

PERSONAL INFORMATION

Professor Pier Luigi Vidale



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Sex Male | Date of birth 02/06/1965 | Nationality Italian

I am a world-leading specialist in global weather and climate modelling, including model development, with special focus on i) Tropical Cyclones in the climate system and ii) on Land-Atmosphere interactions at the local to regional scale. My research has led to breakthroughs in several areas, in particular: understanding the nature and causes of summer heat waves; understanding the feedbacks between atmosphere, vegetation (photosynthesis) and soil moisture; monitoring of vegetation growth and its variability from space; modelling of extreme weather and climate events, as well as quantifying their impacts (Tropical Cyclones, floods, droughts, wind storms).

PERSONAL STATEMENT

Since 2007 I have also led the NERC High-Resolution Climate Modelling programme (previously [UK-HiGEM](#) and [UK-Japan Climate Collaboration](#)). More recently, I have become the NERC Principal Investigator for high-resolution climate modelling within the [Joint Weather and Climate Research Programme](#), a partnership between the Met Office and NERC.

I am the Director of the [NCAS Climate Modelling Summer School](#), held bi-annually at Cambridge, since its first edition, in 2007. In 2012 I became the co-Director (with C. Reich, MPI, Germany) of the international E2SCMS Summer School, which was held in 2012, 2014 and 2016.

WORK EXPERIENCE

(1 May 2008 -)

Chair of Climate System Science

University of Reading, School of Mathematical, Physical & Computational Sciences (SMPCS), Department of Meteorology

- Global Atmospheric Modelling
- Land-Atmosphere Interactions

Business or sector Higher Education

(1 May 2011 – 1 May 2015)

Willis Chair of Climate System Science and Climate Hazards

University of Reading, School of Mathematical, Physical & Computational Sciences (SMPCS), Department of Meteorology

- Global Modelling of Hazards
- Climate Risks

Business or sector Higher Education

(2019 –2020)

Visiting Professor

Department of Civil Engineering
 University of Trento, IT

- Lecture series in climate modelling, ecosystem modelling risk modelling, for graduate and undergraduates

Business or sector Research Institute

(1 Oct 2004 –) **2004-2008: Principal Scientist (equivalent to Associate Professor / Reader)**
2008-: Research Professor (equivalent to Full Professor)

National Centre for Atmospheric Science, Dept. of Meteorology, University of Reading

- Head of High-Resolution Global Climate Modelling
- Head of Land Surface Processes

Business or sector Research Institute

(1 Jan 1999 – 30 Sep 2004) **Senior Scientist**

Institute for the Atmosphere and Climate, ETH, Zürich

- Regional Climate Modelling

Business or sector Higher Education

(1 Mar 1998 – 30 Dec 1998) **Research Associate**

Colorado State University, Fort Collins, CO, USA

(in parallel to R.A. at the University of California, Santa Barbara, CA, USA)

- Mesoscale Modelling, Land-Atmosphere Interactions

Business or sector Higher Education

EDUCATION AND TRAINING

(1992 - 1998) **PhD, Atmospheric Science**

Replace with EQF (or other) level if relevant

Colorado State University, Fort Collins, CO, USA

- Mesoscale modelling, Land-Atmosphere interactions

(1990 - 1992) **MSc, Meteorology**

Replace with EQF (or other) level if relevant

University of São Paulo, SP, Brazil

- Mesoscale modelling

(1992 - 1998) **BSc, Meteorology**

Replace with EQF (or other) level if relevant

University of São Paulo, SP, Brazil

- Objective Analysis, Mesoscale modelling, Land-Atmosphere interactions

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
Portuguese	C2	C2	C2	C2	C2
French	C2	C2	C2	C1	B2
German	C1	B2	C1	B1	A2
Spanish	C1	C2	C1	A2	A2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
[Common European Framework of Reference for Languages](#)

Communication skills

- good communication skills gained through my experience as lecturer, as well as my industry interactions with end users
- strong experience with media (TV and radio interviews, documentaries)

Organisational / managerial skills

- leadership (currently responsible for a team of 12 post-doctoral researchers)
- have led many research programmes in multiple countries, currently Scientific Coordinator of major EU-H2020 grant, PRIMAVERA (€15 million, 19 institutions)

Job-related skills

- strong experience in proposal writing and team management

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient User	Proficient User	Proficient User	Independent User	Proficient User

Levels: Basic user - Independent user - Proficient user
[Digital competences - Self-assessment grid](#)

Other computer skills.

