List of research activities

2018

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: Pietro Bernardara

Deputy director: Marc Bocquet

LABORATORY STAFF

Staff: 28 (as of 31 December 2018)

Permanent research staff and faculty

ANGOT Guillaume, EDF R&D, Research engineer
BERNARDARA Pietro, EDF R&D, Director
BOCQUET Marc, École des Ponts ParisTech, Senior Researcher (ICPEF) and Professor, HDR
CARISSIMO Bertrand, EDF R&D, Senior Researcher and Associate Professor, HDR
DUPONT Éric, EDF R&D, Research engineer
ROUSTAN Yelva, École des Ponts ParisTech, Researcher (CR1)
SARTELET Karine, École des Ponts ParisTech, Researcher (DR2), HDR
DEFOSSEZ Arièle EDF R&D, Research engineer

Post-doctoral scientists

MESSINA Palmira, École des Ponts ParisTech
RAFFORT Valentin, 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 and CERFACS, ED SIE
MAJDI Marwa, École des Ponts ParisTech, ED SIE
LUGON Lya, École des Ponts ParisTech

Interns

DUFRESNOY Marc, École des Ponts ParisTech

Engineers

BRESSON Raphaël, EDF R&D, Engineer
DEMENGEL Dominique, EDF R&D, Engineer
KIM Youngseob, École des Ponts ParisTech
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
ROZBORSKI Sébastien, EDF R&D

Articles in peer-reviewed international journals

1. P. Sakov, **J.-M. Haussaire**, and **M. Bocquet**. *An iterative ensemble Kalman filter in presence of additive model error*, Q. J. R. Meteorol. Soc., 144, 1297-1309, 2018, doi:10.1002/qj.3213.

2. P. Sakov and **M. Bocquet**. *Asynchronous data assimilation with the EnKF in presence of additive model error*, Tellus A, 70, 1414545, 2018, doi:10.1080/16000870.2017.1414545.

3. T. Janjić, N. Bormann, **M. Bocquet**, J. A. Carton, S. E. Cohn, S. L. Dance, S. N. Losa, N. K. Nichols, R. Potthast, J. A. Waller, and P. Weston. *On the representation error in data assimilation*, Q. J. R. Meteorol. Soc., 144, 1257-1278, 2018, doi:10.1002/qj.3130.

4. M. Pulido, P. Tandeo, **M. Bocquet**, A. Carrassi and M. Lucini. *Stochastic parameterization identification using ensemble Kalman filtering combined with maximum likelihood methods*, Tellus A, 70, 1442099, 2018, doi:10.1080/16000870.2018.1442099.

5. **A. Fillion**, **M. Bocquet**, and S. Gratton. *Quasi static ensemble variational data assimilation: a theoretical and numerical study with the iterative ensemble Kalman smoother*. Nonlin. Processes Geophys., 25, 315-334, 2018, doi:10.5194/npg-25-315-2018.

6. C. Grudzien, A. Carrassi, A, and **M. Bocquet**. *Chaotic dynamics and the role of covariance inflation for reduced rank Kalman filters with model error*. Nonlin. Processes Geophys., 25, 633-648, 2018, doi:10.5194/npg-25-633-2018.

7. C. Grudzien, A. Carrassi, and **M. Bocquet**. *Asymptotic forecast uncertainty and the unstable subspace in the presence of additive model error*. SIAM/ASA J. Uncertainty Quantification, 6, 1335–1363, 2018, doi:10.1137/17M114073X.

8. O. Pannekoucke, **M. Bocquet**, and R. Ménard. *Parametric covariance dynamics for the nonlinear diffusive Burgers equation*. Nonlin. Processes Geophys. 25, 481-495, 2018, doi: 10.5194/npg-25-481-2018.

9. A. Carrassi, **M. Bocquet**, L. Bertino, and G. Evensen. *Data Assimilation in the Geosciences - An overview on methods, issues, and perspectives*. WIREs Climate Change, 9, e535, 2018, doi:10.1002/wcc.535.

