CURRICULUM VITAE

ALFRED ALLAN DUKER

# 1. BIODATA

NAME**:** Alfred Allan DUKER

BIRTH: 17TH July, 1953

# 2. CONTACT INFORMATION

ADDRESS**:** Geomatic Engineering Department KNUST, Kumasi.

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**EDUCATION**

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| Ph.D | GIS and Health ITC/University of Wageningen : Enschede, The Netherlands | July, 2005 |
| DESS. Remote Sensing | GDTA/Paris VI, Paris, France | Sept., 1990 |
| Msc. Cartography | ITC, Enschede, The Netherlands | Aug., 1984 |
| Bsc. Geodetic Engineering | University of Science and  Technology, Kumasi, Ghana | Aug., 1979 |
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# 3. UNIVERSITY TEACHING

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| October 2006 – to Date | **Associate Professor**  **Geomatic Eng. Dept., KNUST, Kumasi**  Lectures in cartography GE 151/152;  Remote sensing to Postgraduate students in Geomatic Eng (i.e., GE 563) |
| October 1996 – October 2006 | **Senior Lecturer,**  **Geomatic Eng. Dept., KNUST, Kumasi**   1. Lectures in Cartography GE 151/152 andRemote Sensing, GE 262/361 (for second- and Third-year students.   respectively).   1. Lecturing in GIS and remote sensing to   Postgraduate students in Dept of Geomatic Engineering and Geography. |
| October 1984 - 1996 | **Lecturer**, **Geodetic Eng. Dept., KNUST, Kumasi**   1. Lecturing in Cartography,   Remote Sensing; Photo-Interpretation;  Principles of Surveying,  Photogrammetry, Applied Optics. |
| September 1980 - February 1982 | **National Service Geodetic Eng. Dept., UST, Kumasi**  Assisting with practical surveying task given to students. |

# 4. SUPERVISION OF STUDENT THESIS:

Completed (PhD) Thesis

1. Mahmoud I. Mahmoud (2016) “Integrating geo-information and socio-economic data of Abuja for assessing urban land-use vulnerability to climate change.
2. Mary Amoah (2015): Spatial Analysis of Integrated Soil Fertility Management Options in some selected Communities in the Northern Region of Ghana, (KNUST, Kumasi)
3. Saviour Mantey (2014) “Identification of Buruli Ulcer Hot Spots for Focused Intervention using a GIS and Remote Sensing Approach: The case of three Mining Communities in Ghana” (UmaT, Tarkwa)
4. Yakubu (2013): Multi-Spatial Criteria Modelling and Evaluation of fire Risk and Hazard in the West Gonja of Ghana, (UmaT, Tarkwa)
5. Bernard Kumi-Boateng (2012) “A Spatio-temporal-based Estimation of Landuse/cover change and Sequestered Carbon in the Tarkwa Mining Area of Ghana”.(UMaT, Tarkwa).
6. Frank Badu Osei (2010) “Spatial statistics of epidemic data: the case of Cholera epidemiology in Ghana.(KNUST/ITC).
7. Rev. John Ayer (2017) “Kriging the Geoid within three districts of the Ashanti Region, Ghana” (KNUST).
8. Peter Ekow Baffoe (2014) “Evaluation, modelling and prediction of noise pollution and its impacts in a mining community: A case study”.
9. Senkyire Kwarteng E. V. (2017). Geospatial modelling of the distribution of lymphatic filariasis in Ghana.

Ongoing PhD Thesis

1. Franz T. Okyere (2014) “Investigating the use of Open Source Web GIS software tools for the development of a geoportal: Creating a web platform for accessing an integrated survey and mapping data.
2. Edward A. A. Kwesi (2014) “Application of geospatial information technology in addressing solid waste management problems in Ghana.A case study in the Tarkwa – Nsuaem Municipality”.

