



CLIM'ABILITY DESIGN: NEWSLETTER NO. 5

MAY 2021

All the latest news from the Clim'Ability Design project!

Three times each year, we'll be publishing this trilingual newsletter on the European Clim'Ability Design project. We'll be telling you the latest news from the project, sharing technical information on the impact of climate change on the Upper Rhine region, and presenting operational solutions to help you adapt and future-proof your business.

How do companies in the Upper Rhine Valley adapt to climate change? We give you an overview of the results of our interviews

Rüdiger Glaser, Nicolas Scholze and Michael Kahle, University of Freiburg im Breisgau

As announced in the last newsletter, we have conducted a **series of trinational interviews,** coordinated by the Physical Geography working group of the University of Freiburg – and we present hereafter the **first results**. Starting in September 2020, we have conducted a total of **83 interviews with representatives of companies in France, Germany and Switzerland**. Because of the unusual conditions imposed by Covid19, the interviews took place by videoconference or by telephone. The interviewed persons came from various sectors such as agriculture, beverage and food industry, construction, tourism, forestry and timber industry, logistics and water supply.

Our first evaluation shows that **all sectors evaluated so far are indeed impacted by the consequences of climate change**. However, these impacts are experienced to various degrees and measures to adapt to climate change have different levels of priority, depending on the sector. Furthermore, it is clear that **a significant number of adaptation measures have already been implemented**, but that these differ greatly depending on the sector and also the location of the company. Globally it appears that in sectors such as water supply, construction and beverage industries, the factors imposing the greatest need for adaptation are **an increase in thermal stress and droughts, followed by heavy rain events and flooding**.

For the **construction industry**, a specific case study has allowed so far the identification of **19 adaptation measures**. However, most of the identified measures have not been implemented by all interviewed companies. This shows that the **willingness to act depends on the specific feeling of the situation and on the prioritization of the measures needed**. In addition to financial hurdles, it may well be that not all companies are aware of the adaptation possibilities. To overcome this **deficit of information**, a **database** describing the adaptation measures, freely accessible online, will be set up, in order to make the adaptation measures available to **companies in the region**. Besides the already known measures, the database will also give examples of **best practices** used by companies where individual measures have triggered a **transformation towards more sustainability**.

Contact

Nicolas Scholze
Geograph, University of Freiburg im Breisgau
nicolas.scholze@geographie.uni freiburg.de

Preserving its economic activity and facing up to climate change: the 3 Mâts Brewery (Strasbourg) shares its experience



The 3 Mâts Brewery is an **artisanal microbrewery** created in 2016 and located right in the heart of the Neuhof district in Strasbourg. The Clim'Ability Design team was able to exchange with one of the three partners, Julien Richez, about the adaptation of the brewery to climate change.

Following the sanitary crisis, do you anticipate a new crisis, of climatic origin?

Climate change is a **long-term issue** whereas most of our issues, day-to-day problem solving and business development, are short and medium-term focused. Indeed, our goal is not to find out if it will be difficult for us to find malt in ten years from now, but **to know if we can sell our monthly production in the next four weeks in order to pay our bills**. These concerns tend to overshadow climate change despite its relevance. All the more so since as a small company, it seems **difficult** to **have any impact on the reality of climate** change but also to implement **adaptation paradigms that in some cases are just not economically viable**.

How might climate change impact your business in the short term?

This impact is multifactorial. If the **impact on procurements and manufacturing** is mostly episodic at the moment, we do observe a **change in consumption behaviour**, because of the increased heat: the weaker distinction between fall and spring in terms of climate tends to reduce the commercial relevance of the beers dedicated to these seasons. But **we do not address that modification in consumption patterns as a climate issue but as a commercial**; we adapt to the changing needs of our customers. As long as climate change does not represent a major problem that disturbs our ecosystem (for example access to electricity or water), we do not see it.

What adaptations to climate change are you considering?

