



Curriculum Vitae

Name: **Vautard, Robert**

Nationality: **French**

Birth date: **04/03/1963**

Senior scientist (Directeur de Recherche) at CNRS, Institut Pierre-Simon Laplace, France

Candidate co-chair WGI

Education

- 1994 « Habilitation à diriger les recherches », University Pierre & Marie Curie, Paris, France
1987-1989 Postdoctoral position at U.C.L.A. under supervision of Prof. Michael Ghil
1987 PhD: Time scales of atmospheric motions, couplings and parameterization of rapid modes, Laboratoire de Météorologie Dynamique, Université Pierre & Marie Curie, Paris, France
1984 Master : Météorologie et Océanographie, Université Pierre & Marie Curie, Paris, FR
1982-1986 Student at Ecole Normale Supérieure de la rue d'Ulm, Paris, France, in mathematics

National appointments and responsibilities

- 2019- Head of Institut Pierre-Simon Laplace (IPSL), federation of research units, 1400 staff
2019- Coordinator of the “IPSL Climate Graduate School” program (14 M€ / 10 years)
2012- Head of climate services program at IPSL
2011 - 2018 Coordinator of the LABEX L-IPSL research program
2008 - 2014 Vice coordinator of the « GIS Climat-Environnement-Société » research program
2006 - 2011 Head of Laboratoire des Sciences du Climat et de l’Environnement (LSCE, 350 staff)
2000 - 2005 Head of the « air pollution » team at laboratoire de Météorologie Dynamique
1996 - 2000 Head of the « climate variability team » at laboratoire de Météorologie Dynamique

International responsibilities and coordination

- 2021 (sep) - Coordinator of the EU H2020 project **XAIIDA** (6 M€)
2018 - 2021 Coordinating Lead Author of 6th Assessment Report, WGI, chapter 12: « Climate change information for regional impact and for risk assessment »
2022- Core group member of the « World Weather Attribution » network
2016 - 2018 Coordinator of the European Copernicus C3S project **CLIM4ENERGY**
2017 - 2018 Contributing author of the IPCC special report on 1.5°C warming
2017 - 2020 Member of the « Science Review Group » of the U.K. Met. Office
2009 - 2016 Member of « Scientific Advisory Council » of ECMWF (ECMWF - SAC)
2015 - 2019 Co-animator of the **Grand Challenge WCRP** on extreme events
2010 - 2013 Review editor of the IPCC WGI AR5
2015 - 2020 Co-coordinator of the « Energy » part of **ISI-MIP**
2013 - 2020 WP leader of several EU research projects (ATOPICA, IMPACT2C, EUCLEIA, EUPHEME, C3S-Energy, PRINCIPLES, EUCP)

Other national responsibilities and commitments

- 2022- Member of Scientific Committee of the National training program on ecology transition for civil servants
2021- co-chair of the “GREC-francilien” science/regional public policy discussion platform for the Greater Paris region

2022- Member of the stakeholder board of Paris City for the climate adaptation plan
2022 - 2023 Member of the stakeholder board of the ORANO company
2021 - 2022 Member of the science advisory board of the French electric transmission system operator (RTE-France) for the design of 2050 carbon-free energy mixes
2017 - 2021 Coordinator of the **Convention Nationale sur les Services Climatiques** (IPSL/Météo-France/CERFACS/BRGM), for the french Ministry of Ecology
2013 – 2016 Coordinator of the **EXTREMOSCOPE project (IPSL/Météo-France)**, Attribution of extremes in France
2013 - 2015 Coordinator of the CEA/DSM-Energy **CLIMIX** project (evaluation climate-energy of energy mixes in EU)
1996 - 2005 Coordinator of the development of the **CHIMERE** air quality model
1998 - 2001 Coordinator of the regional air quality project **ESQUIF**
2004 - 2014 Development of the PREV'AIR national air quality forecasting system

Teaching and communication

Numerous courses and research seminars on air quality, climate change, and media interventions (currently typically 3-4 per week)

Scientific articles

243 publications in peer-review journals, among which 18 in Nature / Science / PNAS families

h index 71

19000 citations (without self citations, Clarivate)

Highly Cited Author, Clarivate in 2018 and 2020

Peer-reviewed publications (and accepted articles)

2023

243. Otto, F. E. L., M. Zachariah, F. Saeed, A. Siddiqi, K. Shahzad, H. Mushtaq, K. AchutaRao, S. T. Chaitrah, C. Barnes, S. Philip, S. Kew, R. Vautard, G. Koren, I. Pinto, P. Wolski, M. Vahlberg, R. Singh, J. Arrighi, M. van Aalst, L. Thalheimer, E. Raju, S. Li, W. Yang, L. J. Harrington, B. Clarke, 2023, Climate change increased extreme monsoon rainfall, flooding highly vulnerable communities in Pakistan. *Environ. Res.: Climate*, in press.
242. Quesada, B., **R. Vautard** and P. Yiou, 2023: Cold waves still matter: characteristics and associated climatic signals in Europe. *Clim. Change*, in press.
241. **Vautard, R.**, van Oldenborgh, G. J., Bonnet, R., Li, S., Robin, Y., Kew, S., Philip, S., Soubeyroux, J.-M., Dubuisson, B., Viovy, N., Reichstein, M., Otto, F., and Garcia de Cortazar-Atauri, I.: Human influence on growing-period frosts like in early April 2021 in central France, *Nat. Hazards Earth Syst. Sci.*, 23, 1045–1058, <https://doi.org/10.5194/nhess-23-1045-2023>, 2023.

2022

240. Ruane, A. C., **Vautard, R.**, Ranasinghe, R., Sillmann, J., Coppola, E., Arnell, N., et al. (2022). The Climatic Impact-Driver Framework for assessment of risk-relevant climate information. *Earth's Future*, 10, e2022EF002803. <https://doi.org/10.1029/2022EF002803239>.
239. Philip, S. Y., Kew, S. F., van Oldenborgh, G. J., Anslow, F. S., Seneviratne, S. I., **Vautard, R.**, Coumou, D., Ebi, K. L., Arrighi, J., Singh, R., van Aalst, M., Pereira Marghidan, C., Wehner, M., Yang, W., Li, S., Schumacher, D. L., Hauser, M., Bonnet, R., Luu, L. N., Lehner, F., Gillett, N., Tradowsky, J. S., Vecchi, G. A., Rodell, C., Stull, R. B., Howard, R., and Otto, F. E. L.: Rapid attribution analysis of the extraordinary heat wave on the Pacific coast of the US and Canada in June 2021, *Earth Syst. Dynam.*, 13, 1689–1713, <https://doi.org/10.5194/esd-13-1689-2022>, 2022.
238. Harrington, L. J., P. Wolski, I. Pinto, A. M. Ramarosandrata, R. Barimalala, **R. Vautard**, S. Philip, S. Kew, R. Singh, D. Heinrich, J. Arrighi, E. Raju, L. Thalheimer, T. Razanakoto, M. van Aalst, S. Li, R. Bonnet, W. Yang, F. E. L. Otto, G. J. van Oldenborgh, 2022: Limited role of climate change in extreme low rainfall associated with southern Madagascar food insecurity, 2019-21. *Environmental Research: Climate*.
237. Diez-Sierra, M. Iturbide, J. M. Gutiérrez, J. Fernández, J. Milovac, A. S. Cofiño, E. Cimadevilla, G. Nikulin, G. Levavasseur, E. Kjellström, K. Bülow, A. Horányi, A. Brookshaw, M. García-Díez, A. Pérez, J. Baño-Medina, B. Ahrens, A. Alias, M. Ashfaq, M. Bukovsky, E. Buonomo, S. Caluwaerts, S. C. Chou, O. B. Christensen, J. M. Ciarlo, E. Coppola, L. Corre, M.-E. Demory, V. Djurdjevic, J. P. Evans, R. Fealy, H. Feldmann, D. Jacob, S. Jayanarayanan, J. Katzfey, K. Keuler, C. Kittel, M. Levent Kurnaz, R. Laprise, P. Lionello, S. McGinnis, P. Mercogliano, P. Nabat, B. Önol, T. Ozturk, H.-J. Panitz, D. Paquin, I. Pieczka, F. Raffaele, A. R. Remedio, J. Scinocca, F. Sevault, S. Somot, C. Steger, F. Tangang, C. Teichmann, P. Termonia, M. Thatcher, C. Torma, E. van Meijgaard, **R. Vautard**, K. Warrach-Sagi, K. Winger, G. Zittis, 2022, The worldwide C3S CORDEX grand ensemble: A major contribution to assess regional climate change in the IPCC AR6 Atlas. *Bull Am. Meteor. Soc.*, in press.
236. Yu, S. and **R. Vautard**, 2022, A transfer method to estimate hub-height wind speed from 10 meters wind speed based on machine learning. *Renewable and Sustainable Energy Rev.*, in press

235. Wehrli, K., F. Luo, M. Hauser, H. Shiogama, D. Tokuda, H. Kim, D. Coumou, W. May, P. Le Sager, F. Selen, O. Martius, **R. Vautard**, and S. Seneviratne, 2022: The ExtremeX global climate model experiment: investigating thermodynamic and dynamic processes contributing to weather and climate extremes. *Earth Syst. Dyn.*, 13, 1167–1196, 2022, <https://doi.org/10.5194/esd-13-1167-2022>
234. van Oldenborgh, M. F. Wehner, G. J., **R. Vautard**, F. Otto, S. I. Seneviratne, P. Stott, G. C. Hegerl, S. Y. Philip and S. F. Kew, 2020: Attributing and projecting heatwaves is hard: we can do better. *Earth's Future*, 10, e2021EF002271. <https://doi.org/10.1029/2021EF002271>.
233. Luu, L., **R. Vautard**, P. Yiou, and J.-M. Soubeyroux, Evaluation of convection-permitting extreme precipitation simulations for the south of France. *Earth's System Dynamics*, in press.

2021

232. Ranasinghe, R., A.C. Ruane, **R. Vautard**, N. Arnell, E. Coppola, F.A. Cruz, S. Dessai, A.S. Islam, M. Rahimi, D. Ruiz Carrascal, J. Sillmann, M.B. Sylla, C. Tebaldi, W. Wang, and R. Zaaboul, 2021: Climate Change Information for Regional Impact and for Risk Assessment. In *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1767–1926, doi:10.1017/9781009157896.014.
231. van Oldenborgh, G.J., van der Wiel, K., Kew, S., Philip, S., Otto, F., **Vautard, R.**, King, A., Lott, F., Arrighi, J., Singh, R., and M. van Aalst, Pathways and pitfalls in extreme event attribution. *Climatic Change* 166, 13 (2021). <https://doi.org/10.1007/s10584-021-03071-7>
230. Luu, L., P. Scussolini, S. Kew, S. Philip, M. H. Hariadi, **R. Vautard**, K. Van Mai, T. Van Vu, K. Ba Truong, F. Otto, G. van der Schrier, M. van Aalst, G. J. van Oldenborgh, 2021: Attribution of typhoons-induced torrential precipitation in Central Vietnam, October 2020. *Climatic Change*, in press.
229. Petit, J.-E., J-C. Dupont, O. Favez, V. Gros, Y. Zhang, J. Sciare, L. Simon, F. Truong, N. Bonnaire, T. Amodeo, **R. Vautard**, M. Haeffelin, 2021, Response of atmospheric composition to COVID-19 lockdown measures during Spring in the Paris region (France), *Atmos. Chem. And Physics*, in press.
228. Stegehuis, A. I., M. M. Vogel, **R. Vautard**, P. Ciais, A. J. Teuling, and S. I. Seneviratne, 2021: Early summer soil moisture contribution to Western European summer warming. *Journal of Geophysical Research: Atmospheres*, 126, e2021JD034646. <https://doi.org/10.1029/2021JD034646>
227. Quaas, J., Gryspeerdt, E., **Vautard, R.** and Boucher, O., 2021, Climate impact of aircraft-induced cirrus assessed from satellite observations before and during COVID-19. *Environ. Res. Letters*, 16, 064051, doi: 10.1088/1748-9326/abf686.
226. Spinoni, J., Barbosa, P., Bucchignani, E., Cassano, J., Cavazos, T., Cescatti, A., Christensen, J. H., Christensen, O. B., Coppola, E., Evans, J., Forzieri, G., Geyer, B., Giorgi, F., Jacob, D., Katzfey, J., Koenigk, T., Laprise, R., Lennard, C. J., Levent Kurnaz, M., Li, D., Llopert, M., McCornick, N., Naumann, G., Nikulin, G.? Ozturk, T., Panitz, H.-J., Porfirio da Rocha, R., Solman, S. A., Syktus, J., Tangang, F., Teichmann, C., Vautard, R., Vogt, J. V., A., Winger, K., Zittis, G., and A. Dosio (2021). Global exposure of population and land-use to meteorological droughts under different Warming Levels and Shared Socioeconomic Pathways: A Coordinated Regional Climate Downscaling Experiment-based study. *International Journal*

