Sophie VALCKE

Research Engineer in Earth System Modelling

Birth:	February 24th, 1966, Sherbrooke (Québec), Canada
Citizenship:	Canadian and French
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I. OCCUPATION

Since 02/1997:

Research engineer in coupled Earth System Modelling

CERFACS - Global Change and Climate Modelling team

European Centre for Research and Advanced Training in Scientific Computing, 42 Av. Coriolis, 31057 Toulouse, France.

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- Leader of OASIS3-MCT code coupler development team
- CERFACS principal investigator for EU projects IS-ENES3 and ESiWACE CoE

II. EDUCATION

09/1995 - 02/1997	NSERC post-doctoral fellowship,
	School of Earth and Ocean Sciences, U. of Victoria, Victoria, BC, Canada
	Interdecadal oscillations of the thermohaline circulation
07/1992 - 07/1995	Doctorat in Mechanics; Speciality: Oceanography
	U.F.R. de Mécanique, Université Joseph Fourier - Grenoble
	Institut de Mécanique de Grenoble, B.P.53X, 38041 Grenoble, France
	Title: Merging of oceanic vortices in a rotating stratified environment.
	Honours: ``Très honorable avec félicitations du jury''
09/1991 - 06/1992	D.E.A. (Diploma of Advanced Studies) in Geophysics and Environment
	U.F.R. de Mécanique, Université Joseph Fourier - Grenoble 1
	Honours: ``Très bien'' ; Rank : 1/32
09/1990 - 06/1991	Master's Degree in Sciences
	California Institute of Technology, Pasadena, California, 91125 USA
	G.P.A.: 3.8/4.0
09/1985 - 01/1990	Bachelor's Degree in Mechanical Engineering
	University of Sherbrooke, Sherbrooke (Québec), Canada
	G.P.A.: 3.9/4.0

III. CONTRIBUTION to RESEARCH and TECHNOLOGY

Research projects as CERFACS Principal Investigator (PI)

RP1. **IS-ENES3** : InfraStructure for the European Network for Earth System Modelling 3, EU H2020, en négociation, 2019-2022, 894 KEuros

RP2. **ESiWACE2**: Centre of Excellence in Simulation of Weather and Climate in Europe 2, en négociation, 2019-2022, 198 KEuros

RP3. **COCOA:** Méthodes mathématiquement et physiquement consistantes pour le couplage océan-atmosphère », ANR funded project No ANR- 16-CE01-0007-06, CERFACS PI & WP2 co-leader, 2016-2021

RP4. **ESiWACE:** Centre of Excellence in Simulation of Weather and Climate in Europe, GA #675191, CERFACS PI & WP2 co-leader, 2015-2019.

RP5. **IS-ENES2**: InfraStructure for the European Network for Earth System Modelling 2, EU funded project, GA #312979; CERFACS PI & WP7 leader, 2013-2017.

RP6. **CONVERGENCE** : Convergence en Sciences du Climat à l'ère du Big Data et des challenges de l'Exascale, 2014-2018, ANR, 159 KEuros

RP7. **IS-ENES**: InfraStructure for the European Network for Earth System Modelling, EU funded project, INFRA-2008-1.1.2.21, 02/2008 (http://www.enes.org); CERFACS PI & WP leader, 2009-2013.

RP8. **METAFOR**: Common Metadata for Climate Modelling Digital repositories, EU funded project GA #211753, (http://ncas-cms.nerc.ac.uk/METAFOR/), 2008-2011; CERFACS PI.

RP9. **CICLE**: Calcul Intensif pour le CLimat et l'Environnement, ANR funded project No ANR-05--CIGC-04, (http://dods.ipsl.jussieu.fr/omamce/CICLE/); 2006-2009 ; CERFACS PI.

RP10. **PRISM** : PRogram for Integrated Earth System Modelling, (http://prism.enes.org/); CERFACS PI & WP leader, 2002-2005

International Committees

IC1. Scientific Steering Committee (SCC) of the C-Coupler, China, 2019-2021

IC2. Organizing Committee of the ENES « Workshop on High-performance computing for Climate and Weather », Lecce 2018, Toulouse 2016, Hamburg 2014, Toulouse 2013, Lecce 2011

IC3. Organizing Committee of the "International Workshop on Coupling Technologies for Earth System Models " series; Toulouse (FR) 2020, Princeton (USA) 2017, Manchester (UK) 2015, Boulder (USA) 2013, Toulouse (FR) 2010

IC4. Weather, Climate & Earth Sciences Working Group for the European Extreme Data and Computing Initiative (EXDCI, https://exdci.eu); 2016-2017.

IC5. PRACE Access Committee, Partnership for Advanced Computing in Europe; 2012-2016.

IC6. Weather, Climate & Earth Sciences Working Group for the European Exascale Software Initiative 2 (EESI2, http://www.eesi-project.eu); 2013-2014.

IC7. Euro-Par 2013 Topic 14 "High-Performance and Scientific Applications" Committee (www.europar2013.org); 2013.

IC8. Weather, Climate & Earth Sciences Working Group for the European Exascale Software Initiative (EESI, http://www.eesi-project.eu); 2010-2011.

