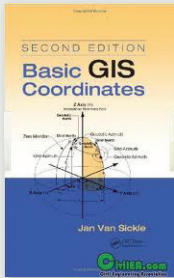


BASIC GIS COORDINATES, 2ND EDITION



By Jan Van Sickle.

CRC Press (Taylor and Francis Group): Boca Raton, Florida.

200 Pages, black and white line illustrations, hardcover. \$89.95.

Also available as an e-book, \$89.95.

Review by: Mark Denil

Overview

Basic GIS Coordinates is a general reference book about coordinate systems. It focuses exclusively on how the various parts and components of a coordinate system fit together to define locations. The range of examples given is not exhaustive; in fact, quite the opposite. Examples are pared down to a few basic cases comprehensively examined. The book contains mathematical formulas, but the formulas are there to illustrate particular relationships, not to dazzle or befuddle. For instance, algebraic terms used are defined in each formula so the user is not expected to recall that “small alpha/subscript G” (ℓG) is the geodetic azimuth. There is some history, too, but only enough to explain why legacy solutions might be encountered. The line illustrations are simple and clear, and for the most part well designed and executed (Figure 1).

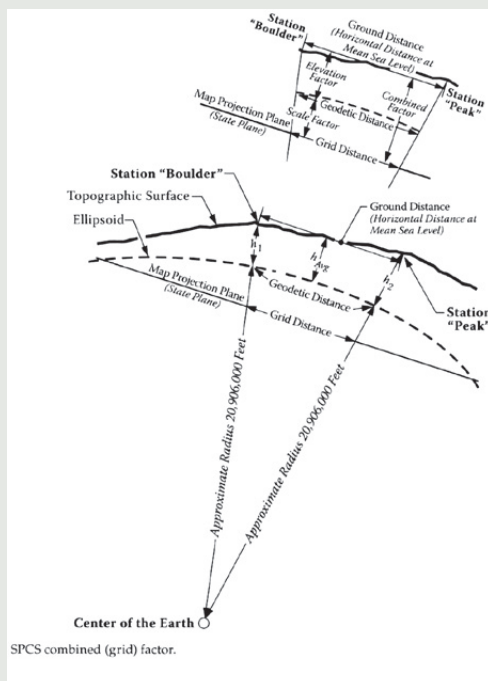


Figure 1. The line illustrations are simple and clear.

On first glance, the book is quite unprepossessing. Neat and compact, with thick hardboard covers and a tight binding, it is clearly a solidly made volume. What is not clear at first glance is that it is worth reading. The title probably contributes to this impression: it even sounds boring. *Basic GIS Coordinates* sat on my “books for review” shelf for some time; it seemed no one wanted to read and review it. Finally, I picked it up myself and cracked it open, and am quite pleased I did.

Jan Van Sickle begins *Basic GIS Coordinates* by simply stating: “Coordinates are slippery devils” (p. 1), and he then systematically proceeds to show where and how the devilment can slip into the picture. Starting from a place on the earth, the author demonstrates that there are variety of ways of describing that place, and how there can be such a plethora of descriptions. He explains that every such description is ultimately based on certain assumptions, assumptions about things that might be sometimes thought of as fixed. The notion of “down,” for instance, could refer to a couple of different, incompatible, concepts, and the relationship between these conceptualizations has an effect on a place’s locational definition.

Coordinate systems, as Van Sickle points out, are ideals chosen and applied for convenience and utility. Over time, needs and capabilities change, and older approximations, compromises, and conventions no longer provide the same advantages they may once have held. In fact, outmoded or inappropriate coordinate systems may themselves become sources of uncertainty and inexactitude.

Structure

The text of *Basic GIS Coordinates* is divided into five chapters, each with several sections, and many of these with multiple sub-sections. The earlier chapters—“Foundation of a Coordinate System,” “Building a Coordinate System,” and “Heights”—lay the foundation of understanding by isolating the factors involved and examining the interrelationships amongst them.

The examination begins with “Uncertainty,” the title of the first subsection, and proceeds to the idealized certainty afforded by a datum. This leads into Cartesian coordinates (all very safe and well known stuff so far), before kicking the props out from under all this familiarity by showing the ramifications of applying all this idealism in the real world. Just what, for example, is meant by *Latitude*? Is that *Geocentric Latitude*? *Geodetic Latitude*? *Astronomic Latitude*? Does it make any difference? Well, *that depends...*, but depends on *what*?

