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Development of a Pilot Interactive Training Program for ATTACC Users

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Construction Engineering Research Laboratory

Foreword

This study was conducted for Commander, U.S. Army Corps of Engineers and the U.S. Army Training Support Center (ATSC) under A896 "Base Facilities Environmental Quality"; Work Unit CNC-T091, "Development of an Interactive Training Program for ATTACC Users." The technical monitor was Dr. William D. Severinghaus.

The work was performed by the Land and Heritage Conservation Branch (CN-C) of the Installations Division (CN), Construction Engineering Research Laboratory (CERL). The CERL Principal Investigators were Mr. Michael L. Denight and Ms. Gwyn L. Howard. The technical editor was Gloria J. Wienke, Information Technology Laboratory. Mr. Stephen E. Hodapp is Chief, CEERD-CN-C, and Dr. John T. Bandy is Chief, CEERD-CN. The associated Technical Director was Dr. William D. Severinghaus, CEERD-CV-T. The Acting Director of CERL is Mr. William D. Goran.

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1 Introduction

Background

The Army Training and Testing Area Carrying Capacity (ATTACC) methodology is the Integrated Training Area Management (ITAM) standard for estimating training land carrying capacity by relating training load, land condition, and land maintenance practices. Various decision support tools have been developed to simplify and automate the ATTACC methodology. These decision support tools include the Workplan Analysis Module (WAM), ATTACC Integration Module (AIM), ATTACC functions of the Range Facility Management Support System (RFMSS), and Land Condition Module (LCM).

Objective

The objective of this work was to develop an interactive computer-based training program for users of the ATTACC decision support tools. This software manual documents the development of the ATTACC tutorial program.

Approach

Authorware 5.1,* which uses object-oriented programming, was used in the development of this tutorial. Authorware is a program that allows the author to assemble multimedia into a functioning and comprehensive package for delivery via the Web, LANs, and CD-ROMs. It is the language in which many current and future models are being programmed; communication between programs would be easily accomplished.

* Authorware is a product of Macromedia, 600 Townsend Street, San Francisco, CA 94103.

Mode of Technology Transfer

The computer program documented in this report allows installations to implement the ATTACC methodology. The information in this report was provided to Army personnel responsible for ATTACC implementation including the U.S. Army Environmental Center (AEC), the U.S. Army Training Support Center (ATSC), and the Engineer Research and Development Center (ERDC).

The ATTACC Tutorial

To manually install the ATTACC tutorial CD-ROM, begin with the following steps.

1. Insert the CD-ROM into the CD-ROM drive.
2. Open the CD-ROM drive on your computer screen.
3. Double click on the ATTACCtutorialv1.exe file.
4. The introduction screen will appear and you may press the "Continue" button to proceed through the rest of the program. Figure 1 illustrates the opening screen.

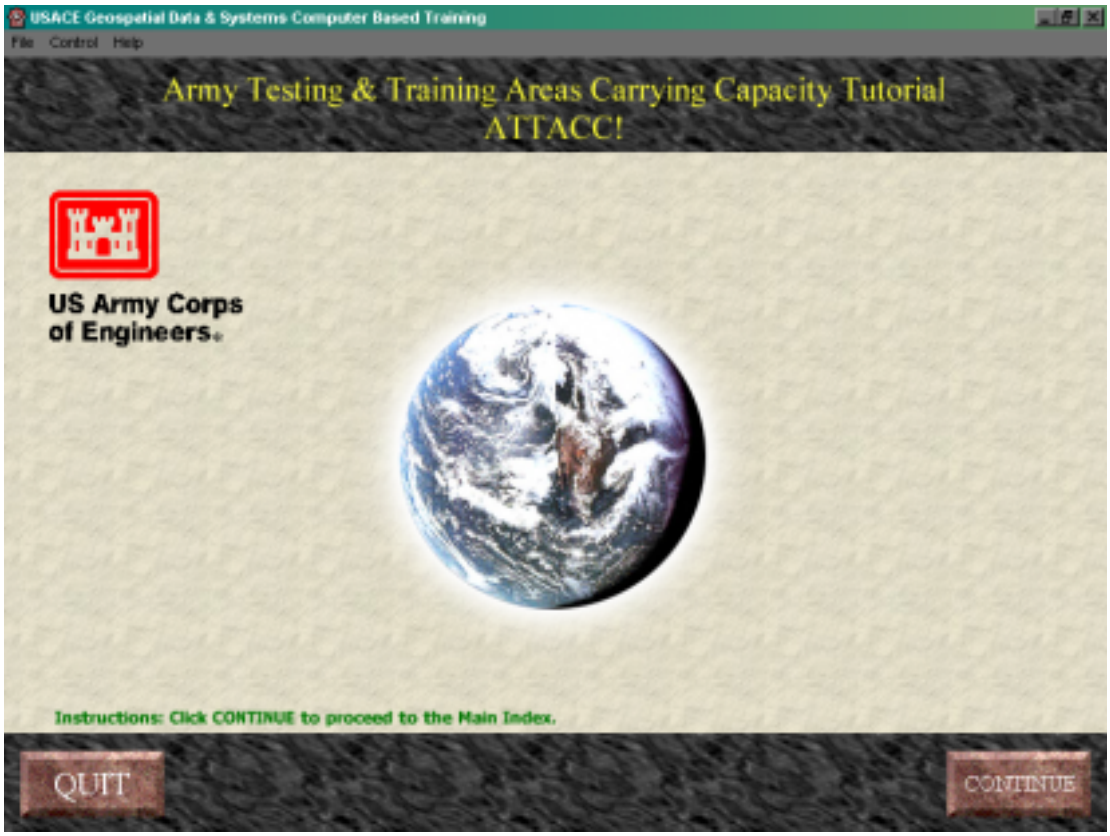

Figure 1. Opening screen of the ATTACC tutorial.

By clicking on the “Continue” button, the following screen will appear (Figure 2). This is the main index page for the tutorial.

