

Publications list Edzer Pebesma

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1 International journals

1. S. Gebbert, E. Pebesma, 2017. The GRASS GIS temporal framework. *International Journal of Geographic Information Systems*, **31 (7)**, pp [1273-1292](#).
2. Daniel Nüst, Markus Konkol, Marc Schutzeichel, Edzer Pebesma, Christian Kray, Holger Przibytzin, Jörg Lorenz, 2017. Opening the Publication Process with Executable Research Compendia. *D-Lib Magazin*. <https://doi.org/10.1045/january2017-nuest> .

3. Edzer Pebesma, Thomas Mailund, James Hiebert, 2017. Measurement units in R. *The R Journal*, 8-2, 486-494.
4. C. Knoth, E. Pebesma, 2017. Detecting dwelling destruction in Darfur through object-based change analysis of very-high-resolution imagery. *International Journal of Remote Sensing* 38 (1) 273-295.
5. Benedikt Gräler, Edzer Pebesma and Gerard Heuvelink, 2016. Spatio-Temporal Interpolation using gstat. *The R Journal* 8(1), 204-218
6. S. Scheider, B. Gräler, E. Pebesma, C. Stasch, 2016. Modelling spatio-temporal information generation. *Int J of Geographic Information Science*, 30 (10), 1980-2008 ([recommended pdf](#)).
7. M. Lu, E. Pebesma, A. Sanchez, J. Verbesselt, 2016. Spatio-temporal change detection from multidimensional arrays: detecting deforestation from MODIS time series. *ISPRS Journal of Photogrammetry and Remote Sensing*, 117, 227-236 ([pdf](#)).
8. Lemke, D., S. Berkemeyer, V. Mattauch, O. Heidinger, E. Pebesma, H.-W. Hense, 2015. Small-area spatio-temporal analyses of participation rates in the mammography screening program in the city of Dortmund (NW Germany). *BMC Public Health* 15:1190.
9. Helle, K.B., E. Pebesma, 2015. Optimising Sampling Designs for the Maximum Coverage Problem of Plume Detection. *Spatial Statistics* 13, 31-44.
10. D. Lemke, V. Mattauch, O. Heidinger, E. Pebesma, H.W. Hense, 2015. Comparing adaptive and fixed bandwidth-based kernel density estimates in spatial cancer epidemiology. *International Journal of Health Geographics* 14:15.
11. Pebesma, E., R. Bivand, P.J. Ribeiro, 2015. Software for Spatial Statistics. *Journal of Statistical Software* 63(1), 1-8.
12. Hengl, T., P. Roudier, D. Beaudette, E. Pebesma, 2015. plotKML: Scientific Visualization of Spatio-Temporal Data. *Journal of Statistical Software*, 63(5), 1-25.
13. Skøien, J. O., G. Blöschl, G. Laaha, E. Pebesma, J. Parajka, and A. Viglione, 2014. rtop: an R package for interpolation of data with a variable spatial support, with an example from river networks. *Computers & Geosciences* 67, p. 180-190.
14. Kilibarda, M., T. Hengl, G.B.M. Heuvelink, B. Gräler, E. Pebesma, M. Percec Tadic, and B. Bajat, 2014. Spatio-temporal interpolation of daily temperatures for global land areas at 1 km resolution. *Journal*

- of Geophysical Research Atmospheres, 119 (5) p. [2294-2313 \(open access\)](#)
15. Fraley, G., P. Jankowski, E. Pebesma, 2014. An Exploratory Approach to Spatial Decision Support. *Computers, Environment & Urban Systems*, 45 [101-113](#)
 16. Truong, P.N., G.B.M. Heuvelink, E. Pebesma, 2014. Bayesian Area-to-Point Conditional Simulation Using Expert Knowledge as Informative Priors. *International Journal of Applied Earth Observation and Geoinformation*, 30, p. [128–138](#)
 17. Gebbert, S., E. Pebesma, 2014. A temporal GIS for field based environmental modeling. *Environmental Modelling & Software* 53, p [1-12 \(pdf\)](#).
 18. Stasch, C., S. Scheider, E. Pebesma, W. Kuhn, 2014. Meaningful Spatial Prediction and Aggregation. *Environmental Modelling & Software*, 51, ([149–165, open access](#)).
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 20. Lemke, D., V. Mattauch, O. Heidinger, E. Pebesma and H.-W. Hense, 2013. Detecting cancer clusters in a regional population with local cluster tests and Bayesian smoothing methods: a simulation study. *International Journal of Health Geographics* 12:[54](#)
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 22. Gerharz, L.E., O. Klemm, A.V. Broich and E. Pebesma, 2013. Spatio-temporal modelling of individual exposure to air pollution. *Atmospheric Environment*, Volume 64, [56-65](#).
 23. Bastin, L., D. Cornford, R. Jones, G.B.M. Heuvelink, E. Pebesma, C. Stasch, S. Nativi, P. Mazetti, M. Williams, 2013. Managing Uncertainty in Integrated Environmental Modelling Frameworks: The UncertWeb framework. *Environmental Modelling & Software* 39, [116-134](#). ([pdf](#)).
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28. Stasch, C., T. Foerster, C. Autermann, E. Pebesma, 2012. Spatio-Temporal aggregation of European Air Quality Observations in the Sensor Web. *Computers and Geosciences* 47, [111-118](#).
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44. Dubois, G., E.J. Pebesma, P. Bossew, 2007. Automatic mapping in emergency: a geostatistical perspective. *International Journal of Emergency Management* [4 \(3\), pp. 455-467](#).

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55. Jong, S.M. de, E.J. Pebesma, B. Lacaze, 2003. Aboveground biomass assessment of mediterranean Forests using Airborne Imaging Spectrometry: the DAIS Payne Experiment *Int. J. of Remote Sensing* 24 (7), 1505-1520.