- very strong UNIX and general programming (FORTRAN, Python, IDL, shell languages), I am one of the world's top users of scientific supercomputing.
- excellent command of LaTeX, which I use to edit my scientific articles
- excellent command of office suite (word processor, spread sheet, presentation software), which I am forced to use for lecturing etc.

Other skills

Driving licence B

ADDITIONAL INFORMATION

- Publications
- Presentations
- Projects
- Conferences
- Seminars
- Honours and awards
- Memberships
- References
- Citations
- Courses
- Certifications

Research Grants and Contracts Held (>100 £K):

Current

- **PR**ocess-based climate **sI**mulation: **AdV**ances in high resolution modelling and **E**uropean climate **R**isk **A**ssessment, (PRIMAVERA, **EU-Horizon 2020**, **€15 million**). The PIs are M. Roberts (MO, Coordinator) and PL Vidale (NCAS, Scientific Coordinator)
- Land Ecosystem Models based On New Theory, obseRvations, and ExperimEnts (VESRI-LEMONTREE, Reading co-PI) U\$ 12 million, of which ~2 million at Reading
- CSSP-China, Portrayal of Chinese Land-Atmosphere Interactions (PORCELAIN): Reading PI, **£234K**
- CSSP-China, Development of an improved urban- environment scheme in global and regional models, Reading co-PI, **£300K**
- Quantifying Cyclone Risk in the Trinidad Oil Field Region (BP) PI, £120K/yr
- Wind Storm Climate Service (WISC) **EU-Horizon 2020 Copernicus C3S** Insurance Climate Services portal, **£260k** (PI)
- Drivers of regional East Asian monsoon variability (DREAM), Met Office Climate Science for Service Partnership – China, **£600k** (CSSP-China, co-I)
- High-resolution Climate Modelling (HRCM), **NERC** National Capability grant, P.L. Vidale (PI), 5-year rotation of circa **£600K/yr**.

Previously held (short selection, only > £100K, and only since 2015)

- UK on PRACE: weather-resolving Simulations of Climate for globAL Environmental risk (UPSCALE): 144 Million core-hours, the number 1 science project on TIER-0 supercomputing in Europe in 2011-2015. P.L. Vidale (PI).
- Improving Predictions of Drought for User Decision-Making (IMPETUS), **NERC** grant NE/L010488/1, £696k (co-I).
- HydrOlogical cYcle Understanding vIa Process-bAsed GIObal Detection, Attribution and prediction (Horyuji PAGODA), **NERC** grant NE/I006524/1, P.L. Vidale (PI).
- Integrated Carbon, Water and Land Management for Poverty Alleviation ICWALPA (ESPA) **NERC** grant NE/I00307X/1, P.L. Vidale (PI).
- High-resolution Climate Modelling (HRCM), **NERC** grant NE/R8/H12/123, P.L. Vidale (PI).
- Willis Research Network, Atmospheric Hazards and Insurance Risk, **Willis donation** (May 2007-June 2015), P.L. Vidale (PI and Willis Chair).
- Met Office CSSP-China: High resolution modelling of the East Asian monsoon (PL Vidale PI)
- SWELTER Soil Water - Climate Feedbacks in Europe in the 21st Century (SWELTER-21) **NERC** grant NE/I006729/1, (co-I, Reading PI).

