

Tom Beucler

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CV last updated on September 30, 2023

Research Interests

Atmospheric Physics, Climate Informatics, Deep Learning, Environmental Fluid Dynamics, Tropical Meteorology.

Education

MIT Program in Atmospheres, Oceans, and Climate

2014 – 2019

Ph.D. in Atmospheric Science: Interaction between Water Vapor, Radiation and Convection

Cambridge, USA

Thesis committee: K. Emanuel (co-advisor), T. Cronin (co-advisor), P. O’Gorman, Z. Kuang, C. Bretherton.

École Polytechnique

2013 – 2014

Master of Science in Mechanics

Palaiseau, France

Major in fluid dynamics and environmental science.

École Polytechnique & Lycée Sainte-Geneviève

2009 – 2013

Bachelor of Engineering

Versailles & Palaiseau, France

Coursework in mechanics, physics, mathematics, chemistry and biology.

Academic Employment

University of Lausanne, Switzerland

2021 – Present

Assistant Professor of Environmental Data Science

Lausanne, Switzerland

University of California, Irvine

2019 – 2021

Assistant Project Scientist in Atmospheric Science: Machine Learning for Climate Science

Irvine, USA

Principal investigators: M. Pritchard and P. Gentine.

University of California, Irvine and Columbia University

2019

Postdoctoral Scholar in Atmospheric Science: Deep Learning for Convection and Clouds

Irvine & NYC, USA

Co-advisors: P. Gentine and M. Pritchard.

Awards

- (2021-Present) **Principal Investigator, Canton de Vaud funding for IDYST professors:** ∂^3 AWN Lab at IDYST. Estimated value of awarded resources: \$120,000/year (2 PhD students)
- (2021–Present) **Visiting scholar**, Earth System Science Department, UCI
- (2019–Present) **Visiting scholar**, Scripps Institution of Oceanography, UCSD
- (2023) **AGU 2022 Editor’s citation for excellence in refereeing**, Journal of Advances in Modeling Earth Systems
- (2022) **AGU 2021 Editor’s citation for excellence in refereeing**, Geophysical Research Letters
- (2021) **Invited Participant**, KITP Program on Machine Learning and the Physics of Climate at UCSB
- (2021) **AGU 2020 Editor’s citation for excellence in refereeing**, Journal of Advances in Modeling Earth Systems
- (2020-2021) **Principal Investigator, Columbia University subaward:** *Physics-Guided Deep Learning for Climate Predictions*. Estimated value of awarded resources: \$51,986
- (2020-2021) **Co-Investigator, XSEDE computational resources allocation:** *Simulating global climate with turbulence-permitting cloud superparameterization to train machine learning emulators and advance understanding of aerosol-cloud feedbacks*. Lead PI: Mike Pritchard. Estimated value of awarded resources: \$2,025,427
- (2019) **Rossby award for best doctoral thesis**, Program in Atmospheres, Oceans and Climate, MIT
- (2019) **Invited scholar**, Max Planck Institute for Meteorology
- (2019) **Summer fellow**, 2nd ICTP Summer School on Climate Dynamics and Convective Organization
- (2018) **Finalist of the “Climate Changed” @ MIT competition**, *Higher Grounds* at MIT
- (2018) **AGU 2017 Editor’s citation for excellence in refereeing**, Geophysical Research Letters
- (2018) **Best poster prize (Water & Society)**, *Preparing MIT for 2050 Floodwaters* at the MIT Water Night
- (2018) **Graduate research fellow**, Program on Math. and Stat. Methods for Climate & the Earth System at SIAM Institute
- (2017) **Summer fellow**, Les Houches Summer School on Fundamental Aspects of Turbulent Flows in Climate Dynamics
- (2015) **Geophysical fluid dynamics fellow**, Woods Hole Oceanographic Institution
- (2014-2015) **Rasmussen fellow**, MIT Department of Earth, Atmospheric and Planetary Sciences
- (2014) **Outstanding Masters thesis**, École Polytechnique

