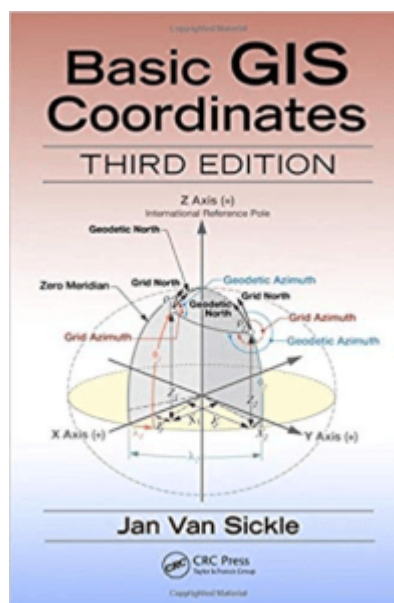




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Van Sickle, Jan. ***Basic GIS Coordinates***. 3rd Edition. Boca Raton, Florida: Taylor & Francis, 2017. 196 p. ISBN: 978-1498774628

To borrow from its preface, *Basic GIS Coordinates*, by Jan Van Sickle, is a book about coordinates. Of course, Map and GIS Librarians know all about coordinates... Or do we? If you have ever asked yourself, “Just what the heck is a datum, anyway?”—this is the book for you. *Basic GIS Coordinates*, in its 3rd edition, presents the foundational concepts, theories, and history of coordinate systems. Van Sickle, who has 30 years of experience working in GIS and surveying, writes with a style of simplicity and brevity that breaks a challenging subject down into pieces that are simple for the reader to understand. In five chapters, Van Sickle blends the history of commonly used coordinate systems with the mathematical foundations of how they function.

The book begins with a discussion of René Descartes’ foundational work developing the Cartesian coordinate system and advances from there toward the methods of applying the angled latitude and longitude grid over the surface of an ellipsoidal model of Earth. The historical development of geodesy provides the necessary context for sections about reference ellipsoids (Clarke 1866, GRS80, WGS84) and datums (NAD27, NAD83, WGS84), and how these systems depend on and interact with each other. Van Sickle covers these concepts in chapters 1 and 2. Chapter 3 is dedicated to height, discussing differences in height between ellipsoids, mean sea level, vertical datums, gravity, and more. Chapter 4 is titled Two Coordinate



Systems; those two systems being State Plane Coordinates (SPC) and Universal Transverse Mercator Coordinates (UTM). Van Sickle devotes most of this chapter to discussing the SPC system: its development, converting latitude and longitude to SPC, and differences between geodetic and ground distance measurements. The book concludes with a chapter focusing on the Public Land Survey System (PLSS), the familiar grid of quadrangles and township and range lines dividing much of the central and western portions of the United States. Van Sickle devotes much of this chapter to the history of the PLSS and the technical details behind it. Each chapter concludes with a set of multiple-choice questions challenging the reader's knowledge retention.

As a GIS enthusiast, I particularly enjoyed learning about the distinctions between things that often confuse GIS practitioners, like when to use NAD83 verses WGS84 (they are very similar). It is easy for people working in GIS to press buttons and not think much about datums and coordinate systems, but, since reading this book, I have already found myself in situations working with students where knowledge I gained reading this book came in handy. A real strength of this book is that it avoids getting bogged down in mathematical functions—although there are plenty of equations—rather, it weaves together mathematics with passages detailing why people developed coordinate systems the way they did. The book contains the right amount of graphics that illustrate the mathematics of geodesy, which is helpful for those of us (like myself) who struggle to read a page and a half of equations. While reading this book, I experienced several moments when I thought to myself, “Oh, so that’s how that works.”

Basic GIS Coordinates is for the reader who is motivated to understand the underpinnings of GIS. If your library takes pride in a robust GA section, then you likely already own it; but if you seek to grow this part of your library, I highly recommend purchasing this book. While I find it unlikely that the book would receive much attention from most undergraduates, it would be a valuable resource for graduate students, faculty, and researchers who conduct research using GIS. (In my library, our copy of the 2nd edition of this text has gone missing, if that is an indication of its value). This new edition has added about 20 additional pages of material compared to past editions, spread evenly throughout the book. I also consider this book a valuable resource for librarians who provide GIS services. Both new and seasoned GIS Librarians will find this book a great reference source. Experienced GIS Librarians may choose to review this text to freshen-up their knowledge of coordinate systems, but for those that are just starting out, it would



make a great item for your reading list. I recommend it with a large, strong cup of coffee.

Phil White

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