IC9. PRISM Support Initiative (Co-coordinator), European consortium for technical support to Earth System Modelling in Europe; 2005-2009.

IC10. Advisory board of the Earth System Modeling Framework (USA); 2006-2009

IC11. Executive Board of the European Project for Integrated System Modelling (PRISM); 2002-2004.

Peer-Reviewed Journal Publications

JP1. Margot Bador, Julien Boé, Laurent Terray, Lisa V. Alexander, Alessio Bellucci, Rein Haarsma, Torben Koenigk, Marie-Pierre Moine, Katja Lohmann, Dian A. Putrasahan, Chris Roberts, Malcom Roberts, Enrico Scoccimarro, Reinhard Schiemann, Jon Seddon, Retish Senan, **Sophie Valcke**, Benoit Vanniere: Impact of higher spatial atmospheric resolution on precipitation extremes over land in global climate models, submitted to JGR atmosphere, 2020.

JP2. Rahaman, H., S. Upparapalli, P. Swapna, J. Durgadoo, S. Griffies, M. Ravichandran, A. Bozec, A. Cherchi, A. Voldoire, D. Sidorenko, E. Chassignet, G. Danabasoglu, H. Tsujino, K. Getzlaff, M. Ilicak, M. Bentsen, M. Long, P. G. Fogli, R. Farneti, S. Danilov, S. Marsland, **S. Valcke**, S. Yeager, Q. Wang: An assessment of the Indian Ocean mean state and seasonal cycle in a suite of interannual CORE-II simulations, Ocean Modelling, 2019. https://doi.org/10.1016/j.ocemod.2019.101503

JP3. Voldoire, A. and Decharme, B. and Pianezze, J. and Lebeaupin Brossier, C. and Sevault, F. and Seyfried, L. and Garnier, V. and Bielli, S. and Valcke, S. and Alias, A. and Accensi, M. and Ardhuin, F. and Bouin, M.-N. and Ducrocq, V. and Faroux, S. and Giordani, H. and Léger, F. and Marsaleix, P. and Rainaud, R. and Redelsperger, J.-L. and Richard, E. and Riette, S.: SURFEX v8.0 interface with OASIS3-MCT to couple atmosphere with hydrology, ocean, waves and sea-ice models, from coastal to global scales, Geosci. Model Dev., 10, 4207-4227, https://www.geosci-model-dev.net/10/4207/2017/, DOI =10.5194/gmd-10-4207-2017, 2017.

JP4. Lawrence, B. N., Rezny, M., Budich, R., Bauer, P., Behrens, J., Carter, M., Deconinck, W., Ford, R., Maynard, C., Mullerworth, S., Osuna, C., Porter, A., Serradell, K., **Valcke, S.,** Wedi, N., and Wilson, S.: Crossing the Chasm: How to develop weather and climate models for next generation computers?, Geosci. Model Dev., 11, 1799-1821, https://doi.org/10.5194/gmd-11-1799-2018

JP5. A. Craig, **S. Valcke**, L. Coquart, 2017: Development and performance of a new version of the OASIS coupler, OASIS3-MCT_3.0, Geosci. Model Dev., 10, 3297-3308, https://doi.org/10.5194/gmd-10-3297-2017, 2017.

JP6. P.-A. Monerie, M.-P. Moine, L. Terray, **S. Valcke**, 2017: Quantifying the impact of early 21st century volcanic eruptions on global-mean surface temperature. *Environmental Research Letters*, Volume 12, Number 5, http://iopscience.iop.org/article/10.1088/1748-9326/aa6cb5/meta

JP7.   P.-A. Monerie, L. Coquart, E. Maisonnave, M.-P. Moine, L. Terray, **S. Valcke**, 2017: Decadal prediction skill using a high-resolution climate model. *Climate Dynamics,* D49 (9-10), pp. 3527–3550,   doi:10.1007/s00382-017-3528-x

JP8.   Y.-H. Tseng, H. Lin, H.-C. Chen, K. Thompson, M. Bentsen, C.W. Böning, A. Bozec, C. Cassou, E. Chassignet, C. H. Chow, G. Danabasoglu, S. Danilov, R. Farneti, P. G. Fogli, Y. Fujii, S. M. Griffies, M. Ilicak, T. Jung, S. Masina, A. Navarra, L. Patara, B. L. Samuels, M. Scheinert, D. Sidorenko, C.-H. Sui, H. Tsujino, **S.Valcke**, A. Voldoire, Q. Wang, S. G. Yeager, 2016: North and Equatorial Pacific Ocean Circulation in the CORE-II Hindcast Simulations, *Ocean Modelling*, 104, 143-170, doi:10.1016/j.ocemod.2016.06.003