Peer-reviewed publications (2015-present): ~1300 citations/year; ISI h-index = 45; i10-index=77
(Google Scholar h-index=52, i-index=94)

- **P. L. Vidale**; Hodges, K.; Vanniere, B.; Davini, P.; Roberts, M.J.; Strommen, K.; Weisheimer, A.; Plesca, E. and Corti, S (2020): Impact of stochastic physics and model resolution on the simulation of Tropical Cyclones in climate GCMs, *J. Clim.*, conditionally accepted
- Müller, O; **Vidale, P.L.**; Vanniere, B.; Schiemann, R.; Senan, R.; Haarsma, R.; Jungclaus, J.
- (2020) Land-atmosphere Coupling Sensitivity to GCMs Resolution: A Multi-model Assessment of Local and Remote Processes in the Sahel Hotspot", *J. Clim.*, in press
- E. Black, Pinnington, E.; Wainwright, C.; Lahive, F.; Quaife, T.; Allan, R.; Cook, P.; Daymond, A.; Hadley, P.; McGuire, P.; Verhoef, A.; **Vidale, P.L.** (2020): Cocoa plant productivity in West Africa under climate change: a modelling and experimental study, *ERL*, in press
- L Guo L; van der Ent, R.J.; Klingaman, NP; Demory, M.E.; **Vidale, P.L.**; Turner, A.G. (2020): Effects of horizontal resolution and air-sea coupling on simulated moisture sources for regional East Asian precipitation, *Geoscientific Model Development Discussions*, 1-28
- Vanniere, B. , Roberts, M. J., **Vidale, P. L.**, Hodges, K., Demory, M.-E., Caron, L.-P., Scoccimarro, E., Terray, L. and Senan, R. (2020) The moisture budget of tropical cyclones in HighResMIP models: large-scale environmental balance and sensitivity to horizontal resolution. *Journal of Climate*. ISSN 1520-0442 doi: <https://doi.org/10.1175/JCLI-D-19-0999.1>
- Hertwig, D. , Grimmond, S. , Hendry, M. A. , Saunders, B. , Wang, Z. , Jeoffrion, M., **Vidale, P. L.** , McGuire, P. C. , Bohnenstengel, S. I. , Ward, H. C. and Kotthaus, S. (2020) Urban signals in high-resolution weather and climate simulations: role of urban land-surface characterisation. *Theoretical and Applied Climatology*. ISSN 0177-798X doi: <https://doi.org/10.1007/s00704-020-03294-1>
- Roberts, M. J. , Camp, J. , Seddon, J. , **Vidale, P. L.** , Hodges, K. , Vannière, B. , Mecking, J., Haarsma, R., Bellucci, A., Scoccimarro, E., Caron, L.-P., Chauvin, F., Terray, L., Valcke, S., Moine, M.-P., Putrasahan, D., Roberts, C. D., Senan, R., Zarzycki, C., Ullrich, P., Yamada, Y., Mizuta, R., Kodama, C., Fu, D., Zhang, Q., Danabasoglu, G., Rosenbloom, N., Wang, H. and Wu, L. (2020) Projected future changes in tropical cyclones using the CMIP6 HighResMIP multimodel ensemble. *Geophysical Research Letters*, 47 (14). e2020GL088662. ISSN 0094-8276 doi: <https://doi.org/10.1029/2020gl088662>
- Jiaxiang, G., Shoshiro, M., Roberts, M. J., Haarsma, R., Putrasahan, D., Roberts, C., Scoccimarro, E., Terray, L., Vanniere, B. and **Vidale, P. L.** (2020) Influence of model resolution on bomb cyclones revealed by HighResMIP-PRIMAVERA simulations. *Environmental Research Letters*, 15 (8). 084001. ISSN 1748-9326 doi: <https://doi.org/10.1088/1748-9326/ab88fa>
- Schiemann, R. , Athanasiadis, P., Barriopedro, D., Doblas-Reyes, F., Lohmann, K., Roberts, M. J., Sein, D. V., Roberts, C. D., Terray, L. and **Vidale, P. L.** (2020) Northern Hemisphere blocking simulation in current climate models: evaluating progress from the Climate Model Intercomparison Project Phase 5 to 6 and sensitivity to resolution. *Weather and Climate Dynamics*, 1 (1), pp. 277-292. ISSN 2698-4024 doi: <https://doi.org/10.5194/wcd-1-277-2020>
- Roberts, M. J., Camp, J., Seddon, J., **Vidale, P. L.**, Hodges, K., Vanniere, B., Mecking, J., Haarsma, R., Bellucci, A., Scoccimarro, E., Caron, L.-P., Chauvin, F., Terray, L., Valcke, S., Moine, M.-P., Putrasahan, D., Roberts, C., Senan, R., Zarzycki, C. and Ullrich, P. (2020) Impact of model resolution on tropical cyclone simulation using the HighResMIP-PRIMAVERA multi-

