

# List of research activities

2016

CEREA



## CEREA - Centre d'Enseignement et de Recherche en Environnement Atmosphérique

Atmospheric Environment Center

École des Ponts ParisTech & EDF R&D

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Director: Christian Seigneur  
Deputy director: Luc Musson-Genon  
Deputy director: Marc Bocquet

Staff: 31 (as of 31 December 2016)

## LABORATORY STAFF

### Permanent research staff and faculty

- **ANGOT Guillaume**, EDF R&D, Research engineer
- **BOCQUET Marc**, École des Ponts ParisTech, Senior research scientist (ICPEF) and Professor, HDR
- **CARISSIMO Bertrand**, EDF R&D, Senior research scientist and Associate professor, HDR
- **DUPONT Éric**, EDF R&D, Research engineer
- **MUSSON-GENON Luc**, EDF R&D, Research engineer (IGPEF)
- **ROUSTAN Yelva**, École des Ponts ParisTech, Research scientist (CR1)
- **SARTELET Karine**, École des Ponts ParisTech, Research scientist (CR1), HDR
- **SEIGNEUR Christian**, École des Ponts ParisTech, Director and Professor, HDR

### External collaborators

- **MALLET Vivien**, Inria, Research scientist (CR1)

### Post-doctoral scientists

- **BEAUDET Laurent**, École des Ponts ParisTech
- **CHAHINE Ali**, École des Ponts ParisTech
- **KIM Youngseob**, École des Ponts ParisTech
- **NSIR Rémy**, École des Ponts ParisTech
- **Zhu Shupeng**, École des Ponts ParisTech

### Ph.D. students

- **BAHLALI Meissam**, EDF R&D, ED SIE
- **CHEN Ruiwei**, École des Ponts ParisTech, ED SIE
- **CHRIT Mounir**, École des Ponts ParisTech, ED SIE
- **DEFFORGE Cécile**, EDF R&D, ED SIE
- **FARCHI Alban**, École des Ponts ParisTech, ED SIE
- **FILLION Anthony**, École des Ponts ParisTech, ED SIE
- **HAUSSAIRE Jean-Matthieu**, École des Ponts ParisTech, ED SIE
- **MAJDI Marwa**, École des Ponts ParisTech, ED SIE
- **RAFFORT Valentin**, École des Ponts ParisTech, ED SIE
- **THOREY Jean**, Inria & EDF R&D, ED Sciences Mathématiques Paris Centre
- **THOURON Laëtitia**, École des Ponts ParisTech, ED SIE
- **WEI Xiao**, EDF R&D, ED SIE
- **ZHU Shupeng**, École des Ponts ParisTech, ED SIE

### Interns

- **LIU Yun**, École des Ponts ParisTech
- **LUGON Lya**, École des Ponts ParisTech
- **MAAHANE Yassine**, EDF R&D
- **OUARMA Issoufou**, École des Ponts ParisTech

## Engineers, administrative staff, and technicians

### Engineers

- **BRESSON Raphaël**, EDF R&D, Engineer
- **DEMENGEL Dominique**, EDF R&D, Engineer
- **DORÉ Sylvain**, École des Ponts ParisTech, Engineer
- **GILBERT Éric**, EDF R&D, Engineer
- **LEFRANC Yannick**, EDF R&D, Engineer
- **LEGORGEU Carole**, École des Ponts ParisTech, Engineer
- **WENDUM Denis**, EDF R&D, Engineer

### Administrative staff

- **DEHLINGER Véronique**, École des Ponts ParisTech

### Technicians

- **FAUCHEUX Aurélien**, École des Ponts ParisTech
- **MOQUILLON Morgane**, EDF R&D
- **ROZBORSKI Sébastien**, EDF R&D

