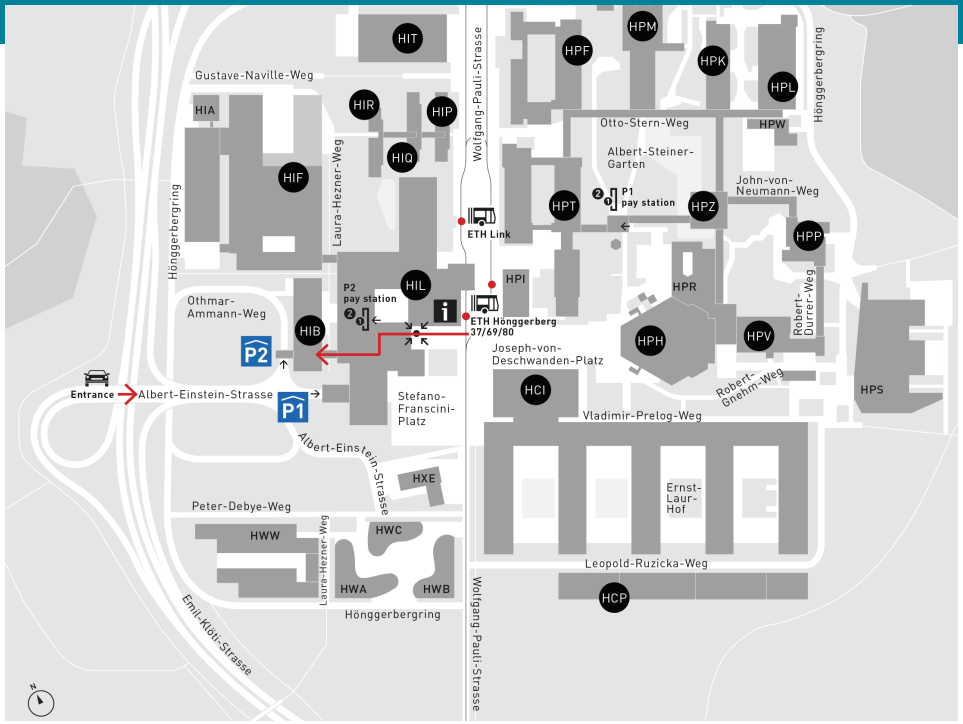
ETH zürich



HIB Building, Level E, Open Space 2

Stefano-Franscini-Platz 1

Hönggerberg Campus, ETH Zurich

By public transport from Zurich Central Station / Option A:
- Take the S-Bahn (lines 2, 5, 6, 7, 8, 14, 16) to Oerlikon station
- Then take bus no. 80 towards "Triemli" to the "ETH Hönggerberg" stop.
- Journey time: approx. 25 minutes

By public transport from Zurich Central Station / Option B:
- Take tram no. 11 towards "Auzelg" to Bucheggplatz
- Then take bus no. 69 to the "ETH Hönggerberg" stop.
- Journey time: approx. 25 minutes

By car from Bucheggplatz:
- Follow the signs to "ETH Hönggerberg."
- Take the exit signed "ETH"
- Go straight over the roundabout into the underground garage 1 (P1)
- Park on level A

When you arrive, look for the wayfinding signage & the event greeters, who will guide you to the venue.

ETH zürich

Workshop

Climate Risk and the Built Environment: Can Data make a Difference?

Monday, 28 Oct. 2019, 13:15 – 18:30, Apéro to follow

HIB Level E, Open Space 2, Hönggerberg ETH Zurich

Program:

Time	Detail
12:30	**Arrival of guests**
13:15	**Welcome from the ETH Risk Center & the Master of Integrated Building Systems Programme (MBS)** Dr. Bastian Bergmann, Executive Director of the Risk Center Prof. Dr. Arno Schlueter, MBS Director of Studies
13:30	**Multiscale assessment of the building stock: Using building data to address the performance gap** Prof. Dr. Arno Schlueter
14:00	**Integrating weather & climate risks into strategic planning: Impact-based warnings in decision-support tools** Prof. Dr. David N. Bresch
14:30	**Translating data into governance & practice: Case studies from the City of Zurich** Annette Aumann
15:00	**Connected insurance propositions to manage risk: A new approach to protect buildings, assets & occupants** Antony Elliott
15:45	Break
16:15	**Making a difference: Data for disaster resilience** Prof. Dr. Tina Comes
16:45	**Building sustainable & inclusive urban transport with data science** Prof. Dr. Martino Tran
17:15	**Moderated Panel** Dr. Christian Schaffner + All Speakers
18:30	**Final remarks & opening of apéro** Prof. Dr. Arno Schlueter

DARCH
Masters Programme in Integrated Building Systems

ETH RISK CENTER

Climate Risk and the Built Environment: Can Data make a Difference?

