

## Collaborations and networks

Institutions collaborating with research projects at Jungfrauoch and Gornergrat in 2012:

| Institution / network  | Country   | Collaborating with project:   |
|--|-----------|---|
| Ecotech Pty Ltd  | Australia | The Global Atmosphere Watch Aerosol Program at the Jungfrauoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| McCracken, K.G.<br>Australia   | Australia | Cosmogenic radionuclides in precipitation<br><br>Eawag<br>Überlandstr. 133<br>CH-8600 Dübendorf   |
| Belgian Institute for Space Aeronomy<br>Atmospheric physics and chemistry<br>Dr. Katrijn Clemer, Dr. Michel Van Roozendael<br>Ringlaan 3<br>B-1180 Brussels<br>Belgium | Belgium   | The Global Atmosphere Watch Aerosol Program at the Jungfrauoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| IASB (Institut d'Aéronomie Spatiale de Belgique)   | Belgium   | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>University of Liège<br>Institut d'Astrophysique et de Géophysique<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Sart Tilman (Liège, Belgique) |
| Université Libre de Bruxelles for IASI FORLI data validation   | Belgium   | Atmospheric physics and chemistry<br><br>Belgian Institute for Space Aeronomy<br>Ringlaan 3<br>B-1180 Brussels<br>Belgium   |
| Université de Liège<br>Institut d'Astrophysique et de Géophysique and<br>NDACC Partners<br>Allée du VI août, 17 - Bâtiment B5a<br>B-4000 Sart Tilman (Liège, Belgique) | Belgium   | Atmospheric physics and chemistry<br><br>Belgian Institute for Space Aeronomy<br>Ringlaan 3<br>B-1180 Brussels<br>Belgium   |

| Institution / network  | Country          | Collaborating with project:  |
|--|------------------|--|
| University Hospital Copenhagen   | Denmark          | Cardiovascular adjustments to prolonged altitude exposure<br><br>University of Zurich<br>Institute of Physiology<br>Winterthurerstrasse 190<br>CH-8057 Zürich  |
| Collaboration with European FTIR and UV-Vis teams and modelling teams in the frame of the EU project NORS  | European network | The Polythermal Structure of Gornergletscher (Valais)<br><br>Swiss Federal Office of Technology, ETH Zürich<br>Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie (VAW)<br>Gloriastrasse 37/39<br>CH-8092 Zürich  |
| Collaboration with European FTIR and UV-Vis teams and modelling teams in the frame of the EU project NORS  | European network | Atmospheric physics and chemistry<br><br>Belgian Institute for Space Aeronomy<br>Ringlaan 3<br>B-1180 Brussels<br>Belgium  |
| E-GVAP II (EUMETNET GPS Water Vapor Programme)   | European network | Automated GPS Network Switzerland (AGNES)<br><br>Swiss Federal Office of Topography (swisstopo)<br>Seftigenstrasse 264<br>CH-3084 Wabern   |
| European FP7 project ACTRIS (Aerosols, Clouds, and Trace gases Research InfraStructure Network)  | European network | Aerosol Chemical Speciation Monitor (ACSM) measurements on the Jungfraujoch within the frame of the EU project ACTRIS (Aerosols, Clouds, and Trace gases Research InfraStructure Network)<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland |
| European FP7 Project Real-Time Database for High Resolution Neutron Monitor Measurements (NMDB)<br><a href="http://nmbd.eu/">http://nmbd.eu/</a> | European network | Neutron monitors - Study of solar and galactic cosmic rays<br><br>Universität Bern<br>Physikalisches Institut<br>Sidlerstrasse 5<br>CH-3012 Bern   |

| Institution / network   | Country          | Collaborating with project:  |
|---|------------------|--|
| GAW-CH  | European network | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>Université de Liège<br>Institut d'Astrophysique et de Géophysique<br>Allée du VI août, 17 - Bâtiment B5a<br>B-4000 Sart Tilman (Liège, Belgique) |
| GAW-CH  | European network | Monitoring of halogenated greenhouse gases<br><br>Empa<br>Laboratory for Air Pollution and Environmental Technology<br>Überlandstrasse 129<br>CH-8600 Dübendorf  |
| ICOS Integrated Carbon Observation System<br><a href="http://www.icos-infrastructure.eu">http://www.icos-infrastructure.eu</a>  | European network | Long-term observations of $^{14}\text{CO}_2$ and $^{222}\text{Rn}$ at Jungfraujoch<br><br>Universität Heidelberg<br>Institut für Umweltphysik<br>Im Neuenheimer Feld 229<br>D-69120 Heidelberg   |
| IMECC partners<br>IMECC Infrastructure for Measurements of the European Carbon Cycle partners<br><a href="http://imecc.ipsl.jussieu.fr/">http://imecc.ipsl.jussieu.fr/</a>                      | European network | Flask comparison on Jungfraujoch<br><br>Isotope Research — Energy and Sustainability Research Institute<br>Groningen<br>Nijenborgh 4<br>9747 AG Groningen /<br>The Netherlands   |
| IMECC partners<br>IMECC Infrastructure for Measurements of the European Carbon Cycle partners<br><a href="http://imecc.ipsl.jussieu.fr/">http://imecc.ipsl.jussieu.fr/</a>                      | European network | Flask comparison on Jungfraujoch<br><br>Max-Planck-Institut für Biogeochemie<br>Hans Knöll Str. 10<br>D-007745 Jena  |
| IMECC partners<br>IMECC Infrastructure for Measurements of the European Carbon Cycle partners<br><a href="http://imecc.ipsl.jussieu.fr/">http://imecc.ipsl.jussieu.fr/</a>                      | European network | Combined oxygen and carbon dioxide concentration measurements<br><br>Universität Bern<br>Physikalisches Institut<br>Sidlerstrasse 5<br>CH-3012 Bern  |
| Partners of the EC-project NORS<br><a href="http://nors.aeronomie.be">http://nors.aeronomie.be</a><br>and GEOMon<br><a href="http://geomon.ipsl.jussieu.fr/">http://geomon.ipsl.jussieu.fr/</a> | European network | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>Université de Liège<br>Institut d'Astrophysique et de Géophysique<br>Allée du VI août, 17 - Bâtiment B5a<br>B-4000 Sart Tilman (Liège, Belgique) |

