

Curriculum Vitae: David Harte

1 Personal Details

Name David Shamus Harte
Year of Birth 1957
Place of Birth New Zealand

2 Employment Details

2.1 Present Employment

Position Director of Statistics Research Associates
Postal Address [Statistics Research Associates](#)
PO Box 12-649
Thorndon
Wellington
New Zealand
Telephone +64-4-473 1760
Email david@statsresearch.co.nz
URL www.statsresearch.co.nz
Commencing Date 1 January 2000

2.2 Honorary Positions

[Institute of Statistical Mathematics](#), Tokyo

Visiting Research Fellow: 1 March 2010 – 30 March 2010
Visiting Professor: 8 June 2009 – 28 Aug 2009
Visiting Associate Professor: 24 July 2006 – 22 Sept 2006

Institute of Information Sciences & Technology

Massey University, Palmerston North

Honorary Research Associate: 13 Sept 2006 – 30 Sept 2010

[School of Mathematics, Statistics and Computer Science](#)

Victoria University of Wellington (VUW)

Adjunct Research Associate: 1 March 2006 – 28 Feb 2009

Honorary Research Associate: 1 Oct 2003 – 30 Sep 2004

2.3 Summary of Professional Employment

Statistics Research Associates, Wellington

Associate: January 2000 – present
Director: September 2002 – present

Victoria University of Wellington (VUW)

Lecturer: January 1996 – December 1999
Part Time Lecturer (0.4–0.5): July 1993 – December 1995
Casual Lecturer: 1988–1992

Ministry of Agriculture and Fisheries (MAF), Wellington

Biometrician: 18 Feb 1985 – 25 June 1993

New Zealand Qualifications Authority (NZQA), Wellington

Examination Moderator: Statistics (5257): 1991

Authority for Advanced Vocational Awards (AAVA), Wellington

Examination Moderator: Elements of Statistics (3047): 1985, 1986
Statistics (3150): 1986, 1987

Traffic Research Section, Ministry of Transport (MOT), Wellington

Scientist: 17 Feb 1983 – 15 Feb 1985

Sample Design Division, Department of Statistics, Wellington

Assistant Research Officer: 19 April 1982 – 16 Feb 1983

Applied Mathematics Division, DSIR, Wellington

Vacation Worker: 12 Nov 1979 – 29 Feb 1980
9 Nov 1981 – 26 Feb 1982

Victoria University of Wellington (VUW)

Sessional Assistant: MATH 192/193: 1979 academic year
MATH 115/116: 1981 academic year

3 Academic Qualifications and Awards

3.1 Tertiary Education

Victoria University of Wellington

BSc		1976–1978
BSc (Hons)	2nd Class(2nd Div) in Mathematics	1979
MSc	Distinction in Mathematics	1981–1982 ¹
PhD	Statistics	Sept 1993 – July 1996

3.2 Awards

1. Third Prize in the New Zealand Mathematical Society Biennial Thesis Competition, 1984. (Thesis submitted for MSc at VUW.)
2. The New Zealand Automobile Association Award in Transportation and Traffic Engineering at the 1985 IPENZ Conference. (For a joint paper with W.J. Frith titled *The Safety Implications of Some Control Changes at Urban Intersections.*)

4 Professional Activities

4.1 Committee Memberships of Professional Societies

1. Convener of the [NZSA Wellington Statistics Group](#) Meetings: 2007–2010.
2. Member of the Executive Committee of the New Zealand Statistical Association ([NZSA](#)): 1985–1988, 1998–2000.
3. Member of the Statistics Committee, International Seed Testing Association ([ISTA](#), based in Zürich), 1989–2004.
4. New Zealand Statistical Association ([NZSA](#)) Science Fair Convener: 1986–1992. My responsibility was to organise the judging of the statistics prize at the approximately 20 regional school science fairs in NZ.
5. Member of the New Zealand Statistical Association ([NZSA](#)) Education Subcommittee: 1988–1992.
6. Member of the Tolerances Revision Committee of the International Seed Testing Association ([ISTA](#), based in Zürich): 1989–1992.

