Distance Learning Operations Course

Orientation

Presented by

The Warning Decision Training Branch

Version: 1209

Introduction

Welcome to the Distance Learning Operations Course (DLOC)! This course will significantly contribute to your use of the WSR-88D when making weather decisions, particularly warning decisions. A thorough knowledge of the WSR-88D's products and operational procedures is essential to fully utilize this valuable tool. Skilled interpretation of WSR-88D data is fundamental to making sound forecast and warning decisions.

This document has two purposes. You will use it as a reference while attending the Course Orientation teletraining session. You will also use this document as a resource as you progress through the course.

This Orientation teletraining session will provide you with a thorough outline of course content, as well as an overview of course procedures. For example, you will need to know when and how to take a particular course exam.

> It is ***vital*** that your DLOC Facilitator attend your Course Orientation teletraining session with you. This will help everyone know exactly what to expect as the course progresses.

Lead Instructor

The first step in the Course Orientation is introducing you to your Lead Instructor. Your Lead Instructor is your point of contact at the Warning Decision Training Branch (WDTB) for the duration of the course. He or she can help you with all aspects of the course. If you have questions about the content or course logistics, please contact your Lead Instructor. Also, your Lead Instructor may contact you from time to time to check on your progress or to let you know of any changes.

Lead Instructor: _____

Phone Number: (405) 325 - _____

E-mail Address: _____@noaa.gov

Sometimes, your Lead Instructor may not be immediately available. If you need to contact someone in our branch, please call or e-mail Linda Curtis, our Administrative Assistant.

Linda's Phone Number: (405) 325-3190

Linda's E-mail: Linda.J.Curtis@noaa.gov

Local Training Officer Support

The success of this course is ***highly dependent*** on the support of your local office management, particularly your DLOC Facilitator. Most likely, this person will be your SOO or someone that your SOO has designated. WDTB will contact your DLOC Facilitator about course administration and logistics. For example, your DLOC Facilitator will receive any DLOC materials that we mail to your office and will then distribute them to you as appropriate.

Course Materials

This document should have arrived as part of a larger packet of course materials. The following is an itemized list of the course materials that should now be in your possession.

1. Large three-ring binder
2. Student Guide for DLOC Orientation
3. Student Guide for Topic 1: "Radar and Warning Applications Using AWIPS"
4. Student Guide for Topic 2: "Introduction to the WSR-88D"

5. Student Guide for Topic 3: “Principles of Meteorological Doppler Radar”
6. Student Guide for Topic 4: “Velocity Interpretation”
7. Student Guide for Topic 5: “Base and Derived Products”
8. Instructions for Topic 6: “System Operations and Control”
9. Student Guide for Topic 7: “Convective Storm Structure and Evolution”
10. Student Guide for Topic 8: “Storm-Based Warning Fundamentals”
11. Overview for Topic 9: “DLOC Workshop”

In addition, your DLOC facilitator should have received a CD that contains copies of the course materials including the Weather Event Simulator (WES) Exercises for Topic 1.

If any of these materials are not in your packet, ***first*** check with your DLOC Facilitator to ensure that everything has been distributed. If something is still missing, contact your Lead Instructor or Linda Curtis.

History of DLOC

Though constantly updated as the WSR-88D evolves, DLOC is a course that has a long history. From 1990 to 1997, it was known as the WSR-88D Operations Course and was taught in residence in Norman, OK. In 1997, due to budget constraints, the decision was made to teach the course on-station rather than in residence. This change involved a combination of delivery methods, such as tele-training, self-guided web modules, and instructor-guided web modules. Though the course content did not change, the course was retooled to

account for the new delivery methods, and the first DLOC was delivered in 1998. A residence component (DLOC Workshop) was added in 1999.

Time Commitment

When the WSR-88D Operations Course was taught entirely in residence, it was nearly four weeks long. Since the goals and objectives of the course changed little, the on-station version (DLOC) still requires a ***significant*** time commitment. Scheduling at a WFO is often a challenge, so planning ahead as much as possible is highly recommended.

Types of Objectives in DLOC

As you progress through the course, each Topic and/or Lesson contains written objectives that specify the material that you are expected to know. Reviewing the objectives for test preparation is the most effective way to succeed in DLOC!

Learning Objectives are defined in each Topic. They describe what you should be able to do (or know) at the end of each lesson. Learning objectives are testable via the exams associated with the topics and lessons of DLOC. More information about exams is presented later in this orientation.

Performance Objectives are also defined for each Topic. They provide precise, measurable statements of behaviors you should be able to demonstrate on the job. At the DLOC workshop, course instructors will use these objectives to help assess student performance during the lab simulations.

Job Task Skills and Knowledge

On the following page are the specific job task skills, knowledge, and abilities that the DLOC course addresses. The course objectives, which are presented as you progress through DLOC, are based on these job task skills and knowledge:

1. Display and manipulate WSR-88D products using the AWIPS workstation.
2. Create a warning and issue an update to a warning in a timely fashion using WarnGen.
3. Provided a list of WSR-88D equipment groups and their primary subcomponents (or descriptive statements of their function), and correctly identify the function(s) the components perform (or the name or acronym of the unit described).
4. Describe the processes by which the WSR-88D estimates precipitation and the potential error sources involved.
5. Describe the processes by which Doppler velocity information is obtained by the WSR-88D.
6. Describe the base data generation process.
7. Identify inherent limitations in pulsed Doppler radar and show how operators can optimize base data quality.
8. Interpret various large and small scale Doppler velocity patterns and their corresponding meteorological conditions.
9. Interpret all Base and Derived products of the WSR-88D, including:
   a. Specific characteristics of Base and Derived products.
   b. Strengths and limitations of Base and Derived products.
   c. Specific operational applications of Base and Derived products.
10. Recognize impacts of sampling resolution on algorithm performance.