The workshop addresses the challenges of coping with the risks that climate change poses to buildings, urban agglomerations and their inhabitants. In particular, participants will evaluate and discuss the extent to which current approaches offer strategies to improve our capacity to understand the complex linkages existing within the varied scales of the built environment.

Panel Moderator:

Christian Schaffner ETH Zurich, Executive Director, Energy Science Center
Previously, Christian was head of the grid section at the Swiss Federal Office of Energy and was involved in bilateral negotiations between Switzerland and the EU regarding energy supply contracting. He holds degrees in Electrical Engineering (M.Sc.) and Electric Power Systems (Ph.D.) from ETH Zurich.

Abstracts:

Arno Schlueter
ETH Zurich, Chair for Architecture & Building Systems, D-ARCH

Multiscale assessment of the building stock: Using building data to address the performance gap

The building sector is among the most significant contributors to anthropogenic Green House Gas (GHG) emissions. However unlike other sectors, the existing technology and knowledge to decarbonise the building stock are already available and economically viable. Despite this, the required transformation of the existing building stock suffers from low retrofit rates and the 'performance gap,' meaning that too few buildings are upgraded, and when they are, they do not reach the necessary performance targets. Novel approaches to the lean acquisition of building data, as well as methods of data analytics now allow us to address these challenges both on the level of the individual building, as well as on the building stock level, reducing risks for private and public stakeholders.

David N. Bresch
ETH Zurich & MeteoSwiss, Chair for Weather & Climate Risks, D-USYS

Integrating weather & climate risks into strategic planning: Impact-based warnings in decision-support tools

The operational availability of MeteoSwiss ensemble forecasts at high spatial (i.e. 1 km) and temporal resolution across Switzerland calls for novel approaches in the management of weather and climate risks in the building and infrastructure sectors. The new Swiss Climate Scenarios CH2018, which build on previous scenario efforts and assess past and future changes in the physical climate system of Switzerland, allow for the comprehensive consideration of climate-related risks in strategic planning. Two pilot applications will be presented that focus on: 1) an ensemble-based impact warning system for wind-related damage to buildings and infrastructure in Switzerland, and 2) the impact of heat on labour productivity in Zurich.

Annette Aumann
City of Zurich, Office of Building Construction, Group Leader for Sustainable Construction

Translating data into governance & practice: Case studies from the City of Zurich

Confronted with the task of meeting challenging GHG emission reductions in our building stock within a limited time, the City of Zurich has committed itself to policy targets such as the 2000-Watt society. The Amt für Hochbauten (Office of Building Construction) represents the City of Zurich and is responsible to meet these targets within its construction projects. A key element of policy implementation into practical work involves the way relevant data is identified and interpreted to set accounting boundaries, which fundamentally influence decision-making and construction outcomes. The presentation will highlight a range of the different levels of impact: from the building scale (i.e. material choices), to the considered building life span (i.e. with a view on energy consumption), as well as on the details involved in reporting on target metrics.

Antony Elliott
Zurich Insurance, Group Head of Business Transformation

Connected insurance propositions to manage risk: A new approach to protecting buildings, assets & occupants

In the insurance industries, the phrase 'connected insurance propositions' refers to an innovative approach to helping customers manage risk by using data to make new ways of protecting buildings, assets and occupants. Using examples from Zurich Insurance's experience, case studies involving varying building functions (i.e. office, higher education, retail, industrial) and scales (i.e. system components to buildings) will be presented that highlight how insurance tools are adapting to the incorporation of large volumes of available building data, as well as the lessons learned in piloting these approaches.

Tina Comes
TU Delft, Co-Director, 4TU Center on Resilience Engineering

Making a difference: Data for disaster resilience

A major challenge in resilience thinking is to substantively couple the quick response to crises and disruptions with adaptation to long-term trends and rapid transformation. Due to the differing underlying timeframes and decision-making paradigms, critical dilemmas and frictions arise for data analytics and decision-making. Through case studies on disaster response in Nepal, Bangladesh, and Saint-Martin, and adaptation strategies in the Netherlands, the following are considered: 1) data and information requirements for disaster response, 2) data analytics and decision support for adaptation, and 3) the potential synergies between the approaches.

Martino Tran
University of British Columbia, Director, Urban Predictive Analytics Lab, School of Community & Regional Planning

Building sustainable & inclusive urban transport with data science

Urban transport dominated by personal car use is a major source of carbon emissions that also creates road congestion and delays linked to a variety of substantial losses of revenue (i.e. reduced worker productivity). Subsequently, although the large-scale deployment of intermodal transport systems that combines multiple mobility services has become an important strategy to reduce car use, methods to improve their design and performance are not well understood. Comparing examples in Portland, Seattle, and Vancouver, this talk will explore the use of urban data science to measure, predict and assess the environmental and socioeconomic impacts of new mobility technologies and infrastructure with the goal of helping municipalities improve the planning and design of transport systems that are more inclusive, cleaner and promote healthier cities.