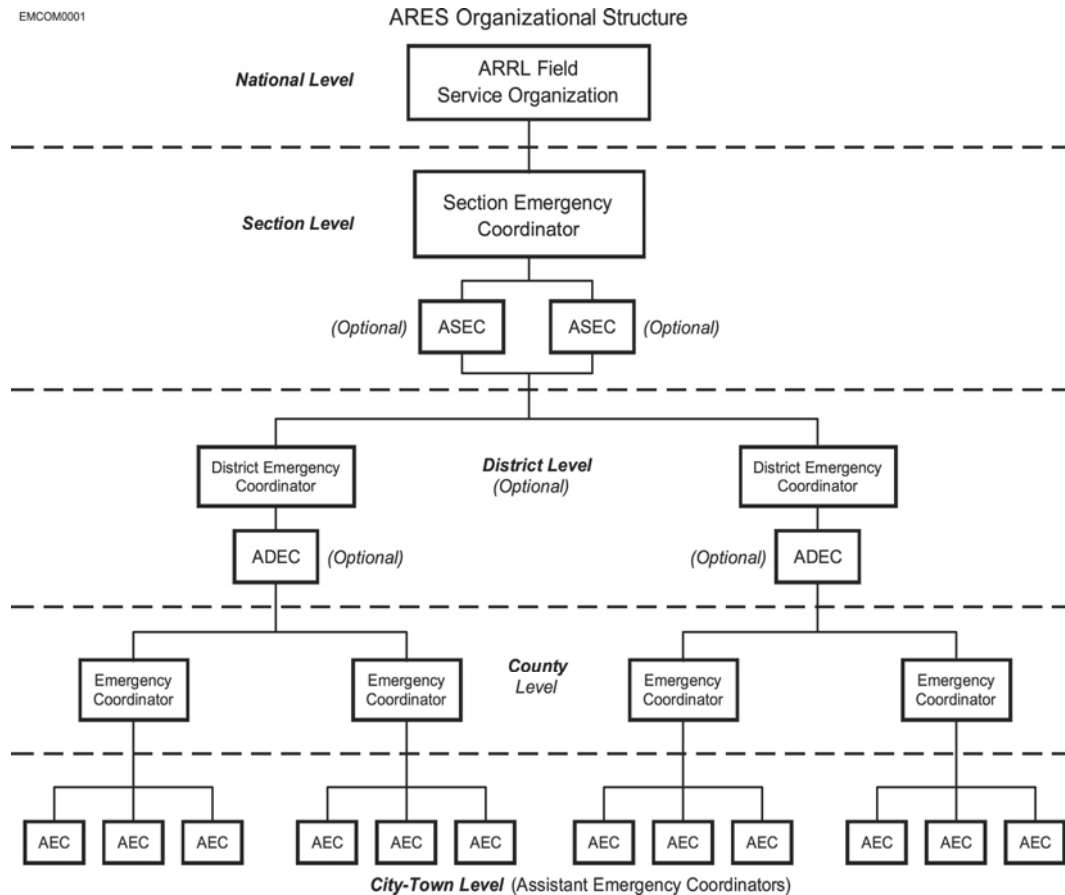
## Corrections and Updates to Online Course and Course Book, 3<sup>rd</sup> edition, 1<sup>st</sup> and 2<sup>nd</sup> printing

### *Content Changes in the Learning Units*

#### LU 4

p. 23 – The change was made to include “an Assistant DEC” and “an Assistant SEC”.

“Some larger Sections, like Wisconsin, Michigan, and Florida, are further divided into two or more Districts. In this case, each District is guided by a District Emergency Coordinator (DEC) and Assistant DEC, working directly under the SEC and/or Assistant SEC. (See diagram below.)



*LU 4, cont.*

**On p. 24, information about RACES is updated.**

“At one time, Civil Defense agencies could obtain a "RACES station license" that would allow non-ham agency personnel to use Amateur frequencies under limited conditions. These licenses are no longer issued, and cannot be renewed. Operators of any RACES stations must be licensed Amateurs, and must follow the RACES rules at all times.

“Over the years, both "Civil Defense" (known as "Emergency Management" in most states) and the way it utilizes Amateur radio operators have changed dramatically. There are fewer RACES only operators today. Increasingly, RACES-registered operators also belong to ARES, and can "switch hats" when the need arises. Emergency management officials like this arrangement since it provides more flexibility, and gives them more direct control over their ham radio volunteers.”