11. Describe basic systems operations, communications aspects, and control of system components of the WSR-88D.

12. Identify the fundamental relationships and physical processes that buoyancy and vertical wind shear have on convective storm structure, type, and evolution.

13. Identify environmental characteristics, conceptual models, and radar signatures associated with the spectrum of convective storms and their associated threats (tornado, hail, damaging wind, and flash flooding).

14. Identify contributing factors in both environmental and radar data that impact quality of Mesocyclone and Tornadic Vortex Signatures (TVSs).

15. Identify typical ***4-D*** storm-relative velocity signatures associated with stages of mesocyclone core evolution.

16. Identify the role of using WSR-88D data in the severe weather warning process, especially:

a. The variables which influence the warning decision.

b. Aspects of effective decision making.

c. Severe weather warning methodologies.

17. Identify strengths and limitations of using WSR-88D data in winter weather situations.

18. Demonstrate recommended storm-based warning strategies that convey threat area for proper polygon placement for various convective warning situations.

19. Demonstrate recommended strategies for issuing storm-based warning follow-up statements (canceling, continuing, and correcting) for various convective warning situations.

DLOC Topics

DLOC is divided into nine Topics and most Topics are subdivided into Lessons. Each Topic or Lesson has its own objectives with various delivery methods. You should stay familiar with the Topic structure as you progress through the course. It is particularly important that you:

1. Complete the Topics in the appropriate order.
2. Complete each exam as soon as possible after you've finished the Topic or Lesson(s) that the exam covers.
3. Complete all the exams before attending the DLOC Workshop, which will serve as a "wrap-up" for the course. ***You will not receive your course certificate at the workshop if you have not completed all of the exams.***
4. Arrive at the DLOC Workshop "warning ready." Significant time at the workshop is devoted to using AWIPS in operationally-relevant warning scenarios. This means that you must have sufficient AWIPS experience (displaying products, using WarnGen, etc.) to issue warnings during the scenarios. ***Thus, it is imperative that you complete the WES Exercises in Topic 1 and the Primers in Topic 8.***

The following pages list each DLOC Topic and any Lessons that may comprise that Topic. There is information on the content, delivery method, and expected completion time. You will also find the prerequisite for each Topic or Lesson. This will guide you in completing the material in the proper order.

Your DLOC Development Plan

Another handy resource which lists the various Topics and Lessons of DLOC is your DLOC Development Plan. A sample DLOC Development Plan is shown in Figure 1. You can track your progress

through DLOC using your very own Development Plan. It will be assigned to you in the Commerce Learning Center, which is a Learning Management System (LMS). You can access the LMS at ***https://doc.learn.com/noaa/nws***. If you are unsure about your LMS account information, your DLOC Facilitator and/or your local training officer may be able to provide assistance.

