

List of papers published by Danie Krige from 1951–2001

1. A statistical approach to some mine valuation and allied problems on the Witwatersrand. *Unpublished Master's Thesis*, University of the Witwatersrand – 1951. (Separate)
2. A statistical approach to some basic mine valuation problems on the Witwatersrand - *J. of the Chem. Metall. and Min. Soc. of S.A.*, December, 1951 - discussions and replies March, May, July and August 1952. (Vol. 1...1). Also: *J. of the Institute of Mine Surveyors of S.A.* December 1952, March 1953. (Vol. 1...2)
3. A statistical analysis of some of the borehole values of the Orange Free State goldfield - *J. of the Chem. Metall. and Min. Soc. of S.A.*, September, 1952 - discussions and reply November 1952, and February 1953. (Vol. 1...3).
4. A study of the relationship between development values and recovery grades on the South African goldfields - *J.S.A.I.M.M.*, January 1959, - discussion and reply April and October 1959. (Vol. 1...6)
5. On the departure of ore value distributions from the lognormal model in South African gold mines. *J.S.A.I.M.M.*, November 1960, January and August 1961. (Vol. 1...8)
6. Developments in the valuation of gold mining properties from borehole results - *Seventh Commonwealth Mining and Metallurgical Congress*, 1961. (Vol. 1...9)
7. Effective pay limits for selective mining. *J.S.A.I.M.M.*, January and August 1962. (Vol. 1...10)
8. Economic aspects of stoping through unpayable ore. *J.S.A.I.M.M.*, January, March and August 1962. (Vol. 1...11)
9. Statistical Applications in Mine Valuation. Parts 1 and 2 - *Journal of Inst. of Mine Surveyors of S.A.*, June and September 1962. (Vol. 1...12)
10. The application of correlation and regression techniques in the selective mining of gold ores - *2nd APCOM Symposium*, University of Arizona, Tucson, April 1962. (Vol. 3...3)
11. The significance of a limited number of borehole results in the exploration of new South African gold fields - *2nd APCOM Symposium*, University of Arizona, Tucson, April 1962. (Vol. 3...2)
12. Value contours and improved regression techniques for ore reserve valuations (jointly with Ueckerman) - *J.S.A.I.M.M.*, May, July and October 1963. Republished in the *J. I. Mine Surveyors of S.A.*, September 1963, Vol. XII, No. 7. (Vol. 2...1)
13. A review of the impact of statistics on mine valuation in the gold mining industry - *J.S.A.I.M.M.*, March 1964. (Vol. 2...2)
14. A brief review of the developments in the application of mathematical statistics to ore valuation in the South African gold mining industry - *4th APCOM Symposium*, Colorado School of Mines Quarterly Vol. 59, No. 4, October 1964. (Vol. 2...3)
15. Recent developments in South Africa in the application of trend surface and multiple regression techniques to gold ore valuation - *4th APCOM Symposium*, Colorado School of Mines Quarterly Vol. 59, No. 4, October 1964. (Vol. 2...4)
16. The use of mathematical statistics and computers for planning and control of gold mines of the Transvaal and Orange Free State, (jointly with P.C.Pirow) - *8th Commonwealth Mining and Met. Congress*, Australia, 1965. (Vol. 2...5)
17. Two-dimensional weighted moving average trend surfaces for ore valuation - *J.S.A.I.M.M.*, Special Symposium Vol., p.13, March 1966, also April 1967, pp. 472/4. (Vol. 2...7)
18. Applications of statistical and computer techniques for ore valuation in the Anglovaal Group (jointly with J.E. Heller) - *J.S.A.I.M.M.*, Special Symposium Vol., March 1966. (Vol. 2...8)
19. Ore value trend surfaces for the South African gold mines based on a weighted moving average - *6th APCOM Symposium*, Penn. State University, April 1966. (Vol. 3...4)
20. A discussion on 20 by Matheron G: Kriging or Polynomial Interpolation Procedures. – *Canadian Min. and Met. Bulletin*, Sept 1967, pp 1041/1045. (Vol. 3...4)
21. A study of gold and uranium distribution patterns in the Klerksdorp goldfield - *Geoexploration 4*, pp. 43/53, 1966. (Vol. 2...6)
22. A surveyor's approach to contour surfaces for gold ore values - *Proceedings of 3rd South African National Survey Conference*, January 1967. (Vol. 2...10)
23. The role of mathematical statistics in improved ore valuation techniques in South African gold mines - *Problems of Mathematical Geology* (in Russian), Vol. 1, 1968, Hayka, Moscow. (Vol. 2...13 + Vol. 4...9)
24. A review of some conceptual and practical implications of the use of valuation surfaces for gold ore reserve estimation, (jointly with Munro) - *Can. Inst. M.M.*, special Vol. 9, 1968. (Vol. 3...5)
25. The use of contour surfaces as predictive models for ore values (jointly with Watson and others) - *A decade of Digital Computing in the Mineral Industry*, SAIME, Port City Press, Baltimore, 1969, pp. 127/161 (*8th APCOM Symposium*, Salt Lake City). (Vol. 2...18)
26. Some implications of the new assistance formula for South African gold mines, *J.S.A.I.M.M.*, May and August 1968, and February 1969. (Vol. 2...14)
27. The development of statistical models for gold ore valuation in South Africa - *Sixth International Mining Congress*, Madrid, 1970. (Vol. 3...9)
