

CURRICULUM VITAE

STUART PIKETH

- 1. Full name** : Stuart John Piketh
- 2. Date of birth** : 16 July 1970
- 3. Marital status** : Married with 2 children
- 4. Qualifications:**

Bachelor of Arts (Witwatersrand)(1991): Geography and Afrikaans en Nederlands (majors), Psychology, Mathematics (calculus and statistics), English

Bachelor of Arts (Hons) (Witwatersrand)(1992): Physical Geography

Masters of Science (Witwatersrand)(1995): Dissertation: Generation and transportation of suspended particles in the Eastern Transvaal (Distinction)

Doctor of Philosophy (Witwatersrand)(2000): Thesis: Transport of aerosols and trace gases over southern Africa

- 5. Appointments**

Present:

Professor, Geography and Environmental Management, North West University, Potchefstroom, 2012

Director and Reader, Climatology Research Group, University of the Witwatersrand, 2003-2012

Deputy Director, Climatology Research Group, University of the Witwatersrand, 1998-2002

Research Officer, Climatology Research Group, University of the Witwatersrand, 1998-

Previous:

Junior Research Officer, Climatology Research Group, University of the Witwatersrand, 1997-1998

Visiting Researcher, Max Planck Institute, Biogeochemistry, Mainz Germany, 1995/1996

6. Publications

Summary

Journals and books chapters : 59

Journal articles or book chapters

- 1) Piketh, S.J., Annegarn, H.J. and Kneen, M.A., 1995, Composition of suspended particles in the eastern Transvaal, *National Association for Clean Air Journal*, 9, 3, 12-18. (B 1)
- 2) Piketh, S.J., Annegarn, H.J. and Kneen, M.A., 1996: Regional scale impacts of biomass burning emissions over southern Africa, in J.S. Levine (ed.), *Biomass Burning and Global Change*, Chapter 30, MIT Press. (B 3)
- 3) Annegarn, H.J., Flanz, M., Kenntner, T., Kneen, M.A., Helas, G., and Piketh, S.J., 1996: Airborne streaker sampling for PIXE analysis, *Nuclear Instruments and Methods in Physics Research*, B, 109/110, 548-550. (A 1); (B 2); (C 0.997)
- 4) Freiman, M.T., D'Abreton, P. and Piketh, S.J., 1998: Regional airflow over the southern Drakensberg mountain of South Africa, *South African Journal of Science*, 94, 561-566. (A 3); (B 3)