10. **A. Farchi** and **M. Bocquet**. *Review article: {C}omparison of local particle filters and new implementations*. Nonlin. Processes Geophys., 25, 765-807, 2018, doi:10.5194/npg-25-765-2018.

11. **Z. Gao, R. Bresson, Y. Qu, M. Milliez**, C. Demunck, **B. Carissimo** *High resolution unsteady RANS simulation of wind, thermal effects and pollution dispersion for studying urban renewal scenarios in a neighborhood of Toulouse, Urban Climate 23*, 114-130, 2018, doi:10.1016/j.uclim.2016.11.002

12. A. Chahine**, É. Dupont,** L. Musson-Genon**, C. Legorgeu, B. Carissimo** *Long term modelling of the dynamical atmospheric flows over SIRTA site*, J. Wind Eng. Ind. Aerod. 172, 351-366, 2018, doi:10.1016/j.jweia.2017.09.004

13. **Y. Kim**, Y. Wu, **Seigneur C**., and **Y. Roustan,** *Multi-scale modeling of urban air pollution: development and application of a Street-in-Grid model* (v1.0) by coupling MUNICH (v1.0) and Polair3D (v1.8.1). Geosci. Model Dev., 11, 611-629, 2018, doi:10.5194/gmd-11-611-2018

14. **K. Sartelet**, **C. Legorgeu**, **L. Lugon**, Y. Maanane and L. Musson-Genon, *Representation of aerosol optical properties using a chemistry transport model to improve solar irradiance modelling.* Solar Energy, 176, 439-452, 2018, doi:10.1016/j.solener.2018.10.017.

15. **M. Chrit**, **K. Sartelet**, J. Sciare, **M. Majdi**, J. Nicolas, J.-E Petit, and F. Dulac, *Modeling organic aerosol concentrations and properties during winter 2014 in the northwestern Mediterranean region.* Atmos. Chem. Phys, 18, 18079-18100, 2018, doi:10.5194/acp-18-18079-2018.

16. **M. Chrit**, **K. Sartelet**, J. Sciare, J. Pey, J. B Nicolas, N. Marchand, E. Freney, K. Sellegri, M. Beekmann, and F. Dulac, *Aerosol sources in the western Mediterranean during summertime: A model-based approach.* Atmos. Chem. Phys, 18, 9631-9659, 2018, doi:10.5194/acp-18-9631-2018.

17. **K. Sartelet**, S. Zhu, S. Moukhtar, M. André, JM. André, V. Gros, O. Favez, A. Brasseur, M. Redaelli. *Emission of intermediate, semi and low volatile organic compounds from traffic and their impact on secondary organic aerosol concentrations over Greater Paris.* Atmos. Environ., 180, 126-137, 2018, doi:10.1016/j.atmosenv.2018.02.031.

18. E. Freney, K. Sellegri, **M. Chrit**, K. Adachi, J. Brito, A. Waked, A. Borbon, A. Colomb, R. Dupuy, J.-M. Pichon, L. Bouvier, C. Delon, C. Jambert, P. Durand, T. Bourianne, C. Gaimoz, S. Triquet, A. Féron, M. Beekmann, F. Dulac, and **K. Sartelet.** *Aerosol composition and the contribution of SOA formation over Mediterranean forests.* Atmos. Chem. Phys., 18, 7041-7056, 2018, doi:10.5194/acp-18-7041-2018.

1. A. Cholakian, M. Beekmann, A. Colette, I. Coll,G. Siour, J. Sciar, N. Marchand, F. Couvidat, J. Pey, V. Gros, S. Sauvage, V. Michoud, K. Sellegri, A. Colomb, **K. Sartelet**, Langley DeWitt H., Elser M., Prévot A.S.H., Szidat S., Dulac F. *Simulation of fine organic aerosols in the western Mediterranean area during the ChArMEx 2013 summer campaign.* Atmos. Chem. Phys., 18, 7287-7312, 2018, doi:10.5194/acp-18-7287-2018.