225. **Vautard, R.**, N. Kadygrov, C. Iles, F. Boberg, E. Buonomo, K. Bülow, E. Coppola, L. Corre, E. van Meijgaard, R. Nogherotto, M. Sandstad, C. Schwingshackl, S. Somot, E. Aalbers, O. B. Christensen, James M. Ciarlo, M.-E. Demory, F. Giorgi, D. Jacob, R. G. Jones, K. Keuler, E. Kjellström, G. Lenderink, G. Levavasseur, G. Nikulin, J. Sillmann, S. Lund Sørland, C. Solidoro, C. Steger, C. Teichmann, K. Warrach-Sagi, V. Wulfmeyer, 2019: Evaluation of the large EURO-CORDEX regional climate model ensemble, *Journal of Geophysical Research: Atmospheres*, 126, e2019JD032344. <https://doi.org/10.1029/2019JD032344>.

224. van Oldenborgh, G. J., Krikken, F., Lewis, S., Leach, N. J., Lehner, F., Saunders, K. R., van Weele, M., Haustein, K., Li, S., Wallom, D., Sparrow, S., Arrighi, J., Singh, R. P., van Aalst, M. K., Philip, S. Y., **Vautard**, R., and Otto, F. E. L.: Attribution of the Australian bushfire risk to anthropogenic climate change, *Nat. Hazards Earth Syst. Sci. Discuss. [preprint]*, <https://doi.org/10.5194/nhess-2020-69>, in press, 2021.

2020

223. Iles, C., **R. Vautard**, J. Strachan, S. Joussaume, B. Eggen and C. Hewitt, 2020 : The benefits of increasing resolution in global and regional climate simulations for European climate extremes. *Geosci. Mod. Dev.*, 13, 5583-5607, <https://doi.org/10.5194/gmd-13-5583-2020>

222. Philip, S., S. Kew, G. J. van Oldenborgh, F. Otto, **R. Vautard**, K. van der Wiel, A. King, F. Lott, J. Arrighi, R. Singh, and M. van Aalst, 2020: A protocol for probabilistic extreme event attribution analyses. *Adv. in Statistical Climatology, Meteorology and Oceanography*, 6, 177-203, <https://doi.org/10.5194/ascmo-6-177-2020>

221. Coppola, E., R. Nogherotto, J. M. Ciarlò, F. Giorgi, E. van Meijgaard, C. Iles, N. Kadygrov, C. Iles, L. Corre, M. Sandstad, S. Somot, P. Nabat, **R. Vautard**, G. Levavasseur, C. Schwingshackl, J. Sillmann, E. Kjellström, G. Nikulin, E. Aalbers, G. Lenderink, O. B. Christensen, F. Boberg, S. L. Sørland, M.-E. Demory, K. Bülow, C. Teichmann, K. Warrach-Sagi, and V. Wulfmeyer (2021). Assessment of the European climate projections as simulated by the large EURO-CORDEX regional and global climate model ensemble. *Journal of Geophysical Research: Atmospheres*, 126(4), e2019JD032356.

220. **Vautard, R.**, M. van Aalst, O. Boucher, A. Drouin, K. Haustein, F. Kreienkamp, G.-J. van Oldenborgh, F. E. L. Otto, A. Ribes, Y. Robin, M. Schneider, J.-M. Soubeyroux, P. Stott, S. I. Seneviratne, M. Vogel, M. Wehner, 2019, Human contribution to the record-breaking June and July 2019 heat waves in Western Europe, *Environ. Res. Lett.*, <https://iopscience.iop.org/article/10.1088/1748-9326/aba3d4/pdf>.

219. Demory, M.-E., S. Berthou, J. Fernandez, S. L. Sørland, R. Brogli, M. J. Roberts, U. Beyerle, J. Seddon, R. Haarsma, C. Schär, E. Buonomo, O. B. Christensen, J. M. Ciarlo, R. Fealy, G. Nikulin, D. Peano, D. Putrasahan, Christopher D. Roberts, R. Senan, C. Steger, C. Teichmann, **R. Vautard**, 2020: European daily precipitation according to EURO-CORDEX RCMs and high-resolution GCMs from HighResMIP. *Geos. Mod. Dev.*, 13, 5485-5506. <https://doi.org/10.5194/gmd-13-5485-2020>.

218. Yalew, S., M. van Vliet , D. Gernaat , F. Ludwig , A. Miara , C. Park , E. Byers , E. De Cian , F. Piontek , G. Iyer , Dr. I. Mouratiadou , J. Glynn , M. Hejazi , O. Dessens , P. Rochedo , R. Pietzcker , R. Schaeffer , S. Fujimori , S. Dasgupta , S. Mima , S. R. Santos da Silva , V. Chaturvedi , **R. Vautard** , and D. van Vuuren : Impacts of climate change on energy systems in global and regional scenarios. *Nature Energy* (2020) <https://doi-org.insu.bib.cnrs.fr/10.1038/s41560-020-0664-z>.

- 217.Jézéquel, A., Bevacqua, E., d'Andrea, F., Thao, S., Vautard, R., Vrac, M., & Yiou, P. (2020). Conditional and residual trends of singular hot days in Europe. *Environmental Research Letters*, 15(6), 064018.
- 216.Cowan, T., G. Hegerl, A. Schurer, S. Tett, **R. Vautard**, P. Yiou, A. Jézéquel, F. Otto, L. Harrington and B. Ng., 2019, Ocean and land forcing of the record-breaking dust bowl heat waves across central United States, *Nature Communications*, in press.
- 215.Selten, F., R. Bintanja, **R. Vautard** & B. J. J. M. van den Hurk, 2020: Future continental summer warming constrained by the present-day seasonal cycle of surface hydrology. *Scientific Reports*, <https://doi.org/10.1038/s41598-020-61721-9>.
214. Jacob, D., C. Teichmann, S. Sobolowski, E. Katragkou, I. Anders, M. Belda, R. Benestad, F. Boberg, E. Buonomo, R. M. Cardoso, A. Casanueva, O. B. Christensen, J. H. Christensen, E. Coppola, L. De Cruz, E. L. Davin, A. Dobler, M. Domínguez, R. Fealy, J. Fernandez, M. Á. Gaertner, M. García-Díez, F. Giorgi, A. Gobiet, K. Goergen, J. J. Gómez-Navarro, C. Gutiérrez, J. M. Gutiérrez, I. Güttler, A. Haensler, T. Halenka, S. Jerez, P. Jiménez-Guerrero, R. G. Jones, K. Keuler, E. Kjellström, S. Knist, S. Kotlarski, D. Maraun, E. van Meijgaard, P. Mercogliano, J. P. Montávez, A. Navarra, G. Nikulin, N. de Noblet-Ducoudré, H.-J. Panitz, M. Piazza, E. Pichelli, J.-P. Pietikäinen, A. F. Prein, D. Rechid, B. Rockel, R. Romera, E. Sánchez, K. Sieck, P. M.M. Soares, S. Somot, L. Srnec, S. L. Sørland, P. Termonia, H. Truhetz, **R. Vautard**, K. Warrach-Sagi, V. Wulfmeyer, Regional climate downscaling over Europe: perspectives from the EURO-CORDEX community, *Regional Environmental Change* (2020), (20)2.

213. Spinoni, J., P. Barbosa, E. Bucchignani, J. Cassano, T. Cavazos, J. H. Christensen, O. B. Christensen, E. Coppola, J. Evans, B. Geyer, F. Giorgi, P. Hadjinicolaou; D. Jacob, J. Katzfey, T. Koenigk, R. Laprise, C. J. Lennard, M. L. Kurnaz, D. Li; M. Llopis, N. McCormick, G. Naumann, G. Nikulin; T. Ozturk, H.-J. Panitz, R. Porfirio da Rocha, B. Rockel, S. A. Solman, J. Syktus, F. Tangang; C. Teichmann, **R. Vautard**, J. V. Vogt, K. Winger, G. Zittis, A. Dosio, 2020: Future global meteorological drought hotspots: a study based on CORDEX data, *Journal of Climate*, 33(9), 3635-3661.

2019

212. van Oldenborgh, G. J., E. Mitchell-Larson, G. Vecchi, H. de Vries, **R. Vautard**, and F. E. L. Otto, 2019: Cold waves are getting milder in the northern midlatitudes. *Environmental Research Letters*, <https://doi.org/10.1088/1748-9326/ab4867>
211. Bartok, B., I. Tobin, **R. Vautard**, M. Vrac, X. Jin, G. Levavasseur, S. Denvil, L. Dubus, S. Parey, P.-A. Michelangelis, A. Troccoli, Y.-M. Saint-Drenan, 2018 : A climate projection dataset tailored for the European energy sector. *Climate Services*, A climate projection dataset tailored for the European energy sector, *Climate Services*, 16, 2019, 100138, <https://doi.org/10.1016/j.ciser.2019.100138>.
210. **Vautard**, R., van Oldenborgh, G.-J., Otto, F. E. L., Yiou, P., de Vries, H., van Meijgaard, E., Stepek, A., Soubeyroux, J.-M., Philip, S., Kew, S. F., Costella, C., Singh, R., and C. Tebaldi, 2019: Human influence on European wind storms such as those of January 2018. *Earth System Dynamics*, 10, 271-286.
209. Jerez, S.; Tobin, I.; Turco, M., López-Romero, J. M., Montavez, J., Jimenez-Guerrero, P. and **R. Vautard**, 2018, Future changes, or lack thereof, in the temporal variability of the combined wind-plus-solar power production in Europe. *Renewable Energy*, in press.
208. Ribes, A., S. Thao, **R. Vautard**, B. Dubuisson, S. Somot, J. Colin, S. Planton, J.-M. Soubeyroux, 2019 : Observed increase in extreme daily rainfall in the French Mediterranean. *Climate Dynamics*, 52, 1095-1114.
207. **Vautard**, R., N. Christidis, A. Ciavarella, C. Alvarez-Castro, O. Bellprat, B. Christiansen, I. Colfescu, T. Cowan, F. Doblas-Reyes, J. Eden, M. Hauser, G. Hegerl, N. Hempelmann, K. Klehmet, F. Lott, C. Nangini,

R. Orth, S. Radanovics, S. I. Seneviratne, G. J. van Oldenborgh, P. Stott, S. Tett, L. Wilcox, P. Yiou (2019) Evaluation of the HadGEM3-A simulations in view of climate and weather event human influence attribution in Europe. *Climate Dynamics*, <https://doi.org/10.1007/s00382-018-4183-6>.

