

## Contents

<i>List of Contributors</i>	page vii		
<i>Preface</i>	xi		
<i>Acknowledgments</i>	xiv		
<i>List of Abbreviations</i>	xv		
<b>Part I Future Earth and Planetary Issues</b>			
1 International Drivers to Study Climatic and Environmental Change: A Challenge to Scientific Unions <i>Tom Beer</i>	3	10 Decadal Coupled Ocean–Atmosphere Interaction in North Atlantic and Global Warming Hiatus <i>Jianping Li, Cheng Sun, and Ruiqiang Ding</i>	131
2 Future Earth and Expected Mega Changes <i>Serhat Şensoy, Mustafa Coşkun, Necla Türkoğlu, and İhsan Çiçek</i>	15	11 Sea Level Rise and Future Earth <i>Anny Cazenave and Hindumathi Palanisamy</i>	144
3 Global Change, Space Weather, and Climate <i>Eigil Friis-Christensen</i>	28	12 Ocean Circulation: Knowns and Unknowns <i>Harry L. Bryden and Lawrence A. Mysak</i>	159
4 Climate Issues from the Planetary Perspective and Insights for the Earth <i>Athena Coustenis, Fred W. Taylor, and Christina Plainaki</i>	40	<b>Part IV Future Earth and Regions</b>	
<b>Part II Future Earth and Geodetic Issues</b>			
5 Satellite Remote Sensing of Hydrological Change <i>Alberto Montanari and Michael G. Sideris</i>	57	13 Asian Groundwater Perspectives on Global Change and Future Earth <i>Makoto Taniguchi</i>	179
6 Geodetic Observations as a Monitor of Climate Change <i>Tonie van Dam, Jianli Chen, and Thierry Meyrath</i>	72	14 Africa’s Broken Food Systems: Unravelling the Hidden Fortune under Climate Change <i>Richard Munang and Robert Mgendi</i>	187
<b>Part III Future Earth and the Earth’s Fluid Environment</b>			
7 Future Earth and the Cryosphere <i>Ian Allison, Regine Hock, Matt A. King, and Andrew N. Mackintosh</i>	91	<b>Part V Future Earth and Urban Environments</b>	
8 Geographical Research and Future Earth <i>Michael E. Meadows</i>	114	15 Nutrition, Urban Environments, and Future Earth <i>Godwin D. Ndossi and Keto E. Mshigeni</i>	197
9 Water Security: Integrating Lessons Learned for Water Quality, Quantity and Sustainability <i>Elaine M. Faustman, Heidi Foth, Luis Schiesari, Julio Alejandro Navoni, Silvia Berlanga de Moraes Barros, Gisela de Araújo Umbuzeiro, Salmaan H. Inayat-Hussain, and Marissa N. Smith</i>	121	16 Nutrition Science and Future Earth: Current Nutritional Policy Dilemmas <i>Mark L. Wahlqvist</i>	209
		17 Air Pollution and Human Health Risk Reduction: The Case Study of Delhi Megacity, India <i>R. B. Singh and Aakriti Grover</i>	223
		<b>Part VI Future Earth and Food Security</b>	
		18 Targeting Research towards Achieving Food Security in an Era of Climate Change <i>Bruce M. Campbell, Dhanush Dinesh, and Sophia Huyer</i>	239
		19 The Contribution of Food Engineering to Achieve Global Food Security <i>Walter E. L. Spieß</i>	247
		20 Supply Chains and Future Earth <i>Albert McGill</i>	268

21	The Impact of Global Climate Change on Nutrition Security: A Multidimensional Challenge <i>Ibrahim Elmadfa and Alexa Leonie Meyer</i>	275	26	Geohazard Analysis for Disaster Risk Reduction and Sustainability <i>Alik Ismail-Zadeh</i>	349
22	Marine Systems, Food Security, and Future Earth <i>Elizabeth A. Fulton, Éva Plagányi, William Cheung, Julia Blanchard, and Reg Watson</i>	296	27	Geothermal Energy and a Future Earth <i>Ladislaus Rybach and Thomas Kohl</i>	364
<b>Part VII Future Earth and Risk, Safety and Security</b>			<b>Part VIII Climate Change and Global Change</b>		
23	Geophysical Studies, Natural Hazards, and Climate Change <i>Jaime Urrutia-Fucugauchi and Ligia Pérez-Cruz</i>	313	28	Future Earth, Climate Change, and Global Change: Future Earth's Ocean <i>Martin Visbeck and Anke Schneider</i>	379
24	Climatic Consequences and Agricultural Impacts of Nuclear Conflicts <i>Owen B. Toon, Alan Robock, Michael Mills, Lili Xia, and Charles Bardeen</i>	328	29	Asia's Sustainability Challenges and Future Earth <i>Tetsuzo Yasunari, Hein Mallee, and Reiichiro Ishii</i>	388
25	Advancing Spring Flood Risk Reduction in the Arctic through Interdisciplinary Research and Stakeholder Collaborations <i>Yekaterina Y. Kontar, Sarah F. Trainor, Tuyara N. Gavril'yeva, John C. Eichelberger, and Nikita I. Tananaev</i>	341	30	Looking Back to Move Forward: Institutional Capacity Required by Global Governance Changes <i>Jane E. Rovins and Sarah Beaven</i>	398
				<i>Name Index</i>	410
				<i>Subject Index</i>	411
				<i>Color plate section between pages 208 and 209</i>	