Baseline characterisation of air masses using radon-222

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1. Project description

In this project we continuously monitor the atmospheric radon concentration at Jungfraujoch. Radon is emitted at a relatively constant rate from land surfaces. Its short half-life of 3.8 days results in large concentration differences between the planetary boundary layer and the free troposphere. Low concentrations of radon reliably indicate air masses with little recent influence from land surfaces or, in other words, (near) background conditions. This is an important piece of information for the interpretation of other trace gas and aerosol measurements at Jungfraujoch. Our data was and always is freely accessible through our website (https://radon.unibas.ch), updated daily just after midnight. Operations went smoothly throughout the whole year 2018.

The major achievement in 2018 was that our raw data is now also processed by staff of the ICOS Atmospheric Measurement Network at the Laboratoire des Sciences du Climat et de l'Environnement (LSCE) at Gif -sur-Yvette (France) and made available through the ICOS data portal (https://icos-atc.lsce.ipsl.fr/dp). This achievement has only been possible thanks to the untiring support we received from our collaborating partners at the Laboratory for Air Pollution/Environmental Technology, Swiss Laboratories for Material Science and Technology (Empa), and in particular from Dr. Martin Steinbacher.

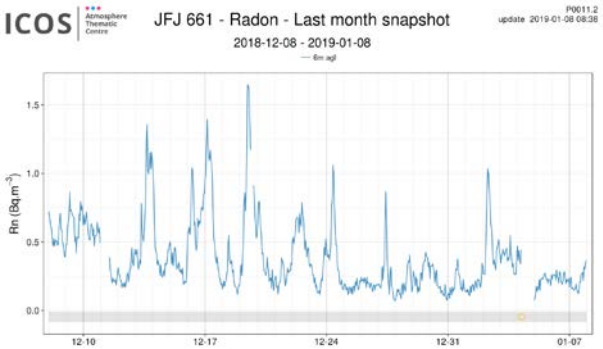

Figure 1. Radon concentration at Jungfraujoch between 08. December 2018 and 08. January 2019, as made available through the data portal of the ICOS Atmospheric Measurement Network (https://icos-atc.lsce.ipsl.fr/dp).

The processing of raw data at the LSCE only slightly differs from what we have done so far. Therefore, differences between the two data products are negligible.

Collaborating partners / networks

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Dr. S. Reimann, Dr. C. Hüglin, Dr. M. Steinbacher, Ms. C. Zellweger-Fäsi, and Dr. A. Fischer, Laboratory for Air Pollution/Environmental Technology, Swiss Laboratories for Material Science and Technology (Empa), Dübendorf, Switzerland
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