## RESEARCH

### Publications

#### Articles in peer-reviewed international journals

- **Abdallah, C., K. Sartelet**, C. Afif. Influence of boundary conditions and anthropogenic emission inventories on simulated O<sub>3</sub> and PM<sub>2.5</sub> concentrations over Lebanon, *Atmos. Pollut. Res.*, **7**, 971-979 (2016), doi:10.1016/j.apr.2016.06.001
- **Bocquet, M.** Localization and the iterative ensemble Kalman smoother, *Q. J. Roy. Meteor. Soc.*, **142**, 1075-10189 (2016), doi:10.1002/qj.2711.
- **Farchi, A., M. Bocquet, Y. Roustan**, A. Mathieu, A. Quérel, Using the Wasserstein distance to compare fields of pollutants: Application to the radionuclide atmospheric dispersion of the Fukushima-Daiichi accident, *Tellus B*, **68**, 31682, (2016), doi/10.3402/tellusb.v68.31682.
- Garcia Vivanco, M., F. Couvidat, **C. Seigneur**, M. Jang, M. Santiago, B. Bessagnet. Evaluation of some SOA formation schemes for the oxidation of anthropogenic gases against experiments in two outdoor chambers, *Int. J. Environ. Pollut.*, **59**, 43-55 (2016).
- Hannart, A., A. Carrassi, **M. Bocquet**, M. Ghil, P. Naveau, M. Pulido, P. Tandeo. DADA: Data assimilation for the detection and attribution of weather- and climate-related events, *Climatic Change*, **136**, 155-174 (2016), doi:10.1007/s10584-016-1595-3.
- **Haussaire, J.-M., M. Bocquet**. A low-order coupled chemistry meteorology model for testing offline and online data assimilation schemes: L95-GRS (v1.0), *Geosci. Model Dev.*, **9**, 393-412 (2016), doi:10.5194/gmd-9-393-2016.
- **Kim, Y., K. Sartelet, C. Seigneur**, A. Charron, J.-L. Besombes, J.-L. Jaffrezo, N. Marchand, L. Polo. Effect of measurement protocol on organic aerosol measurements of exhaust emissions from gasoline and diesel vehicles, *Atmos. Environ.*, **140**, 176-187 (2016), doi:10.1016/j.atmosenv.2016.05.045.
- Lemaire, V., I. Coll, F. Couvidat, C. Mouchel-Vallon, **C. Seigneur**, G. Siour. Oligomer formation in the troposphere: from experimental knowledge to 3-D modeling, *Geosci. Model Dev.*, **9**, 1361-1382 (2016), doi:10.5194/gmd-9-1361-2016.
- **Makké, L., L. Musson-Genon**, P. Plion, **B. Carissimo, M. Milliez**, A. Douce. A new method for fast computation of three-dimensional atmospheric infrared radiative transfer in non scattering medium: Studying for formation, *J. Atmos. Sci.*, **73**, 4137-4149 (2016), doi:10.1175/JAS-D-15-0012.1.
- MacKenzie R., Tomlin A., Kleffmann J., Karl T., Hewitt C. N., Heard D., **Sartelet K.**, Sommariva R., Baltensperger U., Harrison R., Madronich S., McFiggans G., Pandis S., Wenger J., Kiendler-Scharr A., Donahue N.M., Dunmore R., Doherty R., Moller S., Kilbane-Dawe I., McDonald B., Wahner A., **Zhu S.**, Presto A., Kalberer M., Hort M., Lee J., Nikolova I., Jimenez J.L., Whalley L., Salim Alam M. and Skouloudis A. Numerical modelling strategies for the urban atmosphere: general discussion, *Faraday Discuss.*, **189**, 635-660 (2016).
- **Wei, X., E. Dupont, E. Gilbert, L. Musson-Genon, B. Carissimo**. Experimental and numerical study of wind and turbulence in a near-field dispersion campaign at an inhomogeneous site, *Boundary-Layer Meteor.*, **160**, 475-499 (2016), doi:10.1007/s10546-016-0148-7.
- **Zhu, S., K. Sartelet**, R.M. Healy, J. Wenger. Simulation of particle diversity and mixing state over Greater Paris: A model-measurement inter-comparison, *Faraday Discuss.*, **189**, 547-566 (2016), doi:10.1039/CSFD00175G.
- **Zhu, S., K. Sartelet**, Y. Zhang, A. Nenes. Three-dimensional modelling of the mixing state of particles over Greater Paris, *J. Geophys. Res.*, **121**, 5930-5947, doi:10.1002/2015JD024241.