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57. Horsen, P.W. van, E.J. Pebesma, P.P. Schot, 2002. Uncertainties in spatially aggregated predictions from a logistic regression model. *Ecological Modelling* **154** (1-2), 93-101.
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2 Conference papers

1. Avipsa Roy, Edzer Pebesma, 2017. A Machine Learning Approach to Demographic Prediction using Geohashes. SocialSens'17 Proceedings of the 2nd International Workshop on Social Sensing, Pittsburgh, PA, USA — April 18 - 21, 2017, Pages 15-20 <https://dl.acm.org/citation.cfm?id=3055603>
2. Luiz Gustavo Diniz, Merretuurman, Pedro R. Andrade, Gilberto Câmara, Edzer Pebesma, 2013. Measuring Allocation Errors in Land Change Models in Amazonia. Proceedings GeoINFO 2013, Nov 24-27, Campos do Jordão, Br.
3. Marcio Pupin Mello, Daniel Alves Aguiar, Bernardo Friedrich Theodor Rudorff, Edzer Pebesma, Jim Jones, Naiara Carolina Pontes Santos. Spatial statistic to assess remote sensing acreage estimates: an analysis of sugarcane in São Paulo state, Brazil. *IGARSS 2013*, Jul 21-16, Melbourne, Australia.
4. Matthias Hinz, Daniel Nüst, Benjamin Proß, Edzer Pebesma, 2013. Spatial Statistics on the Geospatial Web. Short paper, *AGILE 2013*.
5. Schulz, M., J. Skøien, L. Gerharz, E. Pebesma, G. Dubois. Uncertainty propagation between web services – a case study using the eHabitat WPS to identify unique ecosystems. In: R. Seppelt, A.A. Voinov, S. Lange, D. Bankamp (Eds.) *Proceedings of the 2012 International Congress on Environmental Modelling & Software: Managing Resources of a Limited Planet*, Sixth Biennial Meeting, Leipzig, Germany; pp. 1489-1496.
6. Pross, B., C. Stasch, L. Gerharz, E. Pebesma, 2012. Tools for uncertainty propagation in the Model Web using Monte Carlo Simulation. In: R. Seppelt, A.A. Voinov, S. Lange, D. Bankamp (Eds.) *Proceedings of the 2012 International Congress on Environmental Modelling & Software: Managing Resources of a Limited Planet*, Sixth Biennial Meeting, Leipzig, Germany; pp. 933-941.
7. Gräler, B., E. Pebesma, 2012. Modelling Dependence in Space and Time with Vine Copulas. *GEOSTATS 2012: Ninth International Geostatistics Congress*, Oslo, Norway, June 11-15, 2012
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10. Fairgrieve, S., C. Stasch, S. Falke, L. Gerharz, E. Pebesma, 2011. Error Aware Near Real-Time Interpolation of Air Quality Observations in GEOSS. ISW-2011: Integrating Sensor Web and Web-based Geoprocessing, An AGILE 2011 Conference Workshop; Utrecht, The Netherlands, April 18, 2011 ([pdf](#)).
11. Helle, Kristina B., Poul Astrup, Wolfgang Raskob and Edzer Pebesma, 2011. Methods and Sampling Designs to Map Plumes Using Prior Knowledge from Simulations. Short paper presented at ISSDQ 2011.
12. Giovana M. de Espindola, Edzer Pebesma, Gilberto Câmara, 2011. Spatio-temporal regression models for deforestation in the Brazilian Amazon. [STDM 2011](#), The International Symposium on Spatial-Temporal Analysis and Data Mining, University College London - 18th-20th July 2011 [pdf](#)
13. Helle, K.B., L. Urso, P. Astrup, T. Mikkelsen, J.C. Kaiser, E. Pebesma, C. Rojas-Palma, E. Holo, J.E. Dyve, W. Raskob, 2011. Planning sensor locations for the detection of radioactive plumes for Norway and the Balkans. Planning and assessment of monitoring strategies for the detection of radioactive plumes for Norway and the Balkans' region. ICRER conference (19th - 24th June 2011), Hamilton, Canada.
14. Katharina Henneböhl, Marius Appel, Edzer Pebesma, 2011. Spatial interpolation in massively data parallel computing environments. In: Stan Geertman, Wolfgang Reinhardt, and Fred Toppen, editors. Proceedings of the 14th AGILE International Conference on Geographic Information Science - Advancing Geoinformation Science for a Changing World, Utrecht, 2011. AGILE. ISBN 978-90-816960-1-2.
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16. Gerharz, L.E., B. Gräler, E Pebesma, 2011. Disaggregating gridded air quality data for individual exposure modelling. *Procedia Environmental Sciences* [Volume 7](#), p. 146-151 [Spatial Statistics 2011: Mapping Global Change](#).

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37. Pebesma, E.J., 2003, Gstat: multivariable geostatistics for S. [Proceedings](#) of the 3rd International Workshop on Distributed Statistical Computing (DSC 2003), March 20–22, Vienna, Austria.
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3 Conference/meeting (extended) abstracts or posters

1. Edzer Pebesma, 2017. Using R for large spatiotemporal data sets. EGU, session [EGU2017-6585](#) (slides).
2. Marius Appel, Daniel Nüst, and Edzer Pebesma, 2017. Reproducible Earth observation analytics: challenges, ideas, and a study case on containerized land use change detection. [EGU2017-17610 abstract](#)
3. Meng Lu, Marius Appel, Edzer Pebesma, 2017. Modelling spatiotemporal change using multidimensional arrays. EGU IE3.1/BG9.58; [EGU2017-17610](#)
4. Teresa Rojas Rojas, Rafael Vives, Dorothea Lemke, Carlos Castañeda, Nancy Hidalgo, Gérard Cochonneau, Aníbal Sánchez, Eric Deharo, Javier Herrera, Edzer Pebesma, Xavier Deparis, Stéphane Bertani, 2016 (accepted). Epidemiology and spatial analysis of cancer in Peru. Abstract, 2016 World Cancer Congress, Paris, Oct 31-Nov 3, 2016 / SS-1282
5. Pebesma, E., 2016. Spatial data in R: simple features and future perspectives. UseR!, The R User Conference 2016, Stanford, Jun 27-30, 2016 ([pdf](#)).
6. Marek Smid, Ana Cristina Costa, Edzer Pebesma, Carlos Granell. A review of downscaling procedures – a contribution to the research on climate change impacts at city scale by Marek Smid et al. EGU 2016, CL5.12/AS1.3/OS4.10; EGU2016-6768.
7. Daniel Nüst, Markus Konkol, Edzer Pebesma, Christian Kray, Stephanie Klötgen, Marc Schutzeichel, Jörg Lorenz, Holger Przibytzin, Dirk Kussmann. Opening Reproducible Research. EGU 2016; ESS13.6; EGU2016-7396.