Beyond the possibilities to **recycle water**, we are considering **returnable bottles systems**. The problem is that this requires **significant investments which are not viable** for small breweries: it costs more to clean and reuse a bottle than to buy a new one. In addition, returnable bottles require an important standardization of the shapes of the bottles. Several players such as Bio Brasseurs have tried to federate companies on this issue, but to no avail yet. Individual initiatives do exist and must be welcomed but their effectiveness is marginal at best considering the size of the stakes. A solution would be for the **government to support such initiatives**, notably through the introduction of a tax (as in Germany) making returnable bottles a **generalized and compulsory standard**. It seems important to me to keep in mind that without a systemic solution, no feasibility can be achieved.

Contact

Murielle Ory
Design engineer,
INSA Strasbourg
murielle.ory@insa-strasbourg.fr

Progress update on the MoBiMet systems: analyzing thermal stress in the workplace

The **individual perception of the thermal environment** does not just depend on air temperature : **other meteorological parameters** have an influence on this perception. The **PET (Physiological Equivalent Temperature) index** is commonly used and enables the assessment of human thermal comfort. This index is expressed in degrees Celsius and divided in stress levels. The calculation of the PET index is based on four meteorological parameters: **average radiant temperature, wind velocity, humidity and air temperature.**



The **MoBiMet** (**Mo**bile **Biomet**eorological System) is a small measuring device that automatically determines these four values. The MoBiMet prototype **computes and displays in real time the thermal comfort level and the thermal stress in the workplace**. Developed last year at the Albert-Ludwig University of Freiburg im Breisgau as part of the Clim'Ability program, the MoBiMet enables the recording and reporting of the thermal situation of specific workplaces.

120 MoBiMets will now be installed in various representative workplaces in France, Germany and Switzerland. For over a year, from spring 2021 to fall 2022, the MoBiMets will collect large quantities of data. These data will then be analysed to quantify thermal stress and the small-scale variability of worker's exposure in their workplaces in different situations. Researchers already estimate that considerable differences in thermal constraints will be observed **in workplaces within the same company** (e.g. between an air-conditioned office, a manufacturing workshop, outdoor places, etc.) and between different areas in the region (Vosges, Upper Rhine Plain, Black Forest, etc.).

The MoBiMet device is equipped with sensors that enable the calculation of the PET index and other thermal load parameters. These sensors are connected to a microcontroller. Every five minutes, the controller records the sensor data and calculates the thermal comfort level. The data is then displayed on the integrated screen of the MoBiMet, in French, German or English and anonymously sent to the Albert Ludwig University of Freiburg. The **companies can then access the data measured** by the MoBiMet as password-protected time series at the Internet address mobimet.uni-freiburg.de. Users can press one of three buttons on the device to send information about their feeling: « COLD », « OK » and « HOT ». In addition, an « INFO » button displays more detailed information on the latest data captured.

Since mid-march 2021, **26 MoBiMet have been installed successfully in 10 companies in Germany and Switzerland. In addition, 17 MoBiMets** have already been installed at various workplaces in the Albert Ludwig University of Freiburg, at the German Weather Service in Freiburg and at the INSA Engineering School in Strasbourg. **In the coming weeks, the remaining MoBiMets will be deployed at various companies in France, Switzerland and Germany.**

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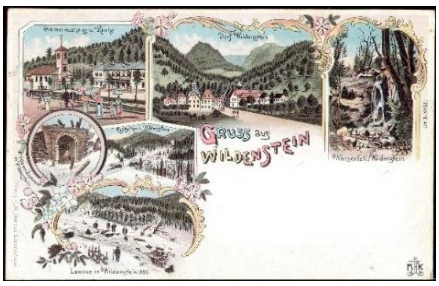
Prof. Dr. Andreas Christen
Albert Ludwig University of Freiburg
andreas.christen@meteo.uni-freiburg.de

Markus Sulzer
PhD, Albert Ludwig University of Freiburg
markus.sulzer@meteo.uni-freiburg.de

Avalanches in the Upper Rhine region and some misconceptions



Kastelberg, 27 January 2012 (accumulation spot) © F. Giacona



Postcard from Wildenstein, 1895 (avalanche) © B. Martin



Mittlach, February 2010 (after the Rothenbachkopf avalanche) © B. Martin

On January 17, 2021, a snowboarder lost his life after having been swept away by an avalanche on the slopes of the Hohneck. 15 days later, a hiker on snowshoes died in the sector of the Feldberg in the Black Forest. Despite their reputation of soft mountains, **avalanches do occur every winter in the Vosges and the Black Forest, claiming lives**: one death at the Ballon d'Alsace in 2018, 2 killed at the Herzogenhorn in 2015, etc.