| Institution / network   | Country | Collaborating with project:   |
|---|---------|---|
| University of Helsinki<br>Department of Physics<br>Prof. M. Kulmala<br>Helsinki, Finland  | Finland | The Global Atmosphere Watch Aerosol Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |
| INRA<br>Dr. Cindy Morris<br>147 rue de l'université<br>75338 Paris Cedex 07<br>FRANCE   | France  | Flux of biological ice nucleators to cloud altitudes (using Rn-222 as a tracer for atmospheric transport and mixing)<br><br>University of Basel<br>Institute for Environmental Geosciences<br>Bernoullistrasse 30<br>CH-4056 Basel  |
| ISTerre, CNRS<br>Université J. Fourier<br>Grenoble, France  | France  | PERMASENSE: Permafrost measurements (temperature, conductivity, acoustic emission) with wireless sensor networks<br><br>University of Zurich<br>Department of Geography, Glaciology, Geomorphodynamics & Geochronology<br>Winterthurerstr. 190<br>CH-8057 Zurich, Switzerland |
| LATMOS-CNRS, UVSQ<br>Verrières le Buisson<br>France   | France  | Atmospheric physics and chemistry<br><br>Belgian Institute for Space Aeronomy<br>Ringlaan 3<br>B-1180 Brussels<br>Belgium   |
| Université J. Fourier<br>Laboratoire de Glaciologie et Géophysique de l'Environnement<br>CNRS<br>Dr. P. Laj<br>Grenoble, St Martin d'Hères Cedex,<br>France | France  | The Global Atmosphere Watch Aerosol Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |
| Université Blaise Pascal<br>Laboratoire de météorologie physique<br>Dr. K. Sellegri<br>63170 Aubiere, France  | France  | The Global Atmosphere Watch Aerosol Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |

| Institution / network  | Country | Collaborating with project:  |
|--|---------|--|
| Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover  | Germany | The Polythermal Structure of Gornergletscher (Valais)<br><br>Swiss Federal Office of Technology, ETH Zürich<br>Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie (VAW)<br>Gloriastrasse 37/39<br>CH-8092 Zürich  |
| Bundesanstalt für Materialforschung und –prüfung Berlin, Deutschland                               | Germany | Transport and survival of desert soil- and rock surface inhabiting micro-organisms in atmospheric mineral dust<br><br>Universität Bern<br>Institut für Veterinär Bakteriologie<br>Länggassstrasse 122<br>CH-3012 Bern  |
| Freie Universität Berlin<br>Prof. Dr. J. Fischer and Dr. T. Ruhtz                                  | Germany | The Global Atmosphere Watch Aerosol Program at the Jungfrauoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |
| Freie Universität Berlin<br>Fachbereich Biologie, Chemie und Pharmazie & Geowissenschaften, Berlin | Germany | Transport and survival of desert soil- and rock surface inhabiting micro-organisms in atmospheric mineral dust<br><br>Universität Bern<br>Institut für Veterinär Bakteriologie<br>Länggassstrasse 122<br>CH-3012 Bern  |
| IMK (Forschungszentrum Karlsruhe)<br>Satellite experiment  | Germany | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>University of Liège<br>Dept. of Astrophysics, Geophysics & Oceanology<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Liège, Belgium |
| Institute of Atmospheric Physics, DLR Oberpfaffenhofen, Germany                                    | Germany | The Global Atmosphere Watch Aerosol Program at the Jungfrauoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |