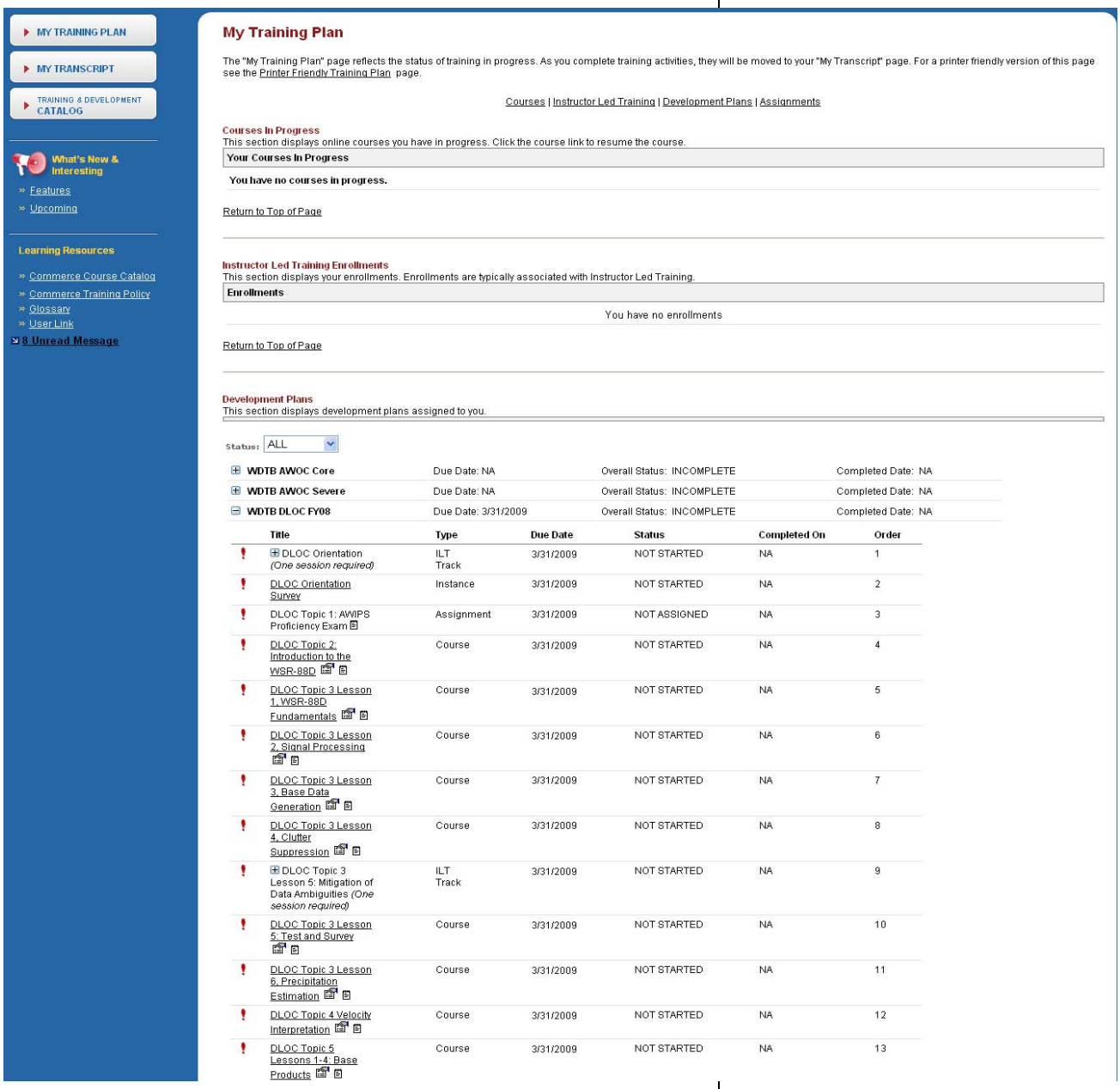


Figure 1: Example DLOC development plan in the LMS.

To access your Development Plan, log into the LMS and click the link in the “Attention DLOC Students” announcement. You can also click the “My Training Plan” link in the left-hand menu. You may need to click the small plus sign next to the development plan to expand it. To progress through DLOC, simply follow the items listed in the development plan. Use your development plan to complete any course exams and surveys. More information on teletraining and exams is presented later in this document.

DLOC Orientation

The first step in completing DLOC is attending DLOC Orientation. This one-hour teletraining session gives you and your Training Officer a chance to meet your lead instructor and to prepare you for taking the course.

Types of Web Modules

There are two types of web modules in DLOC. Self-guided modules allow you to go through the material at your own pace. They have no audio component, and may serve as useful reference material. Instructor-guided modules consist of slides and other types of dynamic content with narration provided by an instructor. To ensure you have a pleasant and effective learning experience, obtain an inexpensive headset or a pair of earphones or ear-buds. These devices will allow you to adequately hear the audio while minimizing disruptions for other nearby staff.

In the Learning Management System, both types of web modules are known as Web-Based Training (WBT). In addition, teletraining is called Instructor-Led Training (ILT). These terms may be important as you navigate through your Development Plan to complete DLOC.

Delivery Method: Exercises in Student Guide, Exercises for the WES, and DLOC Facilitator

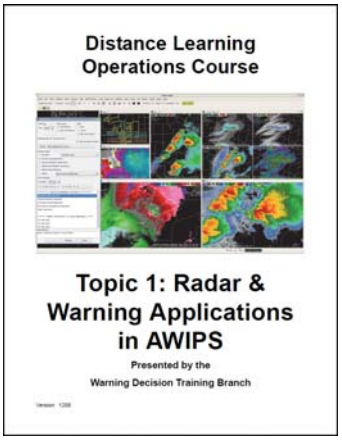
Prerequisite: Orientation Teletraining

Expected Completion Time: 15 - 30 hours

Topic 1 consists of lessons in the printed and interactive exercises for the Weather Event Simulator (WES). The lessons are formatted as a set of "job sheets" and describe the basic functionality and characteristics of using radar products and warning-related tools on the AWIPS workstation. Developed for the WES, the exercises utilize specific test data that is distributed with the WES software. The purpose of the Topic 1 lessons and exercises are:

- Job sheets to introduce fundamental concepts of using radar-related products and warning-related tools on the AWIPS workstation
- WES exercises to facilitate more in-depth and applied learning using a pre-packaged data set.

Topic 1: "Radar and Warning Applications Using AWIPS"



DLOC in FY13 is being retooled to incorporate both dual-polarization and AWIPS-2. The AWIPS-2 improvements include a special early, pre-distribution version of the WES-2 Bridge software, the WES-2 Bridge hardware mod kit, accompanying test data sets, and WES exercises for both Topic 1 and Topic 8. Because of delays in both AWIPS-2 and the corresponding WES-2 Bridge development, the WES exercises and accompanying materials were not ready at press time. So, the Topic 1 Student Guide, the WES exercises for Topics 1 and 8, and all WES-2 Bridge materials will be delivered separately. Also, special teletraining sessions will be held for the DLOC Facilitator, Local

AWIPS-2 and WES-2 Bridge

WES Focal Point, and/or the Information Technology Officer (ITO) on the installation, configuration, and utilization of the WES-2 Bridge hardware and software for DLOC.

Lessons and Exercises

While the detailed structure of the Topic 1 lessons and exercises may change, the lessons and exercises generally are grouped into four categories:

- Basic Manipulations in AWIPS-2
- Loading Radar and Radar-Related Products
- Radar-Related Tools for Interrogation
- Other Tools/Tasks in AWIPS-2

While this structure will remain, the exact details of the number of exercises and the time required will change somewhat.Each section has a corresponding set of review questions in the LMS. These questions, along with the job sheets and the WES exercises, will prepare you for the AWIPS Proficiency Exam. The AWIPS Proficiency Exam is administered by your local training officer, and it is required before completing Topic 8 and attending the DLOC Workshop. Lesson 1 of Topic 8 (workshop primers) will provide you an opportunity to apply Topic 1 AWIPS skills in a warning context, which will aid you in transitioning to the operational simulations conducted at the DLOC Workshop.

Achieving AWIPS Radar Proficiency is an essential element to being "warning ready" when you arrive at the DLOC Workshop. After completing the required WES exercises, performing one or more additional WES simulations prior to the workshop would be especially beneficial.

