

# ***CzechGlobe***

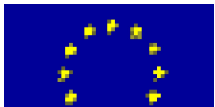
*Motto: „CHANGE IS CHALLENGE“*

## ***Jiří Kolman***

*CzechGlobe*

*Scientific Secretary*

***26<sup>th</sup> June 2023***



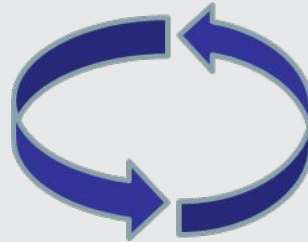
## *CzechGlobe - CHANGE IS A CHALLENGE*

*Research activities of  
the CzechGlobe institute  
are **FOCUSED ON** the problems  
of the **Changing Environment**  
in the **Changing World***

## *Special-field of the CzechGlobe research activities*

The problem of Global change is very complex, thus the *CzechGlobe* research activities are focused *on three main segments*:

**ATMOSPHERE AND CLIMATE**



**ECOSYSTEMS**



**SOCIO-ECONOMIC SYSTEMS**



## **CZECHGLOBE SCIENTIFIC DOMAINS**

***1. Domain of climatology and atmosphere research***

***2. Domain of ecosystems analysis***

***3. Domain of impact studies and plant ecophysiology***











***4. Domain of human dimensions of global change impacts***

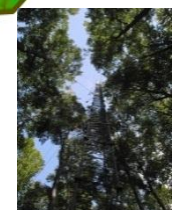
***5. Domain of innovative and adaptative techniques***



# CzechGlobe

*spatially distributed infrastructure*

-  Ecosystem station
-  Grow chambers for manipulative experiments
-  Laboratory (physiol., metabolom., isotop., biogeochem.)
-  Specialized weather station
-  Catchment monitoring hydrological cycles
-  Supercomputer terminal for climate modeling
-  Flying laboratory of imaging systems
-  Training center
-  Laboratory of innovation and adaptation techniques
-  Atmospheric station



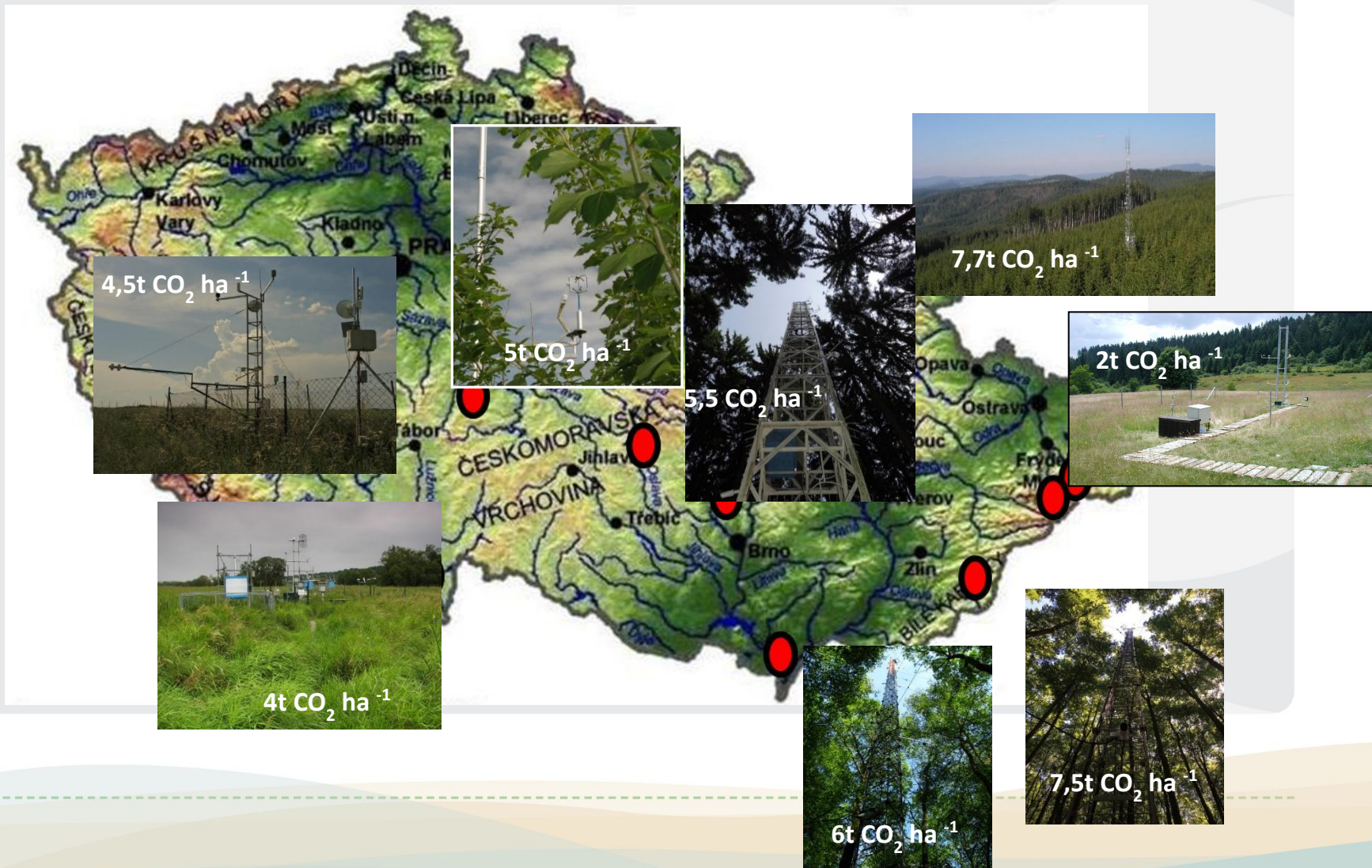
## ***CzechGlobe in European research infrastructures***