| Institution / network  | Country | Collaborating with project:   |
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| Johann Wolfgang Goethe<br>Universität Frankfurt am Main<br>Institut für Atmosphäre und<br>Umwelt<br>Frankfurt am Main, Deutschland | Germany | The Global Atmosphere Watch Aerosol<br>Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| Karlsruhe Institute of Technology<br>(KIT)<br>Institute of Meteorology and<br>Climate Research<br>Karlsruhe, Germany               | Germany | The Global Atmosphere Watch Aerosol<br>Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| Leibniz Institut für<br>Troposphärenforschung<br>Leipzig, Germany  | Germany | The Global Atmosphere Watch Aerosol<br>Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| Max-Planck Institute for<br>Biogeochemistry<br>Hans Knöll Str. 10<br>D-007745 Jena<br>Deutschland                                  | Germany | Continuous measurement of stable CO <sub>2</sub><br>isotopes at Jungfraujoch, Switzerland<br><br>Empa<br>Abt. Luftfremdstoffe / Umwelttechnik<br>Überlandstrasse 129<br>CH-8600 Dübendorf   |
| Max-Planck Institute<br>Mainz, Germany   | Germany | The microstructure of ice crystals and<br>cloud droplets in mixed-phase clouds<br>measured with HOLIMO II. The<br>microstructure of crystals clouds The<br>time series of ice nuclei number<br>concentration and properties measured<br>with PINC.<br><br>Swiss Federal Office of Technology,<br>ETH Zürich<br>Institute for Atmospheric and Climate<br>Science<br>Universitätsstr. 16<br>CH-8092 Zürich, Switzerland |
| Max-Planck-Institut für Chemie<br>Biogeochemistry Department<br>Mainz  | Germany | The Global Atmosphere Watch Aerosol<br>Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |

| Institution / network  | Country               | Collaborating with project:  |
|--|-----------------------|--|
| University of Bonn<br>Germany  | Germany               | Evolution of high mountain permafrost rockwalls (Jungfrau Ostgrat)<br><br>WSL Institute for Snow and Avalanche Research SLF<br>Flüelastrasse 11<br>CH-7260 Davos Dorf  |
| Universität Darmstadt<br>Institut für Mineralogie<br>Darmstadt, Germany  | Germany               | The Global Atmosphere Watch Aerosol Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| University of Mainz<br>Particle Chemistry<br>Mainz, Germany  | Germany               | The Global Atmosphere Watch Aerosol Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| ACE-FTS science team<br><a href="http://www.ace.uwaterloo.ca/participants.html/">http://www.ace.uwaterloo.ca/participants.html /</a>       | International network | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>University of Liège<br>Dept. of Astrophysics, Geophysics & Oceanology<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Liège, Belgium |
| AGAGE (Advanced Global Atmospheric Gases Experiment)   | International network | Halogenated Greenhouse Gases at Jungfraujoch<br><br>Empa<br>Laboratory for Air Pollution and Environmental Technology<br>Überlandstrasse 129<br>CH-8600 Dübendorf, Switzerland   |
| Both the UV-Vis and FTIR observations contribute to the international Network for the Detection of Atmospheric Composition Changes (NDACC) | International network | Atmospheric physics and chemistry<br><br>Belgian Institute for Space Aeronomy<br>Ringlaan 3<br>B-1180 Brussels<br>Belgium  |

| Institution / network   | Country                | Collaborating with project:  |
|---|------------------------|--|
| Global Atmosphere Watch (GAW)   | International network  | National Air Pollution Monitoring Network (NABEL)<br><br>Empa<br>Laboratory for Air Pollution and Environmental Technology<br>Überlandstrasse 129<br>CH-8600 Dübendorf, Switzerland  |
| Global Atmosphere Watch (GAW) AOD network   | International network  | Remote sensing of aerosol optical depth<br><br>Physikalisch-Meteorologisches Observatorium Davos PMOD<br>World Radiation Center WRC<br>Dorfstrasse 33<br>CH-7260 Davos Dorf  |
| Collaboration with the GOME, ENVISAT, OMI, ACE and MetOp GOME-2 and IASI satellite communities.   | International networks | Atmospheric physics and chemistry<br><br>Belgian Institute for Space Aeronomy<br>Ringlaan 3<br>B-1180 Brussels<br>Belgium  |
| International Council of the Scientific Union's (ICSU) Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)                                      | International network  | Neutron monitors - Study of solar and galactic cosmic rays<br><br>Universität Bern<br>Physikalisches Institut<br>Sidlerstrasse 5<br>CH-3012 Bern   |
| NASA Langley Research Center<br><a href="http://www.nasa.gov/centers/langley/home/index.html">http://www.nasa.gov/centers/langley/home/index.html</a> / | International network  | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>University of Liège<br>Dept. of Astrophysics, Geophysics & Oceanology<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Liège, Belgium |
| NDACC (Network for the Detection of Atmospheric Composition Change, previously NDSC; <a href="http://www.ndacc.org/">http://www.ndacc.org/</a> ) /      | International network  | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>University of Liège<br>Dept. of Astrophysics, Geophysics & Oceanology<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Liège, Belgium |