- 5) Piketh, S.J., Annegarn, H.J. and Tyson P.D., 1999: Lower-tropospheric loadings over South Africa: the relative contributions of aeolian dust, industrial emissions and biomass burning, *Journal Geophysical Research*, 104, 1597-1607. (A 23); (B 26); (C 2.839)
- 6) Piketh, S.J., Formenti, P., Annegarn, H.J. and Tyson, P.D., 1999b: Industrial aerosol characterisation at a remote site in South Africa, *Nuclear Instruments and Methods in Physics Research B*, 150, 350-355. (A 4); (B 7); (C 0.997)
- 7) Formenti, P., Annegarn, H.J. and Piketh, S.J., 1998: Time-resolved aerosol monitoring in the urban centre of Soweto, *Nuclear Instruments and Methods in Physics Research B*, 136-138, 948-954. (A 1); (C 0.997) (A 7); (B 8); (C 0.549)
- 8) Piketh, S.J., Swap, R.J., Anderson, C.A., Freiman, M.T., Zunckel, M. and Held, G., 1999: The Ben Macdhui High Altitude Trace Gas and Aerosol Transport Experiment, *South African Journal of Science*, 95, 35-43.
- 9) Piketh, S.J., Siddera-Haddad, E., Holmgren, K., and Tyson, P.D., 1999: Proton microprobe analysis of a speleothem from South Africa, *Nuclear Instruments and Methods in Physics Research B*, 158, 606-611. (A 3); (B 3); (C 0.997)
- 10) Formenti, P., Piketh, S.J. and Annegarn, H.J., 1999: Detection of non-sea salt sulphate aerosol at a remote coastal site in South Africa: A PIXE study, *Nuclear Instruments and Methods in Physics Research B*, 150, 332-338. (C 0.997)
- 11) Zunckel, M., Piketh, S.J. and Freiman, M.T., 1999: Dry deposition of sulphur at a high altitude background station in South Africa, *Water Air and Soil Pollution*, 115, 445-463 (A 1); (C 1.058)
- 12) Meter, S, Formenti, F., Piketh, S.J., Annegarn, H.J., and Kneen, M.A., 1999: PIXE investigation of aerosol composition over the Zambian copperbelt *Nuclear Instruments and Methods in Physics Research B*, 150, 433-438. (A 2); (C 0.997)
- 13) Gatebe, C.K., Tyson, P.D., Annegarn, H.J., Piketh, S.J. and Helas, G., 1999: A seasonal transport climatology for Kenya, *Journal of Geophysical Research*, 104, 14237-14244.(A 7); (C 2.839)
- 14) Holmgren, K., Karlen, K., Lauritzen, S.E., Lee-Thorp, J.A., Partridge, T.C., Piketh, S.J., Repinski, P., Stevenson, C., Svanered, O. and Tyson, P.D., 1999: A 3000-year high resolution stalagmite-based record of paleoclimate for north-eastern South Africa, *Holocene*, 9, 295-309. (A 48)

