

Working Group 1 – Urban and rural micrometeorological networks across the Europe

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WG1 – Networking and Communication

CA20108 - FAIRNESS



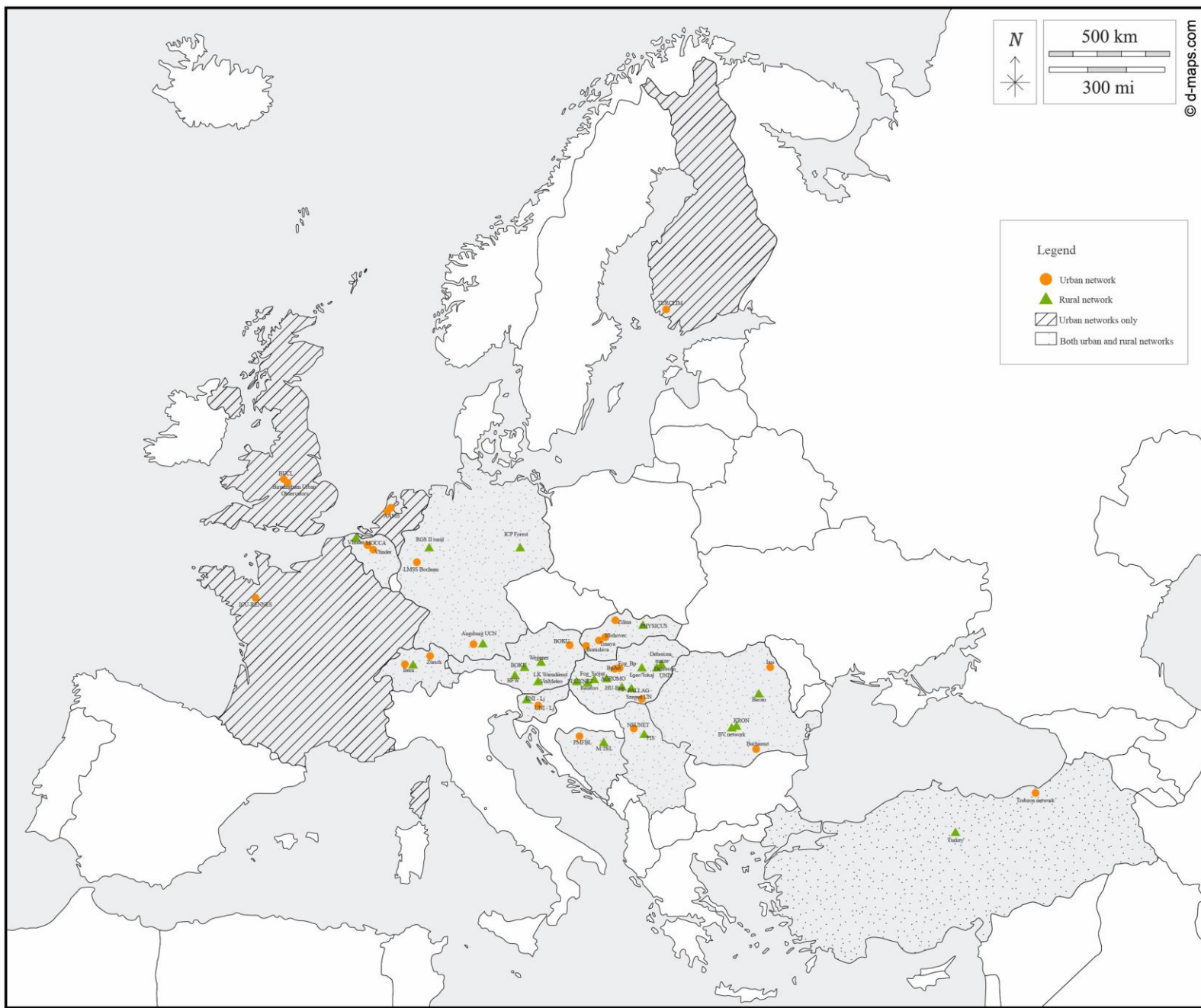
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WG1 – Deliverables in 2022

