Unit 1: Introduction and Course Overview
Administrative Information

- Schedule
- Breaks
- Parking
- Required Paperwork
- Emergency Exits
- Location of Facilities
Introductions

- Name
- Role in Warning Coordination
- Location
- Years of Experience
Course Background
The Need for Warning Messages

• Severe weather and flooding kills or injures hundreds of people in the U.S. each year
• Property damage each year costs tens of billions of dollars to communities
• During effective warning coordination danger is communicated and understood
How do we use radar / satellite information?
How do we effectively communicate as emergency managers?
How do we warn for flash floods?
How do we warn for winter storms?
How do we work with the media?
How do we warn in a timely manner?
Course Overview
The Importance of Warning Coordination

• Warning Coordination can save lives and property
• Warning programs depend on effective coordination and communication with:
  – National Weather Service
  – Local Officials
  – State Officials
  – News Media
Course Objectives (1 of 2)

• Predict how people in the community may respond to different types of warnings based on certain social factors

• Develop a hazardous weather warning message based on a specific event and the threat it poses to the community

• Explain the interlocking sets of activities that work together to form an effective community warning system
Course Objectives (2 of 2)

• Propose improvements to a community’s warning system based on identified breakdowns in coordination and communication

• Develop warning messages for a given scenario that are targeted for delivery by a particular media type

• Develop a warning coordination and communication strategy for a given scenario
Course Outline

1) Introduction and Course Overview
2) The Social Dimensions of Warning Response
3) Warning Messages
4) Developing an Effective Community Warning Process
5) Implementing and Maintaining a StormReady or TsunamiReady Program
6) Warning Exercises
7) The Integrated Warning Team
8) Final Exercise and Summary
Materials

• Student Manual
• Appendices
  – A: Glossary
  – B: Resources
• Local Warning Annexes
Questions?
Unit 2: The Social Dimensions of Warning Response
Objectives

• Identify the primary goal of a warning system
• Define basic terms associated with warning systems
• Describe the factors that affect public response to warnings
• Explain how prior experience, perceived proximity, and observation influence the way people process warnings
Overview of Warning Systems
Warning System Goal

Appropriate and timely action to minimize injury, death, and property damage
Integrated Public Alert and Warning System

Timely alert and warning system to the American people for the preservation of life and property
What are warning messages?
Warnings

- Public information messages from Emergency Management
- NWS severe weather/flooding event products
What is the difference between warning coordination and communication?
Warning Coordination vs. Communication

Coordination
Within emergency management community

Communication
From emergency management to public
What are some products provided by the National Weather Service for hazardous weather and flooding events?
NWS Products

**Outlook**
- A hazardous weather or flood event may occur
- Provides information for preparation

**Watch**
- The risk of an event has increased
- Occurrence, location, and/or timing remain uncertain

**Advisory**
- A less serious event is occurring or imminent
- Conditions may cause significant inconvenience

**Warning**
- An event is occurring or imminent
- Conditions pose a real threat to life or property
Public Response: A Complex Social Process
Primary Factors Influencing Response

• Previous experiences
• Observations
• Level of community interaction
• Perception of risk/proximity
• Length of residency
Primary Factors Influencing Response: Family Composition

- Family network
- Children
- Pets
How could you expect your community to respond?
Given your community’s hazards and history, how do you think your residents process warnings?
What other factors do you think influence how people receive weather warnings?
Additional Response Factors

- Age
- Language
- Other access and functional needs
- Time of day
- Type of community
- Level of individual preparedness
Warning Myths
Myth 1

Myth
People panic in response to warnings

Truth
People seek additional information to make a response decision
<table>
<thead>
<tr>
<th>Myth</th>
<th>Truth</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you “Cry Wolf” with false alarm warnings, the public will tune you out</td>
<td>People will forgive some over-warning if the reasons for false alarms are well-explained and understood</td>
</tr>
<tr>
<td>Myth</td>
<td>Truth</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>An effective warning message is a simple one, with as little detail as possible</td>
<td>The “KISS” principle does not apply for public warnings</td>
</tr>
</tbody>
</table>
Myth 4

Myth
People remember what the sounding of various siren signals mean

Truth
The best use of outdoor warning sirens is to alert people to immediately seek additional information about an imminent threat
Unit Summary

• Terms to know:
  – NWS products
  – Emergency management terms

• Factors influencing response to warning messages
Unit 3: Warning Messages
Objectives

• Describe the components of effective warning messages
• Identify the characteristics of effective warning messages
Effective Warning Messages
Inconsistent Warnings Cause...