206. Schewe, J., J. Elliott, Louis Francois, S. N. Gosling, V. Huber, H. K. Lotze, C. Reyer, S. I. Seneviratne, M. T. H. van Vliet, **R. Vautard**, Y. Wada, F. Zhao, L. Breuer, M. Büchner, D. A. Carozza, J. Chang, P. Ciais, M. Coll, D. Deryng, A. de Wit, T. D. Eddy, C. Folberth, K. Frieler, A. Friend, D. Gerten, L. Gudmundsson, N. Hanasaki, A. Ito, N. Khabarov, H. Kim, P. Lawrence, C. Morfopoulos, C. Müller, H. Müller Schmied, R. Orth, S. Ostberg, Y. Pokhrel, T. A. M. Pugh, G. Sakurai, Y. Satoh, E. Schmid, T. Stacke, J. Steenbeek, J. Steinkamp, Q. Tang, H. Tian, D. Tittensor, J. Volkholz, X. Wang, L. Warszawski (2019), State-of-the-art global models underestimate impacts from climate extremes. *Nature Communications*, 10, doi:10.1038/s41467-019-108745-6.

2018

205. Coppola, E.; S. Sobolowski; E. Pichelli; F. Raffaele; B. Ahrens; I. Anders; N. Ban; S. Bastin; M. Belda; D. Belusic; A. Caldas-Alvarez; R. Margarida Cardoso; S. Davolio; A. Dobler; J. Fernandez; L. Fita Borrell; Q. Fumiere; F. Giorgi; K. Goergen; I. Guettler; T. Halenka; D. Heinzel; Ø. Hodnebrog; D. Jacob; S. Kartsios; E. Katragkou; E. Kendon; S. Khodayar; H. Kunstmann; S. Knist; Á. Lavín; P. Lind; T. Lorenz; D. Maraun; L. Marelle; E. van Meijgaard; J. Milovac; G. Myhre; H.-J. Panitz; M. Piazza; M. Raffa; T. Raub; B. Rockel; C. Schär; K. Sieck; P. M. M. Soares; S. Somot; L. Srnec; P. Stocchi; M. Tölle; H. Truhetz; **R. Vautard**; H. de Vries; K. Warrach-Sagi, 2018, A first-of-its-kind multi-model convection permitting ensemble for investigating convective phenomena over Europe and the Mediterranean, *Clim. Dyn.*, <https://doi.org/10.1007/s00382-018-4521-8>.
204. Lian, J., L. Wu, F.-M. Bréon, G. Broquet, **R. Vautard**, T. Scott Zaccheo, J. Dobler, and P. Ciais, 2018: Evaluation of the WRF-UCM mesoscale model and ECMWF global operational forecasts over the Paris region in the prospect of tracer atmospheric transport modeling, *Elementa – Science of the Anthropocene*, 6, DOI: <http://doi.org/10.1525/elementa.319>
203. Kew, S. F., S. Y. Philip, G. J. van Oldenborgh, F. E. L. Otto, **R. Vautard**, G. van der Schrier, and C. Tebaldi, 2018: Attribution of the exceptional summer heat wave in Southern Europe 2017, *Bulletin of the American Meteorological Society*, 100(1), S49-S53.
202. Philip, S., S. F. Kew, G. J. van Oldenborgh, E. Aalbers, **R. Vautard**, F. Otto, K. Haustein, F. Habets, R. Singh and H. Cullen (2018) Validation of a rapid attribution of the May/June 2016 flood-inducing precipitation in France to climate change, *Journal of Hydrometeorology*, 19(11), 1881-1898.
201. Luu, L., **R. Vautard**, P. Yiou, G. J. van Oldenborgh, and G. Lenderink, 2018, Attribution of extreme rainfall events in the South of France using EURO-CORDEX simulations. *Geophys. Res. Lett.*, doi :10.1029/2018GL077807.
200. Raimonet, M., V. Thieu, M. Silvestre, L. Oudin, C. Rabouille, **R. Vautard**, and J. Garnier, 2018: Landward perspective of coastal eutrophication potential under future climate change: the Seine River case (France), *Frontiers in Marine Science*, 2018, vol. 5, p. 136.
199. Jézéquel, A., J. Cattiaux, P. Naveau, S. Radanovics, A. Ribes, **R. Vautard**, M. Vrac, and P. Yiou, 2018, Trends of atmospheric circulation during singular hot days in Europe. *Environ. Res. Lett.*, vol. 13, no 5, p. 054007.
198. Kjellström, E., G. Nikulin, G. Strandberg, O. B. Christensen, D. Jacob, K. Keuler, G. Lenderink, E. van Meijgaard, C. Schär, S. Somot, S. L. Sörland, C. Teichmann and **R. Vautard** (2018) European climate change at global mean temperature increases of 1.5 and 2°C above pre-industrial conditions as simulated by the EURO-CORDEX regional climate models, *Earth System Dynamics*, vol. 9, no 2, p. 459-478.

197. Jerez, S., J. M. Lopez-Romero, M. Turco, P. Jimenez-Guerrero, **R. Vautard** and J. P. Montavez, 2018 : Impact of evolving greenhouse gas forcing on the warming signal in regional climate experiments, *Nature Communications*, vol. 9, no 1, p. 1304.
196. Tobin, I., Greuell W., Jerez S., Ludwig F., **Vautard R.**, van Vliet M.T.H., and Bréon F.-M., 2018: Vulnerabilities and resilience of European power generation to 1.5°C, 2°C and 3°C warming, *Environ. Res. Lett.*, **13** 044024.
195. Permadi, D. A., Oanh, N. T. K., and **R. Vautard**, 2018, Assessment of co-benefits of black carbon emission reduction measures in Southeast Asia: Part 2 emission scenarios for 2030 and co-benefits on mitigation of air pollution and climate forcing. *Atmos. Chem. And Phys.*, in press.
194. Jacob, D., Kotova, L., Teichmann, C., Sobolowski, S., **Vautard, R.**, Donelly, C., Koutroulis, A., Grillakis, M., Tsanis, I., Damm, A., Sakalli, A., and M. van Vliet (2018): Climate impacts in Europe under +1.5°C global warming, *Earth's Future*, doi: 10.1002/2017EF000710.
193. Christiansen, B., C. Alvarez-Castro, N. Chritidis, A. Ciavarella, I. Colfescu, T. Cowan, J. Eden, M. Hauser, N. Hempelmann, K. Khlebet, F. Lott, C. Nangini, G. J. van Oldenborgh, R. Orth, P. Stott, S. Tett, **R. Vautard**, L. Wilcox, and P. Yiou, 2018: Was the cold European winter 2009-2010 modified by anthropogenic climate change? An attribution study. *J. Climate*, **31**(9), 3387-3410.
192. Hempelmann, N., C. Ehbrecht, C. Alvarez-Castro, P. Brockmann, W. Falk, J. Hoffmann, S. Kindermann, B. Koziol, C. Nangini, S. Radanovics, **R. Vautard** and P. Yiou, 2018: Web processing service for climate impact and extreme weather event analyses. Flyinpigeon (Version 1.0). *Computers and Geoscience*, vol. 110, p. 65-72.

2017

191. Yiou, P., J. Cattiaux , A. Ribes , **R. Vautard** , M. Vrac, 2017: Recent trends in the recurrence of North-Atlantic Atmospheric Circulation Patterns. *Complexity*, 2018.
190. Permadi, D. A., Oanh, N. T. K., and **R. Vautard**, 2017, Integrated emission inventory and modeling to assess distribution of particulate matter mass and black carbon composition in Southeast Asia, *Atmos. Chem. And Phys.*, **18**(4), 2725.
189. Sillmann, J., T. Thorarinsdottir, N. Keenlyside, N. Schaller, L. V. Alexander, G. Hegerl, S. I. Seneviratne, **R. Vautard**, X. Zhang, and F. W. Zwiers, 2017: Understanding, modeling and predicting weather and climate extremes: Challenges and opportunities. *Weather And Climate Extremes*, **18** (2017): 65-74.
188. Frieler, K., R. Betts, E. Burke, P. Ciais, S. Denyer, D. Deryng, K. Ebi, T. Eddy, K. Emanuel, J. Elliott, E. Galbraith, S. Gosling, K. Halladay, F. Hattermann, T. Hickler, J. Hinkel, V. Huber, C. Jones, V. Krysanova, S. Lange, H. Lotze, H. Lotze-Campen, M. Mengel, I. Mouratiadou, H. Müller Schmied, S. Ostberg, F. Piontek, A. Popp, C. Reyer, J. Schewe, M. Stevanovic, T. Suzuki, K. Thonicke, H. Tian, D. T. Tittensor, **R. Vautard**, M. van Vliet, L. Warszawski, and F. Zhao, 2016: Assessing the impacts of 1.5°C global warming – simulation protocol of the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP2b). *Geoscientific Model Development*, **10**(12), 4321-4345.
187. Hauser, M., L. Gudmundsson, R. Orth, A. Jézéquel, K. Haustein, **R. Vautard**, G. J. van Oldenborgh and S. I. Seneviratne, 2017. Methods and model dependency of extreme event attribution : the 2015 European drought. *Earth's future*, vol. 5, no 10, p. 1034-1043.
186. Raimonet, M., Oudin, L., Thieu, V., Silvestre, M., **Vautard, R.**, Rabouille, C., & Le Moigne, P. (2017). Evaluation of Gridded Meteorological Datasets for Hydrological Modeling. *Journal of Hydrometeorology*, **18**(11), 3027-3041.

185. Colette, A., Andersson, A., Manders, A., Mar, K., Mircea, M., Pay, M.-T., Raffort, V., Tsyro, S., Cuvelier, C., Adani, M., Bessagnet, B., Bergström, R., Brigandt, G., Butler, T., Cappelletti, A., Couvidat, F., D'Isidoro, M., Doumbia, T., Fagerli, H., Granier, C., Heyes, C., Klimont, Z., Ojha, N., Otero, N., Schaap, M., Sindelarova, K., Stegehuis, A. I., Roustan, Y., **Vautard, R.**, van Meijgaard, E., Vivanco, M.G., and P. Wind, P., 2017: EURODELTA-Trends, a multi-model experiment of air quality hindcast in Europe over 1990-2010, *Geoscientific Model Development* 10, 3255-3276, 2017.
184. **Vautard, R.**, A. Colette, E. van Meijgaard, F. Meleux, G. J. van Oldenborgh, F. Otto, I. Tobin, P. Yiou, 2017 : Attribution of wintertime anticyclonic stagnation contributing to air pollution in Western Europe. *Bull. Am. Meteor. Soc.*, in "Explaining extreme events of 2016 from a climate perspective", special supplement, S70-S75.
183. Peñuelas, J., Ciais, P., J. Canadell, I. Janssens, M. Fernandez-Martinez, J. Carnicer, M. Obersteiner, S. Piao, **R. Vautard** and J. Sardans, 2017: Shifting from a fertilization-dominated to a warming-dominated period. *Nature Ecology & Evolution*, 1(10), 1438.
182. Fortems-Cheiney, A., G. Foret, G. Siour, **R. Vautard**, S. Szopa, G. Dufour, A. Colette, G. Lacressonniere and M. Beekmann, 2017 : A 3°C global RCP8.5 emission trajectory annihilates the benefits of European emission reductions on air quality. *Nature Communications*, doi:10.1038/s41467-017-00075-9.
181. Jézéquel, A., Yiou, P., Radanovics, S., and **R. Vautard**, 2017 : Analysis of the exceptionally warm December 2015 in France using flow analogues. *Bull. Am. Meteorol. Soc.*, vol. 99, no 1, p. S76-S79.
180. Yiou, P., A. Jézéquel, P. Naveau, F. E. L. Otto, **R. Vautard** and M. Vrac, 2017: A statistical framework for conditional extreme event attribution, *Advances in Statistical Climatology, Meteorology and Oceanography*, 3(1), 17-31.
179. Lacressonnière, G. L. Watson, . Gauss, M. Engardt, C. Andersson, M. Beekmann, A. Colette, G. Foret, B. Josse, V. Marécal, A. Nyiri, G. Siour, S. Sobolowski and **R. Vautard** (2017). Particulate matter air pollution in a +2°C warming world. *Atmos. Environ.*, 154, 129-140.
178. Raynaud, D., B. Hingray, I. Zin, S. Anquetin, S. Debionne, and **R. Vautard**, 2017: Atmospheric analogs for physically consistent scenarios of surface weather in Europe and Maghreb. *Int. J. of Climatology*, vol. 37, no 4, p. 2160-2176.
177. Bartok, B., M. Wild, D. Folini, D. Lüthi, S. Kotlarski, C. Schär, **R. Vautard** and S. Jerez, 2017: Projected changes in surface solar radiation in CMIP5 global climate models and in EURO-CORDEX regional climate models for Europe. *Clim. Dyn.*, doi:10.1007/s00382-016-3471-2.