## Articles in other journals or book chapters

- Commenges, H., L. Tomasoni, **C. Seigneur**, O. Bonin, F. Leurent, C. Bonhomme, J.-F. Deroubaix. The function of urban environmental models: trust, consensus and responsibility, L'expertise est-elle soluble dans la modélisation intégrée ?, in *Les instruments de l'action publique et le pilotage des territoires : regards théoriques et empiriques*, J.-C. Némery, F. Thuriot, eds., L'Harmattan, Paris, France (2016).

## Books

- Asch, M., **M. Bocquet**, M. Nodet. *Data Assimilation – Methods, Algorithms, and Applications*, 306 pp., SIAM, 2016.

## International conference proceedings

- Quérel A., D. Quélo, **Y. Roustan**, A. Mathieu, M. Kajino, T. Sekiyama, K. Adachi, D. Didier, Y. Igarashi, T. Maki. Impact of changing the wet deposition schemes in IdX on 137-Cs atmospheric deposits after the Fukushima accident. 17<sup>th</sup> International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, 9-12 Mai 2016, Budapest, Hungary.
- **Thouren, L., C. Seigneur, B. Carissimo, Y. Kim**, F. Mahé, M. André, D. Lejri, D. Villegas, B. Bruge, H. Chanut, Y. Pellan. Intercomparison of three modeling approaches for road dust resuspension using two experimental data sets, 21<sup>st</sup> International Transport and Air Pollution Conference (TAP 2016), 24-26 May 2016, Lyon, France.
- **Kim, Y., K. Sartelet, C. Seigneur**, A. Charron, J.-L. Besombes, J.-L. Jaffrezo, N. Marchand, L. Polo. Effect of measurement protocol on organic aerosol measurements of exhaust emissions from gasoline and diesel vehicles, 21<sup>st</sup> International Transport and Air Pollution Conference (TAP 2016), 24-26 May 2016, Lyon, France.
- **Thouren, L., Y. Kim, B. Carissimo, C. Seigneur**. Intercomparison of two modeling approaches for on-road traffic air pollution at the street level including building effects, 24<sup>th</sup> International Conference on Modelling, Monitoring and Management of Air Pollution (Air Pollution 2016), 20-22 June 2016, Crete, Greece.
- **Raffort, V., Y. Kim, L. Donnat, C. Juery, Y. Roustan, C. Seigneur, O. Duclaux**. Sensitivity analysis of ambient particulate matter to industrial emissions using a plume-in-grid approach: application in the Greater Paris region, 35<sup>th</sup> International Technical Meeting on Air Pollution Modelling and its Application, 3-7 October 2016, Chania, Crete, Greece.
- **Sartelet K.** (2016), Improving aerosol forecast in air quality models by assimilation of lidar data, TO-PROF Workshop on Evaluation and Data Assimilation in Atmospheric Models using Automatic-Lidar-and-Ceilometer Measurements, 1-2 December 2016, Jussieu, Paris.

## National conference proceedings

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## International conference oral and poster presentations