2. C. Abdallah, C. Afif, N. El Masri, F. Öztürk, M. Keleç, **K. Sartelet**, *A first annual assessment of air quality modeling over Lebanon using WRF/Polyphemus.* Atmos. Poll. Res, 9, 643-654, 2018, doi:10.1016/j.apr.2018.01.003.

3. **ML. Bahlali**, **E. Dupont**, **B. Carissimo**, *A hybrid CFD RANS/Lagrangian approach to model atmospheric dispersion of pollutants in complex urban geometries.* Int. J. Environment and Pollution, Vol. 64, 74-89, 2018, doi:10.1504/IJEP.2018.099150.

Book chapters

1. I. Hoteit, X. Luo, **M. Bocquet**, A. Köhl, B. Ait-El-Fquih. *Data Assimilation in Oceanography: Current Status and New Directions.* In Chassignet, E. P., A. Pascual, J. Tintoré, and J. Verron (Eds.). New Frontiers in Operational Oceanography. GODAE OceanView, 465-511, 2018.

2. V. Loizeau, **Y. Roustan**, N. Duhanyan, L. Musson-Genon, P. Ciffroy. *Modelling the fate of chemicals in the atmosphere*, Handbook of Environmental Chemistry, Volume 57, 101-125, 2018.

Conference articles

1. P.-Y. Foucher, P. Deliot, L. Poutier, O. Duclaux, **V. Raffort, Y**. **Roustan,** *Aerosol plume characterisation from multi-temporal hyperspectral analysis,* International Geoscience and Remote Sensing Symposium (IGARSS), art. no. 8518476, 6029-6032, 2018. doi: 10.1109/IGARSS.2018.8518476.

2. **V. Raffort**, **Y. Kim**, L. Donnat, C. Juery, **Y. Roustan**, **C. Seigneur** et O. Duclaux. *Sensitivity Analysis of Ambient Particulate Matter to Industrial Emissions Using a Plume-in-Grid Approach: Application in the Greater Paris Region*, Air Pollution Modeling and its Application XXV, 297-302, 2018, doi:10.1007/978-3-319-57645-9_47.

International conference oral presentations

1. P. Raanes, **M. Bocquet**, and A. Carrassi. *Adaptive covariance inflation in the EnKF by Gaussian scale mixtures*, European Geosciences Union General Assembly 2018, April 8-13, 2018, Vienna, Austria.

2. **A. Farchi** and **M. Bocquet**, *Localisation in particle filters. methods comparison and improvements,* European Geosciences Union General Assembly 2018, April 8-13, 2018, Vienna, Austria.

3. A. Carrassi, **M. Bocquet**, and O. Talagrand. *Data assimilation in the geosciences - An Overview,* European Geosciences Union General Assembly 2018, April 8-13, 2018, Vienna, Austria. [invited]

4. P. Raanes, **M. Bocquet** and A. Carrassi. *Two "failed" improvements to the particle filter,* 42nd SIAM Southeastern Atlantic Sectional Conference, minisymposium: "Data Assimilation Methods in Climate", March 10, 2018, UNC Chapel Hill, North Carolina, USA.

5. P. Raanes, **M. Bocquet** and A. Carrassi. *Adaptive covariance inflation in the EnKF by Gaussian scale mixtures,* Special Guest Lecture Series of SAMSI: Statistical and Applied Mathematical Sciences Institute, March 15, 2018, Durham, North Carolina, USA [invited]

6. P. Raanes, **M. Bocquet** and A. Carrassi. *Adaptive covariance inflation in the EnKF by Gaussian scale mixtures,* NCAR, March 23, 2018, Boulder, Colorado, USA.