2016

176. Stott, P.A., Christidis, N., Otto, F.E.L., Sun, Y., Vanderlinden, J.-P., van Oldenborgh, G.J., **Vautard, R.**, von Storch, H., Walton, P., Yiou, P. and Zwiers, F.W. (2016), Attribution of extreme weather and climate-related events. *WIREs Clim Change*, 7: 23-41. <https://doi.org/10.1002/wcc.380>
175. Knist, S., K. Goergen, E. Buonomo, O. Christensen, A. Colette, R. Cardoso, R. Fealy, J. Fernandez, M. Garcia-Diez, D. Jacob, S. Karstios, E. Katragkou, K. Keuler, S. Mayer, E. van Meijgaard, G. Nikulin, P. Soares, S. Sobolowski, G. Szepszo, C. Teichmann, **R. Vautard**, K. Warrach-Sagi, V. Wulfmeyer, C. Simmer, 2016: Land-atmosphere coupling in EURO-CORDEX evaluation experiments. *Journal of Geophysical Research: Atmospheres*, 122(1), 79-103.
174. Teuling, A. J., C. M. Taylor, J.-F. Meirink, L.-A. Melsen, D. G. Miralles, C. C. van Heervaarden, **R. Vautard**, A. I. Stegehuis, G.-J. Nabuurs, and J. Vilà Guerau de Arellano, 2016: Observational evidence for cloud cover enhancement over Western European forests. *Nature Communications*, 8, 14065.

173. Ouzeau, G., J.-M. Soubeyroux, M. Schneider, **R. Vautard** and S. Planton, 2016: Heat waves analysis over France in present and future climate : application of a new method on the EURO-CORDEX ensemble. *Climate Services*, 4, 1-12.
172. **Vautard, R.**, P. Yiou, F. Otto, P. Stott, N. Christidis, G. J. van Oldenborgh and N. Schaller, 2016: Attribution of human-induced dynamical and thermodynamical contributions in extreme weather events. *Environ. Res. Letters*, 11(2016)114009.
171. Watson, L., G. Lacressonnière, M. Gauss, M. Engardt, C. Andersson, B. Josse, V. Marécal, A. Nyiri, S. Sobolowski, G. Siour and **R. Vautard**, 2016: The impact of emissions and +2°C climate change upon future ozone and nitrogen dioxide over Europe. *Atmos. Environ.*, 142, 271-285.
170. Lake, I. R., N. R. Jones, M. Agnew, C. M. Goodess, F. Giorgi, L. Hamaoui-Laguel, M. Semenov, F. Solmon, J. Storkey, **R. Vautard** and M. Epstein, 2016: Climate change and future pollen allergy in Europe. *Environ. Health. Persp.*, 125(3), 385.
169. Vrac, M., Noël, T. and **R. Vautard**, 2016: Bias correction of precipitation through Singularity Stochastic Removal: Because occurrences matter, *J. Geophys. Res.*, 121(10), 5237-5258.
168. Chavaillaz, Y., S. Joussaume, A. Dehecq, P. Braconnot and **R. Vautard**, 2016 : Investigating the pace of temperature change and its implications over the twenty-first century, *Climatic Change*, 137, no 1-2, p. 187-200.
167. Zhao Y., B. Sultan, **R. Vautard**, P. Braconnot, H.J. Wang and A. Ducharne, 2015: Potential escalation of heat-related working costs with climate and socio-economic changes in China. *Proc. Nat. Acad. Sci.*, 113, 4640-4645.
166. Schaller, N., A. L. Kay, R. Lamb, N. R. Massey, G.-J. van Oldenborgh, F. E. L. Otto, S. N. Sparrow, **R. Vautard**, P. Yiou, A. Bowery, S. M. Crooks, C. Huntingford, W. Ingram, R. Jones, T. Legg, J. Miller, J. Skeggs, D. Wallom, S. Wilson & M. R. Allen, 2015, Human influence on climate in the 2014 Southern England winter floods and their impacts. *Nature climate change*, doi:10.1038/nclimate2927.
165. Tobin, I., Jerez, S., **Vautard, R.**, Thais, F., Déqué, M., Kotlarski, S., Fox Maule, C., van Meijgaard, E., Nikulin, G., Noel, T., Prein, A., Teichmann, C., 2016: Climate change impacts on the power generation potential of a European mid-century wind farms scenario. *Environ. Res. Lett.*, 11(3), 034013.
164. Markakis, K., M. Valari, M. Engardt, G. Lacressonniere, **R. Vautard** and C. Andersson, 2016: Mid-21st century air quality at the urban scale under the influence of changed climate and emissions. Case studies for Paris and Stockholm. *Atmospheric Chemistry and Physics*, in press.
163. Lacressonnière G, Foret G, Beekmann M, Siour G, Engardt M., Gauss M, Watson L, Andersson C ,Colette A, Josse B, Marécal V, Nyiri A., **Vautard R.**, Impacts of regional climate change on air quality projections and associated uncertainties, , *Climatic change*, 136(2), 309-324
162. Stott, P., N. Christidis, F. Otto, Y. Sun, J.-P. Vanderlinden, G. J. van Oldenborgh, **R. Vautard**, H. von Storch, P. Walton; P. Yiou, F. Zwiers, 2016, Attribution of extreme events. *WIRES Climate Change*, 2016, 7:23–41. doi: 10.1002/wcc.380.
161. Balog, I., P. M. Ruti, I. Tobin, V. Armenio, and **R. Vautard**, 2016: A numerical approach for planning offshore wind farms from regional to local scales over the Mediterranean. *Renewable Energy*, 85, 395-405.
160. Prein, A., A. Gobiet, H. Truehertz, K. Keuler, K. Goergen, C. Teichmann, C. Fox Maule, E. van Meijgaard, M. Déqué, G. Nikulin, **R. Vautard**, A. Colette, E. Kjellström, 2016: Precipitation in the EURO-CORDEX 0.11° and 0.44° simulations: high resolution, high benefits? *Climate Dynamics*, 46(1-2), 383-412.

2015

159. Jerez, S., I. Tobin, **R. Vautard**, J. P. Montávez, J. M. López-Romero, F. Thais, B. Bartok, O. B. Christensen, A. Colette, M. Déqué, G. Nikulin, S. Kotlarski, E. van Meijgaard, C. Teichmann, and M. Wild, 2015: The impact of climate change on photovoltaic power generation in Europe, *Nature Communications*, doi:10.1038/ncomms10014.
158. Liu, L., Solmon, F., **Vautard, R.**, Hamaoui-Laguel, L., Torma, C. Z., & Giorgi, F. (2015). Ragweed pollen production and dispersion modelling within a regional climate system, calibration and application over Europe. *Biogeosciences*, 13, 2769-2786.
157. Casanueva, A., S. Kotlarski, S. Herrera, J. Fernandez, J. M. Gutierrez, F. Boberg, A. Colette, O. B. Christensen, K. Goergen, D. Jacob, K. Keuler, G. Nikulin, C. Teichmann, and **R. Vautard**, 2015: daily precipitation statistics in the EURO-CORDEX RCM ensemble: Added value of a high resolution and implications for bias correction. *Climate Dynamics*, doi:[10.1007/s00382-015-2865-x](https://doi.org/10.1007/s00382-015-2865-x).
156. Watson, L., G. Lacressonnière, M. Gauss, M. Engardt, C. Anderson, B. Josse, V. Marecal, A. Nyiri, S. Sobolowski, G. Siour, and **R. Vautard**, 2015, The impact of meteorological forcings on gas phase air pollutants over Europe. *Atmospheric Environment*, 119, 240-257.
155. Zeng, Z., A. Chen, P. Ciais, Y. Li, L. Z. X. Li, **R. Vautard**, L. Zhou, H. Yang, M. Huang & S. Piao, 2014: Regional air pollution brightening reverses the greenhouse gases induced warming-elevation relationship. *Geophys. Res. Lett.*, doi:10.1002/2015GL064410.
154. Stegehuis, A. I., Vautard, R., Ciais, P., Teuling, A. J., Miralles, D. G., & Wild, M. (2015). An observation-constrained multi-physics WRF ensemble for simulating European mega heat waves. *Geoscientific Model Development*, 8(7), 2285-2298.
153. **Vautard, R.**, G.-J. van Oldenborgh, S. Thao, B. Dubuisson, G. Lenderink, A. Ribes, S. Planton, J.-M. Soubeyroux, P. Yiou (2015): Extreme fall precipitations in the Cévennes mountains. *Bull. Am. Meteorol. Soc. Suppl. On “explaining extreme events of 2014 from a climate perspective”*, 96, S56-S60.
152. Zhao Y., A. Ducharne, B. Sultan, P. Braconnot, and **R. Vautard**, 2015: Modeling climate change impacts on human heat stress: present-day biases and future uncertainties in CMIP5. *Environ. res. Lett.*, 10, 084013.
151. Miller, L. M., N. A. Brunsell, D. B. Mechem, F. Gans, A. J. Monaghan, **R. Vautard**, D. W. Keith, and A. Kleidon, 2014: Two methods for estimating limits to large-scale wind power generation. *Proc. Nat. Acad. Sci.*, 112, 11169-11174.
150. Berrisford, P., I. Tobin, R. J. H. Dunn, **R. Vautard** and T. R. McVicar, Eds., 2015: Land surface Wind speed. Regional climates [in “State of the Climate in 2014”]. *Bull. Amer. Meteor. Soc.*, 96 (7), S169–S219.
149. Kinney, P., Schwartz, J., Pascal, M., Petkova, E. Le Tertre, A. Medina, S. and **Vautard, R.**, Winter Season Mortality: Will Climate Warming Bring Benefits?, 2015 *Environ. Res. Lett.*, 10, doi:10.1088/1748-9326/10/6/064016.
148. Hamaoui-Laguel, L., **R. Vautard**, L. Liu, F. Solmon, N. Viovy, D. Khvorostyanov, F. Essl, I. Chuine, A. Colette, M. A. Semenov, A. Schaffhauser, J. Storkey, M. Thibaudon and M. Epstein, 2015: Effects of climate change and seed dispersal on airborne ragweed pollen loads in Europe. *Nature Climate Change*, 5, 766-U186.
147. Katragkou, E., M. Garcia-Diez, **R. Vautard**, S. Sobolowski, P. Zanis, G. Alexandri, R.M. Cardoso, A. Colette, J. Fernandez, A. Gobiet, K. Goergen, T. Karacostas, S. Knist, S. Mayer, P.M.M. Soares, I. Pytharoulis, I. Tegoulias, A. Tsikerdekis, and D. Jacob, 2014: Regional climate hindcast simulations within EURO-CORDEX: Evaluation of a WRF multi-physics ensemble. *Geoscientific Model Development*, 8, 603-618.