28. The impact of taxation systems on mine economics - *Can. I.M.M.*, Special Vol. 12, 1971, *9th APCOM Symposium*, Montreal, Canada, 1970. (Vol. 3...10)
29. Capital investment and risk analysis for a new mining project - *Journal of the Investment Analyst Society of South Africa*, November 1972. (Vol. 3...11)
30. Computer applications in investment analysis, ore valuation and planning for the Prieska Copper mine - *11th APCOM Symposium*, Tucson, Arizona, April 1973. (Vol. 3...12)
31. The fitting of contour surfaces to hanging and footwall data for an irregular ore body, (jointly with Rendu) - *13th APCOM Symposium*, Clausthal-Zellerfeld, West Germany, October 1975. (Vol. 2...19)
32. Some basic considerations in the application of geostatistics to gold ore valuation - *J.S.A.I.M.M.*, April 1976, pp. 383/3. (Vol. 3...14).
33. A review of the development of geostatistics in South Africa - *Advanced Geostatistics in the Mining Industry*, Reidel Publishing Company, 1976, (Dordrecht, Holland). (Vol. 2...20)
34. A review of some geostatistical models for gold ore valuation in South Africa - *Problems of Mathematical Geology* (in Russian), Vol. 2, Hayka, Moscow, 1978 English (Vol. 3...13)...Russian (Vol. 4...18)
35. The evaluation of co-product uranium reserves on producing and potential new gold mines in South Africa - Evaluation of uranium resources, International Atomic Energy Advisory Group, December 1976, Rome. *Published in Evaluation of Uranium Resources*, IAEA, Vienna, (Vol. 3...15) and (Vol. 4...14)
36. The human element in APCOM's development - Keynote address for 15th APCOM Symposium, Brisbane, Australia, July 1977, *Proceedings published by the Australasian Inst. Min. Met.*, 1977. (Vol. 3...16)
37. South African Mine Valuation by C.D. Storrar - Chamber of Mines of S.A., 1977. *Assisted in preparation of Chapter 15, Statistical Mine Valuation*. (Vol. 6...1)
38. Grade Control and Geostatistics - *Grade Control Course, Dept. Geology*, Wits. Also *Chamber of Mines Workshop*-1979. (Vol. 6...2)
39. A review of some of the practical gains from geostatistical applications in South African ore valuation - *Future Trends in Geomathematics* – Pion Ltd., London, 1980. (Published version incomplete). (Vol. 4...16)
40. Long-term trends in domestic metal prices under international conditions of differential inflation rates and unstable currency exchange rates - *J.S.A.I.M.M.*, September 1978. (Vol. 6...14)
41. Lognormal-de Wijsian Geostatistics for Ore Evaluation - *S.A.I.M.M Monograph No. 1*, 1978, 2nd edition, 1981. (Separate)
42. An analysis of the potential benefits to the State of realistic adjustments to the mining tax structure, *J.S.A.I.M.M.*, July 1979. (Vol. 4...19)
43. Some novel features and implications of a general risk analysis model for new mining ventures - *S.A.I.M.M Colloquium*, 4 May 1979; *J.S.A.I.M.M.*, October 1979. (Vol. 4...23)
44. Fiskale beleid vir die mynbou-bedryf - *AHI Kongres*, Mei, 1981. (Vol. 4...24)
45. Threshold rates of return on new mining projects as indicated by market investment results (jointly with J. Austin) - *S.A.I.M.M Colloquium*, 30 May 1980 - *J.S.A.I.M.M.*, October 1980. (Vol. 6...4)
46. Some theoretical and practical aspects of geostatistics as practised in S. Africa - *Geostatistics Conference*, UNISA, Aug, 1981. (Vol. 6...6)
47. Studies of the effects of outliers and data transformation on variogram estimates for a base metal and gold ore body (jointly with E.J. Magri) - *Mathematical Geology*, Vol. 14, No. 6, 1982, pp. 557/563. (Vol. 6...7)
48. Geostatistical case studies of the advantages of lognormal-de Wijsian kriging with mean for a base metal mine and a gold mine (jointly with E.J. Magri) - *Mathematical Geology*, Vol. 14, No. 6, 1982. pp. 547/555. (Vol.6...8)
49. Gold mine productivity as affected by the average wet bulb temperature of the underground working places (jointly with C. P. Barnard) - *J.S.A.I.M.M.*, May 1981, pp. 117/121. (Vol. 6...9)
50. A statistical analysis of the percentage of 'payable' ore stoped from payable ore reserves - *J.I.M.S.S.A.*, March 1981, Vol. XXI, No. 1, pp. 129/135. (Vol. 6...10)
51. Geostatistics and the definition of uncertainty - (Sir Julius Wernher Memorial Lecture, I.M.M 26. 3.1984) - *Trans. Instn. Min. Metall.* (Sect. A), Vol. 93, 1984, pp. A41/47. (Vol. 6...11)
52. The use of geostatistics in defining and reducing the uncertainty of grade estimates - *Trans. Geol. Soc. S. Afr.*, 88 (1985), pp. 69/72. (Vol. 6...12)
53. Gold distribution patterns and grade valuation problems for deep mines - Proc. Int. Conf. on Gold, Johannesburg, *S.A.I.M.M.*, 1986. Vol. 1, pp. 3/14. (Vol. 6...13)
54. Factors affecting the long-term prospects of South Africa's gold production - *Long-term Prospects for Gold Mining*, Queen's Univ., Kingston, Canada. Proceedings No. 20 of Seminar, 1987. (Vol. 6...14)
55. Letter on 'Matheronian Geostatistics' - 1986. (Vol. 6...15)
56. Capital Investment in New Mining Projects-*Taipei*, 198. (Vol. 6...11a)

