

# .Swiss Meteorological Society Annual Meeting

**Saturday, 7 November 2015**

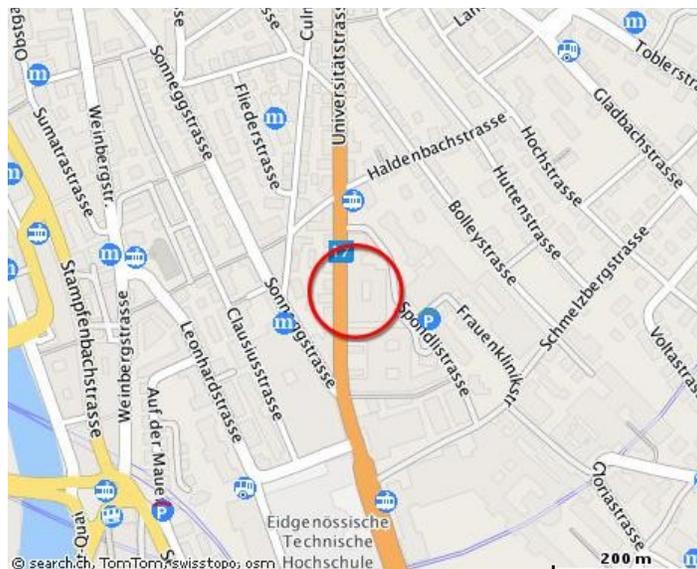
## 1. Description

The **annual meeting of the Swiss Meteorological Society** will take place on **7 Nov 2015 (9:30-17:00)** at **ETH Zurich**. The core of the meeting will be four invited talks, a poster fair and an informal session related to Master student projects. The invited presentations by Reto Knutti (ETH), Reto Burkard (BAFU), Christoph Raible (Uni Berne) and Mark Liniger (MeteoSwiss) all discuss different aspects of climate change and its impact on society. Participation at the meeting is free; refreshments, coffee and a lunch bag (veg and meat sandwiches) are included.

## 2. Location and Time

7 Nov 2015, 9:30-17:00

ETH Zurich  
Universitätsstrasse 16  
CHN Building  
Lichthof (green floor)



From train station, please take either tram 10 or 6 to ETH/Universitätsspital. From there, you walk to CHN building (see map, entrance Universitätsstrasse 16).

Please note: The door (entrance Universitätsstrasse 16) to the CHN building will be open between 9:00-10:00. After that the door is locked. If you are outside, please send an SMS to 076 530 13 99 and someone will come and let you in.

## 3. List of Attendants

Name	Institution	Presentation Type
Aleksandra Borodina	ETH	
Annika Oertel	ETH	Master Project
Berko Sierau	ETH	
Bettina Meyer	ETH	Poster
Bruno Neininger	ZHAW and MetAir AG	
Christina Schnadt Poberaj	ETH	

Name	Institution	Presentation Type
Christoph Bertschi	Uni Bern	Master Project
Christoph Raible	Uni Bern	Invited Presentation
Claudio Saffioti	ETH	
Curdin Spirig	ETH	Master Project
Daniel Meyer	ETH	
Dominik Schumacher	ETH	
Esther Scharnhorst	ETH	
Gionata Ghiggi	ETH	
Hans Hirter	Kassier SGM	
Hans Richner	ETH	Poster
Heidi Mittelbach	ETH	
Hélène Barras	Uni Bern	Master Project
Iris Feigenwinter	Uni Basel	Poster
Jan Sedlacek	ETH	
Josué Gehring	ETH / MeteoSwiss	
Karlheinz Grotloh	privat	
Leonie Bernet	Uni Bern	Master Project
Leonie Villiger	Uni Bern	
Luise Fischer	ETH	Master Project
Marina Dütsch	ETH	
Mark Liniger	MeteoSwiss	Invited Presentation
Markus Furger	Paul Scherrer Institut	
Matthias Röthlisberger	Oeschger Centre	Poster
Michael Sigel	MeteoSwiss	
Michael Sprenger	ETH	
Moritz Buchmann	ETH	Master Project
Moritz Gubler	Uni Bern	Master Project
Nicola Moeckli	Uni Basel, MeteoNews	
Nicolas Piaget	ETH	
Paraskevi Giannakaki	Uni Bern	Poster
Pascal Graf	ETH	Poster
Pascal-Adreas Noti	Uni Bern	Master Project
Patrick Hächler	ehemals MeteoSwiss	
Prisco Frei	ETH	Master Project
Raphael Portmann	ETH	Master Project
Rebecca Ritter	ETH	Master Project
Reto Burkard	BAFU	Invited Presentation
Reto Knutti	ETH	Invited Presentation
Roland Häberli	ETH	Master Project
Roman Attinger	ETH	Master Project
Ruth Conall	ETH	Master Project

