



## Claudia Acquistapace

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### ABOUT ME

I am a creative scientist interested in the microphysical processes of warm clouds, like boundary layer clouds. I enjoy taking part in measurement campaigns to produce high-resolution ground-based remote sensing observations of cloud processes and how precipitation is initiated, especially using cloud radars. I am interested in developing synergies between models and observations for improving the representation of the observed processes and the overall model performance to reduce the impacts of climate change. Seeing satisfaction, curiosity, and success in my students' eyes is my top gratification. I need teamwork to give my best, and I love communicating science to society. In my career, I developed a strong scientific network, with whom I enjoy cooperating and develop projects.

### WORK EXPERIENCE

01/06/2023 - CURRENT Cologne, Germany

#### **JUNIOR RESEARCH GROUP LEADER OF THE EXPATS RESEARCH GROUP DWD**

##### **Main tasks:**

- research
- supervisor of PhD students
- coordinator of the IDEA-S4S network
- cooperation in the IDEA-S4S network

**Website of the project:** <https://expats-ideas4s.com/>

EXPATS (EXploiting sPAtiotemporal cloud patterns to advance severe Storms process understanding and detection) is a junior research group funded by the German Weather Service (DWD) within the IDEA-S4S network.

IDEA-S4S is a new bilateral collaboration between Germany and Italy in meteorology, climatology, and related disciplines that will create a center of excellence for cutting-edge research and translate the results into improving operational services and university training.

In EXPATS, we have a mission: to protect the European citizens and the environment by improving our capacity to predict and understand how extreme precipitation and hail events develop over the Alps. Our methods based on artificial intelligence will learn how storms evolve from geostationary satellite and weather radar continuous observations. Thanks to a strong synergy with weather services, the results of this research will serve numerical weather prediction models.

But EXPATS is more than new research only: we care to train fresh young minds that will strengthen the cooperation between Germany and Italy. We want to grow new generations of scientists that will face new climate change mitigation strategies for the future of all of us.

31/05/2020 - CURRENT Cologne, Germany

#### **INDEPENDENT RESEARCHER (DFG FUNDED), PROJECT ON PRECIPITATION LIFE CYCLE IN TRADE WIND CUMULI UNIVERSITY OF COLOGNE**

##### **Objectives:**

- Characterization of warm precipitation processes based on observations analyzing the main dynamic and thermodynamic factors and assessment of the driving parameters for precipitation development in trade wind cumuli.
- Evaluation of precipitation processes in LES with observations: assessment of the main factors influencing precipitation formation in LES with emphasis on autoconversion parameterization.
- Assessment of the vertical structure of the evaporation rate of precipitation and its dependency on atmospheric parameters and DSD.

30/09/2020 – 30/05/2022 Cologne, Germany

**PI OF PROJECT "WETOO: WHAT THEY DON'T TELL YOU", A VIDEO DOCUMENTARY ON WOMEN IN SCIENCE, FUNDED BY THE GENDER EQUALITY COMMISSION OF THE UNIVERSITY OF COLOGNE.** UNIVERSITY OF COLOGNE

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- creation and submission of the proposal for the video documentary project
- recruitment of video makers
- administrative tasks for budgets, invoices, organization, coordination
- realization of the storyboard with the videomaker
- interviews
- advertisement and gathering contacts with a communication company

30/09/2019 – CURRENT Cologne, Germany

**SCIENCE COMMUNICATION MANAGER OF CA18235 - PROFILING THE ATMOSPHERIC BOUNDARY LAYER AT EUROPEAN SCALE (PROBE) COST ACTION** UNIVERSITY OF COLOGNE

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Main tasks:

- Administration of the budget for communication activities,
- Creation and maintenance of the PROBE COST Action website and editing of the newsletter,
- Promotion and coordination of the PROBE COST Action activities (short-term scientific mission, conference grants, job offers, subgroups, conference sessions, etc.)