- Delayed decision making
- Dismissed warnings
- Wrong action
- No action
Characteristics of Effective Warning Messages

✓ Consistent content
✓ Timeliness
✓ Specific information
What information should be included in warnings?
Components of Warnings

- Specific hazards
- Location
- Magnitude
- Likelihood
- Timeframes
- Warning source
- Protective actions
What are some examples of protective actions to include in a warning message?
Some Protective Actions

- Evacuating
- Taking shelter/cover
- Avoiding flooded roads
- Keeping supplies in car
- Stocking up on extra supplies
- Checking on the elderly
Develop a Warning Message
Activity Instructions

• Work with your group
• Refer to instructions in Student Manual
• Develop a warning message for the scenario
• Be prepared to share with the class
## Unit Summary

<table>
<thead>
<tr>
<th>Warning Message Characteristics</th>
<th>Warning Message Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Consistent content</td>
<td>• Specific hazard(s)</td>
</tr>
<tr>
<td>• Timeliness</td>
<td>• Location</td>
</tr>
<tr>
<td>• Specific information</td>
<td>• Magnitude</td>
</tr>
<tr>
<td></td>
<td>• Likelihood</td>
</tr>
<tr>
<td></td>
<td>• Timeframe</td>
</tr>
<tr>
<td></td>
<td>• Source of warning</td>
</tr>
<tr>
<td></td>
<td>• Protective actions</td>
</tr>
</tbody>
</table>
Unit 4: Developing an Effective Community Warning Process
Objectives

• Describe the main components of an effective warning system
• Define the purpose of the Integrated Warning Team
• Explain the roles and responsibilities of the key players who must respond to hazardous weather and flood threats
• Explain how to coordinate timeframes and decisions among key players
• List technologies for receiving and disseminating warning messages
Overview of the Integrated Warning Process
Integrated Warning Process
Monitoring and Detection

- Detection of hazards
- Data analysis
- Scientific prediction
- Informing
How might local agencies monitor the weather?
How do spotters fit into the process?
Impact Assessment

- Interpretation
- Decision to warn
- Method and content of warning
What are some technologies for communicating weather and flood warnings?
Public Response

Interpretation
- Receive
- Understand
- Believe
- Personalize
- Decide to Act

Confirmation

Response Action

[Image of a person on a ladder boarding up a window]
Integrated Public Alert and Warning System (IPAWS)

Mission:
Provide integrated services and capabilities to local, state, and federal authorities that enable them to alert and warn their respective communities via multiple communications methods.
IPAWS Key Features

• Allows the President to speak to Americans under all emergency situations
• Enables all levels of emergency communication officials to access multiple broadcast pathways
• Alerts those with disabilities and those without an understanding of the English language
• Diversifies and modernizes the Emergency Alert System
Roles and Responsibilities of the Integrated Warning Team
Integrated Warning Team

Partners share information and coordinate warnings to:

• Provide a consistent warning message
• Motivate those at risk to take timely and appropriate action
Role of NWS during Monitoring and Detection

- Monitoring, detection, and data analysis
- Prediction
- Information dissemination
- Coordination

Photo Credit: NOAA
What communication tools do you use to coordinate with your local NWS office?
Role of NWS during Impact Assessment

- Interpretation
- Decision to warn
- Warning method and content

URGENT - WINTER WEATHER MESSAGE
NATIONAL WEATHER SERVICE MISSOULA MT
434 PM MST WED DEC 8 2010

ID2006-091200-
/O.CON.KMGO.WS.W.0033.101210T00002-101211T06002/
SOUTHERN CLEARWATER MOUNTAINS-
334 PM PST WED DEC 8 2010

...WINTER STORM WARNING REMAINS IN EFFECT FROM 4 PM THURSDAY TO 10 PM PST FRIDAY ABOVE 3000 FEET...

A WINTER STORM WARNING ABOVE 3000 FEET REMAINS IN EFFECT FROM 4 PM THURSDAY TO 10 PM PST FRIDAY.

* IMPACTS/TIMING: A STRONG WINTER STORM WILL BRING ACCUMULATING SNOW BEGINNING EARLY THURSDAY AFTERNOON THROUGH FRIDAY EVENING. ROADWAYS WILL BECOME SNOW COVERED MAKING FOR DIFFICULT TRAVEL.

