Code of conduct

for microclimatic field research with a special focus on measurements in cold-air pools

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Content

PREFACE AND CONTEXT

Field research in locations where extremely cold temperatures can occur has a tradition of more than 100 years. In addition to classical university research, in recent years volunteer initiatives in various European countries have increasingly been devoted to the search for and exploration of such cold-air pools. These initiatives correspond to the definition of "Citizen Science". In contrast to many other Citizen Science projects, in which the initiative originates from institutionalised university science and where volunteers are involved to support it, the research in cold-air pools is in the majority of cases conducted privately, sometimes in collaboration with state or university bodies. The structure and degree of organisation of these initiatives vary from individuals to associations.

At the core of all these activities are measurements at selected locations (typically closed sinks) where temperature minima may drop significantly below values that can be expected at the same level outside of these sinks due to their topoclimatological disposition. These measurements are highly site-dependent.

Depending on the financial resources available, which are usually provided to a large extent by the volunteers themselves, measuring networks are operated which comprise from one to dozens of measurement stations. The measurement and communication equipment used and the quality assurance measures (e.g. calibration) are also driven by resources, but also by existing know-how. In the simplest form, analogue minimum-maximum thermometers are used. In most cases, data loggers are used in passive radiation shields, which must be read out regularly. Wherever possible, semi-professional and in a few cases professional station types with real-time data transmission are used. What all these initiatives have in common is a high level of motivation and commitment.

In the past, frictions have arisen between research groups in research areas in different countries (measurement campaigns without permits and/or without consultation with groups already active there). Such conflicts unnecessarily tie up energy and resources and ultimately fall back on the reputation of the entire community.

1 PURPOSE OF THIS CODE OF CONDUCT AND LIABILITY

This research activities are embedded in a context with different partners and stakeholders. The aim of this code of conduct is to reflect on one's own behaviour and thus contribute to avoiding problems in the relationship with partners and stakeholders. A code of conduct appeals to the behaviour of the groups and individuals who carry out field research in cold-air pools. It is not a binding regulation, but the rules set out here are widely accepted. Those who abide by them contribute to avoiding problems - those who violate them bring themselves and the entire community into disrepute.

2 RULES

2.1 GOOD SCIENTIFIC PRACTICE

Although in most cases volunteering is involved, we strive (where appropriate) to adhere to the rules of good scientific practice. These rules can be found at various sources:

https://rechtssammlung.sp.ethz.ch/Dokumente/414.pdf

http://www.ucmp.berkeley.edu/diapsids/buzz/dinoscience.html

https://www.fu-berlin.de/forschung/service/Ehrenkodex-ab292002.pdf

2.2 RELATIONSHIP WITH LANDOWNERS, TENANTS AND INFRASTRUCTURE OPERATORS

Our measurements are highly site-dependent and we therefore have an interest in good relationships with respective landowners, tenants and infrastructure operators.

We respect the property situation and utilization rights (agriculture, grazing). We carry out measurements only in consultation with the landowners and tenants.

We only use systems (e.g. power pylons) for the installation of instruments if the consent of the owners and infrastructure operators has been obtained.

If problems arise from the installations and measuring instruments (e.g. as a result of defects in the stations, obstruction of work in the vicinity of the station, necessary maintenance work), we strive to achieve rapid response times within our possibilities.

We mark our measuring instruments and installations with a contact address. In this way we enable landowners, infrastructure operators, tenants and passers-by to contact us in case of questions or problems in connection with the measuring stations.

2.3 RELATIONSHIP WITH AUTHORITIES / COMPLIANCE WITH LEGAL REGULATIONS

We adhere strictly to the restrictions and conditions resulting from local laws (respecting protected areas, obtaining the necessary permits). The researchers are responsible for obtaining the necessary permits from the relevant authorities. Through active contact, the necessity of permits and any restrictions can be ascertained.

2.4 RELATIONSHIP TO OTHER RESEARCH GROUPS

When exploring new research areas and locations by means of measurements and investigations, we clarify whether research activities (in particular measurement campaigns) have already taken place or are currently taking place in this area.

It is good practice to seek contact with other initiatives that are active in the same area and to exchange information on the objectives and planned investigations. If all participating research initiatives adhere to the present code, a corresponding clarification via the land owner in the pre-analysis phase is a logical step.

Particularly because research into cold-air pools has a competitive character ("Where are the lowest temperatures measured?"), we are committed to the concept of fair play.

