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Operations and Services

WARNING COORDINATION AND HAZARD AWARENESS

NOTICE: This publication is available at: http://www.nws.noaa.gov/directives/.

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SUMMARY OF REVISIONS: Supercedes Warning Coordination and Hazard Awareness, NWSI 10-1801 dated December 9, 2003. Revisions include:

1. Added "man made" to the hazards outlined in Section 3.1 Hazards Risk Assessment
2. Added "RFC" to list of local NWS offices in Section 3.3.4 Obtaining Reliable and Adequate Ground Truth Reports
3. Added "large city" to Section 5.0 Documentation
4. Added a URL to Appendix A for an on-line version of a publication about the "Integrated Warning System"

Signed 12/09/04
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Warning Coordination and Hazard Awareness

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1. Objective. The objective of the Warning Coordination and Hazard Awareness (WCHA) program is to reduce fatalities, injuries, and property damage due to weather, water, and climate events, and to reduce the impacts of civil emergencies.

2. Background. Appendix A defines what social scientists term the integrated warning system. We will work with our partners in the hazards community to develop effective integrated warning systems. Social scientists define the hazards community as:

- Federal, state, and local agencies;
- Emergency managers or coordinators;
- Media;
- Non-government organizations, such as the American Red Cross;
- Amateur radio groups;
- Volunteer groups; and,
- Private sector.

The WCHA program involves working with our partners to:

- Create a viable integrated warning system;
- Support the consistent delivery of critical information to the public; and
- Support preparedness, response, recovery, and mitigation activities as outlined in the Federal Emergency Management Agency's (FEMA) Federal Response Plan and similar state and local plans.

3. Program Development and Maintenance. A successful WCHA program begins with an analysis of the hazards threatening the area of responsibility and determining its vulnerability. Next, a successful program depends on the NWS staff's operational readiness and the area's preparedness level.

3.1 Hazards Risk Assessment. NWS staff should be familiar with the climatology and the weather, hydrological, and man made hazards in their areas of responsibility. The Science and Operations Officer and the Warning Coordination Meteorologist (WCM) should educate operational staff on specific risk areas through local training activities.

3.2 NWS Readiness. Station management in each NWS field office is responsible for ensuring the readiness of office systems and staff through operational readiness checks and seasonal internal drills. Each NWS field office, where applicable, should conduct the following drills each year:

- severe local storms
- special marine warnings (coastal offices)
- flash floods and floods
- hurricanes (coastal and inland offices affected by these storms)
- winter storms
- high wind
- dust storms
- hazardous releases
- civil emergencies
- office evacuation
- power failure
- communications failure
- service backup
- aircraft accident
- marine accident

Following significant events, WCMs should contact affected partners to see if NWS services met expectations. Results underscore best practices and identify service improvement opportunities.

3.3 Community Preparedness. Within each office's area of responsibility, the WCM or outreach focal point, manages activities to raise the hazard community's awareness and preparedness for weather, water, and climate related hazards. The NWS StormReady and TsunamiReady Program (NWSI 10-1802) is designed to assist with this outreach effort and can be viewed at: http://www.stormready.noaa.gov

Other staff members should be involved in outreach activities to provide partnership training, share workload, and provide for direct partner contact.

3.3.1 Hazard and Vulnerability Analyses. The WCM should work with partners to help them identify the hazards they should prepare for and the populations that are vulnerable to specific hazards. The local hazard and vulnerability analyses should specify the local decision maker's critical action thresholds. Knowledge of these thresholds helps local officials make better response decisions.

3.3.2 Coordinating Integrated Warning System Roles within the Hazards Community. WCMs should meet with partners to help them define their role in the integrated warning system and to support the consistent delivery of critical information to the public. In collaboration with these partners, the NWS identifies critical information requirements; and in turn, our partners improve their understanding and use of NWS products and services.

3.3.3 Developing and Maintaining Reliable Dissemination and Communications Systems. Information sharing between the NWS and members of the hazards community is critical for an effective warning program. WCMs should make the promotion and expansion of dissemination and communication systems a high priority. They must also ensure existing systems are properly tested and maintained.

WCMs develop partnerships to link to local and state communications systems for the automated sharing of critical data. WCMs should explore resource sharing with local Amateur Radio Emergency Services (ARES) and Radio Amateur Civil Emergency Service (RACES) amateur radio clubs. WCMs should also promote existing dissemination systems including National Oceanic and Atmospheric Administration (NOAA) Weather Radio (NWR) All Hazards, Emergency Alert System (EAS), Emergency Managers Weather Information Network (EMWIN), NOAA Weather Wire Service (NWWS), and FEMA's National Warning System (NAWAS).