* SNOW ACCUMULATIONS: 5 TO 9 INCHES ABOVE 3000 FEET...LOCALLY UP TO 18 INCHES OVER LOLO PASS BY LATE FRIDAY EVENING. LOWER ELEVATIONS BELOW 3000 FEET...1 TO 3 INCHES.

* LOCATIONS IMPACTED INCLUDE...DIXIE...ELK CITY...HIGHWAY 12 LOWELL TO LOLO PASS

PRECAUTIONARY/PREPAREDNESS ACTIONS...
Role of NWS during Public Response

• Monitoring actions of:
  – Public
  – Media
  – Emergency Manager

• Seeking feedback about:
  – Products
  – Areas for improvement
If the NWS issues warnings, why would the emergency manager issue weather or flood messages?
Role of Emergency Management during Monitoring and Detection

- Monitoring conditions
- Coordinating with NWS to activate weather spotters
- Communicating conditions to NWS
Role of Emergency Management during Impact Assessment

Coordinating with NWS to:

• Interpret information
• Determine whether to issue warning messages
• Determine the content and channel of warning messages
Who makes the decision to warn and communicate the warning in your community?
Role of Emergency Management during Public Response

Determining:

- How public is interpreting information
- Information being disseminated through other channels
- Additional information that may be needed
- If appropriate actions are being taken
America’s Weather and Climate Industry

- Local television meteorologists
- Consulting firms
- Private companies
  - The Weather Channel
  - AccuWeather
  - WeatherBug
  - Etc.
Role of America’s Weather and Climate Industry during Monitoring and Detection

- Some news media have:
  - Degreed/certified meteorologists
  - Radars
  - Weather spotter networks
  - Storm chasers
How do you work with America’s Weather and Climate Industry in your warning process?
Role of America’s Weather and Climate Industry during Impact Assessment

- Disseminate warnings in a timely manner
- Accurately identify warning source

Photo Credit: NASA
Role of America’s Weather and Climate Industry during Public Response

News media relays information to EM and NWS

EM and NWS share reports on the event’s impact
Does the public have a responsibility to assist in the warning process?
Storm Watch Video

Click photo to view video
What is going on in the video?
Is the forecaster’s job complete?
Who activated the spotter?
Unit Summary

• Warning Process
  – Monitoring and detection
  – Impact assessment
  – Public response

• Integrated Warning Team
  – National Weather Service
  – Emergency Management
  – America’s Weather and Climate Industry
Unit 5: Implementing and Maintaining a StormReady or TsunamiReady Program
Objectives

• Describe the benefits of the StormReady and/or TsunamiReady program(s)
• Describe the criteria required to be StormReady or TsunamiReady
• Explain how to implement the StormReady and/or TsunamiReady program(s) in your community
• Identify methods for maintaining recognition as a StormReady and/or TsunamiReady community
What are StormReady and TsunamiReady?

Grassroots programs that:
• Improve communication and preparedness
• Provide guidance for preparedness programs
• Strengthen local safety programs
• Prepare communities for hazards
StormReady History

• Began in 1999 in Tulsa, Oklahoma
• Focused on education about storm safety
• Implemented a planning system for severe weather
TsunamiReady History

• Began in 2001
• Extrapolation of StormReady
• Implemented a planning system for tsunamis
Incentives

- Improve warning timeliness and dissemination
- Justify program costs
- Provide “Image Incentive” for the community
- Lower National Flood Insurance Plan premiums
How Being StormReady Saves Lives

Photo Credit: *The ArkLaMiss Observer*, Spring 2008 Edition, NOAA/NWS
How Does a Community Become StormReady or TsunamiReady?
Recognition Requirements

- Establish 24-hour warning point and EOC
- Receive and disseminate warnings in several ways
- Monitor weather conditions locally
- Promote public readiness
- Develop hazardous weather plan
Recognition

1. Community contacts local NWS
2. State Board reviews application
3. State Board conducts onsite visit
4. Community makes needed improvements
5. Recognition ceremony is held
What Recognized Communities Receive

- 3-year recognition from NWS
- Official signs
- Authorized use of logo
- Listing on national website
- Possible NFIP rate adjustments
Maintaining StormReady or TsunamiReady Recognition
Renewal Process
After 3 Years

1. NWS Warning Coordination Meteorologist contacts the Emergency Manager
2. Recognition criteria are confirmed as still being met, and officials want to renew
3. Recognition is renewed for 3 years
Renewal Process
After 6 Years

