

## Work Experience

- 2010- Research Scientist level 2, CIRES, Boulder CO, USA
- 2007-2010 Research Scientist level 1, CIRES, Boulder CO, USA
- 2006-2007 National Research Council Postdoctoral Associate at NOAA, Boulder CO, USA
- 2003-2006 Research assistant at Laboratoire d'Aerologie, Toulouse, France
- 2003 July-Aug Contractor at Laboratoire d'Aerologie, Toulouse France

## Education

- 2006 PhD, University Toulouse III, Toulouse, France
- 2003 Master of Science in Oceanography and Meteorology, University Toulouse III, France
- 2002 French Master of Science in Physics, University Toulouse III, Toulouse, France
- 2001 Bachelor of Science in Physics, University Toulouse III, Toulouse, France

## Participation in Field Experiments

- 2013 SENEX, South East of USA, June-July 2013  
I made daily pollutant transport forecasts.
- 2012 ECOCEM, Beirut, Lebanon July 2011, January 2012
- 2012 DC3, Kansas, USA May-June 2012  
I made daily pollutant transport forecasts. Participated in chemical forecast discussions.  
2 weeks on the field
- 2010 CALNEX, California, USA, May-June 2010  
I made daily pollutant transport forecasts
- 2008 VOCALS, Chile October-November 2008,  
I made daily pollutant transport forecasts
- 2008 ARCPAC, Fairbanks, AK, USA, late March - April 2008  
I made daily pollutant transport forecasts. I was involved in the flight planning of the NOAA WP-3D aircraft. 1 month on the field
- 2005 PIC 2005, Lannemezan, France, June-July 2005  
I made daily pollutant transport forecasts and operated a lidar

## Honors and awards

- 2012 co-recipient of the Governor's Award for High-Impact Research for contributing to data analysis and interpretation of the Deepwater Horizon Oil Spill
- 2011 Selected to attend the Gordon Conference on Atmospheric Chemistry
- 2006 - 2007 NRC RAP postdoctoral fellowship Award
- 2006: PhD awarded with high honors
- 2003-2006: Doctoral fellowship from the French ministry of research.
- 2003: Master degree awarded with honors

- 2002-2003: Master fellowship from the French ministry of research.

### Professional services

Reviewer of Research Proposals: NOAA, NSF, NSF of China

Reviewer of scientific journals: JGR, ACP, GRL, Atmospheric Environment, IJERPH, JAMC, JAMSS

Model development: Main author of the FLEXPART-WRF model.

### Citation Metrics

ResearcherID: E-4629-2011

Sum of times cited: 606

H-index: 14

### Peer Reviewed Publications

**38 Brioude J.**, D. Arnold, A. Stohl et al.: *The Lagrangian particle dispersion model FLEXPART-WRF version 3.1*, Geosci. Model Dev., 6, 1889-1904, doi:10.5194/gmd-6-1889-2013, 2013

**37 Waked A.**, C. Afif, **J. Brioude**, P. Formenti et al., *Composition and Source Apportionment of Organic Aerosol in Beirut, Lebanon, During Winter 2012*, Aerosol Science and Technology, 47,11, 1258-1266, doi:10.1080/02786826.2013.831975, 2013

**36 Hegarty, J.**, R.R. Draxler, A.F. Stein, **J. Brioude** et al., *Evaluation of Lagrangian Particle Dispersion Models with Measurements from Controlled Tracer Releases*, J. of Applied Met. and Clim., doi:http://dx.doi.org/10.1175/JAMC-D-13-0125.1, 2013

**35 Hayes P.L.**, A. M. Ortega, M. J. Cubison, K. D. Froyd et al., *Organic aerosol composition and sources in Pasadena, California, during the 2010 CalNex campaign*, J. Geophys. Res., doi:10.1002/jgrd.50530, 2013

**34 Peischl, J.**, T. B. Ryerson, **J. Brioude**, et al., *Quantifying sources of methane using light alkanes in the Los Angeles basin California*, J. Geophys. Res., 118, 10, doi:10.1002/jgrd.50413, 2013

**33 Angevine, W.M.**; **Brioude, J.**, McKeen, S.; et al., *Pollutant transport among California regions*, J. Geophys. Res., 118,12, doi:10.1002/jgrd.50490, 2013

**32 Brioude, J.**, Angevine, W. M., Ahmadov, R., Kim, S.-W., Evan, S. et al.: *Top-down estimate of surface flux in the Los Angeles Basin using a mesoscale inverse modeling technique: assessing anthropogenic emissions of CO, NO<sub>x</sub> and CO<sub>2</sub> and their impacts*, Atmos. Chem. Phys., 13, 3661-3677, doi:10.5194/acp-13-3661-2013, 2013