146. Essl, F., K. Biro, D. Brandes, O. Broennimann, J. M. Bullock, D. S. Chapman, B. Chauvel, S. Dullinger, B. Fumanal, A. Guisan, G. Karrer, G. Kazinczi, C. Kueffer, B. Laitung, C. Lavoie, M. Leitner, T. Mang, D. Moser, H. Müller-Schärer, B. Petitpierre, R. Richter, U. Schaffner, M. Smith, U. Starfinger, **R. Vautard**, G. Vogl, M. von der Lippe & S. Follak, 2015: Biological flora of the British Isles: *Ambrosia artemisiifolia*, *J. Ecology*, 103(4), 1069-1098.
145. Schucht, S., A. Colette, S. Rao, M. Holland, W. Schöpp, P. Kolp, Z. Klimont, B. Bessagnet, S. Szopa, **R. Vautard**, J.-M. Brignon, and L. Rouil, 2014: Moving towards ambitious climate policies: monetized health benefits from improved air quality could improve offset mitigation costs. *Environ. Sci. and Policy*, 50, 252-269.
144. Garcia-Diez, M., J. Fernandez and **R. Vautard**, 2015 : An RCM multi-physics ensemble over Europe : Multi-variable evaluation to avoid error compensation. *Clim. Dyn.*, 1-16.
143. van Oldenborgh, G.-J., D. B. Stephenson, A. Sterl, **R. Vautard**, P. Yiou, S. S. Drijfhout, H. von Storch and H. van den Dool, 2015: comment on ‘Potential influences on the United Kingdom floods of Winter 2013/2014 by Huntingford et al’, *Nature Climate Change*, 5, 490-491.
142. Jerez, S., Thais, F., Tobin, I., Wild, M., Colette, A., Yiou, P., and **R. Vautard**, 2015: The CLIMIX model: a tool to create and evaluate spatially-resolved scenarios of photovoltaic and wind power development. *Renewable and sustainable energy reviews*, 42, 1-15.
141. Tobin, I., **R. Vautard**, I. Balog, F.-M. Bréon, S. Jerez, P. Ruti, F. Thais, M. Vrac, and P. Yiou, 2015: Assessing climate change impacts on European wind energy from ENSEMBLES high-resolution climate projections. *Climatic Change*, 128, 99-112.

2014

140. Lee, M., F. Nordio, A. Zanobetti, P. Kinney, **R. Vautard** and J. Schwartz, 2014: Acclimatization across space and time in the effects of temperature on mortality: a time series analysis. *Environ. Health*, 13, 89.
139. Markakis, K., M. Valari, A. Colette, O. Sanchez, O. Perrussel, C. Honore, **R. Vautard**, Z. Klimont, and S.T. Rao, 2014 : Air-quality in the mid-21st century for the city of Paris under two climate scenarios; from regional to local scale. *Atmos. Chem. and Phys.*, 14, 7323-7340.
138. Tobin, I., P. Berrisford, R. J. H. Dunn, **R. Vautard** and T. R. McVicar, 2014: State of Climate in 2013 - Surface Winds, *Bull. Amer. Meteorol. Soc.*, special suppl., 95.
137. Kotlarski, S., Keuler, K., Christensen, O. B., Colette, A., Déqué, M., Gobiet, A., Goergen, K., Jacob, D., Lüthi, D., van Meijgaard, E., Nikulin, G., Schär, C., Teichmann, C., **Vautard**, R., Warrach-Sagi, K., and Wulfmeyer, V.: Regional climate modeling on European scales: a joint standard evaluation of the EURO-CORDEX RCM ensemble, *Geosci. Model Dev.*, 7, 1297-1333, doi:10.5194/gmd-7-1297-2014, 2014.
136. Lacressonnière, G., V.-H. Peuch, **R. Vautard**, J. Arteta, M. Déqué, M. Joly, B. Josse, V. Marécal, and D. Saint-Martin, 2014, European air quality in the 2030s and 2050s: impacts of global and regional emission trends and of climate change. *Atmospheric Environment*, 92, 348-358..
135. Yiou, P., M. boichu, **R. Vautard**, M. Vrac, S. Jourdain, E. Garnier, F. Fluteau, and L. Menut, 2014 : Ensemble Meteorological reconstruction using circulation analogues of 1781-1785. *Clim. Past.*, 10, 797-809.

134. Vautard, R., A. Gobiet, S. Sobolowski, E. Kjellström, A. Stegehuis, P. Watkiss, T. Mendlik, O. Landgren, G. Nikulin, C. Teichmann, D. Jacob, 2014, The European climate under a 2°C global warming. Environ. Res. Lett., doi:10.1088/1748-9326/9/3/034006.
133. Vautard R., F. Thais, I. Tobin, F.-M. Bréon, J.-G. Devezeaux de Lavergne, A. Colette, P. Yiou, and P. M. Ruti, 2014 : Regional climate model simulations indicate limited climatic impacts by operational and planned European wind farms, Nature Communications, doi:10.1038/ncomms4196.
132. Ortega, P., D. Swingedouw, V. Masson-Delmotte, C. Risi, B. Vinther, P. Yiou, R. Vautard and K. Yoshimura, 2013: Characterizing atmospheric circulation signals in Greenland ice cores: insights from the weather regime approach. Climate Dynamics, vol. 43, no 9-10, p. 2585-2605.
131. Jacob, D., J. Petersen, B. Eggert, A. Alias, O. B. Christensen, L. M. Bouwer, A. Braun, A. Colette, M. Déqué, G. Georgievski, E. Georgopoulou, A. Gobiet, L. Menut, G. Nikulin, A. Haensler, N. Hempelmann, C. Jones, K. Keuler, S. Kovats, N. Kröner, S. Kotlarski, A. Kriegsmann, E. Martin, E. van Meijgaard, C. Moseley, S. Pfeifer, S. Preuschmann, K. Radtke, D. Rechid, M. Rounsevell, P. Samuelsson, S. Somot, J.-F. Soussana, C. Teichmann, R. Valentini, R. Vautard, B. Weber, and P. Yiou, 2014, EURO-CORDEX: New high-resolution climate change projections for European impact research, Regional Environmental change, 14, 563-578.

2013

130. Colette, A., B. Bessagnet, R. Vautard, S. Szopa, S. Rao, L. Menut, G. Clain, F. Meleux, S. Schucht, Z. Klimont, and L. Rouïl, 2013 : European atmosphere in 2050, a regional air quality and climate perspective under CMIP5 scenarios. Atmos. Chem. and Phys., 13, 7451-7471.
129. Menut L., Bessagnet B., Khvorostyanov D., Beekmann M., Blond N., Colette A., Coll I., Curci G., Foret G., Hodzic A., Mailler S., Meleux F., Monge J.L., Pison I., Siour G., Turquety S., Valari M., Vautard R., Vivanco M.G., 2013 : CHIMERE 2013: a model for regional atmospheric composition modelling. Geosci. Model Dev. 6, 981-1028.
128. Mc Vicar, T., R., R. Vautard, J.-N. Thepaut, P. Berrisford, and R. J. H. Dunn, 2013, [Global climate; Atmospheric circulation; Surface winds] Land surface winds [in "State of the Climate in 2012"]. *Bulletin of American Meteorological Society*, 94, S1–S258.
127. Solazzo, E., R. Bianconi, G. Pirovano, M. D. Moran, R. Vautard, C. Hogrefe, Appel, K. W., V. Matthias, P. Grossi, B. Bessagnet, J. Brandt, C. Chemel, J. H. Christensen, R. Forkel, X. Francis, A. Hansen, S. McKeen, U. Nopmoncol, M. Prank, K. Sartelet, A. Segers, J. D. Silver, G. Yarwood, J. Werhahn, J. Zhang, S. T. Rao, and S. Galmarini, 2013: Evaluating the capability of regional air quality models to capture the vertical distribution of pollutants. Geosci. Model Dev. 6, 791-818.
126. Stegehuis, A., R. Teuling, P. Ciais, R. Vautard and M. Jung, 2013: Future European temperature change uncertainties reduced by using land heat flux observations. Geophys. Res. Letters, in press.
125. Vautard, R., A. Gobiet, D. Jacob, M. Belda, A. Colette, M. Déqué, J. Fernández, M. García-Díez, K. Goergen, I. Gütter, T. Halenka, T. Karakostas, E. Katragkou, K. Keuler, S. Kotlarski, S. Mayer, E. van Meijgaard, G. Nikulin, M. Patarčić, J. Scinocca, S. Sobolowski, M. Suklitsch, C. Teichmann, K. Warrach-Sagi, V. Wulfmeyer, P. Yiou, 2012 : The simulation of European heat waves from an ensemble of regional climate models within the EURO-CORDEX project. Climate Dynamics, 41, 2555-2575.
124. Stegehuis, A., R. Vautard, P. Ciais, R Teuling, M. Jung, and P. Yiou, 2013: Summer temperatures in Europe and land heat fluxes in observation-based data and regional climate model simulations. Climate Dynamics, 41, 455-477.
123. Yiou, P., T. Salameh, P. Drobinski, L. Menut, R. Vautard, and M. Vrac, 2013 : Ensemble reconstruction of the atmospheric column from surface pressure using analogues. Clim. Dyn., 41, 1419-1437.

122. **Vautard, R.**, T. Noël, L. Li, M. Vrac, E. Martin, P. Dandin, and S. Joussaume, 2013 : Climate variability and trends in downscaled high-resolution simulations and projections over metropolitan France. *Clim. Dynamics*, doi:10.1007/s00382-012-1621-8.

121. Menut, L., O. P. Tripathi, A. Colette, **R. Vautard**, E. Flaounas, B. Bessagnet, 2012 : Evaluation of regional climate simulations for air quality modeling purposes. *Climate Dynamics*, 40, 2515-2533.

2012

120. Cattiaux, J., B. Quesada, A. Arakelian, F. Codron, **R. Vautard** and P. Yiou, 2012 : North-Atlantic dynamics and european temperature extremes in the IPSL model: sensitivity to atmospheric resolution. *Clim. Dyn.*, in press.

119. **Vautard**, R. and P. Yiou, 2012, Attribution: Robustness of warming attribution. *Nature Climate Change*, 2, 26–27 (2012), doi:10.1038/nclimate1343.

118. Colette, A., **R. Vautard** and M. Vrac, 2012 : Regional climate downscaling with prior statistical correction of the global climate forcing. *Geophys. Res. Lett.*, 39, L13707, doi:10.1029/2012GL052258.

117. **Vautard, R.**, T. R. McVicar, J.-N. Thépaut, M. L. Roderick. (2012) [Global climate; Atmospheric circulation; Surface winds] Land surface winds and atmospheric evaporative demand [in “State of the Climate in 2011”]. *Bulletin of American Meteorological Society*. 93(7), S36-S38.

116. Schere, K., **Vautard, R.**, Solazzo, E., Hogrefe, C. and S. Galmarini, 2012: Lessons learned from Phase I of the Air Quality Model Evaluation International Initiative (AQMEII). *Environmental Manager*, July 2012, 37-47.

115. Quesada, B., **R. Vautard**, P. Yiou, M. Hirschi and S. I. Seneviratne, 2012: Asymmetric European summer heat predictability from wet and dry winters and springs. *Nature Climate Change*, 2, 736-741.