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|---|-----------------------|--|
| Radiation data submitted to the World Radiation Data Centre (WRDC, St. Petersburg, Russian Federation) within the framework of the Global Atmosphere Watch. | International network | Global Atmosphere Watch Radiation Measurements<br><br>Federal Office of Meteorology and climatology MeteoSwiss<br>Atmospheric Data Department<br>ch. de l'Aérologie<br>CH-1530 Payerne   |
| Satellite experiments: IASI ((Infrared Atmospheric Sounding Interferometer)), AURA, OMI, ACE-FTS, ENVISAT   | International network | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>University of Liège<br>Dept. of Astrophysics, Geophysics & Oceanology<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Liège, Belgium |
| The XENON Dark Matter Project   | International network | Measurement of cosmogenic activation of ultra-pure xenon<br><br>Universität Zürich<br>Physik Institut<br>Winterthurerstrasse 190<br>CH-8057 Zürich   |
| World Data Centers A (Boulder), B (Moscow), C (Japan), International GLE database   | International network | Neutron monitors - Study of solar and galactic cosmic rays<br><br>Universität Bern<br>Physikalisches Institut<br>Sidlerstrasse 5<br>CH-3012 Bern   |
| World Meteorological Organization (WMO)   | International network | Monitoring of halogenated greenhouse gases<br><br>Empa<br>Laboratory for Air Pollution and Environmental Technology<br>Überlandstrasse 129<br>CH-8600 Dübendorf  |
| Konan University<br>Prof. Y Muraki<br>Nada-ku<br>Kobe 657-0000, Japan   | Japan                 | SONTEL - Solar Neutron Telescope for the identification and the study of high-energy neutrons produced in energetic eruptions at the Sun<br><br>Universität Bern<br>Physikalisches Institut<br>Sidlerstrasse 5<br>CH-3012 Bern                                 |

| Institution / network  | Country     | Collaborating with project:   |
|--|-------------|---|
| Nagoya University<br>Solar Terrestrial Environment<br>Laboratory<br>Prof. Y. Matsubara, Dr. T. Sako,<br>Dr. S. Masuda,<br>Nagoya 464-8601, Japan | Japan       | SONTEL - Solar Neutron Telescope for<br>the identification and the study of high-<br>energy neutrons produced in energetic<br>eruptions at the Sun<br><br>Universität Bern<br>Physikalisches Institut<br>Sidlerstrasse 5<br>CH-3012 Bern                                |
| University of Oslo   | Norway      | High resolution, solar infrared Fourier<br>Transform spectrometry. Application to<br>the study of the Earth atmosphere<br><br>University of Liège<br>Dept. of Astrophysics, Geophysics &<br>Oceanology<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Liège, Belgium |
| Universidad Pablo de Olavide<br>División de Neurociencias<br>Sevilla   | Spain       | Effects of physical exercise and<br>Vascular Endothelial Growth Factor on<br>the neuroglivascular adaption to<br>hypoxia<br><br>Enrike G. Argandoña<br>Boulevard Pérolles 75<br>CH-1700 Fribourg  |
| Omnisys Instruments AB<br>Göteborg   | Sweden      | STEAMR<br><br>Universität Bern<br>Institut für Angewandte Physik<br>Sidlerstrasse 5<br>CH-3012 Bern, Switzerland  |
| Alpes Lasers SA<br>1-3 Max.-de-Meuron<br>C.P. 1766<br>CH-2001 Neuchâtel  | Switzerland | Continuous measurement of stable CO <sub>2</sub><br>isotopes at Jungfrauoch, Switzerland<br><br>Empa<br>Laboratory for Air Pollution &<br>Environmental Technology<br>Überlandstrasse 129<br>CH-8600 Dübendorf  |
| Brenet   | Switzerland | "In der Helle der Nacht" (In the<br>Brightness of the Night): Single frame<br>time-lapse video.<br><br>Walter Bersinger<br>Obermattenstrasse 9<br>CH-8153 Rümlang, Switzerland  |

| Institution / network  | Country     | Collaborating with project:   |
|--|-------------|---|
| Bundesamt für Umwelt (BAFU)/<br>Federal Office for the Environment<br>(FOEN)                                     | Switzerland | National Air Pollution Monitoring<br>Network (NABEL)<br><br>Empa<br>Laboratory for Air<br>Pollution/Environmental Technology<br>Ueberlandstrasse 129<br>CH-8600 Dübendorf   |
| Bundesamt für Umwelt (BAFU)/<br>Federal Office for the Environment<br>(FOEN)                                     | Switzerland | Monitoring of halogenated greenhouse<br>gases<br><br>Empa<br>Laboratory for Air<br>Pollution/Environmental Technology<br>Ueberlandstrasse 129<br>CH-8600 Dübendorf  |
| Burgergemeinde Zermatt<br>Bahnhofstrasse 53<br>CH-3920 Zermatt   | Switzerland | Stellarium Gornergrat<br><br>Centre for Space and Habitability<br>Universität Bern<br>Sidlerstrasse 5<br>CH-3012 Bern   |
| Empa<br>Laboratory for Air<br>Pollution/Environmental<br>Technology<br>Ueberlandstrasse 129<br>CH-8600 Dübendorf | Switzerland | Atmospheric physics and chemistry<br><br>Belgian Institute for Space Aeronomy<br>Ringlaan 3<br>B-1180 Brussels<br>Belgium   |
| Empa<br>Laboratory for Air<br>Pollution/Environmental<br>Technology<br>Ueberlandstrasse 129<br>CH-8600 Dübendorf | Switzerland | Combined oxygen and carbon dioxide<br>concentration measurements<br><br>Universität Bern<br>Physikalisches Institut<br>Sidlerstrasse 5<br>CH-3012 Bern  |
| Empa<br>Laboratory for Air<br>Pollution/Environmental<br>Technology<br>Ueberlandstrasse 129<br>CH-8600 Dübendorf | Switzerland | The Global Atmosphere Watch Aerosol<br>Program at the Jungfrauoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |
| Empa<br>Laboratory for Air<br>Pollution/Environmental<br>Technology<br>Ueberlandstrasse 129<br>CH-8600 Dübendorf | Switzerland | High resolution, solar infrared Fourier<br>Transform spectrometry. Application<br>to the study of the Earth atmosphere<br><br>University of Liège<br>Dept. of Astrophysics, Geophysics &<br>Oceanology<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Liège, Belgium |

