

Sommersemester / *Summer Term 2016*Do. / *Thu. 12 st*  
Gebäude/*Building*  
GEO  
Hörsaal/*Lecture hall*  
H6

## BayCEER Kolloquium

Vortragsreihe Ökologie und Umweltforschung  
*Lecture series in Ecology and Environmental Research*

Donnerstag 14.04.2016, 12:00 Uhr, H6

Anschließend Postkolloquium mit Mittagsimbiss im Foyer H6

### Prof. Otmar Urban

Laboratory of Ecological Plant Physiology,  
Brno, Czech Republic

# Plant responses to climate change: impacts and adaptation

Die Vortragsreihe  
ist eine  
interdisziplinäre  
Plattform zur  
Information und  
Diskussion für  
Studierende,  
Forschende und  
LehrendeGäste  
sind herzlich  
willkommen*The lecture series  
serves as an  
inter-disciplinary  
platform for  
students, junior  
and senior  
scientists.**Guests  
are cordially  
invited!*

The Global Change Research Institute (CzechGlobe) forms a part of the Czech Academy of Sciences. The activities of CzechGlobe focus on issues of global climate change, which by its nature and possible consequences extends beyond the basic thematic segments of atmosphere, ecosystem, and socio-economic system. The mission statement of the Division of Impact Studies and Ecophysiological Analyses is to investigate molecular (key metabolic pathways) and physiological mechanisms responsible for adaptation, acclimation, and resistance of plants to the effects environmental perturbances (in particular elevated CO<sub>2</sub> concentration, temperature extremes, drought periods, and changes in spectral composition of light and nutrition supply etc.). Moreover, the Division focus on the development and application of new methodological approaches in environmental metabolomics, phenotyping and early-stress detection in plants.

A complex investigation of plants responses, in particular connected with processes of carbon uptake, to different sky conditions (radiation quality, temperature, vapour pressure deficit etc.) represents one of the major methodological approaches. We have elucidated, among other things, increased light use efficiency of ecosystem carbon uptake under cloudy sky conditions with prevailing diffuse radiation and how forests maintain a positive C balance, despite having an apparently high self-shading degree. We have also shown that a stimulation of photosynthesis rate by an elevated atmospheric CO<sub>2</sub> concentration, in contrary to clear sky, is negligible or even reduced under cloudy sky conditions. This result indicates that an expected increase in cloud cover associated with climate warming may reduce the stimulatory effect of EC on plants C uptake and growth.