114. Kinney, P. L., M. Pascal, **R. Vautard**, and K. Laaidi, 2012: Winter mortality in a changing climate: will it go down? *Bull. Epidem. Hebdo.*, 12-13, 5-7.

113. Solazzo, E., R. Bianconi, G. Pirovano, M. Volker, **R. Vautard**, K. W. Appel, B. Bessagnet, J. Brandt, J. H. Christensen, C. Chemel, I. Coll, J. Ferreira, R. Forkel, X. V. Francis, G. Grell, P. Grossi, A. Hansen, A. I. Miranda, M. D. Moran, U. Nopmongcol, M. Parnk, K. N. Sartelet, M. Schaap, J. D. Silver, R. S. Sokhi, J. Vira, J. Werhahn, R. Wolke, G. Yarwood, J. Zhang, S.T. Rao, and S. Galmarini, 2011: Operational model evaluation for particulate matter in Europe and North America in the context of the AQMEII project. *Atmospheric Environment*, doi:10.1016/j.atmosenv.2012.02.045.

112. Solazzo, E., R. Bianconi, **R. Vautard**, K. W. Appel, B. Bessagnet, J. Brandt, J. H. Christensen, C. Chemel, I. Coll, H. D. van der Gon, J. Ferreira, R. Forkel, X. V. Francis, G. Grell, P. Grossi, A. Hansen, A. Jerićević, L. Kraljević, A. I. Miranda, M. D. Moran, U. Nopmongcol, G. Pirovano, M. Prank, A. Riccio, K. N. Sartelet, M. Schaap, J. D. Silver, R. S. Sokhi, J. Vira, J. Werhahn, R. Wolke, G. Yarwood, J. Zhang, S.T. Rao⁹, and S. Galmarini, 2012: Model evaluation and ensemble modeling for surface-level ozone in Europe and North America. *Atmos. Environ.*, doi:10.1016/j.atmosenv.2012.01.003.

111. **Vautard, R.**, Moran, M. D., Solazzo, E., Gilliam, R. C., Matthias, V., Bianconi, R., Chemel, C., Ferreira, J., Geyer, B., Hansen, A. B., Jericevic, A., Prank, M., Segers, A., Silver, J. D., Werhahn, J., Wolke, R., Rao, S. T., and S. Galmarini, 2012, Evaluation of the meteorological forcing used for the Air Quality Model Evaluation International Initiative (AQMEII) air quality simulations. *Atmos. Environ.*, doi:10.1016/j.atmosenv.2011.10.065.

110. Schere, K., J. Flemming, **R. Vautard**, C. Chemel, A. Colette, C. Hogrefe, B. Bessagnet, F. Meleux, R. Mathur, S. Roselle, R.-M. Hu, R. S. Sokhi, S. T. Rao and S. Galmarini, 2011: Trace gas/aerosol boundary

concentrations and their impacts on continental-scale AQMEII modeling domains. *Atmospheric Environment*, 53, 38-50.

109. Alapathy, K., Mathur, R., Pleim, J., Rao, S. T., Ramaswamy, V., Galmarini, S., Schaap, M., **Vautard, R.**, Makar, P., Baklanov, A., Kallos, G. and B. Vogel, New directions: understanding interactions of air quality and climate change at regional scale. *Atmospheric Environment*, doi:10.1016/j.atmosenv.2011.12.016, **2012**, 419–421.
108. Cattiaux, J., Yiou, P. and R. **Vautard**, 2012: Dynamics of future seasonal temperature trends and extremes in Europe. *Climate Dynamics*, 38, 9-10, 1949-1964.

2011

107. Peterson, T. C., **Vautard, R.**, McVicar T. R., Thépaut, J.-N., and P. Berrisford, 2011: Surface winds over land, in [“State of Climate 2010”], Bull. Amer. Meteor. Soc, in press.
106. Lemond, J., Dandin, P., Planton, S., **Vautard, R.**, Pagé, C., Déqué, M., Franchistéguy, L., Geindre, S., Kerdoncuff, M., Li, L., Moisselin, J. M., Noël, T., and Y. M. Tourre, 2011. DRIAS – A step toward french climate services. *Adv. in Sci. and Res.*, 6, 179-186.
105. Cattiaux, J., R. **Vautard**, and P. Yiou, 2011: North-Atlantic SST amplified recent European land temperature extremes and trends. *Climate Dynamics*, doi: 10.1007/s00382-010-0869-0.

2010

104. **Vautard, R.**, J. Cattiaux, P. Yiou, J.-N Thepaut, and P. Ciais, 2010: Northern Hemisphere atmospheric stilling partly attributed to an increase in surface roughness. *Nature Geoscience*, 3, 756–761.
103. Cattiaux, J., R. **Vautard**, C. Cassou, P. Yiou, V. Masson-Delmotte and F. Codron, 2010 : Winter 2010 in Europe : a cold extreme in a warming climate. *Geophys. Res. Lett.*, 37, L20704, doi:10.1029/2010GL044613.
102. Beekmann, M., and R. **Vautard**, 2010: A modelling study of photochemical regimes over Europe: robustness and variability. *Atmos. Chem. Phys. Disc.*, 10, 10067-10084.
101. van Oldenborgh, G. J., Yiou, P., and R. **Vautard**, 2010: On the role of circulations and aerosols in the decline of mist and dense fog in Europe over the last 30 years. *Atmos. Chem. Phys.*, 10, 4597-4609.
100. Aulagnier, C., Rayner, P., Ciais, P., **Vautard**, R., Rivier, L., Ramonet, M., 2010, Is the recent build-up of the atmospheric CO₂ over Europe reproduced by models: an overview with the atmospheric mesoscale transport model CHIMERE, *Tellus B*, DOI: 10.1111/j.1600-0889.2009.00443.

2009

99. **Vautard**, R. and P. Yiou, 2009, Control of recent European surface climate change by atmospheric flow, *Geophys. Res. Lett.*, 36, L22702, 10.1029/2009GL040480.
98. Timmermans, R. M. A., Segers, A. J., Builtjes, P. H. J., **Vautard**, R., Siddans, R., Elbern, H., Tjemkes, S. A. T., and M. Schaap, 2009, The added value of a proposed satellite imager for ground-level particulate matter analyses and forecasts. *IEEE J-STAR*, 2, 271-283.
97. Timmermans, R. M. A., Schaap, M., Elbern, H., Siddans, R., Tjemkes, S., **Vautard**, R., and P. Builtjes, 2009: An observing system simulation experiment (OSSE) for aerosol optical depth from satellites. *J. Atmos. Ocean. Technol.*, 26, 2673-2682.
95. Georgopoulos, P., Isukapali, S., Burke, J., Napelenok, S., Palma, T., Langstaff, J., Majeed, M., He, S., Byun, D., Cohen, M., **Vautard**, R., 2009, Air quality modeling needs for exposure assessment from the source-to-outcome perspective, *Environmental Manager*, in press.

95. Monks, P. S., C. Granier, S. Fuzzi, A. Stohl, M. Williams, H. Akimoto, M. Amman, A. Baklanov, U. Baltensperger, I. Bey, N. Blake, R.S. Blake, K. Carslaw, O.R. Cooper, F. Dentener, E. Frakou, G. Frost, S. Generoso, P. Ginoux, V. Grewe, A. Guenther, H.C. Hansson, S. Henne, J. Hjorth, A. Hofzumahaus, H. Huntrieser, M.E. Jenkin, J. Kaiser, M. Kanakidou, Z. Klimont, M. Kulmala, M.G. Lawrence, J.D. Lee, C. Liousse, G. McFiggans, A. Metzger, A. Mieville, N. Moussiopoulos, J.J. Orlando, P.I. Palmer, D. Parrish, A. Petzold, U. Platt, U. Poeschl, A.S.H. Prévôt, C.E. Reeves, S. Reiman, Y. Rudich, K. Sellegri, R. Steinbrecher, D. Simpson, H. ten Brink, J. Theloke, G. van der Werf, R. **Vautard**, V. Vestreng, Ch. Vlachokostas, R. von Glasow, 2009, Atmospheric composition change – global and regional air quality, *Atmospheric Environment*, 43, 5268-5350.
94. Coll, I., Lasry, F., Fayet, S., Armengaud, A., and R. **Vautard**, 2009, Simulation and evaluation of 2010 emission control scenarios in a Mediterranean area. *Atmos. Environ.*, 43, 4194-4204.
93. Champollion, C., P. Drobinski, M. Haefelin, O. Bock, J. Tarniewicz, M. N. Bouin and R. **Vautard**, 2009, Water vapor variability induced by urban/rural surface heterogeneities during convective conditions, *Quart. J. of the Royal Met. Soc.*, 135, 1266-1276.
92. Zampieri, M., F. D'Andrea, R. **Vautard**, P. Ciais, N. de Noblet-Ducoudré, P. Yiou, 2009, Hot European Summers and the role of soil moisture in the propagation of Mediterranean drought, *J. Climate*, 4747-4758.
91. Cattiaux, J., R. **Vautard**, and P. Yiou, Origins of the extremely warm European fall of 2006. *Geophys. Res. Lett.*, doi: 10.1029/2009GL037339.
90. R. **Vautard**, P. Yiou, and G. J. van Oldenborgh, 2009: Decline of fog, mist and haze in Europe over the past 30 years, *Nature Geoscience*, 2, 115-119.
89. Curci, G., Beekmann, M., R. **Vautard**, Smiatek, G., Steinbrecher, R., Theloke, J., and R. Friedrich, 2008: Modeling study of the impact of isoprene and terpene emissions on European ozone levels. *Atmos. Environ.*, 43, 1444-1455.
88. Steinbrecher, R., Smiatek, G., Köble, R., Seufert, G., Theloke, J., Hauff, K., Ciciolli, P., R. **Vautard**, 2009: Intra- and inter-annual variability of VOC emissions from natural and semi-natural vegetation in Europe and neighbouring countries. *Atmos. Environ.*, 43, 1380-1391.
87. R. **Vautard**, M. Schaap, R Bergström, B. Bessagnet, J. Brandt, P.J.H. Builjtjes, J.H. Christensen, C. Cuvelier, V. Foltescu, A. Graf, A. Kerschbaumer, M. Krol, P. Roberts, L. Rouïl, R. Stern, L. Tarrason, P. Thunis, E. Vignati, P. Wind, 2009, Skill and uncertainty of a regional air quality model ensemble. *Atmos. Environ.*, 43, 4822-4832.
86. Vivanco, M., Palomino, I., R. **Vautard**, B. Bessagnet, B., Martin, F., Menut, L., Jimenez, S., 2009: Multi-year assessment of photochemical air quality simulation over Spain, *Environmental Modeling and Software*, 24, 63-73.
85. Rouïl, L., Honoré, C., R. **Vautard**, M., Beekmann, M., Bessagnet B., Dufour A., Elichegaray C., Flaud, J.-M., Malherbe L., Meleux F., Menut L., Martin D., Peuch A., Peuch V.-H., and Poisson, N., 2009, PREV'AIR: an operational forecasting and mapping system for air quality in Europe. *Bull. Amer. Meteorol. Soc.*, 90, 73-83.