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57. Taxation Implications of Capital Expenditure in Mining - *Capex in Mining Conference*, Johannesburg - 20/3/1986. (Vol. 7...1)
58. Elementary geostatistical models applied in forecasting South Africa's long-term gold production - *Jackling lecture, SME of AIME*, February, 1987 - *Mining Engineering*, June 1987. (Vol. 7...2)
59. Estimating grade differentials from drilling results on new gold properties. *20th APCOM Symposium*, Johannesburg, S.A.I.M.M., October 1987. (Vol. 7...3)
60. A review of the development of geostatistics in South Africa - CSIR Colloquium, 24.9.1987. (Vol. 7...4)
61. Early South African geostatistical techniques in today's perspective. (Jointly with Guarascio and Camasani-Calzolari). *3rd International Geostatistical Congress*, Avignon, France, Sept, 1988. (Vol. 7...5)
62. A-priori parameter distribution patterns for gold grade in the Witwatersrand basin to be applied in borehole evaluations of potential new mines using Bayesian Geostatistical techniques. *22nd APCOM*, 1990, Berlin, pp. 715-726, - jointly with Kleingeld and Oosterveld. (Vol. 7...6)
63. Modelling of the underground patterns of gold concentrations in Witwatersrand reefs from surface borehole evidence. *First Geotechnica Congress*, Cologne, Sept.1991, Geo-Information-Systeme. Vol. 6, No. 3,1993. (Vol. 7...7)
64. New developments in borehole valuations of new gold mines and undeveloped sections of existing mines, (jointly with Assibey-Bonsu). *J.S.A.I.M.M.*, March 1992, Vol. 92, No. 3, pp. 71/77 - 65*. (Vol. 7...8)
65. Kriged variances fatally flawed – Sept. 1992, *The Northern Miner Magazine*
66. The relative rating of macro kriging and other techniques as applied to borehole valuations of new gold mines, (jointly with Assibey-Bonsu). *Proceedings 23rd APCOM*, Tucson, 1992, chapter 23 - 66. (Vol. 7...9)
67. Variability in gold grade and spatial structures of Witwatersrand reefs; the implications for geostatistical ore valuations. *J.S.A.I.M.M.*, March 1993, pp. 79/84. (Vol. 7...10)
68. The role of massive grade databases in geostatistical applications in South African gold mines, (jointly with C.E. Dohm). *Geostatistics for the Next Century*, (in honour of M.David). Kluwer Academic Publishers, Montreal, 1994. (Vol. 7...11)
69. An analysis of some essential basic tenets of geostatistics not always practised in ore valuations. Keynote address, *First Regional APCOM*, Slovenia, June, 1994. (Vol. 7...12)
70. A basic perspective on the roles of classical statistics, data search routines, conditional biases and information and smoothing effects in ore block valuations. *International Conference on Mining Geostatistics*, Kruger National Park, Sept. 1994. Unisa Publishers, 1996. (Vol. 7...13)
71. Some practical aspects of ore reserve estimation at Chuquicamata Copper Mine, Chile, (jointly with P.G. Dunn). 25th APCOM, Brisbane, Australia, July 1995. (Vol. 7...14)
72. *SAIMM Centenary republication of first paper (1951)*. (Vol. 7...15)
73. A practical analysis of the effects of spatial structure and data available and used, on conditional biases in ordinary kriging - *5th International Geostatistics Congress*, Wollongong, Australia, 1996. (Vol. 7...16)
74. Block Kriging and the fallacy of endeavouring to reduce or eliminate smoothing. Keynote address, *2nd Regional APCOM Symposium*, Moscow State Mining University, August 1997. (Vol. 11...2)
