Water, or the lack thereof, deeply affects many places around the globe. Few regions are as vulnerable as those surrounding the Indian Ocean: here, mechanisms in the Indian Ocean monsoon system, a complex climatic system that connects Africa, the Middle East, Asia, and Australia, bring about the annual cycle of changing wind patterns and, with this, changes in precipitation. The monsoon itself and many other climatic systems around the world are interconnected; the complexities of these connections can result in too little or too much rain, with far-reaching consequences that are explored in the chapters of *Droughts, Floods, and Global Climatic Anomalies in the Indian Ocean World*, edited by Philip Gooding, in a historical perspective.

In his introduction, Philip Gooding gives the context for this edited volume: between 2019 and 2020, many of the countries surrounding the Indian Ocean experienced several climate anomalies, such as devastating bushfires that led to the deaths of one billion animals, drought and floods, and immense swarms of locusts, which had not been seen in decades. Only recently have historians embraced the concept of teleconnections, an idea from the field of meteorology, to understand societal phenomena that originated elsewhere but “link activities, trends, and disruptions across large distances.”[1]

The edited volume utilizes recent scholarship from historians and natural scientists who work in the interdisciplinary field of climate history. The ten chapters that make up the volume, in addition to the introduction, analyze case studies of rainfall anomalies—in both directions—from the twelfth to the early twentieth century. The chapters follow a chronological order, allowing for a *longue durée* approach. They study the impacts of these anomalies on agriculture, human health, politics, the economy, and science. At the same time, they contextualize these anomalies in the complex climatic system based on the recent literature. Examples of this include Silvia Ebner von Eschenbach’s reconstruction of flood events...
during China’s Southern Song Dynasty in the twelfth and thirteenth centuries (chapter 2), Gwyn Campbell’s study of droughts and political crisis in Madagascar in the early nineteenth century (chapter 6), and Fiona Williamson’s study of droughts and vulnerability in Singapore between the late nineteenth and early twentieth centuries (chapter 8). It is commendable that the contributors, who are mostly historians by training, apply interdisciplinary methods of climate history by using recent studies from the field. In the future, it would also be exciting to see more direct collaboration between historians and natural scientists who study this region.

Gooding skillfully uses the introduction to familiarize the reader with the interconnected global climatic anomalies that affect the monsoon. These climatic anomalies include El Niño-Southern Oscillation (ENSO), the Indian Ocean Dipole (IOD), and the north- or southward migration of the Intertropical Convergence Zone (ITCZ). Also brought into focus are climatic downturns, such as the Little Ice Age, and perturbations of the climate brought about by volcanic activity and sunspots. Gooding refers to the monsoon as a “deep structure” that connects the Indian Ocean world, as it profoundly influences rainfall (pp. 2–3). The term “deep structure” is borrowed from Fernand Braudel’s work on the Mediterranean world in the sixteenth century.[2] Although Braudel proposed that changes on the level of “deep structures” are much slower and more difficult to detect than the changes brought about by the actions of human actors, politics, and the economy, recent scholarship, this edited volume included, shows that the changes triggered by climatic fluctuation may have been faster than previously anticipated (p. 5).

The book’s vast time frame is partially a consequence of the availability of sources. The authors distinguish between the archives of societies and the archives of nature, without necessarily naming them as such.[3] Archives of societies—in this case, written sources—are more abundant for some periods/regions than others in the Indian Ocean world that were studied. For example, sources concerning China document earlier periods than sources for certain parts of Africa, whereas surviving written records are available only from the nineteenth century onward. The availability of sources further in the past enables scholars to study the climate of these regions for more extended periods, which is essential as some climate phenomena may have last occurred, for instance, during the Little Ice Age, but might again occur in the future. Knowledge about climatic variability in the deep past enables societies to better prepare for future developments. However, other historical sources can be used when written records are unavailable, such as rain gauge data and oral history. The archives of nature comprise proxy data from “tree rings, ice cores, pollen records, corals, stalagmites, and lake sediments” (p. 12). Combining the two allows for a more detailed picture of the past and each can corroborate the other. Often, the archives of societies give an hourly or daily resolution and reveal how contemporaries experienced droughts or floods in great detail. In contrast, the archives of nature can give insights beyond the scope of historical records. The edited volume uses interdisciplinary methods and combines both archives to understand the complex effects of rainfall anomalies in the Indian Ocean world and how humans “contribute to their exacerbation or their mitigation” (p. 18).

The book focuses on the land-based climate history of the Indian Ocean world, with the exception of Angela Schottenhammer’s study (chapter 3), which also considers the effects of tidal disasters, tsunamis, and storm surges. Although these climate anomalies affect the ocean and its currents, winds, and temperatures, the ocean itself remains mostly silent in this volume. This makes sense, as the primary focus is on droughts and floods, phenomena that affect coastal and riverine systems on land. However, Jacob Wenegrat and colleagues have shown in their recent study that
an analysis of data produced by early research can provide climate data for the vast oceanic parts of the Indian Ocean world that are otherwise difficult to find in land-based archives.[4]

As Gooding points out in the introduction, “five of the ten countries most vulnerable to the effects of global warming” are located in the Indian Ocean world (p. 5). The teleconnections discussed here, and their effects on particular places, are important to understand in our present time; some of these climatic anomalies mentioned are expected to become more extreme and more frequent in our warming world. In the spring of 2023, El Niño started forming again in the Northern Hemisphere, and it will undoubtedly affect the global climate through its teleconnections in the near future.[5] Understanding the effect of historical rainfall anomalies is relevant for the present and the future. This edited volume shows that rainfall anomalies frequently occurred in the past; these case studies present the ways in which people of the past dealt with these events and hold valuable lessons for dealing with them in the future. From the perspective of historical climatology, a discipline that has its roots in Europe, it is exciting to see the methods applied to an understudied region such as the Indian Ocean world. This edited volume targets a scholarly audience, including graduate students. Due to its interdisciplinary approach, it is of interest to historians and natural scientists. As the ten different case studies cover much ground, assigning this book as reading material in undergraduate seminars is also suitable.

Notes


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