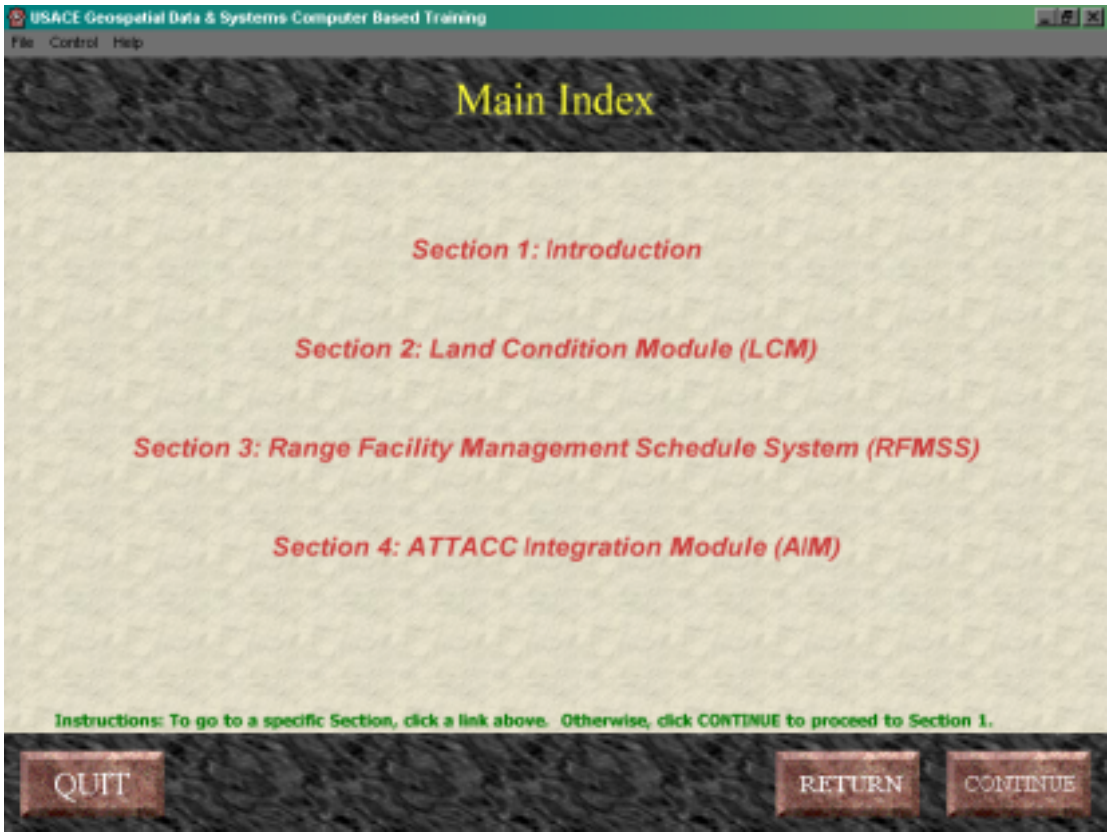

Figure 2. Main index page for the tutorial.

The "Section 1: Introduction" selection (Figure 3) provides a screen that addresses the overall organization of the tutorial. It provides information on where the objectives and summaries for each section are located, and how to make use of the "Help" menus and pages.

Figure 3. Introduction screen.

Section 1 provides an overview of what ATTACC is and how it can benefit Land Managers (Figures 4 and 5).

Figure 4. Section 1 objectives.

Figure 5. Section 1 overview.

Figure 6 shows a screen that provides a general introduction to the concepts of ITAM and ATTACC. Those items highlighted in red text on the screen can be clicked on to generate a definition as shown in the following.

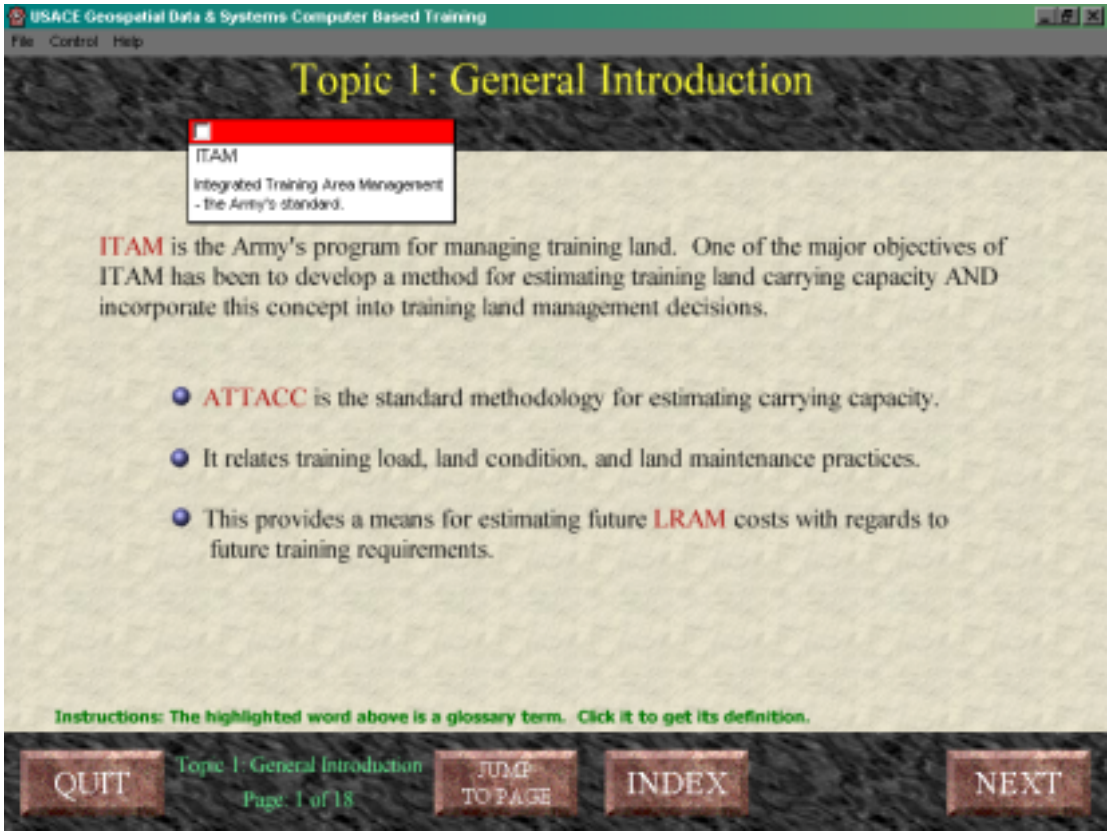

Figure 6. General introduction screen with highlighted ITAM definition box.

The screen shown in Figure 7 outlines the suite of decision support tools used within the ATTACC methodology.