Delivery of Topic 1: TBA

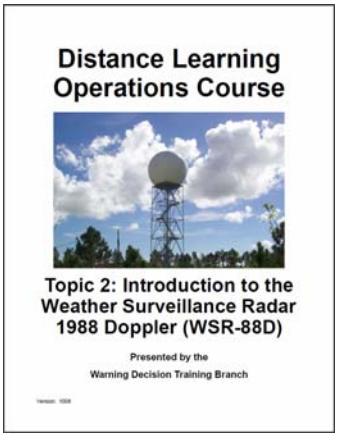
Delivery Method: Self-guided web module

Prerequisite: Orientation Teletraining

Expected Completion Time: 1 hour

An overall system description is provided, covering the equipment groups (the Radar Data Acquisition Unit, Wideband Communications, the Radar Product Generator, the Master System Control Function, the Product Distribution Communications, and the Different User Systems) and their primary subcomponents.

Topic 2: "Introduction to the WSR-88D"



Delivery Method: Self-guided and instructor-guided web modules

Prerequisite: Orientation Teletraining

Expected Completion Time: 9 hours

Topic 3 is divided into eight different lessons. Each lesson also has an on-line exam administered through the LMS.

It is very important to proceed through these lessons in order. For example, Lesson 6, "Operational Impacts of Base Data Quality", is presented with the assumption that you have completed the previous five lessons. Each lesson in Topic 3 has a corresponding exam in the NWS Learning Center.

Topic 3: "Principles of Meteorological Doppler Radar"

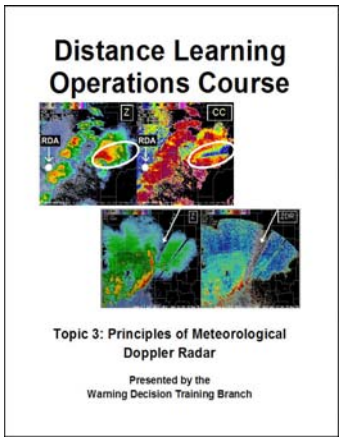
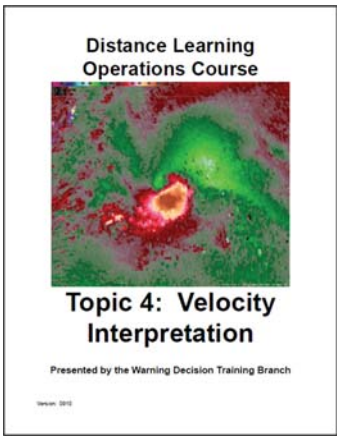


Table 1: Topic 3 – "Principles of Meteorological Doppler Radar"

Lesson	Prerequisite	Delivery Method	Expected Time to Complete
Lesson 1: WSR-88D Fundamentals	Topic 2	Self-guided web module	2 hours
Lesson 2: Base Data Generation	Topic 3, Lesson 1	Instructor-guided web module	1 hour
Lesson 3: More Base Data Generation	Topic 3, Lesson 2	Instructor-guided web module	1 hour
Lesson 4: Filter Cluttering & Range Unfolding Velocity	Topic 3, Lesson 3	Instructor-guided web module	1 hour
Lesson 5: Dealiasing Velocity & Pre-Processing Dual-Pol	Topic 3, Lesson 4	Instructor-guided web module	1 hour
Lesson 6: Operational Impacts of Base Data Generation	Topic 3, Lesson 5	Instructor-guided web module	1 hour
Lesson 7: Precipitation Estimation	Topic 3, Lesson 6	Instructor-guided web module	1 hour
Lesson 8: More Precipitation Estimation	Topic 3, Lesson 7	Instructor-guided web module	1 hour

Topic 4: "Velocity Interpretation"



Delivery Method: Instructor-guided web modules

Prerequisite: Topic 3

Expected Completion Time: 1.5 hours

Topic 4 provides the basic principles to identify and interpret radial velocity signatures and the vertical wind profile. This topic also describes various velocity patterns, including horizontal discontinuities (e.g., fronts), convergence/divergence, and rotational signatures. It is divided into two lessons:

- Large-Scale Doppler Velocity Patterns
- Storm-Scale Doppler Velocity Patterns

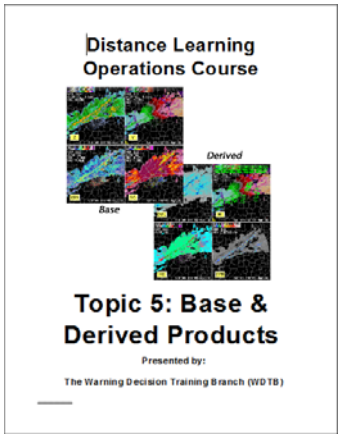
Both lessons have a corresponding exam and additional practice questions are provided.

Delivery Method: Instructor-guided web modules, teletraining

Prerequisite: Topic 4

Expected Completion Time: 12-14 hours

Topic 5: "Base and Derived Products"



This Topic presents the characteristics, applications, and limitations for all of the base products and the majority of the derived products produced by the RPG. For derived products, relevant information about the algorithm that produces the product will be discussed. The lessons are divided up into the following sections:

- Base Products (Lessons 1-10)
- Reflectivity Derived Products (Lessons 11-16)
- Velocity Derived Products (Lessons 17-19)
- Dual-Pol Derived Products (Lessons 20-21)
- Precipitation Estimation Products (Lessons 22-24)
- Threat-based Case Studies (Lesson 25)

Topic 5 Teletraining

The last lesson, Lesson 25, is a two-hour, live, instructor-led teletraining session where the instructor will cover the application of the WSR-88D products in the warning decision making process how to effectively manage your AWIPS2 workstation for warning decision making. It is an interactive session with many quizzes/decision points throughout. It is essential that you complete the first 24 lessons before attending this session.

Supplemental Material

There is also a Supplemental section which consists of products produced by the RPG but may be less commonly used. These are not required to complete Topic 5, but are available for your information.

