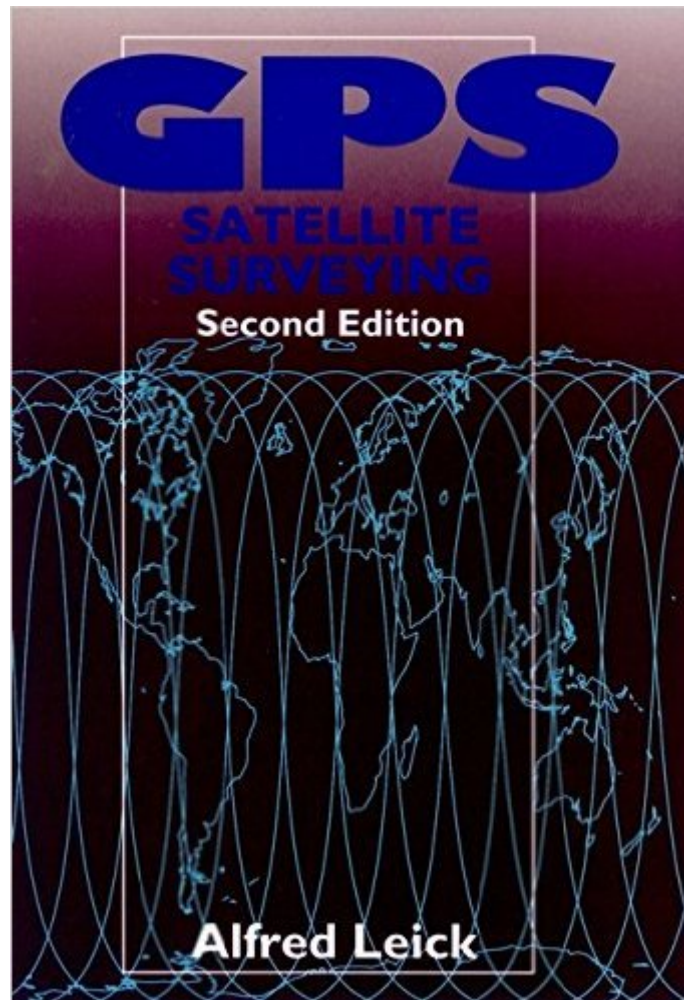


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# GPS Satellite Surveying, 2nd Edition



## Synopsis

With the advent of the Global Positioning System (GPS), a new age has dawned for surveying and navigation. Using a network of orbiting satellites, GPS now makes it possible for ground-based technicians with hand-held monitors to determine their positions with a degree of precision previously unachievable by traditional surveying methods. GPS has the potential to revolutionize the entire practice of surveying, to give increased significance to the numerical records of surveyors, and to make available to many practicing surveyors measurement techniques that until recently were available to very few. To meet the needs of surveyors, engineers, and others for the latest, most complete information on this breakthrough technology, Alfred Leick has updated his classic introduction to the field. *GPS Satellite Surveying, Second Edition*, includes all the material that made the first edition the standard work on the subject and provides up-to-date information on the most recent developments. Comprehensive and thorough in its presentation, *GPS Satellite Surveying* is designed to help the modern land information specialist gain full use of GPS surveying techniques and a firm understanding of the resulting measurements. The range of its coverage includes:

- \* Complete and mathematically rigorous theory of positioning with GPS that integrates astronomy, time, statistics, geodesy, and electronics
- \* Explanation of the geodetic foundations of GPS positioning
- \* Latest techniques of GPS positioning, such as ambiguity fixing on-the-fly (OTF) and rapid static
- \* Differential GPS (DGPS), with applications for aircraft navigation
- \* Full treatment of least-squares adjustment, including an extended discussion of the reliability of geodetic networks-material found in no other text
- \* Emphasis on elements common to surveying and precise navigation in order to provide a unified-theory perspective on GPS positioning

Of related interest...

**GEOGRAPHICAL INFORMATION SYSTEMS: Principles and Applications, Volume 1: Principles, Volume 2: Applications** Edited by David J. Maguire, Michael F. Goodchild, and David W. Rhind

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The Fourth Edition of this classic is marked by the precision of its summary of land boundary law and its clarity of presentation. It provides indispensable coverage of the science of measurements, the evaluation of evidence, and laws and customs that define boundaries. Includes

time-tested coverage of the legal elements required to understand boundary location and the state and Federal laws that govern the usage of these legal elements. Common law and legal principles, summarized from extensive research of court cases, are presented clearly and concisely. 1995 (0-471-08384-4) 450 pp. SOLVING PROBLEMS IN SURVEYING: A. Bannister and R. Baker  
Designed as an essential preparation guide to surveying exams, Solving Problems in Surveying features a wealth of problems drawn from past exams, each amply supported with basic theory. Not only are solutions and worked examples provided, but the book also includes simple computer programs, written in BASIC, covering topics frequently encountered. Featuring a clear methodology for problem solving mastery, Solving Problems in Surveying is essential for researchers and students in civil engineering. 1989 (0-470-21426-0) 332 pp.

## Book Information

Hardcover: 584 pages

Publisher: Wiley-Interscience; 2nd edition (January 23, 1995)

Language: English

ISBN-10: 0471306266

ISBN-13: 978-0471306269

Product Dimensions: 6.4 x 1.3 x 9.5 inches

Shipping Weight: 2.2 pounds

Average Customer Review: 3.6 out of 5 stars [See all reviews](#) (5 customer reviews)

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## Customer Reviews

Probably an important book for your GPS library, but it's easy to get lost in all the complex equations. Not for someone who is interested in the basics or who wants an overview. If you want the nitty-gritty details, this one's for you.

I am surprised by the previous reviews. I am going to press on this book solely because of the excellent way in which the author has reviewed the subject. The text is as easy to understand and clearly explained as any book could be on such a complicated subject. The insertion and detailing of

formulae is related to the text with similar clarity. The author naturally assumes some knowledge of the subject by the reader. If you are at this level the rest is relatively painless. The author's use and command of the English language is as good as his knowledge of the subject of GPS. For those of us that have listened to rooms full of GPS boffins speaking their own dialect this book provides a definitive translation.

This book is all that I had thought. The explanation is clear and the autor becomes it easy to understand. The best aquisition that I have done since I begun to study GPS.Congratulations to Alfred Leick.Cartograph Engineer

There is much discussion of error sources but there does not appear to be any discussion of the basic principles on which GPS is based. I have not been able to find anywhere in his book where he states that GPS relies on the principle that the GPS receiver lies on or near the intersection of 3 sphere surfaces centered at the estimated positions of the satellites. In section 8.1.1 "The Navigation Solution", four nonlinear equations are stated but there is no discussion of how to solve them. There is no mention of trilateration. The discussion of error sources can be quite useful but the lack of discussion of basic principles detracts from the value of the book in my opinion

GPS looks like a "Black Box",I want to understand the thoery,method and programming a GPS data processing software.

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