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|---|-------------|--|
| Empa<br>Laboratory for Air<br>Pollution/Environmental<br>Technology<br>CH-8600 Dübendorf  | Switzerland | Background air monitoring of gaseous elemental mercury at the High Altitude Research Station Jungfrauoch - Source apportionment of atmospheric mercury and emission estimates in Europe<br><br>Swiss Federal Institute of Technology,<br>ETH Zurich<br>Wolfgang-Pauli-Strasse 10<br>CH-8093 Zürich |
| Empa<br>Laboratory for Air<br>Pollution/Environmental<br>Technology<br>CH-8600 Dübendorf  | Switzerland | Measurements of NO <sub>2</sub> and O <sub>3</sub> in the free troposphere by a New LOPAP Instrument (MINI)<br><br>Bergische Universität Wuppertal<br>Physikalische Chemie / FBC<br>Gaussstrasse 20<br>D-42119 Wuppertal   |
| Empa<br>NABEL + Group for climate gases<br>Laboratory for Air<br>Pollution/Environmental<br>Technology<br>CH-8600 Dübendorf                                       | Switzerland | Flux of biological ice nucleators to cloud altitudes (using Rn-222 as a tracer for atmospheric transport and mixing)<br><br>University of Basel<br>Institute for Environmental Geosciences<br>Bernoullistrasse 30<br>CH-4056 Basel   |
| ETH Zürich<br>Swiss Federal Institute of<br>Technology<br>Computer Engineering and<br>Networks Laboratory<br>Dr. Jan Beutel<br>Gloriastrasse 35<br>CH-8092 Zurich | Switzerland | Evolution of high mountain permafrost rockwalls (Jungfrau Ostgrat)<br><br>WSL Institute for Snow and Avalanche Research SLF<br>Flüelastrasse 11<br>CH-7260 Davos Dorf  |
| ETH Zürich<br>Swiss Federal Institute of<br>Technology<br>Institute for Quantum Electronics<br>Wolfgang-Pauli-Str.16<br>CH-8093 Zurich                            | Switzerland | Continuous measurement of stable CO <sub>2</sub> isotopes at Jungfrauoch, Switzerland<br><br>Empa<br>Laboratory for Air Pollution &<br>Environmental Technology<br>Überlandstrasse 129<br>CH-8600 Dübendorf  |
| ETH Zürich<br>Swiss Federal Institute of<br>Technology<br>Institute for Atmospheric and<br>Climate Science<br>Universitätstrasse 16<br>CH-8092 Zürich             | Switzerland | The Global Atmosphere Watch Aerosol Program at the Jungfrauoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |

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|--|-------------|---|
| ETH Zürich<br>Swiss Federal Institute of Technology<br>Institute of Geodesy and Photogrammetry                                 | Switzerland | Automated GPS Network Switzerland (AGNES)<br><br>Swiss Federal Office of Topography (swisstopo)<br>Seftigenstrasse 264<br>CH-3084 Wabern  |
| ETH Zürich<br>Swiss Federal Institute of Technology<br>Institute of Plant, Animal and Agroecosystem Sciences<br>Dr. W. Eugster | Switzerland | The Global Atmosphere Watch Aerosol Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |
| Institut für Aerosol- und Sensortechnik, Fachhochschule Nordwestschweiz, Windisch  | Switzerland | The Global Atmosphere Watch Aerosol Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |
| KWO  | Switzerland | "In der Helle der Nacht" (In the Brightness of the Night): Single frame time-lapse video.<br><br>Walter Bersinger<br>Obermattenstrasse 9<br>CH-8153 Rümlang, Switzerland  |
| MeteoSwiss   | Switzerland | Lidar measurements of cirrus cloud properties in the midlatitudes<br><br>Swiss Federal Office of Technology, ETH Zürich<br>Institute for Atmospheric and Climate Science<br>Universitätsstrasse 16<br>CH-8092 Zürich, Switzerland |
| MeteoSwiss, Zurich and Payerne   | Switzerland | National Air Pollution Monitoring Network (NABEL)<br><br>Empa<br>Laboratory for Air Pollution/Environmental Technology<br>Ueberlandstrasse 129<br>CH-8600 Dübendorf   |
| MeteoSwiss   | Switzerland | Remote sensing of aerosol optical depth<br><br>Physikalisch-Meteorologisches Observatorium Davos PMOD<br>World Radiation Center WRC<br>Dorfstrasse 33<br>CH-7260 Davos Dorf   |