Table 2: Topic 5 – Base and Derived Products

Lesson	Completion Time
Introduction and Background	
Lesson 1: Introduction	10 minutes
Lesson 2: Background	15 minutes
Base Products	
Lesson 3: Base Reflectivity (Z)	** Times for Lessons 3-24 are TBD*
Lesson 4: Base Velocity (V)	
Lesson 5: Storm Relative Velocity Map (SRM)	
Lesson 6: Base Spectrum Width (SW)	
Lesson 7: Correlation Coefficient (CC)	
Lesson 8: Differential Reflectivity (ZDR)	
Lesson 9: Specific Differential Phase (KDP)	
Lesson 10: Base Data Cross-Section Tools (FSI & VB)	
Reflectivity Derived Products	
Lesson 11: Storm Cell Identification & Tracking (SCIT) Algorithm	
Lesson 12: Storm Tracking Information (STI)	
Lesson 13: Hail Index (HI)	
Lesson 14: Digital Vertical Integrated Liquid (DVIL)	
Lesson 15: Composite Reflectivity (CZ)	
Lesson 16: Enhanced Echo Tops (EET)	
Velocity Derived Products	
Lesson 17: Velocity Azimuth Display Wind Profile (VWP)	
Lesson 18: Mesocyclone (MD) and Digital Mesocyclone (DMD)	
Lesson 19: Tornadic Vortex Signature (TVS)	
Dual-Pol Derived Products	
Lesson 20: Hydrometeor Classification (HC)	
Lesson 21: Melting Layer (ML)	
Precipitation Estimation Products	
Lesson 22: PPS Rainfall Products	
Lesson 23: QPE Rainfall Products	
Lesson 24: Snowfall Products	
Teletrainig Session	
Lesson 25: Threat-based Case Studies	2.5 hours

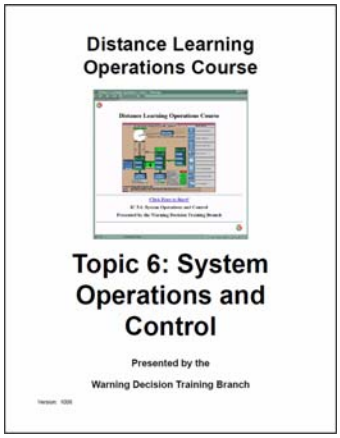
Delivery Method: Self-guided web module

Prerequisite: Topic 5

Expected Completion Time: 2 hours

This module provides an understanding of overall WSR-88D operations and basic familiarization with the Master System Control Function (MSCF) and the Radar Product Generator (RPG) Human Computer Interface (HCI).

Topic 6: "System Operations and Control"



Delivery Method: Web Modules and Teletraining

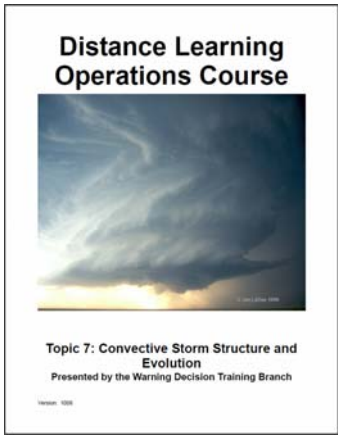
Prerequisites:

- Topic 5
- Skew-T Mastery (available from the COMET METED web site, http://www.meted.ucar.edu)
- "Operational Severe Weather Diagnostic Parameters" -- This is a self-paced interactive web page in the LMS that presents information on a multitude of severe weather sounding parameters. A quiz to test your knowledge of these parameters through application will follow upon completion. Additional review will occur after the completion of all Topic 7 lessons. This will take approximately two hours to complete.

Expected Completion Time: 10-12 hours

Topic 7 describes some important thermodynamic and kinematic parameters developed to evaluate convective severe weather potential. The instruction also treats the fundamental relationships

Topic 7: "Convective Storm Structure and Evolution"



between shear and instability with respect to convective storm type, focusing both on recent observations and numerical simulations of storms. This topic also covers typical environments of weakly sheared and strongly sheared convection, recognition and interpretation of severe storm signatures, and how severe weather signatures are manifested by particular severe weather hazards. Topic 7 consists of 21 individual lessons plus a teletraining session (Lesson 22; see Table 4). Each of the 21 lessons has an associated exam.

Table 3: Topic 7 – Convective Storm Structure and Evolution

Lesson	Completion Time
Lesson 1: Fundamental Relationships Between Shear and Buoyancy on Convective Storm Structure and Type	** Times for all lessons are TBD*
Lesson 2: Ordinary Cell Convection	
Lesson 3: Severe Storm Updraft Identification	
Lesson 4: Updraft Detection Using Dual-Polarization	
Lesson 5: Single Cell Downburst Detection	
Lesson 6: Severe Hail Detection	
Lesson 7: Supercell Dynamics and Motion	
Lesson 8: Supercell Morphology: Radar Reflectivity Characteristics	
Lesson 9: Supercell Morphology: Velocity Structure	
Lesson 10: Supercell Morphology: Dual-Polarization Characteristics	
Lesson 11: Supercell Archetypes	
Lesson 12: Analyzing Tornadic Scale Signatures	
Lesson 13: Tornado Hazards	
Lesson 14: Multicell Archetypes	
Lesson 15: Multicell Longevity and Severity	
Lesson 16: Multicell Motion	
Lesson 17: Rear-Inflow Jets in Multicells	
Lesson 18: Line-End Vortices and Bow Echoes	
Lesson 19: Multicell Severe Wind Hazards	
Lesson 20: Flash Flood Meteorology	
Lesson 21: Flash Flood Hydrology	
Lesson 22: Application and Case Study Teletraining Session	

Delivery Method: Self-guided web modules

Prerequisites:

- Topic 1 WES Exercises (WES Exercise #6)
- Topic 7

Expected Completion Time: 3-4 hours

Topic 8 is composed of several, small modules based on key knowledge and skills required to effectively create SBWs. The first phase of Topic 8 focuses on storm interrogation proficiency through the use of various AWIPS tools. The second phase of this topic provides instruction on the basic fundamentals and strategies for proper storm-based warnings, which covers the following:

