

---

## Curriculum Vitae

---

### Jean-Louis Dufresne

CNRS Senior Research Scientist

Laboratoire de Météorologie Dynamique (LMD) and Institut Pierre Simon Laplace (IPSL)

Université Pierre et Marie Curie, Boîte 99,

4 place Jussieu,

75252 Paris cedex 05, France

Phone : +33 1 44 27 50 14 Fax : +33 1 44 27 62 72

E-mail : jean-louis.dufresne@lmd.jussieu.fr

### Personal

**Born :** 25 November 1960, Varese, Italy (French citizen)

**Family :** Married, three children

### Education

**Habilitation :** Université Pierre et Marie Curie (UPMC, Université Paris 6), “The Greenhouse effect : its discovery, its analysis using the Net Exchange Formulation and its effects on recent and future climate changes” (2009)

**Ph. D. :** Université Denis Diderot (Université Paris 7), Energetic, “Experimental procedure to identify and adjust the parameters of a thermal model of an air solar heat collector in transient regime” (1983-1987)

**M. Sc. :** Université Denis Diderot (Université Paris 7), Energetic, Solar Energy (1982-1983)

**B. Sc. :** Université Pierre et Marie Curie (Université Paris 6), Engineering Physics and Instrumentation (1980-1982)

### Professional experience

**2009 - :** CNRS Senior Research Scientist at Laboratoire de Météorologie Dynamique (LMD) and Institut Pierre Simon Laplace (IPSL), Paris, France

**2010 - 2016 :** Deputy director of IPSL (Institut Pierre Simon Laplace), Paris, France

**2009 - 2016 :** Head of the IPSL Climate Modeling Center, Paris, France

**2004 - 2011 :** Head of the LMD climate modeling and climate change team, Paris, France

**August 2000-March 2002 :** Visiting Scientist, ICESS, University of California at Santa Barbara (UCSB), USA

**1994-2009 :** Junior Research Scientist at CNRS, Laboratoire de Météorologie Dynamique : climate modeling, Paris, France

**1988-1993 :** Junior Research Scientist at CNRS, Laboratoire RAMSES : Building Energy Efficiency, Orsay, France

## Research Interests

- Climate Modeling
- Climate Change Projections
- Radiative Forcing and Climate Feedbacks
- Radiative Transfer Computation and Green House Effect
- Clouds and Aerosols

## Topical Expertise

- Earth system model development
- Analysis of climate change simulations and feedback processes
- Radiative forcings and radiative responses
- Role of cloud feedbacks in the climate sensitivity
- Assessment of cloud properties simulated by models using satellite observations
- Climate-carbon coupling and feedback
- Radiative transfer computation in planetary atmospheres
- Radiative effect of dust and sulfate aerosols on climate
- Interaction between land-surface and atmosphere.

## Awards

- Highly Cited Researcher (Clarivate Analytics & Web of Science) 2015, 2017

## Selected Professional Activities

- Member of the Scientific Board of the Program on “Management and Impacts of Climate Change” (GICC), French Ministry of “Environnement, Energy and Sea”, (2015-)
- Member of the Scientific Board of the Program on “Earth, Environnement and Climate Sciences” (TOSCA), French Space Agency (CNES) (2009-)
- Associated editor of the “Quarterly Journal of the Royal Meteorological Society” (QJRMS) (2011-)
- Lead Author, IPCC 5th Assessment Report, WG1-Chapter 12 “Long-term Climate Change : Projections, Commitments and Irreversibility”
- Chair (2009-2011) and Member(2006-2011) of the Scientific Board of the Program on Climate Sciences (LEFE/EVE), French National Institute for Earth Sciences and Astronomy (INSU)
- Editor of the Journal “La Météorologie” (2005-2011)
- Reviewer for journals : *Climate Dynamics*, *Journal of Atmospheric Sciences*, *Journal of Climate*, *Journal of Geophysical Research*, *Geophysical Research Letters*, *Atmospheric Chemistry and Physics*, *Nature Climate Change*, *Nature Communications*, *International Journal of Climatology*, *Comptes Rendus Geoscience*, *Journal of Atmospheric and Solar-Terrestrial Physics*, *Tellus*, *La Météorologie*
- Reviewer for agencies : NSF, NASA (USA), NERC (UK), SNSF (Swiss), FRS-FNRS (Belgium), NWO (Netherlands), etc.
- Leader, co-leader, or WP leader of about 10 National or European projects

