



Marie Genevieve Paule Cavitte

Date of birth: 26/04/1989 | **Nationality:** French, Belgian | **Phone number:** (+32) 0470192415 (Mobile) |

Email address: mariecavitte@gmail.com | **Website:** <https://uclouvain.be/en/directories/marie.cavitte> |

Twitter: <https://twitter.com/MarieCavitte> | **Address:** 23 Avenue de la Paix, 1340, Ottignies, Belgium (Home)

ABOUT ME

With an earth sciences background, a strong expertise in glaciology and climate sciences, and work experience at the interface of science and policy, I have gained a broad understanding of the climate challenges that are ahead of us. Studying and working in world-leading research centers, I am eager to apply my knowledge to societal issues.

WORK EXPERIENCE

01/03/2024 – 31/07/2024 Brussels, Belgium

BLUEBOOK TRAINEE EUROPEAN COMMISSION

I was a Bluebook Trainee in the DG CLIMA, Unit A.2 – Foresight, Economic Analysis & Modelling.

- Contribution to the Monitoring, Reporting and Verification (MRV) of greenhouse gas emissions at the EU (WG1) and UNFCCC levels
- Understanding of the UNFCCC conventions (from Kyoto to the Paris Agreement) and preparation of the new Biennial Transparency Reports at the EU-level
- Research into how Earth Observation can provide additional constraints (verification, validation in Annex-I countries and capacity building in Third Party Countries) on greenhouse gas inventories.
- Collaboration with DG DEFIS colleagues (Mitch Rixen, Hugo Zunker), EEA Colleagues (in particular, Gorka Mendiguren), JRC colleagues (in particular Francesca Somma) and entrusted entities involved in the research and operational services (Copernicus CAMS, C3S, EUMETSAT and ESA); organisation of external meetings with head entities at Copernicus for policy feedback to CO2mvs development
- Organisation of DG-CLIMA-wide round-table on the limits of Earth Observation for greenhouse gas inventories
- Drafting of Destination 1 Cluster 5 (climate science) topics under the Horizon Europe work programme, all the way to concomitance with MS rapporteurs. For this work, I worked with colleagues at DG RTD (in particular, Larisa Lorinczi and Zoltan Rakonczay).
- Writing briefings for hierarchy and the Secretariat-General on greenhouse gas reporting from satellite data; writing speeches for IPCC work meetings and external events
- Presentation of EO-related research to unit and writing up of a long summary document of the state-of-play of EO, key players and follow-up actions
- Attendance at Copernicus workshops (C3S and CAMS), Horizon Europe project policy workshops, CO2 task force workshop, JRC Deep Dives
- Feedback on Scientific Advisory Mechanism request on Solar Radiation Management (draft policy landscape and SAM presentation of preliminary conclusions to EC)

01/10/2021 – CURRENT Louvain-La-Neuve, Belgium

F.R.S.-FNRS POSTDOCTORAL RESEARCHER UNIVERSITÉ CATHOLIQUE DE LOUVAIN-LA-NEUVE

My research focuses on better understanding the spatial representativity of ice cores: how can we trust that an ice core, with a surface footprint of a few cm², is representative of the regional climate? Ice cores are the only observations of the pre-satellite era that can validate model paleo simulations. Improving the reliability of our observations, such as ice cores, is key in improving future model projections as well.

Main research tasks:

- Quantitative analysis of radar and ice core data to study the evolution of snowfall; uncertainty analysis
- Data assimilation of data sets with high resolution model simulations to produce regional reconstructions of snowfall over past decades
- Writing/publication of peer-reviewed first/co-author papers; presentation at scientific conferences
- Ice core lab work at the British Antarctic Survey (UK) through a collaboration (visiting scholar)
- Collaboration w/ Brooke Medley at the Goddard Space Flight Center (USA) to develop radar analysis code; w/ Norwegian Polar Institute and National Centre for Polar and Ocean Research (India) for ice-penetrating radar data analysis
- Teaching climate science practical course; supervision of 3rd year BA student project
- Continued paper contributions to [Beyond EPICA Oldest Ice](#) EU project
- Led Antarctic fieldwork in 2021/22 to collect ice cores and radar data; pre-/post-fieldwork press articles, radio and TV interviews (BX1, RTBF)
- Development of 2 conference workshops for ECRs: "Multidisciplinary science" & "Connecting with policy-makers: how to be heard and trigger actions as an ECR?"

