

reviews

Manual of Aerial Survey: Primary Data Acquisition

By Roger Read and Ron Graham, Boca Raton, FL, CRC Press LLC, 2002. 408 pp., 18 chapters, with a glossary, eight appendices, and an index. Hardbound (ISBN 0-8493-1600-6), \$119.95.

Reviewed by Daniel G. Cole
Geographic Information Systems
Coordinator
Smithsonian Institution

The authors present this book as a "practical text" (p. vii). Indeed, the writing style reads like a how-to manual of aerial photographic business operations. Read and Graham successfully keep the text relatively simple with a liberal sprinkling of equations (134 mathematical formulas) and clear graphics. They admit to using their lecture notes at the ITC in the Netherlands as the basis for the book's first edition in 1986, and it is likely that they continued that practice with this heavily revised new edition. The book is also meant to be used as a companion to *Small Format Aerial Photography* by Warner, Graham and Read (Whittles Pub., 1996). While they have written the book for an international readership, it is Eurocentric. This bias is generally unimportant, although the authors have ignored several important American publications: Greve, C.W., ed., 1996, *Digital Photogrammetry: An Addendum to the Manual of Photogrammetry*, ASPRS; Philipson, W., ed., 1997, *Manual of Photographic Interpretation*, 2nd ed., ASPRS; Shenk, T., 1999, *Digital Photogrammetry*, TerraScience; and Wolf, P.R., and B.A. Dewitt, 2000, *Elements of Photogrammetry: with Applications in GIS*, McGraw Hill.

And in Appendix 1, "Institutes and Societies," the International Society of Photogrammetry and Remote Sensing is surprisingly absent.

Chapters one and two give a quick historical background on aerial photography followed by definitions with some general requirements and specifications. These specifications are further expanded and cross-referenced in Appendix 4. The instructions given here and elsewhere often tell the readers what they *should* do (my emphasis). Among the first quibbles with the book are the slim descriptions of applications on pp. 18-19. These five categories of applications could easily have been expanded a bit. The copy editor seems to have caught nearly all of the typographic errors before the book went to press, although on p. 22, figure 2.6 is referenced when figure 2.7 is the likely preferred photo. Regardless of these errors, the text, graphics and equations are presented in a clear and understandable format.

Read and Graham then dive into the meat of the book with a detailed discussion of air camera instrumentation (chapter three), staying as up-to-date as possible with comparisons of Leica, Zeiss, and Z/I Imaging. Another minor quibble crops up in this chapter as figure 3.14, a color photo, requires searching by the reader since it and another color figure for chapter four (4.16) appear in chapter 8, while the color figures for chapters five (5.6) and eleven (11.16) appear in chapter nine. Either the book designer preferred random placement of these figures or didn't care. Traditionally, all color images appear together in a central location. But since only four color images appear in the text, the first two could have been placed between chapters three and four, with the second two after the end of chapter five.

Chapters four, five, and six deal with films, exposures, and process-

ing. The authors do a good job of discussing and comparing the different film types available from Kodak and AGFA, while noting the advantages and disadvantages of each. With the review of exposures, they provide recommendations (e.g., Kodak Aerial Exposure Computer) and warnings (e.g., regarding under- and over-exposures for oblique and snow scene photos, respectively). In the processing chapter, they assess the different chemicals and processing machines, with additional recommendations for archiving.

Photogrammetric requirements are presented next with a perhaps overly restrictive instruction to have mapping cameras recalibrated at least once per year. Read and Graham provide a thorough overview of this topic, as well as evaluating advances in instrumentation, and specifically conduct a comparison of a variety of film scanners. Chapter eight delves into the ten in-flight variables and the ten post-flight variables concerned with materials and processing that affect image quality.