75. Essential basic concepts in mining geostatistics and their links with geology and classical statistics. Geo-Congress 1998, Pretoria, South Africa, July 1998. *South African Journal of the Geological Society of South Africa*, Vol. 102 (2) 1999. pp 147–151. (Vol. 11...3)
76. Essential basic concepts and models in mining geostatistics and their geological context *Capricious Earth: Models and modelling of geological processes and objects*; Theophrastus Publications, St. Petersburg - Athens, Russia, 2000. (Vol. 11...4)
77. The use of the Principal Components technique to define anisotropy details for spatial structures. *APCOM '99 International Symposium*, Colorado School of Mines, Golden, October 1999. (Vol. 11...5)
78. Conditional Bias and Uncertainty of Estimation in Geostatistics. Keynote address for *APCOM'99 International Symposium*, Colorado School of Mines, Golden, October 1999. (Vol. 11...6)
79. Use of Direct and Indirect Distributions of Selective Mining Units for Estimation of Recoverable Resource/Reserves for New Mining Projects, (Co-author with W. Assibey-Bonsu). *APCOM'99 International Symposium*, Colorado School of Mines, Golden, October 1999. (Vol. 11...7)
80. Practical Problems in the estimation of recoverable reserves when using Kriging or Simulation Techniques (Jointly with co-author W.Assibey-Bonsu). *International Symposium on Geostatistical Simulation in Mining*, Perth Australia, October 1999. (Vol. 11...8)
81. The South African Code for reporting of mineral resources and mineral reserves and the geostatistical implications involved (as co-author with Camasani): *6th International Geostatistics Congress*, April, 2000, South Africa (Vol. 11...9)
82. Limitations in accepting repeated simulations to measure the uncertainties in recoverable resource estimates particularly for sections of an ore deposit (jointly with Assibey-Bonsu). *6th International Geostatistics Congress*, April 2000, South Africa. (Vol. 11...10)
83. Half a century of geostatistics from a South African perspective. Keynote address, *6th International Geostatistics Congress*, April 2000, South Africa. (Vol. 11...11)
84. The SAMREC code seen in a global context, jointly with Camasani *APCOM 2001*, Beijing, China, April, 2001. (Vol. 11...12)
85. Valuation of recoverable resources by kriging, direct conditioning or simulation, *APCOM 2001*, Beijing. April, 2001. (Vol. 11...13)
86. Comment on Journel's paper in *Mathematical Geology*, 2000, re a Spectral Postprocessor. (Vol. 11...14)
87. A classical statistical perspective on the birth and some critical developments of mining geostatistics. *UNISA conference in honour of Prof.F.Steffens*, May, 2002. (Vol. 13...1)
88. The genesis of geostatistics and some aspects of the valuation of diamond deposits (jointly with W.Kleingeld). *Fontainebleau publication*, 2002. (Vol. 13...2)
89. Mineral resource and reserve estimation. *AUSIMM Monograph No.23*. Critique February 2002. (Vol. 13...3)
90. An analysis of the practical and economic implications of systematic underground drilling in deep South African gold mines, Co-author with Assibey-Bonsu W. *31st International Symposium on Computer Applications in the Mineral Industry*, Cape Town. Proceedings SAIMM, 2003, May 2003
91. Some practical aspects of the use of lognormal models for confidence limits and block distributions in South African gold mines. *31st International Symposium on Computer Applications in the Mineral Industry*, Cape Town. Proceedings SAIMM, 2003, May 2003.

