

Contents

Part I Biosphere

1 Forest Disturbance Assessment Using Satellite Data of Moderate and Low Resolution	3
M.A. Korets, V.A. Ryzhkova, I.V. Danilova, A.I. Sukhinin, and S.A. Bartalev	
2 Fire/Climate Interactions in Siberia	21
H. Balzter, K. Tansey, J. Kaduk, C. George, F. Gerard, M. Cuevas Gonzalez, A. Sukhinin, and E. Ponomarev	
3 Long-Term Dynamics of Mixed Fir-Aspen Forests in West Sayan (Altai-Sayan Ecoregion)	37
D.M. Ismailova and D.I. Nazimova	
4 Evidence of Evergreen Conifers Invasion into Larch Dominated Forests During Recent Decades	53
V.I. Kharuk, K.J. Ranson, and M.L. Dvinskaya	
5 Potential Climate-Induced Vegetation Change in Siberia in the Twenty-First Century	67
N.M. Tchebakova, E.I. Parfenova, and A.J. Soja	
6 Wildfire Dynamics in Mid-Siberian Larch Dominated Forests.....	83
V.I. Kharuk, K.J. Ranson, and M.L. Dvinskaya	
7 Dendroclimatological Evidence of Climate Changes Across Siberia	101
V.V. Shishov and E.A. Vaganov	

8 Siberian Pine and Larch Response to Climate Warming in the Southern Siberian Mountain Forest: Tundra Ecotone 115
 V.I. Kharuk, K.J. Ranson, M.L. Dvinskaya, and S.T. Im

Part II Hydrosphere

9 Remote Sensing of Spring Snowmelt in Siberia 135
 A. Bartsch, W. Wagner, and R. Kidd

10 Response of River Runoff in the Cryolithic Zone of Eastern Siberia (Lena River Basin) to Future Climate Warming 157
 A.G. Georgiadi, I.P. Milyukova, and E.A. Kashutina

Part III Atmosphere

11 Investigating Regional Scale Processes Using Remotely Sensed Atmospheric CO₂ Column Concentrations from SCIAMACHY 173
 M.P. Barkley, A.J. Hewitt, and P.S. Monks

12 Climatic and Geographic Patterns of Spatial Distribution of Precipitation in Siberia 193
 A. Onuchin and T. Burenina

Part IV Information Systems

13 Interoperability, Data Discovery and Access: The e-Infrastructures for Earth Sciences Resources 213
 S. Nativi, C. Schmillius, L. Bigagli, and R. Gerlach

14 Development of a Web-Based Information-Computational Infrastructure for the Siberia Integrated Regional Study 233
 E.P. Gordov, A.Z. Fazliev, V.N. Lykosov, I.G. Okladnikov, and A.G. Titov

15 Conclusions 253
 H. Balzter

Appendix 255

Index 279