

1. Record Nr.	UNINA9910866585003321
Autore	Wang Ran
Titolo	Local Climate Zone Application in Sustainable Urban Development : Experience from East and Southeast Asian High-Density Cities // edited by Ran Wang, Meng Cai, Chao Ren, Yuan Shi
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2024
ISBN	3-031-56168-6
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (264 pages)
Altri autori (Persone)	CaiMeng RenChao ShiYuan
Disciplina	307.76
Soggetti	Urban policy Environmental engineering Civil engineering Geography Sustainability Urban Policy Environmental Civil Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Urbanization and urban climate in high-density cities -- Chapter 2. Origins and evolution of the Local Climate Zone classification system -- Chapter 3. Current popular methods for LCZ mapping -- Chapter 4. Recent improvements in supervised pixel-based LCZ classification -- Chapter 5. Application of LCZ to urban heat island studies -- Chapter 6. Application of LCZ to land use and land cover studies -- Chapter 7. Application of LCZ to wind environment studies -- Chapter 8. Application of LCZ to energy consumption and carbon emission modeling -- Chapter 9. Application of LCZ to thermal comfort and health-related studies -- Chapter 10. Application of LCZ to time-series urban morphology detection -- Chapter 11. Application of LCZ in mesoscale meteorological model simulations and climate projection -- Chapter 12. Integration of LCZ to planning strategies -- Chapter 13.

---

## Conclusions and outlook.

### Sommario/riassunto

The study of local climate zones (LCZ) links urban morphology, land use and land cover types, human activity, and thermal properties, and provides a standard framework for studying urban climatic issues. In recent years, the LCZ scheme attracts more and more attention from climatologists, urban planners, environmental engineers, as well as architects due to its combination of urban climatic scientific research outputs and urban planning and morphology language. Urbanization and higher-density living, an ongoing and continued path of human development, brings various urban climatic and environmental problems. Urban development in a sustainable way is vital for high-density cities to build a comfortable living environment. This book is the first one presenting systematically the latest LCZ applications by taking Asian high-density cities as an example. Generally, four parts are introduced and discussed in this book. At first, a general background of urbanization and its impacts is introduced, and the basic knowledge of LCZ. The second part introduces the methodology and techniques of LCZ data development. In the third part, various applications of LCZ are demonstrated in practice, including application to urban heat island, land use and land cover analysis, wind environment, energy consumption, thermal comfort studies and so on. Lastly, this book concludes the progress, challenges, limitations, and future work of LCZ-related studies. The book will be of interest to all that are working on or interested in urban climate, sustainable urban development, and policy-making. .

---