2008

84. Patra, P. K., R. M. Law, W. Peters, C. Rödenbeck, M. Takigawa1, C. Aulagnier, I. Baker, D. J. Bergmann, P. Bousquet, J. Brandt, L. Bruhwiler, P. J. Cameron-Smith, J. H. Christensen, F. Delage, A. S. Denning, S. Fan, C. Geels, S. Houweling, R. Imasu, U. Karstens, S. R. Kawa, J. Kleist, M. C. Krol1, S.-J. Lin, R. Lokupitiya, T. Maki1, S. Maksyutov, Y. Niwa, R. Onishi, N. Parazoo, G. Pieterse, L. Rivier, M. Satoh, S. Serrar, S. Taguchi, R. **Vautard**, A. T. Vermeulen, Z. Zhu: TransCom model simulations of hourly atmospheric CO₂: analysis of synoptic scale variations for the period 2002-2003. *Global Biogeochemical Cycles*, 22, GB4013, doi:10.1029/2007GB003081.
83. Bessagnet, B., Menut, L., Aymoz, G., Chepfer, H., and R. **Vautard**, 2008: Modelling dust emissions and transport within Europe: the Ukraine March 2007 event. *J. Geophys. Res.*, 113, D15202, doi:10.1029/2007JD009541.
82. Law, R. M., W. Peters, C. Rödenbeck, C. Aulagnier, I. Baker, D. J. Bergmann, P. Bousquet, J. Brandt, L. Bruhwiler, P. J. Cameron-Smith, J. H. Christensen, F. Delage, A. S. Denning, S. Fan, C. Geels, S. Houweling, R. Imasu, U. Karstens, S. R. Kawa, J. Kleist, M. C. Krol1, S.-J. Lin, R. Lokupitiya, T. Maki1, S. Maksyutov, Y. Niwa, R. Onishi, N. Parazoo, G. Pieterse, L. Rivier, M. Satoh, S. Serrar, S. Taguchi, M. Takigawa1, R. **Vautard**, A. T. Vermeulen, Z. Zhu, 2008: TransCom model simulations of hourly atmospheric CO₂:

experimental overview and diurnal cycle results for 2002. *Global Biogeochemical Cycles*, 22, GB3009, doi:10.1029/2007GB003050.

81. Stern, R., P. Builtjes, M. Schaap, R. Timmermans, **R. Vautard**, A. Hodzic, M. Memmesheimer, H. Feldmann, E. Renner, R. Wolke, and A. Kerschbaumer, 2008 : A model inter-comparison study focusing on episodes with elevated PM10 concentrations. *Atmos. Environ.*, 42, 4567-4588.
80. Honoré, C., Rouil, L., **Vautard**, R., Beekmann, M., Bessagnet, B., Dufour, A., Elichegaray, C., Flaud, J.-M., Malherbe, L., Meleux, F., Menut, L., Martin, D., Peuch, A., Peuch, V.-H., Poisson, N., 2008. Predictability of European air quality: The assessment of three years of operational forecasts and analyses. *J. Geophys. Res.*, 113, D04301, doi:10.1029/2007JD008761.

2007

79. Salameh, T., Drobinski, P., Menut, L., Bessagnet, B., Flamant, C., Hodzic, A., and **R. Vautard**, 2006: Aerosol distribution over the western Mediterranean basin during a Tramontane/Mistral event, *Annales Geophysicae*, 25, 2271-2291.
78. Yiou, P., **R. Vautard**, P. Naveau and C. Cassou, 2007. Inconsistency between atmospheric dynamics and temperatures during the exceptional 2006/2007 fall/winter and recent warming in Europe. *Geophys. Res. Lett.*, 34, L21808, doi:10.1029/2007GL031981.
77. **Vautard**, R., Ciais, P., Fisher, R., Lowry D., Bréon, F.-M., Vogel, F., Levin, I., Miglietta F. and E. Nisbet, 2007. The dispersion of the Buncefield oil fire plume, an extreme accident without air quality consequences, *Atmospheric Environment*, 41, 9506-9517.
76. **Vautard**, R., and D. Hauglustaine, 2007: Impact of global climate change on regional air quality: introduction to the thematic issue, *CR Geoscience*, 339, 703-708.
75. **Vautard**, R., M. Beekmann, J. Desplats, A. Hodzic, S. Morel, 2007. Air quality in Europe during the summer of 2003: a prototype of air quality in a warmer climate. *CR Geoscience*, 339, 747-763.
74. Monteiro, A., Miranda, A. I., Borrego, C., **Vautard**, R., Ferreira, J., and Perez, A. T., 2007: Long-term assessment of particulate matter for Portugal, *Atmospheric Environment*, 41, 7726-7736.
73. **Vautard**, R., Maudi, M., Menut, L., Beekmann, M., and A. Colette, 2007. Boundary layer photochemistry simulated with a two-stream convection scheme. *Atmospheric Environment*, 47, 8275-8287.
72. Pirovano, G., Coll, I., Bedogni, M., Alessandrini, S., Costa, M. P., Gabusi, V., Lasry, F., Menut, L., **Vautard**, R., 2007: On the influence of meteorological input on photochemical modelling of a severe episode over a coastal area, *Atmospheric Environment*, 47, 6445-6464.
71. **Vautard**, R., Yiou, P., D'Andrea, F., de Noblet, N., Viovy, N., Cassou, C., Polcher, J., Ciais, P., Kageyama, M., and Y. Fan, 2007: Summertime European heat and drought waves induced by wintertime Mediterranean rainfall deficit. *Geophysical Research Letters*, 34, L07711, doi: 10.1029/2006GL028001.
70. Blond, N., K. F. Boersma, H. J. Eskes, R. van der A, M. van Roosendaal, I. De Smedt, G. Bergametti, **R. Vautard**, 2007: Intercomparison of SCIAMACHY nitrogen dioxide observations, in-situ measurements and air-quality modeling results over Europe. *J. Geophys. Res.*, 112, D10311, 10.1029/2006JD007277.
69. Chepfer, H., Chiriaco, M., **Vautard**, R., Spinhirne, J., 2007: Evaluation of MM5 optically thin clouds over Europe using ICE/SAT lidar space-borne observations. *Monthly Weather Review*, 135, 2737-2753.
68. Drobinski, P., F. Saïd, G. Ancellet, J. Arteta, P. Augustin, S. Bastin, A. Brut, J.L. Caccia, B. Campistron, S. Cautenet, A. Colette, B. Cros, U. Corsmeier, I. Coll, A. Dabas, H. Delbarre, A. Dufour, P. Durand, V. Guénard, M. Hasel, N. Kalthoff, C. Kottmeier, A. Lemonsu, F. Lohou, V. Masson, L. Menut, C. Moppert, V.H. Peuch, V. Puygrenier, O. Reitebuch, **R. Vautard**, 2007: Regional transport and dilution during high pollution episodes in southeastern France: summary of findings from the ESCOMPTE experiment. *J. Geophys. Res.*, 112, D13105, doi:10.1029/2006JD007494.
67. Lasry, F., I. Coll, S. Fayet, M. Havre and **R. Vautard**, 2007. Short-term measures for the control of ozone peaks: expertise from CTM simulations. *J. Atmos. Chem.*, doi:10.1007/s10874-007-9062-1.
66. Van Loon, M., **R. Vautard**, M. Schaap, R. Bergström, B. Bessagnet, J. Brandt, P.J.H. Builtjes, J. H. Christensen, K. Cuvelier, A. Graf, J.E. Jonson, M. Krol, J. Langner, P. Roberts, L. Rouil, R. Stern, L. Tarrasón, P. Thunis, E. Vignati, L. White, P. Wind, 2007: Evaluation of long-term ozone simulations from seven regional air quality models and their ensemble average. *Atmos. Environ.*, 41, 2083-2097.
65. Borrego, C., Monteiro, A., Miranda, A.I. and **Vautard**, R., 2007. Air quality assessment for Portugal. *Science of the Total Environment*, 373, 22-31.
64. **Vautard**, R., Builtjes, P. H. J., Thunis, P., Cuvelier, K., Bedogni, M., Bessagnet, B., Honoré, C.,

- Moussiopoulos, N., Pirovano G., Schaap, M., Stern, R., Tarrason, L., Van Loon, M., 2007: Evaluation and intercomparison of Ozone and PM10 simulations by several chemistry-transport models over 4 european cities within the City-Delta project, *Atmospheric Environment*, 41, 173-188.
63. Cuvelier, C., Thunis, P., **Vautard, R.**, Amann, M., Bessagnet, B., Bedogni, M., Berkowicz, R., Brandt, J., Brocheton, F., Builtjes, P., Coppalle, A., Denby, B., Douros G., Graf, A., Hellmuth, O., Honoré, C., Hodzic, A., Jonson, J., Kerschbaumer, A., de Leeuw, F., Minguzzi, E., Moussiopoulos, N., Pertot, C., Pirovano, G., Rouil, L., Schaap, M., Stern, R., Tarrason, L., Vignati, E., Volta, M., White, L., Wind, P., Zuber, A., 2007: CityDelta: A model intercomparison to explore the impact of emission reductions in 2010 in European cities in 2010, *Atmospheric Environment*, 41, 189-207.

2006

62. D'Andrea, F., Provenzale, A., **Vautard, R.** and N. de Noblet, 2006: Hot and cool summers: multiple stable equilibria of water balance in the planetary boundary layer. *Geophys. Res. Lett.*, 33, L24807, doi:10.1029/2006GL027972.
61. **Vautard, R.**, M. Van Loon, M. Schaap, R. Bergström, B. Bessagnet, J. Brandt, P.J.H. Builtjes, J. H. Christensen, K. Cuvelier, A. Graf, J.E. Jonson, M. Krol, J. Langner, P. Roberts, L. Rouil, R. Stern, L. Tarrason, P. Thunis, E. Vignati, L. White, P. Wind, 2006: Is regional air quality model diversity representative of uncertainty for ozone simulation ? *Geophys. Res. Lett.*, 33, L24818, doi:10.1029/2006GL027610.
60. Hodzic, A., **Vautard, R.**, Chazette, P., Menut, L., Bessagnet, B., 2006 : Aerosol chemical and optical properties over the Paris area within ESQUIF project, *Atmospheric Chemistry and Physics*, 6, 3257-3280.
59. Szopa, S., Hauglustaine, D. A., **Vautard, R.**, Menut, L., 2006 : Future global tropospheric ozone changes and impact on European air quality. *Geophys. Res. Lett.*, 33, L14805, doi:10.1029/2006GL025860.
58. **Vautard, R.**, Szopa, S., Beekmann, M., Menut, L., Hauglustaine, D. A., Rouil, L., Roemer, M., 2006 : Are decadal anthropogenic emission changes in Europe consistent with surface ozone observations? *Geophys. Res. Lett.*, 33, L13810, doi: 10.1029/2006GL026080.
57. Hodzic, A., **Vautard, R.**, Chepfer, H., Goloub, P., Menut, L., Chazette, P., Deuzé, J.-L., Apituley, A. and P. Couvert, 2006: Evolution of aerosol optical thickness over Europe during the August 2003 heat wave as seen from CHIMERE model simulations and POLDER data. *Atmospheric Chemistry and Physics*, 6, 1853-1864.
56. Hodzic, A., Bessagnet, B., and **R. Vautard**, 2006: A model evaluation of coarse-mode nitrate heterogeneous formation on dust particles. *Atmospheric Environment*, 40, 4158-4171.
55. Chiriaco, M., **Vautard, R.**, Chepfer, H., Haeffelin, M., Wanherdrick, Y., Morille, Y., Protat, A., and J. Dudhia, 2006: The Ability of MM5 to simulate Ice clouds: Systematic Comparison between Simulated and Measured Fluxes and Lidar/Radar profiles at SIRTA atmospheric observatory. *Monthly Weather Review*, 134, 897-918.