- ***ICOS ERIC*** (Integrated Carbon Observation System Research)
- ***AnaEE-ERIC*** (Analysis and Experimentation on Ecosystems)
- ***ACTRIS ERIC*** (The Aerosol, Clouds and Trace Gases Research Infrastructure)
- ***ESFRI DANUBIUS-RI*** (International Centre for Advanced Studies on River-Sea Systems)
- ***ESFRI eLTER RI*** (the Integrated European Long-Term Ecosystem, Critical Zone & Socio-Ecological Research Infrastructure)
- ***EUFAR AISBL*** (European Facility for Airborne Research)

***CzechGlobe***

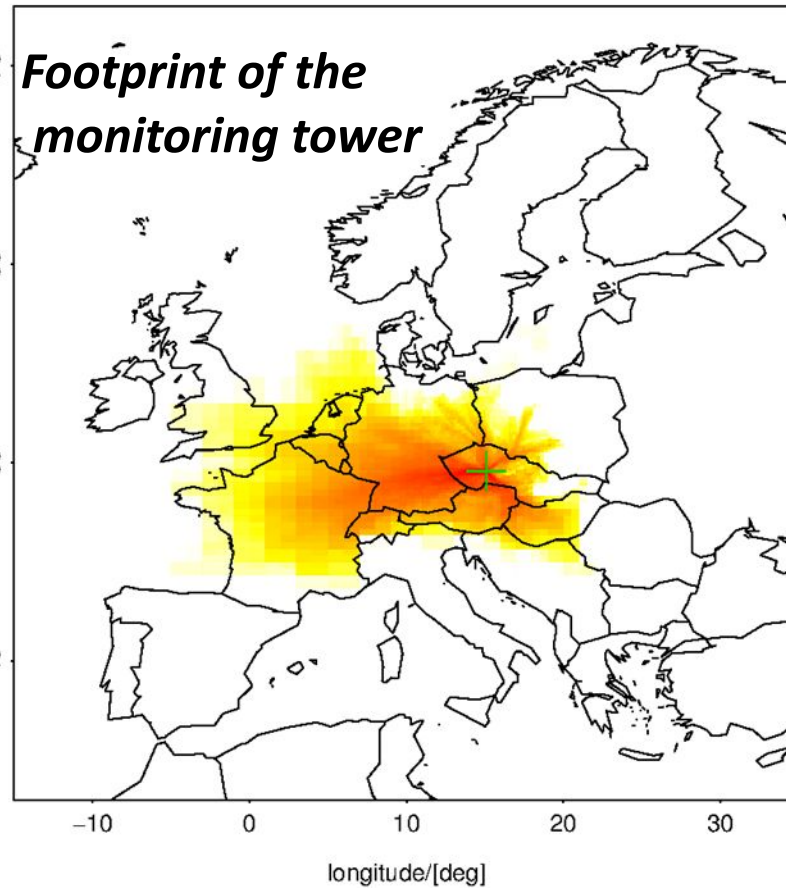
***PRINCIPAL ELEMENTS OF THE  
RESEARCH INFRASTRUCTURE***

## CZ network of CO<sub>2</sub> fluxes observation sites ICOS-ECO





# Precise measurement of green-gasses concentration in the atmosphere reference layer



## Aircraft „Lidka“ - hyperspectral and thermal sensors, camera and LIDAR



**Laser scanning**



**Thermal imaging spectroscopy**



**Visible and near infra-red imaging spectroscopy**



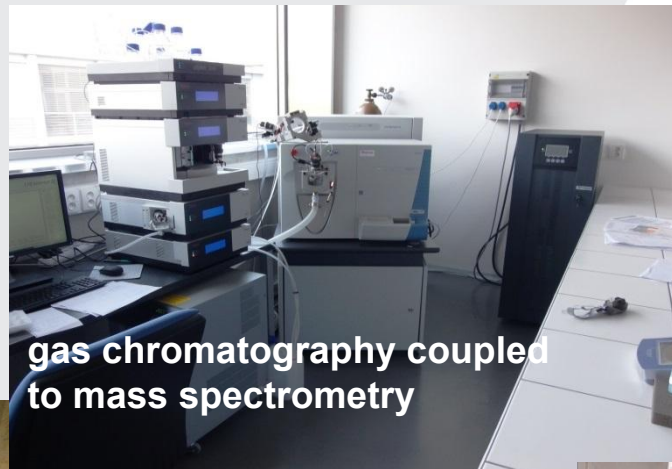
*Special tools used for the long-term cultivation  
and manipulative experiments realization*