Peer-Reviewed Journal Publications and Book Chapters

1. (2023) *Submitted, Preprint available*, Grundner, A., **T. Beucler** et al.: Data-Driven Equation Discovery of a Cloud Cover Parameterization, *arXiv:2304.08063*.
2. (2023) *Submitted, Preprint available*, Lin, J., S. Yu, **T. Beucler** et al.: Systematic Sampling and Validation of Machine Learning-Parameterizations in Climate Models, *arXiv:2309.16177*
3. (2023) *Submitted, Preprint available*, Iglesias-Suarez, F., P. Gentine, B. Solino-Fernandez, **T. Beucler** et al.: Causally-informed deep learning to improve climate models and projections, *arXiv:2304.12952*.
4. (2023) *Submitted, Preprint available*, Zanetta, F., D. Nerini, **T. Beucler** et al.: Physics-constrained deep learning postprocessing of temperature and humidity, *arXiv:2212.04487*.
5. (2023) *Submitted, Preprint available*, Mooers, G., M. Pritchard, **T. Beucler** et al.: Comparing Storm Resolving Models and Climates via Unsupervised Machine Learning, *arXiv:2208.11843*.
6. (2023) *Submitted, Preprint available*, **Beucler, T.** et al.: Climate-Invariant Machine Learning, *arXiv:2112.08440*.
7. (2023) *In press, Preprint available*, Mooers, G., **T. Beucler** et al.: Understanding Extreme Precipitation Changes through Unsupervised Machine Learning, *Environmental Data Science. Proceedings of the CCAI Workshop at the 2022 Conference on Neural Information Processing Systems*. *arXiv:2211.01613*.
8. (2023) *In press, Preprint available*, **Beucler, T.** et al.: Machine Learning for Clouds and Climate (Invited Chapter for the AGU Geophysical Monograph Series: *Clouds and Climate*).
9. (2023) Ganesh S., S., **T. Beucler**, F. Tam, M. Gomez et al.: Selecting Robust Features for Machine Learning Applications using Multidata Causal Discovery, *Environmental Data Science*, 2:e27.
10. (2022) Grundner, A., **T. Beucler** et al.: Deep Learning Based Cloud Cover Parameterization for ICON, *Journal of Advances in Modeling Earth Systems*, e2021MS002959.
11. (2022) Wu, Z., **T. Beucler** et al.: Modeling Stratospheric Polar Vortex Variation and Identifying Vortex Extremes Using Explainable Neural Networks. *Environmental Data Science 1: e17*.
12. (2022) Behrens, G., **T. Beucler** et al.: Non-Linear Dimensionality Reduction with a Variational Encoder Decoder to Understand Convective Processes in Climate Models. *Journal of Advances in Modeling Earth Systems*, e2022MS003130.
13. (2021) Gentine, P., V. Eyring & **T. Beucler**: Deep Learning for the Parametrisation of Subgrid Processes in Climate Models, *Deep learning for the Earth Sciences: With Applications and R, Second Edition*, 307-314.
14. (2021) Griffin, M., M. Pritchard, **T. Beucler** et al.: Assessing the Potential of Deep Learning for Emulating Cloud Superparameterization in Climate Models with Real-Geography Boundary Conditions. *Journal of Advances in Modeling Earth Systems*, 13, e2020MS002385.
15. (2021) **Beucler, T.** et al.: Enforcing Analytic Constraints in Neural-Networks Emulating Physical Systems, *Physical Review Letters*, 126.9: 098302. **Editors' Suggestion**.
16. (2020) Brenowitz, N., **T. Beucler**, M. Pritchard & C. Bretherton: Interpreting and Stabilizing Machine-Learning Parametrizations of Convection, *Journal of the Atmospheric Sciences*, 77.12, 4357-4375.
17. (2020) **Beucler, T.**, D. Leutwyler & J. Windmiller: Quantifying Convective Aggregation Using the Tropical Moist Margin's Length, *Journal of Advances in Modeling Earth Systems*, 12.10, e2020MS002092.
18. (2020) Abbott, T., T. Cronin & **T. Beucler**: Convective Dynamics and the Response of Precipitation Extremes to Warming in Radiative-Convective Equilibrium, *Journal of the Atmospheric Sciences*, 77, 1637-1660.
19. (2019) **Beucler, T.**, T. Abbott, T. Cronin & M. Pritchard: Comparing Convective Self-Aggregation in Idealized Models to Observed Moist Static Energy Variability Near the Equator, *Geophysical Research Letters*, 46, 17-18.
20. (2019) **Beucler, T.**: Interaction between Water Vapor, Radiation and Convection in the Tropics, *Ph.D. Thesis in Atmospheric Science*.
21. (2018) **Beucler, T.** & T. Cronin: A Budget for the Size of Convective Self-Aggregation, *Quarterly Journal of the Royal Meteorological Society*, 145, 947– 966.
22. (2018) **Beucler, T.**, T. Cronin & K. Emanuel: A Linear Response Framework for Radiative-Convective Instability, *Journal of Advances in Modeling Earth Systems*, 10, 1924-1951.
23. (2016) **Beucler, T.** & T. Cronin: Moisture-Radiative Cooling Instability, *Journal of Advances in Modeling Earth Systems*, 8, 1620–1640.
24. (2016) **Beucler, T.**: A Correlated Stochastic Model for the Large-Scale Advection, Condensation and Diffusion of Water Vapour. *Quarterly Journal of the Royal Meteorological Society*, 142, 1721–1731.
25. (2014) **Beucler, T.** & K. Emanuel: Self-Aggregation Phenomenon in Cyclogenesis, *Masters Thesis in Fluid Mechanics*.

