LMDZ Training January 2026

Who are you ?

You might want to think about forming groups with people with shared interests for tutorial 2

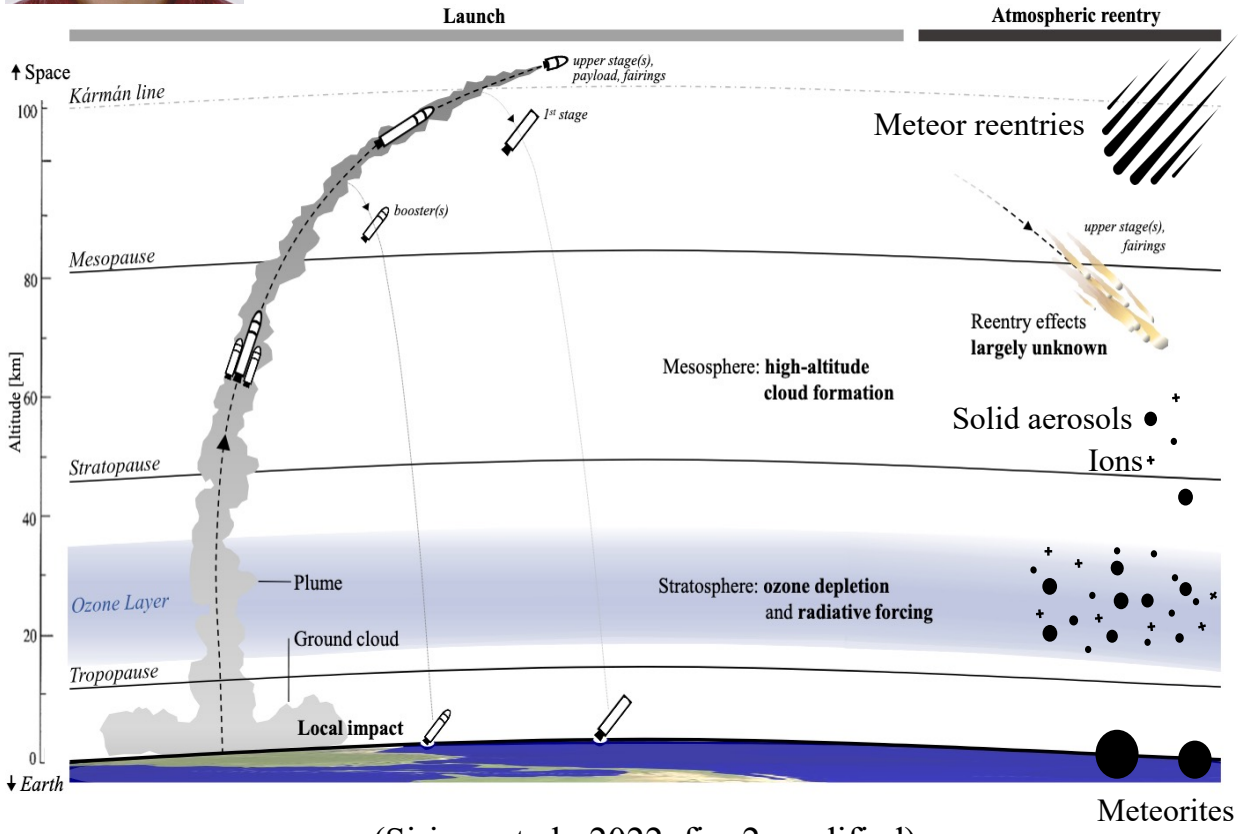
Quentin TAUPIN

2nd year PhD Student at IRAP / LATMOS / CNES

PhD supervisors : Jérémie LASUE (IRAP), Anni MÄÄTTÄNEN (LATMOS), Alain ROSAK (CNES)

My research

I study the fluxes and size distribution of anthropogenic solid aerosols injected in Earth's atmosphere due to space activities: from launch and re-entry phases. These aerosols may impact radiative forcing, ozone depletion and have other unknown effects.



