EGU26-20737, updated on 07 Nov 2026
https://doi.org/10.5194/egusphere-egu26-20737
EGU General Assembly 2026
© Author(s) 2026. This work is distributed under
the Creative Commons Attribution 4.0 License.

Optimising the ICOS ecosystem network for satellite cal/val activities by adding new sensors and technologies.

Bert Gielen, **Simone Sabbatini**, Maarten Op de Beeck, Giacomo Nicolini, and Dario Papale
University of Antwerp, Belgium (bert.gielen@uantwerpen.be)

The Integrated Carbon Observation System (ICOS) is a European Research Infrastructure (RI) with the goal is to provide high quality greenhouse gasses data collected according to standard protocols and distribute them in real-time with an open data access according to FAIR principles through its dedicated data portal. The terrestrial component of ICOS consists of a distributed network of monitoring stations across Europe covering the most representative ecosystem types (forests, grasslands, croplands, mires,lakes and urban). These stations provide a broad, high-standard ecological assessment of the target ecosystem: measurements are based on the eddy covariance technique from highly equipped flux towers, while a large set of meteorological variables and vegetation related parameters like Leaf Area Index, biomass that are collected according to strict protocols.. The network is currently fully operational with >100 stations delivering data across 16 countries.

This presentation focuses on the potential of the ICOS for serving as a reference in-situ network for satellite product Cal/Val activities, highlighting how the ICOS ecosystem network can be optimised for the CalVal community by adding new sensors and technologies for new variables like Land Surface Temperature (LST), optimising the network of below canopy PAR sensors for estimating fAPAR in forest ecosystems or using Terrestrial Laser Scanning (TLS) for characterizing canopy structure and forest biomass. We also highlight how the cal/val community in particular can contribute through the design, discussion and implementation of specific protocols to match the possible requirements.