- **Kim, Y., Y. Wu, Y. Roustan, C. Seigneur.** Multi-scale modeling of urban air pollution: development of a Street-in-Grid model. European Geosciences Union General Assembly 2016, 17-22 April 2016, Vienna, Austria.
- Quérel A., D. Quélo, **Y. Roustan**, A. Mathieu, M. Kajino, T. Sekiyama, K. Adachi, D. Didier, Y. Igarashi. Sensitivity study of the wet deposition schemes in the modelling of the Fukushima accident. European Geosciences Union General Assembly 2016, 17 – 22 Avril, Vienna, Austria.
- **Roustan Y., M. Bocquet**, E. Eriksson, D. Buty, A. Finlayson, F. Innocenti, R. Robinson, D. Butterfield. Inverse modelling of methane fugitive emissions from waste water treatment plant, 17<sup>th</sup> International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, 9-12 Mai 2016, Budapest, Hungary.
- **Kim, Y., Y. Wu, C. Seigneur, Y. Roustan.** Multi-scale modeling of urban air pollution: development and application of a Street-in-Grid model, 17<sup>th</sup> IUAPPA World Clean Air Congress and 9<sup>th</sup> CAA Better Air Quality Conference, 29 August – 2 September 2016, Busan, South Korea.
- **Chrit M., Sartelet K.**, Beekman M., Cholakian A., Marchand N., Pey J., Sciare J., Sellegri K., Origins and formation of organic aerosols during ChArMex summer campaigns, Atmospheric Processes in the Mediterranean, 17-21 October 2016, Cyprus.
- Freney E., Sellegri K., Brito J., Dupuy R., Adachi K., Borbon A., Colomb A., Pichon J.M., Bouvier L., **Chrit M.**, Delon C., Durand P., Bourianne T., Gaimoz C., Triquet S., Féron A., Beekman M., **Sartelet K.** Chemical and physical properties of air masses over a Mediterranean forest., 22<sup>nd</sup> European Aerosol Conference, 4-9 September, Tours, France.
- **Zhu S., Sartelet K.** (2016), Simulation of seasonal influence on particle diversity and mixing state over Greater Paris., 22<sup>nd</sup> European Aerosol Conference, 4-9 September, Tours, France.
- **Zhu S., Sartelet K.**, Healy R., Wenger J. (2016), Simulation of particle diversity and mixing state over Greater Paris: A model-measurement inter-comparison, Faraday Discussions, 6-8 April 2016, London, UK.
- **Chrit M., Sartelet K.**, Sciare J., Marchand N., Pey J., and Sellegri K. (2016). Simulation of aerosol chemical compositions in the Western Mediterranean Sea, EGU, Vienne, Austria, 17-22 April 2016.
- **M. Bocquet**: On the convergence of (ensemble) Kalman filters and smoothers onto the unstable subspace, *European Geosciences Union General Assembly 2016*, 17-22 April 2016, Vienna, Austria. [invited]
- O. Saunier, A. Mathieu, T. Sekiyama, M. Kajino, K. Adachi, **M. Bocquet**, Y. Igarashi, D. Didier : A new perspective on the Fukushima releases brought by newly available air concentration observations (Tsuruta et al, 2014) and reliable meteorological fields, *European Geosciences Union General Assembly 2016*, 17-22 April 2016, Vienna, Austria.
- O. Saunier, A. Mathieu, T. Sekiyama, M. Kajino, K. Adachi, **M. Bocquet**, Y. Igarashi, T. Maki, D. and Didier : A new perspective on the Fukushima releases brought by newly available <sup>137</sup>Cs air concentration observations and reliable meteorological fields, *17th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes*, 9-12 May 2016, Budapest, Hungary, 2016.
- S. Metref, A. Hannart, J. Ruiz, A. Carrassi, **M. Bocquet**, and M. Ghil : Event attribution using data assimilation in an intermediate complexity atmospheric model, *European Geosciences Union General Assembly 2016*, 17-22 April 2016, Vienna, Austria.
- **M. Bocquet** : On the convergence of (ensemble) Kalman filters and smoothers onto the unstable subspace, *Seminar at Freie Universität Berlin*, 16 June 2016, Berlin, Germany. [invited]
- **M. Bocquet** : Estimating model evidence using data assimilation, *Workshop on Stochastic Weather Generators*, 17-20 May 2016, Vannes, France. [invited]

