

Swiss FluxNet Site Davos



Picture credit: Lukas Hörtnagl

Site description

The [Swiss FluxNet](#) Site Davos is a managed subalpine evergreen forest, located on the Seehorn mountain near Davos in the Swiss Alps. The site is dominated by Norway spruce. The tower is owned by the Federal Office for the Environment (FOEN). Eddy covariance flux measurements are available since January 1997. In addition to Swiss FluxNet, the site is part of the National Air Pollution Monitoring Network (NABEL), the Long-term Forest Ecosystem Research (LWF) of WSL, the biological drought and growth indicator network (TreeNet) of WSL and of [ICOS Switzerland](#). Since November 2019, the site is an ICOS Class 1 Ecosystem station.

Tower coordinates: 46°48'55.2" N and 9°51'21.3" E; at 1639 m asl

Detailed site info: <https://www.swissfluxnet.ethz.ch/index.php/sites/ch-dav-davos/site-info-ch-dav/>

Measurements

Ecosystem flux measurements of CO₂, H₂O vapour (since 1997) as well a CH₄ and N₂O (since 2016) are performed with the eddy-covariance method. This method is based on measurements of trace gas mixing ratios, using infrared gas analyzers (for CO₂, H₂O vapor) and laser spectrometers (for CH₄ and N₂O), combined with wind speed and wind direction measurements, using 3D sonic anemometers. To resolve the short-term turbulent fluctuations in the atmosphere, very fast measurements are needed: we measure at 10-20 Hz, i.e., 10-20 times per second. To assess the energy budget of each ecosystem, also radiation sensors and soil climate profiles are installed at the site.

Sub-canopy eddy fluxes (CO₂, H₂O, since 2023 also CH₄).

Continuous profile concentration and forest floor flux measurement of CO₂, H₂O, CH₄, N₂O.

Auxiliary micrometeorology and soil climate measurements.

Data availability

The flux and meteo data of the Swiss FluxNet site Davos are openly available. Near real-time flux and meteo data are uploaded daily to the [ICOS Carbon Portal](#). Processed flux and meteo data are available from the [European Fluxes Database Cluster](#), but are also part of the [Fluxnet2015 dataset](#).

Data policy

ICOS data license (<https://www.icos-cp.eu/data-services/about-data-portal/data-license>)

Publications

Publication list: <https://gl.ethz.ch/infrastructure/sites/davos.html>

Keywords:

Swiss FluxNet, Flux, Eddy covariance, ICOS, Forest, Meteorological measurements, Swiss Forest Lab

Citation

Buchmann N, Feigenwinter I, Hörtnagl L (2022). Swiss FluxNet site Davos. Envidat.

Contact person

Prof. Dr. Nina Buchmann, nina.buchmann@usys.ethz.ch

Authors

Nina Buchmann, ETH Zurich

Iris Feigenwinter, ETH Zurich

Lukas Hörtnagl, ETH Zurich

Related datasets

LWF Seehornwald Davos research site: <https://www.envidat.ch/dataset/lwf-seehornwald-davos-long-term-research-site>