Business and practical operations of aircraft (chapter nine with additional comparative aircraft specifications in Appendix 8), including the advantages and disadvantages of single versus twin-prop airplanes, retrofitting and installation of air photo equipment, and navigation sights are dealt with separately. Due to automated GPS land survey flight management systems, whether this last factor will be discussed as other than an historical artifact in future editions remains to be seen. Specific annual and direct operating costs are laid out for the air photo business person on p. 214. The authors properly note that high altitude aerial surveys are no longer economical given the availability of high-resolution satellite imagery.

Critical mission planning (chapter eleven with additional

formulae in Appendix 5) followed by two phases of operational procedures are then laid out to efficiently and cost-effectively run an air photo business. One noticeable but minor typo pops up in chapter 13 where two different equations are assigned the same number (13.3) on pp. 311 and 317. The authors next provide two chapters on system-based survey navigation, as specifically related to satellite navigation systems, followed by a brief nine-page review of differential GPS with a noteworthy calculation of the cost savings in regard to its use.

The book finishes with several disparate chapters on oblique aerial photography (with oblique scales defined in Appendix 7), airborne laser terrain mapping, and close with current and future developments. Overall, even with the minor criticisms stated above, this book should be required reading for the employees of any aerial photographic acquisition or aerial survey and photogrammetric companies. That said, this reviewer doubts that the book will be used outside of that narrow audience. More traditional air photo interpretation texts will likely continue to dominate in college classrooms.

Community Geography: GIS in Action

By Kim Zanelli English and Laura S Feaster

Published by ESRI Press in Redland, CA, June 2003.

280 pages, with CD-Rom, photos, screen shots, maps, charts, graphs, tables.

\$24.95 softbound (ISBN 1-58948-023-6)

Community Geography: GIS in Action Teacher's Guide

By Lyn Malone, Anita M. Palmer, and Christine L. Voigt

Published by ESRI Press in Redland, CA, June 2003.

133 pages, with screen shots, maps, charts, graphs, tables.

\$9.95 soft spiral bound (ISBN 1-58948-051-1)

Reviewed by Beth Filar Williams, educational library consultant, Durango, Colorado

The softbound book titled *Community Geography: GIS in Action* contains real world examples exploring the use of Geographic Information Systems to answer geographical questions within local communities. The companion spiral-bound *Teachers Guide* integrates the book's case studies with practical community projects students can perform on their own. A CD-ROM is also included in the book containing GIS data for all exercises. Together these resources offer a comprehensive collection of case studies, lesson plans, exercises, and assessment tools any teacher can use in a 5-12 grade classroom or for any one interested in geographically based community issues and GIS.

The authors of the book *Community Geography*, Kim Zanelli English and Laura S Feaster, are both affiliates of ESRI Educational Products. English is an instructional designer and educa-

tor. Feaster is a geographer and educational specialist. Feaster has also co-authored others books including *Getting to Know ArcGIS Desktop*.

The book consists of two parts. Part One "community mapping projects" contains eight modules and utilizes most of the book's space. The first module "The GIS Basics" is a great beginner or refresher exercise of the basics GIS, especially ArcView 3.x. The remaining seven modules tackle one of seven case studies describing community GIS projects completed by students, teachers and community partners through the US and Canada. The seven modules themes are reducing crime, a war on weeds, tracking water quality, investigating point-source pollution, getting kids to school, managing the community forest, and selecting the right location (for a wildlife area). Following each of the case studies are intermediate level exercises related to the module's theme. These exercises offer hands on experience with GIS, data, and analysis relevant to the case study's theme. The companion CD-Rom, included in the book, contains all necessary data and ArcView 3.x projects to complete these exercises. Lastly following the case studies and exercises is a section entitled "On Your Own." These special sections in each module offer tips, ideas, and guidance for creating similar projects in the local community.

Part two of the book "on your own: project planning," illustrates how to build a community GIS project of your own independent of topic. After defining a project framework with some general questions to first ask, the authors' describe in detail the five-step method of the geographic inquiry process. These steps are:

- ask a geographic questions
- acquire geographic resources
- explore geographic data