Name	Institution	Presentation Type
Ryan Padrón	ETH	Master Project
Saskia Willemse	MeteoSwiss	
Stephan Pfahl	ETH	Poster
Stephanie Westerhuis	ETH	Master Project
Sven Kotlarski	MeteoSwiss	
Tanja Weusthoff	MeteoSwiss	
Thomas Gutermann	ehemals Meteoswiss	
Thomas Kleiber	SRF Meteo	
Tobias Grimbacher	MeteoNews	
Valérie Fazan	MeteoSwiss	
Yandong Tong	ETH	Master Project

#### 4. Time schedule

9:30 - 10:00	welcome and coffee
10:00 - 10:05	welcome address of SGM president
10:05 - 11:05	<b>Christoph Raible (Uni Bern):</b> insights from paleo-climate modelling <b>Reto Knutti (ETH Zurich):</b> facts, beliefs in the climate change debate
11:05 - 12:30	<b>Master project discussion</b>
12:30 - 13:30	<b>lunch</b>
13:30 - 14:30	<b>Reto Burkard (BAFU):</b> Die Antwort der Politik auf die Herausforderungen - Ausgestaltung nationaler Klimapolitik <b>Mark Liniger (MeteoSwiss)::</b> from weather to climate services
14:30 - 15:45	<b>Poster Fair, Werkstattgespräche and “SGM-Denkfabrik”</b>
15:45 - 16:15	<b>coffee break</b>
16:15 - 17:00	<b>SGM member meeting</b>

#### 5. Invited presentations

<p><b>From weather to climate services</b> <b>Mark Liniger</b></p> <p><i>Climate change adaptation, societal changes and scientific developments have an impact on how climate is perceived and how climate information is taken into account in decision processes. We will present how MeteoSwiss is responding to this challenge, both as a federal agency and as an interface between academic research and operational service provider.</i></p>
<p><b>Die Antwort der Politik auf die Herausforderungen - Ausgestaltung nationaler Klimapolitik.</b> <b>Reto Burkard</b></p> <p><i>Die Eindämmung und der Umgang mit der Klimaänderungen stellt eine grosse Herausforderung für die Gesellschaft und damit auch für die Politik dar. Sowohl auf internationaler als auch nationaler Ebene wird seit Jahren gerungen, welche Ziele wo bis wann und mit welchen Instrumente und Massnahmen erreicht sollen. Anhand des Gesetzgebungsprozesses in Zusammenhang mit der</i></p>

*Entwicklung und Ausgestaltung der nationalen Klimapolitik sollen diese Diskussionen illustriert werden.*

**Insights from paleo-climate modelling:  
The role of the atmospheric circulation and Arctic sea ice at the onset of the Little Ice Age  
Christoph Raible**

*The last millennium is characterized by periods of relatively warm conditions, the so called Medieval Climate Anomaly (MCA) and the subsequent Little Ice Age (LIA), with cold episodes coinciding with enhanced volcanic activity and reduced solar activity. The presentation summarizes recently published results on how climate modelling is used to help in the interpretation of proxy records and to establish a hypothesis of how the coupled atmosphere-ocean-sea ice system has generated the transition from the MCA to the LIA.*

*References*

*Lehner, F., A. Born, C. C. Raible, and T. F. Stocker, 2013: Amplified inception of European Little Ice Age by sea ice-ocean-atmosphere feedbacks. J. Climate, 26, 7586-7602.*

*Lehner, F., C. C. Raible, and T. F. Stocker, 2012: Testing the robustness of a precipitation proxy-based North Atlantic Oscillation reconstruction. Quat. Sci. Rev., 45, 85-94.*

*Ortega, P., F. Lehner, D. Swingedouw, V. Masson-Delmotte, C. C. Raible, M. Casado and P. Yiou 2015: A multi-proxy model-tested NAO reconstruction for the last millennium. Nature, 523 71-75.*

**Facts, beliefs in the climate change debate  
Reto Knutti**

*With the growing political and economic relevance, the discussion of anthropogenic climate change, and how to respond to it has become poisonous. For many climate change is a question of belief, and facts and values are often mixed up. How can we make progress in this debate, decide what to do, and what is the role of scientists in this discussion?*

## **6. Poster Fair, “Werkstattgespräche” and “SGM-Denkfabrik”**

During this session posters will be presented and Werkstattgespräche by Oliver Stebler (<https://vimeo.com/album/2687214>) will be shown.