- model ensemble. *Journal of Climate*, 33 (7). pp. 2557-2583. ISSN 1520-0442 doi: <https://doi.org/10.1175/jcli-d-19-0639.1>
- Klaver, R., Haarsma, R., **Vidale, P. L.** and Hazeleger, W. (2020) Effective resolution in high resolution global atmospheric models for climate studies. *Atmospheric Science Letters*, 21 (4). e952. ISSN 1530-261X doi: <https://doi.org/10.1002/asl.952>
 - Roberts, M. J., Camp, J., Seddon, J., **Vidale, P. L.**, Hodges, K., Vanniere, B., Mecking, J., Haarsma, R., Bellucci, A., Scoccimarro, E., Caron, L.-P., Chauvin, F., Terray, L., Valcke, S., Moine, M.-P., Putrahasan, D., Roberts, C., Senan, R., Zarzycki, C. and Ullricu, P. (2020) Impact of model resolution on tropical cyclone simulation using the HighResMIP-PRIMAVERA multimodel Ensemble. *Journal of Climate*, 33 (7). pp. 2557-2583. ISSN 1520-0442 doi: <https://doi.org/10.1175/JCLI-D-19-0639.1>
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 - Baker, A. J., Schiemann, R., Hodges, K. I., Demory, M.-E., Mizielinski, M. S., Roberts, M. J., Shaffrey, L. C., Strachan, J. and **Vidale, P. L.** (2019) Enhanced climate change response of wintertime North Atlantic circulation, cyclonic activity and precipitation in a 25 km-resolution global atmospheric model. *Journal of Climate*, 32 (22). pp. 7763-7781. ISSN 1520-0442 doi: <https://doi.org/10.1175/JCLI-D-19-0054.1>
 - Franco-Díaz, A., Klingaman, N. P., **Vidale, P. L.**, Guo, L. and Demory, M.-E. (2019) The contribution of tropical cyclones to the atmospheric branch of Middle America's hydrological cycle using observed and reanalysis tracks. *Climate Dynamics*, 53 (9-10). pp. 6145-6158. ISSN 1432-0894 doi: <https://doi.org/10.1007/s00382-019-04920-z>
 - Strommen, K., Mavilia, I., Corti, S., Matsueda, M., Davini, P., von Hardenberg, J., **Vidale, P. L.** and Mizuta, R. (2019) The sensitivity of Euro-Atlantic regimes to model horizontal resolution. *Geophysical Research Letters*, 46 (13). pp. 7810-7818. ISSN 1944-8007 doi: <https://doi.org/10.1029/2019GL082843>
 - Scaife, A. A., Camp, J., Comer, R., Davis, P., Dunstone, N., Gordon, M., MacLachlan, C., Martin, N., Nie, Y., Ren, H.-L., Roberts, M., Robinson, W., Smith, D. and **Vidale, P. L.** (2019) Does increased atmospheric resolution improve seasonal climate predictions? *Atmospheric Science Letters*, 20 (8). e922. ISSN 1530-261X doi: <https://doi.org/10.1002/asl.922>
 - Vanniere, B., Demory, M.-E., **Vidale, P. L.**, Schiemann, R., Roberts, M. J., Roberts, C. D., Matsueda, M., Terray, L., Koenigk, T. and Senan, R. (2019) Multi-model evaluation of the sensitivity of the global energy budget and hydrological cycle to resolution. *Climate Dynamics*, 52 (11). pp. 6817-6846. ISSN 0930-7575 doi: <https://doi.org/10.1007/s00382-018-4547-y>
 - Guo, L., van der Ent, R., Klingaman, N., Demory, M.-E., **Vidale, P. L.**, Turner, A., Stephan, C. and Chevuturi, A. (2019) Moisture sources for East Asian precipitation: mean seasonal cycle and interannual variability. *Journal of Hydrometeorology*, 20. pp. 657-672. ISSN 1525-7541 doi: <https://doi.org/10.1175/JHM-D-18-0188.1>
 - McCoy, D. T., Field, P. R., Elsaesser, G. S., Bodas-Salcedo, A., Kahn, B. H., Zelinka, M. D., Kodama, C., Mauritsen, T., Vanniere, B., Roberts, M., **Vidale, P. L.**, Saint-Martin, D., Voldoire, A., Haarsma, R., Hill, A., Shipway, B. and Wilkinson, J. (2019) Cloud feedbacks in extratropical cyclones: insight from long-term satellite data and high-resolution global simulations. *Atmospheric Chemistry and Physics*, 19. pp. 1147-1172. doi: <https://doi.org/10.5194/acp-19-1147-2019>
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 - Wu, P., Roberts, M., Martin, G., Chen, X., Zhou, T., **Vidale, P. L.** (2019) The impact of horizontal atmospheric resolution in modelling air-sea heat fluxes *Quarterly Journal of the Royal Meteorological Society*, 145 (724) doi: <https://doi.org/10.1002/qj.3618>
 - Guo, L., Klingaman, N. P., Demory, M.-E., **Vidale, P. L.**, Turner, A. G. and Stephan, C. (2018) *The contributions of local and remote atmospheric moisture fluxes to East Asian precipitation and its variability*. *Climate Dynamics*, 51 (11-12). pp. 4139-4156. ISSN 0930-7575 doi: <https://doi.org/10.1007/s00382-017-4064-4>
 - Roberts, M. J., **Vidale, P. L.**, Senior, C., Hewitt, H. T., Bates, C., Berthou, S., Chang, P., Christensen, H. M., Danilov, S., Demory, M.-E., Griffies, S. M., Haarsma, R., Jung, T., Martin, G., Minobe, S., Ringer, T., Satoh, M., Schiemann, R., Scoccimarro, E., Stephens, G. and Wehner, M. F. (2018) *The benefits of global high-resolution for climate simulation:*

