

*Making Better Maps* is a foray into the world of the 21<sup>st</sup>-century cartographer, but there is more to this work than pretty imagery and exacting label-making. Author Cynthia Brewer is first and foremost concerned with the powerful analytical tools that GIS provides – and with the responsibility that falls on the mapmaker to represent analysis thoughtfully and fully.

The book's preface acknowledges the advances of the decade between the first edition and this second edition. Advances in software, automation, online capabilities, and mapping of large areas have altered both contents of the book and of Brewer's classroom discussions. As analytical tools have expanded in the world of GIS, the capacity for well-intended, accidental misrepresentation has also grown – and Brewer both acknowledges and provides practical answers to these concerns.

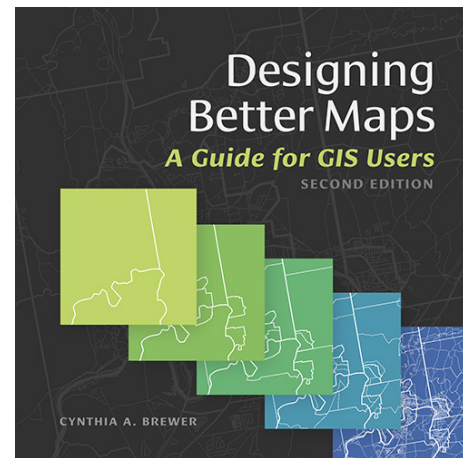
The book is not divided into sections but could be. Brewer advises readers to start with identifying the map's purpose and audience as a means of designing the right map for the right reason. Chapters 1, 2, and 3 cover Planning Maps, Base-map Basics, and Explaining Maps – through carefully crafted legends, text, and marginal content. Each of these chapters goes into detail on the art of designing the best map for its purpose – from what projection is appropriate in what context, to create the clearest legend.

Chapter 4, Publishing and Sharing Maps, could stand alone and actually be expanded as a full section if a 3rd edition is forthcoming. Brewer's experience shows through here, as she delves into both the technicalities of publishing for the web and the fine print of working within copyright laws in cartography.

Chapters 5 through 9 could function as a third section. These chapters delve into the minutiae of mapmaking with a true cartographer's panache – full chapters on Type Basics (as in font size and text effects), Color Basics, Color on Maps, and Customizing Symbols. Though this may seem a little extreme to the casual observer, those who have worked with any depth in ESRI's label and symbol customization interfaces will recognize the need for such detailed instruction. And though color crafting is less laborious than it used to be, those who work with remotely sensed imagery will appreciate Brewer's attention to the importance of color use and standardization in a final product that is both a powerful representation of data and a visually pleasing piece of graphic design.

*Making Better Maps* ends with a single paragraph at the end of Chapter 9 that functions as a quick conclusion, and many of its figures are very obviously zoomed-in shots of much larger maps. Though one could wish for a less hurried feel in such an in-depth tome, Brewer puts the emphasis squarely on working knowledge while eschewing "fluff" – and since this is a shared trait of many of those I know in the GIS world, I can respect it as a recognition of the audience more than a lack of care.

1 *How to Lie with Maps*, 2nd edition. Mark Monmonier. The University of Chicago Press. 1991. xiii and 207 pp..



## Designing Better Maps: A Guide for GIS Users, 2nd Edition

Cynthia A. Brewer

Esri Press: Redlands, California. 2016. xvii and 231 pp., diagrams, maps, photos, images, index. Softcover.

**Reviewed by:** Ellie Maclin, M.S., M.B.A. GIS Applications Analyst, Allworld Project Management, Memphis TN.

This book walks in the footsteps of such cartographic classics as *How to Lie with Maps* by Mark Monmonier<sup>1</sup>. Brewer is not the first to put forth recommendations for best practices in the realm of mapmaking, or to occasionally mistake personal preference for a best practice recommendation. But overall, this work provides an in-depth real-world application for both beginning and practiced mapmakers.

Perhaps its most glaring shortcoming is emphasized by Monmonier's 1991 work. Monmonier emphasizes the many ways people use maps – for advertising, political propaganda and disinformation, cultural reasons, or the mapping of data, for example – and how those maps can guide or mislead. Brewer's book heavily emphasizes the mapping of data, with the result that the book's audiences of mapmakers are positioned as experts with the responsibility and ability to map the state of the world – whatever their subject matter – with an objective grasp of

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about positioning on the Earth surface. The significant technical improvements and cost reduction of GPS technology made this technology open to everyone, being civilian or military. At present, reference frames are being accurately defined by means of permanent stations set up all over the planet. These stations continuously receive data from the NAVSTAR and GLONASS satellites. This system is named after its English acronym: GNSS (Global Navigation Satellite System), and the stations globally make reference frames materialized on the ground.

"In 1988, following the international trend, Argentina generated a Project related to the installation of permanent GNSS stations which contribute to the National Geodetic Reference Frame. The Project is named RAMSAC (Argentine Continuous Satellite Monitoring Network) and its main goals are: Contribute to the maintenance and updating of the National Geodetic Reference Frame (The Argentine National Geographic Institute is responsible for it). Contribute with permanent GNSS stations in order to keep the International Terrestrial Reference Frame (ITRF). Meet technical requirements from users of modern satellite positioning techniques. Advise and cooperate with all Agencies willing to join the RAMSAC Network and set up new permanent GPS stations, so their data may be uploaded on the internet and easily and freely accessed.

"The National Altimetric Network consists of about 2000 leveling lines which consist of 35,000 monuments built up all over the Argentine Republic, located next to routes and roads. These monuments show the height above sea level. The IGN determined the zero reference level by means of mareographic observations in the city of Mar del Plata. That is to say, that the height of monuments is referred to the mean sea level determined in Mar del Plata" (*Mr. Ruben Rodriguez, Personal Communication, July 2017*). <http://www.ign.gov.ar/NuestrasActividades/Geodesia/Introduccion>.

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#### Book Review

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'truth'. Together, Monmonier's work and Brewer's give a full grip of the tenuous position of the mapmaker in today's society – data manager, marketer, artist... tasked with representing the world's shifting complexity in two-dimensional space.

Those familiar with ESRI publications of the last decade or so might expect this book to be a glossy coffee table publication, not far removed from an overgrown marketing brochure – long on looks, light on practical content. But this book is clearly the result of decades of the author's experience both authoring expert maps and teaching courses on data analysis/representation. Making Better Maps put some depth and breadth back into ESRI's suite of publications, and we hope there are more like this to come.



*Ellie Maclin is a Project Manager at Allworld Project Management and she thanks Jessie Baker, Allworld cartographer extraordinaire, for her suggestions and input.*

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