JP9.   G. Danabasoglu, S. G. Yeager, W. M. Kim, E. Behrens, M. Bentsen, D. Bi, A. Biastoch, R.Bleck, C. Boning, A. Bozec, V. M. Canuto, C. Cassou, E. Chassignet, A. Coward, S. Danilov, N. Diansky, H. Drange, R. Farneti, E. Fernandez, P. G. Fogli, G. Forget, Y. Fujii, S. M. Griffies, A. Gusev, P. Heimbach, A. Howard, M. Ilicak, T. Jung, A. R. Karspeck, M. Kelley, W. G. Large, A. Leboissetier, J. Lu, G. Madec, S. J. Marsland, S. Masina, A. Navarra, A. J. G. Nurser, A. Pirani, A. Romanou, D. Salas y Mélia, B. L. Samuels, M. Scheinert, D. Sidorenko, S. Sun, A. M. Treguier, H. Tsujino, P. Uotila, **S. Valcke**, A. Voldoire, Q. Wang, I. Yashayaev, 2016: North Atlantic simulations in Coordinated Ocean-ice Reference Experiments phase II (CORE-II). Part II: Inter-Annual to Decadal Variability, *Ocean Modelling*, **97,** 65-90, doi:10.1016/j.ocemod.2015.11.007

JP10. M. Ilicak, H. Drange, Q. Wang, R. Gerdes, Y. Aksenov, D. Bailey, M. Bentsen, A. Biastoch, C. Boning, A. Bozec, C. Cassou, E. Chassignet, A. Coward, B. Curry, G. Danabasoglu, S. Danilov, E. Fernandez, P. G. Fogli, Y. Fujii, S. M. Griffies, D. Iovino, A. Jahn, T. Jung, W. G. Large, C. Lee, C. Lique, J. Lu, S. Masina, A. J. G. Nurser, C. Roth, D. Salas y Mélia, B. L. Samuels, P. Spence, H. Tsujino, **S. Valcke**, A. Voldoire, X. Wang, S. G. Yeager, 2016: An assessment of the Arctic Ocean in a suite of interannual CORE-II simulations. Part III: Hydrography and fluxes, to appear in *Ocean Modelling*, **XXXX**

JP11. Q. Wang, M. Ilicak, R. Gerdes, H. Drange, Y. Aksenov, D. Bailey, M. Bentsen, A. Biastoch, C. Boning, A. Bozec, C. Cassou, E. Chassignet, A. Coward, B. Curry, G. Danabasoglu, S. Danilov, E. Fernandez, P. G. Fogli, Y. Fujii, S. M. Griffies, D. Iovino, A. Jahn, T. Jung, W. G. Large, C. Lee, C. Lique, J. Lu, S. Masina, A. J. G. Nurser, B. Rabe, D. Salas y Mélia, B. L. Samuels, P. Spence, H. Tsujino, **S. Valcke**, A. Voldoire, X. Wang, S. G. Yeager, 2016: An assessment of the Arctic Ocean in a suite of interannual CORE-II simulations. Part II: Liquid freshwater, accepted in *Ocean Modelling*, March 2016, **99**, 86-109, http://dx.doi.org/10.1016/j.ocemod.2015.12.009.

JP12. Q. Wang, M. Ilicak, R. Gerdes, H. Drange, Y. Aksenov, D. Bailey, M. Bentsen, A. Biastoch, C. Boning, A. Bozec, C. Cassou, E. Chassignet, A. Coward, B. Curry, G. Danabasoglu, S. Danilov, E. Fernandez, P. G. Fogli, Y. Fujii, S. M. Griffies, D. Iovino, A. Jahn, T. Jung, W. G. Large, C. Lee, C. Lique, J. Lu, S. Masina, A. J. G. Nurser, B. Rabe, D. Salas y Mélia, B. L. Samuels, P. Spence, H. Tsujino, **S. Valcke**, A. Voldoire, X. Wang, S. G. Yeager, 2015: An assessment of the Arctic Ocean in a suite of interannual CORE-II simulations. Part I: Sea ice and solid freshwater, accepted in *Ocean Modelling*, March 2016, **99**, 110-132, http://dx.doi.org/10.1016/j.ocemod.2015.12.008.

JP13. M.-P. Moine, **S. Valcke**, B. N. Lawrence, C. Pascoe, R. W. Ford, A. Alias, V. Balaji, P. Bentley, G. Devine, S. A. Callaghan, and E. Guilyardi, 2014: Development and exploitation of a

controlled vocabulary in support of climate, Geosci. Model Dev., 7, 479-493, doi:10.5194/gmd-7-479-2014. http://www.geosci-model-dev.net/7/479/2014/gmd-7-479-2014.html

JP14.   S. M. Griffies, J. Yin, P. J. Durack, P. Goddard, S. C. Bates, E. Behrens, M. Bentsen, D. Bi, A. Biastoch, C. Boning, A. Bozec, E. Chassignet, G. Danabasoglu, S. Danilov, C. Domingues, H. Drange, R. Farneti, E. Fernandez, R. J. Greatbatch, D. M. Holland, M. Ilicak, J. Lu, S. J. Marsland, A. Mishra, K. Lorbacher, A. J. G. Nurser, D. Salas y Mélia, J. B. Palter, B. L. Samuels, J. Schroter, F. U. Schwarzkopf, D. Sidorenko, A. M. Treguier, Y.-H. Tseng, H. Tsujino, P. Uotila, **S. Valcke**, A. Voldoire, Q. Wang, M. Winton, X. Zhang, 2014: An assessment of global and regional sea level for years 1993-2007 in a suite of interannual CORE-II simulations, *Ocean Modelling.*, 78, 35-89, http://dx.doi.org/10.1016/j.ocemod.2014.03.004