In addition to my research:

- Chief-editor of the [European Geophysical Union Cryoblog](#) until 2023, contributions to the overall organisation of EGU cryo-events

- Chair of the [Association of Polar Early Career Scientists Belgium](#): I lead communication and outreach events for the general public, schools, I led the organisation of our first Belgium-wide polar science networking event (including policy makers, funding agencies)
- Regular written/oral/TV interviews to communicate around polar news and climate change
- Presentations of state of IPCC knowledge for [National Sustainability Debate](#) (Jubel.be), [Louvain Finance Day](#) (Louvain School of Management), [Colloque - Nature et droit](#) (Barreau de Liege)
- Set-up a collaboration with St Louis Private Law center (CePri) around climate litigation

Science for Policy:

- Participation in Science-for-Policy sessions at the European Geophysical Union (EGU) GA and monthly Policy Hangout sessions with EGU and external policy officers. I am the current Cryosphere Division Policy Officer
- Review of IPCC AR6 report drafts
- Attendance to EGU's "[Supporting EU's biodiversity targets by bridging the science-policy divide](#)" event in collaboration with the European Parliament Intergroup on Climate Change, Biodiversity and Sustainable Development (Nov 2022); followed the EGU Biodiversity Task Force's Nature Restoration Law policy briefs in response to calls for evidence from EC

01/06/2019 – 01/09/2021 Louvain-La-Neuve, Belgium

POSTDOCTORAL FELLOW UNIVERSITE CATHOLIQUE DE LOUVAIN-LA-NEUVE

I was working as part of the [Mass2Ant](#) international project which aimed to understand the processes that control snow accumulation along the East Antarctic coastline. My specific focus was linking large and small scales processes that control the link between surface temperature and snowfall, using climate models and observations (ice cores).

Research tasks:

- Quantitative analysis of general and regional climate models.
- Management of an open-source ice core database
- Writing and publication of first/co-author publications
- Participation in yearly workshops with project partners (ULB, RMI, University of Colorado at Boulder, Delft University of Technology); presentation at international conferences
- Contributions to Beyond EPICA Oldest Ice Horizon2020 European project: online workshop, data inputs to collaborators

Science communication:

- Chief editor of the [European Geophysical Union Cryoblog](#); management of editorial review and publication of weekly articles around the cryosphere.
- Committee member of the [Association of Polar Early Career Scientists Belgium](#); organisation of school visits, museum workshops, lay-person blog writing

01/09/2018 – 01/06/2019 Brussels, Belgium

GIS CONSULTANT (INTERNATIONAL GRADE B) CAPGEMINI BELGIUM

GIS consultancy for CapGemini Belgium. Main client project was for a water utilities company in Flanders:

- management and analysis of data to relate ESRI ArcGIS Pro to a geo-enabled database using FME data flows
- activation (and debugging) of a new SAP Geo-Enabled Framework for GIS use in a business context
- Built a technical data flow to update the business' address book and geolocation services
- Carried out functional analysis of a new process for pipeline leak registration between databases

Additional internal projects:

- Preparation of proof-of-concept for a ESRI ArcGIS Pro database for a retail company, for roadwork management for a roadworks company
- Co-built an open-source GIS service with data on an open-access PostGIS database, with visualization in QGIS, secure online service access on GeoServer and metadata stored online
- Instructor for the Capgemini QGIS course: "Introduction to GIS and QGIS"
- Certified in: Professional Scrum Master Level 1, SAP HANA Graph openSAP, FME & Esri UN Migration, Agile methods, Testing Techniques (ISTQB), business process modelling and notation (BPMN).