- **M. Bocquet** : On the convergence of (ensemble) Kalman filters and smoothers onto the unstable subspace, *11<sup>th</sup> EnKF Workshop*, 20-22 June 2016, Bergen, Norway. [invited]
  - A. Carrassi, **M. Bocquet**, A. Hannart and M. Ghil : Estimating model evidence using data assimilation, *11<sup>th</sup> EnKF Workshop*, 20-22 June 2016, Bergen, Norway.
  - **M. Bocquet** : Estimating model evidence using data assimilation, *Extreme value modeling and water resources*, 27 June - 1<sup>st</sup> July 2016, Aussois, France. [invited]
  - **M. Bocquet** et al. : Nonlinear four-dimensional ensemble variational data assimilation for chaotic geophysical models, *5<sup>th</sup> International Symposium on Data Assimilation*, 18-22 July 2016, University of Reading, Reading, UK.
  - **M. Bocquet** et al. : Efficient geophysical data assimilation, a Big Data challenge, *5<sup>th</sup> international conference Data Analysis and Modeling in Earth Sciences (DAMES)*, 26-28 September 2016, Hamburg, Germany. [invited].
  - A. Carrassi, **M. Bocquet**, A. Hannart and M. Ghil : Estimating model evidence using data assimilation. Efficient geophysical data assimilation, a Big Data challenge, *5<sup>th</sup> international conference Data Analysis and Modeling in Earth Sciences (DAMES)*, 26-28 September 2016, Hamburg, Germany. [invited]
  - **M. Bocquet**, A. Carrassi et al. : On the convergence of (ensemble) Kalman filters and smoothers onto the unstable subspace, *Mathematical and Algorithmic Aspects of Data Assimilation in the Geosciences*, 2-8 October 2016, Oberwolfach, Germany. [invited]
  - A. Carrassi, **M. Bocquet**, A. Hannart and M. Ghil : Estimating model evidence using data assimilation, *Mathematical and Algorithmic Aspects of Data Assimilation in the Geosciences*, 2-8 October 2016, Oberwolfach, Germany. [invited]
  - L. I. Díaz-Isaac, T. Lauvaux, K. Davis and **M. Bocquet**. Quantification of Transport Errors and their Impact in CO<sub>2</sub> Mixing Ratios with a WRF-Chem Physics-based Ensemble, *96<sup>th</sup> AMS Annual Meeting*, New Orleans, LA, January 2016.
  - P. Sakov, **M. Bocquet** and **J.-M. Haussaire** : Iterative ensemble Kalman filter in presence of model error, *Annual R&D Workshop of the Bureau of Meteorology: Data Assimilation*, 5-9 December 2016. Melbourne, Australia.
- J.-M. Haussaire** and **M. Bocquet** : Lessons from a low-order coupled chemistry meteorology model and applications to a high-dimensional chemical transport model, *European Geosciences Union General Assembly 2016*, 17-22 April 2016, Vienna, Austria.
- A. Carrassi, **M. Bocquet**, A. Hannart and M. Ghil : Data assimilation for computing model evidence: The attribution problem, *European Geosciences Union General Assembly 2016*, 17-22 April 2016, Vienna, Austria.
  - P. Raanes, and **M. Bocquet** : The finite-size EnKF and inflation, *European Geosciences Union General Assembly 2016*, 17-22 April 2016, Vienna, Austria.
  - P. Raanes, and **M. Bocquet** : The finite-size EnKF and inflation, *11<sup>th</sup> EnKF Workshop*, 20-22 June 2016, Bergen, Norway.
  - L. I. Díaz-Isaac, T. Lauvaux, K. Davis, N. Miles, S. Richardson and **M. Bocquet** : Sensitivity and Uncertainty Analysis of Physical Parameterization and Initial Conditions on Meteorological Variables and CO<sub>2</sub> Mole Fractions, *NOAA ESRL Global Monitoring Annual Conference*, Boulder, CO, May 2016.
  - M. Tondeur, A. Carrassi , S. Vannitsem and **M. Bocquet** : Coupled data assimilation using a low order coupled atmosphere-ocean model, *ESSO-INCOIS school*, 17-21 October 2016, Hyderabad, India.