JP15.   G. Danabasoglu, S. G. Yeager, D. Bailey, E. Behrens, M. Bentsen, D. Bi, A. Biastoch, C. Boning, A. Bozec, V. M. Canuto, C. Cassou, E. Chassignet, A. Coward, S. Danilov, N. Diansky, H. Drange, R. Farneti, E. Fernandez, P. G. Fogli, G. Forget, Y. Fujii, S. M. Griffies, A. Gusev, P. Heimbach, A. Howard, T. Jung, M. Kelley, W. G. Large, A. Leboissetier, J. Lu, G. Madec, S. J. Marsland, S. Masina, A. Navarra, A. J. G. Nurser, A. Pirani, D. Salas y Mélia, B. L. Samuels, M. Scheinert, D. Sidorenko, A. M. Treguier, H. Tsujino, P. Uotila, **S. Valcke**, A. Voldoire, Q. Wang, 2014: North Atlantic simulations in Coordinated Ocean-ice Reference Experiments phase II (CORE-II). Part I: Mean states, *Ocean Modelling*, **73**, 76-107, doi:10.1016/j.ocemod.2013.10.005.

JP16.   **S. Valcke**, 2013: The OASIS3 coupler: a European climate modelling community software, Geosci. Model Dev., 6, 373-388, doi:10.5194/gmd-6-373-2013. http://www.geosci-model-dev.net/6/373/2013/gmd-6-373-2013.pdf

JP17.   **S. Valcke**, V. Balaji, A. Craig, C. Deluca, R. Dunlap, R. Ford, R. Jacob, J. Larson, R. O'Kuinghttons, G. Riley, M. Vertenstein, 2012: Coupling technologies for Earth System Modelling, Geosci. Model Dev., 5, 1589-1596, doi:10.5194/gmd-5-1589-2012. http://www.geosci-model-dev.net/5/1589/2012/gmd-5-1589-2012.pdf

JP18.   B.N. Lawrence, V. Balaji, P. Bentley, S. Callaghan, C. DeLuca, S. Denvil, G. Devine, M. Elkington, R.W. Ford, E. Guilyardi, M. Lautenschlager, M. Morgan, M.-P. Moine, S. Murphy, C. Pascoe, H. Ramthun, P. Slavin, L. Steenman-Clark, F. Toussaint, A. Treshansky, and **S. Valcke**: Describing Earth System Simulations with the Metafor CIM, Geosci. Model Dev., 5, 1493-1500, doi:10.5194/gmd-5-1493-2012, 2012.

JP19.   P. Drobinski, A. Anav, C. Lebeaupin Brossier, G. Samson, M. Stéfanon, S. Bastin, M. Baklouti, K. Béranger, J. Beuvier, R. Bourdallé-Badie, L. Coquart, F. D'Andrea, N. De Noblet-Ducoudré, F. Diaz, J.-C. Dutay, C. Ethe, M.-A. Foujols, D. Khvorostyanov, G. Madec, M. Mancip, S. Masson, L. Menut, J. Palmieri, J. Polcher, S. Turquety, **S.Valcke**, N. Viovy, 2012: Modelling the Regional Coupled Earth system (MORCE): application to process and climate studies in vulnerable regions. Env. Modelling and Software, 35, 1-18 (10.1016/j.envsoft.2012.01.017)

JP20.   A. Voldoire, E. Sanchez-Gomez, D. Salas y Mélia, B. Decharme, C. Cassou, S.Sénési, **S.Valcke**, I. Beau, A. Alias, M. Chevallier, M. Déqué, J. Deshayes, H. Douville, E. Fernandez, G. Madec, E. Maisonnave, M.-P. Moine, S. Planton, D.Saint-Martin, S. Szopa, S. Tyteca, R. Alkama, S. Belamari, A. Braun, L. Coquart, F. Chauvin. 2011. The CNRM-CM5.1 global climate

model: Description and basic evaluation. Clim. Dyn. Special Issue, DOI: 10.1007/s00382-011-1259-y.

JP21. R. Redler, **S. Valcke**, H. Ritzdorf, 2010. OASIS4, A Coupling Software for Next Generation Earth System Modelling. Geosci. Model Dev., **3,** pp. 87-104, doi:10.5194/gmd-3-87-2010 (on-line access)

JP22. **S. Valcke**, E. Guilyardi, C. Larsson, 2006. PRISM and ENES: A European approach to Earth system modelling. Concurrency Computat.: Pract. Exper., 18(2), pp. 231-245.

JP23. J.F. Royer, D. Cariolle, F. Chauvin, M. Deque, H. Douville, R.M. Hu, S. Planton, A. Rascol, J.L. Ricard, D. Salas y Melia, F. Sevault, P. Simon, S. Tyteca, L.Terray, **S. Valcke**, 2002. Simulation des changements climatiques au cours du XXI-e siècle incluant l'ozone stratosphérique (Simulation of climate change during the 21st century including stratospheric ozone). C.R. Geoscience, 334 (3), pp. 147-154.