- 16) Terblanche, D.E., Mittermaier, M.P., Piketh, S.J., Brintjes, R.T. and Burger, R.F., 2000: The aerosol recirculation and rainfall experiment- ARREX: An initial study on aerosol-cloud interactions over South Africa, *South African Journal of Science*, 96, 15-21. (A 3); (C 0.549)
- 17) Piketh, S.J., Tyson, P.D., Steffan, W., 2000: Aeolian transport from southern Africa and iron fertilisation of marine biota in the south Indian Ocean, *South African Journal of Science*, 96, 244-246. (A 10); (C 0.549)
- 18) Kirkman, G., Piketh, S.J., Andreae, M.O, Annegarn, H.J. and Helas, G., 2000: Distribution of aerosols, ozone and carbon monoxide over southern Africa, *South African Journal of Science*, 96, 423-431. (a 7); (B 7); (C 0.549)
- 19) Ross, K.E., Piketh, S.J., Swap R.J. and Stauber, R., 2001: Controls Governing Airflow over the South African Lowveld, *South African Journal of Science*, 97, 29-40. (A 1); (C 0.549)
- 20) Gatebe, C.K., Tyson, P.D., Annegarn, H.J., Helas, G., Kinyua, A.M., Piketh, S.J., 2001: Characterisation and transport of aerosols over equatorial eastern Africa, *Global Biogeochemical Cycles*, 15, 3, 663-672. (A 1); (B 1); (C 2.864)
- 21) Formenti, P., Winkler, H., Fourie, P., Piketh, S.J., Makgopa, B., Helas, G. and Andreae, M.O., 2002: Aerosol optical depth over a remote semi-arid region of South Africa from spectral measurements of the daytime solar extinction and the night-time stellar extinction, *Atmospheric Research*, 62, 11-32. (A 1); (C 0.863)
- 22) Swap, R.J., Annegarn, H.J., Suttles, J.T., Haywood, J., Helmlinger, M., Hely, C., Hobbs, P.V., Holben, B.N., Ji, J., King, M., Landmann, T., Maenhaut, W., Otter, L., Pak, B., Piketh, S.J., Platnick, S., Privette, J., Roy, D., Thompson, A.M., Ward, D., Yokelson, R. (2002) The Southern African Regional Science Initiative (SAFARI 2000): Dry-Season Field Campaign: An Overview, *South African Journal of Science*, 98, 125-130. (A 34); (B 38); (C 0.549)
- 23) Piketh, S.J., Swap, R.J., Maenhaut, W., Annegarn, H.J., Formenti, P. (2003) Chemical evidence of long-range atmospheric transport over southern Africa, *Journal of Geophysical Research*, 107, D24,4817, ACH7-1 – 7-13. (A 1); (C 2.839)
- 24) Queface, A., Piketh, S.J., Annegarn, H.J., Holben, B., Uthui, R. (2003) Retrieval of aerosol optical thickness and size distribution from Cimel sun photometer over Inhaca Island, Mozambique, *Journal of Geophysical Research*, 108, D13, SAF45-1 – SAF45-9. (A 2); (C 2.839)
- 25) Ross, K.E., Piketh, S.J., Brintjes, R.T., Burger, R.P., Swap, R.J., Annegarn, H.J. (2003) Spatial and seasonal variations in the distribution of cloud condensation nuclei and the aerosol-cloud condensation nuclei relationship over southern Africa, *Journal of Geophysical Research*, 108, D13, SAF17-1-SAF17-18. (A 1); (C 2.839)
- 26) Eck, T., Holben, B.N., Ward, D.E., Mukelabai, M.M., Dubovik, O., Smirnov, A., Schsaefer, J.S., Hsu, N.C., Piketh, S.J., Queface, A., Le Roux, J., Swap, R.J. and Sluster, I., (2003) Variability of biomass burning aerosol optical characteristics in southern Africa during the SAFARI 2000 dry season campaign and a comparison of single scattering albedo estimates, *Journal of Geophysical Research*, 108, D13, SAF13-1-SAF13-20. (A 32); (B 32); (C 2.839)
- 27) McMillan, W.W., McCourt, M.L., Revercomb, H.E., Knuteson, R.O., Christian, T.J., Doddridge, B.G., Hobbs, P.V., Lukovich, J.V., Novelli, P.C., Piketh, S.J., Sparling, L., Stein, D., Swap, R.J., Yokelson, R.J. (2003) Tropospheric carbon monoxide measurements from the scanning high-resolution interferometer sounder on September 7, 2000 in southern Africa during SAFARI-2000, *Journal of Geophysical Research*, 108, D13, SAF28-1-SAF28-13. (A 6); (B 5); (C 2.839)
- 28) Elias, T., Piketh, S.J., Burger, R., Silva, A.M. (2003) Evidence of an absorbing fraction of the accumulation mode by ground-based columnar and airborne in situ optical

