

# PIANO (Penetration and Interruption of Alpine Foehn) - Radiosonde data set

*Alexander Gohm, Lukas Umek, Maren Haid, Helen C. Ward, Mathias W. Rotach*

*Department of Atmospheric and Cryospheric Sciences (ACINN), University of Innsbruck*

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## ABSTRACT

This is the data set of radiosondes launched at Innsbruck Airport in the Inn Valley, Austria, and at Patsch in the Wipp Valley during the field campaign of the research project PIANO (Penetration and Interruption of Alpine Foehn) in fall and early winter 2017. The goal of the campaign was to study the erosion of cold air pools during south foehn and the associated foehn breakthrough at the valley floor in the vicinity of Innsbruck as well as the subsequent foehn breakdown. The campaign comprises seven Intensive Observation Periods (IOPs), more specifically six south foehn events (IOP 2 to IOP 7) and one west foehn (IOP 1). Soundings were only performed during IOPs, except for the operational soundings conducted once per day at Innsbruck Airport.

## DATA SET DESCRIPTION

### 1. Spatial coverage and locations

Radiosonde ascents were conducted during the PIANO field campaign at Innsbruck Airport (ICAO code LOWI) in the Inn Valley and at the village of Patsch in the Wipp Valley. The coordinates and heights of the radiosonde launch sites are:

- Innsbruck Airport: 47.2598°N, 11.3553°E, 578 m MSL
- Patsch: 47.2093°N, 11.4097°E, 962 m MSL

### 2. Temporal coverage

The PIANO field campaign took place in fall and early winter 2017. Provided are radiosonde data for Innsbruck Airport for the period from 01 October to 12 December 2017 and for Patsch for the period from 04 November to 11 December 2017. The soundings at Innsbruck Airport were conducted operationally once per day at 0215 UTC before 03 November and at 0315 UTC afterwards. In addition to these operational soundings, specific soundings were conducted during IOPs several times per day both at Innsbruck Airport and at Patsch.

### 3. Instrument details

#### Sounding system at Innsbruck Airport

The soundings at Innsbruck Airport were conducted by the aviation weather service Austro Control with an automatic radiosonde launcher (Vaisala Autosonde AS14) and with Vaisala RS92 radiosondes.

#### Sounding system at Patsch

The soundings at Patsch were conducted with a GRAW mobile ground station GS-H and with GRAW DFM-09 radiosondes. For initializing the radiosonde, surface pressure was measured with the barometer BM35 from Meteolabor.

### Time and measurement interval

Time in the data files is in UTC. The measurement interval is 2 seconds for the soundings at Innsbruck Airport and 1 second for the soundings at Patsch.

### 4. Data file structure

#### File format

Provided are data in netCDF format. NetCDF files are zipped together into zip files.

## Zip files

LOWI.zip contains netCDF files of all soundings conducted at Innsbruck Airport (ICAO code LOWI).

PATSCH.zip contains netCDF files of all soundings conducted at the village of Patsch.

## Data

Each netCDF file contains data of one sounding. File names contain information on the launch site (LOWI or PATSCH) and the launch date/time in UTC. The following wildcard characters are used in the file examples below: yyyy - year; mm - month, dd - day, HH - hour, MM - minute.

LOWI\_yyyymmdd\_HHMM.nc is a netCDF file that contains data of radiosondes launched at Innsbruck Airport (ICAO code LOWI).

PATSCH\_yyyymmdd\_HHMM.nc is a netCDF file that contains data of radiosondes launched at the village of Patsch.

## 5. Publications

Radiosonde data of the PIANO campaign have been used in two case studies of IOP 2 (Haid et al. 2020, Umek et al. 2021). Other types of PIANO data have been analyzed by Muschinski (2019) and Muschinski et al. (2020).

## 6. Contact

Contact alexander.gohm(at)uibk.ac.at for any questions regarding the data set.

## 7. Acknowledgements

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## 8. References

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