JP24. P. Barthelet, L. Terray, and **S. Valcke**, 1998. Transient CO2 experiment using the ARPEGE /OPAICE non flux corrected coupled model. Geophys. Res. Lett., 25, pp. 2277-2280.

JP25. P. Barthelet, S. Bony, P. Braconnot, A. Braun, D. Cariolle, E. Cohen-Solal, J. Dufresne, P. Delecluse, M. Deque, L. Fairhead, M. Filiberti, M. Forichon, J. Grandpeix, E. Guilyardi, M. Houssais, M. Imbard, H. L. Treut, C. Levy, Z. Li, G. Madec, P. Marquet, O. Marti, S. Planton, L. Terray, O. Thual, and **S. Valcke**, 1998: Simulations couplées globales des changements climatiques associés à une augmentation de la teneur atmosphérique en CO2. C.R. Acad. Sci. Paris, 326, pp. 677-684.

JP26. A. Weaver and **S. Valcke**, 1998. On the variability of the thermohaline circulation in the GFDL coupled model. Journal of Climate, 11, pp. 759-767.

JP27. **S. Valcke** and J. Verron, 1996. Interactions of baroclinic isolated vortices: the dominant effect of shielding. Journal of Physical Oceanography: 27, No. 4, pp. 524-541.

JP28. **S. Valcke** and J. Verron, 1995. Cyclone-anticyclone asymmetry in the merging process. Dyn. Atmos. Oceans. 24, pp. 227-236.

JP29. J. Verron and **S. Valcke**, 1994. Scale-dependent merging of baroclinic vortices, Journal of Fluid Mechanics, 264, pp. 81-106.

JP30. **S. Valcke** and J. Verron, 1993. On interactions between two finite-core hetons, Physics of Fluids A, 5 (8), pp. 2058-2060.

Book chapters

BC1. S.E. Belcher, H.T. Hewitt, A. Beljaars, E. Brun, B. Fox-Kemper, J.-F. Lemieux, G. Smith and **S. Valcke**, 2015: Ocean-waves-sea ice-atmosphere interactions, in Seamless Prediction of the Earth System: from minutes to months , G. Brunet, S. Jones and P.M. Ruti Eds; World Meteorological Organization Series.

BC2. **S. Valcke**, R. Redler, C. DeLuca, G. Theurich, V. Balaji, C. Linstead, R. Jacob, J. Larson, R. Ford, G. Riley. Brief on "Earth System Modelling – Volume 4 - Coupling software and strategies", R. Budich and R. Redler Eds., Springer, 75 pp, December 2011.

BC3. R. Redler, **S. Valcke** and H. Haak, 2011: The PRISM Support Initiative, COSMOS and OASIS4, In: A. Baklanov, A. Mahura and R. Sokhi (Eds.), Integrated Systems of Meso-

[Meteorological and Chemical Transport Models](), pp. 125-137, Springer Verlag, Berlin Heidelberg, 242 pages.

Other Publications

NP1. S. Valcke, A. Craig, R. Dunlap, and G. D. Riley, 2016. Sharing experiences and outlook on Coupling Technologies for Earth System Models, Bull. Amer. Meteor. Soc., March 2016 doi:10.1175/BAMS-D-15-00239.1

NP2. R. Dunlap, M. Vertenstein, S. Valcke, and T. Craig, 2014. Second Workshop on Coupling Technologies for Earth System Models, Bull. Amer. Meteor. Soc., 95, ES34–ES38, doi:10.1175/BAMS-D-13-00122.1.

NP3. J.-C. André, G. Aloisio, J. Biercamp, R. Budich, S. Joussaume, B. Lawrence, and **S. Valcke**. "High Performance Computing for Climate Modelling", BAMS, May 2014, doi: 10.1175/BAMS-D-13-00098.1.

NP4. Ho T.M.H., B. Rockel, H. Kapitza, B. Geyer, E. Meyer, and **S. Valcke**. COSTRICE - an Atmosphere-Ocean-Sea Ice two-way online Coupled Model for Regional Climate simulation over Baltic and North Sea Regions, REKLIM Newsletter 2012.

NP5. **S. Valcke** and R. Dunlap. "Improving Coupling Technologies for Earth System Modelling", BAMS Gathering News, 1577-1578, December 2011.

NP6. **S. Valcke** and R. Dunlap. Report from the workshop "Coupling Technologies for Earth System Modelling: Today and Tomorrow", CLIVAR Exchanges, Vol. 16, 38-39 October 2011

NP7. E. Guilyardi, V. Balaji, S. Callaghan, C. DeLuca, G. Devine, S. Denvil, R. Ford, C. Pascoe, M. Lautenschlager, B. Lawrence, L. Steenman-Clark, and **S. Valcke**. The CMIP5 model and simulation documentation: a new standard for climate modelling metadata. CLIVAR Exchanges, No. 56, Vol. 16, No.2, May 2011.