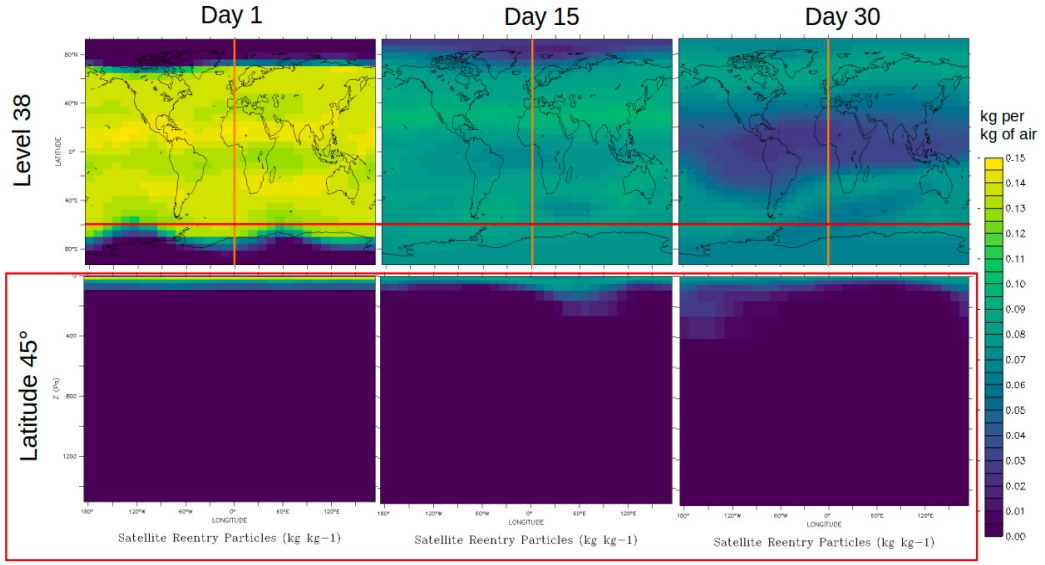
(Sirieys et al., 2022, fig. 2 modified)

Application of LMDZ

Objective: estimating the lifetime of solid aerosols in our atmosphere after ablation.

Input: size distribution and microphysics (implemented in StratAer) derived from previous studies of NASA Cosmic Dust Catalogs in my 1st year. Injected quantities derived from ablation studies of satellites (DEBRISK, CNES) and their re-entry rate (DISCOSweb, ESA).

Output: 2D maps simulating the concentration and transport of these solid aerosols (e.g.: black-carbon, alumina) in the stratosphere / mesosphere for days, months, years using tracers.



E. Marceau : « Mass mid-term transport for an instantaneous injection of the annual ablated mass (30 days) »

Spatial statistical downscaling of meteorological fields to kilometer scale using score diffusion models

Pierre Chapel, 1st year PhD student at LMD, supervised by Freddy Bouchet and Olivier Boucher

→ develop an ML-algorithm to downscale LMDZ trajectories to ERA5 resolution using nudged LMDZ runs as training dataset.

SORBONNE UNIVERSITÉ

IPSL

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LMD

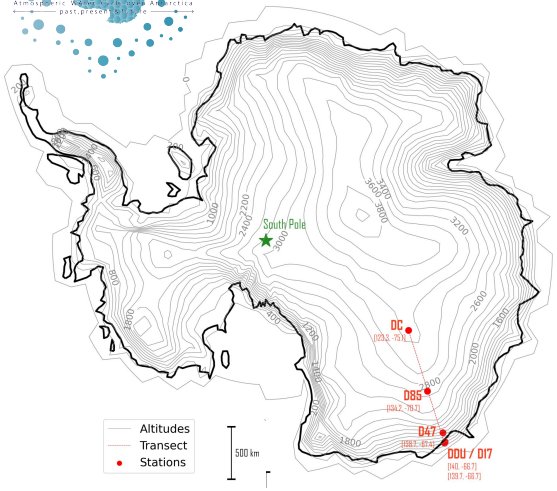
Justine Charrel

PhD student at LMD Jussieu since April 2025

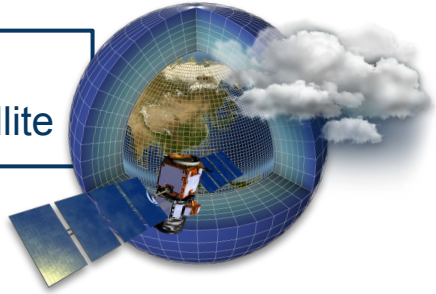
PhD supervisors : Jean-Baptiste Madeleine, Christophe Genthon, Thomas Dubos