7. **M. Bocquet** et al.. *Attribution of climatic events using a data assimilation–based formulation of model evidence,* VVSOR annual meeting, March 28-29, 2018, Utrecht, The Netherlands. [invited]

8. A. Carrassi, S. Vannitsem, L. Mitchell, M. Pulido, **M. Bocquet**, P. Tandeo and M. Lucini. *Some ideas on how to treat model error in data assimilation: A focus on the problem in the geosciences,* SIAM Uncertainty Quantification 2018, April 19, 2018, Los Angeles, USA. [invited]

9. **M. Bocquet**, P. Sakov, J**.-M. Haussaire**. *An iterative ensemble Kalman filter in presence of additive model error,* EnKF data assimilation workshop, May 8, 2018, Montreal, Québec, Canada.

10. P. Raanes, **M. Bocquet** and A. Carrassi. *Adaptive covariance inflation in the EnKF by Gaussian scale mixtures,* 13th EnKF Workshop, May 29, 2018, Bergen, Norway.

11. C. Grudzien, A. Carrassi, and **M. Bocquet**. *Chaotic dynamics and the role of covariance inflation for reduced rank Kalman filters with model error,* 13th EnKF Workshop, May 28, 2018, Bergen, Norway.

12. **A. Farchi** and **M. Bocquet**. *Localisation in particle filters: methods comparison and improvements,* 13th EnKF Workshop, May 28, 2018, Bergen, Norway.

13. **M. Bocquet.** *Issues specific to data sparse systems,* ECMWF Annual Seminar 2018, September 11, 2018, Reading, UK. [invited]

14. P. Tandeo, P. Ailliot, **M. Bocquet**, A. Carrassi, I. Hoteit, M. Pulido, and T. Miyoshi. *Estimation of error covariance matrices in data assimilation.* RIKEN International Workshop on Uncertainty Quantification (UQWS), February 2018, Kobe, Japan.

15. C. Grudzien, A. Carrassi, and **M. Bocquet**. *Chaotic dynamics and the role of covariance inflation in the presence of model error,* Statistical Inference for Stochastic Process Models in Weather and Climate Science, September 11, 2018, Lorentz Center, Utrecht, The Netherlands. [invited]

16. C. Grudzien, A. Carrassi, and **M. Bocquet**. *A dynamical systems framework for ensemble based filtering: a problem partially solved,* IPSL/SAMA group seminar, October 18, 2018, École Normale Supérieure, Paris, France. [invited]

17. **Y. Roustan, V. Raffort**, O. Duclaux, J. Lemus, **K. Sartelet**, P.Y. Foucher, A. Armengaud, H. Wortham, C. Juery. *Evaluation of a plume-in-grid approach to represent particulate matter in a refinery plume*, 1st CMAS-Asia-Pacific conference, May 21-23, 2018, Pékin, Chine.

18. S. Tsyro, C. Andersson, B. Bessagnet, G. Ciarelli, A. Colette, F. Couvidat, K. Cuvelier, A. Manders, K. Mar, M. Mircea, W. Aas, N. Otero, M.-T. Pay, **V. Raffort**, Y**. Roustan**, M. R. Theobald, M. G. Vivanco, H. Fagerli, P. *Wind. Trends of PM pollution and health effects in Europe during the 1990-s and 2000-s: multi-model and observational assessment.* 15th International Global Atmospheric Chemistry, September 25–29, 2018, Takamatsu Kagawa, Japon.

19. A. Quérel, D. Quélo, **Y. Roustan**, A. Mathieu. *Simulation of the atmospheric deposit consecutive to the Fukushima accident: variability of response due to several wet deposition schemes.* European Geosciences Union General Assembly 2018, April 8–13, Vienna, Austria.

20. G. Ciarelli, A. Colette, F. Couvidat, B. Bessagnet, M. Beekmann, M. Theobald, M. Vivanco, S. Tsyro, H. Fagerli, C. Andersson, R. Bergstrom, A. Manders-Groot, M.-T. Pay, **Y. Roustan**, **V. Raffort**, K. Cuvelier, M. Adani, G. Briganti, A. Cappelletti, M. Mircea, M. D'isidoro et P. Wind. *Trends of inorganic and organic aerosols in Europe: insights from the EURODELTA multi-model experiment over the 1990 – 2010 period.* European Geosciences Union General Assembly 2018, April 8–13, Vienna, Austria.