4.2 Conference Organising Committees

1. Symposium in Honour of David Vere-Jones on the Occasion of His 65th Birthday, Victoria University of Wellington, 19–21 April 2001. Committee member.
2. Second International Workshop on Statistical Seismology, Victoria University of Wellington, 18–21 April 2001. Committee member.
3. 50th Anniversary Conference of the New Zealand Statistical Association, Victoria University of Wellington, 4–7 July 1999. Convenor of the Organising Committee.
4. 47th Annual Conference of the New Zealand Statistical Association, with a special theme of “Research in the Learning of Statistics”, Victoria University of Wellington, 30–31 August 1996. Committee member.
5. History of Statistics in New Zealand, Victoria University of Wellington, 1 July 1987. Committee member.

¹1980 was spent on “OE” and 1982 was part time while working at the NZ Department of Statistics.

5 Research Activities

5.1 Publications

5.1.1 Books, Book Chapters, and Theses

1. Harte, D. (2001). *Multifractals: Theory and Applications*. Chapman & Hall/CRC, Boca Raton. ISBN 1-584-88154-2.
2. Vere-Jones, D.; Davies, R.B.; Harte, D.S.; Mikosch, T. & Wang, Q. (1997). Problems and examples in the estimation of fractal dimension from meteorological and earthquake data. In: *Applications of Time Series in Astronomy and Meteorology*, pages 359–375. (Edited by T. Subba Rao, M.B. Priestley & O. Lessi). Chapman and Hall, London. ISBN 0-412-63800-2.
3. Harte, D. (1996). *Multifractals: Theory and Applications*. PhD Thesis. Victoria University of Wellington. Supervisor: David Vere-Jones.
4. Harte, D.S. (1982). *Self Similar Stochastic Processes*. MSc thesis. Victoria University of Wellington. Supervisor: David Vere-Jones.

5.1.2 Refereed Journal Articles

1. Wang, T.; Bebbington, M.S.; & Harte, D. (2011). Markov-modulated Hawkes process with stepwise decay. *Annals of the Institute of Statistical Mathematics*, in press. DOI: [10.1007/s10463-010-0320-7](https://doi.org/10.1007/s10463-010-0320-7)
2. Zhuang, J.; Werner, M.J.; Hainzl, S.; Harte, D.; & Zhou, S. (2011). Basic models of seismicity: spatiotemporal models. *Community Online Resource for Statistical Seismicity Analysis (CORSSA) V*, 20pp. DOI: [10.5078/corssa-07487583](https://doi.org/10.5078/corssa-07487583)
3. Richardson, K.; Harte, D.S.; & Carter, K. (2011). Understanding health and labour force transitions: Applying Markov models to SoFIE longitudinal data. *Official Statistics Research Series 2011-2*, 1–65. URL: <http://statisphere.govt.nz/further-resources-and-info/official-statistics-research/series/2011/page2.aspx>
4. Wang, T.; Bebbington, M.; & Harte, D.S. (2011). Extracting coseismic signals from groundwater level. *Mathematical Geosciences* **43(7)**, 799–817. DOI: [10.1007/s11004-011-9356-3](https://doi.org/10.1007/s11004-011-9356-3)
5. Naylor, M.; Orfanogiannaki, K.; & Harte, D. (2010). Exploratory data analysis: magnitude, space, and time. *Community Online Resource for Statistical Seismicity Analysis (CORSSA) III*, 42pp. DOI: [10.5078/corssa-92330203](https://doi.org/10.5078/corssa-92330203)
6. Harte, D.S. (2010). PtProcess: An R package for modelling marked point processes indexed by time. *Journal of Statistical Software* **35(8)**, 1–32. URL: www.jstatsoft.org/v35/i08/
7. Bebbington, M.S; Harte, D.S. & Jaume, S.C. (2010). Repeated intermittent earthquake cycles in the San Francisco Bay region. *Pure and Applied Geophysics* **167(6-7)**, 801–818. DOI: [10.1007/s00024-010-0064-6](https://doi.org/10.1007/s00024-010-0064-6)
8. Wang, T.; Bebbington, M. & Harte, D.S. (2010). A comparative study of coherence, mutual information and cross-intensity models. *International Journal of Information and Systems Sciences* **6(1)**, 49–60. URL: www.math.ualberta.ca/ijiss/SS-Volume-6-2010/No-1-10/SS-10-01-04.pdf