- Storm-based warning concepts
- Varying warning scenarios
- Proper warning polygons and text

Delivery of Topic 8 Primers: TBA

Topic 8: "Storm-Based Warning Fundamentals"

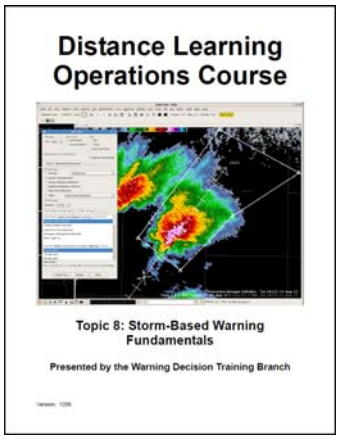


Table 4: Topic 8 – Storm-Based Warning Fundamentals

Lesson	Completion Time
Lesson 1: Storm-Interrogation Primers	1-2 hours
Lesson 2: TOR for Isolated Tornado Threat	10 minutes
Lesson 3: TOR for QLCS Tornado Threat	3 minutes
Lesson 4: TOR/SVR for Backbuilding (Training Storms) Situations	4 minutes
Lesson 5: SVR for Pulse Storms (Low Shear)	4 minutes
Lesson 6: SVR for Squall Line Systems	4 minutes
Lesson 7: Storm Based Warning Special Considerations	18 minutes
Lesson 8: Two TORs in Close Proximity	5 minutes
Lesson 9: Non-Linear Motion	21 minutes
Lesson 10: Merging Storms	4 minutes
Lesson 11: Limiting Number of Counties in Warnings	20 minutes
Lesson 12: Pathcasts in SBWs	18 minutes

Topic 9: "DLOC Workshop"

Delivery Method: Residence Workshop at WDTB in Norman, OK

Prerequisites:

- Successful completion of ***all*** course exams -- ***You will not receive your course certificate at the workshop if you have not completed all of the exams.***
- Topic 1, including the WES Exercises and the AWIPS Proficiency Exam
- Arriving at the workshop "warning ready" -- Performing one or more WES simulations to gain some familiarity with WarnGen prior to the workshop is ***highly recommended***.

Expected Completion Time: 4.5 days (36 hours)

This workshop is the culmination of DLOC. It is offered as an opportunity to apply the instructional topics from the course. In addition to instruction provided in a traditional classroom setting, the workshop utilizes a state of the art laboratory where students will experience simulated operational warning events using the WES. Topics of instruction include:

- Threat assessment and storm interrogation techniques
- Flash flood ingredients and forecasting
- Hail production and detection
- Satellite integration
- Warning decision making
- Storm-based warnings
- AWIPS warning-related applications
- Future evolution of the WSR-88D and AWIPS

Full Course *vs.* Short Course

DLOC students have the option to take the Full Course or a Short Course version. Designed for all personnel who have warning operations, the Full Course includes all course work and the DLOC workshop. The Short Course is often taken by hydrologists. The table below summarizes the content of the Short Course.

Table 5: Summary of DLOC Full Course and Short Course

Topic	Name	Course
	Orientation	Full, Short
Topic 1	Radar and Warning Applications in AWIPS	Full, Short
Topic 2	Introduction to the WSR-88D	Full, Short
Topic 3	Principles of Doppler Radar	Full, Short
Topic 4	Velocity Interpretation	Full, Short
Topic 5	Base and Derived Products	Full, Short
Topic 6	System Operations and Control	Full
Topic 7	Convective Systems	Full
Topic 8	Storm-Based Warning Fundamentals	Full
Topic 9	Workshop (Norman, OK)	Full

Full and Short Course Deadlines

For the Full Course, all materials and tests must be completed before attending the workshop. A certificate of completion will be awarded at the end of the workshop. We will monitor completion using the LMS and help remind you of course deadlines.

For the Short Course, all materials and tests must be completed by **March 29, 2013**. We will forward a certificate of completion after all requirements have been met via the LMS.

DLOC Exams

To receive credit for DLOC, you must pass a series of exams. Some topics have one exam while others have multiple exams. **You are *strongly encouraged* to complete the exam for a particular topic or lesson before moving on to the instruction for the next topic or lesson.**

AWIPS Radar Proficiency Exam

The exam for Topic 1 is the AWIPS Radar Proficiency Exam. This timed exam is administered by your DLOC Facilitator, who asks you to complete a series of tasks at an AWIPS workstation to demonstrate your proficiency at displaying and manipulating radar data. You are ***strongly encouraged*** to complete the AWIPS Radar Proficiency Exam as early in the course as possible! You ***must*** complete this exam before attending Topic 9, the DLOC Workshop! A retake or any other type of remediation task for the AWIPS Proficiency Exam is at the discretion of your DLOC Facilitator.

Online Exams

The exams for Topics 2 through 8 are administered through the Commerce Learning Center LMS. You can access these exams using your Development Plan.

Completion of the DLOC requires a score of at least 70% for each exam taken. The LMS will automatically allow one retake for the on-line exams. ***All course exams must be closed book and taken while you are at the office.***

Sources of Information

As you progress through DLOC, you will need a resource for course information, accessing web modules, registering for teletraining, etc. In addition to your Development Plan, the DLOC home page is the one stop shop for DLOC materials and information. The URL is:

http://wdtb.noaa.gov/courses/DLOC/index.html

This page will provide you with links to everything that you will need. Examples include handy access to course information and details about the DLOC Workshop.

Workshop and Teletraining Registration

Use your Development Plan to register for the DLOC Workshop and teletraining sessions. For each lesson that is delivered using teletraining, you can choose to attend one of several sections that will be available. You may choose the section that best fits your work schedule. ***Enrollment is conducted on a first-come, first-served basis. Therefore, early enrollers are most likely to get the sections they want!*** Similarly, you should use your Development Plan to select your workshop preference.