*LU 16*

**An addition was made to the section of Generator and Power Safety pointing out the tendency of carbon monoxide to settle and cause problems in basements or other enclosed areas.**

## **Generator and Power Safety**

“Take some care in the placement of generators so that they will not be a problem for others. Engine noise can make it difficult for shelter residents and volunteers to get much needed rest, and for anyone trying to do their job. Exhaust fumes should not be allowed to enter the building or nearby tents or vehicles. Carbon monoxide tends to settle, so exhaust components should be carefully located so that fumes cannot settle into inhabited basements or other enclosed areas below the generator. A position “down-wind” of any occupied location is best. Even when vehicles are not included, internal combustion engines are still the number one cause of carbon monoxide poisoning in the United States. Propane powered engines produce as much or more CO as gasoline or diesel engines.”

### *LU 17*

**In Unit 17 several changes were made to the section about “Water”, which begins on p. 106. In the first paragraph the amount of water needed per person has changed. In the fourth paragraph of this section, on p. 107, the CDC recommendations for purifying water for drinking replace the previous information. In the fifth paragraph a reference link has been added as a resource for information about disinfecting water.**

“Safe water supplies can be difficult to find during and after many disasters. You will need at least three to five gallons of water each day just for drinking, cooking and sanitation. In extremely hot or cold conditions, or with increased physical activity, your needs will increase significantly. Most disaster preparedness checklists suggest at least one gallon per person, per day.”

“The CDC says you can use plain, unscented household chlorine bleach. After filtering out any particulate by pouring it through several layers of densely woven cloth, put 1/8 teaspoon of chlorine bleach in a gallon of water, mix well, and allow it to sit for thirty minutes. If it still smells slightly of chlorine, you can use it. It will not taste great, nor will the chlorine bleach kill cysts like Giardia, but it may be enough.

If you have no other means, boiling for at least five minutes will kill any bacteria and other organisms, but will not remove any particulate matter or discoloration. Boiling will leave water with a “flat” taste that can be improved by pouring it back and forth between two containers several times to reintroduce some oxygen.”

For more information on disinfecting water go to

<http://www.bt.cdc.gov/disasters/earthquakes/food.asp>

### *LU 18*

**Information about frequencies has been changed in the section on Aviation Radio, p. 114.**

#### **Aviation Radio**

“AM radios operating in the 108-136 MHz band are used in aircraft and in certain limited vehicles and ground stations. FCC licenses are required for all stations.

Emergency locator transmitters (ELTs) are automatic devices that transmit a distress signal on 121.5 and 406.0 MHz. Marine Emergency Position Indicating Radio Beacons (EPIRB) transmit a digital identification code on 406.0 MHz and a low-powered homing signal on 121.5MHz. The new land-based Personal Radio Beacons (PRB) transmit on 121.5 MHz . While it is unlikely that you will ever need to use an aircraft band radio except where it is provided by the served agency, it is good to be familiar with the radio service. Monitoring these frequencies for ELT, EPIRB, and PRB signals and distress calls is always a good idea. The 121.5 MHz satellite alerting system will end in February 1, 2009.”

### *Student Activity Changes*

#### *LU 4*

**The second student activity in this unit has been modified by deleting reference to the two-meter band in part C.**

2. Go to the ARRL Web site ([www.arrl.org/FandES/field/pscm/foreword.html](http://www.arrl.org/FandES/field/pscm/foreword.html)) section entitled “Public Services Communications Manual.” Find the answers to the following questions:

- A. Is ownership of emergency-powered equipment a requirement for joining ARES?
- B. Who can authorize RACES operation?
- C. If the President was to invoke his War Emergency Powers, could there be any restrictions on Amateur Radio operation?
- D. What are the two primary components of ARRL’s public service field organization?

#### *LU20*

**A Student Activity has been added to LU 20.**

Describe how you would handle the following situation.

You are traveling through a rural area right behind a tornado, reporting damage and casualties to the local fire and police agencies as you go. Cresting a hill, you see a tank trailer overturned on the road ahead. No one else is around. A variable wind is blowing the leaking fumes in several directions unpredictably. You cannot see the placards on the truck from where you are.