1. NWS WCM sends 6-months advanced notice to re-apply
2. Officials review original application and current information
3. Officials update application
4. NWS WCM verifies application information
5. Recognition is renewed for another 3 years
Van Wert County, Ohio
Roanoke, Illinois

Before

After
Unit Summary

• Increases community’s preparedness for hazardous weather
• Increases warning efficiency
Unit 6: Warning Exercises
Objectives

• Identify where warning coordination breakdowns have occurred, based on scenario information
• Analyze a community’s warning processes to identify potential breakdowns in coordination and communication
Instructions

• Work with your group
• Refer to instructions in Student Manual
• Read scenarios and answer questions
• Be prepared to share your responses
• You will have 15-20 minutes
Analyze Current Warning Processes
Instructions

• Work with your group
• Refer to instructions in Student Manual
• You will have 20 minutes
How is the warning decision made in your jurisdiction?
Who is empowered to make the warning decision?
How is decision making coordinated with other jurisdictions?
How long does it take to make the decision to warn and to communicate the warning?
What could be done to make this process faster?
Unit 7: The Integrated Warning Team
Objectives (1 of 2)

• Identify the local media agencies who are needed to form an effective Integrated Warning Team

• Explain the unique issues involved in disseminating warning messages via television, radio, print-based media, and the internet

• List the factors that may hinder development of effective partnerships with members of the media
Objectives (2 of 2)

• Describe methods for developing effective partnerships with members of the media
• Develop strategies for focusing warning messages to the intended method of dissemination
Overview of the Integrated Warning Team
Members of the Integrated Warning Team

- Emergency Management Officials
- National Weather Service
- America’s Weather and Climate Industry
Principles of the Integrated Warning Team

Partners must:

• Have the same understanding of hazards and risks
• Share information among agencies and organizations
• Communicate a consistent set of warning messages
Strategies for Working with the Media
Challenges to Overcome

• Time
• Money
• Capability
• Turnover
Strategies for Working with the Media

Visit station managers and newspaper editors

• Ask what they need from you
• Solicit their advice, assistance, and suggestions
Work Together
to Educate the Public About:

• Likely hazards in the community
• Weather terminology (e.g., floodplain, flash flood, warning)
• Protective actions
• How watches and warnings are issued
• What to do when the warning siren sounds
• How to get additional emergency information
Methods to Communicate Warnings

- Telephones
- Email
- Websites
- Alert systems
- Social media
- Broadcast media
- Two-way radios

Communication Methods
What ideas do you have for improving coordination with the media?
Panel Discussion
Focusing Warnings to the Media
Instructions

• Work with your group
• Develop strategies for focusing warning messages
  – For a specific hazard
  – For a specific media type
• Refer to instructions in the Student Manual
• Be prepared to discuss your rationale
• You have 10 minutes
What are unique issues when working with the members of the television media?
What are unique issues when working with the members of the radio media?
What are unique issues when working with the members of the internet/print media?
Unit 8: Final Exercise and Summary
Objectives

- Identify warning coordination and communication requirements based on a specific event and the threat it poses to the community
- Develop a strategy for working with the media to avoid presenting conflicting messages to the community
Final Exercise
Background: Central City

- In rural coastal county
- Moderate flooding at least once a year
- Major flooding generally once every 5 years
- Many activities and industry along riverfront
Central City Maps

Flood Zone Map

Land Use Map
Instructions

• Discuss with your group
• Refer to course materials if needed
• Record your response on the flipchart
• Be prepared to share your response
Monday Morning...

- Almost daily rain for past 2 weeks
- River at 26 feet and rising
- More rain predicted
- Could lead to wide-scale flooding
Tuesday Morning...

• Flood watch issued
• Rain to begin Wednesday and continue
• Rainfall totals can approach 12-14 inches over the next 3 days
• Conflicting media reports
Wednesday Morning...

- Hazardous Weather Update calls for rain over the next 12 hours
- Flood Watch still in effect
- Flood Warning may be issued later if rain continues
Wednesday Evening...

• Flood Warning issued
• Rainfall totals up to 14 inches expected over the next few days
• River stage is at 27 feet and rising
• River expected to reach flood stage by Thursday afternoon
Exercise Debrief

• Select spokesperson for each group
• Present responses to scenario and updates
• Provide rationale for decisions
Course Summary
What is the goal of the warning system?
What are the three main components of an integrated warning process?
What are the different roles and responsibilities within each of the three components?
Why are members of the media important to warning coordination?
How are you going to improve warning coordination in your community?