9. Harte, D.; Li, D.-F.; Vere-Jones, D.; Vreede, M. & Wang, Q. (2007). Quantifying the M8 algorithm: Model, forecast and evaluation. *NZ Journal of Geology and Geophysics* **50(2)**, 117–130. URL: www.rsnz.org/publish/nzjgg/2007/012.php
10. Brownrigg, R. & Harte, D. (2005). Using R for statistical seismology. *R News* **5(1)**, 31–35. ISSN 1609-3631. URL: cran.r-project.org/doc/Rnews/Rnews_2005-1.pdf
11. Harte, D. & Vere-Jones, D. (2005). The entropy score and its uses in earthquake forecasting. *Pure and Applied Geophysics* **162(6/7)**, 1229–1253.
12. Chen, S.; Harte, D.; Ma, L. & Wang, L. (2003). Research on the multifractal characteristics of the temporal-spatial distribution of earthquakes over New Zealand area. *ACTA Seismologica Sinica* **16(3)**, 312–322. DOI: [10.1007/s11589-003-0035-4](https://doi.org/10.1007/s11589-003-0035-4)
13. Chen, S.; Harte, D.; Ma, L. & Wang, L. (2003). Multifractal characteristics of general stress release (GSR) of earthquakes. *ACTA Seismologica Sinica* **16(2)**, 195–204. DOI: [10.1007/s11589-003-0022-9](https://doi.org/10.1007/s11589-003-0022-9)
14. Bebbington, M.S. & Harte, D.S. (2003). The linked stress release model for spatio-temporal seismicity: formulations, procedures and applications. *Geophysical Journal International* **154**, 925–946. DOI: [10.1046/j.1365-246X.2003.02015.x](https://doi.org/10.1046/j.1365-246X.2003.02015.x)
15. Harte, D.; Li, D.-F.; Vreede, M. & Vere-Jones, D. (2003). Quantifying the M8 prediction algorithm: Reduction to a single critical variable and stability results. *NZ Journal of Geology and Geophysics* **46(1)**, 141–152. URL: www.rsnz.org/publish/nzjgg/2003/010.php
16. Bebbington, M. & Harte, D.S. (2001). On the statistics of the linked stress release model. *Journal of Applied Probability* **38A**, 176–187. DOI: [10.1239/jap/1085496600](https://doi.org/10.1239/jap/1085496600)
17. Lu, C.S.; Harte, D. & Bebbington, M. (1999). A linked stress release model for historical Japanese earthquakes: coupling among major seismic regions. *Earth, Planets and Space* **51(9)**, 907–916. URL: www.terrapub.co.jp/journals/EPS/abstract/5109/51090907.html
18. Harte, D.S. & Vere-Jones, D. (1999). Differences in coverage between the PDE and New Zealand local earthquake catalogues. *NZ Journal of Geology and Geophysics* **42(2)**, 237–253. URL: www.rsnz.org/publish/nzjgg/1999/17.php
19. Harte, D. (1998). Dimension estimates of earthquake epicentres and hypocentres. *Journal of Nonlinear Science* **8(6)**, 581–618. DOI: [10.1007/s003329900060](https://doi.org/10.1007/s003329900060)
20. Vere-Jones, D.; Harte, D. & Kozuch, M. (1998). Operational Requirements for an Earthquake Forecasting Programme for New Zealand. *Bulletin of the NZ National Society for Earthquake Engineering* **31(3)**, 194–205.
21. Harte, D.S.; Cowley, J.M. & Baker, R.T. (1995). Accounting for variability of naturally infested fruit used in disinfestation treatment efficacy trials. *Journal of Economic Entomology* **88(3)**, 441–446.
22. Hurst, P.M.; Harte, D.S. & Frith, W.J. (1994). The Grand Rapids dip revisited. *Accident Analysis and Prevention* **26(5)**, 647–654. DOI: [10.1016/0001-4575\(94\)90026-4](https://doi.org/10.1016/0001-4575(94)90026-4)
23. Cowley, J.M.; Baker, R.T. & Harte, D.S. (1993). Measurement of parameters and application of the maximum pest limit concept for importation of fruit fly (Diptera: Tephritidae) hosts. *Bulletin OEPP/EPPO Bulletin* **23**, 713–728. DOI: [10.1111/j.1365-2338.1993.tb00573.x](https://doi.org/10.1111/j.1365-2338.1993.tb00573.x)
24. Harte, D.S.; Baker, R.T. & Cowley, J.M. (1992). Relationship between preentry sample size for quarantine security and variability of estimates of fruit fly (Diptera: Tephritidae) disinfestation treatment efficacy. *Journal of Economic Entomology* **85(5)**, 1560–1565.