Share you answer with your mentor.

**Question Changes**

**LU 7**

**Review question #5 is replaced with the following question:**

5. What should you do if someone in authority asks you to move your station?
- A. Do so immediately without argument and report to the NCS as soon as possible.
  - B. Call the NCS for advice before moving.
  - C. Tell the person in authority how difficult it is for you to comply.
  - D. Demand a written order before complying.

**LU 17**

**Question #2 about purifying water was changed to reflect the change in the text on p. 107.**

Review Question #2 revision

2. Which of the following is true about using unscented household chlorine bleach to purify water?
- A. It is best to use 1 Tablespoon of unscented chlorine bleach per gallon of water.
  - B. Adding the proper amount chlorine bleach to water will improve the taste.
  - C. Adding the proper amount of chlorine bleach to water will kill cysts like Giardia.
  - D. It is best to use 1/8 teaspoon of unscented chlorine bleach per gallon of water.

**LU 22 and 23** were printed in reverse order in the 1<sup>st</sup> and 2<sup>nd</sup> printings of the course book. This has been corrected in the 3<sup>rd</sup> printing.

**Appendix A – ( Answer Key to Lesson Review Questions)**

**LU 7**, answer to replaced question #5 is A

**LU 17**, answer to revised question #2 is D

**LU 17**, answer to question #5 is D

**LU 17** answer to question #6 is C

**LU 23** answer to question #2 is C

**Appendix C - Updated reference links:**

**The reference links have been tested and revised and/or updated when necessary.**

**LU 1**

- ARRL Public Service Communications Manual  
[www.arrl.org/FandES/field/pscm/sec1-ch1.html](http://www.arrl.org/FandES/field/pscm/sec1-ch1.html)

## LU2

- American Red Cross: [www.redcross.org](http://www.redcross.org)
- The Salvation Army: [www.salvationarmy.org](http://www.salvationarmy.org)
- Skywarn: [www.skywarn.org](http://www.skywarn.org)
- Military Affiliate Radio Service (Army): [www.netcom.army.mil/mars/](http://www.netcom.army.mil/mars/)
- Federal Emergency Management Agency: [www.fema.gov](http://www.fema.gov)
- ARRL MOUs (SOUs) with various agencies:  
[www.arrl.org/FandES/field/mou/index.html](http://www.arrl.org/FandES/field/mou/index.html)
- ARRL – Served Agencies: [www.arrl.org/FandES/field/pscm/sec1-ch7.html](http://www.arrl.org/FandES/field/pscm/sec1-ch7.html)

## LU3

- For more information on this topic, see “Network Theory and the Design of Emergency Communication Systems—Part 1,” October 1997 *QST*, Public Service column. Part 2 appears in November 1997 *QST*, Public Service. See also a discussion of communications theory in The ARRL Emergency Coordinator’s Manual.
- For more information on any of the elements presented, please consult the following links: [www.arrl.org/FandES/field/pscm/index.html](http://www.arrl.org/FandES/field/pscm/index.html)
- For additional general information, please see *The ARRL Operating Manual*, chapter on emergency communications. See also the *ARRL ARES Field Resources Manual*. For local information, or to learn more about ARES and NTS net operation in your area, contact your Section Manager (SM) ([www.arrl.org/field/org/smlist.html](http://www.arrl.org/field/org/smlist.html)), your Section Emergency Coordinator (SEC) or District Emergency Coordinator (DEC). See also *The ARRL Net Directory* for a list of ARES and NTS nets operating in your area.

## LU4

- National Communication System: [www.ncs.gov](http://www.ncs.gov)
- REACT International: [www.reactintl.org](http://www.reactintl.org)
- FEMA National Radio System [www.fema.gov](http://www.fema.gov). Use site search box to find “FNARS”.
- Amateur Radio Emergency Service: [www.arrl.org/FandES/field/pscm/sec1-ch1.html](http://www.arrl.org/FandES/field/pscm/sec1-ch1.html)
- NOAA Weather Radio: [www.weather.gov/nwr/](http://www.weather.gov/nwr/)
- Emergency Alert System (EAS): [www.fcc.gov/eb/eas/](http://www.fcc.gov/eb/eas/)
- Hawaii EAS: [www.scd.state.hi.us/documents/EAS\\_Plan.pdf](http://www.scd.state.hi.us/documents/EAS_Plan.pdf)
- National Earthquake Information Center: <http://earthquake.usgs.gov/regional/neic>
- Army MARS: [www.netcom.army.mil/mars/](http://www.netcom.army.mil/mars/)
- Navy MARS: [www.navymars.org/](http://www.navymars.org/)
- Air Force MARS: [public.afca.af.mil/library/factsheets/factsheet.asp?id=7037](http://public.afca.af.mil/library/factsheets/factsheet.asp?id=7037)
- SATERN: [www.saturn.org/](http://www.saturn.org/)