Peer-Reviewed Conference and Workshop Publications

1. (2023) Yu, S., W. Hannah, L. Peng, M. Bhouri, R. Gupta, J. Lin, B. Lütjens, J. Will, **T. Beucler** et al.: ClimSim: A large multi-scale dataset for hybrid physics-machine learning climate emulation. *Advances in Neural Information Processing Systems*.
2. (2021) Mangipudi, H., G. Mooers, M. Pritchard, **T. Beucler** & S. Mandt: Analyzing High-Resolution Clouds and Convection using Multi-Channel VAEs. *2021 Conference on Neural Information Processing Systems (Workshop)*.
3. (2020) **Beucler, T.** et al.: Towards Physically-Consistent, Data-Driven Models of Convection. *IEEE International Geoscience and Remote Sensing Symposium 2020*.
4. (2020) Mooers, G., J. Tuyls, S. Mandt, M. Pritchard & **T. Beucler**: Generative Modeling of Atmospheric Convection.

Proceedings of the 10th International Conference on Climate Informatics, 98-105.

5. (2019) **Beucler, T.** et al.: Achieving Conservation of Energy in Neural Network Emulators for Climate Modeling. 2019 International Conference on Machine Learning (Workshop).

Conference Presentations and Invited Seminars

103rd AMS Annual Meeting

Core Science Keynote: Systematically Generating Climate Model Hierarchies from Data using ML

Jun 2022–Present
Remote, Europe & USA

Presentation also given at:

- AMS 23rd AOFD, 12th Climate Informatics Conf., Royal Met. Soc. ML Workshop
- IMSI ML for Climate & Weather, CSSI-GW journal club, Caltech CliMA

102nd AMS Annual Meeting; Postdam Institute for Climate Impact Research

Invited Presentation: Physically and Causally-Informed Neural Networks

Jan 2022–Present
Remote & Vienna, Austria

Also given at:

- AI4OAC Workshop, EGU22, NVIDIA, IPSL LSCE, UNIL ML Café, 11th Clim. Info. Conference, ESIWACE2 Workshop

NCAR Climate & Global Dynamics; ESA-ECMWF Workshop 2021

Invited Seminar: Atmospheric Physics-Guided Machine Learning

May 2021–Present
Remote, Europe & USA

Also given at:

- EPFL ENAC; Uni Bern Colloquium in Climatology, Climate Impacts & Remote Sensing
- CSU/CIRA; ENS Lyon IXI; AI Super-Resolution Simulations Workshop (CMU)
- LANL ML in Solid Earth Geoscience Lecture Series; MIT Sack Lunch
- Princeton PPPL ML Seminar Series; IGE Grenoble
- MeteoSwiss; UCLA Atmospheric & Oceanic Sciences Departmental Seminar Series
- Caltech CliMA; EPFL Applied Machine Learning days 2022; ETH Atmospheric Predictability

