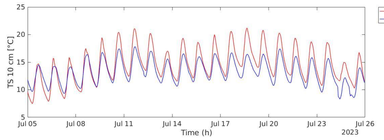
POLITECNICO DI TORINO
UNIVERSITÀ DEGLI STUDI DI TORINO
Dipartimento Interateneo di Scienze, Progetto e Politiche del Territorio
Consiglio Nazionale delle Ricerche STEMS Istituto di Scienze e Tecnologie per l'Energia e la Mobilità Sostenibili

Tanzeel Hamza, **Stefano Ferraris,** D. Gisolo, A. Gentile, D. Canone, S. Bechis, B. Heery, M. Biddoccu, G. Capello, G. Maaschwitz, A., Myagkov, E. Gazzola, and L. Stevanato.

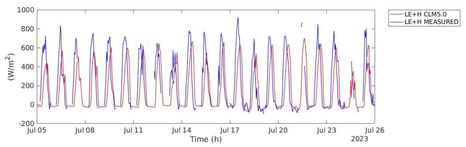
life from cosmos finapp
Radiometer Physics A Rohde & Schwarz Company

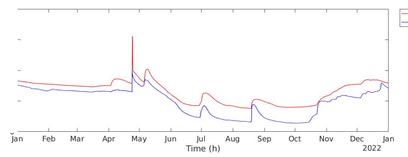
Eddy covariance, scintillometer, and cosmic ray 1 km scale measurements at three sites (grassland, forest, and vineyard) in North-West Italy compared with CLM simulations

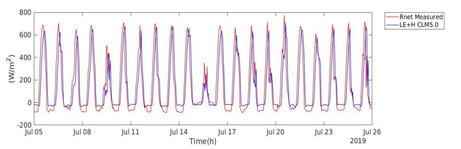
Grassland 2600 m, Gran Paradiso National Park

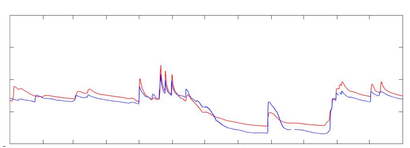


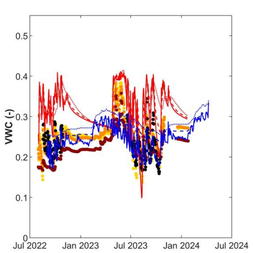
Six years (from October 2017) actual evapotranspiration data can be compared with Landsat (Gisolo et al., 2022) and soil moisture with cosmic rays (Bogena et al., 2022) and SMAP and ERA5 data.

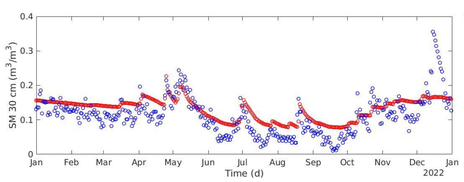




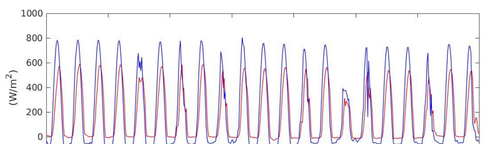


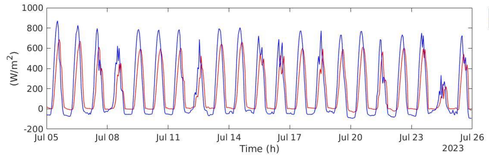




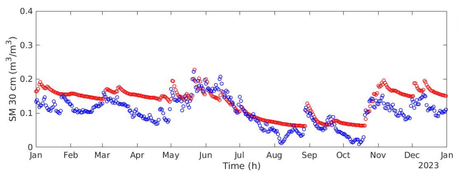


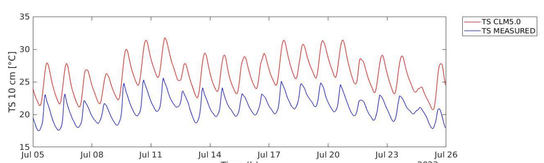
Forest, eddy covariance 25 m high mast

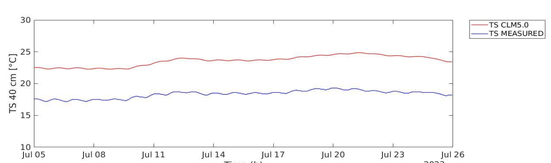


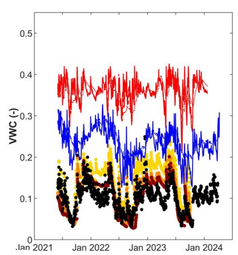


Three years (from October 2021) actual evapotranspiration data over the forest and cosmic rays. It is an area where recharge of aquifer has critical trends (Brussolo et al., 2022)

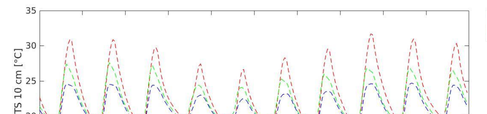


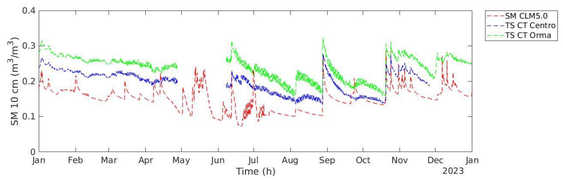




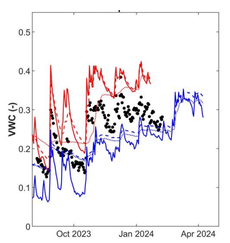


Vineyard, scintillometer data in progress





One years (from April 2023) actual evapotranspiration data from two scintillometers and cosmic rays. Also a radar for measuring rainfall at the same scale has been installed



CONCLUSION: It is possible to measure fluxes and soil moisture at the scale of remote sensing, and compare with uncalibrated CLM land surface model.

Brussolo et al. (HESS, 2022). Aquifer recharge in the Piedmont Alpine zone: historical trends and future scenarios.

Bogena et al. (ESSD, 2022). COSMOS-Europe: a European network of cosmic-ray neutron soil moisture sensors.

Gisolo et al. (J.Hydrology 2022) A calibration free radiation driven model for estimating actual evapotranspiration of mountain grasslands.

This work is a part of the project NODES which has received funding from the MUR-M4C2 1.5 of PNRR grant agreement no. ECS00000036 and of PRIN2017 WATZON, COST WATSON, and PRIN2022 SUNSET.