2005

54. Hodzic, A., **Vautard, R.**, Bessagnet, B., Lattuati, M., and F. Moreto, 2005: On the quality of long-term urban particulate matter simulation with the CHIMERE model. *Atmospheric Environment*, 39, 5851-5864.
53. Grancher, D., Bel, L. and **R. Vautard**, 2005: Estimation de champs de pollution par adaptation statistique locale et approche non-stationnaire. *Journal Européen des Systèmes Automatisés*, 39, 475-492.
52. **Vautard, R.**, Honoré, C., Beekmann, M. and L. Rouil, 2005: Simulation of ozone during the August 2003 heat wave and emission control scenarios. *Atmospheric Environment*, 39, 2957-2967.
51. **Vautard, R.**, Bessagnet, B., Chin, M. and Menut, L., 2005: On the contribution of natural Aeolian sources to particulate matter concentrations in Europe: Testing hypotheses with a modelling approach, *Atmospheric Environment*, 39, 3291-3303.
50. Monteiro, A., **Vautard, R.**, Borrego, C., and A. I. Miranda, 2005: Long-term simulations of photo oxidant pollution over Portugal using the CHIMERE model, *Atmospheric Environment*, 39, 3089-3101.
49. Monteiro, A., **Vautard, R.**, Lopes, M., Miranda, A., Borrego, C., 2005: Air pollution forecast in Portugal: A demand from the new air quality framework directive. *International Journal of Environment and*

- Pollution, 15, 4-15.
48. Zhang, B.-N., **R. Vautard** and N.-T. Kim Oanh, 2005: Comparison of two Photochemical Modelling Systems in a Tropical Urban Area, J. Air and Waste Management Association, 55, 903-918.
 47. Konovalov, I. B., Beekmann, M., **Vautard, R.**, Burrows, J.-P., Richter, A., Nuss, H., Elansky, N., 2005: Comparison and evaluation of modelled and GOME measurement derived tropospheric NO₂ columns over Western and Eastern Europe, Atmospheric Chemistry and Physics, 5, 169-190.
 46. Haeffelin, M., et al., 2005: SIRTA: A ground-based atmospheric observatory for cloud and aerosol research. Annales Geophysicae, 23, 253-275.

2004

45. Blond, N., and **R. Vautard**, 2004: Three-dimensional ozone analyses and their use for short-term ozone forecasts, J. Geophys. Res., doi:10.1029/2004JD004515.
44. Hodzic A., Chepfer H., **Vautard R.**, Chazette P., Beekmann M., Bessagnet B., Chatenet B., Cuesta J., Drobinski P., Goloub P., Haeffelin M., Morille Y., 2004: Comparisons of aerosol chemistry-transport model simulations with lidar and sun photometer observations at a site near Paris., J. Geophys. Res., doi:10.1029/2004JD004735.
43. Honoré, C., Rouil, L., Malherbe, L., Bessagnet, B., **Vautard, R.**, Poisson, N., Colosio, J., 2004 : Le système PREV'AIR : Cartographie et prévision de la qualité de l'air à grande échelle en Europe. Environnement, Risques & Santé, 3, 156-164.
42. B. Bessagnet, A. Hodzic, **R. Vautard**, M. Beekmann, S. Cheinet, C. Honoré, C. Liousse and L. Rouil, 2004, Aerosol modeling with CHIMERE: preliminary evaluation at the continental scale. Atmospheric Environment, 38, 2803-2817.
41. Wackernagel, H., Lajaunie, C., Blond, N., Roth, C., **Vautard, R.**, 2004: Geostatistical risk mapping with chemical transport model output and ozone station data. Ecological Modelling, 179, 177-185.

2003

40. **Vautard, R.**, Menut, L., Beekmann, M., Chazette, P., Flamant, P.-H., Gombert, D., Guedalia, D., Kley, D., Lefebvre, M.-P., Martin, D., Megie, G., Perros, P., Toupane, G., 2003 : A synthesis of the Air Pollution over Paris (ESQUIF) field campaign, J. Geophys. Res., 108, D17, 8558.
39. **Vautard, R.**, Martin, D, Beekmann, M. Drobinski, P., Friedrich, R., Jaubertie, A., Kley, D., Lattuati, M., Moral, P., Neininger, B., Theloke, J., 2003, Paris emission inventory diagnostics from ESQUIF airborne measurements and a chemistry transport model, J. Geophys. Res. 108, D17, 8564.
38. Sillman, S., **R. Vautard**, L. Menut and D. Kley, 2003: O₃-NO_x-VOC sensitivity and NO_x –VOC indicators in Paris: results from models and ESQUIF measurements, J. Geophys. Res., 108, D17, 8563.
37. Blond, N., Bel, L. and **Vautard, R.**, 2003: Three-dimensional ozone data analysis with an air quality model over the Paris area. J. Geophys. Res., 108, D17, 8564.

2002

36. Beckers, J.-M., et al., 2002: Model intercomparison in the Mediterranean: MEDMEX simulations of the seasonal cycle. J. Mar. Syst. 33–34, pp. 215–251.

2001

35. **Vautard, R.**, M. Beekmann, J. Roux and D. Gombert, 2001: Validation of a hybrid forecasting system for the ozone concentrations over the Paris area. Atmos. Environ., 35, 2449-2461.
34. D'Andrea, F. and **R. Vautard**, 2001: Extratropical low-frequency variability as a low-dimensional problem: Part I: A simplified model. Q. J. R. Meteorol. Soc., 127, 1357-1374.

33. Schmidt, H., Derognat, C., **Vautard**, R., and Beekmann, M., 2001. A comparison of simulated and observed ozone mixing ratios for the summer of 1998 in Western Europe. *Atmospheric Environment*, 36, 6277-6297.

2000

32. Swanson, K., T. Palmer and **R. Vautard**, 2000: Observational error structures and the value of advanced assimilation techniques. *J. Atmos. Sci.*, 57, 1327-1340.
31. D'Andrea, F. and **R. Vautard**, 2000: Reducing systematic errors by empirically correcting model errors. *Tellus*, 52A, 21-41.
30. Menut, L., **Vautard**, R., Beekmann, M., Honoré, C., 2000: Sensitivity of photochemical pollution using the adjoint of a simplified chemical-transport model. *J. Geophys. Res.*, 105, D12, 15,379-15,402.
29. **Vautard**, R., M. Beekmann, and L. Menut, 2000, Applications of adjoint modelling in atmospheric chemistry: sensitivity and inverse modelling, *Environmental Modelling & Software*, 15, 703-709.
28. Menut, L., **R. Vautard**, C. Flamant, C. Abonnél, M. Beekmann, P. Chazette, P. H. Flamant, D. Gombert, D. Guedalia, D. Kley, M.-P. Lefebvre, B. Lossec, D. Martin, G. Mégie, P. Perros, M. Sicard, G. Toupance, 2000: Measurements and modelling of atmospheric pollution over the Paris area: An overview of the ESQUIF project. *Annales Geophysicae*, 18, 1467-1481.
27. Honoré, C., **R. Vautard** and M. Beekmann, 2000, Low and high NO_x chemical regimes in an urban environment, *Environmental Modelling & Software*, 15, 559-564
26. Honoré, C., M. Beekmann, and **R. Vautard**, 2000: Photochemical regimes in urban atmospheres: the influence of dispersion. *Geophys. Res. Lett.*, 27 (13), 1895-1898.
25. Carmichael, G., Moussiopoulos, N., Sportisse, B., **Vautard**, R., Verwer, J., 2000, Air pollution modelling and simulation – Preface. *Environmental Modelling and Software*, 15, 501-501.

1999

24. **Vautard**, R., G. Plaut, R. Wang and G. Brunet, 1999: Seasonal prediction of surface-air temperatures using space-time principal components. *J. Climate*, 12, 380-394.
23. Kageyama, M., D'Andrea F., Ramstein G., Valdes P. J., and R. **Vautard**, 1999: Weather regimes in past climate atmospheric general circulation model simulations, *Climate Dynamics*, 15, 773-793.

1998

22. Moron, V., **R. Vautard**, and M. Ghil, 1998: Trends, interdecadal and interannual oscillations in global sea surface temperatures. *Climate Dynamics*, 14, 545-569.
21. Michelangeli, P.-A., and **R. Vautard**, 1998: The dynamics of euro-atlantic blocking, 1998: Q. J. R. Meteorol. Soc., 124, 1045-1070.
20. Swanson, K., **R. Vautard** and C. Pires, 1998: Four-dimensional variational assimilation and predictability in a quasi-geostrophic model. *Tellus*, 50A, 369-389.

1997

19. Da Costa, E. and **R. Vautard**, 1997: A qualitatively realistic low-order model of the extratropical low-frequency variability built from long records of potential vorticity. *J. Atmos. Sci.*, 54, 1064-1084.
18. Edouard, S., **Vautard**, R. and G. Brunet, 1997: On the maintenance of potential vorticity in isentropic coordinates, *Quart. J. of the Roy. Meteor. Soc.*, 123, 2069-2094.

1996

17. Pires C., **Vautard**, R., Talagrand, O., 1996: On extending the limits of variational assimilation in nonlinear

- chaotic systems, 1996, Tellus, 48A, 96-121.
16. Sarda J., Plaut G., Pires C., **Vautard R.**, 1996: Statistical and dynamical long-range atmospheric forecasts : experimental comparison and hybridization, Tellus A, 48, 518-537.
 15. **Vautard, R.**, Pires, C., and Plaut, G., 1996: Long-range atmospheric predictability using space-time principal components, Monthly Weather Rev., 124, 288-307.
 14. Brunet, G., and **Vautard, R.**, 1996: Empirical normal modes versus empirical orthogonal functions for statistical prediction, J. Atmos. Sci., 53, 3468-3489.

1991-1995

13. Plaut, G.R., M. Ghil and **R. Vautard**, 1995: Interannual and interdecadal variability in 335 years of central England temperature. Science, 268, 710-713.
12. Michelangeli, P.A., **Vautard, R.**, Legras, B., 1995: Weather regimes: recurrence and quasi-stationarity, J. Atmos. Sci., 52, 1237-1256.
11. Brunet, G., **Vautard, R.**, Legras, B., Edouard, S. 1995: Potential Vorticity on Isentropic Surfaces: Climatology and Diagnostics. Monthly Weather Review: Vol. 123, 1037-1058.
10. Yiou, P., M. Ghil, J. Jouzel, D. Paillard and **R. Vautard**, 1994: Nonlinear variability of the climatic system, from singular and power spectra of late Quaternary records, Climate Dynamics, 9, 371-389.
9. Plaut, G. and **R. Vautard**, 1994: Spells of oscillations and weather regimes in the low-frequency dynamics of the Northern Hemisphere. J. Atmos. Sci., 51, 210-236.
8. **Vautard, R.**, Yiou, P., and M. Ghil, 1992: Singular-spectrum analysis: A toolkit for short, noisy chaotic signals, Physica D:, 58, 95-126.
7. Ghil, M. and **R. Vautard**, 1991: Interdecadal oscillations and the warming trend in global temperature time series. Nature, 350, 324-327.

1986-1990

6. **Vautard, R.** 1990: Multiple Weather Regimes over the North Atlantic: Analysis of Precursors and Successors. Monthly Weather Review, 118, 2056-2081.
5. **Vautard, R.**, K. Mo, and M. Ghil, 1990: Statistical significance test for transition matrices of atmospheric Markov chains, J. Atmos. Sci., 47, 1926-1931.
4. **Vautard, R.**, and M. Ghil, 1989: Singular spectrum analysis in nonlinear dynamics, with applications to paleoclimatic time series, Physica D, 35, 395-424.
3. **Vautard, R.**, B. Legras and M. Déqué, 1988: On the source of midlatitude low-frequency variability. Part I: A statistical approach to persistence. J. Atmos. Sci., 45, 2811-2843.
2. **Vautard, R.**, and B. Legras, 1988: On the source of midlatitude low-frequency variability. Part II: Nonlinear equilibration of weather regimes. J. Atmos. Sci., 45, 2845-2867.
1. **Vautard, R.**, and B. Legras, 1986: Invariant manifolds, quasi-geostrophy and initialization, J. Atmos. Sci., 43, 565-584.