Grégory CESANA

Jet Propulsion Laboratory, California Institute of Technology,
4800 Oak Grove Dr, MS 233-300
Pasadena, CA 91109, USA
Phone: (+1) 818 354 4626 *Email*: gregory.cesana@gmail.com

Professional Experience

2014 - present **Postdoctoral Researcher at the Jet Propulsion Laboratory, California Institute of Technology** (Pasadena, CA, USA) in the Aerosol and Cloud group of the Earth Science Division (Supervisor Dr. Duane Waliser): Using satellite observations to study the representation of cloud and precipitation and their impacts on radiation and dynamics in climate models.

2011 - 2013 **Ph.D student at the Laboratoire de Météorologie Dynamique (LMD) of the university Pierre et Marie Curie** (Paris VI, France) under the supervision of Prof. Hélène Chepfer: Study of cloud thermodynamic phase (and related cloud processes such as distribution, radiation, dynamics) using satellite observations from active/passive sensors to evaluate climate models through satellite simulators.

2008 - 2010 **Research Engineer at the LMD** (Palaiseau, France)**:** Development of a data treatment algorithm (GCM-Oriented CALIPSO Cloud Product, GOCCP) using satellite retrievals to evaluate global cloud processes in climate models.

2007 **Research Engineer at the INERIS institute** (Verneuil-en-Halatte, France) Validation of the chemistry-transport model CHIMERE using spaceborne and ground-based datasets.

2007 **M. Sc. in Atmosphere/Ocean/Soil remote sensing** (Université du Sud Toulon Var, France).

Professional Skills

Fortran90 : Development of cloud detection algorithm based on satellite measurements (GCM-Oriented CALIPSO Cloud Product, GOCCP)
Development of a new module in the simulator package COSP
Scientific computations on Model outputs and Reanalysis datasets.

Matlab/R: Visualization of datasets, scientific computations

Linux : Script codes in bash/shell, makefiles, installation/compilation…

HTML : Creation of website to communicate scientific results
CFMIP-OBS : http://climserv.ipsl.polytechnique.fr/cfmip-obs/

Publications

Published

Cesana G., H. Chepfer, D. Winker, X. Cai, B. Getzewich, H. Okamoto, Y. Hagihara, O. Jourdan, G. Mioche, V. Noel and M. Reverdy, 2016: Using in-situ airborne measurements to evaluate three cloud phase products derived from CALIPSO, *J. Geophys. Res. Atmos.,* 121, doi:10.1002/2015JD024334.

Cesana, G., D. E. Waliser, X. Jiang, and J.-L. F. Li, 2015: Multimodel evaluation of cloud phase transition using satellite and reanalysis data, *J. Geophys. Res. Atmos.*, doi:10.1002/2014JD022932

Konsta D., JL. Dufresne, H. Chepfer, A. Idelkali, **G. Cesana**, 2015: Use of A-train satellite observations (CALIPSO-PARASOL) to evaluate tropical cloud properties in the LMDZ5 GCM Evaluation, Clim. Dyn., 0930-7575, doi: http://dx.doi.org/10.1007/s00382-015-2900-y

Reverdy M., H. Chepfer, D. Donovan, V. Noel, **G. Cesana**, C. Hoareau, M. Chiriaco, S. Bastin, 2015 : An EarthCARE/ATLID simulator to evaluate cloud description in climate models, *J.*

Bonne J-L., H. C. Steen-Larsen, C. Risi, M. Wermer, H. Sodemann, J-L. Lacour, X. Fettweis, **G. Cesana**, et al., 2015: The summer 2012 Greenland heat wave:in situ and remote sensing observations of water vapour isotopic composition during and atmospheric river event, *J. Geophys. Res*., doi: 10.1002/2014JD022602.

He Y., C. Risi, J. Gao, V. Masson-Delmotte, T. Yao, Y. Ding, J. Worden, C. Frankenberg, H. Chepfer and **G. Cesana**, 2015 : Impact of atmospheric convection on south Tibet summer precipitation isotopic composition using a combination of in situ measurements, satellite data and atmospheric general circulation modeling, *J. Geophys. Res.*, doi:10.1002/2014JD022180.

Noel V., H. Chepfer, C. Hoareau, M. Reverdy, and **G. Cesana**, 2014: Effects of solar activity on noise in CALIOP profiles above the South Atlantic Anomaly, *Atmos. Meas. Tech.*, doi:10.5194/amt-7-1597-2014.