NP8. **S. Valcke**, R. Budich, M. Carter, E. Guilyardi, M.-A. Foujols, M. Lautenschlager, R. Redler, L. Steenman-Clark, N. Wedi, 2007. A European Network for Earth System Modelling. EOS, Vol 88, No 13, p. 143.

Refereed conferences and conferences on invitation

RC1. **S. Valcke**, L. Coquart, A. Craig, G. Jonville, E. Maisonnave, A. Piacentini. Latest developments of the OASIS3-MCT coupler for improved performance. Coupled Problems 2019, 03-05 June 2019, Sitges (Spain), https://doi.org/10.5281/zenodo.3238445

RC2. **S. Valcke**, L. Coquart, A. Craig, G. Jonville, E. Maisonnave, A. Piacentini. Latest developments of the OASIS3-MCT coupler for improved performance. 5th ENES Workshop on High Performance Computing for Climate and Weather, 17-18 May 2018 Lecce

RC3. **S. Valcke,** R. Ford, M. Hobson, G. Jonville, A. Porter, G. Riley. IS-ENES Coupling Technology Benchmarks. Platform for Advanced Scientific Computing (PASC) 2017, Minisymposium "Earth System Modeling: HPC Bringing Together Weather and Climate Prediction", Lugano, Switzerland

RC4. **S. Valcke** and Y. Meurdesoif, 2016. Convergence of coupling and I/O software tools?, ENES Strategy Meeting, Reading, October 25-27 2016, https://is.enes.org/documents/Talks/enes-strategy-meeting/valcke_convergence-of-coupling-and-io-software-tools/view

RC5. **S. Valcke, 2016.** OASIS3-MCT, a coupling software for climate modelling. International Fall School on Terrestrial Modeling and High-Performance Scientific Computing, Bonn, Germany

RC6. **S. Valcke, 2016.** Code coupling for climate modelling. CEMRACS 2016 Summer School, Marseille, France.

RC7. **S. Valcke,** 2014. A review of technologies and algorithms used to couple Earth System model components. World Weather Open Science Conference 2014, Montreal.

RC8. **S. Valcke**, 2013. OASIS3-MCT, a coupler for climate modelling. International Computing for the Atmospheric Sciences Symposium 2013 (iCAS2013) organised by NCAR Computational and Information Systems Laboratory, Annecy.

RC9. O. Marti and **S. Valcke**, 2013. An overview of coupling strategies between ocean and atmosphere in Earth system models. 2013 SIAM Conference on Mathematical and Computational Issues in the Geosciences, Padova, Italy.

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CP16. S. **Valcke** and E. Guilyardi, 2009. Sur une proposition d'interface physique océan-atmosphère et sur les techniques de couplage océan-atmosphère. Proceedings of « Ateliers de Modélisation de l'atmosphère AMA 2009 », Météo-France, Toulouse, France.

CP17. S. **Valcke**, L. Coquart, R. Redler, H. Ritzdorf, O. Marti, A. Caubel, J. Ghattas, S. Planton, S. Somot, M. Lucas, 2007. OASIS4: a code coupler for the climate modelling CICLE project, European Geosciences Union General Assembly 2007, Vienna, Austria.

CP18. S. **Valcke**, T. Morel, S. Buis, 2006. PALM: An efficient tool for dynamic coupled applications. European Geosciences Union General Assembly 2006, Vienna, Austria.

CP19. J. Ghattas, R. Redler, H. Ritzdorf, S. **Valcke**, R. Vogelsang, 2006. OASIS: A code coupler for climate modelling. European Geosciences Union General Assembly 2006, Vienna, Austria.

CP20. M. Faucher, P. Pellerin, F. Roy, S. **Valcke**, S. Desjardins, M. Desgagné, F. Saucier, D. Lefaivre, H. Ritchie, T. Carrières, T, 2006. Implementation of an Atmosphere-Ocean-Sea Ice Coupled Model at the Canadian Meteorological Centre (CMC) Operational Forecast System. European Geosciences Union General Assembly 2006, Vienna, Austria.

CP21. S. **Valcke**, R. Redler, R. Vogelsang, E. Guilyardi, 2006. PRISM et OASIS: une infrastructure logicielle pour la modélisation climatique en Europe. Proceedings of « Ateliers de Modélisation de l'atmosphère AMA 2006 », Météo-France, Toulouse, France.

CP22. S. **Valcke**, P. Pellerin, M. Valin, D. Bouhemhem, M. Faucher, S. Desjardins, H. Ritchie, 2005. The Europeo-Canadian unified coupler OASIS3-GOSSIP2 and first coupled applications using the atmospheric model GEM. Canadian Meteorological and Oceanographic Society 39th Annual Congress, Vancouver (B.C), Canada.

CP23. S. **Valcke**, A. Caubel, D. Declat, M.-A. Foujols, J. Latour, R. Redler, H. Ritzdorf, T. Schoenemeyer, 2005. The PRISM couplers: OASIS3 and OASIS4. European Geosciences Union General Assembly 2005, Vienna, Austria.