| Institution / network  | Country     | Collaborating with project:  |
|--|-------------|--|
| MeteoSwiss   | Switzerland | Longwave Infrared radiative forcing trend assimilation over Switzerland (LIRAS)<br><br>Physikalisch-Meteorologisches Observatorium Davos PMOD<br>World Radiation Center WRC<br>Dorfstrasse 33<br>CH-7260 Davos Dorf  |
| MeteoSwiss, Payerne<br>Office fédéral de météorologie et de climatologie MétéoSuisse Station Aérologique<br>ch. de l'Aéologie<br>CH-1530 Payerne | Switzerland | The Global Atmosphere Watch Aerosol Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| MeteoSwiss, Zurich and Payerne   | Switzerland | Automated GPS Network Switzerland (AGNES)<br><br>Swiss Federal Office of Topography (swisstopo)<br>Seftigenstrasse 264<br>CH-3084 Wabern   |
| Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  | Switzerland | Lidar measurements of cirrus cloud properties in the midlatitudes<br><br>Swiss Federal Office of Technology, ETH Zürich<br>Institute for Atmospheric and Climate Science<br>Universitätsstrasse 16<br>CH-8092 Zürich, Switzerland  |
| Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  | Switzerland | The microstructure of ice crystals and cloud droplets in mixed-phase clouds measured with HOLIMO II. The microstructure of crystals clouds The time series of ice nuclei number concentration and properties measured with PINC.<br><br>Swiss Federal Office of Technology, ETH Zürich<br>Institute for Atmospheric and Climate Science<br>Universitätsstrasse 16<br>CH-8092 Zürich, Switzerland |
| Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  | Switzerland | Measurement of <sup>222</sup> Rn for atmospheric tracer applications<br><br>University of Basel<br>Institute for Environmental Geosciences<br>Bernoullistrasse 30<br>CH-4056 Basel   |

| Institution / network   | Country     | Collaborating with project:  |
|---|-------------|--|
| Paul Scherrer Institute<br>Laboratory of Atmospheric<br>Chemistry<br>CH-5232 Villigen<br>Switzerland  | Switzerland | Flux of biological ice nucleators to cloud<br>altitudes (using Rn-222 as a tracer for<br>atmospheric transport and mixing)<br><br>University of Basel<br>Institute for Environmental Geosciences<br>Bernoullistrasse 30<br>CH-4056 Basel |
| PermaSense<br>University of Zurich<br>Department of Geography<br>Dr. Stephan Gruber<br>Winterthurerstrasse 190<br>CH-8057 Zurich  | Switzerland | Evolution of high mountain permafrost<br>rockwalls (Jungfrau Ostgrat)<br><br>WSL Institute for Snow and Avalanche<br>Research SLF<br>Flüelastrasse 11<br>CH-7260 Davos Dorf  |
| PERMOS (Permafrost Monitoring<br>Switzerland)<br><a href="http://www.permos.ch/">http://www.permos.ch/</a><br><a href="http://www.permos.ch/partner.html">http://www.permos.ch/partner.html</a>   | Switzerland | Evolution of high mountain permafrost<br>rockwalls (Jungfrau Ostgrat)<br><br>WSL Institute for Snow and Avalanche<br>Research SLF<br>Flüelastrasse 11<br>CH-7260 Davos Dorf  |
| Physikalisch-Meteorologisches<br>Observatorium Davos PMOD<br>World Radiation Center WRC<br>Dr. Julian Gröbner<br>Davos Switzerland  | Switzerland | The Global Atmosphere Watch Aerosol<br>Program at the Jungfraujoeh<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland  |
| Studiengesellschaft Mont Soleil   | Switzerland | "In der Helle der Nacht" (In the<br>Brightness of the Night): Single frame<br>time-lapse video.<br><br>Walter Bersinger<br>Obermattenstrasse 9<br>CH-8153 Rümlang, Switzerland   |
| Study of solar photometry (aerosol<br>optical depth) and longwave<br>infrared radiative forcing in<br>collaboration with the Physikalisch<br>Meteorologisches Observatorium<br>Davo (PMOD), World Radiation<br>Center (WRC)<br>Dorfstrasse 33<br>CH-7260 Davos Dorf | Switzerland | Global Atmosphere Watch Radiation<br>Measurements<br><br>Federal Office of Meteorology and<br>climatology MeteoSwiss<br>Atmospheric Data Department<br>ch. de l'Aérologie<br>CH-1530 Payerne   |
| SUPSI   | Switzerland | "In der Helle der Nacht" (In the<br>Brightness of the Night): Single frame<br>time-lapse video.<br><br>Walter Bersinger<br>Obermattenstrasse 9<br>CH-8153 Rümlang, Switzerland   |