8. Edzer Pebesma, Simon Scheider, Benedikt Gräler, Christoph Stasch, and Matthias Hinz. An algebra for spatio-temporal information generation. EGU 2016, [ESSI2.5](#); EGU2016-9523. ([pdf](#))
9. Marius Appel, Florian Lahn, Edzer Pebesma, Wouter Buytaert and Simon Moulds. Scalable Earth-observation Analytics for Geoscientists: Spacetime Extensions to the Array Database SciDB EGU 2016, ESSI3.1; EGU2016-11780.
10. M. Appel, E. Pebesma, G. Câmara, 2015. Scalable In-Database Regression Analysis of Large Earth-Observation Datasets. [EO Open Science 2.0](#) workshop at ESA-ESRIN, Frascati IT, Oct 12-16, 2015.
11. D. Lemke, S. Berkemeyer, V. Mattauch, O. Heidinger, E. Pebesma, H-W. Hense. Small-area, spatio-temporal analyses of participation rates in the mammography screening program in the city of Dortmund (NW Germany). 10. Jahrestagung der Deutschen Gesellschaft für Epidemiologie 30. September bis 2. Oktober 2015.
12. E. Pebesma, 2015. Spatial Statistics' New Frontiers. Oral presentation at *The 17th Annual Conference for the International Association for Mathematical Geosciences* (IAMG 2015), Freiberg, Sept 5-13, 2015 ([pdf](#)).
13. W. Buytaert, S. Moulds, J. Skøien, E. Pebesma, D. Reusser, 2015. Facilitating hydrological data analysis workflows in R: the RHydro package. EGU 2015, session HS3.3
14. J.O. Skøien, G. Blöschl, Gregor Laaha, J. Parajka, E. Pebesma, A. Viglione, 2015. Developments of rtop – interpolation and simulation of data with a variable spatial support. EGU 2015, session HS3.3.
15. Meng Lu, Edzer Pebesma, 2015. Spatio-temporal change modeling with array data. EGU session ESSI2.5/SSS11.10.
16. Edzer Pebesma, 2014. Analyzing Geoscientific Data with R: Past, Present, Future. AGU fall meeting, [IN22A-01](#).
17. Stasch, C., D. Nüst, M. Rieke, A. Remke, E. Pebesma, 2014. enviroCar – Open car data and open analysis tools for sustainable transportation development. The international conferences ICT4S - ICT for Sustainability. Stockholm, Sweden 24-27 August 2014. <http://2014.ict4s.org/>.
18. C. Knoth, E. Pebesma, 2014. Detecting Destruction in Conflict Areas in Darfur. GEOBIA 2014 - Geographic Object Based Image Analysis; Thessaloniki, Greece

19. Meng Lu and Edzer Pebesma, 2014. Modeling change from large-scale high-dimensional spatio-temporal array data. EGU General Assembly 2014, session ESSI2.6.
20. Christoph Stasch, Simon Scheider, Edzer Pebesma, 2014. Annotating spatio-temporal datasets for meaningful analysis in the Web. EGU General Assembly 2014, session ESSI2.2.
21. Florian Lahn, Christian Knoth, Kristina Helle, Torsten Prinz and Edzer Pebesma, 2014. Developing an open source-based spatial data infrastructure for integrated monitoring of mining areas. EGU General Assembly 2014, session ESSI2.7.
22. E. Pebesma, 2014. HydRology. EGU General Assembly 2014, session HS3.3, Open Source Computing in Hydrology.
23. Jairo A. Torres, Edzer Pebesma, 2013. State of R in Hydrological Modelling. 2nd OpenWater symposium, Brussels, September 16-17, 2013. ([abstract](#), [slides](#))
24. Phuong N. Truong, Gerard B.M. Heuvelink, Edzer Pebesma, Bayesian area-to-point kriging with expert elicitation of a prior for the point support variogram. [Spatial Statistics 2013](#).
25. Pebesma, E., C. Stasch, S. Scheider, W. Kuhn: [Towards meaningful spatial statistics](#). [Spatial Statistics 2013](#). ([Rnw file](#))
26. Pebesma, E., K.B. Helle, C. Stasch, S. Rasouli, H. Timmermans, S.-E. Walker, B. Denby, 2013. Uncertainty in exposure to air pollution. Geophysical Research Abstracts Vol. 15, EGU2013-8362, 2013 EGU General Assembly 2013
27. Skøien, J., G. Laaha, D. Koffler, G. Blöschl, E. Pebesma, J. Parajka, A. Viglione, 2013. Rtop – an R package for interpolation of data with a variable spatial support - examples from river networks. EGU General Assembly 2013
28. Demuth, D., D. Nüst, A. Bröring, E. Pebesma. The AirQuality Sense-Box. Geophysical Research Abstracts Vol. 15, EGU2013-5146, 2013 EGU General Assembly 2013
29. Cornford, D., C. Stasch, E. Pebesma, R. Jones, L. Bastin, L. Bigagli, 2013. Building the “Uncertainty Enabled Model Web” – lessons learned, 2013. Geophysical Research Abstracts Vol. 15, EGU2013-7639, 2013 EGU General Assembly 2013
30. Rundel, C., R. Bivand, E. Pebesma. rgeos: spatial geometry predicates and topology operations in R. Abstract, User! 2012.