CP24. R. Vogelsang G. Komen, G. Brasseur, R. Budich, E. Guilyardi, J. Mitchell, and S. **Valcke**, 2003. Climate and Earth System Modelling in Europe, Hamburg Earth System Modelling Conference, Hamburg, Germany.

CP25. E. Guilyardi, R. G. Budich, and S. **Valcke**, 2003. PRISM and ENES: European Approaches to Earth System Modelling. In Realizing Teracomputing, Proceedings of the Tenth ECMWF Workshop on the Use of High Performance Computing in Meteorology, (Reading, UK 4-8 November 2002), W. Zwieflhofer and N. Kreitz Eds., World Scientific (ISBN 981-238-376-X). pp 146-164

CP26. M.A. Foujols, S. **Valcke**, E. Guilyardi, 2003. PRISM AND ENES: A EUROPEAN APPROACH TO EARTH SYSTEM MODELLING. International Conference on Supercomputing in Nuclear Applications SNA'2003, Paris, France.

CP27. S. **Valcke** for the WP3a/WP4a PRISM team, 2003. Development of the Prism coupling and I/O system. XXVIII General Assembly of the EGS, Nice, France.

CP28. S. **Valcke**, 2003. The PRISM project and the Prism coupling and I/O system. The 5th International Workshop on Next Generation Climate Models for Advanced High Performance Computing Facilities, Rome, Italy.

CP29. S. **Valcke**, 2002. The PRISM Project. Workshop on System Collaboration, Météo-France, Toulouse, France.

CP30. S. **Valcke**, A. Piacentini, L.Terray, 2001. L'évolution du couplage au CERFACS: les projets OASIS, PALM et PRISM. Proceedings of « Ateliers de Modélisation de l'atmosphère AMA 2001 », Météo-France, Toulouse, France.

CP31. S. **Valcke**, A. Piacentini, L. Terray, 2001. The PRISM project and coupling issues. "Model Coupling and Related Numerical Issues, AWI-PIK Workshop", PIK, Potsdam, Germany.

CP32. J. C. André, S. **Valcke**, 2001. PRISM, A European PRogramme for Integrated earth System Modelling. Proceedings of "The 3rd International Workshop on Next Generation Climate Models for Advanced High Performance Computing Facilities", Tokyo, Japan.

CP33. S. **Valcke**, L. Terray and A. Piacentini, 2000. OASIS, an efficient software for climate models. Proceedings of "The 2nd International Workshop on Next Generation Climate Models", Toulouse, France.

CP34. P. Rogel, E. Maisonnave, L. Terray, S. **Valcke** and C. Cassou, 2000. Use of satellite altimetry data for climate prediction studies. Proceedings of "XXV General Assembly of the EGS", Nice, France.

CP35. S. **Valcke**, L. Terray and A. Piacentini, 1998. OASIS 2.2: Un outil pour le couplage de codes et ses applications en simulation du climat. Séminaire "Outils pour le couplage de codes", ONERA-Chatillon, Chatillon, France.

CP36. P. Rogel, E. Maisonnave, L. Terray, C. Cassou, and S. **Valcke**, 1999. Seasonal climate hindcast experiments using a coupled model initialised with altimeter data and atmospheric analyses. OCEANOBS99, St Raphael, France.

CP37. C. Cassou, L. Terray and S. **Valcke**, 1999. Nature of atmospheric variability over the North Atlantic Ocean from interannual to decadal time-scale. IAPSO, Birmingham, England.

CP38. C. Cassou, L. Terray, M. Drevillon and S. **Valcke**, 1999. Nature of Atmospheric variability over the North Atlantic on interannual timescale for NCEP Reanalyses and the ARPEGE/IFS model. 4th International Conference on Modelling of Global Climate Change and Variability, Hamburg, Germany.

CP39. P. Rogel, E. Maisonnave, L. Terray, and S. **Valcke**, 1999: Expériences couplées océan-atmosphère de prévision saisonnière initialisées par des analyses atmosphériques et par l'altimétrie. Atelier de Modélisation de l'Atmosphère, Toulouse, France.

CP40. P. Barthelet, S. **Valcke** and L. Terray, 1998: Performance of a global coupled simulation of climate change associated with a doubling in the CO_2 atmospheric concentration. Proceedings of the E.G.S. XXIII General Assembly, Nice, France.

CP41. S. **Valcke** and A.J. Weaver, 1996. On the variability of the thermohaline circulation in the GFDL coupled model. AGU Fall Meeting, San Francisco, USA.

CP42. S. **Valcke** and J. Verron, 1995. Merging of baroclinic isolated vortices. Proceedings of the E.G.S. XX General Assembly, Hamburg, Germany.

CP43. S. **Valcke** and J. Verron, 1994. Cyclone-anticyclone assymetry in the merging process. Proceedings of the E.G.S. XIX General Assembly, Grenoble, France.

CP44. S. **Valcke** and J. Verron, 1993. Interactions between two finite-core hetons and merging of baroclinic vortices. Proceedings of the E.G.S. XVIII General Assembly, Wiesbaden, Germany.