Completed (Msc.) Thesis

1. Beatrice A. Barnieh (2015) “Modelling carbon stock of trees in Goaso forest district under REDD+ mechanisms”.
2. Stephen D. Bannerman (2015) “Landuse cover change and environmental implications of quarrying on Buoho township and surrounding communities: A remote sensing approach”.
3. Barima A. Bonsu (2014) “Spatial multi criteria based landfill site selection for disposal of petroleum waste in the Shama Ahanta area of Ghana”.
4. Isaac K. Nooni (2012) “Landcover mapping using support vector machine with Landsat ETM+ data”.
5. Laari P. Basommi (2012) “Spatial analysis of malaria epidemiology in the Amansie West District”
6. Isaac K. Nooni (2012) “Land Cover Mapping using Support Vector Machine with LANDSAT ETM+ Data (ITC/KNUST).
7. Ebenezer Bonyah (2010) “Analysis of Buruli ulcer prevalence in the Amansie West District” (KNUST, Kumasi, Ghana).
8. Eunice Enjoh Fombad (2009) The loss of forest Resources and societal adaptive strategies in the southern part of Ashanti Mampong district in Ghana.
9. Edward K. Ackom (2009) “Flood modeling simulation using hydrodynamic model and GIS”. (University of Applied Sciences, Stuttgart, Germany).
10. Albert A. Tontoh (2009) “Assessing urban sprawl of the Kumasi City using GIS and Remote sensing”.(KNUST, Kumasi, Ghana).
11. Bernard Kumi-Boateng (2007) “Assessing the spatial distribution of arsenic concentration from goldmine for environmental management at Obuasi, Ghana” (ITC/KNUST).

# MEMBERSHIP OF PROFESSIONAL BODIES AND OTHER TRAINING

Professional Bodies

1. Member, Ghana Institution of Surveyors (REG. No…418)
2. Member, Society of Environmental Geochemistry and Health (US. No. 10653)

External Examination

1. Appointment as an external examiner (Msc.Theses): Kwazulu-Natal, Faculty of science and Agriculture, Department of Geography, Pietermaritzburg (**2008, 2009**).
2. University of Applied Sciences (Msc.), Stuttgart, Germany (**2009**).
3. Appointment as external examiner (PhD Theses): Kwazulu-Natal, Faculty of science and Agriculture, (School of Environmental Sciences), Pietermaritzburg (**2009, 2010, 2011, 2012, 2014, 2016**).

Short Institutional Training Courses/Workshop

1. International workshop on remote sensing and GIS, Accra, Ghana: 30th Oct. – 3rd Nov. 1995.
2. International workshop on Continuing Engineering Education, Kumasi, Ghana: 14th Nov – 18th Nov. 1994.
3. Land Survey workshop, Accra, Ghana: 25th Aug. - 26th Aug. 1994.
4. Workshop on remote sensing and GIS, Kumasi, Ghana: 11th July – 8th Aug. 1994.
5. International workshop on remote sensing, Trieste, Italy: 27th Feb. – 21st Mar. 1989.
6. International workshop on remote sensing, Trieste, Italy: 9th Feb. – 6th Mar. 1987.

# 6. RESEARCH AREAS

2000 – Present: Working with remote sensing, geochemical and health data, using spatial analysis in search of solutions regarding environmental implications on human health. Research focuses on the use of geographical information systems (GIS) in the analysis of (geographical) variations in disease or microbial infections.

Studies were focused on the pathways of Mycobacterium ulcerans (MU), arsenic geochemistry and health effects, as well as the association between environmental arsenic and its possible implications in (MU) infections. This is made possible by analyzing the spatial relations between arsenic (in soil and water) and MU infections as well as Cholera in the environments. Current interest includes analysis in environmental health using GIS.

1984 – 2000: Cost effective mapping using remote sensing imagery.