As a matter of fact, the **history of avalanches in the two massifs** is even marked by **terrible events**: in the winter of 1844, two avalanches claimed more than 20 lives; in 1895, an extraordinary avalanche rushed from the tops of the Rothenbachkopf all the way down to the Valley of the Thur; and in 1941, the farmhouse Seestaedle Inn in the Tanet was partially destroyed.

Because of climate warming, one might think that such phenomena are bound to disappear in mid- mountains, but this is far from being the case: **climate change** could bring about increased winter precipitations, and above 1000m it's often enough still snowfall. This will **aggravate climatic variability and make freeze-thaw cycles more frequent, with the increased risk of avalanches**. Indeed, the most spectacular avalanches in the last 50 years occurred in 2010 and 2012.

In these very accessible and travelled massifs, the **risk linked to avalanches** remains very high and requires more information to the public in order to put to rest preconceived ideas.

More information

- Giacona F., Eckert N., Martin B., 2017, **« La construction du risque au prisme territorial : dans l'ombre de l'archétype alpin, les avalanches oubliées de moyenne montagne »**, *Natures Sciences Sociétés*, Vol. 25, N° 2. DOI: 10.1051/nss/2017025
- Giacona F., Martin B., Eckert N., 2018, **« Avalanches en moyenne montagne : des représentations à l'occultation du risque »**, *VertigO*, Vol. 18, N° 2. DOI: 10.4000/vertigo.20525

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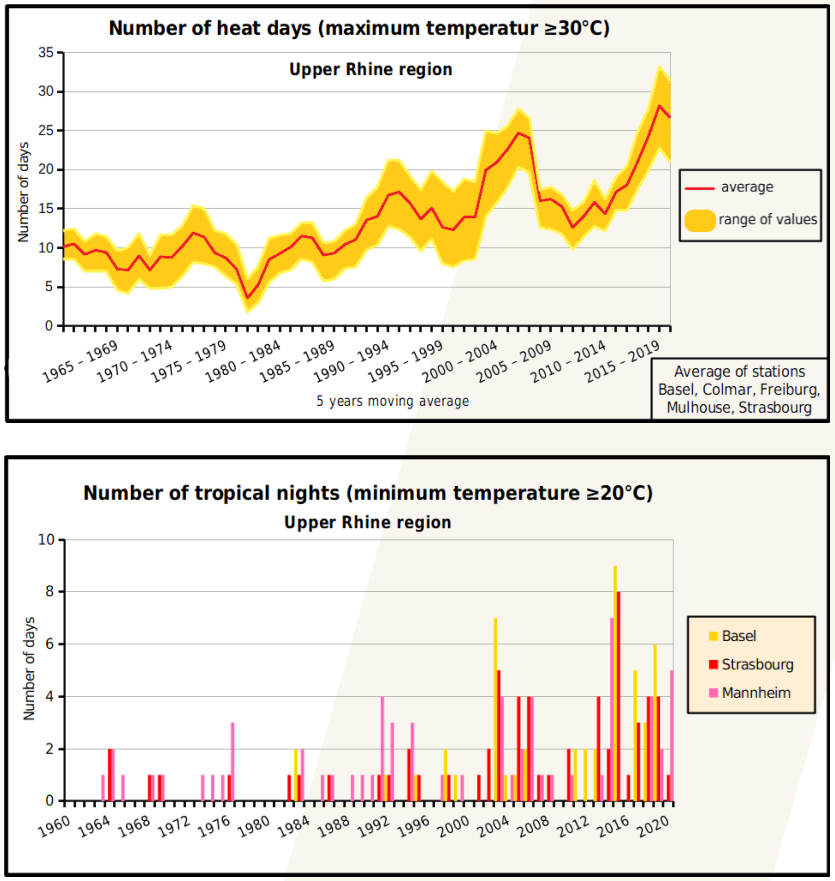
Dr. Brice Martin

University of Upper Alsace

martin.brice@aliceadsl.fr

To go further

Increasingly frequent and intense heat waves in the Upper Rhine Valley



© Météo France

In the Upper Rhine region, **summer heat waves** are associated with **maximal temperatures above 30°C** for several consecutive days. Minimum temperatures around or above 20°C characterize **tropical nights**.