31. Nüst, D., E. Pebesma, 2012. R in the Sensor Web. Sensing a Changing World 2012; workshop, May 9-11, 2012, Wageningen.
32. Christoph Stasch, Richard Jones, Dan Cornford, Martin Kiesow, Matthew Williams, and Edzer Pebesma, 2012. Representing Uncertainties in the Sensor Web. Sensing a Changing World 2012; workshop, May 9-11, 2012, Wageningen.
33. Jon Olav Skøien, G. Blöschl, G. Laaha, E. J. Pebesma, J. Parajka, A. Viglione, 2012. Interpolating runoff-related variables with rtop. GEOSTATS 2012: Ninth International Geostatistics Congress, Oslo, Norway, June 11-15, 2012
34. Pebesma, E., 2012. [R for reproducible geographical research](#). AAG meeting, N.Y., Feb 24-27, 2012.
35. Benecke, N., K. Zimmermann, A. Müterthies, K. Pakzad, S. Stephan, J. Kateloe, A. Preuß E. Pebesma, T. Prinz. 2012. GMES4Mining – Innovative Geoservices for Exploration and Monitoring of Mining Areas. In: Proceedings of the 7th International Symposium AIMS 2012. Aachen, 2012, p. 409-419
36. Gerharz, L.E., C. Autermann, H. Hopmann, C. Stasch, E. Pebesma, 2012. Uncertainty visualisation in the Model Web. [Abstract](#); EGU General Assembly, 2012.
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40. Stasch, C., Autermann, C., Foerster, T., Pebesma, E., 2011. Towards a Spatiotemporal Aggregation Service in the Sensor Web. In: Stan Geertman, Wolfgang Reinhardt, and Fred Toppen, editors. Proceedings of the 14th AGILE International Conference on Geographic Information Science - Advancing Geoinformation Science for a Changing World, Utrecht, 2011. AGILE. ISBN 978-90-816960-1-2.
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43. Pebesma, E., 2011. Raum-zeitliche Modellierung und Analyse mit R. EDC Entwicklerforum workshop “Time & Space”, 17. - 18.03.2011, Münster.
44. Dan Cornford, Edzer Pebesma, Stefano Nativi, Matthew Williams, Christoph Stasch, Richard Jones, and Lydia Gerharz, 2011. Realising the Uncertainty Enabled Model Web. Abstract, EGU General Assembly, 2011.
45. Lydia E. Gerharz, Benjamin Proß, Christoph Stasch, and Edzer Pebesma, 2011. A Web-based Uncertainty-enabled Information System for Urban Air Quality Assessment. Abstract, EGU General Assembly, 2011.
46. Boluwade, A, Mateu, J, Pebesma, E and Cabral, P. (2011). Hydrologic Modelling and Uncertainty Analysis of Ungauged Watershed Using Mapwindow-SWAT. 34th IAHR World Congress, in Brisbane, Australia from 26 June to 1 July 2011. Theme/Sub-theme: Theme 1 - 1.1 Floods.
47. Dan Cornford, Stefano Nativi, Edzer Pebesma, 2010. Managing Uncertainty in Data and Models: UncertWeb. AGU Fall meeting, Dec 13-17, 2010, [abstract](#) in session IN14: Uncertainty, Error, and Quality of Observational Data.
48. Edzer Pebesma, 2010. Modelling uncertain and fuzzy spatial information. Abstract for the workshop on Multidimensional Geoinformation - advances in spatial information sciences towards modeling geo-processes ([multiGI](#)), Karlsruhe Institute for Technology, Oct 14-15 2010.
49. I.T. Stewart, H. Fritze, E. Pebesma, 2010. Is there acceleration in streamflow timing trends across western North American mountains? Global Change and the World’s Mountains. Perth, Scotland, UK, 26-30 September 2010.
50. Katharina Henneböhl, Edzer Pebesma, Werner Müller, 2010. Efficient parametric variogram estimation for real-time interpolation of environmental monitoring data. Geostatistics for environmental applications, GeoENV 2010, Sept. 13-15, Gent, Belgium.
51. Lydia E. Gerharz, Edzer J. Pebesma, 2010. Accounting for uncertainties and change of support in spatio-temporal modelling of individual exposure to air pollution. Geostatistics for environmental applications, GeoENV 2010, Sept. 13-15, Gent, Belgium.

52. R. Jones, L. Bastin, D. Cornford, M. Williams, S. Nativi, E. Pebesma, 2009. Handling and communicating uncertainty in chained geospatial Web Services. *Spatial Accuracy* 2010.
53. Helle, Kristina B., Pebesma, Edzer J., 2009. Conservative Updating of Sampling Designs. *Spatial Accuracy* 2010.
54. Kristina Helle and Edzer Pebesma, 2010. Optimizing Spatio-Temporal Sampling Designs of Synchronous, Static, or Clustered Measurements. *Geophysical Research Abstracts*, Vol. 12, EGU2009-12462, EGU General Assembly 2009.
55. Edzer Pebesma, Lydia Gerharz, 2009. Visualizing uncertainty in spatio-temporal data. *Spatial Accuracy* 2010.
56. Dan Cornford, Richard Jones, Lucy Bastin, Matthew Williams, Edzer Pebesma, and Stefano Nativi, 2010. UncertWeb: chaining web services accounting for uncertainty. *Geophysical Research Abstracts* Vol. 12, EGU2010-PREVIEW, 2010 EGU General Assembly 2010.
57. Edzer Pebesma, Dan Cornford, and Jon Skøien. 2010. Methods and architectures for automated space-time interpolation. *Geophysical Research Abstracts* Vol. 12, EGU2010-11207, 2010 EGU General Assembly.
58. H.H. Fritze; I.T. Stewart-Frey; E.J. Pebesma, 2009. Snowmelt Runoff Regime Shifts Across Western North America. AGU Fall meeting, 14-18 december 2009, San Francisco. Abstract H33E-0930.
59. Lydia Gerharz, Edzer Pebesma, 2009. A modeling framework for estimating individual exposure to air pollution. 19th Annual conference of the international society for exposure science, Minneapolis, Nov 1-5, 2009.
60. Alexandre Zenie, Marta Blangiardo, Gavin Shaddick, Bruce Denby, Edzer Pebesma and Clive Sabel, 2009. Uncertainty Characterization and Visualization within the HEIMTSA project. Symposium "Characterizing and Communicating Uncertainties within Assessments of Human Exposures to Chemical Risks" (ID pvz73m) at 2009 SRA Annual Meeting "Risk Analysis: The Evolution of a Science" in Baltimore, Maryland on 6th-9th December 2009
61. Pebesma, E.J., K. Hennebühl, and J. O. Skøien, 2009. Developing automatic interpolation services: experiences from the INTAMAP FP6 project. *Geophysical Research Abstracts*, Vol. 11, EGU2009-11953, EGU General Assembly 2009.