## LU 5

- FCC – Public Safety Radio Service: [www.fcc.gov/homeland/](http://www.fcc.gov/homeland/)
- FCC Rules – Ham Radio [www.arrl.org/FandES/field/regulations/rules-regs.html](http://www.arrl.org/FandES/field/regulations/rules-regs.html)
- APCO [www.apco911.org](http://www.apco911.org)
- International Municipal Signal Association (IMSA): [www.imsasafety.org/](http://www.imsasafety.org/)
- Dispatch Magazine [www.911dispatch.com/](http://www.911dispatch.com/)
- Project 25 [www.project25.org](http://www.project25.org)
- Inmarsat [www.inmarsat.com](http://www.inmarsat.com)
- Globalstar [www.globalstar.com](http://www.globalstar.com)
- Iridium [www.iridium.com/](http://www.iridium.com/)
- Thuraya [www.thuraya.com/](http://www.thuraya.com/) (United Arab Emirates)
- Motorola [www.motorola.com/cgiss/networks.shtml](http://www.motorola.com/cgiss/networks.shtml)

## LU 6

- *The Public Service Communications Manual:* [www.arrl.org/FandES/field/pscm/index.html](http://www.arrl.org/FandES/field/pscm/index.html)
- *ARRL ARES Field Resources Manual:* [www.arrl.org/FandES/field/aresman.pdf](http://www.arrl.org/FandES/field/aresman.pdf)

## LU 7

- To learn about NTS in your area, contact your Section Manager (SM), or Section Traffic Manager (STM). To locate your Section Manager (SM), see the ARRL Section Manager List at [www.arrl.org/field/org/smlist.html](http://www.arrl.org/field/org/smlist.html).
- For a list of ARES and NTS nets in your area, see [www.arrl.org/FandES/field/nets/](http://www.arrl.org/FandES/field/nets/)
- Winlink 2000 - [www.winlink.org](http://www.winlink.org)
- FNpack - [www.w1fn.org](http://www.w1fn.org) - a Windows® packet radio terminal program designed for emcomm.
- FNpsk - [www.w1fn.org](http://www.w1fn.org) - similar to FNpack, but for PSK-31

## LU 8

- For a list of ARES and NTS nets in your area, see the ARRL Net Directory at: [www.arrl.org/FandES/field/nets/](http://www.arrl.org/FandES/field/nets/)
- ARRL Precedence and Handling Instructions: [www.arrl.org/FandES/field/pscm/sec2-ch6.htm](http://www.arrl.org/FandES/field/pscm/sec2-ch6.htm)
- ARES and NTS Forms: [www.arrl.org/FandES/field/forms](http://www.arrl.org/FandES/field/forms)
- FSD218 message handling information card,(also known as the “Pink Card”): [www.arrl.org/FandES/field/forms/#fsd218](http://www.arrl.org/FandES/field/forms/#fsd218)

## LU 9

- ARRL F&ES – Appendix A– Originating Messages - ARRL Radiograms: [www.arrl.org/FandES/ead/teacher/kemp/appendixa.html](http://www.arrl.org/FandES/ead/teacher/kemp/appendixa.html)

## LU 10

- For information about ARRL Public Service Communications, please see The ARRL Public Service Communications Manual: [www.arrl.org/FandES/field/pscm/index.html](http://www.arrl.org/FandES/field/pscm/index.html)
- ARRL Publication FSD-218: [www.arrl.org/FandES/field/forms/fsd218.pdf](http://www.arrl.org/FandES/field/forms/fsd218.pdf).