## Education, Teaching & Popularization

- Principal supervisor for six (completed) PhDs, numerous masters theses, as well as ongoing PhD and masters research.
- Regular lectures on climate, climate change or radiative transfert for teachers, undergraduate and graduate students
- Regular conferences on climate and climate change for teachers, students, general public or media
- Chapters book and articles for teachers and general public

---

## Selected Scientific Publications :

---

A more complete list of papers is available at : [http://www.lmd.jussieu.fr/~jldufres/publi/liste\\_publi.html](http://www.lmd.jussieu.fr/~jldufres/publi/liste_publi.html)

**ORCID** : 0000-0003-4764-9600 ; URL : [orcid.org/0000-0003-4764-9600](http://orcid.org/0000-0003-4764-9600)

**ResearcherID** : I-5616-2015 ; URL : [www.researcherid.com/rid/I-5616-2015](http://www.researcherid.com/rid/I-5616-2015)

Dufresne, J.-L. and M. Saint-Lu, 2016 : Positive feedback in climate : stabilization or runaway, illustrated by a simple experiment. *Bull. Am. Meteorol. Soc.*, **97** (5), 755–765, doi :10.1175/BAMS-D-14-00022.1.

Konsta, D., J.-L. Dufresne, H. Chepfer, A. Idelkadi, and G. Cesana, 2016 : Use of A-train satellite observations (CALIPSO-PARASOL) to evaluate tropical cloud properties in the LMDZ5 GCM. *Clim. Dyn.*, **47** (3), 1263–1284, doi :10.1007/s00382-015-2900-y.

Ait-Mesbah, S., J.-L. Dufresne, F. Cheruy, and F. Hourdin, 2015 : Control of surface temperature by thermal inertia in semi-arid and arid regions. *Geophys. Res. Lett.*, **42** (18), 7572–7580.

Good, P., et al., 2015 : Nonlinear regional warming with increasing CO<sub>2</sub> concentrations. *Nature Climate Change*, **5** (2), 138–142, doi :10.1038/nclimate2498.

Hourdin, F., M. Gueye, B. Diallo, J.-L. Dufresne, L. Menut, B. Marticoréna, G. Siour, and F. Guichard, 2015 : Parametrization of convective transport in the boundary layer and its impact on the representation of diurnal cycle of wind and dust emissions. *Atmos. Chem. Phys.*, **15**, 6775–6788, doi :10.5194/acp-15-6775-2015.

Pincus, R., et al., 2015 : Radiative flux and forcing parameterization error in aerosol-free clear skies. *Geophys. Res. Lett.*, **42** (13), 5485–5492, doi :10.1002/2015GL064291.

Cheruy, F., J.-L. Dufresne, F. Hourdin, and A. Ducharne, 2014 : Role of clouds and land-atmosphere coupling in mid-latitude continental summer warm biases and climate change amplification in CMIP5 simulations. *Geophys. Res. Lett.*, **41**, 6493–6500, doi :10.1002/2014GL061145.

Rotstayn, L. D., et al., 2014 : Declining aerosols in CMIP5 projections : effects on atmospheric temperature structure and midlatitude jets. *J. Clim.*, **27** (18), 6960–6977, doi :10.1175/JCLI-D-14-00258.1.

Sherwood, S. C., S. Bony, and J.-L. Dufresne, 2014 : Spread in model climate sensitivity traced to atmospheric convective mixing. *Nature*, **505** (7481), 37–42, doi :10.1038/nature12829.

Dufresne, J.-L., et al., 2013 : Climate change projections using the IPSL-CM5 Earth System Model : from CMIP3 to CMIP5. *Clim. Dyn.*, **40** (9-10), 2123–2165, doi :10.1007/s00382-012-1636-1.

