# BOOK**REVIEW**

The ways of displaying spatial data have significantly changed in recent years. One of these changes is the wide use of the web as a platform where spatial data is interactively displayed with other data sets. Based on implementation technologies, there are roughly two camps in this field. The first camp relies on free and open source techniques such as Leaflet, Postgressql, and D3.js. This approach has almost unlimited ability to utilize spatial data, though some serious coding may be required. The second camp often has some kind of subscription with different levels of the license fee for users to access online resources and services (limited services can be available through free accounts). Subscribing to this camp generally means relatively quick and easy setup of web applications that can be configured using a number of templates designed by the service provider. Techniques in this camp include ESRI's ArcGIS Online and ArcGIS for Server, MapBox, and, to some extent, Tableau. An advantage of joining this camp is the wide range of existing data (maps) and templates that allow users to engage with the most recent tools. Users in this camp can also take advantage of the application program interfaces (APIs) that are designed to further customize their web applications. For highly advanced users, the gap between these two camps is perhaps small and it may not even matter to choose either one. For the rest of the user groups, however, the pros and cons of the two camps deserve careful considerations.

The second edition of *Getting To Know Web GIS* is designated to help users embrace techniques in the second camp, more specifically, ArcGIS Online and ArcGIS for Server. The book aims to help professionals who need a guidebook to self-learn about web GIS and educators needing a lab book for their GIS classes. The book is divided into 10 chapters that start with steps of setting up user accounts and end with more advanced topics of using JavaScript. While the book mainly covers the technical aspects of web GIS, it also introduces useful backgrounds in each chapter, which are reinforced in hands-on, step-by-step tutorials that follow. The author conceptualizes the path of building a web application the links components from three categories of data sources, tools in ArcGIS Online or for Server, and the client ready to use apps (templates). Such a big picture is useful, though the detail of each term may not appear to be immediately comprehensible for first-time users.

It is reasonable to group the 10 chapters into 3 sections. The introduction section includes the first four chapters. The most basic steps of setting up and sharing a web map are introduced in Chapter 1, which also discuss some fundamental concepts such as the overall construct of a web application and web GIS application, the difference between ArcGIS Online and for Server, and different kinds of user accounts that are required to set up any web GIS
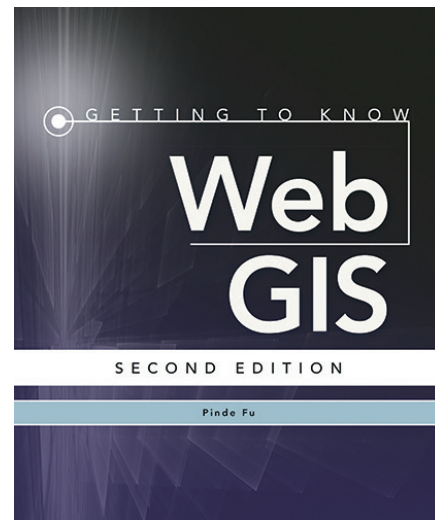
Getting To Know Web GIS, 2nd Ed.
Pinde Fu
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application in the context. This is a crucial chapter because from here the users will be able to create their own web maps. Chapter 2 goes on to further enhance web maps so that the users can use their own data through geocoding and then style those maps. Chapter 3 discusses how users can make a large volume of data online, and Chapter 4 touches up on how to configure more aspects of maps, and more specifically story maps, a major type of web map provided under the hood of ArcGIS online platforms.

The second section focuses on functionality building and includes chapters 5 through 7. These chapters cover some important functions that are readily available in ArcGIS Online and ArcGIS for Server, often through the use of configurable widgets, tools that are accessible within user's applications (Chapter 5), and services that are accessible through online requests (Chapter 6). Chapter 7 provides use cases that utilize both of these two approaches.

Finally, chapters 8 through 10 form the third section of advanced or development topics. Chapter 8 discusses two useful applications: how to access and monitor live data in building an online operational dashboard, and how to build an Android app to collect data. Chapter 9 explains how to make 3D maps (scenes) available for web applications. Chapter 10 introduce some basics of JavaScript, the programming language for ArcGIS API.

This is a timely publication that meets the increasing demands in a relatively new field. The chapters are organized in a logical manner that give readers a comprehensive introduction to web maps using ESRI's products. Its strong ties to ESRI's ecosystem in making maps available online and the step-by-step instructions are straightforward to follow, thanks to the author's extensive experience in GIS training. If a reader is already committed to ESRI's products, this will be an ideal book.

However, one must point out that at a casual glance of the title, a reader would have an impression that there are no other ways of making web maps. In fact, the author chooses to completely ignore the world of free and open source applications, which does not give the world of web GIS a deserving introduction and also appears to short sell the importance of ESRI's efforts in trying to lead the industry. Putting the book under a more magnifying lens, it seems that three small things can make the book more indispensable. First, the introduction of background information in each chapter is very useful. Such material consists of about a third of each chapter, but are not listed in the table of contents. It is sometimes hard to comprehend these pages as an organic part of the chapter. Second, a lot of concepts are introduced in this book and a good index will make reading a constructive experience. Third, a book about maps (though

web maps) should also be an excellent source of good maps. Cartographers even suggest that only good maps should be provided (Brewer 2005). Some of the maps in this book may need further explanation of how their symbolization (e.g., color, size, and labeling) is determined. Even though symbolization of online maps is perhaps still at an exploratory stage, some of the maps in this book should follow such a principle. This is especially important for the intended audience of this book, the professionals, who may not have enough training in cartography and often tend to choose whatever is default in the system.

Reference

Brewer, C.A. 2005. Design Better Maps: A Guide for GIS Users. Relands, CA: ESRI Press.

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