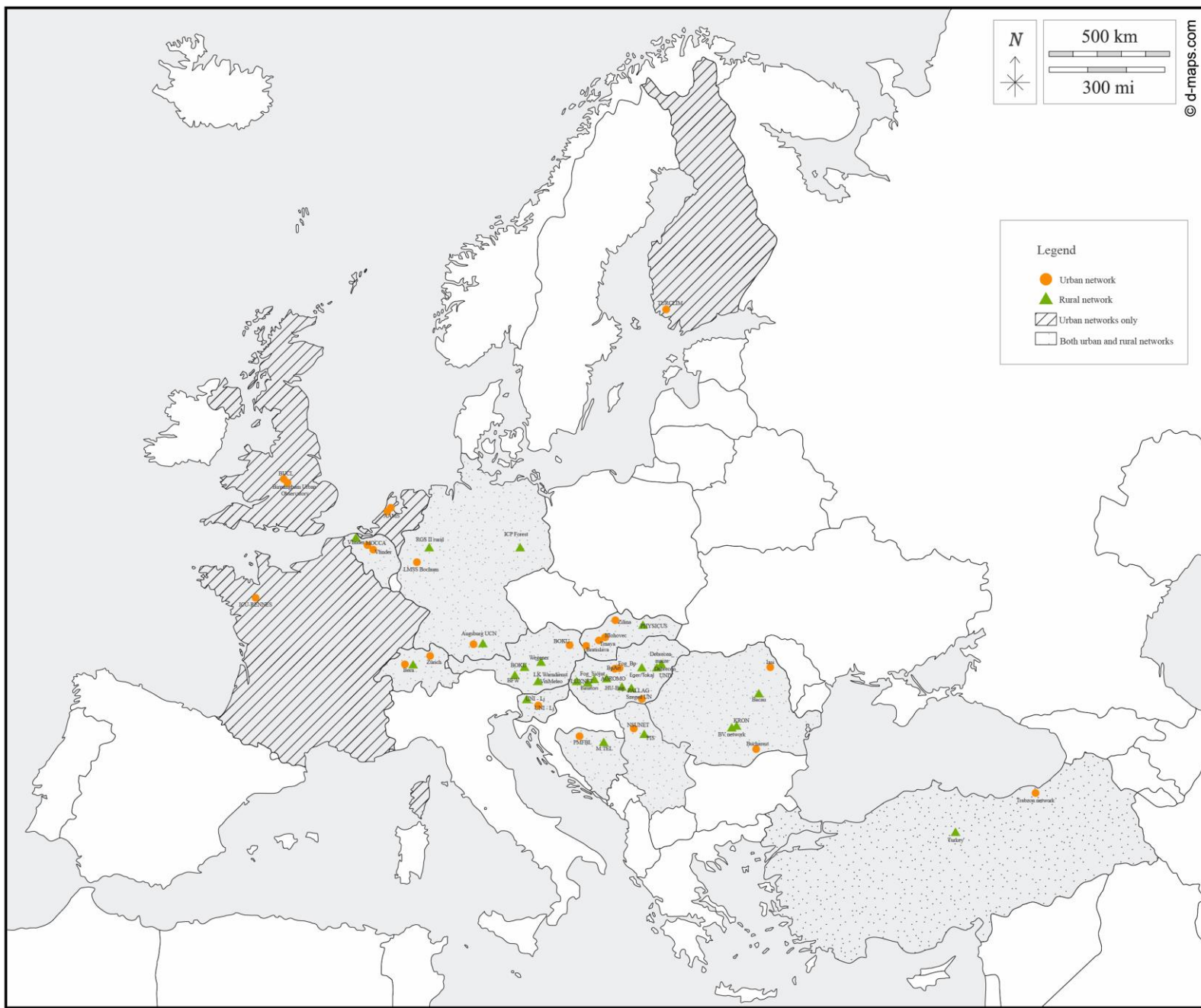
- Deliverable 1.1 – collecting infos about urban and rural networks in Europe (January 2022);
- Deliverable 1.2 – creating the Pan-European list of experts and stakeholders (April 2022);
- *Deliverable 1.3 – Gap filling methods (October 2023).*



- Austria: BOKU-Met urban;
- Belgium: MOCCA and Vlinder;
- Bosnia and Herzegovina: PMFBL;
- Israel: IMS, MEP, MA, TAU;
- Finland: TURCLIM;
- France: ICU-RENNES;
- Germany LMSS and Augsburg UCN;
- Hungary: Fog_Bp, BpArt, Szeged UN;
- The Netherlands: AAMS;
- Romania: Bucharest network, Iasi network;
- Serbia: NSUNET;
- Slovakia: city stations
- Slovenia: UNI-LJ;
- Switzerland: Zurich, Bern;
- Turkey: Trabzon net;
- United Kingdom: BUCL and Birmingham Urban Observatory.

The list will be regularly updated with new micrometeorological networks/stations during the project implementation, so that the final number of networks will be known by 2025.