- measurements, *Journal of Geophysical Research*, 108, D13, SAF44-1-SAF44-16. (A 3); (C 2.839)
- 29) Campbell, J.R., Welton, E.J., Spinhirne, J.D., Ji, Q., Tsay, S., Piketh, S.J., Barenbrug, M., Holben, B.N. (2003) Lidar observations of tropospheric aerosols over north-eastern South Africa during the ARREX and SAFARI-2000 Dry Season Experiments, *Journal of Geophysical Research*, 108, D13, SAF33-1-SAF33-19. (A 14); (B 6); (C 2.839)
- 30) Freiman, M.T. and Piketh, S.J. (2003) Air Transport Into And out of The Industrial Highveld Region of South Africa, *Journal of Applied Meteorology*, 42, 994-1002. (A 1); (C 1.472). (A 3); (B 3); (C 4.333)
- 31) Swap, R.J., Szuba, T.A., Garstang, M., Annegarn, H.J., Marufu, L. and Piketh, S.J., 2003: Spatial and temporal assessment of sources contributing to the annual austral spring mid-troposphere ozone maxima over the tropical South Atlantic, *Global Change Biology*, 9, 336-345. (A 1); (B 1); (C 0.722)
- 32) Stein, D.C, Swap, R.J., Macko, S.A., Piketh, S.J., Doddridge, B. and Bruintjes, R., 2003: Preliminary results of dry-season trace gas and aerosol measurements over the Kalahari region during SAFARI-2000, *Journal of Arid Environments*, 54, 371-379.
- 33) Piketh, S.J. and Walton, N., 2004: Characteristics of atmospheric transport of air pollution for Africa, Chapter 7, in Stohl, A., (ed.), *The Handbook of Environmental Chemistry, V 4/G, Intercontinental Transport of Air Pollution*, Springer, 173-196.
- 34) Tlhalerwa, K., Freiman, M.T. and Piketh, S.J., 2005: Aerosol Deposition off the Southern African West Coasts by Berg Winds, *South African Journal of Science*, 87 (2), 152-161. (C 0.549)
- 35) Mdluli T., Piketh S.J., Igbafe A., 2005: Assessment of indoor respirable particulate matter (PM₇) in township houses with coal-fired stoves at Kwaguqua (Witbank)., *Quarterly Journal of the National Electricity Regulator*, pp 11-24.
- 36) Igbafe, A.I., Jewell, L.L., Piketh, S.J. and Dlamini, T.S., 2006: A winter impact of dilution on transformation rate in the planetary boundary layer, *Journal of Environmental Informatics*, 8(1), 34-48.
- 37) Reason, C.J.C., Engelbrecht, F., Landman, W.A., Lutjeharms, J.R.E., Piketh, S.J., Rautenbach, C.J. de W. and Hewitson, B.C., 2006: A review of South African research on atmospheric science and physical oceanography during 2000-2005, *South African Journal of Science*, 102, 35-45.
- 38) Igbafe. A.I., Jewell, .L.L., Piketh, S.J., 2008: Thermochemical Analysis of Sulphur Compounds: Implications for Atmospheric Sulphur Oxidation, *Research Journal of Applied Sciences*, 3 (5), 393-405.
- 39) Heue, K.P., Wagner, T., Broccardo, S., Walter, D., Piketh, S.J., Ross, K., and Platt, U., 2008: Direct observation of two dimensional trace gas distribution with an airborne Imaging DOAS instrument, *Atmospheric Chemistry and Physics*, 8, 6707-6717.
- 40) Jeffrey S. Reid, J.S., Reid, E.A., Walker, A., Piketh, S.J., Cliff, S., Mandoos, A., Tsay, S., and Eck, T.F., 2008: Dynamics of Southwest Asian Dust Particle Size Characteristics with Implications for Global Dust Research, *Journal of Geophysical Research*, in Press.
- 41) Reid, J.S., Piketh, S.J., Westphal, D.L., Burger, R.P., Ross, K.E., Walker, A.L., Bruintjes, R.T., Holben, B.N., Hsu, C., Jensen, T.L., Kahn, R.A., Kuciauskas, A.P., Mandoos, A., Mangoosh, A., Miller, S.D., Porter, J.N., Tsay, S., 2008: An overview of UAE² flight operations: Observations of summertime atmospheric thermodynamic and aerosol profiles of the southern Arabian Gulf, *Journal of Geophysical Research*, in Press.
- 42) Igbafe A.I., and Piketh, S.J., 2009: Variations in the Order of Reaction: An Implication on Atmospheric Diffusion with transformation and Deposition of SO₂ in Smoke Plumes, *Environmental Research Journal*, 3 (1), 4-13.