06/2016 – 08/2016 Grenoble, France

VISITING RESEARCHER AT INSTITUT DES GÉOSCIENCES DE L'ENVIRONNEMENT (IGE, FRANCE) UNIVERSITY OF TEXAS AT AUSTIN

3-month visiting scholar to adapt in-house 1D model to uptake radar observations

- Co-developed the "IsoInv" 1D inverse dating model developed with Frederic Parrenin to integrate my radar observations
- Gained expertise in Python coding;
- Published the results in twin-publications, additional co-authorship
- Organized a scientific workshop for the Beyond-EPICA Oldest Ice project at IGE
- Prepared a GIS database for the project, used to decide where to drill for the million-year-old ice
- Presentation of my research at the internal seminars

04/2007 – 04/2007 France

OCEANOGRAPHY EDUCATIONAL PLACEMENT AT IFREMER FRANCE IFREMER FRANCE

- Gaining an understanding about marine biology clean lab research
- Development of knowledge on oyster development and coastal oyster farm management

EDUCATION AND TRAINING

09/11/2022 – 23/11/2022

EGU PUBLIC ENGAGEMENT WORKSHOP SERIES European Geophysical Union

The training involved learning about creating impactful outreach literature or events. I was trained in thinking about the target audience, distilling the main message into a few clear points, evaluating/assessing the impact of the event a-posteriori.

01/09/2011 – 01/06/2017 United States

DOCTOR OF PHILOSOPHY IN GEOLOGICAL SCIENCES University of Texas at Austin, Institute for Geophysics (USA)

Focus on using airborne ice-penetrating radar data 1D models to understand the stability of ice flow catchments in Antarctica. Part of the Beyond EPICA Oldest Ice European project; publication of 2 first author and 8 co-author peer-reviewed papers; institute's weekly seminar convener; group database management; training of interns; co-founded the ICYS ECS network; teaching assistant; presentation at conferences.

Courses: Glaciology; Numerical methods for geophysics; Numerical geophysics; Geophysical glaciology; Data processing; Inverse methods; Computational methods for geophysics, Scientific computing; Finite element modelling; Inverse theory.

Outreach: author and editor for the EGU Cryoblog; expert teacher for NSF's EarthLabs (professional development for science teachers); supervisor for USA Science Olympiads.

Thesis Flow Re-Organization of the East Antarctic Ice Sheet Across Glacial Cycles

01/10/2010 – 01/10/2011 Cambridge, United Kingdom

MASTER OF SCIENCE University of Cambridge

- Specialization in geophysics and climate sciences
- Masters' thesis at the Institute for Geophysics at the University of Texas at Austin
- Attended the American Geophysical Union General Assembly.
- Committee member of the Cambridge Sedgwick Geology Club; science days animations

Field of study Earth Sciences |

Thesis Using Radio-Echo Sounding as a tool for correlating ice core ages between Dome C and Vostok, East Antarctica

01/10/2007 – 01/06/2010 Cambridge, United Kingdom

BACHELOR OF ARTS IN EARTH SCIENCES University of Cambridge

Natural Sciences cursus with specialization in Geophysics and Climate Sciences; geological mapping project in the Atacama Desert in collaboration with Prof. Guillermo Chong, at the Catholic University of the North at Antofagasta, Chile and the El Tesoro mine geologists and engineers

Field of study Earth Sciences

LANGUAGE SKILLS

Mother tongue(s): **FRENCH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
SPANISH	C1	C1	B2	C1	B2
DUTCH	A2	A2	A2	A2	A2
ENGLISH	C2	C2	C2	C2	C2

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

DIGITAL SKILLS

Microsoft Office | Microsoft Word | Microsoft Excel | Zoom | Power Point | Google Docs | Skype | Microsoft Powerpoint | Outlook | Instagram | Facebook | Google Drive | Creativity | Social Media | Good listener and communicator | LinkedIn | Organizational and planning skills | ETL basic (FME Desktop) | Team-work oriented | SAP Software | ESRI ArcGIS Desktop | ESRI Shapefile | Esri ArcGIS, QGIS | MATLAB Coding | Python | paraview | Inkscape illustrator | Teams | Slack | Latex | Linux | MAC-OSX | Windows | Gmail | Twitter | WhatsApp | Internet user | Bash coding language | Overleaf & LaTeX

PUBLICATIONS

2023

[Investigating the spatial representativeness of East Antarctic ice cores: a comparison of ice core and radar-derived surface mass balance over coastal ice rises and Dome Fuji](#)

