



Master in Atmospheric  
and Climate Science

# A perfect match

We're looking for you – fascinated by weather phenomena and aiming to understand the atmosphere and climate system. You want to move from reading newspaper articles on climate change and looking at fascinating pictures of tornadoes and hurricanes to investigating and understanding them to become an expert. You would like to gain a quantitative understanding of climate processes and their interactions – ranging from the molecular to the global scale and from short-lived phenomena to changes over millions of years, and you are interested in the broader view of how climate change links to society and policy.

You have a bachelor's degree in science and a solid scientific background in mathematics, physics and chemistry, hydrology and the water cycle. Interested? Consider applying for the Master in Atmospheric and Climate Science.



Visualization of a European-scale climate simulation at a horizontal resolution of 2 km. The image shows precipitation intensity (in yellow/violet/black) and vertically integrated cloud water and cloud ice.

(Christian R. Steger, Patricio Velasquez and Christoph Schär; ETH Zürich; project scClim)

[www.vimeo.com/936668363](https://www.vimeo.com/936668363)



## We offer

We offer a 3-semester programme bringing together a group of outstanding students with world leading scientists in the field of atmospheric and climate science. You will be part of an international group of students with diverse backgrounds but sharing a common passion for atmospheric and climate science.

You will gain a quantitative understanding of atmospheric dynamics, climate processes and feedbacks, atmospheric composition and cycles, biogeochemical cycles, and paleoclimatology. You will receive in-depth training in numerical modelling of weather and climate, have the opportunity to work in the atmospheric chemistry and physics lab, participate in field courses and discuss the current weather in a weekly weather discussion.



“In our lecture courses students learn about the variability of weather systems, their prediction with numerical models and the physical fundamentals that govern their dynamics.”



**Heini Wernli**  
Professor for Atmospheric Dynamics

“Studying atmospheric and climate science helped me to build a solid understanding of the system, from individual equations for cloud droplet growth to global relationships such as teleconnections. This understanding, along with the knowledge I have gained about data, modelling and statistics, is invaluable to my current job.”



**Anina Gilgen**  
PhD, Team leader Agroscope


## Your career

We educate outstanding young scientists for careers in academia, public administration and the private sector. The range of positions of our graduates is very diverse and ranges from experts in the emerging field of renewable energy, to risk modelers in the insurance business. Graduates of our MSc programme hold leading positions in companies such as energy providers, climate and weather services, in the reinsurance and financial sector, or in media, business and policy consulting. Others work as statisticians, programmers, consultants, project managers or teachers in a wide variety of positions in the private sector, public administration and academia. Finally, many of our graduates successfully pursue an academic career and rank among the world-leading scientists in atmospheric and climate science.

## Your mentors


Your lecturers, teachers and supervisors rank among the world-leading scientists in atmospheric and climate research, lead international research programmes and author assessment reports of the Intergovernmental Panel on Climate Change.

List of mentors:  
[www.iac.ethz.ch/group](http://www.iac.ethz.ch/group)



“Our students learn about the latest advancements in climate research, are able to critically assess climate and weather science, becoming experts in a quickly developing field.”

**Sonia Seneviratne**  
Professor for Land-Climate Dynamics



“At ETH I acquired the tools to create climate resilience in the Global South and the knowhow to credibly advocate for climate justice. It’s exciting to put research into practice!”

**Omar Bellprat**  
PhD, Swiss Humanitarian Aid (SHA) and International Cooperation at MeteoSwiss



“In our programme, students also have the possibility to visit field sites and see first-hand, how measurements are taken.”

### Programme structure

The Master in Atmospheric and Climate Science is a 1½-year programme that combines theory, tutorials and labs, seminars and field courses, adding up to 90 ECTS credits. The Master in Atmospheric and Climate Science provides you with flexibility to tailor your own profile.

**Core courses (40 ECTS)**

**Module courses (24 ECTS)**

You choose lectures from three of the five following modules:

- > Weather systems and atmospheric dynamics
- > Climate processes and feedbacks
- > Atmospheric composition and cycles
- > Climate history and paleoclimatology
- > Hydrology and water cycle

**Labs, practical courses, field work and seminars (16 ECTS)**

You gain professional expertise in weekly weather discussions, atmospheric chemistry labs, atmospheric physics labs or a climatological and hydrological field course. You are trained in scientific writing, presentation and communication skills and project management in seminars. You meet international scientists and professionals from prospective work fields.

**Electives (20 ECTS)**

You either delve into specialized courses in Atmosphere and Climate or broaden your profile by taking e.g. a minor in Sustainable Energy Use, Physical Glaciology or Environmental, Resource and Food Economics. You are free to choose from basically any MSc course offered at ETH Zurich.