31/01/2020 – 30/05/2020 Cologne, Germany

**PARTICIPATION TO EUREC4A MEASUREMENT CAMPAIGN** UNIVERSITY OF COLOGNE

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- preparation of the measurement campaign:
  - ( May 2019) Approved proposal for small field campaign by Department of Energy (DOE) and the Atmospheric Radiation Measurement (ARM), Precipitation in trade cumuli within EUREC4A, 20 January 2020 - 20 February 2020.
  - (October 2019) organization and coordination of the test bed in Emden, Germany, for the installation of the instrument on the research vessel.
- measurement campaign on the RV Maria S. Merian. Installation and monitoring of the instrument, dissemination activities, data collection
- coordination of the shipment of the instrument

16/01/2017 – 30/01/2020 Cologne, Germany

**POST-DOCTORAL RESEARCHER IN THE HD(CP)2 PROJECT** UNIVERSITY OF COLOGNE

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Specific skills:

- Statistical analysis of big amounts of data.
- Analysis of ground-based observations from wind lidar, ceilometer, radiosondes, and microwave radiometer.
- Evaluation and comparison of ICON-LEM model outputs (meteograms) with ground-based observations for boundary layer clouds and boundary layer structure.

## ● EDUCATION AND TRAINING

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14/01/2013 – 16/01/2017 Cologne, Germany

**DOCTORAL DEGREE IN METEOROLOGY, "INVESTIGATION OF DRIZZLE ONSET IN LIQUID CLOUDS USING GROUND-BASED ACTIVE AND PASSIVE REMOTE SENSING INSTRUMENTS"** University of Cologne

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**Address** Pohligstr. 3, 50969, Cologne, Germany | **Website** <http://kups.ub.uni-koeln.de/7932/>

31/08/2009 – 20/12/2021 Bologna, Italy

**MASTER DEGREE IN PHYSICS** University of Bologna

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**Address** Via Zamboni 33, 40126, Bologna, Italy | **Field of study** Atmospheric physics and meteorology |

**Final grade** 110/110 cum laude

09/09/2003 – 14/02/2009 Pisa, Italy

**BACHELOR DEGREE IN PHYSICS** University of Pisa

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**Address** Lungarno Antonio Pacinotti, 43, 56126, Pisa, Italy | **Field of study** Physics | **Final grade** 110/110

20/09/2022 – 31/05/2023 Trento, Italy

**POST BA-PROFESSIONAL MASTER DEGREE IN COMMUNICATION OF SCIENCE AND INNO- VATION** University of Trento

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**Website** <https://www.scicomm.net/>

## LANGUAGE SKILLS

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Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH</b>	C2	C2	C1	C1	C2
<b>SPANISH</b>	C1	B2	C1	C1	B2
<b>GERMAN</b>	B1	B1	B1	A2	B1

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## DIGITAL SKILLS

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Web Master

**programming**

python | shell | matlab | fortran

**software**

latex | joomla | yootheme | Microsoft Powerpoint | Microsoft Word | Zoom | Google Drive

**editing**

adobe premiere pro | adobe photoshop | adobe lightroom | Canva

## ADDITIONAL INFORMATION

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### HONOURS AND AWARDS

28/02/2019

**Research award Reinhard-Süring-Stiftung 2019 for the PhD dissertation – Reinhard-Süring-Stiftung** research award for the best Phd Dissertation

<https://www.rs-stiftung.org/f%C3%B6rderung/C3%9Fnahmen/>

17/02/2022

**Communication prize for the outreach video on atmospheric boundary layer – AISAM association** What is the atmospheric boundary layer and why it is so important to study it? We live and work in the boundary layer, and we barely know what this layer is, and how it behaves. It is crucial for renewable energies and it is poorly observed from satellites. That's why we need PROBE: we measure the vertical profile of this thin atmospheric layer to safeguard our health and that of our children.

**Link** <https://www.youtube.com/watch?v=a7mC00vbaZQ&t=7s>

14/03/2019

**Best poster price – International Symposium on Tropospheric profiling (ISTP)** Price for the best poster at the ISTP conference

10/06/2018

**Award for excellent teaching conferred by the students of the Institute for Geophysics and Meteorology for the winter term of 2017/2018 – University of Cologne**

## **COMMUNICATION AND INTERPERSONAL SKILLS**

**Outreach video for the Maria S. Merian research vessel during the EUREC4A campaign, June 2021, Cologne (DE)**

Link <https://www.youtube.com/watch?v=EdWNS77qMNA>

**Creator of outreach videos for PROBE COST action, 2020 to present**

Link <https://www.youtube.com/channel/UC46J4rAzbt1PbzRFHZMmHWA>

**Participation in Soap Box Science event for promoting the visibility of women in science, 22 June 2019, Berlin (DE)**

Link <http://soapboxscience.org/soapbox-science-2019-berlin/>

**Organizer of "Science at the pub" event, 30th November 2017, Cologne (DE)**

Link <https://www.youtube.com/watch?v=vfyOyD4ONdA>

**Creator of the workshop: "Climate change: the story behind numbers"** The workshop "Climate change: the story behind numbers" was organized for the People climate summit, on the occasion of the COP23 in Bonn, in November 2017. The workshop had the goal of clarifying why :

- 1) we can trust Earth temperature observations
- 2) we can trust climate model predictions
- 3) Co2 is the major greenhouse gas.