- **Gao Z., R. Bresson, B. Carissimo** : A Microscale CFD Simulation of Three Days in a Neighborhood of Toulouse for Pollutant Dispersion, Twentieth Annual George Mason University Conference on Atmospheric Transport and Dispersion Modeling. George Mason University, Fairfax, VA, USA
- Tsyro S., A. Manders, A. Colette, B. Bessagnet, H. Fagerli, K. Cuvelier, M. G. Vivanco, M. Mircea, M.-T. Pay, K. Mar, **Y. Roustan**, P. Wind, **V. Raffort**. PM trends in Europe : multi-model and monitoring assessment. 22<sup>nd</sup> European Aerosol Conference, 4 – 9 September 2016, Tours, France.
- **Raffort V., Y. Roustan**, A. Colette, B. Bessagnet, F. Couvidat, H. Fagerli, S. Tsyro, P. Wind, M. Garcia Vivanco, M. Theobald, A. Manders, K. Mar, T. Butler, N. Ojha, A. Pozzer, M. Mircea, G. Briganti, M. Adani, M. D'Isidoro, A. Cappelletti, M.-T. Pay, K. Cuvelier. Comparison of the formation of secondary organic aerosols (SOA) in the context of the Eurodelta Trend exercise. 22<sup>nd</sup> European Aerosol Conference, 4 – 9 September 2016, Tours, France.
- Colette A., B. Bessagnet, F. Couvidat, H. Fagerli, S. Tsyro, P. Wind, M. Garcia Vivanco, M. Theobald, A. Manders, K. Mar, T. Butler, N. Ojha, A. Pozzer, M. Mircea, G. Briganti, A. Cappelletti, M. Adani, M. D'Isidoro, M.-T. Pay, V. Raffort, Y. Roustan, K. Cuvelier. Overview of EURODELTA-TRENDS, the Air Quality Hindcast Modelling Exercise. 35<sup>th</sup> International Technical Meeting on Air Pollution Modelling and its Application, 3-7 October 2016, Chania, Crete, Greece.
- Colette A., B. Bessagnet, F. Couvidat, H. Fagerli, S. Tsyro, P. Wind, M. Garcia Vivanco, M. Theobald, A. Manders, K. Mar, T. Butler, N. Ojha, A. Pozzer, M. Mircea, G. Briganti, A. Cappelletti, M. Adani, M. D'Isidoro, M.-T. Pay, V. Raffort, Y. Roustan, K. Cuvelier. PM trends in 1990-2010: multi-model and monitoring assessment for Europe within EURODELTA-TRENDS.. 35<sup>th</sup> International Technical Meeting on Air Pollution Modelling and its Application, 3-7 October 2016, Chania, Crete, Greece.

## National conference oral and poster presentations

- **Seigneur, C.** Non-linéarités entre émissions de polluants et concentrations : état des connaissances, Journée d'études du CITEPA, « Emissions de polluants et qualité de l'air, des relations complexes », 5 April 2016, Paris, France.
- **Sartelet K.** (2016), La formation des aérosols secondaires, Journée d'études du CITEPA, 5 avril 2016, Paris, France.
- **Sartelet K.** (2016), Modélisation de l'état de mélange des particules: impact sur les concentrations et les propriétés, Atelier aérosols-climat, 31 mai 2016, Jussieu, France.
- **M. Bocquet**, G. Desroziers et al. : Localisation pour les méthodes variationnelles d'ensemble 4D. *Colloque national sur l'assimilation de données 2016*, 30 November-2 December 2016, Grenoble.
- **J.-M. Haussaire** and **M. Bocquet** : Assimilation de données variationnelle d'ensemble dans un contexte stable: Application à la chimie atmosphérique, *Colloque national sur l'assimilation de données 2016*, 30 November-2 December 2016, Grenoble.
- **A. Fillion, M. Bocquet** and S. Gratton : Assimilation de données variationnelle d'ensemble quasi statique, *Colloque national sur l'assimilation de données 2016*, 30 November-2 December 2016, Grenoble.
- **A. Farchi, M. Bocquet, Y. Roustan**, A. Mathieu and A. Quérel : Comparaison de panaches de polluants simulés au moyen de la distance de Wasserstein, *Colloque national sur l'assimilation de données 2016*, 30 November-2 December 2016, Grenoble.