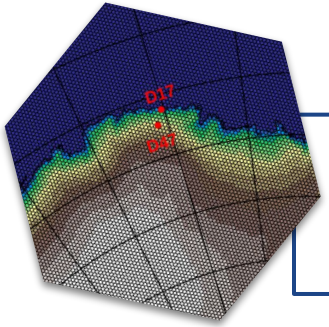
✉ justine.charrel@lmd.ipsl.fr ➪ https://web.lmd.jussieu.fr/~jcharrel/

Antarctic atmospheric water: observation, processes and modeling in the AWACA project



✅ **Evaluate clouds over Antarctica**
LMDZ global nudged vs. CALIPSO satellite





□ **Study cloud processes along the Dumont d'Urville - Concordia transect**
ICOLMDZ in LAM config. vs. AWACA obs.

Funded by the European Union

Paulina Czarnecki

- PhD: Columbia University, with Robert Pincus and Lorenzo Polvani
- Now: Postdoc with the Climaviation Lab
- Using LMDZ to:
  - Study interactions between radiation and cirrus clouds (single column LMDZ)
  - Evaluate and develop the contrail parameterization (global LMDZ)

Lennart Resch

- MSc in Physics
- From Germany, arrived in Paris two weeks ago :)
- 6 month internship at LATMOS on Solar Radiation Modification (SRM) / Stratospheric Aerosol Injection (SAI) climate modeling
- Usage of LMDZ together with SAI controller module

Sakina Takache, PhD, WaltR.

Background

- Lebanese-Canadian, researcher, mother of two girls, Fatima & Yafa
- BS in Physics, BA in International Business Management
- MS in Computational Physics
- PhD from LMD-X

Career

- Research in forward and inverse modeling using CHIMERE, DYNAMICO, LMDZ
- Developed inverse simulation scripts for LMDZ on a DYNAMICO-like mesh at LSCE
- Air quality modeling using CHIMERE (and possibly LMDZ?) at WaltR (French-tech startup) for cities and airports. NOx inversions are central to our work.

Why I’m Here

- Looking forward to seeing the potential of LMDZ in our work
- Getting to know its functionalities and better grasp its build-up

Fiche présentation LMDZ

Présentation

Nom : Nicolas Nanou
Statut : Doctorant (1e année)
Laboratoire : LMD
Encadrant : Frédéric Hourdin
Sujet de thèse : Modélisation des couplages entre la variabilité du contenu en eau de l'atmosphère et le cycle de vie de la convection

Qu'est-ce que je veux faire avec LMDZ

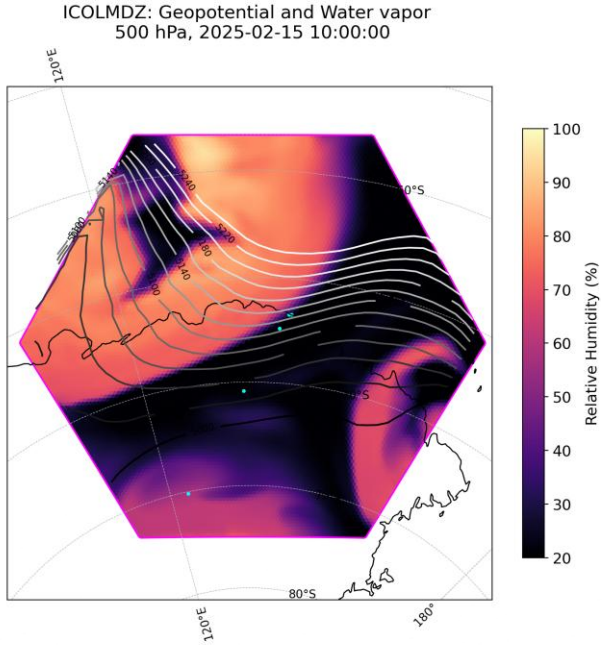
Développement et évaluations de paramétrisations dans le cadre 1D/LES (en particulier : convections peu profonde et profonde)