**31 Ensberg J.J.**, J.S. Craven, A.R. Metcalf, W.M. Angevine et al., *Inorganic and black carbon aerosols in the Los Angeles Basin during Calnex*, J. Geophys. Res., 118,4,doi: 10.1029/2012JD018136, 2013

**30 Brioude, J.**, Angevine, W. M., McKeen, S. A., and Hsie, E.-Y.: *Numerical uncertainty at mesoscale in a Lagrangian model in complex terrain*, Geosci. Model Dev., 5, 1127-1136, doi:10.5194/gmd-5-1127-2012, 2012

- 29** Angevine W.M., L. Eddington, K. Durkee, C. Fairall et al., *Meteorological model evaluation for CalNex 2010*, Mon. Weath. Rev., 140,12, doi:10.1175/MWR-D-12-00042.1, 2012
- 28** Metcalf, A. R., J. S. Craven, J. J. Ensberg, **J. Brioude** et al., *Black carbon aerosol over the Los Angeles Basin during CalNex*, J. Geophys. Res., doi:10.1029/2011JD017255, 2012
- 27 Brioude, J.**, G. Petron, G. J. Frost, R. Ahmadov, et al., *A new inversion method to calculate emission inventories without a prior at mesoscale: Application to the anthropogenic CO<sub>2</sub> emission from Houston, Texas*, J. Geophys. Res., D05312, doi:10.1029/2011JD016918, 2012
- 26** Neuman, J. A., M. K. Trainer, K. C. Aikin, W. M. Angevine et al., *Observations of ozone transport from the free troposphere to the Los Angeles basin*, J. Geophys. Res., D00V09, doi:10.1029/2011JD016919, 2012
- 25** Langford, A. O., **J. Brioude**, O. R. Cooper, C. J. Senff, et al., *Stratospheric influence on surface ozone in the Los Angeles area during late spring and early summer of 2010* J. Geophys. Res., 117, D00V06, doi:10.1029/2011JD016766, 2012
- 24** Middlebrook A.M., D.M. Murphy, R. Ahmadov, E.L. Atlas et al., *Air quality implications of the Deepwater Horizon oil spill*, Proc. Natl. Acad. Sci. USA, doi:10.1073/pnas.1110052108, 2012
- 23** Cooper O.R., S. J. Oltmans, B.J. Johnson, **J. Brioude** et al., *Measurement of western U.S. baseline ozone from the surface to the tropopause and assessment of downwind impact regions*, J. Geophys. Res., 116, D00V03, doi:10.1029/2011JD016095, 2011
- 22** Kim S.-W., S. A. McKeen, G. J. Frost, S.-H. Lee et al., *Evaluations of NO<sub>x</sub> and highly reactive VOC emission inventories in Texas and their implications for ozone plume simulations during the Texas Air Quality Study 2006*, Atmos. Chem. Phys., 11, 11361-11386, 2011
- 21** Lance S., M. D. Shupe, G. Feingold, C. A. Brock et al., *Cloud condensation nuclei as a modulator of ice processes in Arctic mixed-phase clouds*, Atmos. Chem. Phys., 11, 8003-8015, 2011
- 20 Brioude, J.** et al., *Top-down estimate of anthropogenic emission inventories and their interannual variability in Houston using a mesoscale inverse modeling technique*, J. Geophys. Res., 116, D20305, doi:10.1029/2011JD016215, 2011
- 19** Brock C.A., J. Cozic, R. Bahreini, K. D. Froyd et al., *Characteristics, sources, and transport of aerosols measured in spring 2008 during the aerosol, radiation, and cloud processes affecting Arctic Climate (ARCPAC) Project*, Atmos. Chem. Phys., 11, 2423-2453, 2011
- 18** de Gouw J. A. , A. M. Middlebrook, C. Warneke, R. Ahmadov et al., *Organic Aerosol Formation Downwind from the Deepwater Horizon Oil Spill*, Science, 331, 6022, 1295-1299, 2011
- 17** Wood R, Mechoso CR, Bretherton CS, et al., *The VAMOS Ocean-Cloud-Atmosphere-Land Study Regional Experiment (VOCALS-REx): goals, platforms, and field operations* , Atmos. Chem. Phys., 11, 627-654, 2011
- 16 Brioude, J.**, R.W. Portmann, J.S. Daniel et al., *Variations in ozone depletion potentials of very short-lived substances with season and emission region*, Geophys. Res. Lett., 37, L19804, doi:10.1029/2010GL044856, 2010
- 15** Warneke, C., J.A. de Gouw, L. del Negro, **J. Brioude**, et al., *Biogenic Emission Measurement and Inventories: Determination of Biogenic Emissions in the Eastern United States and Texas and Comparison with Biogenic Emission Inventories*, J. Geophys. Res., doi:10.1029/2009JD012445, 2010