#### LU 11

- Incident Command System courses can be found at <http://training.fema.gov/IS/crslst.asp>

#### LU 12

- Federal Emergency Management Agency - Emergency Management Institute [training.fema.gov/IS/](http://training.fema.gov/IS/)
- More about preparation can be found in the ARRL *ARES Field Resources Manual* [www.arrl.org/FandES/field/aresman.pdf](http://www.arrl.org/FandES/field/aresman.pdf)
- American Red Cross newsletter article about training opportunities: [www.redcross.org/news/archives/2000/11-15-00.html](http://www.redcross.org/news/archives/2000/11-15-00.html)

#### LU 13

- Deep cycle battery tips [www.batteryfaq.org/](http://www.batteryfaq.org/)
  - Anderson PowerPole connectors [www.andersonpower.com](http://www.andersonpower.com)
  - Molex 1545 Series connector data [www.molex.com](http://www.molex.com)

#### LU 14

None

#### LU 15

- For information about ARRL Public Service Communications, please see [www.arrl.org/FandES/field/pscm/index.html](http://www.arrl.org/FandES/field/pscm/index.html) or The Public Service Communication Manual at [www.arrl.org/FandES/field/pscm/sec1-ch1.html](http://www.arrl.org/FandES/field/pscm/sec1-ch1.html).
- For specific information on ARES, see the ARES Field Resources Manual (.pdf file) at [www.arrl.org/FandES/field/aresman.pdf](http://www.arrl.org/FandES/field/aresman.pdf)

#### LU 16

- For information about ARRL Public Service Communications, please see *The Public Service Communications Manual*: [www.arrl.org/FandES/field/pscm/index.html](http://www.arrl.org/FandES/field/pscm/index.html)
- For specific information on ARES, see the ARRL *ARES Field Resources Manual* field manual at [www.arrl.org/FandES/field/aresman.pdf](http://www.arrl.org/FandES/field/aresman.pdf)

#### LU 17

- FEMA Disaster Safety Information: [www.fema.gov](http://www.fema.gov)

- FEMA Disaster Preparedness for kids: [www.fema.gov/kids](http://www.fema.gov/kids)
- American Red Cross – Disaster Safety: [www.redcross.org/services/disaster/0,1082,0\\_501\\_00.html](http://www.redcross.org/services/disaster/0,1082,0_501_00.html)
- Food: [www.fcs.uga.edu/pubs/current/FDNS-E-34-CS.html](http://www.fcs.uga.edu/pubs/current/FDNS-E-34-CS.html)
- Water: [www.bae.ncsu.edu/programs/extension/publicat/wqwm/emergwatersuppl.html](http://www.bae.ncsu.edu/programs/extension/publicat/wqwm/emergwatersuppl.html)
- North Carolina Cooperative Extension Service – food safety & disaster recovery: [www.ces.ncsu.edu/disaster/factsheets/index.html](http://www.ces.ncsu.edu/disaster/factsheets/index.html)
- Institute for Home and Business Safety: [www.ibhs.org/](http://www.ibhs.org/)
- Univ. of Florida – Disaster safety tips: [www.agen.ufl.edu/~foodsaf/dh039.html](http://www.agen.ufl.edu/~foodsaf/dh039.html)
- Virginia Tech – Farm preparedness: [www.ext.vt.edu/news/periodicals/livestock/aps-98\\_07/aps-937.html](http://www.ext.vt.edu/news/periodicals/livestock/aps-98_07/aps-937.html)

## LU 18

- Emergency Position Indicating Radio Beacon: [www.navcen.uscg.gov/marcomms/gmdss/epirb.html](http://www.navcen.uscg.gov/marcomms/gmdss/epirb.html)
- NOAA Satellite and Information Service: [www.sarsat.noaa.gov/emercbns.htm](http://www.sarsat.noaa.gov/emercbns.htm)
- Multiple Use Radio Service (MURS) rules [www.provide.net/~prsg/murshome.htm](http://www.provide.net/~prsg/murshome.htm)
- Family Radio Service rules [www.provide.net/~prsg/frs-home.htm](http://www.provide.net/~prsg/frs-home.htm)
- General Mobile Radio Service (GMRS) rules [www.provide.net/~prsg/part95ae.htm](http://www.provide.net/~prsg/part95ae.htm)
- Citizen’s Band (CB) rules [www.reactintl.org/rules-cb.htm](http://www.reactintl.org/rules-cb.htm) .