- Ars S., G. Broquet, C. Yver Kwok, **Y. Roustan**, L. Wu. Quantification of methane fluxes from industrial sites using a combination of a tracer release method and a Gaussian model. Les journées nationales méthane 2015, 10-11 Mars 2015, Paris, France.

## Workshop organization

- **Bocquet, M.**, and Adrian Sandu. SIAM PP mini-symposium on parallel methods for data assimilation, Paris, France, April 12 - 15, 2016.

## Committee activities

### Editorial boards

- **Bocquet M.**, Associate Editor, "Quartely Journal of the Royal Meteorological Society"
- **Musson-Genon L.**, Scientific Committee, « Pollution Atmosphérique »

### International conference committees

### National conference committees

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### Conference session chairs

- **M. Bocquet** : Tuesday 21/06/2016 session, *11<sup>th</sup> EnKF Workshop*, 20-22 June 2016, Bergen, Norway.
- **M. Bocquet** : Session Assimilation d'images et de données structurées, *Colloque national sur l'assimilation de données 2016*, 1 December 2016, Grenoble.

### Scientific committees

- **Bocquet M.**, Scientific committee, European Center for Scientific Computing (CERFACS).
- **Bocquet M.**, Co-chair: Scientific Committee of the "Mathematical and numerical methods" (MANU) activity of the research program, "Les enveloppes fluides et l'environnement" (LEFE) of the National Institute of Earth and Space Science (INSU).
- **Bocquet M.**, **C. Seigneur**, Management Committee, Pierre-Simon Laplace Institute (IPSL).
- **Bocquet M.**, Prix André Prud'homme Committee of the Meteorology and Climate Society.
- **Demengel D.**, **E. Dupont**, **Y. Roustan**, **C. Seigneur**, Council, EFLUVE Observatory (Observatoire des sciences de l'univers ; Enveloppes fluides : de la ville à l'exobiologie).
- **Dupont E.**, **L. Musson-Genon**, Scientific Committee, "Site instrumental de recherche par télédétection atmosphérique" (SIRTA).

- **Dupont E., Musson-Genon L., Seigneur C.**, Scientific Committee OSU EFLUVE.
- **Sartelet K.**, Scientific Committee of the "Atmospheric Chemistry" (CHAT) activity of the research program "Les enveloppes fluides et l'environnement" (LEFE) of the National Institute of Earth and Space Science (INSU).
- **Seigneur C.**, General Assembly of the Air Quality Agency for the Paris Region (AIRPARIF).
- **Seigneur C.**, Scientific Committee of the Copernicus program of the Ministry of Ecology, Sustainable Development, and Energy (Copernicus-MDD).
- **Seigneur C.**, Scientific and Steering Committee of the Excellence Laboratory (Labex) "Urban Futures".
- **Seigneur C.**, Board of CITEPA (Interprofessional Technical Center for Air Pollution Studies).
- **Seigneur C.**, Scientific Committee of I-Site FUTURE Vague 2 of Université Paris-Est.
- **Seigneur C.**, Working Group on « Knowledge – Information » for the development of the second phase of the national program for climate change adaptation (PNACC-2), Ministry of Environment, Energy, and Sea.
- **Seigneur C.**, Scientific Committee of the Energy and Environment Knowledge Week Conference (E2KW), 28-29 October 2016, Université Paris-Est Créteil.
- **Seigneur C.**, Scientific Committee of the Energy and Environment Knowledge Week Conference (E2KW), 28-29 October 2016, Université Paris-Est Créteil.
- **Sartelet K.**, Expert in the working group « particles » of l'Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail (ANSES) (septembre 2015-2017)
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### Thesis committees (other than Cerea theses)