# 7. CONFERENCES/COLLOQUIUM/WORKSHOPS

1. Kumi-Boateng, B., Mireku-Gyimah, D., Duker, A. A. 2012. A spatio-Temporal based estimation of sequestered carbon in the Tarkwa Mining Area of Ghana. Proceedings of theUmatBienniel International Mining and Mineral Conference, (Innovations in Mining and Mineral Processing: Expanding the frontiers of mining Technology), 1-4th August, 2012 Tarkwa, Ghana.
2. Boafo, N., Addae, S. O., Osei, F. B., Duker, A. A. 2008. Analysis of Buruli ulcer prevalence in the Amansie West District: a geostatistical approach. Proceedings of the 7th AARSE International Conference on Earth Observation and Geoinformation for Governance in Africa, Accra, 27- 30 October, 2008, p. 221 (abstract).
3. Osei, F. B. and Duker, A. A. 2008. Spatial and demographic patterns of cholera in Ashanti Region, Ghana. Proceedings of the 7th AARSE International Conference on Earth Observation and Geoinformation for Governance in Africa, Accra, 27- 30 October, 2008, p. 215 (abstract).
4. Kumi-Boateng, B., Duker, A. A. 2008. Assessing the spatial distribution of arsenic from goldmine for environmental management at Obuasi.3rd International Symposium on Environment, May 22-25, 2008, Athens, Greece.
5. Badu, F. and Duker, A. A. Was proximity to dumpsites and public toilets a contributory factor to increased cases of cholera during the recent (2005) outbreak in Kumasi, Ghana? Suppl. Proc. Ist International Conference on Environmental Research Technology and Policy (ERTEP) in Ghana, 16-19 July, 2007, p. 11.
6. Duker, A. A. 2005. Spatial analysis of factors implicated in Mycobacteriunulcerans infection in Ghana. Proc. of intl. Colloquium on Improving Case Management and Control of Tuberculosis and Buruli ulcer in Africa.Cotonou, 5-7 December, 2005.p. 143.
7. Duker, A. A., Carranza, E. J. M., Hale, M. 2005. Spatial relationship between arsenic in drinking water sources and Mycobacterium ulcerans infection in the Amansie West District, Ghana.Proc.Intl. Conference on Environmental Mineralogy, Geochemistry and Human Health, Bath Spa University, UK. 6-7, January 2005, p. 23.
8. Duker, A. A. 2004. Modelling the pattern of Buruli ulcer in a Ghanaian environment.Biometric Society (Nederlands) workshop, 19th November, La Vie Utrecht, The Netherlands. Biometric Bulletin (International Biometric Society) vol. 21, No. 4, Oct- Dec. 2004, p. 16.
9. Duker, A. A., Hale, M. 2000. Geochemical mediation of Mycobacterium ulcerans infection in Ghana. Proc. 5th Intl. Conference on Arsenic Exposure and Health Effects, San Diego, California, July 14-18, 2002, p. 153 (Abstract).
10. Duker, A. A. 1995. Revision of 1:50000 Topographic sheet using satellite imagery. International workshop on Remote sensing and GIS, Accra, 30th Oct.- 3rd Nov.
11. Duker, A. A. 1994. The use of SPOT imagery for classical line mapping. Paper presented at Surveyors Day, Accra, August 25-26.