## LU 19

- ARRL Public Service Communications Manual [www.arrl.org/FandES/field/pscm/index.html](http://www.arrl.org/FandES/field/pscm/index.html)
- For additional general information, please see *The ARRL Operating Manual*, chapter on emergency communications. See also the ARRL *ARES Field Resources Manual*.
- For local information, or to learn more about ARES and NTS net operation in your area, contact your Section Manager (SM) ([www.arrl.org/field/org/smlist.html](http://www.arrl.org/field/org/smlist.html)), your Section Emergency Coordinator (SEC) or District Emergency Coordinator (DEC). See also The ARRL Net Directory for a list of ARES and NTS nets operating in your area.

## LU 20

- Details of the placards and emergency response procedures can be found in the comprehensive *DOT Emergency Response Guidebook*, copies of which may be available for your review at your local Emergency Management, police, sheriff or fire department. A copy is also available online at: [hazmat.dot.gov/pubs/erg/gydebook.htm](http://hazmat.dot.gov/pubs/erg/gydebook.htm) You may also consult your Local Emergency Planning Committee (LEPC) or State Emergency Response Commission (SERC) concerning what role Amateur Radio might have in your local plan. For more information about hazardous materials in general, contact

FEMA, Technological Hazards Division, Federal Center Plaza, 500 C St., SW, Washington, DC, 20472 (202) 646-2861.

**Additional related links:**

- [safety.science.tamu.edu/nfpa.html](http://safety.science.tamu.edu/nfpa.html)
- <http://ehs.memphis.edu/nfpa.htm>
- [www.ehs.neu.edu/laboratory\\_safety/general\\_information/nfpa\\_hazard\\_rating/safety.science.tamu.edu/dot.html](http://www.ehs.neu.edu/laboratory_safety/general_information/nfpa_hazard_rating/safety.science.tamu.edu/dot.html)

**LU 21**

- FCC regulatory maritime information: [wireless.fcc.gov/services/index.htm?job=service\\_home&id=maritime](http://wireless.fcc.gov/services/index.htm?job=service_home&id=maritime)
- US Coast Guard: [www.uscg.mil](http://www.uscg.mil)

**LU-22**

- PSK – “Has RTTY’s Replacement Arrived?”, by Steve Ford, WB8IMY [www.arrl.org/tis/info/psk31.html/index.html](http://www.arrl.org/tis/info/psk31.html/index.html)
- Surfin’: “Make a Packet Racket with a Sound Card”, by Stan Horzempa, WA1LOU [www.arrl.org/news/features/2001/02/10/1/](http://www.arrl.org/news/features/2001/02/10/1/)
- Getting Started in Digital Communications - RTTY, Packet, Amtor, PSK31 [www.arrl.org/tis/info/digital.html#digital](http://www.arrl.org/tis/info/digital.html#digital)
- ARESPACK software (free download) [www.kwarc.org/arespack.html](http://www.kwarc.org/arespack.html)

**LU 23**

- ARRL Section Manager List [www.arrl.org/field/org/smlist.html](http://www.arrl.org/field/org/smlist.html)
- ARRL Net Directory [www.arrl.org/FandES/field/nets/](http://www.arrl.org/FandES/field/nets/)
- ARRL Public Service Manual [www.arrl.org/FandES/field/pscm/](http://www.arrl.org/FandES/field/pscm/)
- FEMA Emergency Management Institute - see "ISP Course List" and "NIMS Courses" at [training.fema.gov/IS/](http://training.fema.gov/IS/)
- FEMA Virtual Library [www.fema.gov/library/](http://www.fema.gov/library/)
- ARES Manual (.pdf file) [www.arrl.org/FandES/field/aresman.pdf](http://www.arrl.org/FandES/field/aresman.pdf)
- FCC Rules and Regulations [www.arrl.org/FandES/field/regulations/rules-regs.html](http://www.arrl.org/FandES/field/regulations/rules-regs.html)
- National SKYWARN [www.skywarn.org](http://www.skywarn.org)
- NOAAWatch - NOAA's All Hazard Monitor [www.noaawatch.gov/](http://www.noaawatch.gov/)
- Ham Radio at the NWS Hurricane Center [www.fiu.edu/orgs/w4ehw/](http://www.fiu.edu/orgs/w4ehw/)
- NWS Doppler Radar Sites [weather.noaa.gov/radar/national.html](http://weather.noaa.gov/radar/national.html)
- NWS Storm Prediction Center, Norman, Oklahoma [www.spc.noaa.gov](http://www.spc.noaa.gov)
- FEMA Community Emergency Response Teams (CERT) <http://www.citizencorps.gov/cert>