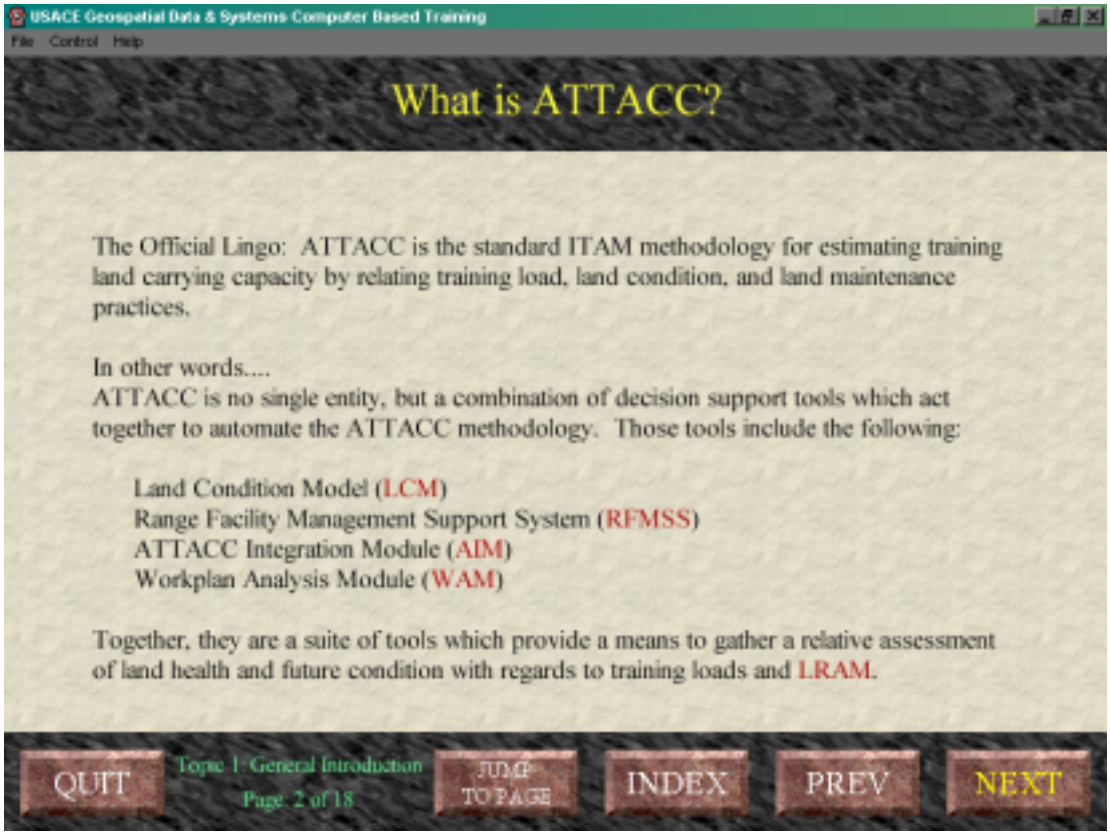

Figure 7. Decision support tools that form ATTACC.

The screen shown in Figure 8 provides a conceptual framework for the ATTACC tools and a definition for each. The tools are outlined in red on the screen and are accompanied by a definition for that specific tool. The example provided is for the RFMSS.

Figure 8. ATTACC structure outline.

Within Section 2 (Figure 9), the Land Condition Module is introduced. The main topic being addressed is the concept of Erosion Status (ES) (Figure 10). This topic area is discussed in detail due to the important part it plays in the ATTACC methodology; it determines acceptable soil loss levels for a given parcel of land.

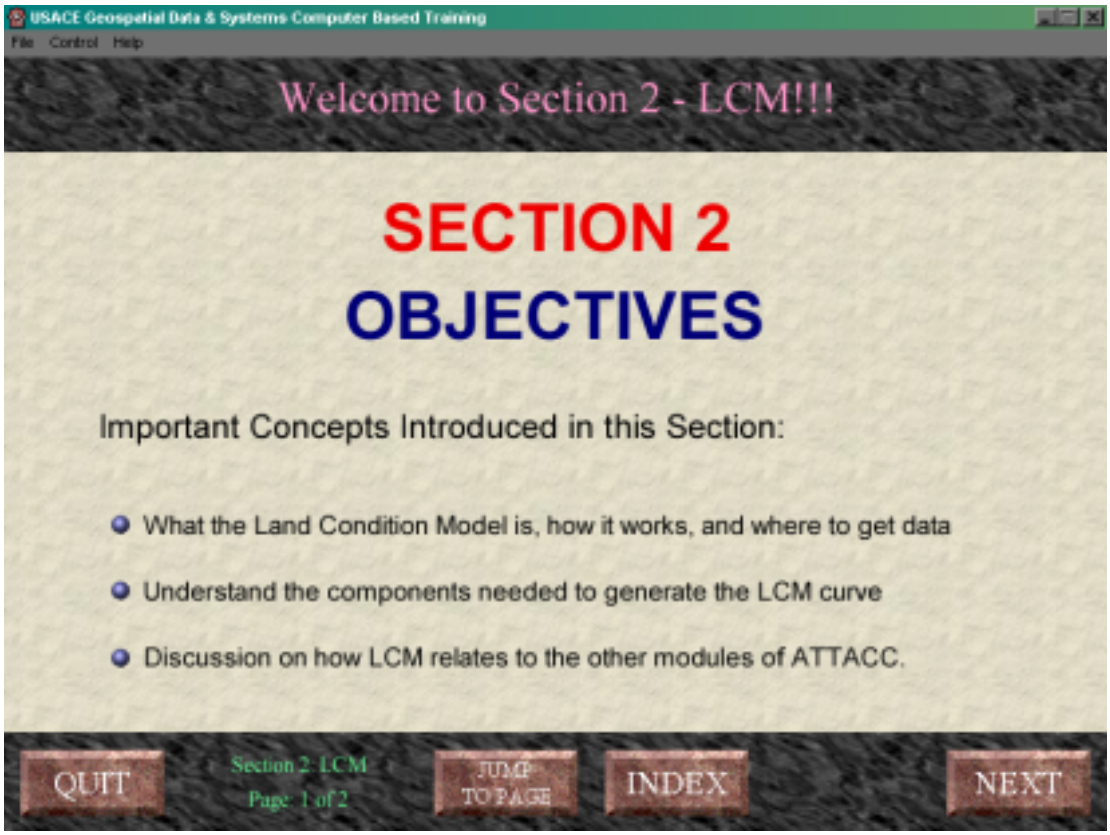

Figure 9. Section 2 screen.

Figure 10 outlines the method for calculating land condition in terms of Erosion Status and the factors that are taken into consideration.