In addition, there will be a table where all participants are invited to discuss with members of the SGM executive board about ideas how the SGM should evolve in the next years.

### **List of 'Werkstattgespräche'**

**Die Wolkenfängerin**

Ulrike Lohmann

Professorin für Atmosphärenphysik (ETH Zürich)

~20 min

**Bei den Wetterprofis**

Christof Appenzeller

Titularprofessor ETH Zürich, Leiter Analyse und Prognose MeteoSchweiz

~20 min

**Wissenschaftler, Diplomat und «Psychologe»**

Thomas Peter

Professor für Atmosphärenchemie (ETH Zürich)

~20 min

## List of posters

### **Extreme precipitation events in northern Switzerland Paraskevi Giannakaki**

*A climatological analysis of upper-level synoptic-scale flow structures associated with extreme precipitation events in north-eastern and north-western Switzerland is presented.*

### **Quasi-linear dynamics in the Atmospheric Boundary Layer with analyses from Large-Eddy Simulations Bettina Meyer**

*We modify an LES code such that it computes for the quasi-linearised equations. These simulations are tested for dry and moist Boundary Layer cases. Dynamical settings that satisfy the quasi-linear equations can be expected to be well represented by a second-order closure.*

### **Visualization of high-resolution surface temperature data collected in the Barringer Meteor Crater during METCRAX II Iris Feigenwinter**

*The second Meteor Crater Experiment (METCRAX II) was conducted at Barringer Meteor Crater in Arizona in October 2013 to examine downslope windstorm-type flows (DWFs) that occur when a mesoscale drainage flow forming outside the crater basin interacts with the crater topography. Three thermal infrared (TIR) cameras looked into the crater from different perspectives and recorded surface temperatures. A method to project the 2D infrared images onto a digital elevation model (DEM) is presented as well as further analysis of the georeferenced TIR data.  
project\_title: Thermographic analysis of the Barringer Meteor Crater during METCRAX II*

### **Using stable water isotope measurements to constrain below-cloud rain evaporation Pascal Graf**

*Stable water isotopes (SWI) are a powerful tool to investigate phase-changes in the atmospheric water cycle at different time scales. Below-cloud processes significantly influence the isotopic composition of rain. Simultaneous measurements of SWI in near-surface vapour and precipitation along with other meteorological observations for three rain events in Payerne in Spring 2014 are used to constrain below-cloud rain evaporation.*

### **Characterising the relationship between weather extremes in Europe and synoptic circulation features Stephan Pfahl**

### **150 years foehn station Altdorf, Switzerland -- a climatology Hans Richner, Stephan Bader, Bruno Dürr, Thomas Gutermann**

## 6. Master student projects

In the morning Master students will discuss with participants their projects; this will take place in an informal way ('table talks'), allowing the students to enthusiastically talk about their thesis and the discussion partners to contribute with helpful comments and ideas! Every participant will have time to discuss with about 3-4 Master students.

### **Ensemble member selection Stephanie Westerhuis**

### **Extreme snowfall events in the Alps: Validation and future scenarios based on regional climate models Prisco Frei**

*The thesis aims to investigate future extreme snowfall events over the Alpine domain with the help of a new set of regional climate models (EURO-CORDEX). After an evaluation of the recent past, future projections (until the end of the 21st century) under different emission scenarios will be examined.*

**Effect of clouds on temperature measurements from microwave radiometers****Leonie Bernet**

*Ground-based microwave radiometers allow to measure local vertical atmospheric temperature profiles. Even if clouds influence the retrievals, they are poorly considered in the algorithms. The project aims to characterize clouds and incorporate them in the temperature retrievals, using data from the TEMPERA microwave radiometer located at Payerne.*

**Did the Euganean Hills (Veneto, Italy) provide the northernmost Glacial refuge for thermophilous trees in Europe? Evaluating refuge potential with topoclimatic modelling and paleoecology.****Moritz Gubler**

*The Euganean Hills are assumed to be located 40-60 km south of the maximum extent of the alpine glaciers during the LGM and due to their location in the middle of the Po plain, they have a very distinct microclimate (dampened minimum temperatures during inversions). In order to analyze atmospheric lapse rates and ecological gradients between the Colli Euganei and the surrounding Po plain, 45 temperature loggers had been distributed. Located at different elevations (every 50-100m) and aspects, covering (hopefully) most micrometeorological features, they measure temperatures every 30 min over a period of 9 months.*

**Effects of the Alps on European Climate: Model Study with and without Orography****Curdin Spirig**

*Two climate simulations are compared to investigate the effects of the Alps on European climate. A control simulation without any changes in the model against a simulation with shrunken topography and adjusted surface*