Cavitte, et al., The Cryosphere

2022

[From ice core to ground-penetrating radar: representativeness of SMB at three ice rises along the Princess Ragnhild Coast, East Antarctica](#)

Cavitte et al., Journal of Glaciology

2021

[A detailed radiostratigraphic data set for the central East Antarctic Plateau spanning from the Holocene to the mid-Pleistocene](#)

Cavitte et al., Earth System Science Data

2020

[Reconciling the surface temperature–surface mass balance relationship in models and ice cores in Antarctica over the last 2 centuries](#)

Cavitte et al., The Cryosphere

2018

[Accumulation patterns around Dome C, East Antarctica, in the last 73 kyr](#)

Cavitte et al., The Cryosphere

2016

[Deep radiostratigraphy of the East Antarctic plateau: connecting the Dome C and Vostok ice core sites](#)

Cavitte et al., Journal of Glaciology

Articles in layman's terms

- [Ice-Hot News – You have a “cool” new Policy Point of Contact in the Cryosphere Division!](#) - EGU Cryoblog
- [Hidden beneath the surface – what can we learn from an ice sheet’s internal stratigraphy?](#) - EGU Cryoblog
- [@LET’sGO to Antarctica!](#) - EGU Cryoblog
- [Image of the week – Skiing, a myth for our grandchildren?](#) - EGU Cryoblog
- [Ice-Hot News : The “Oldest Ice” quest has begun](#) - EGU Cryoblog
- [Less snow means more problems for winter sports](#) - 360.org
- [La montagne change, et le ski est "une activité qui est vouée à disparaître"](#) - RTBF.be
- [How climate change threatens to close ski resorts](#) - BBC Future

● CONFERENCES AND SEMINARS

04/10/2024 Liege

Colloque - Nature et droit

I was invited to give an introductory presentation on the latest climate change science for the biannual conference organised by the **Barreau de Liege on Nature and Law** for an audience of lawyers and other stakeholders.

10/2023 CePri (Centre de droit privé), St Louis, Brussels

Le droit privé et notre climat: l'état de nos connaissances scientifiques

I gave a presentation on the state of play in terms of climate science knowledge, to kick off a series of seminars around using **private law for climate litigation**.

2023 Louvain School of Management

Climate stakes “Learn from our past to create our future”

I was invited to give a presentation for the **Louvain Finance Day** dedicated to the role of finance in view of the forthcoming climate and energy challenges. I was also part of the round-table discussion that followed. Guest speakers included Jean Boissinot (Banque de France), Frederic Degembe (ING Belgium), Hervé Jeanmart (École polytechnique UCLouvain), Philippe Wallez (ING Belgium).

Link <https://uclouvain.be/en/faculties/lsm/events/finance-day-2023.html>

2023 Jubel.be

"Apprendre du passé pour créer notre futur"

I was invited to give a presentation for the **National Debate on Sustainability** organised by Jubel.be to bring together academics, lawyers, corporate lawyers, entrepreneurs, stakeholders and financial institutions to discuss the approach to climatic and ecological disruptions. Presentations were followed by a panel discussion. Guest speakers included: Prof Christian Gollier (UToulouse), Prof Johan Albrecht (UGent), Prof Isabelle Ferreras (UCLouvain/Harvard Law School).

Link <https://www.jubel.be/duurzaamheidsdebat/>

Brussels Institute for Advanced Studies (BRIAS) at the ULB
"Do we care how much snow falls on Antarctica?"

I presented the state of knowledge in snow accumulation variability over the Antarctic Ice Sheet for an academic audience for the workshop **"Carbon and Climate Change"**.

