

## FAIR network of micrometeorological measurements

*Invitation for IAUC members to join and contribute to the FAIRNESS project*

In October 2021, a new international project entitled “FAIR network of micrometeorological measurements” (acronym FAIRNESS) was launched, funded by the European Cooperation in Science & Technology – COST Action (<https://www.cost.eu/cost-action/fair-network-of-micrometeorological-measurements/>). In the next four years (until the end of 2025) through the FAIRNESS project, the main activity will be providing better access to open micrometeorological databases from urban and rural areas around the world, as well as creating an international network of researchers and experts focused on micrometeorological monitoring and the results of micrometeorological assessments.

Reliable and sufficient knowledge of environmental conditions or processes obtained from micrometeorological and microclimatological data plays a central role in assessing and modelling trends and effects of climate change and adverse weather events on the environment and ecosystems over all spatial and temporal scales. Enormous efforts have already been made at the European level to centralize data from ground-based (synoptic scale) and satellite measurements, weather and climate simulations and to make them available for public use (e.g., COPERNICUS, ECMWF database, e-OBS). These well-established data sources are widely and successfully used in research, education, and economics. However, beyond specific initiatives, they lack another very important component – micrometeorological data, i.e., data addressing meteorological conditions of the microenvironment (few kilometers scale) that are open and available for different applications and user groups.

FAIRNESS’s innovation is the establishment of the first **micrometeorological knowledge share platform (Micromet\_KSP)** which will serve as the basis for a future European micrometeorological database (EU-Micro\_Met) that will complement other databases. Micromet\_KSP will be established: **a)** by compiling an inventory of available in situ micrometeorological data (including metadata) and calculated indices at European level and beyond; **b)** recommendations for measurements and data management designed to meet FAIR principles and avoid temporal and spatial gaps; **c)** designing complete pilot data sets representing rural and urban micrometeorological conditions and **d)** evaluating Q&A communication in order to assess hot topics for all actors, particularly stakeholders and end-users at different societal levels (i.e., institutional/governmental, industrial/commercial and private/farmers). To demonstrate its functionality and application potential, we will implement Micromet\_KSP as an element of the Action web page. The structure of Micromet\_KSP will enable a wide range of applications from practice to research levels, which will be tested in sector-specific case studies (e.g., agriculture, forestry, urban thermal assessments, urbanization, health).

The main goal of the FAIRNESS Cost Action is the establishment, implementation and dissemination of Micromet\_KSP throughout Europe and beyond. The strategy is to build Micromet\_KSP on existing micrometeorological sources of data and methodologies and permanently integrate new members from Europe and beyond, thus widening the spatial, multi-, inter- and transdisciplinary scale of the Action.

The FAIRNESS project intends to improve standardization and integration between databases/sets of micrometeorological measurements that are part of research projects or local/regional observational networks established for special purposes (agrometeorology, urban microclimate monitoring). The challenges identified through project activities require an efficient transboundary network of researchers, stakeholders (extension services and environmental agencies, local authorities and ministries, SME) and civil society (specialized and general public) from Europe and beyond to identify and fill knowledge gaps, standardize, optimize and promote new environmental-tailored measurements and control procedures, enhance research effectiveness and improve dissemination.

All project activities are defined and organized through four working groups: WG1 – Networking and communication; WG2 – Development and implementation; WG3 – Dissemination and application; and WG4 – Beyond FAIRNESS strategies. More information on the project and WG activities can be found in the project activities diagram (Figure 1) and the [project link](#).

Finally, the successful implementation and dissemination of the Micromet\_KSP, as a data framework, will create a strong basis for future research and modelling studies, as well as a European Micrometeorological database.