CP45. D. Lefebvre and S. **Valcke**, 1987. A Strain parameter for life prediction in out-of-phase multiaxial fatigue. Proceedings of the IIth Canadian Congress in Applied Mechanics.

Outreach and dissemination

OD1. « Le train du Climat », 2015. Participant as a scientist during 4 days to this general public travelling exhibition on climate change in the COP21 framework (http://messagersduclimat.com)

OD2. « Climat, modéliser pour comprendre et anticiper », 2013. Brochure edited by MISSTERRE/LEFE/INSU community, pp-44; author of "Bio Express Sophie Valcke" (1 page).

OD3. « Le climat à découvert », 2011. Catherine Jeandel & Remy Mosseri, CNRS-Edition, ISBN: 978-2-271-07198-9, pp-288; author of chapter "V-4 OASIS: un outil de couplage pour les modèles de climat".

Student Supervision

SP1. 06-09/2016: H. Senhaji, 2nd year engineering school training period, "Evaluation et comparaison des interpolations numériques des librairies SCRIP et ESMF", Working Notes Cerfacs WN-CMGC-16-227 (http://cerfacs.fr/wp-content/uploads/2016/09/GLOBC-SHENAJI-Rapport_stage_2016.pdf)

SP2. 02-08/2011: P. Trespeuch, 3rd year engineering school training period, "Set-up of an ocean-atmosphere coupled model with the PALM coupling software" (co-supervision with T. Morel and F. Duchaine)

SP3. 03-08/2010: E. Kilicoglu, Development of the regridding library for the code coupling software OASIS

SP4. 02-07/2009: P. Elyakime, 3rd year engineering school training period, "Wind coupling at the air-sea interface in a coupled ocean-atmosphere model"

SP5. 02-07/2004, E. Rapaport, 3rd year engineering school training period, "Coupling of vector fields in the OASIS software".

SP6. 06-08/2003: M. Frouvelle, 2nd year engineering school training period, "Interpolation techniques based on the SCRIP library for the OASIS coupler"

SP7. 04-06/2003: E. Durand, training period, "Set-up of a DODS server for climate data", (co-supervision with N. Monnier)

SP8. 09-12/2002: J. Ghattas, 2nd year engineering school training period, "New interpolations for the OASIS coupler"

SP9. 06-08/2001: D. Crevoisier, 2nd year engineering school training period, "Inclusion of the SCRIP library in the OASIS coupler"

SP10. 04-09/2001: A. Caubel, training period, "A parallel communication library for the OASIS coupler"

SP11. 01-06/1999: R. Tzanos, Météo-France school training period, "Development of a ocean-sea-ice coupled model for climate studies" (co-supervision with L. Terray)

Reviews for Scientific Journals

RJ1. Geoscientific Model Development Editorial Board (since 2014)

RJ2. Geoscientific Model Development (1 in 2017, 1 in 2016, 1 in 2014, 1 in 2013, 1 in 2011, 1 in 2009)

RJ3. Journal of Advances in Modeling Earth Systems (1 in 2013)

RJ4. Concurrency and Computation: Practice and Experience (1 in 2007)

RJ5. Journal of Geophysical Research - Oceans (1 in 1998)

RJ6. Journal of Climate (1 in 1997, 1 in 1996)

RJ7. Progress in Oceanography (1 in 1996)

IV SCHOOLS and WORK EXPERIENCES

09/2004 – 09/2005	Visiting Scientist	Environnement Canada, Direction de la Recherche en Météorologie, Québec, Canada
12/2002	CNRS Ecole Grid 2002	CNRS, Aussois, France
02/1995	Les Houches Winter School; Decadal Climate Variability	NATO ASI, Les Houches, France
1992-1994	Teaching Assistant,	Institut National Polytechnique de Grenoble, France
06-07/1990	Shad Valley Counselor (Scientific Summer School for teenagers)	Canadian Centre for Creative Technology, Sherbrooke (Québec), Cananda
05-08/1989	Reasearch Training Period	Von Karman Institute for Fluid Dynamics, Belgium
01-04/1988 09-12/1988 05-08/1987	Training Periods (Mechanical Engineering)	Montreal, (Québec), Canada

V AWARDS and SCHOLARSHIPS

2009	Geoff Howell National distinction for innovation (Meteorological Service of Canada)
1995-1997	NSERC Post-doctoral Fellowship
1995	NSERC Visiting Fellowship in Canadian Government Laboratories (not used)
1995	FCAR Post-doctoral Fellowship (not used)
01-04/1995	FCAR Postgraduate Scholarship
1991-1994	NSERC Postgraduate Scholarship
1991	California Institute of Technology Fellowship
1990-1992	Zonta Int. Fond. Amelia Earhart Award
1990-1991	FCAR Master's Degree Scholarship
Nov. 1989	"Ordre des Ingénieurs du Québec" Award
Nov. 1989	"Bureau des Gouverneurs du Québec" Medal
Nov. 1988	Quebec Iron and Titanium Award

VI OTHER INTERESTS

Rock climbing, ski, outdoors, singing, italian culture