Enrollment Coordination

It is important that you ***do not register for a particular section until you have coordinated your schedule with local office management***. If there is more than one person from your office enrolled in DLOC, we encourage you to register for the same teletraining sessions. Attending together will enhance your learning experience, as you can often learn from one another.

Coordination is important for another reason. The facility used for your session (often the office conference room) must be available at the date and time of your session.

Course Planning

You have significant flexibility with respect to attending the various teletraining sessions. ***Since you choose which teletraining section to attend, the amount of time between sessions is up to you.*** If you wish to complete the teletraining in a compressed format, there is enough overlap from one Topic to the next to allow you to do so. In fact, it would be possible to attend all of the teletraining within a few weeks, though this would also result in the need to complete one topic and its exam(s) per week! The DLOC planning schedule can be accessed from the DLOC Home Page, and can be used to plan your teletraining attendance.

Teletraining Overview

Teletraining will be conducted using two methods:

1. VISITview software, which is Internet based. You should download and execute the appropriate presentation well before your teletraining session. The presentation can be found on the DLOC Course CD and on the DLOC website. Should an Internet outage occur, VISITview has a local mode, which allows each site to advance the presentation slides on their own. We will use this as a backup mode if necessary, so it is important to be familiar with loading the VISIT local mode for each session that you attend.
2. GoToWebinar will also be used on occasion. Unlike VISITview, GoToWebinar requires no preloading of presentations. The Orientation Teletraining and Topic 3 - Lesson 5 will utilize GoToWebinar.

Audio

For both teletraining methods, we will use a conference call for audio. This will result in better audio quality than could be attained over the Internet. It will also allow the audio connection to remain in place should any interruptions in the data flow occur over the Internet.

The DLOC audio conference phone number is **(866)-564-5812**

The passcode is **2094167#**

Preparing for a Teletraining Session

Prior to your VISITView session, the VISITview files must be downloaded and installed on the PC that will be used for your session. This should be done by your DLOC Facilitator or by his or her designate. An executable file is included on the CD provided with your course materials as well as on the DLOC website. Once the file is downloaded, stored, and extracted on your office teletraining PC, the presentation and all the necessary VISITview software is stored and ready for your session.

NOTE: Please download your VISITview file at least the day before your teletraining session. This will ensure you are ready to go when the session starts. These files are large and take a while to download. They can be retrieved from the disk we provided to the DLOC Facilitator (best option) or downloaded from the DLOC website.

Teletraining Protocol

As a general rule, the instructor does the logistical work and you get to relax and learn. Your instructor will control the slides that are displayed, and will perform most of the annotations. Interaction within the group is very important to the process, and your instructor will do a variety of things to include members of the class. From time to time, students will be called upon to answer questions or draw something on the display. This may be done individually or in groups.

Student Guides

Bring your student guide with you to be used during you teletraining session. The guide will follow the presentation closely, allowing you to take notes and to organize your thoughts. Another tremendous advantage in comprehending the material is to review the guide before your session.

Muting the Phones

We will ask that you keep the microphone on your speakerphone muted during the presentation, except when the instructor calls on you. Though we like to hear from everyone, background noise is inevitable when the microphones are left on during the presentation, and it can sometimes be distracting. In addition, do not put the phone on “hold” during a teletraining session. Many phones play background music which is a disruption to the conference call.

It is very important that local office management understands that you are in a training session and that you should not be interrupted except for rare events. Do whatever you can to secure a quiet area for your session. For example, keep the door closed and/or hang a big “Do Not Disturb” sign somewhere for all to see!

AWIPS-2

The AWIPS-2 improvements include a special early, pre-distribution version of the WES-2 Bridge software, the WES-2 Bridge hardware mod kit, accompanying test data sets, and WES exercises for both Topic 1 and Topic 8. Special teletraining sessions will be held for the DLOC Facilitator, Local WES Focal Point, and/or the Information Technology Officer (ITO) on the installation, configuration, and utilization of the WES-2 Bridge hardware and software for DLOC. More information about these sessions will be announced soon.

DLOC Checklist

You may use the following checklist starting on Page 27 as you progress through DLOC to ensure that you have completed all the necessary elements. This can also be done by accessing your Development Plan in the LMS. We encourage you to coordinate due dates with your DLOC Facilitator to better track your progress.

Table 6: DLOC Summary Checklist

Topics/Lessons/Exams	Delivery Format	Expected Completion Date	Actual Completion Date
Orientation	Teletrainig (GoToWebinar)		
Topic 1: Radar and Warning Applications in AWIPS			
“Basic Manipulations in AWIPS	Student Guide and WES Exercise		
“Radar and Radar-Related Products”	Student Guide and WES Exercise		
“Radar-Related Tools for Interrogation”	Student Guide and WES Exercises		
“Other Tools/Tasks in AWIPS”	Student Guide and WES Exercise		
AWIPS Proficiency Exam			
Topic 2: Introduction to the WSR-88D			
Lesson	Self-guided Web Module		
Exam			
Topic 3: Principles of Meteorological Doppler Radar			
Lesson 1: “WSR-88D Fundamentals”	Self-guided Web Module		
Exam 1			
Lesson 2: “Base Data Generation”	Instructor-guided Web Module		
Exam 2			
Lesson 3:”More Base Data Generation”	Instructor-guided Web Module		
Exam 3			
Lesson 4: “Filtering Clutter & Range Unfolding Velocity”	Instructor-guided Web Module		
Exam 4			
Lesson 5: “Dealiasing Velocity & Pre-Processing Dual-Pol”	Instructor-guided Web Module		
Exam 5			
Lesson 6: “Operational Impacts of Base Data Generation”	Instructor-guided Web Module		