Clouds and precipitation in Antarctica: ICOLMDZ model evaluation from the AWACA campaign

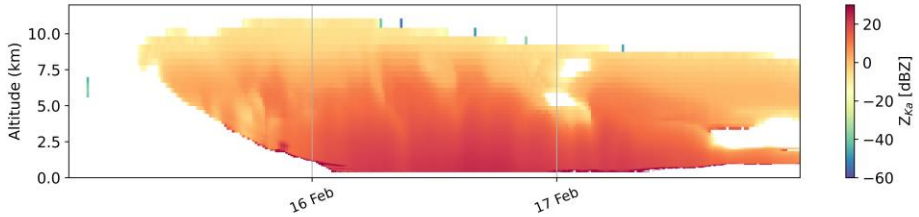
Pierre Grzegorczyk

Post-doc at EPFL, Lausanne, Switzerland

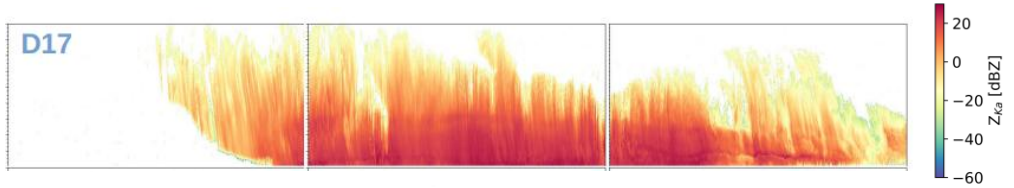
1) ICOLMDZ simulation in Antarctica



2) Radar instrument simulator



3) Model evaluation from field measurements



AWACA
Atmospheric WAter Cycle over Antarctica
past, present & future

EPFL

Cédric Langue, PhD in Climate science

Expertise in Extremes, Weather Forecasting, and Model Evaluation

Previously I worked as postdoc at LSCE and LATMOS

Outcomes of training : Understanding of the physical components and simulation workflow of the LMDZ climate model, running climate simulations

Looking for new opportunities in climate extremes analysis and modelling

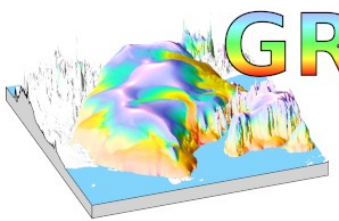
email: cedricgarcial49@gmail.com

Christophe Durand

Research engineer

LSCE – CLIM

Coupling ice cap – atmosphere – ocean
GRISLI – LMDZ – NEMO



présentation - formation LMDZ

Hannah BURGAUD

Janvier 2026

FICHE TECHNIQUE

- identité : Hannah Burgaud
- âge : 25 ans
- statut : doctorante en 1ère année
- parcours scolaire : prépa PCSI à Nantes
  puis L3 et Master de physique à l'ENS de Paris
- domaine d'étude : tempêtes extratropicales
  hivernales et formation des vents forts de surface
- autres mots-clefs associés : processus diabatiques,
  processus de couche limite, turbulence, paramétrisations,
  ICOLMDZ, campagne NAWDIC, LAM
- laboratoire : Laboratoire de Météorologie Dynamique
- directeurs de thèse : Gwendal Rivière, Sébastien Fromang,
  Etienne Vignon

RELATION À LMDZ

- dépendance totale
- absconse : le voile de l'obscurantisme pèse sur mes paupières
- relation à sens unique : j'utilise LMDZ (couplé avec
  DYNAMICO) pour étudier des processus fine-échelle associés
  à la formation et à la présence de vents forts proches de la surface
  lors d'évènements cycloniques extrêmes (aux moyennes latitudes)
- partielle : je fais tourner ICOLMDZ en version à aire limitée
  (hexagone, R=1500 km)
- urgente : j'ai besoin d'être capable de lancer des
  simus courtes rapidement pour la campagne NAWDIC (en février)
- houleuse : résolution de (nombreux) bugs non maîtrisée
- intéressée : je souhaite apprendre quelles sont les principales
  params, leurs sensibilités, comment elles ont
  été établies et les hypothèses associées