The workshop was created by the "Climcommcoln", a group of research scientists from the University of Cologne of which I was part.

## **MANAGEMENT AND LEADERSHIP SKILLS**

**Convener of the session "Profiling the atmospheric boundary layer (ABL): from harmonised measurement networks to multidisciplinary applications"** European Geosciences Union (EGU) General Assembly, Wien 2022

Link <https://meetingorganizer.copernicus.org/EGU22/session/43886>

**Co-convener of the session "Advancing understanding of the coupling between clouds, convection and circulation"** European Geosciences Union (EGU) General Assembly, Wien 2022

**Co-convener of the session "Advancing understanding of the coupling between clouds, convection and circulation"** European Geosciences Union (EGU) General Assembly, Wien 2021

Link <https://meetingorganizer.copernicus.org/EGU22/session/43880>

**Co-convener of the session "Advancing understanding of the coupling between clouds, convection and circulation"** European Geosciences Union (EGU) General Assembly, Wien 2020.

Link <https://meetingorganizer.copernicus.org/EGU2020/session/36892>

**Coordinator of cloud section of a HD(CP)2 project publication** Paper submitted to the Journal of the Meteorological Society of Japan and awarded as outstanding paper from the Journal of the Meteorological Society of Japan.

Link <https://hdcp2.zmaw.de/index.php?id=3744>

**Group leader in production of short movie Climate Change**

Link <https://www.youtube.com/watch?v=R9FPL4Hdlrk>

**Member of the directive committee of the association "Forum Accademico Italiano" (FAI)** Coordinator of the group "young academy"  
Web master of the website

Link <http://fai.science/>

**Experiment leader in various events involving school kids**

- 'Taste Natural Sciences' for school girls, September 26, 2014, University of Cologne, Germany
- 'Schnupperuni 2015' for school girls, October 03, 2015, University of Cologne, Germany

**Active participation in enhancement of Wikipedia article on Millimeter cloud radars**

Link [https://en.wikipedia.org/wiki/Millimeter\\_cloud\\_radar](https://en.wikipedia.org/wiki/Millimeter_cloud_radar)

## TEACHING/SUPERVISING

31/01/2020 – 31/01/2021

### Master thesis supervisor

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Mesoscale Air-Sea interaction during the EUREC4A campaign: case studies analysis., Labbri, Giacomo (2021) University of Bologna, Italy

10/06/2019 – 11/06/2019

### Training on PAMTRA

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1 day training workshop on the Passive and Active Microwave radiative TRANSfer model (PAMTRA), University of Leipzig, Germany

30/09/2018 – 31/01/2019

### Teaching assistant

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Cloud physics course, master degree in Meteorology, course held by Prof. Susanne Crewell, University of Cologne, Germany

30/11/2017 – 31/05/2018

### Teaching assistant

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Cloud physics course, master degree in Meteorology, course held by Prof. Susanne Crewell, University of Cologne, Germany

## PUBLICATIONS

### [EUREC4A's Maria S. Merian ship-based cloud and micro rain radar observations of clouds and precipitation](#) –

2021  
This publication describes the unprecedented high-resolution cloud and precipitation dataset collected by two radars deployed on the *Maria S. Merian* research vessel. The ship operated in the west Atlantic Ocean during the measurement campaign called EUREC<sup>4</sup>A, between 19 January and 19 February 2020. The data collected are crucial to investigate clouds and precipitation and understand how they form and change over the ocean, where it is so difficult to measure them.

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Link <https://www.youtube.com/watch?v=EdWNS77qMNA>

### [A new criterion to improve operational drizzle detection with ground-based remote sensing](#) – 2019

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### [Optimizing observations of drizzle onset with millimeter-wavelength radars](#) – 2017

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### [Investigation of drizzle onset in liquid clouds using ground based active and passive remote sensing instruments](#)

– 2017

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### [Ship- and island-based atmospheric soundings from the 2020 EUREC4A field campaign](#) – 2021

The EUREC<sup>4</sup>A field campaign took place in the western tropical Atlantic during January and February 2020. A total of 811 radiosondes, launched regularly (usually 4-hourly) from Barbados, and 4 ships measured wind, temperature, and relative humidity. They sampled atmospheric variability associated with different ocean surface conditions, synoptic variability, and mesoscale convective organization. The methods of data collection and post-processing for the radiosonde data are described here. Add a description here...