Absolute temperature records have been reached during the **2003 heat wave** (40.9°C in Colmar; 40.2°C in Freiburg) but some have been again broken during the recent **2019 heat wave** (38.9°C in Strasbourg).

In the future, heat waves will **become increasingly intense and long**, in particular in the lowlands. Climatic models forecast a **doubling of the frequency** of such heat waves by 2050. The occurrence period of such events will extend **from early June until September**.

Additional information on the future climate evolution of heat waves can be found at https://gis.clim-ability.eu/ and https://www.georhena.eu/de/kartensammlung_klimawandel

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They talk about Clim'Ability Design

« Critical zones »: the exhibition at the ZKM is extended!

Initially planned until February, the exhibition **« Critical zones »** has been extended until August 8, 2021. Proposed by the Centre for Arts and Media of Karlsruhe (ZKM) and accessible via virtual visit, this exhibit invites us to consider the Earth as a network of critical zones and to take a new path towards terrestrial things, a new approach of the coexistence.

More information

Mobilization and forest related conflicts: resistances, participations and protests

During the seminar organized on January 25, 2020 by the Institute of Geography, Florence Rudolf, director of Clim'Ability Design project, moderated a roundtable **« Resistances, participations and protests »**. The report of this roundtable, which recalls that the history of forest has been shaped by multiple kinds of conflicts and deciphering the different visions of ecological transition, has been published in the Bulletin n°31 of the Historical Group on French Forests.

Scientific publications & articles

- "Interreg-Projekte: Auf Clim'Ability folgt Clim'Ability Design", Regio Basiliensis. Verfügbar unter: https://www.regbas.ch/de/aktuell/news/interreg-projekte-auf-clim-ability-folgt-clim-ability-design/
- "Trion-Climate, acteur de la coopération énergétique dans le Rhin Supérieur", Le Taurillon. Disponible sur : https://www.taurillon.org/trion-climate-acteur-de-la-cooperation-energetique-dans-le-rhin-superieur

Climate change in the Upper Rhine: Cédric Duchêne-Lacroix answers questions of Le Taurillon

As part of a series entitled **« Cross-border cooperation at full steam? The Energy transition in the Upper Rhine »**, the European magazine Le Taurillon has interviewed Cédric Duchêne-Lacroix, senior researcher at the University of Basel and coordinator of the Swiss part of the Clim'Ability Design Project.

Recalling the genesis of the Clim'Ability (2016-2019) and Clim'Ability Design (2019 – 2022) projects, Cédric Duchêne-Lacroix has highlighted the specificities of the Upper Rhine in the adaptation to climate change, as well as the importance of raising awareness of all actors – in particular the business world – of this region in order to increase their resilience and make their activity more sustainable. The interview also discusses the growing links with other Upper Rhine Interreg projects as well as the importance of regionalizing adaptation – both political and economical – to climate change in Europe.

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Coming up at Clim'Ability Design

« Water and climate: how the agri-food industry adapts to change in the Upper Rhine » : more information on this workshop proposed by Clim'Ability Design

As the effects of climate change on water resources are increasingly tangible, both quantitatively and qualitatively, the adaptation of agri-food companies to these stakes appears necessary. In order to bring a complete vision of these stakes and concrete adaptation solutions, Clim'Ability Design organizes within the framework of the Cycl'Eau Grand Est event a workshop on « **Water and climate: How the agri-food sector adapts to change in the Upper Rhine** ». This workshop will last 1h30 and will bring together scientists, industrial leaders and institutional decision-makers.

Participation to the workshop is free; it will take place at 2pm in several languages (registration required)
→ To find out more on the workshop program and to register, visit our social networks and our website in the coming weeks.

Survey on climate adaptation of enterprises in the Upper Rhine

Help us to understand the climate-related challenges for regional enterprises in order to develop appropriate adaptation strategies! Time requirement max. 20 minutes. Clim'Ability Design team thanks you for your effort.

I answer the survey

Let's keep in touch!

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Dépasser les frontières, projet après projet / Grenzen überschreiten, Projekt für Projekt

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