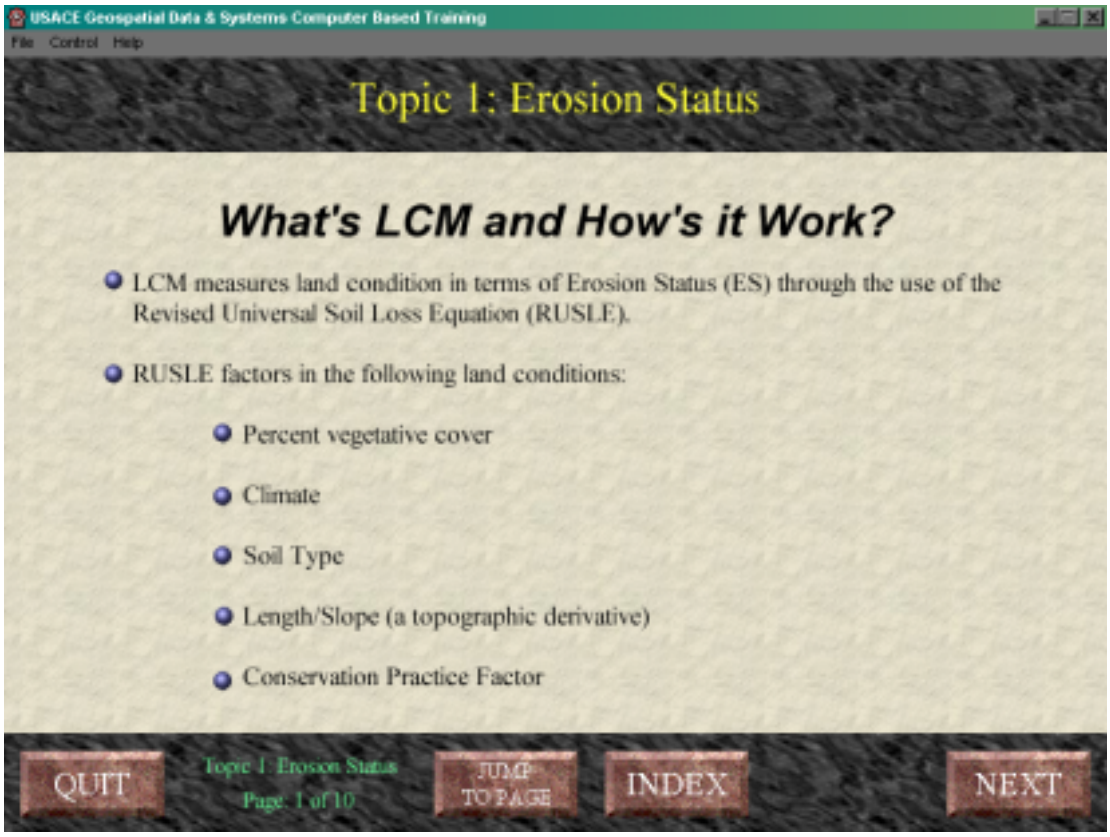

Figure 10. Introduction to Erosion Status screen.

Figure 11 illustrates the Revised Universal Soil Loss Equation (RUSLE) used for calculating Erosion Status.

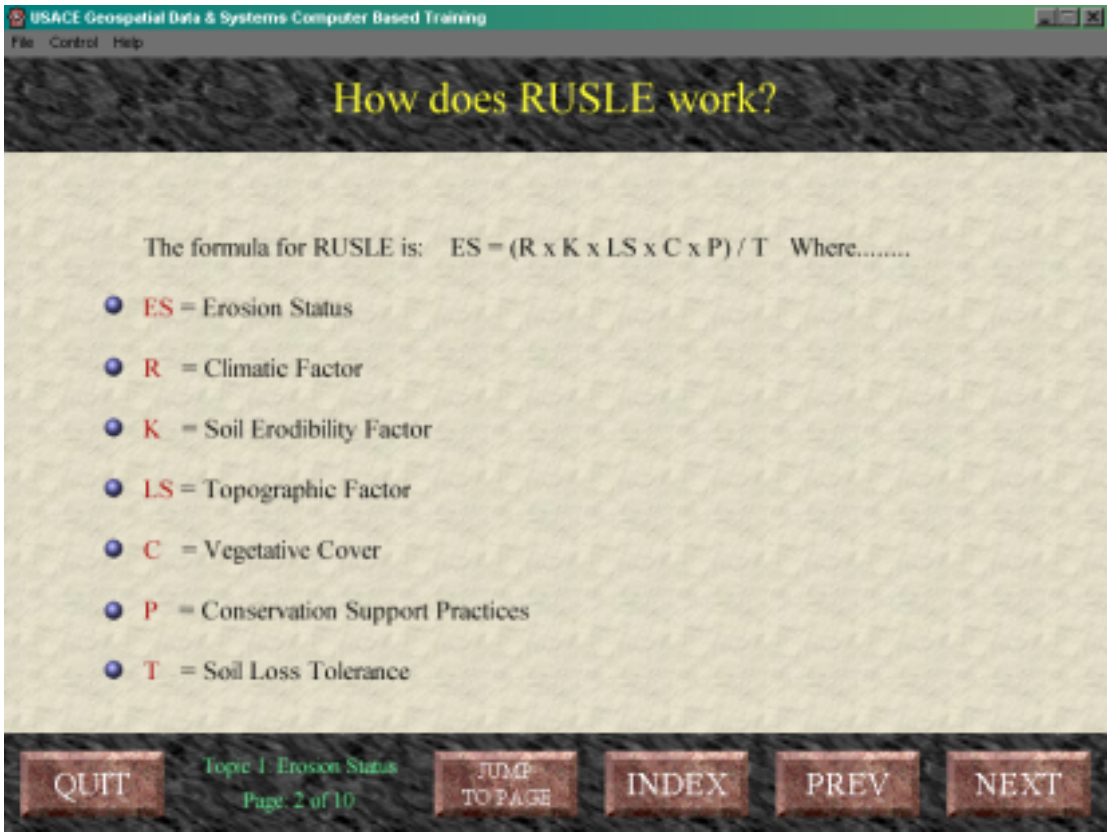

Figure 11. RUSLE equation used for determining soil loss.

Data for input to RUSLE can be obtained in a variety of places, as illustrated by Figure 12.

Figure 12. Data availability for RUSLE.

ES is used to determine the Land Condition Curve illustrated in Figure 13.