Ma thèse et moi

LSCE
LABORATOIRE DES SCIENCES DU CLIMAT & DE L'ENVIRONNEMENT

Raphaël Bouguemari

Doctorant au LSCE
(depuis octobre 2025)

Directeur.rice de thèse :
Pascale Braconnot & Olivier Marti

Ma formation :

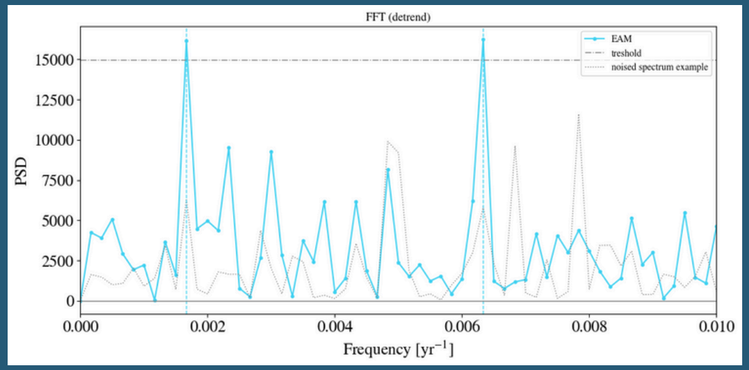
- M2 SOAC Univ. Paul Sabatier (Toulouse)
- M2 ECLAT Univ. Paris-Saclay
- ENS Paris-Saclay

Mon sujet de thèse

Aspects chaotiques et forcés de la variabilité séculaire du climat et leur rôle sur les téléconnexions engendrant des événements extrêmes ou rapides dans les régions de mousson afro-asiatique

1. Classification des événements « séculaires »

Sortie de modèles, Holocène
Similitudes et différences entre ces événements et ceux à des échelles interannuelles, lien avec les variations d'état moyen, de saisonnalité, mécanismes impliqués, rôle de l'océan



2. Réalisation de test de sensibilité (modèles IPSL ou conceptuels)

C'est là où j'aurai besoin de LMDz

Sacha Czernichow

- Master Student at Sorbonne University in Climate Physics
- 4 months internship at LMD on Dry Intrusion impact on Boundary Layer and Surface Wind
- Comparing LMDZ simulation with observation from NAWDIC campaign
- Applied for PhD fundings next year (on the same subject)

CHARLINE RAGON

Postdoc at the LSCE

LSCE
LABORATOIRE DES SCIENCES DU CLIMAT & DE L'ENVIRONNEMENT

Research interests

- Tipping points in the climate system
- Vegetation changes
- Past (Holocene) and future climates