Science conference presentations

First-author oral presentations:

2024: invited seminar British Antarctic Survey (UK), *What to watch out for when assimilating ice-cores as regional SMB proxies?*

2023: INSTANT (Italy), *A data assimilation framework to reconstruct high-resolution changes of surface mass balance over the Dronning Maud Land Coast over the past centuries*

EGU (Austria), *What to watch out for when assimilating ice-cores as regional SMB proxies?*

PAGES workshop, *Antarctic-wide quantification of ice core SMB spatial representativeness.*

2022: IPICS 3rd Open Science Conference (Switzerland), *Antarctic-wide quantification of ice core SMB spatial representativeness.*

RINGS SCAR Action Group, Norway, *Characterizing the spatial footprint of ice cores using radar-derived surface mass balance.*

EGU, *Quantifying the spatial representativeness of ice core surface mass balance records using ground-penetrating radar data in Antarctica.*

PAGES Open Science Meeting, *Ground-penetrating radar data as a method to quantify the spatial representativeness of ice core surface mass balance records in Antarctica.*

AntArchitecture SCAR Action Group workshop, *Do not forget the small datasets*

Polar Radar Science, *The difficulty of having only access to open source software*

TECLIM seminar, UCLouvain, Belgium, *Back from Antarctica: what it's like to do fieldwork there.*

2021: EGU, *Using ground-penetrating radar to determine the representativeness of ice core surface mass balance records at ice rises along the Princess Ragnhild Coast, East Antarctica.*

Scoping meeting on ongoing oldest ice site selection, *Take-aways of isochrone tracing in successive radar campaigns .*

2020: SCAR Open Science Conference, *Comparing the strength of the link between surface mass balance and temperature in ice cores and models in Antarctica over the last centuries.*

EGU, *Examining the strength of the link between surface temperature and surface mass balance in ice cores and models over the last centuries in Antarctica.*

2019: TECLIM seminar, Belgium, *The Oldest Ice hunt and ice-penetrating radar in East Antarctica.*

IGS Radioglaciology Symposium, USA, *Internal ice-penetrating radar stratigraphy at the Little Dome C Oldest Ice site.*

2018: EGU, *Internal ice-penetrating radar stratigraphy at the Little Dome C Oldest Ice site.*

2017: Beyond EPICA-Oldest Ice (BEOI) Workshop, Germany, *DELORES & UTIG radar isochrones.*

EGU, *Stability of the accumulation pattern around Dome C over the last glacial cycle.*

UTIG Brown Bag seminar, Texas, USA, *Stable accumulation pattern around Dome C over the Last Glacial Cycle: A Story of tracking isochrones from UTIG radars.*

2016: BEOI Workshop, IGE, France, *Tracking the isochrones from UTIG radar. Results and uncertainty assessment.*

Invited seminar, IGE, France, *Airborne radar data: lessons learnt from observing and tracing isochrones in the Dome C region, East Antarctica.*

● NETWORKS AND MEMBERSHIPS

CURRENT

European Geosciences Union (EGU); International Glaciological Society (IGS); International Glaciological Society (IGS); International Glaciological Society (IGS); Belgian National Committee on Antarctic Research (BNCAR)

● VOLUNTEERING

2018 – 2019 Brussels

WeGoSTEM

I volunteered two years for the WeGoSTEM initiative in Brussels to bring STEM education in classrooms by introducing kids to robotics and basic coding (Arduino). It is a programme to enhance also the number of girls who go into STEM studies.

Links <https://www.dwengo.org/wegostem/> | <https://www.facebook.com/wegostem/>

2014 – 2017 Texas

Invitational & Regional Science Olympiad supervisor

I was a Science Olympiad supervisor for the Dynamic Planet events for the invitational & regional Science Olympiads in Texas for three years. I prepared exam questions for students in primary and secondary school sessions in STEM. I also helped in the running of the invitational events in Austin. And I coached the secondary students from one of the local Austin schools.

Expert teacher for NSF EarthLabs

I was an expert lecturer and guest teacher for secondary STEM school teachers in Texas to enable them to teach climate science to their students (which is not in their official school programme). I participated in 3 sets of one-week-long training sessions. The training consisted in helping the teachers (1) become more literate in climate science and (2) carry out lab demonstrations in their classrooms.

This was an NSF initiative to develop online Climate Change EarthLabs modules as a collaborative effort between science educators at TERC, Mississippi State University, and the University of Texas at Austin.

We also presented the results of these sessions at the 2013 AGU general assembly, "[EarthLabs Meet Sister Corita Kent](#)", discussing how using art can be a powerful method to discuss climate change.