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- Stephan, C. C., Klingaman, N. P., **Vidale, P. L.**, Turner, A. G., Demory, M.-E. and Guo, L. (2018) *A comprehensive analysis of coherent rainfall patterns in China and potential drivers. Part II: intraseasonal variability.* Climate Dynamics, 51 (1-2). pp. 17-33. ISSN 0930-7575
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 - Stephan, C. C., Klingaman, N. P., **Vidale, P. L.**, Turner, A. G., Demory, M.-E. and Guo, L. (2018) *A comprehensive analysis of coherent rainfall patterns in China and potential drivers. Part I: interannual variability.* Climate Dynamics, 50 (11-12). pp. 4405-4424. ISSN 1432-0894
doi: <https://doi.org/10.1007/s00382-017-3882-8>
 - Stephan, C. C., Klingaman, N. P., **Vidale, P. L.**, Turner, A. G., Demory, M.-E. and Guo, L. (2018) *Interannual rainfall variability over China in the MetUM GA6 and GC2 configurations.* Geoscientific Model Development, 11 (5). pp. 1823-1847. ISSN 1991-9603
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Professional Bodies:

Member of Faculty: University of Trento (Visiting Professor 2019-2020), UME Graduate School, Institute for Advanced Studies, Pavia (2011-)

Member of:

- Swiss Supercomputing Centre Scientific Advisory Committee
- UK-Archer2 Scientific Advisory Committee
- EU's IS-ENES/ENES-2 and ENES HPC Task Force.
- Met Office Hadley Centre Advisory Committees (Model Development Assessment and Project Assurance Team).
- Met Office INTEGRATE board, of the Gung-Ho Exec, and of the Expert Advisory Board for the Copernicus Roadmap for European Climate Projections.
- JULES Management Board
- NERC's Peer Reviewers College (2008-2012)

Represented the UK in several bi-laterals with other nations (e.g. U.S. Department of Energy workshop on "Challenges in Climate Change Science"), and bi-laterals in Brazil, Japan, India, China.

ANNEXES