| Institution / network  | Country     | Collaborating with project:   |
|--|-------------|---|
| Swiss GCOS office<br><a href="http://www.proclim.ch/4dcgi/proclim/all/News?33566">http://www.proclim.ch/4dcgi/proclim/all/News?33566</a> | Switzerland | Combined oxygen and carbon dioxide concentration measurements<br><br>Universität Bern<br>Physikalisches Institut<br>Klima- und Umwelphysik<br>Sidlerstrasse 5<br>CH-3012 Bern   |
| Swiss Glacier Monitoring Network, Federal Office for the Environment (BAFU)  | Switzerland | Glaciological investigations on the Grosser Aletschgletscher<br><br>Swiss Federal Office of Technology, ETH Zürich<br>Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie (VAW)<br>Gloriastrasse 37/39<br>CH-8092 Zürich  |
| Tofwerk AG<br>CH-3600 Thun   | Switzerland | Aerosol Chemical Speciation Monitor (ACSM) measurements on the Jungfrauoch within the frame of the EU project ACTRIS (Aerosols, Clouds, and Trace gases Research Infrastructure Network)<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland |
| Universität Basel<br>Institut für Umweltwissenschaften<br>Dr. Franz Conen<br>Bernoullistrasse 30<br>CH-4056 Basel                        | Switzerland | The Global Atmosphere Watch Aerosol Program at the Jungfrauoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| University of Bern<br>Astronomical Institute (AIUB),<br>Sidlerstrasse 5<br>CH-3012 Bern  | Switzerland | Automated GPS Network Switzerland (AGNES)<br><br>Swiss Federal Office of Topography (swisstopo)<br>Seftigenstrasse 264<br>CH-3084 Wabern  |
| University of Bern<br>Institute of Applied Physics (IAP)   | Switzerland | Automated GPS Network Switzerland (AGNES)<br><br>Swiss Federal Office of Topography (swisstopo)<br>Seftigenstrasse 264<br>CH-3084 Wabern  |



| Institution / network   | Country     | Collaborating with project:  |
|---|-------------|--|
| University of Bern<br>Physics Institute<br>Climate and Environmental<br>Physics<br>Sidlerstrasse 5<br>CH-3012 Bern                              | Switzerland | National Air Pollution Monitoring<br>Network, temporary extension<br><br>Empa<br>Laboratory for Air Pollution &<br>Environmental Technology<br>Ueberlandstrasse 129<br>CH-8600 Duebendorf                      |
| University of Bern<br>Physics Institute<br>Climate and Environmental<br>Physics<br>Sidlerstrasse 5<br>CH-3012 Bern                              | Switzerland | The Global Atmosphere Watch Aerosol<br>Program at the Jungfrauoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland                                     |
| University of Bern<br>Physics Institute<br>Climate and Environmental<br>Physics<br>Sidlerstrasse 5<br>CH-3012 Bern                              | Switzerland | Continuous measurement of stable CO <sub>2</sub><br>isotopes at Jungfrauoch, Switzerland<br><br>Empa<br>Laboratory for Air Pollution &<br>Environmental Technology<br>Überlandstrasse 129<br>CH-8600 Dübendorf |
| University of Bern<br>Physics Institute<br>Climate and Environmental<br>Physics<br>Sidlerstrasse 5<br>CH-3012 Bern                              | Switzerland | "In der Helle der Nacht" (In the<br>Brightness of the Night): Single frame<br>time-lapse video.<br><br>Walter Bersinger<br>Obermattenstrasse 9<br>CH-8153 Rümlang, Switzerland                                 |
| Universität Bern<br>Physikalisches Institut<br>Climate and Environmental<br>Physics<br>Dr. Roland Purtschert<br>Sidlerstrasse 5<br>CH-3012 Bern | Switzerland | 85Kr Activity Determination in<br>Tropospheric Air<br><br>Bundesamt für Strahlenschutz<br>Rosastrasse 9<br>D-79098 Freiburg  |
| Universität Fribourg<br>Departement für<br>Geowissenschaften Prof. Dr. B.<br>Grobéty<br>Chemin du Musée 6<br>CH-1700 Fribourg                   | Switzerland | The Global Atmosphere Watch Aerosol<br>Program at the Jungfrauoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland                                     |
| Universität Fribourg<br>Department of Geosciences<br><br>Prof. Martin Hoelzle<br>Chemin du Musée 6<br>CH-1700 Fribourg                          | Switzerland | Evolution of high mountain permafrost<br>rockwalls (Jungfrau Ostgrat)<br><br>WSL Institute for Snow and Avalanche<br>Research SLF<br>Flüelastrasse 11<br>CH-7260 Davos Dorf                                    |

| Institution / network   | Country     | Collaborating with project:  |
|---|-------------|--|
| <p>Université de Fribourg<br/>Département des Géosciences<br/>Prof. Martin Hoelzle<br/>Dr. Matthias Huss<br/>Chemin du Musée 6<br/>CH-1700 Fribourg</p> | Switzerland | <p>Climate reconstruction from high-alpine ice cores</p> <p>Paul Scherrer Institut<br/>Labor für Radio- und Umweltchemie<br/>CH-5232 Villigen<br/>Switzerland</p>  |
| <p>Université de Genève<br/>Département de Biologie, végétale</p>   | Switzerland | <p>Transport and survival of desert soil- and rock surface inhabiting micro-organisms in atmospheric mineral dust</p> <p>Universität Bern<br/>Institut für Veterinär Bakteriologie<br/>Länggassstrasse 122<br/>CH-3012 Bern</p>  |
| <p>University of Geneva<br/>Geneva Observatory<br/>Astronomy Department<br/>Prof. Didier Queloz<br/>51, Chemin des Maillettes<br/>CH-1290 Sauverny</p>  | Switzerland | <p>Stellarium Gornergrat</p> <p>Centre for Space and Habitability<br/>University of Bern<br/>Sidlerstrasse 5<br/>CH-3012 Bern</p>  |
| <p>University Hospital Zurich</p>   | Switzerland | <p>Cardiovascular adjustments to prolonged altitude exposure</p> <p>University of Zurich<br/>Institute of Physiology<br/>Winterthurerstrasse 190<br/>CH-8057 Zürich</p>  |
| <p>University of Zurich<br/>Veterinary Physiology<br/>Winterthurerstr. 190<br/>CH-8057 Zurich, Switzerland</p>  | Switzerland | <p>Effects of physical exercise and Vascular Endothelial Growth Factor on the neuroglivascular adaption to hypoxia</p> <p>Enrike G. Argandoña<br/>Boulevard Pérolles 75<br/>CH-1700 Fribourg</p>   |
| <p>WSL Institute for Snow and Avalanche Research SLF<br/>Flüelastrasse 11<br/>CH-7260 Davos Dorf</p>  | Switzerland | <p>PERMASENSE: Permafrost measurements (temperature, conductivity, acoustic emission) with wireless sensor networks</p> <p>University of Zurich<br/>Department of Geography<br/>Glaciology, Geomorphodynamics &amp; Geochronology<br/>Winterthurerstr. 190<br/>CH-8057 Zürich, Switzerland</p> |