Cesana G. and H. Chepfer, 2013: Evaluation of the cloud water phase in a climate model using CALIPSO-GOCCP, *J. Geophys. Res.*, *doi: 10.1002/jgrd.50376*

Chepfer H., **G. Cesana**, D. Winker, B. Getzewich, M. Vaughan, and Z. Liu, 2013: Comparison of two different cloud climatologies derived from CALIOP Level 1 observations: the CALIPSO-ST and the CALIPSO-GOCCP, *J. Atmos. Ocean. Tech.*, doi: 10.1175/JTECH-D-12-00057.1

Stubenrauch, C.J., W. B. Rossow**,** S. Kinne, et al., 2013 : ASSESSMENT OF GLOBAL CLOUD DATASETS FROM SATELLITES: Project and Database initiated by the GEWEX Radiation Panel, *Bull. Amer. Meteo. Soc.*, doi: 10.1175/BAMS-D-12-00117

Cesana G. and H. Chepfer, 2012: How well do climate models simulate cloud vertical structure? A comparison between CALIPSO-GOCCP satellite observations and CMIP5 models, *Geophys. Res. Lett.*, doi : 10.1029/2012GL053153

Cesana G., J. E. Kay, H. Chepfer, J. M. English, and G. deBoer, 2012: Ubiquitous low-level liquid-containing Arctic clouds: New observations and climate model constraints from CALIPSO-GOCCP, *Geophys. Res. Lett.*, doi:10.1029/2012GL053385

Stromatas S., S. Turquety, L. Menut, H. Chepfer, **G. Cesana**, J.-C. Pere, and B. Bessagnet , 2012: Lidar Signal Simulation for the Evaluation of Aerosols in Chemistry-Transport Models, Geoscientific Model Development, *Geosci. Model Dev.*, doi: 10.5194/gmd-5-1543-2012

Chepfer H., S. Bony, D. Winker, **G. Cesana**, JL. Dufresne, P. Minnis, C. J. Stubenrauch, S. Zeng, 2010: The GCM Oriented Calipso Cloud Product (CALIPSO-GOCCP), *J. Geophys. Res.*, doi: 10.1029/2009JD012251

Vuolo, M. R., H. Chepfer, L. Menut, and **G. Cesana**, 2009: Comparison of mineral dust layers vertical structures modelled with Chimere-Dust and observed with the Caliop lidar., *J. Geophys. Res.*, doi : 10.1029/2008JD011219

Other

Cesana G. and D. E. Waliser : Characterizing and understanding systematic biases in the vertical structure of clouds in CMIP5/CFMIP2 models, *Geophys. Res. Let.*, submitted.

Hoareau C., V. Noel, H. Chepfer, J. Vidot, M. Chiriaco, S. Bastin, M. Reverdy, **G. Cesana**: Observations of ice supersaturation inside and near cirrus clouds: a case study in the subtropics, Atmos. Sc. Let., under review.

Cesana G., D. E. Waliser, T. L'Ecuyer, X. Jiang: How clouds affect the vertical structure of radiative heating rates: A multi-model evaluation using A-Train observations, in prep.

Kim, j., D.E. Waliser, **G. Cesana**, X. Jiang, et al. : Radiative (and latent) heating anomalies associated with the boreal summer intraseasonal variability based on the cloud particle and radiative heating data from CloudSat observations and ERA-Interim reanalysis, in prep.

Selected Oral Presentations

IRS, Auckland, New Zealand, April, 2016: *How clouds affect the vertical structure of radiative heating rates: A multi-model evaluation using A-Train observations*

CFMIP, Monterey CA, USA, June 2015: *Multi-Model evaluation of cloud phase transition using satellite and reanalysis data*

AGU, San Francisco CA, USA, December 2013: *Evaluation of the cloud thermodynamic phase in CMIP5 models using CALIPSO-GOCCP*

CFMIP, Hamburg, Germany, June 2013: *Evaluation of the cloud thermodynamic phase in CMIP5 models using CALIPSO-GOCCP*

EGU, Vienna, Austria, April, 2013: *Evaluation of the cloud water phase in CMIP5 models using CALIPSO-GOCCP*

IRS, Berlin, Germany, August, 2012: *Study of the cloud water phase (liquid/ice) observed by CALIPSO, and evaluation of the description of the water phase transition in a climate model*

Professional Service

Journal referee: *Quaterly Journal of the Royal Meteorological Society, Geoscientific Model Development, Atmospheric Chemistry and Physics, Climate Dynamics, Journal of Geophysical Research - Atmosphere, Multidisciplinary Digital Publishing Institute – Atmosphere, Theoritical and Applied Climatology.*

Committee: *Deleguate of the Ph.D students at the department of mechanics of the Ecole Polytechnique.*