25. Cowley, J.M.; Baker, R.T. & Harte, D.S. (1992). Definition and determination of host status for multivoltine fruit fly (Diptera: Tephritidae) species. *Journal of Economic Entomology* **85**(2), 312–317.
26. Baker, R.T.; Cowley, J.M.; Harte, D.S. & Frampton, E.R. (1990). Development of a maximum pest limit for fruit flies (Diptera: Tephritidae) in produce imported into New Zealand. *Journal of Economic Entomology* **83**(1), 13–17.
27. Davies, R.B. & Harte, D.S. (1987). Tests for Hurst effect. *Biometrika* **74**(1), 95–101. DOI: [10.1093/biomet/74.1.95](https://doi.org/10.1093/biomet/74.1.95), see also DOI: [10.1111/1467-9892.00318](https://doi.org/10.1111/1467-9892.00318)
28. Frith, W.J. & Harte, D.S. (1986). The safety implications of some control changes at urban intersections. *Transactions of the Institution of Professional Engineers New Zealand* **13**(3/CE), 143–152.
29. Frith, W.J. & Harte, D.S. (1986). The safety implications of some control changes at urban intersections. *Accident Analysis & Prevention* **18**(3), 183–192. DOI: [10.1016/0001-4575\(86\)90001-1](https://doi.org/10.1016/0001-4575(86)90001-1)
30. Harte, D.S. (1985). The solution of quasi-likelihood functions using SAS. *New Zealand Statistician* **20**(2), 9–14.
31. Frith, W.J. & Harte, D.S. (1983). Conflict situations at bottlenecks on lower volume roads. *Traffic Engineering and Control* **24**(11), 536–538.

5.1.3 Refereed Conference Proceedings

Presenting author marked with † when multiple authors. ‡ means I did not attend.

1. Clark, R.G.; Hale, C.N.† & Harte, D.‡ (1993). A DNA approach to *Erwinia Amylovora* detection in large scale apple testing and epidemiological studies. Presented at the 6th ISHS International Workshop on Fire Blight, Athens, Greece, 20–23 Oct 1992. *Acta Horticulturae* **338**, 59–66. URL: www.actahort.org/books/338/338-7.htm
2. Harte, D.S. (1986). Statistical methods in road safety. Pacific Statistical Congress, Auckland, 20–24 May 1985. In: *Proceedings of the Pacific Statistical Congress (PSC-85)*, 312–314. (Edited by I.S. Francis, B.F.J. Manly & F.C. Lam.) Elsevier Science Publishers B.V. (North Holland), Amsterdam. ISBN 0 444 70015 3.
3. Harte, D.S.† & Hurst, P.M. (1985). “Random Stopping” and “Operation Checkpoint”. The 1985 National Conference on Alcohol and Road Accidents, Wellington, 18–19 April 1985. *Conference Papers* **2**, 12.1–12.15.
4. Frith, W.J.† & Harte, D.S. (1985). The safety implications of some control changes at urban intersections. Institute of Professional Engineers of NZ (IPENZ) Conference, Wellington, 11–15 February 1985. *Proceedings of Technical Groups* **10**(3), 276–295.
5. Frith, W.J.† & Harte, D.S.‡ (1984). The safety implications of some control changes at urban intersections. 12th Australian Road Research Board (ARRB) Conference, Hobart, 27–31 August 1984. *Proceedings* **12**(5), 192–205.
6. Harte, D.S.† & Hurst, P.M. (1984). Evaluation of operation checkpoint accident data. Road Traffic Safety Seminar, Wellington, 15–17 August 1984. *Seminar Papers* **2**, 153–167.