- **Seigneur C.** Ph.D. thesis, Elise Hallemands, « Etude de la formation, du vieillissement et de la composition chimique de l'aérosol organique secondaire dans le bassin méditerranéen », Université Paris-Est, 5 décembre 2016.
- **Seigneur C.** Ph.D. thesis, Rachid Ouaret, « Déterminants et prévision des fluctuations de la concentration en polluants dans un environnement intérieur », Université Paris-Est, 19 juillet 2016.
- **Bocquet, M.**, PhD, Camille Birman, " Apport des observations de télédétection micro-ondes à la caractérisation des précipitations à méso-échelle", Toulouse University, 11 February 2016.
- **Sartelet K.**, PhD thesis Louis Marelle « Modélisation régionale des polluants à courte durée de vie (aérosols, ozone) en Arctique », LATMOS, 20 juin 2016.
- **Sartelet K.**, PhD thesis Stéphanie La, « Formation des aérosols organiques secondaires : évaluation d'un modèle explicite par la comparaison à des observations de chambre de simulation atmosphérique », Université Paris-Est Créteil, septembre 2016.

## HDR committees

- **Bocquet, M.**, rapporteur, HdR, Philippe Peylin. “Le cycle du carbone des écosystèmes terrestres : Apports de la modélisation directe et inverse”, Versailles-Saint-Quentin-en-Yvelines University, France, May 31, 2016.
- **Bocquet, M.**, rapporteur, HdR, Loïk Berre. “Estimation et modélisation des covariances spatiales d'erreur d'ébauche en assimilation de données”, Toulouse University, France, 26 March 2016.
- **Bocquet, M.**, HdR, Yann Michel. “Représentation des incertitudes et assimilation de données pour la prévision numérique du temps”, Institut National Polytechnique de Toulouse, France, 1<sup>st</sup> July 2016.
- **Carissimo B.** HDR Benoit Gauvreau « Approche Multi-échelle et Trans-Disciplinaire de L'Acoustique Environnementale » Université du Maine, 16 décembre 2016

## EDUCATIONAL ACTIVITIES

### Teaching

#### École des Ponts ParisTech

- **Carissimo B.**, MECA 1, Mécanique des fluides (Fluid mechanics).
- **Seigneur C., L. Musson-Genon**, POLU1, Environnement atmosphérique et qualité de l'air (Atmospheric environment and air quality).
- **Roustan Y., Sartelet K.** Pollution atmosphérique (Air pollution), Master Transports et développement durable (TRADD).
- **Bocquet M.**, Introduction à l'assimilation de données (Introduction to data assimilation), Master Océan, atmosphère, climat et observations spatiales (OACOS).
- **Roustan Y., C. Seigneur**, Modélisation de la pollution atmosphérique (Mathematical modeling of air pollution) Master Science et génie de l'environnement (SGE).
- **Seigneur C.**, Pollution atmosphérique et aérocontamination (Air pollution and contamination), Master Science et génie de l'environnement (SGE).
- **Seigneur C., Y. Roustan**, Etude de cas : pollution atmosphérique », module « Développement durable : ingénieurs pour un monde complexe », 1<sup>ère</sup> année du cycle ingénieur de l'École des Ponts ParisTech (2016).
- **Carissimo, B.**, Météorologie, 1<sup>ère</sup> année du cycle ingénieur de l'École des Ponts ParisTech (2016).

#### Other Masters

- **Seigneur C.**, "Chemistry of air pollution", Master: Sciences et Techniques de l'Environnement Urbain (STEU), École Centrale de Nantes.
- **Seigneur C., B. Carissimo**, "Atmospheric dispersion", Master: Project Management for Environmental and Energy Engineering (PM3E), École des Mines de Nantes.

#### École Nationale des Travaux Publics de l'État

- **Roustan Y.**, Qualité de l'air et santé (Air quality and Health).

## DISSEMINATION ACTIVITIES

### Public communications

- **Seigneur C.** Interview, « Pollution : 48 000 morts en France » par Pauline Fréour, Section Santé, *Le Figaro*, 21 juin 2016.