**Phytotrone cluster**

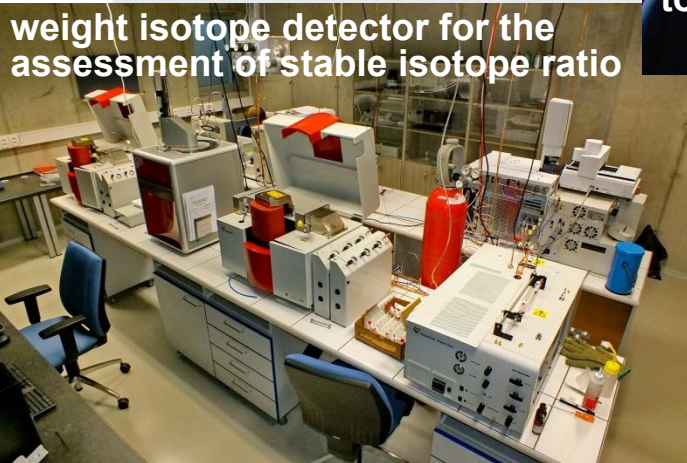


# *Environmental metabolomics and carbon isotopic analysis*



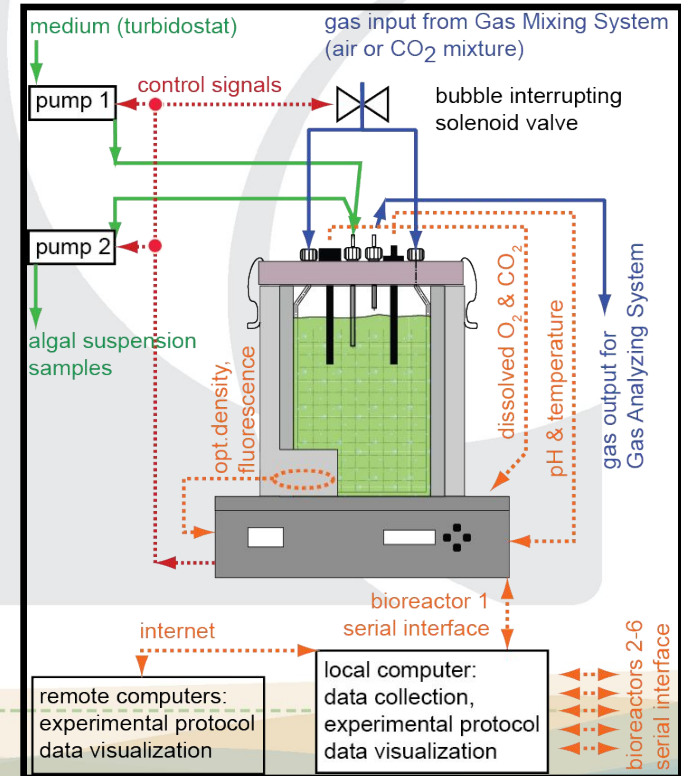
gas chromatography coupled  
to mass spectrometry

weight isotope detector for the  
assessment of stable isotope ratio



HPLC coupled to mass spectrometry

**International reference laboratory for characterization and optimization of photosynthetic microorganisms. Platform for screening of optimal conditions for both biomass and high value products accumulation**





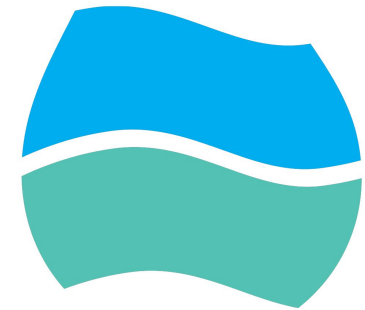
## Horizon Europe Project: 101079778 DANUBIUS-IP — HORIZON-INFRA-2021-DEV-02

DANUBIUS-IP is a 36-month Coordination and Support Action to support the ongoing development of DANUBIUS-RI – an environmental Research Infrastructure linking rivers and seas – as it proceeds towards its Operational Phase.

<https://www.danubius-ri.eu/>

DANUBIUS-IP is coordinated by GeoEcoMar (Romania) and brings together 25 experienced partners from 14 countries from across Europe in a consortium with complimentary areas of multi-disciplinary expertise across the freshwater and marine research fields.

**Trans National Open Access call for external DANUBIUS-RI research infrastructure users will be launched soon.**



**DANUBIUS-IP**



## *CzechGlobe – change is a challenge*

*Thank You for  
Your attention.....*