

Contents

Preface

Urban, O. & Klem, K.

7

Chapter 1

Climate change and future scenarios

Ač, A., Krupková, L. & Marek, M.V.

8

Chapter 2

Climate change scenarios for Europe (with special attention to the Czech Republic) in terms of changes in temperature, precipitation, and drought conditions

Dubrovský, M. & Trnka, M.

25

Chapter 3

Assessing Köppen-Geiger climate classification by individual regional climate models considering the influence of bias correction methods

Szabó-Takács, B., Farda, A., Štěpánek, P., Skalák, P. & Zahradníček, P.

38

Chapter 4

Temporal dynamics and spatial identification of growth increment

Pokorný, R., Szatniewska, J. & Janouš, D.

45

Chapter 5

Ecosystem stations – a tool for global change observations

Havránková, K., Šigut, L., Macálková, L., Dušek, J., Sedlák, P. & Pavelka, M.

58

Chapter 6

Modification of carbon cycle in forest ecosystems by distinct sky conditions

Urban, O., Pavelka, M. & Klem, K.

68

Chapter 7

Effect of elevated CO₂ concentration: Acclimation of Rubisco

Urban, O. & Šprtová, M.

79

Chapter 8

Effect of elevated CO₂ concentration: Tree morphology and biomass production

Pokorný, R., Szatniewska, J. & Krejza, J.

89

Chapter 9

Interactive effects of ultraviolet and photosynthetically active radiation on photosynthesis, growth, and photoprotective mechanisms

Klem, K. & Urban, O.

99

Chapter 10

Drought and biomass production in natural grassland ecosystems

Holub, P.

113

Chapter 11

Changing risk of agricultural drought in the Czech Republic

Trnka, M., Balek, J., Dubrovský, M. & Semerádová, D.

123

Chapter 12

How does temperature affect carbon dioxide emissions?

Dařenová, E. & Acosta, M.

130

Chapter 13

Effect of ozone concentration on net ecosystem production: A case study in a Norway spruce forest

Zapletal, M., Edwards-Jonášová, M., Juráň, S., Urban, O., Pokorný, R., Pavelka, M., Janouš, D. & Cudlín, P.

138

Chapter 14

Impact of anticipated climate change on recovery from acidification of an acid-sensitive forested catchment

Hruška, J., Lamačová, A., Oulehle, F., Krám, P., Farda, A. & Chuman, T.

150

Chapter 15

Global change effects on insect diversity with examples from butterflies in the High Sudetes

Bílá, K. & Kindlmann, P.

163

Chapter 16

Effect of global change on orchid diversity: A meta-analysis

Traxmandlová, I., Kindlmann, P. & Štípková, Z.

176

Chapter 17

New approaches to forest above-ground biomass assessment

Brovkina, O., Novotný, J. & Zemek, F.

186

Chapter 18

Impacts of land use and climate change on ecosystem services in the Czech Republic

Krkoška Lorencová, E., Harmáčková, Z.V. & Vačkář, D.

197