NOTES:

- I. Certificates of merit were awarded by the S.A.I.M.M. for papers 2, 6,8, 9 and 13.
- II. The gold medal of the S.A.I.M.M. was awarded in 1966 for No. 18 and for earlier research work, silver medals for No. 40 in 1979 and No. 63 in 1993, and a second gold medal in 1980 for No. 64.
- III. The Daniel Cowan Jackling award was received from the SME of the AIME for No.58 and other contributions.

ARTICLES AND CONTRIBUTIONS NOT INCLUDED IN THE ABOVE LIST

Awards:

| | |
|-----------------------------|----------------------------------|
| SAIMM gold medal: Dec. 1966 | Vol. 2, no. 9, Vol. 8 no. 3 |
| BSc, graduation, 1939 | Vol. 5, no. 7 |
| MSc. Graduation, 1951 | Vol. 5, no. 12 |
| DSc, graduation, 1963 | Vol. 5, no. 14/15, vol. 8, no. 1 |
| APCOM | Vol. 8 no. 2 |
| SME of AIME | Vol. 8 no.2, vol. 9, no. 2 |
| D.Eng. (HC), Pretoria 1981 | Vol. 8, no. 5 |
| S.A. Akademie 1982 | Vol. 8, no. 4 |
| State President 1982 | Vol. 9, no. 3,5 |
| DSc. (HC) UNISA 1996 | Vol. 9, no. 6 |
| DSc. (HC) Moscow State 1996 | Vol. 12, No. 1, 7th article |
| Other | Vol. 9, no. 4, Vol. 12, no. 1 |

CONTRIBUTIONS TO DISCUSSIONS ON OTHER PAPERS:

| | |
|--------------------------------------|-----------------|
| Fleming D.R. On pay limits, 3/1968 | Vol. 2, no. 12 |
| McGillivray R.B. On computer mapping | Vol. 12, no. 16 |
| Cook, N.G. On rock cutting | Vol. 2, no. 17 |

ARTICLES AND PRESS CUTTINGS:

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| Mathematical Statistical Techniques | 3/1969, Vol. 3, no. 6 |
| Trend Surface Analysis | 4/1969, Vol. 3 no. 7 |
| Evaluating Mining Ventures | 7/1970, Vol. 3, no. 8 |
| Diverse | Vol. 4, nos. 3, 5/8, 10, 24 |
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ECONOMIC TOPICS:

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| Book review: Frankel, H.S. – S.A. Gold Mining Industry -- | Vol. 2, No. 11 |
| Mining Taxation | Vol. 4, Nos. 1/2, 11/13, 15, 20/21 Vol. 6, no. 5 |
| Risk Analysis | Vol. 4, no. 23 |
| General | Vol. 5, no. 17, 24/25, 45/46 |

BOOK REVIEWS:

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| David M, 4/1978 | Vol. 4, no. 22 |
| McKenzie B.W. on mineral exploration, 1982 | Vol. 6, no. 2c |
| Diverse | Vol. 10, no. 2 |