- 14** Warneke, C., K. Froyd, **Brioude, J.** et al. *An important contribution to springtime Arctic aerosol from biomass burning in Russia*, Geophys. Res. Lett., 37, L01801, doi:10.1029/2009GL041816i, 2009
- 13** **Brioude, J.**, Cooper, O. R., Feingold, G., et al.: *Effect of biomass burning on marine stratocumulus clouds off the California coast*, Atmos. Chem. Phys., 9, 8841-8856, 2009
- 12** Cammas, J.-P., **J. Brioude**, J.-P. Chaboureau et al.: *Injection in the lower stratosphere of biomass fire emissions followed by long-range transport: a MOZAIC case study*, Atmos. Chem. Phys., 9, 5847-5864, 2009
- 11** Bahreini, R., B. Ervens, A.M. Middlebrook, C. Warneke et al.: *Organic aerosol formation in urban and industrial plumes near Houston and Dallas, Texas*, J. Geophys. Res., 114, doi:10.1029/2008JD011493, 2009
- 10** Brown, S. S., J. A. deGouw, C. Warneke, T. B. Ryerson et al.: *Nocturnal isoprene oxidation over the Northeast United States in summer and its impact on reactive nitrogen partitioning and secondary organic aerosol*, Atmos. Chem. Phys., 9, 3027-3042, 2009
- 9** Massoli, P., T.S. Bates, P. K. Quinn, D.A. Lack et al., *Aerosol optical and hygroscopic properties during TexAQS-GoMACCS 2006 and their impact on aerosol direct radiative forcing*, J. Geophys. Res., 114, D00F07, doi:10.1029/2008JD011604, 2009
- 8** Warneke, C., R. Bahreini, **J. Brioude**, et al.: *Biomass burning in Siberia and Kazakhstan as an important source for haze over the Alaskan Arctic in April 2008*, Geophys. Res. Lett., 36, L02813, doi:10.1029/2008GL036194, 2009
- 7** **Brioude J.**, J.-P. Cammas, O. R. Cooper, and P. Nedelec, *Characterization of the composition, structure, and seasonal variation of the mixing layer above the extratropical tropopause as revealed by MOZAIC measurements*, J. Geophys. Res., 113, D00B01, doi:10.1029/2007JD009184, 2008
- 6** Tressol M., C. Ordonez, R. Zbinden, **J. Brioude** et al.: *Air pollution during the 2003 European heat wave as seen by MOZAIC airliners*, Atmos. Chem. Phys., 8, 2133-2150, 2008
- 5** **Brioude, J.**, O.R. Cooper, M. Trainer et al.: *Mixing between a stratospheric intrusion and a biomass burning plume*, Atmos. Chem. Phys., 7, 4229-4235, 2007
- 4** Kalabokas, P. D., A. Volz-Thomas, **J. Brioude**, V. Thouret et al.: *Vertical ozone measurements in the troposphere over the Eastern Mediterranean and comparison with Central Europe*, Atmos. Chem. Phys., 7, 3783-3790, 2007
- 3** Sauvage, B., Thouret, V., Cammas, J. -P., **Brioude, J.** et al.: *Meridional ozone gradients in the African upper troposphere*, GRL, 34 (3), 2007
- 2** **Brioude, J.**, J.-P. Cammas, and O. R. Cooper: *Stratosphere-troposphere exchange in a summertime extratropical low: analysis*, Atmos. Chem. Phys., 6, 2337-2353, 2006
- 1** Nedelec, P., V. Thouret, **J. Brioude**, B. Sauvage et al.: *Extreme CO concentrations in the upper troposphere over northeast Asia in June 2003 from the in situ MOZAIC aircraft data*, Geophys. Res. Lett., VOL. 32, L14807, doi:10.1029/2005GL023141, 2005

### Other publications

- 6** Angevine W.M., M. Zagar, **J. Brioude**, R. Banta, *How well can we model the Houston area for air pollution studies?* Eighth Symposium on the Urban Environment, 2009
- 5** de Gouw, J.A., C. Warneke, S.A. Montzka, **J. Brioude**, et al.: *How much biogenic SOA is*

*present in the Northeastern US?* Geochimica et cosmochimica acta,73,13,A273, 2009

4 Lee, Y.N., Springston S., Jayne, J.,Hubbe J. et al.: *Aerosol chemical composition and source characterization during 2008 VOCALS REX*, Geochimica et cosmochimica acta, 73, 13, A738, 2009

3 C. J. Senff, R. J. Alvarez II, A. M.Weickmann, **J. Brioude**, et al.: *The Effect of Complex Terrain on Ozone Distribution and Transport in the Colorado Front Range Area*, Proceedings of the 8th International Symposium on Tropospheric Profiling,S03 - O05, 2009

2 F. Gheusi, A. Chevalier, F. Ravetta, H. Delbarre et al., *Ozone et pollution atmospherique a grande echelle, la campagne de mesures PIC 2005*, La Meteorologie, 59, 31-38, Nov 2007

1 **J. Brioude**, *Caractérisation de la tropopause extratropicale avec les données aéroportées MOZAIC : zone de mélange et d'échange*, PhD manuscript, June 2006.