Table 6: DLOC Summary Checklist

Topics/Lessons/Exams	Delivery Format	Expected Completion Date	Actual Completion Date
Exam 6			
Lesson 7: “Precipitation Estimation	Instructor-guided Web Module		
Exam 7			
Lesson 8: “More Precipitation Estimation”	Instructor-guided Web Module		
Exam 8			
Topic 4: Velocity Interpretation			
Lesson 1: “Large-Scale Doppler Velocity Patterns”	Instructor-guided Web Module		
Exam			
Lesson 2: “Storm-Scale Doppler Velocity Patterns”	Instructor-guided Web Module		
Exam			
Topic 5: Base and Derived Products			
Lessons 1-2: “Introduction & Background”	Instructor-guided Web Modules		
Exam 1			
Lessons 3-10: “Base Products”	Instructor-guided Web Modules		
Exam 2			
Lessons 11-16: “Reflectivity Derived Products”	Instructor-guided Web Modules		
Exam 3			
Lessons 17-19: “Velocity Derived Products	Instructor-guided Web Modules		
Exam 4			
Lessons 20-21: “Dual-Pol Derived Products”	Instructor-guided Web Modules		
Exam 5			
Lessons 22-24: “Precipitation Estimation Products	Instructor-guided Web Modules		
Exam 6			

Table 6: DLOC Summary Checklist

Topics/Lessons/Exams	Delivery Format	Expected Completion Date	Actual Completion Date
Lesson 25: Case Study	Teletraining (VISITView)		
Exam 5			
Topic 6: System Operations and Control			
Lesson	Self-guided Web Module		
Exam			
Topic 7: Convective Storm Structure and Evolution			
Lesson 1: “Fundamental Relationships Between Shear and Buoyancy on Convective Storm Structure and Type” and Exam	Instructor-guided Web Module		
Exam 1			
Lesson 2: “Ordinary Cell Convection”	Instructor-guided Web Module		
Exam 2			
Lesson 3: “Severe Storm Updraft Identification”	Instructor-guided Web Module		
Exam 3			
Lesson 4: “Updraft Detection Using Dual-Polarization”	Instructor-guided Web Module		
Exam 4			
Lesson 5: “Single Cell Downburst Detection”	Instructor-guided Web Module		
Exam 5			
Lesson 6: “Severe Hail Detection”	Instructor-guided Web Module		
Exam 6			
Lesson 7: “Supercell Dynamics and Motion”	Instructor-guided Web Module		
Exam 7			
Lesson 8: “Supercell Morphology: Radar Reflectivity Characteristics”	Instructor-guided Web Module		
Exam 8			

Table 6: DLOC Summary Checklist

Topics/Lessons/Exams	Delivery Format	Expected Completion Date	Actual Completion Date
Lesson 9: “Supercell Morphology: Velocity Structure”	Instructor-guided Web Module		
Exam 9			
Lesson 10: “Supercell Morphology: Dual-Polarization Characteristics”	Instructor-guided Web Module		
Exam 10			
Lesson 11: “Supercell Archetypes”	Instructor-guided Web Module		
Exam 11			
Lesson 12: “Analyzing Tornadic Scale Signatures”	Instructor-guided Web Module		
Exam 12			
Lesson 13: “Tornado Hazards”	Instructor-guided Web Module		
Exam 13			
Lesson 14: “Multicell Archetypes”	Instructor-guided Web Module		
Exam 14			
Lesson 15: “Multicell Longevity and Severity”	Instructor-guided Web Module		
Exam 15			
Lesson 16: “Multicell Motion”	Instructor-guided Web Module		
Exam 16			
Lesson 17: “Rear-Inflow Jets in Multicells”	Instructor-guided Web Module		
Exam 17			
Lesson 18: “Line-End Vortices and Bow Echoes”	Instructor-guided Web Module		
Exam 18			
Lesson 19: “Multicell Severe Wind Hazards”	Instructor-guided Web Module		
Exam 19			

Table 6: DLOC Summary Checklist

Topics/Lessons/Exams	Delivery Format	Expected Completion Date	Actual Completion Date
Lesson 20: “Flash Flood Meteorology”	Instructor-guided Web Module		
Exam 20			
Lesson 21: “Flash Flood Hydrology”	Instructor-guided Web Module		
Exam 21			
Lesson 22: “Application and Case Study”	Teletraining (VISITView)		
Topic 8: Storm-Based Warning Fundamentals			
Lesson 1: “Storm-Interrogation Primers”	Instructor-guided Web Module		
Lesson 2: “TOR for Isolated Tornado Threat”	Instructor-guided Web Module		
Lesson 3: “TOR for QLCS Tornado Threat”	Instructor-guided Web Module		
Lesson 4: “TOR/SVR for Backbuilding (Training Storms) Situations”	Instructor-guided Web Module		
Lesson 5: “SVR for Pulse Storms (Low Shear)”	Instructor-guided Web Module		
Lesson 6: “SVR for Squall Line System”	Instructor-guided Web Module		
Lesson 7: “Storm-Based Warning Special Considerations”	Instructor-guided Web Module		
Lesson 8: “Two TORs in Close Proximity”	Instructor-guided Web Module		
Lesson 9: “Non-Linear Motion”	Instructor-guided Web Module		
Lesson 10: “Merging Storms”	Instructor-guided Web Module		
Lesson 11: “Limiting Number of Counties in Warnings”	Instructor-guided Web Module		
Lesson 12: “Pathcasts in SBWs”	Instructor-guided Web Module		
Exam (Lessons 2-12)			
Topic 9: DLOC Workshop			

Table 6: DLOC Summary Checklist

Topics/Lessons/Exams	Delivery Format	Expected Completion Date	Actual Completion Date
Workshop in Norman, OK	In-Residence Workshop		