ILWIS 2.1 for Windows

The Integrated Land and Water Information System

Reference Guide

ILWIS Department,
International Institute for
Aerospace Survey & Earth Sciences
Enschede, The Netherlands

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Preface

ILWIS is an acronym for the Integrated Land and Water Information System. It is a Geographic Information System (GIS) with Image Processing capabilities. ILWIS has been developed by the International Institute for Aerospace Survey and Earth Sciences (ITC), Enschede, The Netherlands. For more than a decade, since 1985, the software has undergone major improvements. The last of these includes the change from DOS to the Windows environment. The release of ILWIS for Windows marks a new era in the development of the software.
As a GIS and Remote Sensing package, ILWIS allows you to input, manage, analyze and present geographical data. From the data you can generate information on the spatial and temporal patterns and processes on the earth surface.

The ILWIS media

The ILWIS Reference Guide is part of the documentation for ILWIS 2.1. The full documentation includes:

- ILWIS Installation Guide. Instructions for setting up ILWIS and guidelines for setting up hardware, such as digitizers and printers;
- ILWIS Beginner's Guide. A first look at ILWIS, introducing the basic concepts, some essential ILWIS techniques and the main operations included in ILWIS;
- ILWIS User's Guide. Training in the skills you need to work with ILWIS. It provides numerous exercises to practice GIS techniques and Image Processing operations;
- ILWIS Applications Guide. Advanced procedures to work with ILWIS, providing 25 case studies for various research disciplines;
- ILWIS Reference Guide. Detailed description of the functionality of ILWIS including its window types, the objects, the operations, etc., illustrated with tips and examples.

Besides these Guides, extensive on-line and context-sensitive Help is available in the program.

The ILWIS Help and Reference Guide: Main objectives

The ILWIS Reference Guide is a printout of the ILWIS on-line Help. Of course, the hyper links available in the Help are not available in this book; furthermore Help on user-interface dialog boxes has not been included in this Reference Guide.
The ILWIS Help and the ILWIS Reference Guide are intended to help you understand the concepts of the ILWIS 2.1 software, to explain the working of all

windows, editors, and operations, and to answer your specific questions. Numerous tips and examples are provided to inspire you to using the ILWIS software to its full extent.
If you have been using an earlier DOS version of ILWIS, we strongly recommend that you go through the first four chapters of the ILWIS Reference Guide, in order to get an idea of the new concepts of the ILWIS for Windows version.
For a thorough introduction to GIS and Image Processing, we recommend the following textbooks on GIS and on Remote Sensing:

- Aronoff, S. (1989). Geographic Information Systems: A management perspective. WDL Publications, 294 pp.
- Bonham-Carter, G. F. (1996). Geographic Information Systems for Geosciences. Modeling with GIS. Computer methods in the Geosciences. Pergamon Press, 398 pp.
- Sabins, F.F. Jr. (1987). Remote Sensing, Principles and Interpretation. W.H. Freeman and Co., 449 pp.
- Lillesand, T.M. and R.W. Kiefer (1987). Remote Sensing and Image Interpretation. John Wiley & Sons, New York, 612 pp.

Structure of the ILWIS Reference Guide

The ILWIS Reference Guide consists of 8 chapters.

- Chapter one, Introduction to ILWIS for Windows, is intended to get you started with ILWIS, and to show you the basics of the user interface.
- Chapter two, Basic concepts, provides short introductions to the ILWIS window types, the ILWIS objects, domains, dependent data objects and properties of objects.
- Chapter three, ILWIS window types and their functionality, describes the functionality the ILWIS Main window, map windows, table windows and the pixel information window.
- Chapter four, ILWIS objects, describes all ILWIS objects, for instance raster, polygon, segment and point maps, tables, domains, representations, georeferences, coordinate systems, etc.
- Chapter five, Editors, describes the functionality of all editors: the pixel, polygon, segment and point editor, domain editors, representation editors, georeference editors, sample set editors and the annotation editor.
- Chapter six, Map and Table calculation, provides an overview of all operators and functions that can be used to calculate with maps and tables; many examples are included. Furthermore, user-defined functions and scripts are explained.

- Chapters seven, Operations, treats all operations. For each operation, functionality, dialog box, command line syntax and algorithm are described.
- Chapter eight, How to, provides you with information on performing a certain task and choosing the right menu commands.
- Finally, the Appendices provide overviews of commands and expressions that can be used on the command lines, syntax for scripts, file extensions, etc.

Conventions used in the ILWIS Reference Guide

This guide is formatted in such a way that the specific actions dealing with the software are separated from the accompanying text.

- Formulas that you should type exactly as described are shown in `Courier New 10`.
  For example: `Mapc = Mapa + Mapb`

☞ This is a *tip box*. It is used to give tips.

The ILWIS Help and the ILWIS Reference Guide were made on computers with SVGA display (with a resolution of 1068 by 768 pixels, and 256 colors). If you are working on a screen with a lower resolution, some of the pictures in this book may look slightly different from the ones displayed on the screen. This is even more so when you work in VGA mode (640 by 480 pixels, and 16 colors); the display of some of the maps and images may be confusing. We therefore recommend to use at least a resolution that allows you to display 256 colors.
The ILWIS Help and the ILWIS Reference Guide were prepared with ILWIS running under Microsoft Windows 3.1, with the Windows default color scheme, so all ILWIS windows shown in this book are in the Windows 3.1 fashion.