UNIL FGSE Academic Year Opening Ceremony

L'intelligence artificielle au service des sciences du climat

Sep 2023
Lausanne, Switzerland

ITU "AI for Good" Seminar Series

Invited Presentation: AI for Tropical Meteorology, Challenges and Opportunities

Apr 2023–Present
Remote, Europe

ELLIS & AGCI Workshops on Machine Learning and Climate Science

Invited Presentation: Climate-Invariant Machine Learning

May 2022–Jun 2022
Valencia, Spain & Aspen, USA

AI2ES NCAR Summer School on Trustworthy AI

Invited Tutorial: Integrating Physics into Machine Learning

July 2021
Remote

SIAM MPE20 & 101st AMS Annual Meeting

Invited Presentations: Physical Rescalings Help Neural Networks Generalize Across Climates

Also given as a poster at the AGU Fall Meeting 2020

Aug 2020–Jan 2021
Remote

IEEE International Geoscience and Remote Sensing Symposium 2020

Invited Webinar/Paper: Towards Physically-Consistent, Data-Driven Models of Convection

Also given at:

- NOAA Satellite Applications and Research Seminar Series
- 1st Annual Workshop on Knowledge-Guided Machine Learning (UMN)
- UCSD SIO Machine Learners Group Meeting & UCI Earth System Science Departmental Seminar Series

Apr 2020–Dec 2020
Remote

AGU Fall Meeting 2019 & 100th AMS Annual Meeting

Invited Presentation: Building a Hierarchy of Hybrid, Neural Network Models of Convection

Dec 2019–Jan 2020
SF & Boston, USA

AGU Fall Meeting 2019 & 100th AMS Annual Meeting

Poster & Presentation: Comparing Self-Aggregation in Models to Observed MSE Variability

Dec 2019–Jan 2020
SF & Boston, USA

UCLA Atmospheric & Oceanic Sciences, UCI Earth System Science Departmental Seminar Series

Invited Seminars: Interaction between Water Vapor, Radiation and Convection in the Tropics

Also given at:

- MIT Sack Lunch Seminar; Yale Earth & Planetary Science
- ENS Paris Geosciences; LMU Munich Meteorology; MPI-Meteorology

Aug 2018–Jul 2019
USA, France & Germany

International Conference on Machine Learning 2019. Climate Change: How Can AI Help?

Workshop Paper: Achieving Conservation of Energy in Neural Network Emulators for Climate Modeling

Jun 2019
Long Beach, USA

9th Northeast Tropical Workshop

Presentation: Towards Interpretable Neural-Network Parametrizations of Convection

Jun 2019
Dedham, USA

33rd Conference on Hurricanes and Tropical Meteorology <i>Presentation: A Spectral Budget for the Size of Convective Self-Aggregation</i>	Apr 2018 Ponte Vedra, USA
Seminar in Geosciences, Université Pierre et Marie Curie <i>Invited Seminar: A Spectral Budget for the Size of Convective Self-Aggregation</i>	Dec 2017 Paris, France
17th Conference on Mesoscale Processes <i>Presentation: A Moist Static Energy Perspective on Atmospheric Rivers</i>	Jul 2017 San Diego, USA
21st Conference on Atmospheric and Oceanic Fluid Dynamics <i>Presentation: The Vertical Structure of Radiative-Convective Instability</i>	Jun 2017 Portland, USA
Seminar in Geosciences, École Normale Supérieure <i>Invited Seminar: Radiative-Convective Instability</i>	Jan 2017 Paris, France
2016 International Atmospheric Rivers Conference - CW3E, Scripps institution of oceanography <i>Presentation: A Moist Static Energy Perspective on Atmospheric Rivers</i>	Aug 2016 La Jolla, USA
32nd Conference on Hurricanes and Tropical Meteorology <i>Presentation: Instabilities of Radiative Convective Equilibrium with an Interactive Surface</i>	Apr 2016 San Juan, USA