62. Lydia E. Gerharz, Edzer J. Pebesma, 2009. Usability of interactive and non-interactive visualisation of uncertain geospatial information. *Geoinformatik 2009*.
63. Katharina Henneböhl, Edzer Pebesma, 2008. Providing R functionality through the OGC Web Processing Service. *User! The R User Conference 2008*, Technische Universität Dortmund, Germany, August 12-14, 2008.
64. Skøien, J.O., E.J. Pebesma, 2008. Real-time mapping in emergency situations - some preliminary results. *Geophysical Research Abstracts*, Vol. 10, EGU2008-A-09373, 2008 EGU General Assembly 2008.
65. Hiemstra, P., E. Pebesma, G.B.M. Heuvelink, C. Twenhöfel, 2008. Realtime automatic interpolation of ambient gamma dose rates from the Dutch Radioactivity Monitoring Network. In: U. Stöhlker (Ed.), *Meeting of experts on "External Dose Rate Monitoring at the Schauinsland Intercalibration Site"*, Freiburg, Germany, November 28-30, 2007.
66. Skøien, J.O., E. Pebesma, O. Baume, Gerard Heuvelink, 2008. The INTAMAP project first results. In: U. Stöhlker (Ed.), *Meeting of experts on "External Dose Rate Monitoring at the Schauinsland Intercalibration Site"*, Freiburg, Germany, November 28-30, 2007.
67. Skøien, J.O., E.J. Pebesma and G. Blöschl, 2007. Geostatistics for automatic estimation of environmental variables - simple solutions. *Geophysical Research Abstracts*, Vol. 9, 07879. SRef-ID: 1607-7962/gra/EGU2007-A-07879
68. O. Baume, J.O. Skøien, G.B.M. Heuvelink, E.J. Pebesma, 2007. Geostatistical approach to data harmonization. Abstract, Presentation at *StatGIS 2007*, Sept 25-27 2007, Klagenfurt, Austria.
69. De Nijs, A.C.M., E.J. Pebesma, 2007. Spatial uncertainty in land use models. An alternative method to estimate uncertainty in logistic regression models. *Proceedings of the 15th European Colloquium on Theoretical and Quantitative Geography*. Also available as Chapter 8 in: Ton de Nijs, 2009: *Modelling land use change: Improving the prediction of future land use patterns*. PhD thesis, Utrecht University; Netherlands Geographical Studies 386; ISBN 978-90-6809-429-9.
70. J.O. Skøien, O. Baume, E.J. Pebesma, G.B.M. Heuvelink, 2007. Identifying and removing heterogeneities between monitoring networks. Abstract, Presentation at *StatGIS 2007*, Sept 25-27 2007, Klagenfurt, Austria.

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72. De Nijs, T., Pebesma, E.J., 2006. Uncertainties in logistic regression predictions: an application to land use change modelling. The Seventh International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences 5-7 July 2006, Lisbon, Portugal.
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74. Briggs D.J., R. Beelen, G. Hoek, C. de Hoogh, E. Pebesma, G. Shaddick, D. Vienneau, 2005. Modelling high resolution variations in air pollution at the continental scale: A comparison of GIS-based methods. Program and Abstracts: The Seventeenth Conference of the International Society for Environmental Epidemiology (ISEE): Abstracts. *Epidemiology* 16 (5): S84-S84, SEP 2005.
75. Shaddick G, Kounali D, Briggs DJ, Beelen R, Hoek G, de Hoogh C, Pebesma E, Vienneau D, 2005. Using Bayesian hierarchical modelling to produce high resolution maps of air pollution in the EU. Program and Abstracts: The Seventeenth Conference of the International Society for Environmental Epidemiology (ISEE): Abstracts. *Epidemiology* 16 (5): S89-S89, SEP 2005
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77. Schuurmans, J.M., Bierkens, M.F.P, Uijlenhoet, R., Torfs, P., Pebesma, E.J. (2004) Estimating high resolution rainfall fields based on meteorological radar and rain gauges for operational water management. European Geosciences Union 1st General Assembly Nice, France, 25–30 April 2004
78. Bierkens, M.F.P; Pebesma, E.J. (2004). Space-time mapping of water table elevation using autoregressive external drift kriging. European Geosciences Union 1st General Assembly Nice, France, 25–30 April 2004

79. Edzer J. Pebesma, Jaap de Gruijter, Gerard B.M. Heuvelink (2004) A Method for Classifying Land Parcels as Receptive or Unreceptive to Nitrate Leaching. The combined TIES 2004 (The Fifteenth Annual Conference of The International Environmetrics Society) and ACCURACY 2004 (The Sixth International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences) [meeting](#), Portland, Maine, USA, June 28 - July 1, 2004.
80. Roger Bivand, Edzer Pebesma and Barry Rowlingson (2004) [Generic functions for spatial data](#). [UseR! 2004](#) , The R User Conference, May 20-22, 2004, Vienna, Austria.
81. Pebesma, E.J., S.M. de Jong (2002) Predicting aboveground biomass using field data and high resolution spectral imaging data. TIES - The International Environmetrics Society - 2002 conference.
82. Pebesma, E.J. and G.B.M. Heuvelink (2001), Sequential simulation of Gaussian random fields with unknown mean function: an application to heavy metal pollution data. Abstract book 4th conference of the Working Group on Pedometrics of the International Union of Soil Science (Ed. M. van Meirvenne). Ghent University, Ghent (pp. 84-84).
83. Heuvelink, G.B.M. and E.J. Pebesma (2001), Is there anything wrong with the ordinary kriging variance? Abstract book 4th conference of the Working Group on Pedometrics of the International Union of Soil Science (Ed. M. van Meirvenne). Ghent University, Ghent (pp. 13-13).

4 Invited papers/presentations

1. Edzer Pebesma, 2017. New developments in r-spatial. Keynote at *Hands-on Global Soil Information Facilities (GSIF)*, 15-19 May 2017, Wageningen, Netherlands.
2. Edzer Pebesma, 2017. Incentives and rewards in scientific software communities. Keynote, "Software and Services for Science (S3)", [2nd Conference on Non-Textual Information](#), May 10-11, 2017, TIB Hannover ([slides video](#)).
3. Edzer Pebesma, 2016. Simple Features Now on CRAN. [R Consortium blog](#).
4. Edzer Pebesma, 2016. Scalable Spatiotemporal Geostatistics. Dept of Statistics, University of Innsbruck, Dec 15, 2016 ([pdf](#)).
5. Edzer Pebesma, 2016. Reproducible Research in Practice. [Reproducible Research Workshop](#), UZH, Zürich, Sept 13-14, 2016.