In general, we strive for collaboration before competition: For private initiatives, resources are limited. A jointly coordinated approach therefore brings advantages in many respects: Operation of

additional measurement sites, more resources for the use of high-quality materials, more personnel resources for the operation of measurement networks.

The exchange of the results of measurement campaigns and analyses in suitable form and aggregation corresponds to good practice - unless requirements (e.g. by existing clients) prevent this.

We respect previous investigations in an area. For this reason, we seek an agreement with the groups already active in the area on the degree of publicity or media presence that is acceptable to all sides. There are good reasons for secrecy (protection of sites, avoidance of vandalism and theft) as well as for publicity (publicising the microclimatic phenomenon "cold-air pool", basis for fundraising (donations, crowd-funding), ...). In addition to the interests of the groups involved, the interests of the landowners and the sensitivity of the research area must also be considered.

2.5 Relationship to the Public and the Media

We are aware that temperature records are a welcome topic for the media and we are aware of the risks of exaggerations. We communicate defensively, let facts speak for themselves and stress out the uncertainties and spatially limited validity of our own measurements.

2.6 Own Security

By minimising the risks for ourselves, we avoid the need of rescue services.

We often move in (high) alpine terrain. We take the necessary safety precautions as published by every alpine club. Below are some examples:

- Swiss Alpine Club: https://www.sac-cas.ch/de/ausbildung-und-wissen/sicher-unterwegs/)
- German Alpine Club: https://www.alpenverein.de/Bergsport/Sicherheit/

Karst areas have particularly serious risks. The following publications describe these risks:

- Schubert (2011): Sicherheit und Risiko in Fels und Eis, p.30-39, in extracts available under: https://books.google.ch/books?id=9dvZ5ZsfCQUC&pg=PA30&lpg=PA30&dq=dolinen+gefahr&source=bl&ots=7HZgRkKl5f&sig=p90-uARi3BAd_QBKSYJWK24lHyk&hl=de&sa=X&ved=2ahUKEwi1k-7fq-vdAhVE_iwKHVDpA6UQ6AEwDXoECAkQAQ)

In winter, depending on the terrain, the danger of avalanches must be taken into account imperatively. The joint website of the European Avalanche Warning Services (EAWS) contains links to current information in all member countries:

- http://www.avalanches.org

Staying outdoors in extreme cold weather situations presents special challenges for body and mind (see https://www.canada.ca/en/health-canada/services/healthy-living/your-health/environment/extreme-cold.html and https://www.ccohs.ca/oshanswers/phys_agents/cold_general.html). The protective clothing should be chosen appropriately (e.g. http://www.mountainbike-expedition-team.de/Siberia/arctic_clothing.pdf), taking into account that the temperature outside sinks can be 15 - 30 °C warmer than at the bottom of sinks.

3 PARTICIPATING ORGANISATIONS AND PERSONS

The organisations and persons listed below undertake to respect this Code of Conduct to the best of their knowledge and belief:

Organisation	Represented by	Contact	Date
kaltluftseen.ch	Stephan Vogt	info@kaltluftseen.ch https://kaltluftseen.ch	22.11.2018
(private person)	Karel Holvoet	k.f.holvoet@gmail.com	28.11.2018
The Exiled Weatherman	Orban Sebestyen Zsombor	minusz0@yahoo.com https://weatherman.opofa.com	05.12.2018
arpav Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto	Bruno Renon	bruno.renon@arpa.veneto.it http://www.arpa.veneto.it/temi-ambientali/climatologia/progetti/depressioni-fredde1	18.12.2018

BIBLIOGRAPHY

This code of conduct was inspired by various similar codes. Some of these codes also deal with scientific disciplines carrying out site-specific field research:

- Ehrenkodex für die Schweizerische Höhlenforschung. Schweizerische Gesellschaft für Höhlenforschung; 01.05.2004: http://www.sgh-basel.ch/Download/SGH%20Ehrenkodex.pdf
- Ehrenkodex für Strahler, Mineralien- und Fossiliensammler, für Verkäufer und Händler SVSMF. Schweizerische Vereinigung der Strahler, Mineralien- und Fossiliensammler SVSMF; 30.08.2003: https://www.svsmf.ch/ehrenkodex
- Ehrenkodex für Goldwäscherinnen und Goldwäscher. Schweizerische Goldwäschervereinigung (SGV); 26.04.2008: http://www.goldwaschen.ch/ehrenkodex-sgv.pdf
- The Geologists' Association Fieldwork Code. Geologists' Association: https://geologistsassociation.org.uk/newgawpsite/wp-content/uploads/2017/07/Code-for-fieldwork-combined.pdf