

ENVIRONMENTAL REMOTE SENSING and SYSTEMS ANALYSIS



EDITED BY NI-BIN CHANG

 CRC Press
Taylor & Francis Group

Contents

Preface.....	vii
About the Editor.....	ix
Contributors	xi

Chapter 1 Linkages between Environmental Remote Sensing and Systems Analysis.....	1
<i>Ni-Bin Chang</i>	

PART I Water Quality Monitoring, Watershed Development, and Coastal Management

Chapter 2 Using Remote Sensing-Based Carlson Index Mapping to Assess Hurricane and Drought Effects on Lake Trophic State	9
<i>Ni-Bin Chang and Zhemin Xuan</i>	

Chapter 3 Mapping Potential Annual Pollutant Loads in River Basins Using Remotely Sensed Imagery	35
<i>Kazuo Oki, Bin He, and Taikan Oki</i>	

Chapter 4 Identifying the Impact of Oil Spills with the Remote Sensing-Based Oil Spread Index Method	57
<i>Fahad A. M. Alawadi</i>	

Chapter 5 Remote Sensing to Predict Estuarine Water Salinity.....	85
<i>Fugui Wang and Y. Jun Xu</i>	

Chapter 6 Multitemporal Remote Sensing of Coastal Sediment Dynamics....	109
<i>Paul Elsner, Tom Spencer, Iris Möller, and Geoff Smith</i>	

Chapter 7 Estimating Total Phosphorus Impacts in a Coastal Bay with Remote Sensing Images and <i>in Situ</i> Measurements	123
<i>Ni-Bin Chang and Kunal Nayee</i>	

- Chapter 8** Monitoring and Mapping of Flood Plumes in the Great Barrier Reef Based on *in Situ* and Remote Sensing Observations 147
Michelle Devlin, Thomas Schroeder, Lachlan McKinna, Jon Brodie, Vittorio Brando, and Arnold Dekker

PART II *Sensing and Monitoring for Land Use Patterns, Reclamation, and Degradation*

- Chapter 9** Satellite Remote Sensing for Landslide Prediction 191
Yang Hong, Zonghu Liao, Robert F. Adler, and Chun Liu
- Chapter 10** Analysis of Impervious Surface and Suburban Form Using High Spatial Resolution Satellite Imagery 209
D. Barry Hester, Stacy A. C. Nelson, Siamak Khorram, Halil I. Cakir, Heather M. Cheshire, and Ernst F. Hain
- Chapter 11** Use of InSAR for Monitoring Land Subsidence in Mashhad Subbasin, Iran 231
Maryam Dehghani, Mohammad Javad Valadan Zoej, Mohammad Sharifkia, Iman Entezam, and Sassan Saatchi
- Chapter 12** Remote Sensing Assessment of Coastal Land Reclamation Impact in Dalian, China, Using High-Resolution SPOT Images and Support Vector Machine 249
Ni-Bin Chang, Min Han, Wei Yao, and Liang-Chien Chen
- Chapter 13** Mapping Impervious Surface Distribution with the Integration of Landsat TM and QuickBird Images in a Complex Urban–Rural Frontier in Brazil 277
Dengsheng Lu, Emilio Moran, Scott Hetrick, and Guiying Li

PART III Air Quality Monitoring, Land Use/Land Cover Changes, and Environmental Health Concern

Chapter 14	Using Lidar to Characterize Particles from Point and Diffuse Sources in an Agricultural Field	299
	<i>Michael D. Wojcik, Randal S. Martin, and Jerry L. Hatfield</i>	
Chapter 15	Measurement of Aerosol Properties over Urban Environments from Satellite Remote Sensing	333
	<i>Min M. Oo, Lakshimi Madhavan Bomidi, and Barry M. Gross</i>	
Chapter 16	DOAS Technique: Emission Measurements in Urban and Industrial Regions.....	377
	<i>Pasquale Avino and Maurizio Manigrasso</i>	
Chapter 17	Interactions between Ultraviolet-B and Total Ozone Concentrations in the Continental United States	395
	<i>Zhiqiang Gao, Wei Gao, and Ni-Bin Chang</i>	
Chapter 18	Remote Sensing of Asian Dust Storms	423
	<i>Tang-Huang Lin, Gin-Rong Liu, Si-Chee Tsay, N. Christina Hsu, and Shih-Jen Huang</i>	
Chapter 19	Forest Fire and Air Quality Monitoring from Space	457
	<i>John J. Qu and Xianjun Hao</i>	
Chapter 20	Satellite Remote Sensing of Global Air Quality	479
	<i>Sundar A. Christopher</i>	
Index	493