- Hannart, A., M. Ghil, J.-L. Dufresne, and P. Naveau, 2013 : Disconcerting learning on climate sensitivity and the uncertain future of uncertainty. *Climatic Change*, **119** (3-4), 585–601, doi : 10.1007/s10584-013-0770-z.
- Szopa, S., et al., 2013 : Aerosol and ozone changes as forcing for climate evolution between 1850 and 2100. *Climate Dynamics*, **40** (9-10), 2223–2250, doi :10.1007/s00382-012-1408-y.
- Vial, J., J.-L. Dufresne, and S. Bony, 2013 : On the interpretation of inter-model spread in CMIP5 climate sensitivity estimates. *Clim. Dyn.*, **41** (11-12), 3339–3362, doi :10.1007/s00382-013-1725-9.
- Déandreis, C., Y. Balkanski, J.-L. Dufresne, and A. Cozic, 2012 : Radiative forcing estimates in coupled climate-chemistry models with emphasis on the role of the temporal variability. *Atmos. Chem. Phys.*, **12** (12), 5583–5602, doi :10.5194/acp-12-5583-2012.
- Konsta, D., H. Chepfer, and J.-L. Dufresne, 2012 : A process oriented characterization of tropical oceanic clouds for climate model evaluation, based on a statistical analysis of daytime a-train observations. *Clim. Dyn.*, **39**, 2091–2108, doi :10.1007/s00382-012-1533-7.
- Nam, C., S. Bony, J.-L. Dufresne, and H. Chepfer, 2012 : The "too few, too bright" tropical low-cloud problem in CMIP5 models. *Geophys. Res. Lett.*, **39** (21), L21801, doi :10.1029/2012GL053421.
- Bodas-Salcedo, A., et al., 2011 : COSP : satellite simulation software for model assessment. *Bull. Am. Meteorol. Soc.*, **92** (8), 1023–1043, doi :10.1175/2011BAMS2856.1.
- Hannart, A., J.-L. Dufresne, and P. Naveau, 2009 : Why climate sensitivity may not be so unpredictable. *Geophys. Res. Lett.*, **36**, L15704, doi :10.1029/2009GL039640.
- Chepfer, H., S. Bony, D. Winker, M. Chiriaco, J.-L. Dufresne, and G. Sèze, 2008 : Use of CALIPSO lidar observations to evaluate the cloudiness simulated by a climate model. *Geophys. Res. Lett.*, L15704, doi :10.1029/2008GL034207.
- Dufresne, J.-L. and S. Bony, 2008 : An assessment of the primary sources of spread of global warming estimates from coupled atmosphere-ocean models. *J. Clim.*, **21** (19), 5135–5144, doi : 10.1175/2008JCLI2239.1.
- Bony, S., et al., 2006 : How well do we understand and evaluate climate change feedback processes ? *J. Clim.*, **19** (15), 3445–3482, doi : 10.1175/JCLI3819.1.
- Bony, S. and J.-L. Dufresne, 2005 : Marine boundary layer clouds at the heart of cloud feedback uncertainties in climate models. *Geophys. Res. Lett.*, **32** (20), L20 806, doi : 10.1029/2005GL023 851.
- Dufresne, J.-L., J. Quaas, O. Boucher, F. Denvil, and L. Fairhead, 2005 : Contrasts in the effects on climate of anthropogenic sulfate aerosols between the 20<sup>th</sup> and the 21<sup>st</sup> century. *Geophys. Res. Lett.*, **32**, L21 703, doi : 10.1029/2005GL023 619.
- Bony, S., J.-L. Dufresne, H. Le Treut, J.-J. Morcrette, and C. Senior, 2004 : On dynamic and thermodynamic components of cloud changes. *Climate Dynamics*, **22**, 71–86.
- Friedlingstein, P., J.-L. Dufresne, P.-M. Cox, and P. Rayner, 2003 : How positive is the feedback between climate change and the carbon cycle. *Tellus*, **55B**, 692–700.
- Dufresne, J.-L., P. Friedlingstein, M. Berthelot, L. Bopp, L. Fairhead, H. Le Treut, and P. Monfray, 2002 : On the magnitude of positive feedback between future climate change and the carbon cycle. *Geophys. Res. Lett.*, **29** (10), doi :10.1029/2001GL013 777.