6. Edzer Pebesma, 2016. [Breaking down barriers in the scientific use of EO data](#). EODC Forum 2016, 31st May – 1st June 2016.
7. Edzer Pebesma, 2016. Support of observations and predictions in spatial and temporal statistics: practical aspects and software challenges. [DAGStat 2016](#), Mar 14-18 2016, Computational Statistics and Statistical Software section ([pdf](#)).
8. Edzer Pebesma, 2015. [Meaningful spatial statistics](#). [Geomatik Seminar](#), ETH Zürich, Nov 19, 2015.
9. Edzer Pebesma, 2015. On generating spatio-temporal data. Hunter College, CUNY, [Geography Seminar Series](#) Oct 5, 2015.
10. Edzer Pebesma, 2015. [On generating spatio-temporal data](#). Wageningen University/Research Center; Sept 30, 2015.
11. Edzer Pebesma, 2014. Analyzing Spatial and Spatio-Temporal Data with R. Bay Area useR Group meeting, Wednesday, December 17, 2014.
12. Edzer Pebesma, Christoph Stasch, Benedikt Gräler, Simon Scheider, 2014. Meaningfully Integrating Big Earth Science Data. AGU fall meeting; invited contribution IN33A-3757 ([abstract](#), [e-poster](#)).
13. E. Pebesma, 2014. Visualizing uncertainty in spatial and spatiotemporal field data. Keynote at workshop on *Visually-Supported Reasoning with Uncertainty* held during GIScience 2014, Sept 23, 2014 ([slides](#)).
14. E. Pebesma, 2014. Spatial and temporal support of meteorological observations and predictions. Keynote lecture at <http://www.dailymeteo.org>; [abstract](#).
15. E. Pebesma, 2014. Are current spatial databases useful for meaningful analysis? [Presentation](#) held for an ad-hoc symposium in Utrecht, May 8, 2014 and as GI Forum/ERCIS lunch seminar in Münster, Apr 22, 2014.
16. E. Pebesma, 2014. Visualizing and communicating uncertainty in the earth and environmental sciences: a review. EGU General Assembly 2014, invited contribution to session SSS11.1/ESSI3.6, *Communication of uncertainty about information in earth sciences*.
17. Edzer Pebesma, 29 Jan 2013. *Where do spatial statistics and geoinformatics meet?* Geodätischen Kolloquium der Leibniz Universität Hannover. ([slides](#))

18. Edzer Pebesma, 2012. *The uncertainty-enabled model web: concepts and tools*. Workshop on Uncertainty Quantification for Climate and Environmental Models, [UCL](#), 29 June 2012
19. Edzer Pebesma, 2011. *Spatial data quality and error propagation in spatio-temporal modelling in practice*. [Keynote](#) at 7th International Symposium on Spatial Data Quality (ISSDQ 2011): Raising awareness of Spatial Data Quality (Coimbra, PT, 12-14 October 2011).
20. Edzer Pebesma, 2010. *Modelling spatio-temporal data with R*. Invited [lecture](#) at [GeoInfo 2010](#), November 28 to December 1, 2010, Campos do Jordão and on December 2, 2010 at [INPE](#), São José dos Campos, São Paulo, Brazil.
21. Edzer Pebesma, 2010. *Modelling uncertain and fuzzy spatial information*. Abstract for the workshop on Multidimensional Geoinformation - advances in spatial information sciences towards modeling geo-processes ([multiGI](#)), Karlsruhe Institute for Technology, Oct 14-15 2010.
22. Edzer Pebesma, 2010. Open geostatistics for global change. [Inaugural lecture](#), faculty of geosciences, University of Muenster, June 25, 2010.
23. Invited talk: *Interoperability and automated mapping: the past, the INTAMAP project, and the future*. [Agaduc](#) workshop, Dec 4, 2008.

5 Books, reports, book chapters, etc.

1. G.B.M. Heuvelink, E. Pebesma, B. Gräler, 2015. Space-Time Geostatistics. In: S. Shekhar, H. Xiong and X. Zhou: Encyclopedia of GIS. Springer International Publishing. pages 1–7. [10.1007/978-3-319-23519-6_1647-1](#)
2. Matt Duckham, Edzer Pebesma, Kathleen Stewart, Andrew U. Frank, 2014. Geographic Information Science. 8th International Conference, GIScience 2014, Vienna, Austria, September 24-26, 2014, Proceedings. Lecture Notes in Computer Science Volume [8728](#).
3. Kathleen Stewart, Edzer Pebesma, Gerhard Navratil, Paolo Fogliarini, Matt Duckham (eds.) Extended Abstract Proceedings of the GIScience 2014. [GEO.INFO 40](#), Department of Geodesy and Geoinformation, Vienna University of Technology.
4. Rehr, M., E. Pebesma, B. Gräler, 2013. Detecting outlying observations and structural changes in European air quality data. [ETC/ACM Technical Paper 2012/16](#); Released: May 2013.