Rural networks (13/31): *CA20108 - FAIRNESS*



- Austria: BOKU-Met rural, Wegener net, LK Warndienst VitiMeteo, BFW;
- Belgium: Vlinder;
- Bosnia and Herzegovina: M:TEL;
- Europe: ICP forest;
- Israel: IMS, MEP, MA, TAU;
- Germany: RGS II, Augsburg;
- Hungary: Balaton, Fog_Bp, Fog_Siojut, Debrecen, PALLAG, Eger/Tokaj, FLUXNET, HU-bug, AGROMO, Debrecen UN;
- Romania: Bacau network, BV, KRON;
- Serbia: PIS;
- Slovakia: PHYSICUS;
- Slovenia: UNI-Lj;
- Switzerland: Bern;
- Turkey: rural net.

The list will be regularly updated with new micrometeorological networks/stations during the project implementation, so that the final number of networks will be known by 2025.

General networks characteristics

- URBAN – from 1 to 273 stations; frequency measurements from 1-minutes to 1-hour (mostly 10-minutes); Ta, RH, v, P; 2/3 of networks have no access; monitoring period – last 5 years;
- RURAL – from 1 to 150 stations; frequency measurements from 1-minutes to 1-hour (mostly 10-minutes); Ta, RH, v, P; 2/3 of networks have no access; monitoring period – 10 years or more;
- Next steps – gathering until 2025; excel table with networks info will be uploaded on the KSP.

Pan-European list of experts and stakeholders

- Up to now – 60 persons from 23 countries

Urban Projects

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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

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](#).

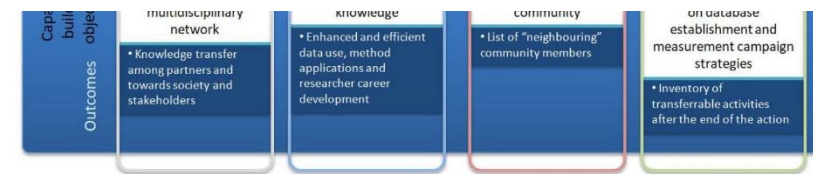


Figure 1. The main goals and Working groups as well as the outcomes from the Research coordination and Capacity-building objectives of the FAIRNESS Project.

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 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 and both questionnaires will be sent to you through your email.

Questionnaire survey

- Network and Pan-European list questionnaires will be uploaded on the KSP:

<https://drive.google.com/drive/folders/1DS-oWEthRC7ANjccrsKbVs-o9LopJEpX>

Main activities of the WG1 in 2023

- After the final version of the KSP will be launched – WG1 meeting;
- Call the WG1 members to upload datasets on the KSP;
- Call the WG1 members to upload materials on the KSP;
- Create and send the Deliverable 1.3;
- Finish and submitted the review paper.

Urban networks – review paper

Main objectives

- To make an inventory of the urban meteorological networks and available data
- To assess the purpose of the networks and data
- To obtain detailed information on:
 - scale of UMN's,
 - spatial distribution and density of sensors,
 - data resolution,
 - data collection, communication and availability
 - main barriers and challenges in development and maintenance of UMN's
- To contribute to establishment of the KSP