NWS should discuss with its partners ways to reach new segments of the population by expanding innovative dissemination methods. This includes EMWIN retransmission, use of Internet Web sites, and use of non-NWS operated personal communication systems, such as pagers and cell phones.

3.3.4 Obtaining Reliable and Adequate Ground Truth Reports. Timely and reliable observations from trained volunteers are a key element in the warning decision-making process. WCMs work with local authorities and emergency managers to organize, recruit, train, and maintain spotter networks at the county/parish and local level. Training should be conducted by NWS personnel or others demonstrating they have the knowledge and skill to conduct training (i.e., emergency management officials who have already been trained in advanced spotter courses by NWS personnel). Initial training should be conducted on an annual basis to build a strong cadre of spotters. Current spotters should be encouraged to attend refresher training at least once every two years (resources permitting).

A non-paid volunteer observer may be considered an "employee" under the Federal Employees Compensation Act. Final determination rests with the Office of Workers Compensation Programs. Any spotter injured while providing observational duties should notify their local NWS office (WFO, WSO, RFC). The local WFO, WSO, RFC and their regional office should work with the Office of Workers Compensation Programs for resolution.

3.3.5 Improving Partner Response. Partner response is enhanced when they know how best to use NWS products and when drills are conducted to test operational readiness. NWS offices should conduct training sessions for hazards community members so they know how to use our services and how to integrate them into their decision processes.

Before each hazardous weather season, NWS offices should conduct local and statewide drills with appropriate partners. Drills should test all aspects of the integrated warning system from detection and warning, through communication, to response. The NWS encourages the media to disseminate test warnings. Refer to NWSI 10-1701, section 4.2.2e, for guidelines on formatting test products at: http://www.nws.noaa.gov/directives/010/pd01017001a.pdf

NWS offices should also encourage local organizations, such as emergency operations centers and school districts, to test their preparedness and response plans.

3.3.6 Improving Public Response. NWS offices should promote public awareness campaigns to inform citizens of potential threats and what safety actions to take if a warning is received or severe weather is observed. NWS offices should encourage households, businesses, critical care facilities, places of worship and local communities to develop preparedness plans for identified risks incorporating practices promoted in NWS, FEMA, and American Red Cross jointly published literature.

3.3.7 Hazard Mitigation. Property losses to natural hazards are reduced when states, communities, private sector, and the public locate and build with consideration for the hazards in their areas. NWS offices work with state and local officials, non-government organizations, the media, and the private sector, to provide weather, water, and climate information to assist those building disaster resistant communities.

4. Partnerships. It is imperative that the hazards community work with NWS offices to maintain a viable integrated warning program. Because the job is too big for a single organization to accomplish, the key to success is to create and nurture partnerships among the hazards community toward a common goal. NWS offices should lead efforts within the hazards community to create and enhance partnerships for spotter networks, data collection, dissemination and communication, partner and public education, hazard awareness and preparedness material development and distribution, and mitigation activities.

5. Documentation. WFOs should maintain documents which reflect the state of the hazards community in their warning and forecast area. Documentation should provide operational continuity and a reference for new personnel. For example, a basic system consists of one file (paper or electronic) for each large city, county or parish, and one file for each organization the office works with at multi-county or state levels. WFOs should maintain and update appropriate maps, lists of key contacts, and the operational status of each organization.

APPENDIX A - The Integrated Warning System

The integrated warning system was first developed by social scientists doing research on warning systems (Mileti and Sorenson, J.H., 1990, Communication of Emergency Public Warnings—A Social Science Perspective and State-of-the-Art Assessment, Oak Ridge National Laboratory, Oak Ridge, Tennessee) available at:

http://emc.ornl.gov/EMCWeb/EMC/PDF/CommunicationFinal.pdf

There are three critical elements required to reduce or eliminate the impact on people and property from any hazard. First is the ability to forecast, detect and warn. Second, clearly communicate information about the event to those at risk in a timely and understandable manner. Third, those at risk must take appropriate action, often in a predetermined or learned manner. The three elements of the integrated warning program are of equal importance. If any one element fails, the warning program fails.

- Forecast, Detection and Warning. This element includes the traditional NWS role of examining data and forecasting a significant weather, water, or climate event. Detection considers the data from remote sensing devices such as radar and satellite; on-site observing devices, such as river and rain gauges and automated flood warning systems; and eyewitness reports.

- Communication and Information Dissemination. Communication is complete only after the information is received and understood.

- Public Response. The warning message by itself does not stimulate an immediate protective response. Normally, people in a warned area will first assess their personal risk. The additional information required before they take action depends on the content and clarity of the initial message and the credibility of the issuing organization. The potential for individuals to act will be markedly increased if they are provided information to assist them in properly defining their risk. Consistent messages from multiple credible sources serve to enhance personal risk assessment.