5. Christoph Stasch, Edzer Pebesma, Lydia Gerharz, Benedikt Gräler, 2013. [Error-Aware Spatio-temporal Aggregation in the Model Web](#). In: Vandenbroucke, Danny; Bucher, Bénédicte; Crompvoets, Joep (Eds.) [Geographic Information Science at the Heart of Europe](#). Lecture Notes in Geoinformation and Cartography. ([pdf](#))
6. Bivand, R.S., E. Pebesma, V. Gómez-Rubio, 2013. Applied Spatial Data Analysis with R, [Second edition](#). Springer, NY.
7. Edzer Pebesma, 2012. Profile: geoinformatics. [Public service review: European science and technology - issue 16](#)
8. Kristina B. Helle, Edzer Pebesma, 2012. Stationary Sampling Designs Based on Plume Simulations. Chapter 14, in: Jorge Mateu and Werner G. Müller (eds.), [Spatio-temporal Design: Advances in Efficient Data Acquisition](#), Wiley, 348 pp.
9. Gräler, B., L. Gerharz, E. Pebesma, 2012. Spatio-temporal analysis and interpolation of PM10 measurements in Europe. [ETC/ACM Technical Paper 2011/10](#); Released: 2012/01/30.
10. Gerharz, L., B. Gräler, E. Pebesma, 2011. Measurement artefacts and inhomogeneity detection. [ETC/ACM Technical Paper 2011/8](#); Released 2011/12/06.
11. Schwering, A., E. Pebesma, Kai Behncke, 2011. Geoinformatik 2011 “Geochange”. 15-17 Juni 2011, Münster, Germany. Konferenzband. [IfgiPrints, band 41](#). 272 pp.
12. Dürrfeld, J., J. Bisier and E. Pebesma, 2011. An OGC Web Processing Service for automated interpolation. Book chapter, in: [Advances in Web-based GIS, Mapping Services and Applications](#). Editor(s): Songnian Li; Suzana Dragicevic; Bert Veenendaal. CRC Press, 400 pp.
13. Henneböhl, K., L. Vinhas, E. pebesma and G. Câmara (Eds.), 2010. GIScience for environmental change. Symposium proceedings, Nov 27, 2010, Campos de Jordão (São Paulo), Brazil. [ifgiPrints, Band 40](#); 66 pages.
14. Pebesma, E.J., 2009. How we build geostatistical models and deal with their output. In: J. Pilz (Ed.), [Interfacing Geostatistics and GIS](#), Springer, Berlin, <http://dx.doi.org/10.1007/978-3-540-33236-7>.
15. Bivand, R.S., E.J. Pebesma, V. Gómez-Rubio, 2008. [Applied spatial data analysis with R](#). Springer, New York.
16. Pebesma, E., M. Bishr, Th. Bartoschek (Eds.), 2008. GI-Days 2008. Proceedings of the 6th Geographic Information Days. June 16-18, 2008, Münster, Germany. [IfGI prints 32](#). 337 pp.

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19. De Jong, S.M., E. Pebesma, F.D. van der Meer, 2004. Spatial variability, mapping methods, image analysis and pixels. In: S.M. de Jong, F.D. van der Meer (eds), Remote sensing image analysis: including the spatial domain. **Kluwer**, Dordrecht, (359 pp), pp 17–35
20. Pebesma E.J. and A.M.F. Bio, 2002. Landsdekkende interpolatie van aanwezigheid van plantensoorten. ICG report 02/4, 59 + v pp, Utrecht University.
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24. Stein, A., E. Pebesma (ed.), 1999. GIS en waarachtig! Symposium statistische software. Amsterdam, ISBN 90-9013205-8. 152 pages (in Dutch).
25. Pebesma, E.J., 1996, Mapping Groundwater Quality in the Netherlands. Utrecht University, Utrecht. [Netherlands Geographical Studies 199](#) . (PhD thesis; [pdf](#)).
26. Pebesma, E.J. and J.W. de Kwaadsteniet, 1995, Een landsdekkend beeld van veranderingen in de Nederlandse grondwaterkwaliteit op 5 tot 17 meter diepte (*Maps of temporal changes in groundwater quality in the Netherlands at 5 – 17 metre depth*). National Institute of Public Health and the Environment, Bilthoven. Report No. 714810015 (in Dutch).

27. Pebesma, E.J., and J.W. de Kwaadsteniet, 1994. Een landsdekkend beeld van de Nederlandse grondwaterkwaliteit op 5 tot 17 meter diepte in 1991 (*Maps of groundwater quality in the Netherlands at 5 – 17 metre depth in 1991*). National Institute of Public Health and the Environment, Bilthoven. Report No. 714810014 (in Dutch).

6 Standard documents

1. Uncertainty Markup Language (UncertML). M. Williams, D. Cornford, L. Bastin and E. Pebesma (eds.) OGC Discussion paper [08-122r2](#) ([pdf](#)). See also <http://www.uncertml.org/>.

7 Published reviews

1. Pebesma, E. [Package Review of osmdata](#). Software review for [ROpen-Sci](#).
2. Pebesma, E, (accepted). “Extending R”, by John M. Chambers. Book review, [Journal of Agricultural, Biological, and Environmental Statistics](#).
3. Pebesma, E. Interactive discussion: Review of: Ordinary kriging as a tool to estimate historical daily streamflow records; [HESSD](#).
4. Pebesma, E. Interactive [comment](#) on “An open and extensible framework for spatially explicit land use change modelling in R: the lulccR package (0.1.0)” by S. Moulds et al.
5. Pebesma, E. Interactive [comment](#) on “Topological and canonical kriging for design-flood prediction in ungauged catchments: an improvement over a traditional regional regression approach?” by S. A. Archfield et al.
6. Gräler, B., E. Pebesma, [Review](#) of ”Interpolation of groundwater quality parameters with some values below the detection limit”, by A. Bárdossy.
7. Pebesma, E., 2010. Is PSBI still a geostatistical interpolation method? Interactive [comment](#) on ”Geostatistical regionalization of low-flow indices: PSBI and Top-Kriging” by S. Castiglioni et al.
8. Pebesma, E.J., 2004. Review of: *Image analysis, Random Fields and Markov Chain Monte Carlo Methods, a mathematical introduction*, by G. Winkler. *Kwantitatieve methoden* 72.,

9. Pebesma, E.J., 2003. Review of: *The elements of statistical learning*, by T. Hastie, R. Tibshirani, and J. Friedman. The International Environmetrics Society Newsletter, Volume 9, No 1, p. 13.
10. Pebesma, E.J., 1999. Review of: *Multivariate Geostatistics; An Introduction with Applications*, by H. Wackernagel. Earth-Science Reviews 48, pp. 132-133.