- 43) Josipovic, M., Annegarn, H.J., Kneen, M.A., Pienaar, J.J. and Piketh, S.J., 2009: Concentrations, distributions and critical levels exceedance assessment of SO₂, NO₂ and O₃ in South Africa, *Environmental Monitoring and Assessment*, DOI 10.1007/s10661-009-1270-5.
- 44) Smirnov, A., Holben, B.N., Slutsker, I., Giles, D.M., McClain, C.R., Eck, T.F., Sakerin, S.M., Macke, A., Croot, P., Zibordi, G., Quinn, P.K., Sciare, J., Kinne, S., Harvey, M., Smyth, T.J., Piketh, S.J., Zielinski, T., Proshutinsky, A., Goes, J.I., Nelson, N.B., Larouche, P., Radionov, V.F., Goloub, P., Krishna Moorthy, K., Matarrese, R., Robertson, E.J., Jourdin, F., 2009: Maritime Aerosol Network as a component of Aerosol Robotic Network, *Journal of Geophysical Research*, 114, D06204, doi:10.1029/2008JD011257.
- 45) Collett K.S., Piketh S.J. and Ross K.E., 2010: The Atmospheric Nitrogen Budget over the South African Highveld, *South African Journal of Science*, accepted
- 46) Wilson, D.I., Piketh, S.J., Smirnov, A. Holben, B.N. and Kuyper, B., 2011: Aerosol Optical Properties over the South Atlantic and Southern Ocean during the 140th cruise of the M/V S.A. Agulhas, *Journal of Atmospheric Research*, accepted.
- 47) Josipovic M., Annegarn H.J., Kneen M.A., Pienaar J.J., Piketh S.J., 2011: Atmospheric dry and wet deposition of sulphur and nitrogen species and assessment of critical loads of acidic deposition exceedance in South Africa. *S Afr J Sci.*, 2011;107(3/4), DOI: 10.4102/sajs.v107i3/4.478
- 48) Queface, A.J., Piketh, S.J., Eck, T.F., Tsay, S. and Mavume, A.F., 2011: Climatology of aerosol optical properties in Southern Africa, *Atmospheric Environment*, 45, 2910-2921.
- 49) Radke, B., Wasik, A., Jewell, L.L., Piketh, S.J., Pączek, U., Gałuszka, A., and Namieśnik, J., 2012. Seasonal changes in organotin compounds in water and sediment samples from the semi-closed Port of Gdynia, *Science of the Total Environment*, In Press
- 50) Radke, B., Wasik, A., Jewell, L.L., Piketh, S.J., Pączek, U., Gałuszka, A. and Namieśnik, J., 2012: The speciation of organotin compounds in sediment and water samples from the Port of Gdynia, *Soil and Sediment Contamination*, In Press.
- 51) Sitha, S., Jewell, L.L., Piketh, S.J., Fourie, G., 2011: A quantum chemical calculation of the potential energy surface in the formation of HOSO₂ from OH + SO₂, *Atmospheric Environment*, 45, 745-754
- 52) Laakso, L., Vakkari, V., Virkkula, A., Laakso, H., Backman, J., Kulmala, M., Beukes, J. P., van Zyl, P. G., Tiitta, P., Josipovic, M., Pienaar, J. J., Chiloane, K., Gilardoni, S., Vignati, E., Wiedensohler, A., Tuch, T., Birmili, W., Piketh, S.J., Collett, K., Fourie, G.D., Komppula, M., Lihavainen, H., de Leeuw, G., and Kerminen, V.M., 2012: South African EUCAARI measurements: seasonal variation of trace gases and aerosol optical properties, *Atmos. Chem. Phys.*, 12, 1847–1864.
- 53) Radke, B., Jewell, L., Piketh, S.J., and Namieśnik, J., 2012: The arsenic warfare agents—production, use and destruction. *Critical Reviews in Environmental Science and Technology*, submitted
- 54) Radke, B., Jewell, L., Piketh, S.J., and Namieśnik, J., 2012: Sources of emission and the environmental fate of arsenic compounds. *Journal of Environmental Management*, submitted
- 55) Radke B., Piketh S., 2013. Temporal variation of total gaseous mercury content in air samples from Mpumalanga region, Republic of South Africa. in: L. Falkowska (ed). *Rtęć a środowisku. Identyfikacja zagrożeń dla zdrowia człowieka*. Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk pp. 39-46.
- 56) Eck, T. F., B. N. Holben, J. S. Reid, M. M. Mukelabai, S. J. Piketh, O. Torres, H. T. Jethva, E. J. Hyer, D. E. Ward, O. Dubovik, A. Sinyuk, J. S. Schafer, D. M. Giles, M. Sorokin, A. Smirnov and I. Slutsker (2013), A seasonal trend of single scattering

