Name:	**Freddy Bouchet**
Born on:	June the 17th 1972 in Saint Julien en Genevois (France)
Nationality and Civil status:	French. Married. Three children (1998,2000,2005)
Professional address:	Laboratoire de physique de l'Ecole Normale Supérieure de Lyon (ENS de Lyon), 46, allée d'Italie, 69364 Lyon cedex 07 - France
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Current position:	**Directeur de recherche DR2 (Prof.) at CNRS**

Professional experience and education

Year	Experience or diploma	Places
13->	**Directeur de recherche DR2 (Prof.) at CNRS - ENS de Lyon**	ENS de Lyon, France
10->	**Chargé de recherche CR1 (Ass. Prof.) at CNRS - ENS de Lyon**	
09-10	**Center for Non Linear Studies (Los Alamos, USA) - Sabbatical**	Los Alamos, USA
04-09	**Researcher position at CNRS - INLN**	INLN-Nice, France
03-04	**Agrégé préparateur (post doc)** at ENS-Lyon	ENS de Lyon France
03	**Post-Doc** directed by Angelo Vulpiani *Stochastic processes. "Stirring and mixing"*	University *La Sapienza* Roma, Italy
01-02	**Post-Doc** directed by Stefano Ruffo *Statistical mechanics of systems with long range interactions*	University of Florence, Italy
98-01	**PHD in physics,** supervised by **R. Robert** and **J. Sommeria** *Statistical mechanics for geophysical flows*	Institut Fourier, Grenoble Université Joseph Fourier
96-98	High school math teacher (during the **french national service**)	French school in Milan
94-95	**Agrégation in Mathematics.**	
92-96	**Student in the Ecole Normale Supérieure de Lyon (normalien)**	ENS de Lyon, France

Habilitation à diriger les recherches: obtained on June 2011 at ENS-Lyon. Committee: **B. Castaing, C. Chandre, H. Dijkstra, C. Gawędzki, D. Mukamel, S. Nazarenko, and C. Villani.**

Summary of research record: 72 original publications in peer-reviewed journals. 3 review articles. 1 edited book. 5 book chapters.
Invited talks in international conferences and schools: 97 (51 since 2016) (in the fields of statistical physics, climate, and applied mathematics). 7 seminars in USA labs in 2016 only (Toronto, Boston, Courant (2), Columbia, Brown U., Chicago U., AGU in San Francisco). 18 research lectures in schools (10 since 2016). 98 seminars with competitive selections or in labs abroad (USA, Japan, Europe, India, and so on).

Plenary speaker at the SIAM annual meeting in 2016 at Boston, USA (the world reference conference in applied mathematics). Invited talks at APS, ICTAM, and APS-DFD in 2021.

Link to a detailed CV with complete lists of publications, responsabilities, and involvements

Main scientific interests: Climate dynamics, climate extreme events, statistical physics, large deviation theory and rare event simulation, kinetic theory, turbulence and statistical mechanics.

International: I have been invited for a one year sabbatical at CNLS, Los Alamos, USA. I have been invited researcher for several long periods at the Courant Institute in New York university, the mathematics department of Warwick university (UK), the Weizmann institute (Israel), and Waseda university (Tokyo, Japan).

Grants:

1. **PI** of **one Simons foundation** grant "Turbulence and Statistical Mechanics" (2019-2024) and member of **another one** "Wave turbulence" (2019-2024).
2. I am one of the two **PIs** of the ANR grant SAMPling RAre Climate Events (SAMPRACE). (2020-2024).
3. **PI** of two ITN European research grants (2020-2024).

4. Member of one University de Lyon Breakthrough IDEX grant ACADEMICS (2018-2021).
5. **PI** of the **ERC consolidator grant TRANSITION** (2014-19): Large deviation theory applied to complex dynamical systems, in turbulence, climate dynamics and the solar system dynamics (1 200 k€).
6. **PI** of the **ANR project STATOCEAN,** 2010-2013, (ENSL, LEGI, LPO) (320 k€).
7. **PI** of the **ANR-JC project STATFLOW**, 2006-2009, (120 k€) and member of 3 more ANR projects.

Science for a large audience: Many participations to public debates, large audience seminars for the general public or in schools, universities and classes préparatoires (25 since 01/2014).

Publications in referred international journals: Google scholar : F. Bouchet scholar

Student direction: 12 PhDs and 16 Post-docs

Teaching: I always teach, in Master or general courses, at ENS de Lyon and outside of ENS de Lyon. Most of time I teach original lectures. Typically 40 to 60 hours a year.

GDR "Défis théoriques pour les sciences du climat": I have coordinated the construction of the Groupement De Recherche (GDR) "Défis théoriques pour les sciences du climat" in 2020-2021, and I am coordinating it since its official start in January 2022. This GDR "Theoretical Challenges for Climate Sciences", gathers the French community of theoreticians: physicists, climatologists, oceanographers, atmospheric scientists, mathematicians, computer scientists, numerical scientists, machine learners, who work on climate sciences. Its aim is to develop innovative theoretical and numerical tools to overcome current scientific gaps. Approaches in statistical physics, turbulence modeling, mathematics and machine learning will help to deepen the understanding of fundamental mechanisms, improve models, and better predict extreme climate events to reduce uncertainties about the impacts of climate changes. This GDR has a strong interdisciplinary vocation and involves researchers from several CNRS institutes, many other French scientific organizations, and private companies.

Collective responsibilities: Currently I am a member of the direction committee and the scientific committee of the Institut des Mathématiques pour la Planète Terre, of the scientific committee of Les Houches school of physics, of the administrative committee of the Institut Henry Poincaré , of the scientific committee of LEFE-MANU (applied mathematics for climate, ocean and atmosphere), and I am editor of the review JSTAT (statistical physics).

I was the main organizer of 7 international conferences and a one-month summer school in Les Houches. I was co-organizer of more than ten more conferences, workshops and national events. I was elected member of CoNRS (2016-2019), member of two Comex of Labex (IMust and Mi-Lyon), several time member of lab committees. I was members of several international committees, mainly in Europe, and several in France (HCERES, CNRS, INRIA). I am evaluator of ITN and Marie-Curie grants.

Multidisciplinarity: I was trained both in maths (agrégé) and physics (Master and PhD). My PhD was held in a laboratory department (Institut Fourier), supervised by both a physicist and a mathematician, and the main subject was a geophysics one (modeling Jupiter's vortices and jets).

I publish in physics, applied maths, fluid mechanics, oceanography, atmosphere sciences, oceanography, astrophysics journals ; usually the reference journals. I am invited to give talks in international conferences in all of the corresponding communities, and was invited professors in both physics and mathematics departments (Warwick university, Courant Institute in NY).

I have led several interdisciplinary projects with mathematicians and geoscientists.

Involvement in the ecology transition: With various groups and think tanks, I am participating at accelerating the ecology transition and making concrete propositions. For instance, I was adviser of several policy makers, I created and led the group "Transition écologique à l'ENS de Lyon", I led the writing of a detailed proposition to decrease the ecological impact of ENS de Lyon (see also the accompanying interpellation letter). I am a member of the reflexion and seminar committee of Labos1point5. I am member of several Non-Governmental Organizations. I teach the physical basis of the energy transition and impact of

climate change to physics students at ENS de Lyon, and I made more than fifteen outreach seminars on this subject.

Link to a detailed CV with complete lists of publications, responsabilities, and involvements