## Presentations

- J. Brioude, *Top-down estimate of surface flux in the Los Angeles Basin using a mesoscale inverse modeling technique: assessing anthropogenic emissions of CO, NOx and CO2 and their impacts*, oral presentation at CMAS conference, Chapel Hill, USA, August 2013
- J. Brioude, *Top-down estimate of surface flux in the Los Angeles Basin using a mesoscale inverse modeling technique: assessing anthropogenic emissions of CO, NOx and CO2 and their impacts*, poster presentation at EGU General Assembly, Vienna, Austria, April 2013
- J. Brioude et al., *Numerical uncertainty at mesoscale in a Lagrangian model in complex terrain*, poster presentation at EGU General Assembly, Vienna, Austria, April 2013
- J. Brioude, *Why do we need inverse modeling at mesoscale*, Invited Seminar at Department of Mechanical Engineering, Colorado University, Feb 2013.
- J. Brioude et al.: *Top-down estimate of anthropogenic emission inventories of CO,NOx and CO2 in Los Angeles basin in 2010*. oral presentation at AGU Fall meeting, San Francisco, CA, USA, Dec 2012
- J. Brioude: *A new inversion method to calculate emission inventories without a prior at mesoscale: Application to the anthropogenic CO2 emission from Houston, Texas*. oral presentation at ACCENT-IGAC-GEIA Conference, Toulouse, France, June 2012
- J. Brioude: *Top-down mesoscale estimate of emission inventories using aircraft observations and an inverse modeling technique: Houston as an example*, Seminar at NOAA/ESRL/CSD, Boulder, CO, USA, Mar. 2011
- J. Brioude et al.: *A new inversion method to calculate emission inventories without a prior at mesoscale: Application to the anthropogenic CO2 emission from Houston, Texas*. poster presentation at Gordon Research Conference on Atmospheric Chemistry, West Dover, WI, USA, July 2011
- J. Brioude et al., *top-down estimate of anthropogenic emission inventories in Houston using a 4D-VAR mesoscale inverse modeling technique*, Oral presentation at The Fall Meeting of the AGU, San Francisco, USA, Dec. 2010
- J. Brioude et al., *Variations in ozone depletion potentials of very short-lived substances with season and emission region*, Oral presentation at The Fall Meeting of the AGU, San Francisco, USA, Dec. 2010
- J. Brioude et al., *Effect of biomass burning on marine stratocumulus clouds off the California*

- coast, Poster presentation at The Fall Meeting of the AGU, San Francisco, USA, Dec. 2009
- J. Brioude et al., *Influence of transport pattern on air quality over Southern USA during Texaqs/Gomaccs*. Poster presentation at IGAC, Annecy, France, Sept 2008
  - J. Brioude et al.: *Influence of pollutant transport on chemistry at local and synoptical scale using FLEXPART during Texaqs/Gomaccs*, Seminar at Laboratoire d'Aerologie, Toulouse, France, Dec 2007
  - J. Brioude, *Characterization of the extratropical tropopause with MOZAIC data: mixing and exchange zone*, Seminar at Laboratoire d'aerologie, Toulouse, France April 2006
  - J. Brioude et al., *Characterization of the composition, the structure and the seasonal variations of the mixing layer above the extratropical tropopause revealed by MOZAIC measurements*, Poster presentation at EGU General Assembly, Vienna, April 2006
  - J. Brioude et al., *A Backward Lagrangian study of the tropospheric stratification with MOZAIC data*, Poster presentation at EGU General Assembly, Vienna, April 2006
  - J. Brioude et al., *Analysis of convective mixing between a tropopause fold and a warm conveyor belt*, poster presentation at EGU General Assembly 2005—Vienna, April 2005
  - J. Brioude et al., *Case study of Stratosphere-Troposphere Exchange associated with a summer extratropical low: MOZAIC aircraft measurements analysis and modelling*, Poster presentation at The Fall Meeting of the AGU, San Francisco, USA, Dec 2004
  - J. Brioude et al., *Mixing layer across the tropopause as seen by MOZAIC: Seasonal and regional variations*, oral presentation at European Geophysical Society, Nice, France April 2004
  - J. Brioude et al., *Summer Mid-Latitude Stratosphere-Troposphere Exchange; a MOZAIC case study*, oral presentation at European Geophysical Society, Nice, France April 2004