albedo in southern African biomass-burning particles: Implications for satellite products and estimates of emissions for the world's largest biomass-burning source, *J. Geophys. Res. Atmos.*, 118, doi: [10.1002/jgrd.50500](https://doi.org/10.1002/jgrd.50500).

- 57) Balashov, N. Thompson, A.M., Piketh, S.J., Langerman, K.E., 2013: Surface Ozone Variability and Trends over the South African Highveld from 1990 to 2007, *J. Geophys. Res. Atmos.*, 119, doi:10.1002/2013JD020555,
- 58) Radke, B., Piketh, S., Wasik, A., Namieśnik, J., Dembska, G., Bolałek, J., 2013: Aspects of pollution in Gdansk and Gdynia harbours at the coastal zone of the South Baltic Sea. *The International Journal on Marine Navigation and Safety of Sea Transportation*, 7 (1), 11-18.
- 59) Piketh, S.J., Vogel, C., Dunsmore, S., Culwick, C., Engelbrecht, F., and Akoon ,I. , 2013: Climate Change and Urban development in southern Africa: Business as usual or business unusual?, *WaterSA*, in Press.

7. Supervision of higher degree students

Undergraduate courses

Climatology II – University of the Witwatersrand
 Ocean Atmosphere Interactions III – University of the Witwatersrand
 Applied Meteorology III - University of the Witwatersrand
 Climate Change I - University of the Witwatersrand

Short courses offered

Air pollution meteorology

8. Graduated Masters and Doctoral Students

Kristy Ross (PhD)	2003
Marguerite Barenbrug (MSc)	2003
Antonio Joaquim Queface (MSc)	2002
Keabile Thlawera (MSc – Course work)	2002
Joseph Kanyanga (MSc – Course work)	2003
Mary Evans (MSc – Course work)	2005
Kgaugelo Chiloane (MSc – Course work)	2005
Peter Bundi (Kenya) (MSc – Course work)	2005
Abdullah Al Mangoosh (UAE) (MSc)	2005
Abdullah Al Mandoos (UAE) (MSc)	2005
Nicola Walton (MSc)	2005
Simagele Dhlamini (MSc)	2005
Silas Mulaudzi (MSc)	2005
Anthony Goslar (MSc – co-supervisor)	2006
Phillip Tshikalanke (MSc – Course work)	2007
Thabile Dlamini (MSc – Course work)	2007
Patience Gwaze (PhD – co-supervisor)	2007

Thulie Mdluli (PhD)	2007
Anselm Igbafe (PhD)	2007
Agnes Phalane (MSc)	2007
Thomas Bigala (Uganda) (MSc)	2008
Xolile Nciphha (MSc)	2009
Kamela Sekonya (MSc)	2009
Kirsten Collett (MSc)	2009
Malusi Buthelezi (MSc – Course work)	2009
Tracey Gill (MSc)	2009
Isaiah Sibanda (MSc – Course work)	2009
Lindi Shalom (MSc – engineering – co-supervisor)	2009
Candice McKechnie (MSc)	2010
Mark Wright	2010
Charles Mgabo (MSc – course work, co-supervisor)	2011
Michael Weston (MSc)	2011
Dale Wilson	2011
Antonio Queface (PhD)	2012
Mpethe Tongwane (MSc)	2012
Mavhungu Muthige (MSc)	2013
Kubeshnie Bhugwandin (MSc)	2013
Sham Jagathlal (MSc – Course work)	2013

9. Current Registered Students

Doctor of Philosophy Students

Keabile Tlhalwera (PhD)
Stephen Broccardo (PhD)
Roelof Burger (PhD)
Shaazia Bhailall (PhD)
Nicola Enslin (PhD)
Cindy Bruyere (PhD)
Jarred Lodder (PhD)
Ilze Pretorius (PhD)
Mogesh Naaidoo (PhD)

Master of Science students

Beverly Barnes (MSc)
Seneca Naidoo (MSc)
Leon van Wyk (MSc- Eng)
Zane Dedekind (MSc)

10. Past Post Doctoral Fellows

Dr Lackson Marufu - 2002
Dr. Thierry Elias - 2009
Dr Barbara Radke - 2011
Dr Scott Hearesey - 2013