**Evapotranspiration at the Rietholzbach: Re-evaluating the Lysimeter Data Record****Conall Ruth**

*For this thesis, I am re-evaluating the data record of the weighing lysimeter at the Rietholzbach in northeastern Switzerland. Specifically, I am addressing the issue of negative evapotranspiration values, which are occasionally recorded. My main goal is to explain and, if possible, correct for these negative values by comparing the evapotranspiration data to other available meteorological data from the same site.*

**Trends, variability and uncertainties in the oceanic uptake of atmospheric CO<sub>2</sub>, based on surface ocean pCO<sub>2</sub> observations****Rebecca Ritter**

*Large uncertainties exist regarding the variability of the carbon uptake by the global ocean. With a set of up to 13 observation-based estimates of the air-sea gas flux of CO<sub>2</sub> the flux variability will be investigated on a regional as well as on a temporal basis.*

**Marine Extreme Events in the California Current System****Häberli Roland**

*To characterize the evolution of the intensity, duration, and frequency of marine extreme events in the California Current System for the period 1979 through 2012 and to determine the climatic conditions that lead to such marine extreme events.*

**Large-Scale Controls of the Coupled Energy and Water Balance over Land****Ryan Padrón**

*The Budyko framework analytically describes the coupled water-energy balance over land. Empirical evidence will be gathered about the topic. Results are expected to improve estimates of evapotranspiration and water*

**Characterizing Saharan Dust Events from Lidar Measurements at Jungfraujoch****Yandong Tong**

*We use lidar instrument to detect the saharan dust and work out the vertical concentration distribution, which help understand the radiative forcing of dust event.*

**The fate of Stratospheric PV cutoffs****Raphael Portmann**

*Stratospheric potential vorticity (PV) cutoffs can destabilize troposphere, trigger convection and are frequently associated with heavy precipitation events. We investigate the development of stratospheric PV cutoffs and classify them according to their lifetime. We examine their dynamical and physical properties which lead to fast diabatic decay or longer persistence.*

**Hydrological and environmental signals in tree ring d18O at the Rietholzbach catchment****Annika Oertel**

*Tree ring width as climate proxy is generally limited to ecological boundary sites, while stable oxygen isotopes (d18O) can also carry information about past environmental conditions at temperate sites. We aim to better understand the relation between tree ring d18O and climate conditions, focusing especially on evapotranspiration and vapour pressure deficit. Therefore, we use tree ring cores and various meteorological and hydrological data from the Rietholzbach catchment.*

**Observations and Simulations of hailstorms in Switzerland in Summer 2015****Pascal-Adreas Noti**

*The master's thesis focuses on the verification of different radar-based hail detection algorithms provided by MeteoSwiss. WRF Model, insurance and crowd-source data are used as references for the verification. In addition, the tracks and processes of severe hailstorms in the summer 2015 will be analysed.*

**Influence of climate change on the snow disappearance date****Moritz Buchmann**

*Snow cover in the Alps is an important component of the climate system. Especially the snow disappearance date is of great importance for ecological purposes. The long-term manually measured snow depth data for the Swiss Alps sometimes shows gaps for different stations towards the end of the snow season. This study aims to fill these gaps using statistical methods and analyse the data for trends towards climate change.*

**Scandinavian Blockings: A climatological analysis in a 400 year ensemble****Christoph Bertschi**

*Analyse of Scandinavian Blockings 1601-1989 in a climate simulation. Focus on temperature and precipitation patterns/anomalies associated with Scandinavian Blockings.*

**Verification of convective wind gusts in COSMO2****Hélène Barras**

*The insurance company Swiss Mobiliar covers reimbursement for damages on buildings caused by winds higher than 75 km/h. To better assess the speed at each location, they now plan on using the COSMO-2 Model. With this Master Project, the modelled convective wind gusts will be verified using observations provided by MeteoSwiss.*

**Representation and dependence on horizontal resolution of blocking anticyclones in the new ICON model****Roman Attinger**

*In this project the representation of blocking anticyclones in ICON and its dependence on horizontal resolution is investigated. A potential vorticity based blocking diagnostic is employed, evaluating the results of a five-year model run. A blocking climatology containing blocking frequency, preferred geographical distribution and seasonality will be derived and compared to ERA-Interim results.*

**Objective Classification of cyclone intensification****Luise Fischer**

## **7. Financial Support**

Students can ask for financial travel support (up to 50.- sFr) and have to contact at the meeting the SGM cassier Hans Hirter.