7. Frith, W.J.[†] & Harte, D.S. (1984). The safety implications of some control changes at urban intersections. Road Traffic Safety Seminar, Wellington, 15–17 August 1984. *Seminar Papers* **1**, 376–395.
8. Harte, D.S. (1984). Roadshow evaluation. Road Traffic Safety Seminar, Wellington, 15–17 August 1984. *Seminar Papers* **1**, 403–421.
9. Harte, D.S. (1983). A macro to solve the maximum likelihood parameter estimates of generalised linear models. SAS Users of NZ (SUNZ) 1983 Conference, Wellington, 24 November 1983. *Proceedings*, 157–168.

5.1.4 Other Articles

1. Harte, D. (2002). Non asymptotic binomial confidence intervals. Statistics Research Associates, Wellington. URL: www.statsresearch.co.nz/pdf/confint.pdf
2. Forbes, S.D. & Harte, D.S. (1994). The 1990 NZ children’s census. *The Australian Mathematics Teacher* **50**(1), 20–21.

5.1.5 Computer Software

1. Harte, D. (2010). *HiddenMarkov: Hidden Markov Models*. R package version 1.3-1. Statistics Research Associates, Wellington. URL: <http://cran.at.r-project.org/web/packages/HiddenMarkov>
2. Harte, D. (2010). *PtProcess: Time Dependent Point Process Modelling*. R package version 3.2-4. Statistics Research Associates, Wellington. URL: <http://cran.at.r-project.org/web/packages/PtProcess>
3. Harte, D.S. (2008). *Fractal: Fractal Analyses*. R package version 1.3-7. Statistics Research Associates, Wellington. URL: homepages.paradise.net.nz/david.harte/SSLib
4. Harte, D.S. (2008). *ssM8: M8 Earthquake Forecasting Algorithm*. R package version 2.1-3. Statistics Research Associates, Wellington. URL: homepages.paradise.net.nz/david.harte/SSLib
5. Harte, D.S. (2007). *ssBase: Base Functions for SSLib*. R package version 2.2-1. Statistics Research Associates, Wellington. URL: homepages.paradise.net.nz/david.harte/SSLib
6. Harte, D.S. (2007). *ssEDA: Exploratory Data Analysis for Earthquake Data*. R package version 2.2-1. Statistics Research Associates, Wellington. URL: homepages.paradise.net.nz/david.harte/SSLib
7. Harte, D. (2007). *Users Guide for the Statistical Seismology Library*. Statistics Research Associates, Wellington. URL: homepages.paradise.net.nz/david.harte/SSLib
8. Harte, D. (1998). *Documentation for the Statistical Seismology Library*. School of Mathematical and Computing Sciences Research Report No. 98-10 (Updated Edition June 1999), Victoria University of Wellington (ISSN 1174-4545).
9. Harte, D. (1993). *Maximum likelihood estimation for generalized linear models using SAS*. Ministry of Agriculture and Fisheries, Wellington.
10. Harte, D.S. (1988). *A program to calculate the ARL of a one sided cusum process*. Ministry of Agriculture and Fisheries, Wellington.

11. Harte, D.S. (1986). *A program to solve the maximum likelihood parameter estimates of generalised linear models*. SAS Sample Library. Refer *SAS Communications* **XI(3)**, 34.