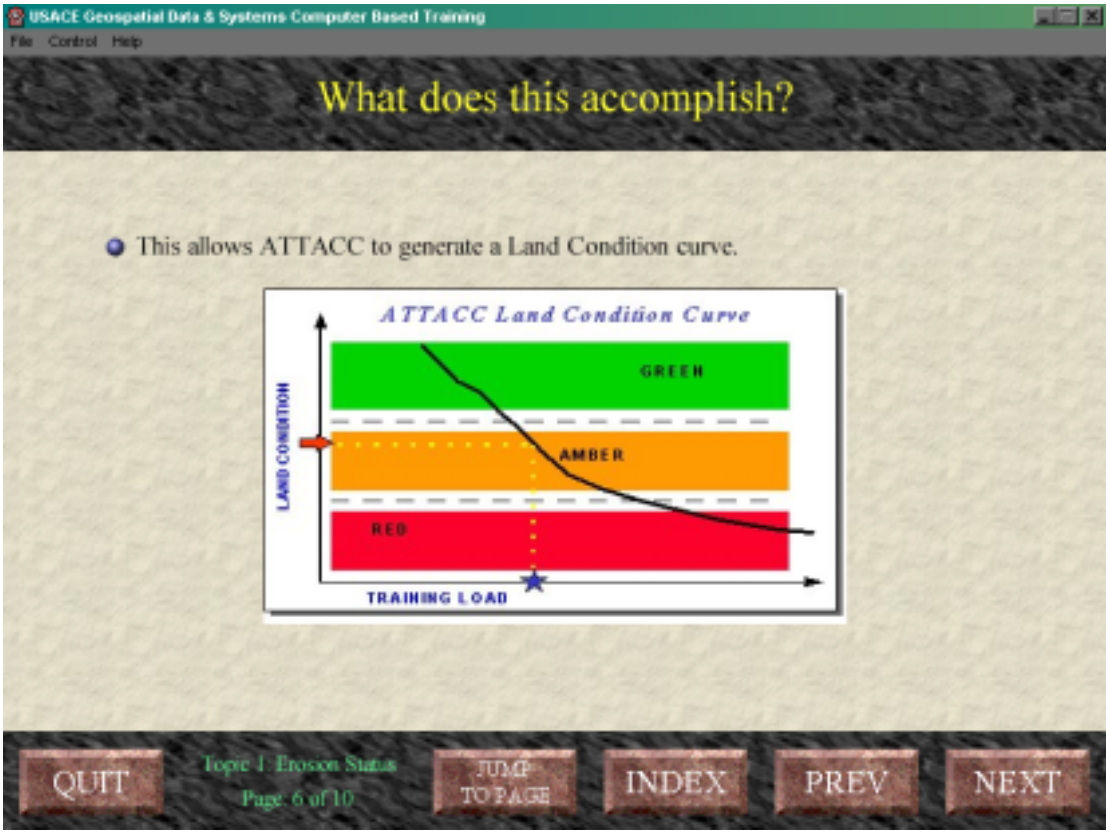

Figure 13. Land Condition Curve.

As Figure 14 illustrates, the Land Condition Curve can be shifted toward a more sustainable condition to allow a greater training load with appropriate Land Rehabilitation and Maintenance (LRAM) inputs.

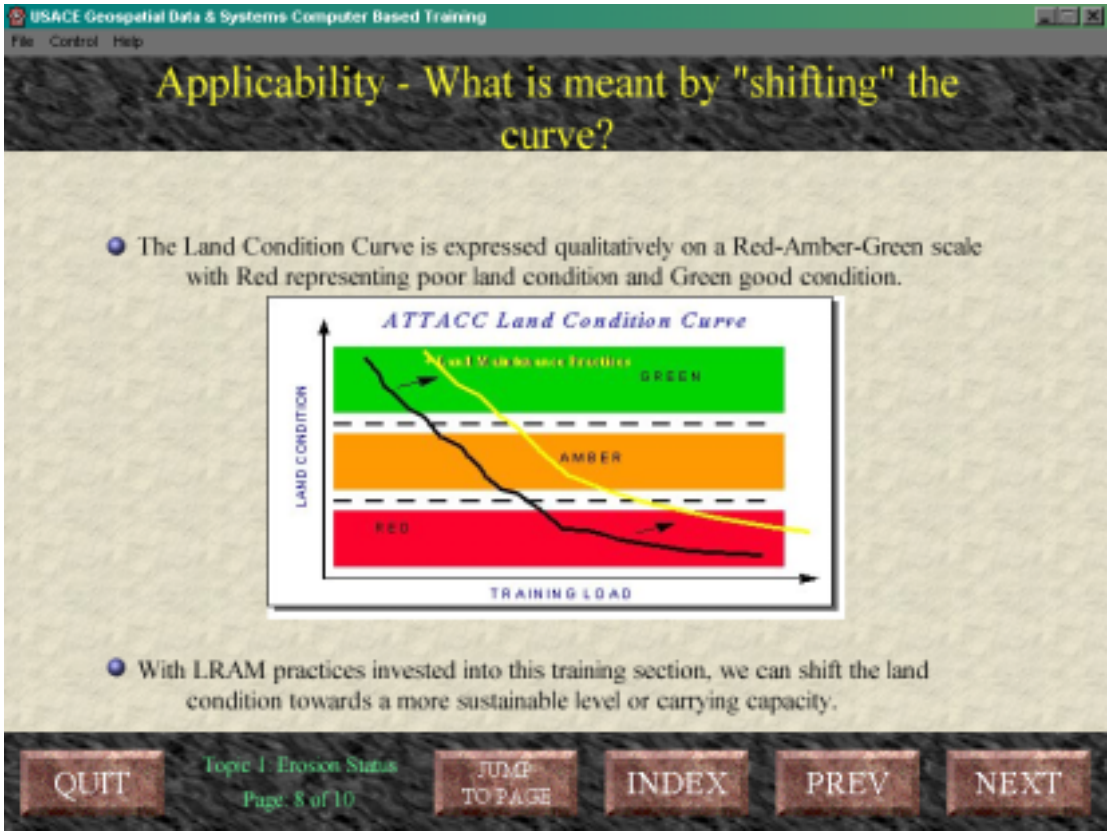

Figure 14. Land Condition Curve shift.

Determining ES through the use of the LCM is integral to the ATTACC methodology. Figure 15 summarizes a few of the more important points addressed by this system.