Formal Mentoring Experience

Direct Research Supervision (PhD students & Postdocs)	Aug 2021 – Present
○ (Aug 2021 – Present) Milton Gomez (PhD student at UNIL)	Lausanne, Switzerland
○ (Aug 2021 – Present) Saranya Ganesh Sudheesh (Postdoctoral scholar at UNIL)	
○ (Sep 2021 – Present) Frederick Iat-Hin Tam (PhD student at UNIL)	
Technical Advising (Weekly to Biweekly Mentoring of Early-Career Scientists)	Jul 2019 – Present
○ (Sep 2022 – Present) Jingyan Yu (Postdoctoral fellow at UNIL)	Europe & USA
○ (Feb 2022 – Present) Francesco Zanetta (PhD student at ETH/MeteoSwiss, Visiting student at UNIL)	
○ (Sep 2021 – Present) Costa Christopoulos (PhD student at Caltech)	
○ (Jan 2020 – Present) Arthur Grundner (PhD student at the German Aerospace Center)	
○ (Jul 2019 – Present) Gunnar Behrens (PhD student at the German Aerospace Center)	
○ (Apr 2019 – Present) Griffin Mooers (PhD student at UC Irvine, Postdoc at MIT)	
○ (Dec 2019 – Jul 2021) Andrea Jenney (Postdoctoral fellow at UC Irvine)	
PhD Thesis Committee Member	Jan 2020 – Present
○ (Apr 2023 – Present) Kejdi Lleshi (UNIL)	Europe & USA
○ (Jan 2023 – Present) Tabea Cache (UNIL)	
○ (Sep 2022 – Present) Ségolène Crossouard (IPSL)	
○ (Jan 2022 – Present) Costa Christopoulos (Caltech)	
○ (Sep 2021 – Present) Janbert Aarnink (UNIL)	
○ (Jan 2020 – Apr 2023) Griffin Mooers (UC Irvine)	
○ (Oct 2022) Blanka Balogh (CNRM, Toulouse, only on final evaluation committee)	
Direct Research Supervision (Bachelor & Master students)	Jul 2020 – Present
○ (Sep 2023 – Present) Louis Poulain-Auzeau (Masters student at EPFL)	Europe & USA
○ (Nov 2022 – Present) Fabien Augsburger (Masters student at UNIL)	
○ (Jun 2023 – Aug 2023) Aser Atawya (Bachelor fellow at UNIL)	
○ (May 2023 – Aug 2023) Marine Berthier (Masters intern at UNIL)	
○ (Apr 2023 – Aug 2023) Jo Lécuyer (Masters intern at UNIL)	
○ (May 2022 – Aug 2022) Léo Micollet (Masters intern at UNIL)	
○ (Mar 2022 – Jul 2022) Deborah Bassotto (Post Masters intern at UNIL)	
○ (Sep 2021 – Jun 2022) Meryam Cherqaoui (Bachelor student at UNIL)	
○ (Jul 2020 – Dec 2020) Ankitesh Gupta (Masters student at UC Irvine)	

Teaching Experience

FGSE, University of Lausanne <i>Main Instructor of "Introduction to Scientific Programming with Python" (2 ECTS, ≈50 students)</i> Design and delivery of yearly 4-week course open to all Masters and PhD students in Earth/env. sci. & geography.	Sep 2022 – Present Lausanne, Switzerland
FGSE, University of Lausanne <i>Main Instructor of "Géomatique et Systèmes d'Information Géographique" (3 ECTS, ≈100 students)</i> Design and delivery of yearly 12-week course open to all Bachelor students in Earth/env. sci. & geography.	Sep 2022 – Present Lausanne, Switzerland

FGSE, University of Lausanne (2 occurrences) Main Instructor of “Machine Learning for Earth and Environmental Sciences” (5 ECTS, ≈25 students) Design and delivery of yearly 12-week course open to all Masters and PhD students in Earth/env. sci. & geography.	Jan 2022 – Present Lausanne, Switzerland
Foundation of Research and Technology-Hellas & University of Oxford Main Instructor of the iMIRACLI 3rd Summer School on climate data science Designed and delivered a one-day block course on physics-guided machine learning.	Sep 2023 Patras, Greece
European Centre for Medium-Range Weather Forecasts (MOOC) Consultant, Reviewer, and Content Provider for “Machine Learning for Weather and Climate” Main instructor for the “Physics-Guided ML” & “Parametrisation emulation” e-learning modules.	Mar 2022 – Mar 2023 Remote, Luxembourg
MIT Teaching and Learning Laboratory Kaufman teaching certificate program Program for MIT graduate students aimed at improving teaching skills.	Feb 2017 – May 2017 Cambridge, USA
PAOC, MIT Teaching Assistant in 12.801, <i>The General Circulation of the Ocean</i> Prof. Raffaele Ferrari.	Feb 2016 – May 2016 Cambridge, USA
PAOC, MIT Teaching Assistant in 12.815, <i>Atmospheric Radiation and Convection</i> Prof. Sara Seager and Prof. Kerry Emanuel.	Sep 2015 – Dec 2015 Cambridge, USA
Lycée Sainte-Geneviève Teaching Assistant in physics Undergraduate level: waves, electromagnetism, optics, newtonian, solid and fluid mechanics.	Sep 2012 – Mar 2014 Versailles, France