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### [EUREC4A](#) – 2021

The EUREC<sup>4</sup>A field campaign, designed to test hypothesized mechanisms by which clouds respond to warming and benchmark next-generation Earth-system models, is presented. EUREC<sup>4</sup>A comprised roughly 5 weeks of measurements in the downstream winter trades of the North Atlantic – eastward and southeastward of Barbados. It was the first campaign that attempted to characterize the full range of processes and scales influencing trade wind clouds. Add a description here...

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### [Detection and attribution of aerosol cloud interactions in large-domain large-eddy simulations with the ICOSahedral Non-hydrostatic mode](#)

– 2020

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### [The Added Value of Large-eddy and Storm-resolving Models for Simulating Clouds and Precipitation](#) – 2020

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### ["JOYCE: Jülich Observatory for Cloud Evolution"](#) – 2015

The Jülich Observatory for Cloud Evolution (JOYCE), located at Forschungszentrum Jülich in the most western part of Germany, is a recently established platform for cloud research. The main objective of JOYCE is to provide observations, which improve our understanding of the cloudy boundary layer in a midlatitude environment. Continuous and temporally highly resolved measurements that are specifically suited to characterize the diurnal cycle of water vapor,

stability, and turbulence in the lower troposphere are performed with a special focus on atmosphere–surface interaction. In addition, instruments are set up to measure the micro- and macrophysical properties of clouds in detail and how they interact with different boundary layer processes and the large-scale synoptic situation. For this, JOYCE is equipped with an array of state-of-the-art active and passive remote sensing and in situ instruments, which are briefly described in this scientific overview. As an example, a 24-h time series of the evolution of a typical cumulus cloud-topped boundary layer is analyzed with respect to stability, turbulence, and cloud properties. Additionally, we present longer-term statistics, which can be used to elucidate the diurnal cycle of water vapor, drizzle formation through autoconversion, and warm versus cold rain precipitation formation. Both case studies and long-term observations are important for improving the representation of clouds in climate and numerical weather prediction models.

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#### **[Isotopic measurements in water vapor, precipitation, and seawater during EUREC4A](#) – 2022**

One of the novel ways EUREC<sup>4A</sup> set out to investigate trade wind clouds and their coupling to the large-scale circulation was through an extensive network of isotopic measurements in water vapor, precipitation, and seawater. Samples were taken from the island of Barbados, from aboard two aircraft, and from aboard four ships. This paper describes the full collection of EUREC<sup>4A</sup> isotopic in situ data and guides readers to complementary remotely sensed water vapor isotope ratios. Add a description here...

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Bailey et al, 2022: <https://doi.org/10.5194/essd-2022-3>, in review, 2022.

**Link** <https://essd.copernicus.org/preprints/essd-2022-3/essd-2022-3.pdf>

#### **CONFERENCES AND SEMINARS**

09/06/2017 – 10/06/2017 – Leipzig (Germany)

**Boundary layer cloud life-cycle in ICON-LEM and ground-based observations** Invited talk - June 2017, Colloquium - University of Leipzig, Leipzig (Germany)

Toulouse, France

**A new criterion to detect drizzle detection from ground- based: a potential new tool for model evaluation** Talk - May 2019, International Symposium on Tropospheric Profiling (ISTP- 2019)

**Link** <http://www.meteo.fr/cic/meetings/2019/ISTP/>

Boulder, United States

**Evaluation of boundary layer types using a new boundary layer classification developed at JOYCE.** Invited talk - May 2017, National Oceanographic Atmospheric Agency (NOAA), Boulder (US)

**Link** <https://www.boulder.noaa.gov/>

Fort Collins (United States)

**Developing an advanced categorization scheme for drizzle detection using ground-based observations** Talk - May 2017, International Symposium on Tropospheric Profiling (ISTP- 2017)

**Link** <http://istp10.colostate.edu/>

Manchester (UK)

**Developing an advanced categorization scheme for drizzle detection using ground-based observations.** Talk - July 2016, International Conference on Clouds and Precipitation (ICCP), Manchester (UK)