21. B. D'Anna, **K. Sartelet** , N. Marchand (2018). *Impacts of Emission from Car Exhaust on Air Quality*, International Conference and Exhibition SIA Powertrain, Rouen, 16-17 May 2018.

22. **M. Chrit**, K. **Sartelet**, J. Sciare, M. Marchand, E. Freney, JB. Nicolas, K. Sellegri, M. Majdi, F. Couvidat, M. Beekmann, F. Dulac, J. Pey (2018). *Modelling concentrations and properties of secondary aerosols in the Western Mediterranean*, EGU General Assembly 2018, April 2018, Vienne, Austria.

23. S. Sauvage, A. Borbon, V. Gros, C. Afif C, Delon, F. Ozturk, S. Turquety, **K. Sartelet**, V. Michoud, N. Marchand, J. Sciare, N. Mihalopoulos, K. Sellegri, A. Waked, T. Salameh, F. Dulac F (2018) *Assessing anthropogenic and natural source contributions to particulate and gaseous air quality over the Mediterranean basin*. EGU General Assembly 2018, Apr 2018, Vienne, Austria.

24. **K. Sartelet**. (2018). *Air pollution*. ENPC-Tokyo University joint workshop. Tokyo, Japan, 3-4 December 2018.

25. **M. Majdi**, **K**. **Sartelet,** F. Couvidat, GM. Lanzafame, **M. Chrit**, S. Turquety, **Y. Kim**, B. Bessagnet, A. Albinet (2018). Modeling Secondary Organic Aerosol (SOA) *Formation from Biomass Burning in the Euro-Mediterranean Region during the Summer 2007*. 10th International Aerosol Conference, September 2-7 2018, Saint-Louis, Missouri, USA.

International conference poster presentations

1. Alexander Baklanov et al., incl. **C. Seigneur** and **M. Bocquet**: *Strategy and key issues for seamless integrated chemistry-meteorology modeling*, European Geosciences Union General Assembly 2018, April 8-13, 2018, Vienna, Austria.

2. C. Grudzien, A. Carrassi, and **M. Bocquet**: *Chaotic dynamics and the role of covariance inflation for reduced rank Kalman filters with model error,* European Geosciences Union General Assembly 2018, April 8-13, 2018, Vienna, Austria.

3. **M. Bocquet**, P. Sakov and **J.-M. Haussaire**: *An iterative ensemble Kalman filter in presence of additive model error,* European Geosciences Union General Assembly 2018, April 8-13, 2018, Vienna, Austria.

4. M. Pulido, P. Tandéo, **M. Bocquet**, A. Carrassi, M. Lucini: *Estimation of model error covariances using the expectation-maximization algorithm combined with the ensemble Kalman filter,* 13th EnKF Workshop, May 28, 2018, Bergen, Norway.

5. T. Möller, I. Tchiguirinskaia, D. Schertzer, **É. Dupont, Y. Roustan, P. Bernardara** et J. Peinke. *Multifractal structure of storm Eleanor in France and prediction of the extremes*. European Geosciences Union General Assembly 2018, April 8–13, Vienna, Autstria.

6. **C. Legorgeu, É. Dupont**, C. Dall'Ozzo. *Improving WRF accuracy using observation nudging*. WindEurope Global Wind Summit, September 25-28, Hamburg, Germany.

National conference oral

1. **M. Bocquet**. *Tutoriel sur l'assimilation de données et problèmes inverses.* Journée du groupe SAMA de l'IPSL, March 13, 2018, École Normale Supérieure, Paris, France. [invited]

2. **C. Defforge, B. Carissimo, M. Bocquet**, P. Armand, and **R. Bresson**. *Améliorer les simulations atmosphériques à l'échelle locale grâce à l'assimilation de données.* Journée du groupe SAMA de l'IPSL, March 13, 2018, École Normale Supérieure, Paris, France.

