

Report on the outcomes of a Short-Term Scientific Mission¹

Action number: CA 20108

Grantee name: Marko Kaasik

Details of the STSM

Title: FAIR management of high-volume data in FMP

Start and end date: 02/03/2025 to 08/03/2025

Description of the work carried out during the STSM

The first task of STSM, uploading the big data set (49 GB of eddy covariance data from Valgjärve atmospheric measurement site in Estonia, operated in 2015 - 2021) to the FMP, did not succeed as expected, but is on the way to be completed, using a modified method. As the data file size to be uploaded to Zenodo is limited to 50 MB only, but reasonably split (monthly) data files appear about 1 GB each, direct upload was not possible. Instead, the FMP repository development team in School of Computing, Dublin City University, received this data through a specially created link. This data are to be linked it to the Tartu01 network created by M. Kaasik in FAIRNESS KSP (<https://fairmicromet.eu/>).

The metadata set for Valgjärve mast measurement site, the single measurement station in Tartu01 dataset, was created in KSP, consisting of description of site and sensors (Metek uSonic Class A ultrasonic anemometers and Rotronic temperature and humidity sensors) and detail description of structure of data files in a separate document.

A 3.5-page guide for data upload to KSP was written. As there already existed a rather comprehensive video guide by Michael Screney, the written guide is focused on explaining the hierarchical structure (network – site – sensor) and specific upload options of metadata at each level (single object *versus* bulk upload using a Excel table format) and their relation with real data in files to be uploaded, rather than on the visual appearance of features in KSP.

(max. 500 words)

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¹ 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.

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

Objective 2 (WG2): “Micromet_KSP with associated data and information sources including pilot data sets and selected indices will be developed; exchange files will be stored at general-purpose open-access repository ZENODO.” Experimental upload of big data was performed. It was found that current setup in Micromet KSP via Zenodo does not enable user-driven upload of meaningful sets of raw micrometeorological (e.g. eddy covariance) data, but this is possible with assistance by KSP development team.

Objective 4 (WG4): „Guideline of future needs for micrometeorological measurements, data assimilation and application.“ Detail guide for data and metadata upload to Micromet KSP is enabled to data providers. For adding new value, not repeating the existing guidelines in form of video clip, the guide is focused on hierarchical structure of Micromet KSP and relevant choices for uploading the metadata.

Both the first uploaded big (GB size order) data set and data upload guide are direct inputs to Deliverable D2.1 Web implemented Micromet_KSP (M09) and thus, give a certain part of material for Deliverable D4.3 Report on Micromet_KSP analytics (M39).

The outcomes of this STSM are to be presented at 2nd FAIRNESS Conference, 8th and 9th April 2025 in Sarajevo (Bosnia and Herzegovina). Then it is upon FAIRNESS MC, whether to consider the upload facilities of Micromet KSP sufficient, or take efforts to extend the user-driven capability to upload big data.

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