# 8. PUBLICATIONS

Journal Publication

1. Duker, A. A. and Senkyire Kwarteng, E. V. 2021. Lymphatic filariasis: a snap shot of a neglected tropical disease. International Journal of Community Medicine and Public Health, July; 8(7), 1-7.
2. Senkyire-Kwarteng, E. V., Andam-Akorful, S. A., Kwarteng, A., Da-Costa Boakye, A., Quaye-Ballard, J. A., Badu, Osei, F., Duker, A. A. 2021. Spatial variation in lymphatic filariasis risk factors of hotspot zones in Ghana. BMC Public Health, (2021) 21: 30
3. Baffoe, P. E. and Duker, A. A. 2018. Multiple linear regression approach to predicting noise pollution levels and their spatial patterns for the Tarkwa mining community of Ghana. American Journal of Engineering Research, 7 (7), 104-112.
4. Baffoe, P. E. and Duker, A. A. 2018. Performance evaluation of some noise predicting modeling approaches: Multiplr linear regressions and a hybrid approach. American Journal of Engineering Research, 7 (7), 95-103.
5. Duker, A. A., Ndur, S., Osei, E. M. Jnr., Acheampong, I. A., Apedo, G. A. 2018. Drinking arsenic water may contribute to *Mycobacterium ulcerans* infection. Achives of Epidemiology, 2018 (2), pages.
6. Bannerman, S. D., Osei, E. M. Jnr., Duker, A. A., Yevugah, L. 2018. Environmental noise implications of quarrying at Buoho township and surrounding communities in Ghana. International Journal of Research in Environmental science, 4 (3), 1-12.
7. Duker, A. A., Mantey, S. 2017. Environmental Hypothesis: Arsenic can be a contributory factor in MU infection. International Journal of Environmental Science, ISSN: 2367-8941, vol. 2 pp 145-165.
8. Antwi, M., Duker, A. A., Fosu, M., Abaidoo, R. C. 2017. Simulation of major soil nutrients requirements for maize production using the QUEFTS model in the Northern Region of Ghana. Direct Research Journal of Agricultural Food Science, 5 (3), 133-140.
9. Antwi, M., **Duker**, A. A., Fosu, M., Abaidoo, R. C. 2016. Geospatial Approach to the study of spatial distribution of major soil nutrients in the Northern Region of Ghana. Cogent Geoscience, 2, 1201906.
10. Mahmoud, I. M., **Duker**, A., Conrad, C., Thiel, M., Halibu, S. A. 2016. Analysis of settlement expansion and urban growth modeling using geoinformation for assessing potential impacts of urbanization on climate in Abuja city, Nigeria. Remote sensing, 8(3), 220.
11. Badu O. F. and **Duker**, A. A. 2015. Analysis of Buruli ulcer prevalence in the Amansie West District: A geostatistical approach. Austin Biometrics and Biostatistics 2 (1): 1-5.
12. Yakubu, I., Mireku-Gyimah, D., **Duker**. A. A. 2015. Review of methods for modelling forest fire risk and hazard. African Journal of Environmental Science and Technology, 9 (3): 155-165.
13. Kwang, C., Osei, E. M.jnr., **Duker**, A, A. 2014. Application of remote sensing and geographic information systems for gold potential mapping in Birim North District of Eastern Region of Ghana. International Journal of Remote sensing Applications 4(1): 48-55.
14. Mantey, S., Amankwah, R. K., Gawu, S. K. Y., **Duker**, A. A. 2014. Spatial dependency of Buruli ulcer disease on geological settings in Ghana. International Journal of Science and Research 3(9): 1714-1724..
15. Nooni, I. K., **Duker**, A. A., van Duren, I., Addae-Wireko, L., Osei, E. M. 2014. Support vector machine to map oil palm in heterogeneous environment. International Journal of Remote Sensing, 35 (13): 4778-4794.
16. Mantey, S., Amankwah, R. K., **Duker**, A. A. 2013. Spatial Dependency of Buruli Ulcer on potential surface runoff and potential maximum soil water retention. International Journal of Research in Medical and Health Sciences, 3(5): 1-15.
17. Yakubu, I., Mireku-Gyima, D., **Duker**, A. A. 2013. Multi-criteria modelling of fire risk and hazard in the West Gonja area of Ghana. Research Journal of Environmental and Earth Sciences, 5(5): 267-277.
18. Prosper, B. L. and **Duker**, A. A. 2012. Spatio-Temporal and statistical analysis of Malaria in the Amansie West District of Ghana. International Journal of Engineering Research and Technology, 1 (6): 1-14.
19. Badu, F., **Duker**, A. A., Stein, A. 2012. Bayesian structured additive regression modelling of epidemic data: Application to cholera. BMC Medical Research Methodology 12:118-119.
20. Amoah, A. S., Osei, E. M., **Duker**, A. A., Osei, K. N. 2012. Modeling land use change for Ejisu-Juabeng district of Ghana. Journal of Geomatics, 6 (10): 7-10.
21. **Duker**, A. A. 2012. The Traditional Healer Resurfaces (Editorial). Mycobacterial Diseases 2012, 2-3 (2: e113).
22. **Duker**, A. A. 2011. Mycobacterial diseases (Editorial).Mycobacterial Diseases, 2011, 1: 1
23. Kumi-Boateng, B., Mireku-Gyimah, D., **Duker**, A. A. 2012. A Spatio-Temporal Based Estimation of Vegetation Changes in the Tarkwa Mining Area of Ghana.Journal of Environmental and earth Sciences, 4(3): 215-229.
24. Kemausuor, F., Obeng, G. Y., Brew-Hammond, A., **Duker**, A. A. 2011, “A review of trends, policies and plans for increasing energy access in Ghana”, Renewable and Sustainable Energy Reviews, 15 (9): 5143-5154.
25. Badu, F., **Duker**, A. A.,Stein, A. 2010. Hierachical Bayesian modeling of the space-time diffusion patterns of cholera epidemic in Kumasi, Ghana. Statistical Neerlandica65 (1): 84-100.
26. Badu, F., **Duker**, A. A.Ellen-Wien Augustijn, Stein, A. 2010. Spatial dependency of cholera prevalence on potential cholera reservoirs in an urban area, Kumasi-Ghana.International Journal of Applied Earth Observation and Geo-information.12: 5, 331-339.
27. Badu, F., **Duker**, A. A. 2008. Spatial dependency of v. Cholera prevalence on open space refuse dumps in Kumasi, Ghana: a spatial statistical modeling. International Journal of HealthGeographics, 2008, 7: 62.
28. Badu, F., **Duker**, A. A. 2008. Spatial and demographic patterns of cholera in Ashanti-Ghana.International Journal of Health Geographics 7: 44.
29. **Duker**, A. A., Stein, A., Hale, M. 2006. A statistical model for spatial patterns of Buruli ulcer in the Amansie West District, Ghana.International Journal of Applied Earth Observation and Geoinformation 8 (2): 126-136.
30. **Duker**, A. A., Portaels, F., Hale, M. 2006. Pathways of Mycobacterium ulcerans infection.A review.Environment International 32 (4): 567-573.
31. **Duker**, A. A., Carranza, E. J. M., Hale, M. 2005. Spatial relationship between arsenic in drinking water and Mycobacterium ulcerans infection in the Amansie West District.Mineralogical Magazine, 69, 707-717.
32. **Duker**, A. A., Carranza, E. J. M., Hale, M. 2005. Arsenic geochemistry and health.Environment International 31, 631-641.
33. **Duker**, A. A., Carranza, E. J. M., Hale, M. 2004. Spatial dependency of Buruli ulcer prevalence on arsenic-enriched domains in the Amansie West District, Ghana: implications for arsenic mediation in Mycobacterium ulcerans infection. International Journal of Health Geographics, 3, 19.
34. **Duker**, A. A.and Okrah, E. A. 1997. Revision of 1: 50,000 topographic sheet using satellite imagery (preliminary studies). Journal of the University of Science and Technology, 17(1,2): 109-114.
35. **Duker**, A. A. 1995. SPOT data: A tool for supplementing mapping efforts in the developing world. Journal of the University of Science and Technology, 15, (1): 27-31.
36. **Duker**, A. A. 1994. Cartographie à partir de l’image SPOT. Le Griot, 2 (1): 26.