The second chapter begins: “The actual surface of the Earth is not very cooperative.” (p. 39), and the next sixty-one pages (the chapters “Building a Coordinate System” and “Heights”) show that this is a bit of an understatement. Legacy Geodetic Surveying, Ellipsoids, Geodetic Datums, and Coordinate Transformation are all covered. What is more, they are made readable; maybe not as readable as Laurence Sterne’s *Tristram Shandy*, but certainly with a clearer narrative line.

The later chapters: “Two Coordinate Systems” and “Rectangular System,” apply the conceptual chapters to three (actually, four) particular coordinate systems. US examples predominate, with discussions of State Plane (with its two main projection types) and the US Public Land Survey System taking up the lion’s share of the page count, and UTM getting a look in as the second of the “Two Coordinate Systems.”

Because the State Plane discussion includes examination of both the Lambert Conic and Transverse Mercator based zones types, it is generally applicable to systems other than State Plane. As well, it offers an opportunity to compare the Transverse Mercator as used in State Plane with the version used in UTM.

Without a doubt, there are a lot of people who operate daily in a State Plane Coordinate System (SPCS) coordinate environment, and *Basic GIS Coordinates* provides a good comprehensive look at it. One may argue that systems such as State Plane are not true coordinate systems, but, nonetheless, they are used to describe locations on the planet and are based on the application of specific projected frameworks. One may also note that this specific system (SPCS) is only used for a very small portion of the globe, but, again, the basic problems to be encountered when using such a system will be similar wherever one is applied. My first GIS job was processing survey fabric data under the Canadian Dominion Land Survey (DLS), which is similar, albeit (I always thought) admirably more regular in plan and execution. On reflection, though, that impression of regularity may be mistaken, arising because I have never seen it described to this level of detail (and I note that Van Sickle never uses the term “road allowance,” which is one of the particularly charming features of the DLS).

The five chapter-ending “Exercises” and “Explanations and Answers” sections should be mentioned. I usually ignore these parts of a book; put it down to pure unadulterated laziness on my part. In *Basic GIS Coordinates*, however, these exercises are well worth working through. The explanations are short, sharp summations of the main text relevant to the exercise question, and placed, as they are, immediately after the question pages, there is no disincentive to ‘bother’ with the exercises.

Criticism

One could argue that the domestic US focus of *Basic GIS Coordinates* is more limiting than it may appear to someone who has worked only in the US. Similarly, the author’s focus on surveying concerns and conformality is obvious. Azimuthal projections get only the briefest of mentions, and non-conformal projections even less space. Still, the aim is clearly not to be encyclopedic, but to focus on the components of coordinate systems, and this aim is achieved.

Summary

This is really an excellent little book. It brings together a whole skein of threads that might be hard to round up otherwise. I perhaps flatter myself in thinking that I already have a pretty good grasp of at least the basics of most of the issues raised in *Basic GIS Coordinates*. I know I have, over the years, been able to solve a good many seemingly sticky coordinate problems, and have given some sound and well-reasoned advice on projection choices and other issues. In part, this has been because I both understand the general frame of the issue and know where I can find the relevant specific information when it is needed. *Basic GIS Coordinates* is very much the kind of basic reference that is useful in this: its explanations are short and succinct, its illustrations are clear, and it is unencumbered with extraneous anecdotal and mathematical detail. In general, in these days of computer computation, one seldom (or never) has to work these calculations out, but it pays to know what is going on. This book contains the sort of stuff I need to know to allow me to understand specific situations as they arise. I am glad I have it on my shelf.

On the other hand, *Basic GIS Coordinates* is published by CRC Press, and CRC Press does not publish inexpensive books. At a slim 200 pages, and with a list price only a nickel shy of ninety dollars, one must think long and hard before shelling out scarce pennies for such a publication. I know I would have to think very long indeed. I would have no qualms, however, pressing my librarian to lay in a copy for circulation.

THEY WOULD NOT TAKE ME THERE: PEOPLE, PLACES AND STORIES FROM CHAMPLAIN’S TRAVELS IN CANADA, 1603–1616



By Michael James Hermann & Margaret Wickens Pearce.

Translation by Raymond Pelletier.
The University of Maine Canadian–American Center, Orono, Maine, USA.
ISBN 978-0615-23159-4. \$14.99.

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