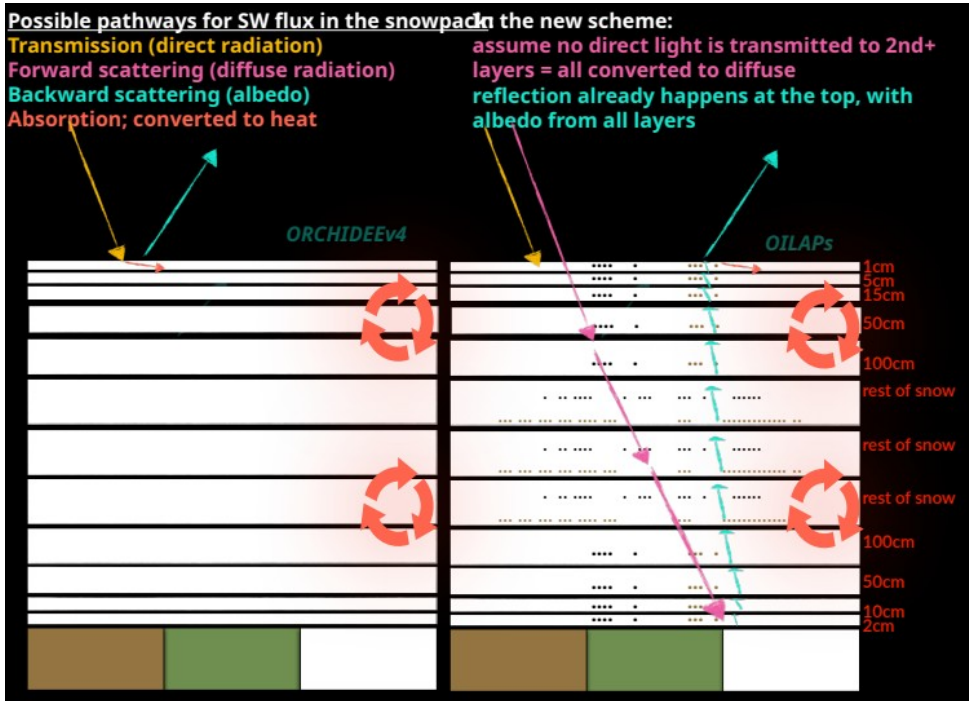
Planned usage of LMDZ

- Run global-scale simulations using the IPSL model in coupled configuration (including ocean, vegetation…)
- Potentially regional simulations

Experience with other models: MITgcm, PlaSim

Sujith Krishnakumar

- Postdoctoral Researcher at LSCE
- Mentor: Martin Menegoz, Christophe Dumas
- Research: Implementation of “Snow darkening effect” in ORCHIDEE over lower vegetation and glacier, by incorporating multi-mode, multi-species aerosols into the snowpack and uni-directional radiative transfer scheme to calculate snow albedo by an online optical properties of snow and offline optical properties of aerosols that is same as in LMDZ. Next step is to Online Coupling of my development with LMDZ-INCA.



Sylvie Charbit
Researcher at LSCE (CLIM team)

Scientific Interests

- Investigating processes governing the ice sheet evolution (past, present and future)
- Feedbacks with other Earth components, impacts on sea level potential tipping points
- Snow modelling over ice sheets (ORCHIDEE)

Why LMDZ ?

- Use of regional configurations (LAM) over Greenland and Antarctic ice sheets coupled to the ORCHIDEE model
- Coupling between IPSL-CM and the GRISLI ice sheet model (PEPR TRACCS, ISCLIM project)

- **Ardaneh Kazem**, *IR*, .
- **CHERKAOUI Moha**, *researcher*, As a professor at the Rabat School of Mines, responsible for the climate change course and supervisor of several doctoral students on climate change topics, LMDZ is very essential and important to integrate into my courses and research work. Can I use LMDZ in my courses at the École des Mines?Can I use it in my research?Can I present LMDZ to other organizations and associations interested in climate change? .
- **Custodio Danilo**, *researcher - LSCE*, I just start at LSCE and I need to use LMDZ for greenhouse gases inversion Can I bring a mac pc? .
- **Damm-Johnsen Thale**, *Postdoctoral researcher - at the LSCE (CNRS-funded)*, .
- **Das Chiranjit**, *Research Engineer*, I want to implement the knowledge I will learn from this training for my research project on transport model simulated tracers (CO2, SF6, Rn222) comparison. I would appreciate some practical examples along with hands-on training. .
- **El Harraki Imad**, *MAITRE DE CONFERENCE*, .

- **ERRACHDI Zineb**, *Engineer at Mohammed VI Polytechnic University (UM6P)*, I plan to use LMDZ both for running simulations and for developing model components, with a focus on regional climate simulations. .
- **Feba Francis**, *Postdoctoral Researcher*, .
- **Hardy Paul**, *PhD student, LMD, Sorbonne Université*, Sujet: Étude de limpacte de la dynamique atmosphérique petite échelle sur la propagation des infrasons en lien avec des événements explosifs, mesures infrason sous ballons stratosphériques. simulations de dynamique. .
- **LI Fangzhou**, *Researcher*, I want to use LMDZ-INCA for global inversion. .
- **Rhizlane Feddoul**, *Phd student*, Install and configure the model, and adapt it to a specific area. .
- **Simon Sibin**, *Post Doc at LSCE*, Isotope-enabled LMDZ (LMDZISO and ICOLMDZISO), focussing over Antarctica and other polar regions .
- **XUE Jie**, *Postdoc*, Couple with ORCHIDEE .

- **ZHANG Xianglin**, *PhD student*, Couple with ORCHIDEE .