**The Real World**

- Alabama Tornados, 2000 [www.alert-alabama.org/audio.html](http://www.alert-alabama.org/audio.html)

## Books

**An important new book reference is the ARRL *FCC Rules and Regulations for the Amateur Radio Service*. (See below.)**

- The *ARES Field Resources Manual* (ARRL) is a handy and rugged spiral bound field guide packed with essential emcomm information. It should be in the ready kit of every emcomm volunteer.
- The *ARRL Operating Manual* covers all the basics of Amateur Radio operation – and more.
- The ARRL *FCC Rules and Regulations for the Amateur Radio Service* includes the complete Part 97 rules from Title 47 of the Code of Federal Regulations, effective February 23, 2007. Now including *The FCC Rules and You..*
- *ARRL's HF Digital Handbook*, 4<sup>th</sup> Edition, covers PSK31, MFSK16 and other popular digital modes.
- *APRS Tracks, Maps and Mobile* –A Guide to the Automatic Packet Reporting System. (ARRL) by Stan Horzepa
- *NOSintro: TCP/IP Over Packet Radio* is an introduction to using the KA9Q Network Operating System in a packet environment. NOS has a variety of uses and implications for emcomm.
- *Your Mobile Companion* by Ralph Burch WF4N, (ARRL) is a practical guide to installing and operating a HF mobile station.
- *Transmitter Hunting: Radio Direction Simplified* by Joseph Moell, K0OV, and Thomas Curlee, WB6UZZ (ARRL) is the “bible” of radio direction finding. Topics include search and rescue operations and hunting for downed aircraft.
- *The Interference Handbook* by William Nelson WA6FQG will help you locate and resolve all sorts of radio interference.
- *The ARRL Antenna Book*, Volume 4 covers portable and emergency antennas for 40 and 80 meters.
- *Weather Satellite Handbook* by Ralph Taggart WB8DQT (ARRL) offers information on how to receive and decode data directly from various weather satellites.
- *The ARRL Repeater Directory* lists all VHF and UHF repeaters in the USA, Canada and many other countries. This directory is updated annually.
- *The North American Repeater Atlas* (ARRL) has maps showing all repeaters in North America. This is a great resource for ARESMAT members traveling to unfamiliar areas.

## Software

- Tucson Amateur Packet Radio (TAPR) has a variety of packet software available. [www.tapr.org](http://www.tapr.org)
- *FNpack* is a free Windows ® based packet messaging software package from Ken AC1H and the Twin State Radio Club, Inc. *FNpack* lets you automate much of

- the process of handling ARRL format messages, as well as to create your own forms. *FNpack* also has a novel unproto “net” mode. It can be downloaded at [www.w1fn.org](http://www.w1fn.org). Also available on the same site is *FNpsk*, which offers much of the same functionality for PSK31 users.
- *Narrow Band Emergency Messaging System (NBEMS)* A suite of programs for emergency applications. [www.W1HKJ.com/NBEMS/](http://www.W1HKJ.com/NBEMS/) for software download. [www.groups.yahoo.com/group/NBEMSham/](http://www.groups.yahoo.com/group/NBEMSham/) for Yahoo discussion groups on NBEMS
  - *PSKMail* A bare bones program that uses very limited bandwidth for passing messages. For Linux operating systems. <http://pskmail.wikispaces.com>
  - *WXSpots Network* A useful tool on the internet devoted to severe weather spotting as a means to enhance SKYWARN and similar operations. [www.wxspots.com](http://www.wxspots.com)
  - *ARESPACK* is DOS based packet messaging software that offers uniform message formats, message creation templates, and more. It is available from a variety of sites as a free download. No support or upgrades are offered or planned by the author. May be downloaded at [www.kwarc.org/arespack.html](http://www.kwarc.org/arespack.html).