3. **A. Farchi** and **M. Bocquet**. *Localisation des filtres particulaires.* Journée du groupe SAMA de l'IPSL, March 13, 2018, École Normale Supérieure, Paris, France.

4. **M. Bocquet**. *Links between 4DEnVar and the IEnKS. Localization in four-dimensional EnVar.* Journée en l'honneur d'O. Talagrand et G. Desroziers, May 16, 2018, Toulouse, France.

5. **M. Bocquet**, P. Sakov, J.-M. Haussaire. *Filtre et lisseur de Kalman d'ensemble itératifs en présence d'erreur modèle additive.* Colloque national d'assimilation de données 2018, September 26-28, Rennes, France.

6. **A. Farchi** and **M. Bocquet**. *Localisation des filtres particulaires.* Colloque national d'assimilation de données 2018, September 26-28, Rennes, France.

7. O. Pannekoucke, **M. Bocquet** et al.. *Parametric Kalman Filter: toward an alternative to the ENKF.* Colloque national d'assimilation de données 2018, September 26-28, Rennes, France.

8. **C. Defforge**, **B. Carissimo**, **M. Bocquet** and **R. Bresson**. *Improving local wind simulation with Code_Saturne using data assimilation.* Colloque national d'assimilation de données 2018, September 26-28, Rennes, France.

9. P. Tandeo, **M. Bocquet**. *État de l'art des méthodes d'estimation jointe des covariances d'erreurs Q et R.* Colloque national d'assimilation de données 2018, September 26-28, Rennes, France.

10. **M. Majdi, K. Sartelet**, GM. Lanzafame, F. Couvidat, S. Turquety. (2018). *Modélisation de la formation des aérosols organiques secondaires issus des feux de végétation dans la*

région euro-méditerranéenne, 31ème Congrès Français sur les Aérosols (CFA 2018), Jan 2018, Paris, France.

Editorial boards

1. **M. Bocquet** Associate Editor, "*Quartely Journal of the Royal Meteorological Society*"

2. **M. Bocquet**, Guest Editor, for the topic *Data Assimilation of Nonlocal Observations in Complex systems of "Frontiers in Applied Mathematics and Statistics*"

3. **K. Sartelet**, Guest Editor for the topic data "*Air Quality at street levels*" of the journal Atmos. Chem. Phys.

Conference organization

1. A. Carrassi, **M. Bocquet**, and O. Talagrand. Data assimilation in the geosciences - An Overview, *European Geosciences Union General Assembly 2018*, April 8-13, 2018, Vienna, Austria.

2. L. Berre, **M. Bocquet**, C. Loo, Y. Michel & P. Brousseau. *Séminaire en l'honneur d'Olivier Talagrand et Gérald Desroziers*, May 14-15, 2018, Météo-France, Toulouse, France.

3. J. Brajard, M. Vrac, A. Coman, **M. Bocquet**, O. Talagrand, F. Chevallier, G. Dufour. *Journée du groupe SAMA de l'IPSL*, March 13, 2018, École Normale Supérieure, Paris, France.

4. **K. Sartelet**. *Participation to the organisation of CMAS* Asia 2018.

Conference session chairs

1. **M. Bocquet**, *chair of session: observation sensitivity + diagnostics II*. EnKF data assimilation workshop, May 9, 2018, Montreal, Québec, Canada.

2. **M. Bocquet**. *First session in honor of Olivier Talagrand*. Journée en l'honneur d'O. Talagrand et G. Desroziers, May 15, 2018, Toulouse, France.

Scientific committees

1. **M. Bocquet**, member of the Scientific Committee for the workshop Journée du groupe SAMA de l'IPSL, March 14, 2018, at École Normale Supérieure, Paris, France.

2. **M. Bocquet**., Scientific committee, European Center for Scientific Computing (CERFACS).

3. **M. Bocquet**, **P. Bernardara**, Management Committee, Pierre-Simon Laplace Institute (IPSL).

4. **M. Bocquet** M., Prix André Prud'Homme Committee of the Meteorology and Climate Society.

