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Site report: Switzerland - Payerne

(Submitted by Rolf Philipona)

Summary and Purpose of Document

This document contains an overview of the Payerne measurement program with respect to GRUAN requirements.

The GRUAN Observing Station Payerne, Switzerland

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Payerne is the principal atmospheric observing station of Switzerland, with operational and research surface and upper air measurement systems belonging to several international long-term monitoring networks and research projects. Other measurement systems are located at higher altitudes within the Alps at some distance from Payerne up to 3500 m asl (Jungfrauoch). Both in-situ and surface based remote sensing techniques are used. The main objectives are the monitoring of a vertical atmospheric column on a long-term basis, the quality assurance of atmospheric measurement systems, as well as the validation of the numerical weather prediction models.

The measurements meet the requirements of several international networks (GSN, GUAN, GAW, BSRN, NDAC, EMEP). The Payerne observatory is also presently involved in several COST projects and has a close collaboration with several national and international research groups.

Location: 46.8 N, 7.0 E, 491m (asl), hilly terrain on the Swiss Mittleland between the Jura Mountains and the Alps. Main measurement systems:

Profiling

- Operational radiosonde station (4 soundings per day, 3 ozone soundings per week, 1 tropospheric "reference" humidity sounding per month)
- Operational Low Level Windprofiler (1290 MHz)
- Operational Ceilometer
- Operational Ozone microwave radiometer
- Operational Microwave temperature and water vapour radiometers
- Operational Water vapour Raman lidar
- Operational GPS antenna (water vapour column)

Surface

- Operational surface meteorological station, as well as test facilities
- Operational surface radiation measurements (full Baseline Surface Radiation Network programme + UV components + surface layer measurements on a 30 m mast),
- Operational surface air pollution station

Coordinated Alpine sites near Payerne:

- Arosa (Dobson and Brewer ozone spectrophotometers),
- Jungfrauoch (full in-situ aerosol GAW-programme operated by research institutes)
- Zimmerwald (GPS and microwave systems, Uni Bern)
- At other sites: 3D operational precipitation radars as well as radiation monitoring stations.

Additional information can be found in the following web-sites:

http://www.meteosuisse.admin.ch/web/en/climate/climate_international.html

<http://www.meteosuisse.admin.ch/web/en/research/projects/cn-met.html>

<http://www.meteosuisse.admin.ch/web/en/research/projects/lidar.html>

http://www.meteosuisse.admin.ch/web/en/weather/ozone_layer.html