Articles in Edited Book Publications

1. Badu, F., **Duker**, A. A., Stein, A. 2012. Cholera and spatial epidemiology, In: Thatha S. J. and Gowder, R. editors. Cholera. Tech, 2012. ISBN: 978-953-51-0415-5, pp 1- 18.
2. Badu, F., **Duker**, A. A., Stein, A. 2012. Evaluating spatial and space-time clustering of cholera in Ashanti Region of Ghana. In: Thatha S. J. and Gowder, R. editors. Cholera. Tech, 2012. ISBN: 978-953-51-0415-5, pp 19-32.
3. **Duker**, A. A. 2009. Environmental impact and health risk of gold mining in Ghana. In: Corral, M. D., Earle, J. L. editors. Gold mining: Formation and resource estimation, economics and environmental impact. New York: Nova Science Publishers Inc.; 2009, chapter 6, pp. 137-144.
4. Kumi-Boateng, B., Kooiman, A., **Duker**, A. A. 2008. Assessing the spatial distribution of arsenic concentration from goldmine for environmental management at Obuasi, Ghana. In: Theobald, editor. Environmental Management.New York: Nova Science Publishers Inc.; 2008, chapter 11, pp. 255-276.
5. **Duker**, A. A. and Hale, M. 2006.Spatial relation between artisanal mining and Mycobacterium ulcerans infection in the Amansie West District, Ghana. In: Gore RW, editor. Environmental Research at the Leading Edge.New York: Nova Science Publishers Inc.; 2006, chapter 2, pp. 59 – 64.

Book Publication

1. Prosper, B. L., **Duker**, A. A., Osei, B. F. 2012. Spatial analysis of Malaria: Amansie West District, Ghana. LAP Lambert Academic Publishing, ISBN 978-3 659-13639-9, paperback, 88 pages.
2. Quaye-Ballard, J. A. A. and **Duker**, A. A. 2007. An Introductory Cartography for Geomaticians. ISBN-978 9988 1 0413 8, 129pp.

# SERVICE TO THE NATIONAL/INTERNATIONAL COMMUNITY

Journal Reviewer/Editorship

1. British journal of medicine and medical research
2. Computational and mathematical methods in medicine
3. Environmental Nanotechnology, Monitoring and Management
4. Journal of Trace Elements in Medicine and Biology
5. Member of the Advisory Board, Journal of Trace Elements in Medicine and Biology
6. Member of the Editorial Board, Journal of Trace Elements in Medicine and Biology
7. Member of the Editorial Board, Mycobacterial Diseases
8. Journal of Geology
9. Colloids and Surfaces A: Physicochemical and Engineering Aspects.
10. Integrative and Comparative Biology
11. The Science of the Total Environment (STOTEN)
12. International Journal of Health Geographics (IJHG)
13. Statistica Neerlandica (Journal of the Netherlands Society for Statistics and Operational Research.
14. Ecotoxicology and Environmental Safety
15. ISPRS Journal of Photogrammetry and Remote Sensing
16. Journal of Public Health and Epidemiology
17. Journal of the University of Science and Technology (JUST)
18. Journal of Building and Road Research (Ghana)
19. The Ghana Surveyor-Journal of the Ghana Institution of Surveyors

Application Review

1. Review of a Grant application to the Nestle Foundation.
2. Review of a Grant Application to Wellcome Trust, UK
3. Member of the Evaluation Panel that evaluated the consultancy for the development of survey and mapping Policy for Ghana (for the World Bank)

Signed 

(A. A. Duker)