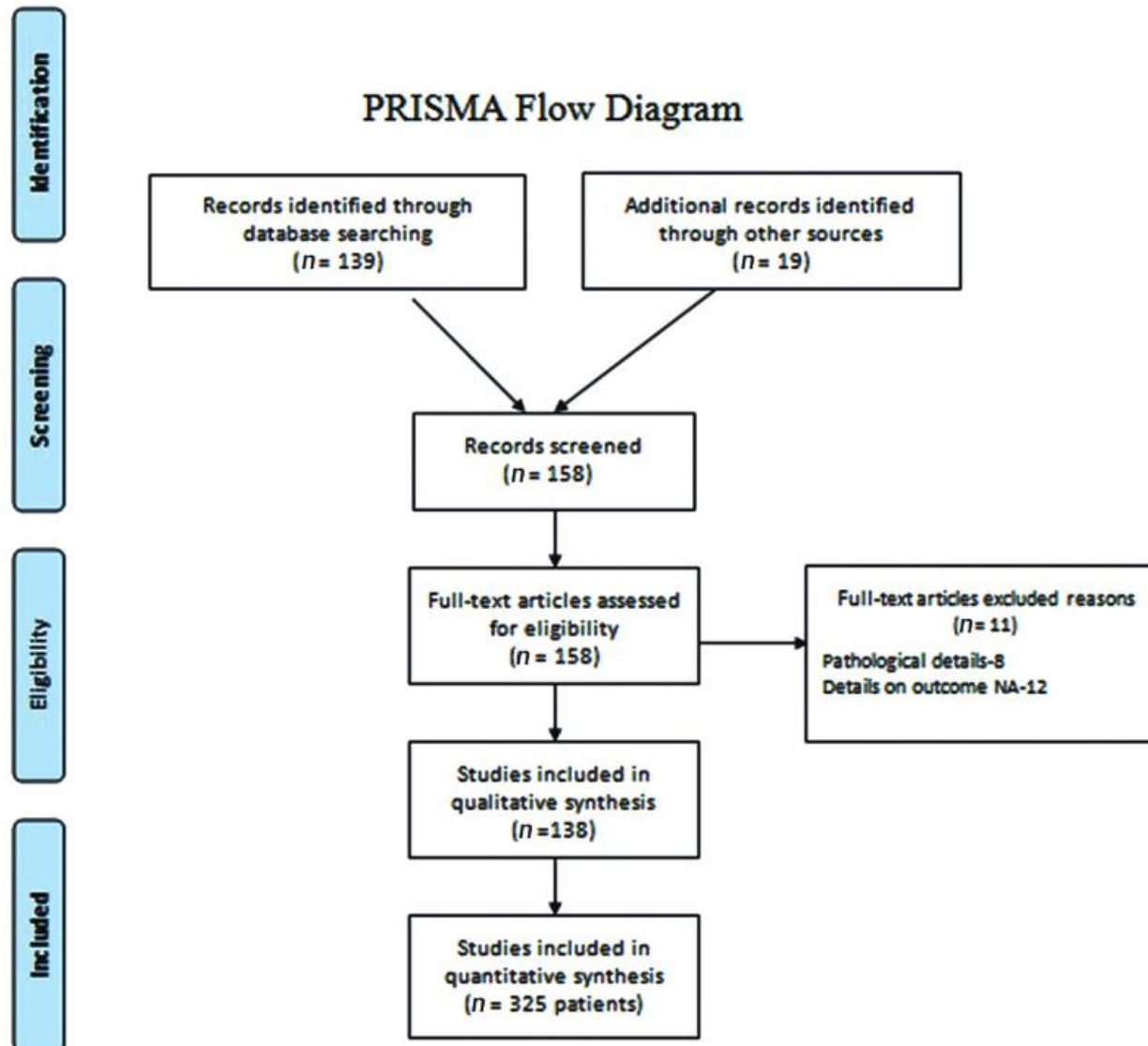
Review paper – methods for data collecting

Two sources:

Literature review - urban meteorological networks whose characteristics or data are reported in scientific journals referred in the Web of Science database

Questionnaire form - networks reported during the data collection of urban and rural networks from partners participating in FAIRNESS COST Action

Review paper – methods for data collecting



Review paper – literature review process

- Keywords selection

“urban meteorological network” AND “urban climate network” OR sensor AND temperature



WOS DATABASE



INITIAL SCREENING



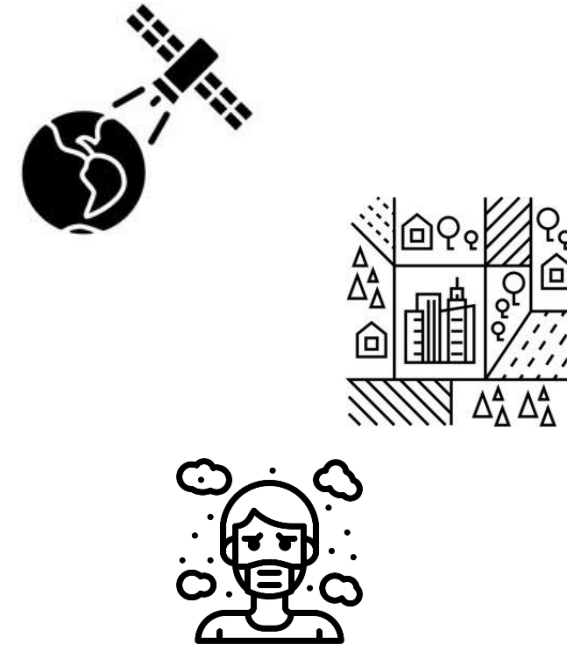
II ROUND FULL TEXT
SCREENING



CONTENT ANALYSIS
AND CLASSIFICATION

Review paper – preliminary outcomes

- Network establishment procedure
- Sensor characteristics
- Purpose
 - Remotly sensed data validation
 - land use / surface cover assessment
 - LCZ assessment
 - UHI assessment
 - human outdoor thermal comfort assessment
 - air quality assessment
- Gaps and barriers (funding, measurement methods, data assimilation, etc.)



Review paper – next steps

- October 2022: create consortium of authors and organize the first online meeting;
- November 2022: start with analysis and writing;
- February 2023: finishing manuscript and prepare for submitting.

Discussion.....