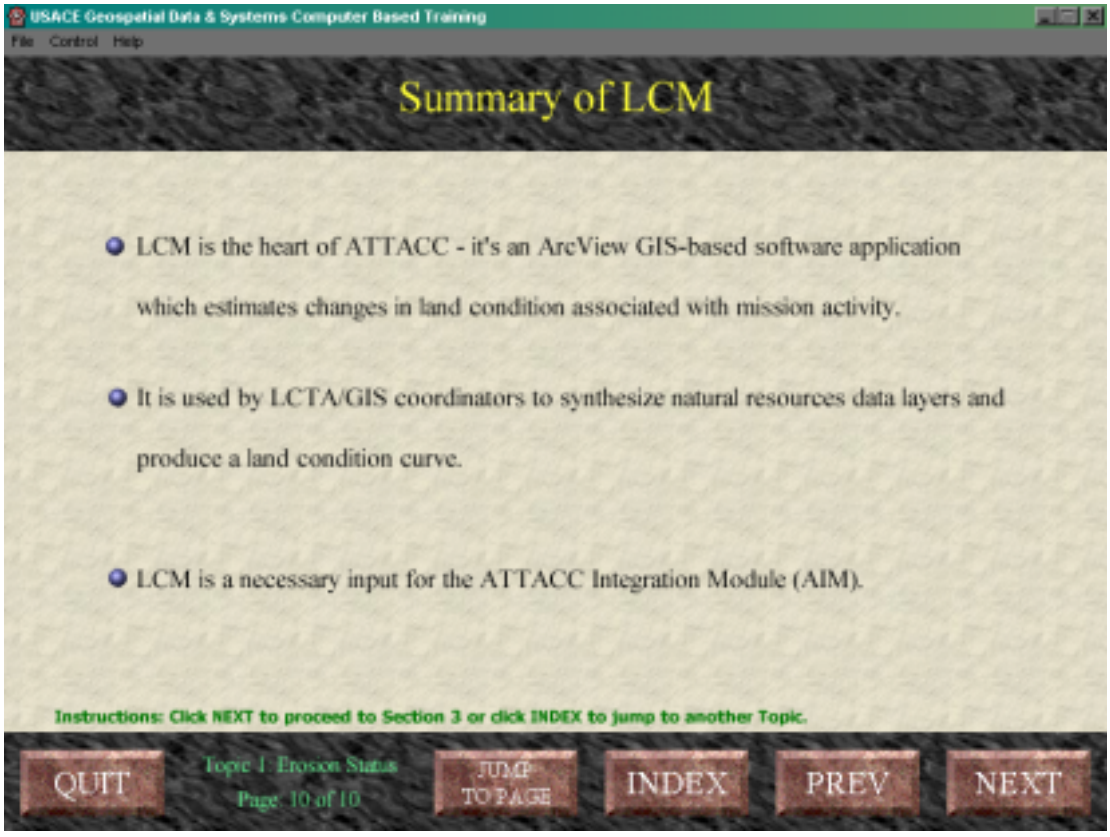

Figure 15. Summary of LCM screen.

The RFMSS is another key component to the ATTACC methodology. RFMSS (Figure 16) is primarily focused on tracking and calculating the impact of Maneuver Impact Miles (MIMs).

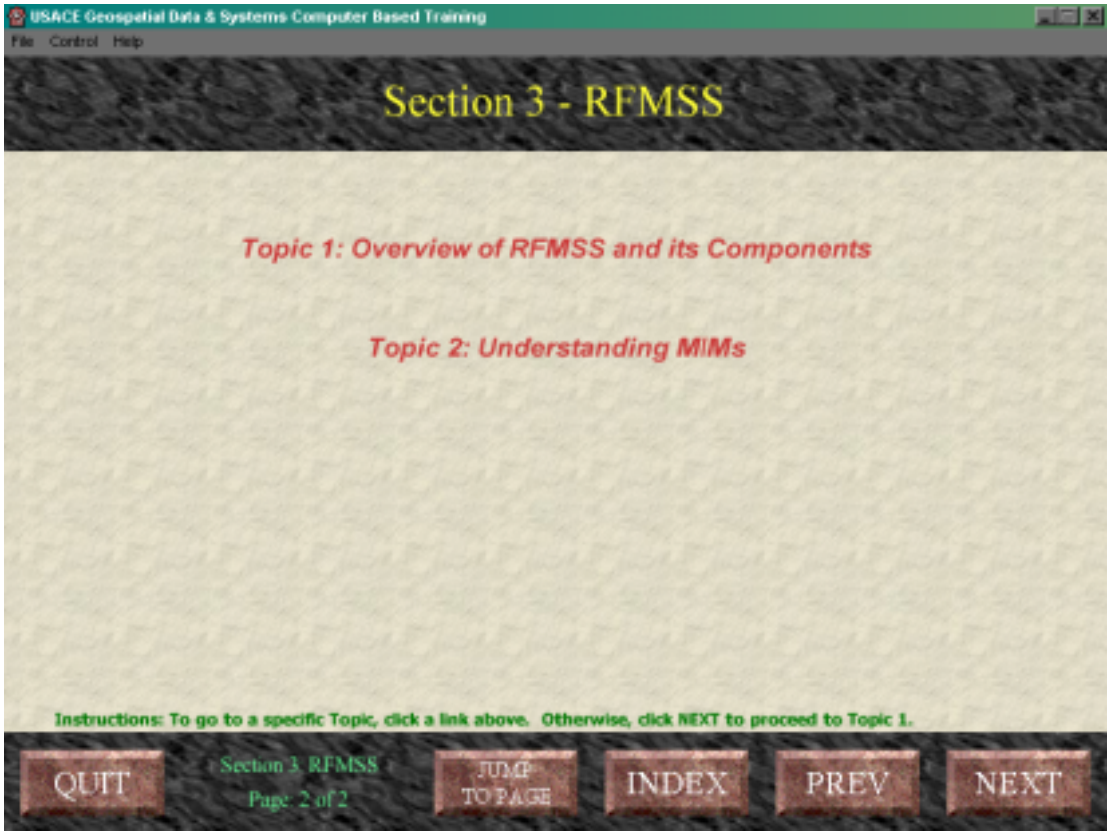

Figure 16. RFMSS opening screen.

The topic of RFMSS was divided into several parts (Figure 17).