**Core Courses**

**Electives**



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first year (a square corresponds to 5 ECTS = Total 90 ECTS)



“Climate change is not solved by just predicting how much rain will fall in the future. In our programme you also get exposed to quantification of climate risks, how science feeds into UN IPCC reports, and into decisions on mitigation and adaptation.”

**Reto Knutti**  
Professor for Climate Physics



“The MSc in Atmospheric and Climate Sciences provided me with a broader level understanding of the interplay between the physical modelling and impact side of climate/weather, whilst allowing me to specialise into an area of choice. I enjoyed the flexibility provided, and the ability to interact with professors on the cutting edge of climate and atmospheric research.”

**Shruti Nath**  
PhD, PostDoc at University of Oxford in collaboration with UN World Food Programme and the Intergovernmental Authority on Development (IGAD) for Horn of Africa countries.

**Master's thesis (30 ECTS)**

During your Master's thesis you are fully integrated in an international research team and work on your 6-month research project with strong support from your supervisors. You have access to leading-edge supercomputing and lab infrastructure and get a flavor of the vibrant work environment of research.

**Exchange with University of Bern**

The Master in Atmospheric and Climate Science has a vital exchange with the University of Bern and their graduate school at Oeschger Centre for Climate Change Research. We encourage and support students to take complementary courses at the University of Bern.

**Master's thesis**



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second year (a square corresponds to 5 ECTS = Total 90 ECTS)



"The global carbon cycle and climate are closely linked to each other. In this programme, you will learn about how processes in the ocean and land control the atmospheric CO<sub>2</sub> and thus climate, and in turn, how climate affects these two reservoirs."

**Niki Gruber**  
Professor for Environmental Physics



"Studying Atmospheric and Climate Science allowed me to gain in depth knowledge about our climate system, and about the solutions to mitigate and adapt to climate change. This knowledge now helps me to tackle climate change hands on by further developing the climate and energy strategy of the Canton of Lucerne."

**Ronja Bohnenblust**  
Climate Specialist for the Canton of Lucerne



## Living in Zurich

Zurich is a fascinating city, offering a high quality of life and diverse recreational and cultural activities. Its proximity to lakes and mountains makes it a popular spot for water sports and alpine leisure activities.

Zurich is beautiful, but expensive. The approximate monthly fixed costs for a single person are at least CHF 1790.00. Personal expenses such as clothes, telephone calls, leisure activities etc. are not included in this amount. You may well spend CHF 2000.00 a month without living in the lap of luxury. This means probable costs of at least CHF 24,000.00 per year.

### Accommodation

ETH Zurich offers student accommodation facilities.  
[livingscience.ch](http://livingscience.ch)

It is possible to find accommodation (rooms, studio apartments, etc) by contacting one of the institutions working with ETH Zurich and the University of Zurich.

1) ETH Zurich provides a limited number of furnished single rooms for international Master's (MSc) and exchange students. These rooms can only be rented for one or two semesters: International Student Support, [international@sts.ethz.ch](mailto:international@sts.ethz.ch)

## Studying at ETH Zurich

Study programmes at ETH Zurich are intensive and demanding. Nevertheless, students find time to enjoy an active student life.

### Get involved

Many students are involved in the Geosciences Association ([erfa.ethz.ch](http://erfa.ethz.ch)) or the Union of Students at ETH (VSETH) ([vseth.ethz.ch](http://vseth.ethz.ch)). As a member, you can contribute actively to the development of academic life.

### Balancing your studies

The Zurich Academic Sport Association (ASVZ), one of the biggest sport associations in Europe, provides ETH students with a choice of more than 70 different sports, taught by 600 instructors. Students registered for academic studies are entitled to participate in the vast majority of these.

[asvz.ch](http://asvz.ch)





2) The Housing Office of the University of Zurich and ETH Zurich provides an index on privately run student residences in the "Wohnbulletin".

[wohnen.ethz.ch](http://wohnen.ethz.ch)

3) The Student Housing Cooperative (Woko) rents out 2000 furnished rooms in student residences, student houses or flats throughout the city.

[woko.ch](http://woko.ch)

4) On the following websites you can check out other student accommodation ads and create your own room request for free.

[wgzimmer.ch](http://wgzimmer.ch)



"Climate change affects the hydrological cycle in multiple ways. In our programme, you will learn how changes in atmospheric processes influence runoff generation, groundwater recharge, droughts and floods, or water quality, and to quantify and model these changes."

**Manuela Brunner**  
Professor for Hydrology and Climate Impacts



"The MSc programme set me on an exciting path towards academic research, providing me with a broad background in atmospheric and climate science, enduring collaborators, and a lifelong network."

**Ari Feinberg**  
PhD, Postdoctoral Research Fellow at Massachusetts Institute of Technology

**Further information**

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