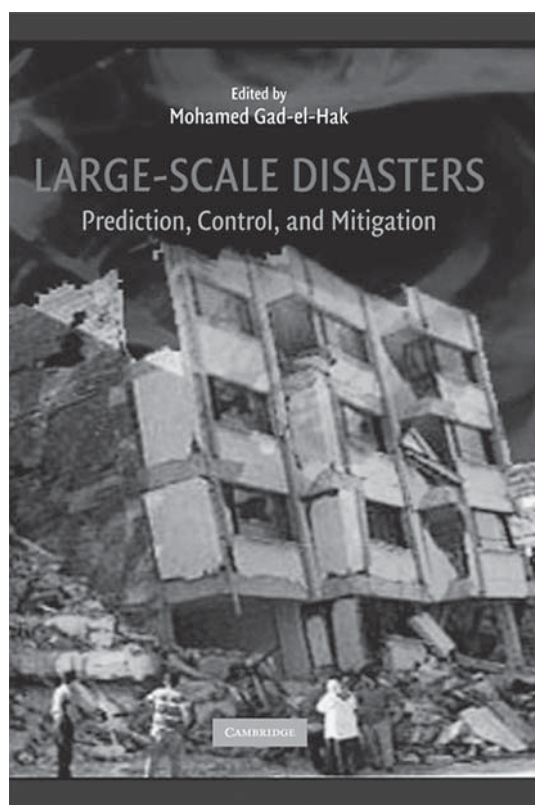


Large-scale disasters – prediction, control, and mitigation, edited by Mohamed Gad-El-Hak, 2008. Cambridge University Press. Hardback, xiv + 576 pages. Price GBP 100.00. ISBN 978-0-521-87293-5.



The first 14 roman-numbered pages present a preface, an introduction about the editor, and a list of the 32 authors who have contributed to this publication that follows a meeting held in Cairo in 2006. The book has 21 chapters, starting with a short introduction on the definitions and the art and manner to evaluate disasters. Then various examples of large-scale disasters are discussed to illustrate the principal phenomena and the wide range of spatial and temporal scales involved. An overview of applicable multi-scale modeling techniques for investigating and predicting the behaviour of large-scale disasters is subsequently presented, followed by a chapter that defines again risk, danger, hazards and perils, and focuses on their roots. Some case studies are used to demonstrate the vulnerability of humans to disasters, such as the Twin Towers of the World Trade Center in Manhattan and the 2003 dog-days (canicular heat) in France. Warning systems and educa-

tional tools are evoked to reduce disaster risk. Issues in disaster-relief logistics, medical response and health-care capacity are then dealt with, followed by a discussion on global warming, the energy crisis, sea-water irrigation and anthropogenic aerosol-related hazards. This is worked out in the next chapter on causes and hydrodynamics of tsunami, with emphasis on the December 2004 event.

The above chapters are followed by several chapters dealing mainly with weather- and climate-related topics: the fundamentals of intermediate scale dynamics of the upper troposphere and stratosphere; coupled weather/chemistry modeling; “dynamical” climate prediction with short-term weather forecasts; a discussion of climate extremes within the context of the global-change debate, with a brief review of regional-climate modeling, focusing on important climate changes and their consequences such as floods, dog days (or canicular days), hurricanes. Unfortunately, the remarkable amount of data collected since 1870 in Europe and America are not taken into account. The next chapter covers the water cycle and the impact of climate change on precipitation. Then follow chapters on the vulnerability of arid land and deserts (but without any mention of the tragic situations of the Chad Lake and the Aral Sea), on the history and the present of numerical weather prediction, on the International Charter “Space and Major Disasters” and weather-satellite measurements with the general principles of remote sensing and its applications. The last chapter reviews how weather-satellite measurements can be used to predict some of these weather related disasters, and a new geostationary satellite instrument concept is presented.

It follows from the above that the book is for physical scientists, emergency-room professionals and meteorologists rather than for earth scientists. This is not surprising considering the background of the authors: all are civil or mechanical engineers, or medical staff. The

book is therefore focused on human beings, as shown already on the first pages by the proposed disaster scale, which refers only to human losses; it is interesting in this context that the word "disaster" refers in the book only to human beings.

The book presents also all the results from recent satellite observations of natural (also called "environmental"), technological and/or man-made disasters, and suggests how to handle them with respect to classifications, phases, medical response, recovery, statistics and maps. Earthquakes, tsunami and tropical cyclones are high-energy events that are transformed into disasters only, following the common sense, because of bad human management, because of an unsuitable and unfortunate localization of a town on a fault, because of the absence of survey buoys, or because of government failure (as detailed by Cooper & Block, 2006) for hurricane Katrina that destroyed Louisiana. The examples mentioned are all fairly recent, so that the "time" parameter is not at all taken into account; this implies, unfortunately, that natural disasters in the geological past are not dealt with. The absence of the time parameter thus transforms all natural events in a disaster.

Most of the disasters described in the book are related to future climate change and sea-level rise. These are presented as facts, and not discussed, although recent research has shown that the sea level was higher than nowadays in some parts of the world only some 3000–4000 BP, and that the average temperature seems to decrease in some parts of the world instead of increasing. This is not truly acceptable for a scientific work.

Some scarce new geological information and illustrations can be found in the book; they concern aeolian sedimentation, in the form of desertification (Chapter 10 on Egypt, India and China; Chapter 17 on China; Chapter 21

on the African Horn) with dust transportation from one continent to another or to an ocean, detected by means of new techniques that allow identification by remote sensing not only of dust, but also of water vapour.

Figures and their captions are not always clear for non-specialist readers: colour scales and units are sometimes missing, etc. References are also sometimes missing. As for geology, the legends of the field photos (Chapter 11) are incomplete or not exact (for example, palm trees are said to have died (Fig.11.13), but they are actually still in place, straight and alive. A so-called dune deposit (Fig. 11.14) should rather be interpreted as a newly cut cliff in supratidal Holocene deposits.

The book is meant for the education of engineers, researchers and students in meteorology, climatology, remote sensing and civil care, and for the management in "megapolis" who have to face risks of all kinds. There are, however, obvious omissions, such as analyses of some of the most recent hazards and disasters, such as the mud eruptions as the one occurring now on Java (Indonesia). In conclusion, the book may be useful for students and government commissions to study disasters as well as for future management and development of new areas, but it is certainly not the ultimate book on this topic, and for earth scientists there is disappointingly little news to find.

Reference

Cooper, C. & Block R., 2006. *Disaster: Hurricane Katrina and the failure of home land security*. Times Books, New York.

F.G. Bourrouilh Le Jan
Centre de Sédimentologie comparée et appliquée
Talence, France
e-mail: f.bourrouilh-lejan@orange.fr