5. **B. Carissimo**, Scientific committee, “International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes”.

6. **Y. Roustan**, member of the scientific committee for the summer school of DIM QI², École thématique sur la qualité de l’air, 10-15 juin 2018 à Dourdan, France.

7. **Y. Roustan**, scientific committee, OSU EFLUVE.

8. **Y. Roustan**, management committee, OSU EFLUVE.

9. **K. Sartelet** scientific committee DIM QI2.

10. **K. Sartelet**, scientific committee LEFE/CHAT of INSU.

11. **É. Dupont**, Scientific Committee, "Site instrumental de recherche par télédétection atmosphérique" (SIRTA).

HdR committees (except CEREA)

1. **M. Bocquet**, referee, HdR, Igor Gejadze “Apport de l’assimilation de données dans la chimie atmosphérique : De l’environnement stratosphérique vers la prévision de la qualité de l’air”, University of Grenobles-Alpes, February 27, 2018.

2. **B. Carissimo**. reviewer HdR, Christine Lac : “Modélisation numérique de la méso-échelle à l’échelle des LES : interactions entre la dynamique et la physique”, INP Toulouse, December 3, 2018.

3. **K. Sartelet**, referee, HdR, Alma Hodzic Roux (LA, Toulouse) “The lifecycle of carboneous aerosols: from multiscale modeling to impacts”, 2018.

Thesis committees (except CEREA)

1. **Y. Roustan** referee, Saja El Ali, (LEESU), “Modélisation semi-distribuée de la production et du transfert des MES, HAPs et métaux dans les eaux urbaines de temps de pluie”, January 22, 2018

2. **K. Sartelet**, referee, Arineh Cholakian (LISA, Créteil), “Évolution de la composition chimique de l'atmosphère au-dessus du bassin Mediterranéen : forçages, mécanismes et scénarios.”, November 2018.

3. **K. Sartelet**, referee, Adrien Gandolfo (LCE, Marseille) “Incidence de la chimie hétérogène des oxydes d'azotes sur la qualité des atmosphères intérieures: impacts des nanoparticules de TiO2 dans les peintures.”, October 2018.

4. **K. Sartelet**, referee, David Jaidan (Météo France, Toulouse) “Étude des processus d’import et d’export de la pollution gazeuse et particulaire au-dessus du bassin Méditerranéen dans le cadre du projet ChArMEx”, January 2018.

Defended theses and HDR (CEREA)

1. 20/12/2018 – **M. Majdi** - Impact des feux de forêts sur la qualité de l'air : influence de la formation des aérosols organiques secondaires et du mélange des particules. ENPC, Université Paris-Est.

2. 19/10/2018 **M. Bahlali** - Adaptation du module Lagrangien de Code_Saturne pour la dispersion des polluants en champ proche et comparaison avec les résultats eulériens existants. ENPC, Université Paris-Est.

3. 25/05/18 – **R. Chen** - Quantification d'incertitude en simulation du trafic routier et de ses émissions atmosphériques à l'échelle métropolitaine - ENPC, Université Paris-Est.

4. 06/04/18 – **M. Chrit** - Formation des aérosols organiques et inorganiques en Méditerranée - ENPC, Université Paris-Est.

Visiting Scientist

- Grudzien Colin, Nansen Environmental and Remote Sensing Center, Bergen, Norway

Teaching

École des Ponts ParisTech

1. **M. Bocquet**, Introduction à l'assimilation de données (Introduction to data assimilation), Masters M2 OACOS et M2 WAPE.

2. **B. Carissimo., C. Defforge**, Introduction à la météorologie (1ère année Ecole des Ponts).

3. **Y. Roustan, K. Sartelet**, Externalités des Transports, Master Transports et développement durable (TraDD).

4. **Y. Roustan, C. Seigneur**, Modélisation numérique, Master Sciences et Génie de l'Environnement (SGE).

École Nationale des Travaux Publics de l'État

Y**. Roustan**, Qualité de l'air et santé, 3e année cycle ingénieur