| Institution / network   | Country | Collaborating with project:  |
|---|---------|--|
| Abant Izzet Baysal University<br>Department of Physics<br>Experimental Nuclear and High Energy Group<br>Prof. Dr. Haluk Denizli<br>Bolu / Turkey  | Turkey  | Test of a prototype for a new concept of an EAS detector<br><br>University of Rome La Sapienza<br>Departement of Physics<br>P.zza A. Moro 5<br>I-00198 Rome  |
| Kafkas Universitesi<br>Fen Edebiyat Fakultesi<br>Dr. Mithat Kaya<br>Fizik Bolumu<br>36000 Kars / Turkey   | Turkey  | Test of a prototype for a new concept of an EAS detector<br><br>University of Rome La Sapienza<br>Departement of Physics<br>P.zza A. Moro 5<br>I-00198 Rome  |
| University of Leeds<br>School of Earth and Environment<br>Collaboration with Martin Chipperfield<br>Leeds, LS2 9JT<br>United Kingdom<br><a href="http://www.see.leeds.ac.uk/people/m.chipperfield">http://www.see.leeds.ac.uk/people/m.chipperfield</a> | UK      | Atmospheric physics and chemistry<br><br>Belgian Institute for Space Aeronomy<br>Ringlaan 3<br>B-1180 Brussels<br>Belgium  |
| University of Leeds   | UK      | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>University of Liège<br>Dept. of Astrophysics, Geophysics & Oceanology<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Liège, Belgium |
| University of Manchester<br>School of Earth, Atmospheric and Environmental Sciences (SEAES)<br>Prof. H. Coe and Prof. T. Choularton<br>Choularton<br>Manchester, England  | UK      | The Global Atmosphere Watch Aerosol Program at the Jungfraujoch<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland   |
| STFC Rutherford Appleton<br>Laboratory Didcot, Oxfordshire  | UK      | STEAMR<br><br>Universität Bern<br>Institut für Angewandte Physik<br>Sidlerstrasse 5<br>CH-3012 Bern, Switzerland   |

| Institution / network   | Country | Collaborating with project:   |
|---|---------|---|
| Aerodyne Research Inc.<br>Billerica<br>MA-01821   | USA     | Direct and continuous measurement of NO <sub>2</sub> , NO and NO <sub>y</sub> in ambient air using quantum cascade laser absorption spectroscopy<br><br>Empa<br>Laboratory for Air Pollution and Environmental Technology<br>Überlandstrasse 129<br>CH-8600 Dübendorf                             |
| Aerodyne Research Inc.<br>Billerica<br>MA-01821   | USA     | Aerosol Chemical Speciation Monitor (ACSM) measurements on the Jungfrauoch within the frame of the EU project ACTRIS (Aerosols, Clouds, and Trace gases Research Infrastructure Network)<br><br>Paul Scherrer Institute<br>Laboratory of Atmospheric Chemistry<br>CH-5232 Villigen<br>Switzerland |
| Carnegie Mellon University<br>Dept. of Physics<br>Prof. James Russ<br>5000 Forbes Ave.<br>Pittsburgh, PA 15213<br>USA | USA     | Test of a prototype for a new concept of an EAS detector<br><br>University of Rome La Sapienza<br>Departement of Physics<br>P.zza A. Moro 5<br>I-00198 Rome   |
| NASA JPL  | USA     | High resolution, solar infrared Fourier Transform spectrometry. Application to the study of the Earth atmosphere<br><br>University of Liège<br>Dept. of Astrophysics, Geophysics & Oceanology<br>Allée du six Août, 17 - Bâtiment B5a<br>B-4000 Liège, Belgium                                    |
| University of Gainesville<br>Microbiology, Florida  | USA     | Transport and survival of desert soil- and rock surface inhabiting micro-organisms in atmospheric mineral dust<br><br>Universität Bern<br>Institut für Veterinär Bakteriologie<br>Länggassstrasse 122<br>CH-3012 Bern   |