### How to join and contribute to the project

Are you interested in our project? If so, then you are probably wondering how to join the project and contribute to its results. Go to the [project link](#), and you will find the following information: *project description, how to inform the Main Proposer/Chair of your interest in joining the project, how to apply to join your Working Group of interest and how to reach the COST National contact points.*

The project is currently in the implementation phase, and the first defined activities are in progress. Therefore, **we would like to take this opportunity to invite you to join the FAIRNESS project and contribute to its successful implementation. Firstly, you are invited to participate in filling out two questionnaires:**

**Questionnaire 1** - refers to "Inventory of available micrometeorological data and their structure". We are looking to collect data information on urban/rural micrometeorological networks (which are not part of national official networks) through the questionnaire

**Questionnaire 2** – aims to create a multidisciplinary network of experts for micrometeorological data measurement

	WG1 – Networking and Communication	WG2 – Development and implementation	WG3 – Dissemination and application	WG4 – Beyond FAIRNESS strategies
GOAL	Make micrometeorological data FAIR	Improve standardization, methodology and data use	Science and data open to society - Demonstrate FAIRNESS effectiveness	FAIRNESS “life” and application beyond the Action
Research coordination objectives	O1: Establish forum of available micrometeorological networks and data sources	O2: Development and implementation of Micromet_KSP	O3: Establish FAIRNESS end-users community	O4: Guideline for future good practices for micrometeorological measurement strategies and methods, data assimilation and indices
Outcomes	<ul style="list-style-type: none"> <li>• Inventory of available micrometeorological data in Europe</li> <li>• Guidelines for FAIR principles and methodological improvements</li> <li>• Gaps and their overcoming in measurement methods and data assimilation</li> </ul>	<ul style="list-style-type: none"> <li>• Web implemented Micromet_KSP</li> <li>• Training courses in data assimilation and management for non-meteorological staff</li> <li>• List of pilot data sets, indices and case studies</li> </ul>	<ul style="list-style-type: none"> <li>• Disseminate case study results</li> <li>• Inventory of region-specific stakeholder and users needs</li> <li>• List of application examples by stakeholders and Micromet_KSP users</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation of most important topics from Micromet_KSP analytics</li> <li>• Functionalities and concept of future European micrometeorological database – strategy paper</li> <li>• Good Practices and recommendations for micrometeorological applications</li> </ul>
Capacity-building objectives	O1: Create a Pan-European multidisciplinary network	O2: Identify and fill gaps in skills and knowledge	O3: Establish FAIRNESS Action “neighbouring” community	O4: Build long-term and sustainable cooperation on database establishment and measurement campaign strategies
Outcomes	<ul style="list-style-type: none"> <li>• Knowledge transfer among partners and towards society and stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced and efficient data use, method applications and researcher career development</li> </ul>	<ul style="list-style-type: none"> <li>• List of “neighbouring” community members</li> </ul>	<ul style="list-style-type: none"> <li>• Inventory of transferrable activities after the end of the action</li> </ul>

Figure 1. The main goals and Working groups as well as the outcomes from the Research coordination and Capacity-building objectives of the FAIRNESS Project.

and assimilation, i.e., experts who monitor and use urban/rural micrometeorological measurements, work on assessments, assimilations, modeling, work on climate/environmental strategies, projects etc. Furthermore, we would like to see not only experts from universities or research institutions, but also from NGOs, administrative institutions,

companies, etc. The final version of this list of experts will be visible on the project website and freely open to everyone to search for potential future partners. Finally, the goal of this list is to expand and contribute to better connectivity of experts and institutions working on and using urban/rural micrometeorological datasets.



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**Link to both Questionnaires:**  
<https://drive.google.com/drive/folders/1DS-oWEthRC7ANjccrsK-bVs-o9LopJEpX?usp=sharing>.

Please, either [download the questionnaires](#) (excel files), fill them out and email them to [stevan.savic@dgt.uns.ac.rs](mailto:stevan.savic@dgt.uns.ac.rs) or fill them out [online](#).

Also, for everyone who cannot access the files through the link, please do not hesitate to send your request to [stevan.savic@dgt.uns.ac.rs](mailto:stevan.savic@dgt.uns.ac.rs) and both questionnaires will be sent to you through your email.