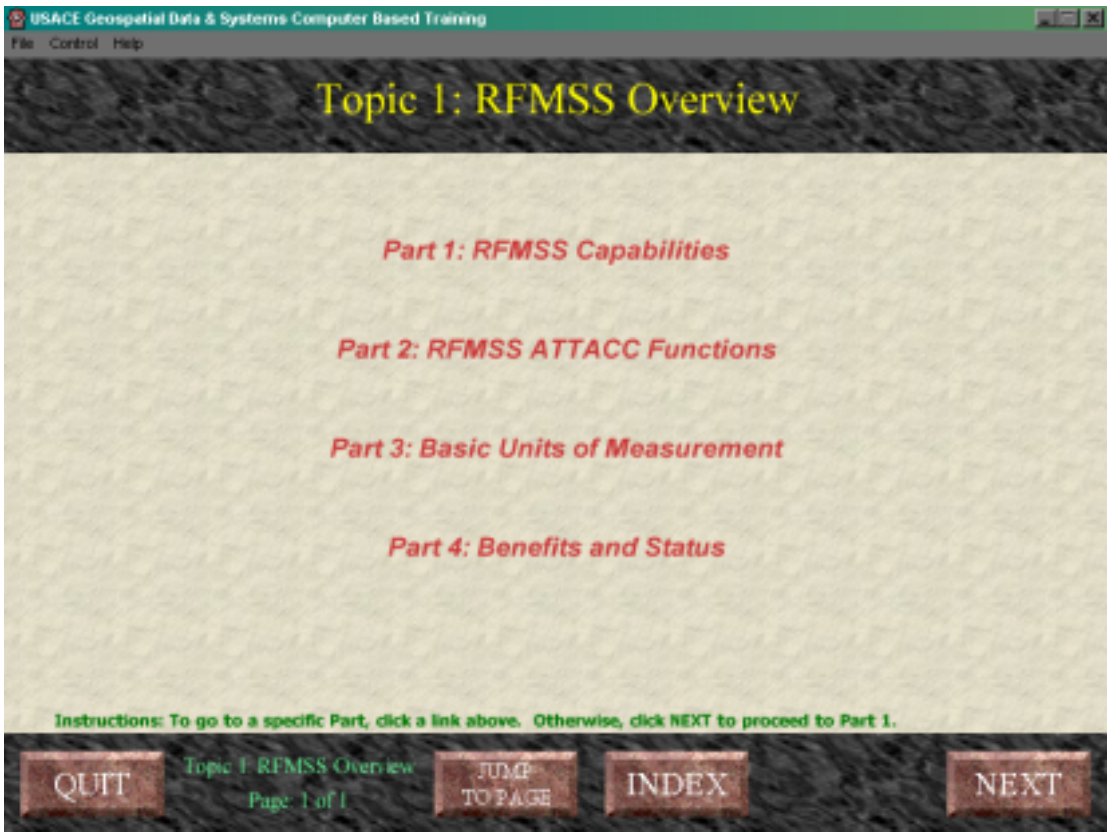

Figure 17. Parts of RFMSS system.

Overall the most salient item addressed within this part of the tutorial is Topic 2 "MIMs." As illustrated in Figure 18, MIMs are an integral part of the ATTACC calculations.

Figure 18. MIM screen.

In addition to pop-up menus and definitions, the tutorial incorporates weblinks to commonly used Army sites (Figure 19).

Figure 19. Weblink screen for additional help.

Section 4, as seen in Figure 20, briefly covers the ATTACC Integration Module (AIM).

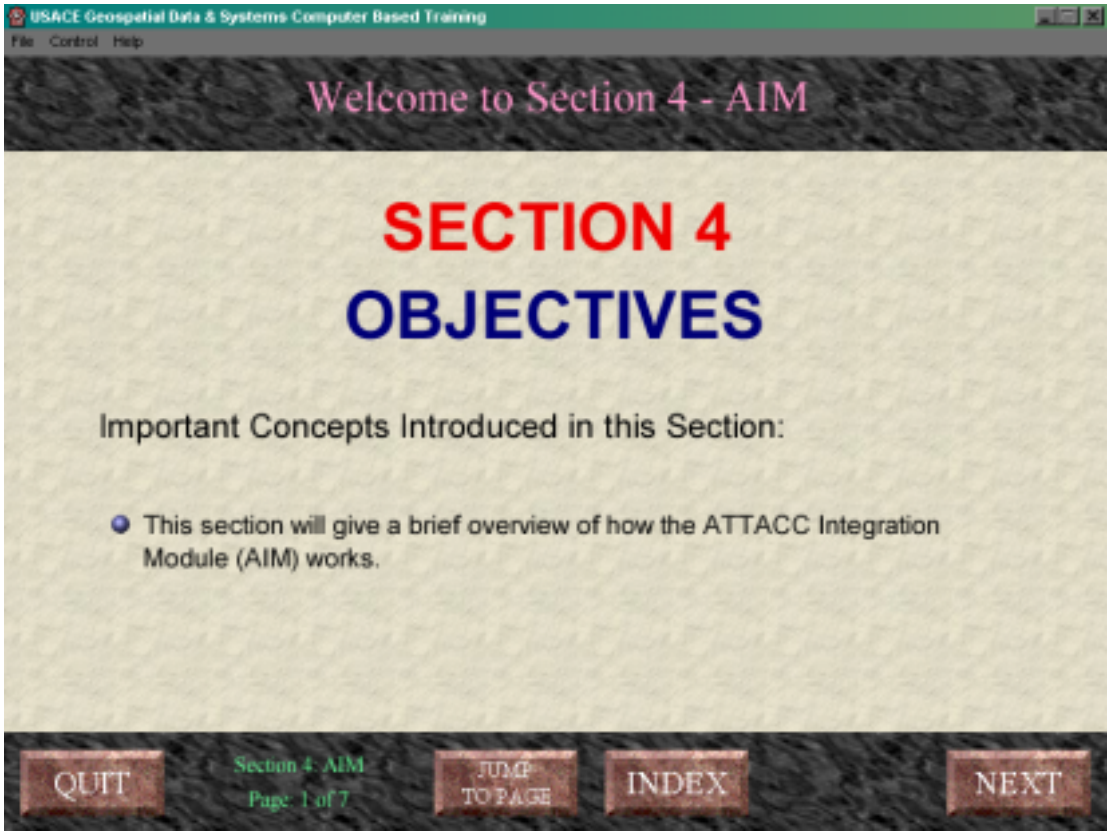

Figure 20. AIM screen.

AIM integrates all components of the ATTACC system (Figures 21, 22, and 23). It takes into consideration the LCM and MIMs to establish required data to be used in the Workplan Analysis Module (WAM).