Service

Reviewer for Journals and Workshops (40 submissions, 64 rounds) AGU Books, EDS, GMD, GRL, JAMES, JAS, JCLI, JGR, JHM, JMLR, MWR, NeurIPS, PLOS ONE, PNAS, PRL, QJRMS, RSE	Nov 2016 – Present
Reviewer for Proposals (11 submissions) American NSF, Belgian Science Policy Office, CLIMACT, Climate Change AI, German Aerospace Centre	Sep 2020 – Present
EOCE: Expertise Center for Climate Extremes Scientific Committee Member	Oct 2022 – Present Lausanne, Switzerland
Atmospheric Science Day in Lausanne Founder and co-organizer of the annual one-day workshop bringing together EPFL & UNIL groups	May 2022 – Present Lausanne, Switzerland
Swiss Geocomputing Centre Scientific Committee Member	Mar 2022 – Present Lausanne, Switzerland
Professor Hiring committee at IGD, UNIL Committee Member for the “Human Geography and/or Sustainable Urban/Regional Planning” position	Sep 2023 – Present Lausanne, Switzerland
UNIL Climate Physics Journal Club Co-founder and faculty support for student-driven seminar series	Dec 2021 – Jun 2023 Lausanne, Switzerland
PAT Hiring committees at UNIL Committee Member for the position of “Computational Geoscientist” (IDYST/ISTE)	Jul 2022 – Mar 2023 Lausanne, Switzerland
20th Edition of the Swiss Geoscience Meeting Co-chair of the session: Spatial Data Science	Feb 2022 – Sep 2022 Lausanne, Switzerland
AMS 21st Conference on AI for Environmental Science Co-chair of the session: Applications of AI for Improved Estimation and Prediction of Weather and Climate	Apr 2021 – Jan 2022 Houston, USA
CLIVAR Webinar: Emerging Data Science Tools for Climate Variability & Predictability Invited Working Group Member: Co-organizer and moderator of the webinar	May 2020 – July 2021 USA
NeurIPS 2020 Workshop: AI for Earth Sciences Co-organizer: Meta-reviewer and organizer of the atmospheric science session	Jun 2020 – Dec 2020 Vancouver, Canada
Editor-in-Chief Search Committee for JAMES (AGU) Committee Member	Apr 2020 – Sep 2020 USA
MIT Office of Sustainability Graduate research assistant in the Climate Resiliency Committee	Feb 2018 – Dec 2018 Cambridge, USA
Student and Post-doc Atmospheric Dynamics Lunch Head of the organizing committee and founding member	Sep 2016 – May 2018 Cambridge, USA
EAPS Graduate Student Advisory Council Secretary	Sep 2016 – May 2018 Cambridge, USA

Program in Atmospheres, Oceans and Climate Colloquium Series

Head of the organizing committee and founding member

Sep 2016 – Dec 2017

Cambridge, USA

Program in Atmospheres, Oceans, and Climate 2015 and 2016 Retreats

Co-organized 2015/2016 PAOC retreats for the professors, post-docs and students of the program

Jan 2015 – Oct 2016

Hancock and Brewster, USA

Graduate Climate Conference 2015

Member of the organizational committee of the 2015 Graduate Climate Conference

Jan 2015 – Nov 2015

Woods Hole, USA

Non-Academic Professional Experience

Cronite Castings Limited

Maintenance engineer

Engineering and operator internship in the Crewkerne foundry.

Jul 2013 – Aug 2013

Crewkerne, UK

French Air Force

Lieutenant

Leadership training as part of the engineering school's curriculum.

Sep 2011 – Apr 2012

Cazaux, France

Computer Skills

OS: Linux, Unix, Windows

Programming: Python, Matlab, Fortran 77/90, VBA, Java

GIS: QGIS, ArcGIS Pro

Language Skills

Native: French, **Fluent:** English, **Intermediate:** Spanish, German, **Beginner:** Japanese (N5), Esperanto

Interests

Weather Forecasting, Weightlifting, Swimming, Jogging, Hiking, Video Games, Rescued two feral kittens (photo).