8 Under review/accepted for publication

1. Edzer Pebesma, Etienne Racine, Michael Sumner, 2017. Scalable, Spatiotemporal Tidy Arrays for R (stars). Abstract accepted for presentation, UseR! 2017, Brussels, Jul 4-7, 2017.
2. Meng Lu, Marius Appel, Edzer Pebesma: Multidimensional arrays for analysing big geoscientific data. Submitted.
3. Marius Appel, Florian Lahn, Wouter Buytaert, Edzer Pebesma, submitted. Open and scalable analytics of large Earth observation datasets: from scenes to multidimensional arrays using SciDB and GDAL.
4. Sidhu, Nanki; Pebesma, Edzer; Câmara, Gilberto, 2016. Exploring land use change in Singapore using Google Earth Engine. Submitted to the 6th EARSel SIG LU/LC & 2nd EARSel LULC/NASA LCLUC Workshop.
5. Victor Maus, Gilberto Câmara, Marius Appel, Edzer Pebesma, accepted. [dtwSat: Time-Weighted Dynamic Time Warping for Satellite Image Time Series Analysis in R](#). Journal of Statistical Software.

9 Editorial boards/guest editorials

1. Co-Editor-in-Chief, [Journal of Statistical Software](#), Feb 2015 – present.
2. Co-Editor-in-Chief, [Computers and Geosciences](#), May 2014 – present.
3. Associate editor, [Spatial Statistics](#), 2011 – present.
4. Associate editor, [Journal of Statistical Software](#), Jun 2013 – Feb 2015.
5. Associate editor, [Computers and Geosciences](#), Apr 2013 – May 2014.
6. Editorial board member, [Environments](#), 2013 – 2014.
7. Editorial board, [Catena](#), 2006 – 2009

8. Special Section editor, with Thomas Romary on a Spatial Statistics special issue on GeoENV 2014.
9. T. Hengl, E. Pebesma R. J. Hijmans, 2015. Spatial and spatio-temporal modeling of meteorological and climatic variables using Open Source software. *Spatial Statistics*, [in press](#).
10. Special Issue editor, with Roger Bivand and Paulo Justiano Ribeiro Jr, for a Journal of Statistical Software special issue on [Spatial Statistics](#)
11. Gerard Heuvelink, Edzer Pebesma, Alfred Stein, 2013. Spatial statistics for mapping the environment. *International Journal of Applied Earth Observation and Geoinformation* [Volume 22, Pages 1–2](#).
12. A. Stein, E. Pebesma and G. Heuvelink, 2012. Editorial. *Spatial Statistics* Vol. 1, pages [1-2](#).
13. Alfred Stein, Edzer Pebesma and Gerard Heuvelink, 2011. Editorial. *Procedia Environmental Sciences*, [Volume 7, Pages 1-400](#). *Spatial Statistics 2011: Mapping Global Change*
14. Dubois, G. D. Cornford, D. Hristopulos, E. Pebesma, and J. Pilz, 2010. Introduction to this special issue on Geoinformatics for Environmental Surveillance. *Computers & Geosciences* [37, 277-279](#).

10 Tutorials/workshops etc.

1. Daniel Nüst, Edzer Pebesma, Vicky Steeves, 2017. Reproducible computational research in the publication cycle . Short course, EGU 2017, [SC81](#).
2. [Handling and analyzing spatial, spatiotemporal and movement data](#). UseR!, The R User Conference 2016, Stanford, Jun 27-30, 2016.
3. Chue Hong, Neil; Hammitzsch, Martin; Hufton, Andrew; Neteler, Markus; Pebesma, Edzer; van Edig, Xenia; Wenig, Philip, 2015. Open Science goes Geo – Part II: Scientific Software. Short course, held at the European Geosciences Union General Assembly 2015. The talks are available at [YouTube](#), slides at [Zenodo](#).
4. Various [geostat-course.org](#) video's: [2012](#) [2014](#)
5. Analysing spatio-temporal data with R. Agile, Leuven, May 14, 2013.
6. Software for spatio-temporal analysis. Session on Spatial Statistics 2013.

7. Analysing spatio-temporal data with R. Workshop at Spatial Statistics, Jun 4, 2013.
8. [Handling and Analyzing Spatio-temporal Data in R](#). Tutorial at UseR! 2011, The R User Conference 2011, August 16-18 2011 University of Warwick, Coventry, UK
9. Spatiotemporal Data Handling in R. Tutorial at: GeoINFO 2010, XI Brazilian Symposium on GeoInformatics. November 29-Dec 1, 2010 at Campos do Jordao, Brazil.
10. [Handling and analyzing spatio-temporal data in R, Workshop, 21-22 Mar 2011](#) Workshop at institute for geoinformatics, University of Muenster, Germany.
11. GI science for improving risk and resource management in the Brazilian Amazon. Gilberto Câmara, Edzer Pebesma and Giovana Mira de Espindola. Tuturial at [Geoinformatik 2011](#), 15-17 June 2011, Münster, Germany.
12. GI science for environmental change: use cases the Brazilian Amazon. Giovana Mira de Espindola, Gilberto Câmara and Edzer Pebesma. Workshop at [Geoinformatik 2011](#), 15-17 June 2011, Münster, Germany.

11 Published software tutorials (R package vignettes or task views)

1. Pebesma, E., R. Bivand, 2005. S Classes and Methods for Spatial Data: the sp Package. [Vignette](#) in R package [sp](#)
2. Pebesma, E., 2011. sp: overlay and aggregation. [Vignette](#) in R package [sp](#)
3. Pebesma, E., 2013. [Customising spatial data classes and methods](#), in R package [sp](#)
4. Pebesma, E., 2011. [spacetime](#): Spatio-Temporal Data in R. [Vignette](#) in R package [spacetime](#)
5. Pebesma, E., 2011. Spatio-temporal overlay and aggregation. [Vignette](#) in R package [spacetime](#)
6. Pebesma, E., 2011. Spatio-temporal objects to proxy a PostgreSQL table. [Vignette](#) in R package [spacetime](#)
7. Pebesma, E., 2011. The meuse data set: a brief tutorial for the gstat R package. [Vignette](#) in R package [gstat](#)

8. Pebesma, E., 2011. The pairwise relative semivariogram. [Vignette](#) in R package [gstat](#)
9. Pebesma, E., 2011. Spatio-temporal geostatistics using gstat. [Vignette](#) in R package [gstat](#)
10. Pebesma, E., 2013. [CRAN Task View: Handling and Analyzing Spatio-Temporal Data](#)
11. Pebesma, E., 2016. [Measurement Units of Physical Quantities for R Vectors](#).