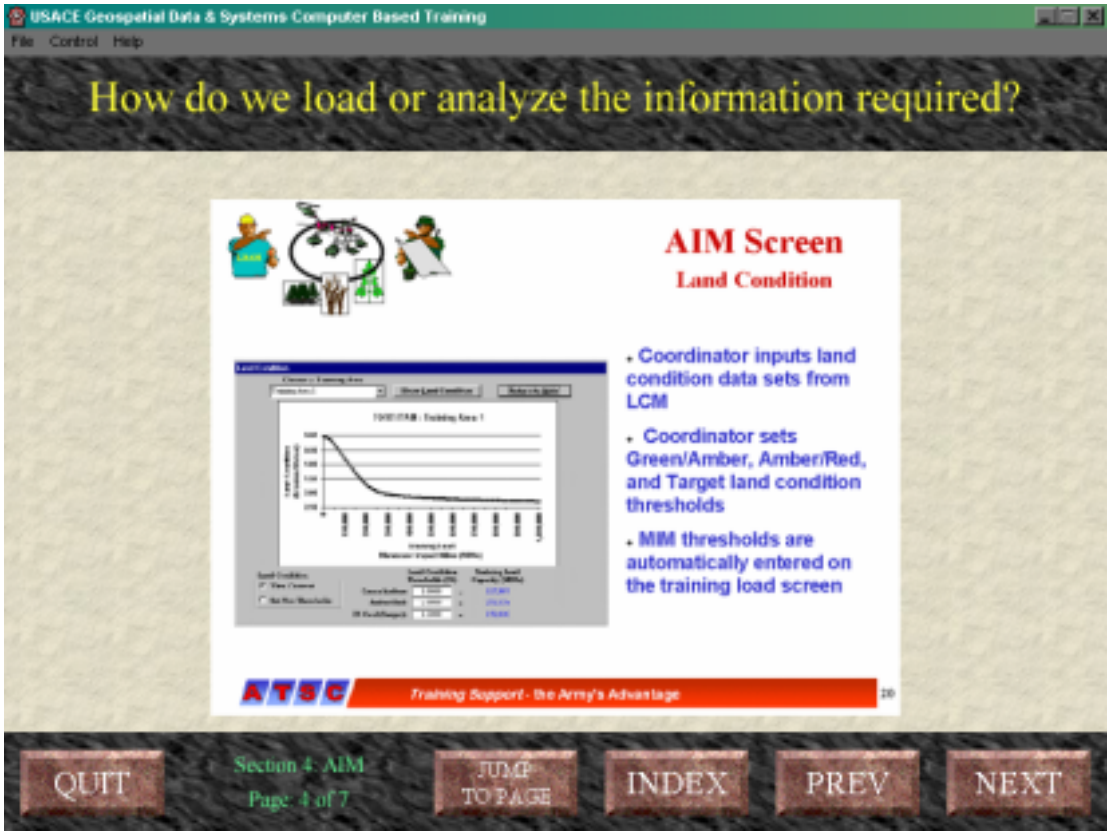

Figure 21. AIM Land Condition screen example.

Figure 22. AIM Training Load screen example.

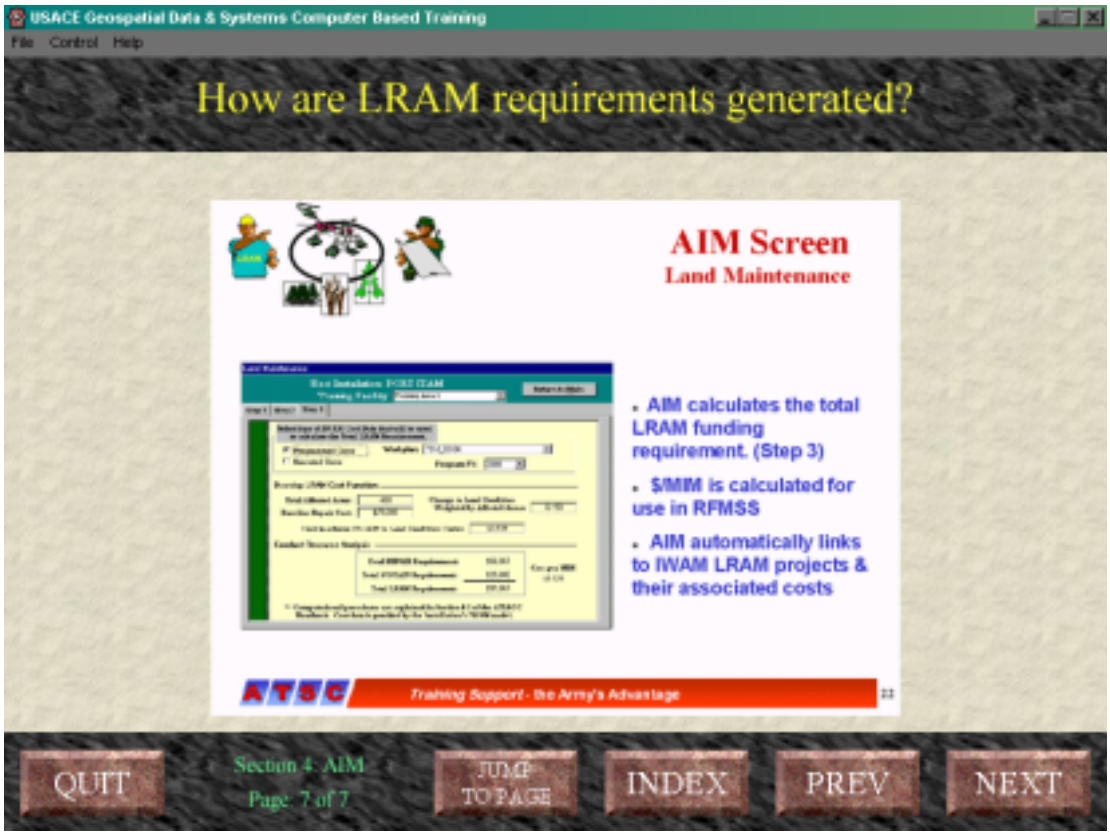

Figure 23. AIM Land Maintenance screen example.

References

Anderson, A.B., and P. Sydelko. 1999. *Developing Land Condition Curves for the ATTACC Model.* Construction Engineering Research Laboratory (CERL) TR 99/67, Champaign, IL. Limited distribution; contact U.S. Army Environmental Center, ATTN: SFIM-AEC-ECN; Aberdeen Proving Ground, MD 21010-5401.

U.S. Army Environmental Center. 1999. "U.S. Army Training and Testing Area Carrying Capacity (ATTACC), Handbook for Installations." Version 1.0. This document and related information about ATTACC are available through the Integrated Training Area Management website at www.army-itam.com.

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14. ABSTRACT

The Army Training and Testing Area Carrying Capacity (ATTACC) methodology is the Integrated Training Area Management (ITAM) standard for estimating training land carrying capacity by relating training load, land condition, and land maintenance practices. Various decision support tools have been developed to simplify and automate the ATTACC methodology.

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