

## Report on the outcomes of a Short-Term Scientific Mission<sup>1</sup>

Action number: **CA20108 - FAIR Network of micrometeorological measurements**

Grantee name: : **Josef Eitzinger, BOKU University, Vienna**

### **Details of the STSM**

Title: Fostering cooperation in microclimatology of Agroforestry Systems and COST FAIRNESS Dissemination Activities

Start and end date: 26/09/2024 to 05/10/2024

### **Description of the work carried out during the STSM**

Description of the activities carried out during the STSM. Any deviations from the initial working plan shall also be described in this section.

*(max. 500 words)*

### **Work carried out and Outputs/Results:**

**1)** Agroforestry becomes more and more important as an alternative cropping system in Europe to limit the negative impacts of increasing climate extremes on cropping conditions and crop yields. To increase the sustainability in agricultural production there is a strong need for impact assessments and related microclimatic data sets for evaluation of different Agroforest designs (e.g. Type of crop-tree combinations in relation local climatic conditions etc). The aim is to coordinate and foster our activities for establishing related data sets, which will also be integrated in the COST Fairness Action KSP data base in the mid-term as a contribution to COST FAIRNESS Deliverable to extend the FAIR micrometeorological data base of application examples.

I discussed with the host (Prof. Branislava Lalic) the options for a cooperation on methodical approaches to measure and analyse the effects of Agroforestry Systems on microclimatic conditions and their effects on crops.

**2)** I completed and proof read together with the host as part of the key authors the outstanding parts of the book chapters (especially chapter 2 and chapter 4) of the **“Guidelines for Micrometeorological Measurements”** Chapters 1-4 which are:  
**Chapter 1: Introduction to Micrometeorological Measurements (40 pages)**

<sup>1</sup> This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant.

Chapter 2: Methodical Recommendations for Micrometeorological Applications (54 pages)

Chapter 3: Good Practices for Single Parameters (67 pages)

Chapter 4: Quality control and recovery of meteorological data (40 pages)

The full draft version of the book (ca. 200 pages) is now available, which is planned to be published within the next 4 months by Springer as an important Deliverable of the Dissemination Activities of the COST FAIRNESS Action.

3) Further the conceptualization of planned publication “**Non-urban measurements - overview paper**” (A Deliverable of the Dissemination activities) was carried out.

### **Description of the STSM main achievements and planned follow-up activities**

Description and assessment of whether the STSM achieved its planned goals and expected outcomes, including specific contribution to Action objective and deliverables, or publications resulting from the STSM. Agreed plans for future follow-up collaborations shall also be described in this section.

*(max. 500 words)*

The purpose of the STMS was related to the COST FAIRNESS Objectives related to Capacity building, in specific:

**a) Creating a Pan-European (and beyond) multidisciplinary network of researchers and stakeholders with diverse background in meteorology/climatology, agricultural and food production, forestry, health and urban heat island effects.**

and

**b) Fostering skill and knowledge enhancement in order to avoid the “crowding out” effect and introduce new job skills.**

**In regard to a)** establish cooperation on methodical approaches to measure and analyse the effects of Agroforestry Systems on microclimatic conditions and their effects on crops the agreed plan for building up future cooperation includes:

-To develop an international research proposal on the microclimatic benefits of Agroforestry systems to adapt agro-ecosystems to changing climate (e.g. using the upcoming Austrian Climate Research Program calls) to foster the future cooperation.

-Testing a new method (developed by the host in the frame of COST FAIRNESS Action) of AI-based detection of microclimatic effects in Agroforestry systems on soil temperatures with the aim to be published in a research paper.

-To establish an international cooperation with the Center for International Forestry Research and World Agroforestry (CIFOR-ICRAF; <https://www.cifor-icraf.org/>) in order to create microclimatic data sets for the KSP data bank of COST FAIRNESS. We agreed on an online discussion after mid of October 2024 by the local branch representative in Vietnam. The applicant (Josef Eitzinger) already has installed microclimatic measurements of Panax Agroforst systems in the frame of a bilateral project.

**In regard to b)** For the conceptualization of the planned paper “Non-urban measurements - overview paper” (A Deliverable of the Dissemination activities) following next activities are planned: The content of the paper will focus on the analysis of the structure and aims of existing rural micrometeorological measurement networks as well as their various application aims. The first step is to extend a related survey

based on the already established list of networks from COST FAIRNESS till end of January and provide a first manuscript draft before June 2025, including selected co-authors from the COST FAIRNESS Action.



Photo: Working with the host on **“Guidelines for Micrometeorological Measurements”**