

Frank Badu Osei
Assistant Professor
Department of Earth Observation Science
Digital Society Institute
Faculty of Geo-Information Science and Earth Observation
UT-IITC-ACQUAL



Employment

Assistant Professor

Department of Earth Observation Science
University of Twente
1 Jan 2020 → present

Assistant Professor

Digital Society Institute
University of Twente
1 Jan 2020 → present

Assistant Professor

Faculty of Geo-Information Science and Earth Observation
University of Twente
1 Oct 2018 → present

Assistant Professor

UT-IITC-ACQUAL
1 Oct 2018 → present

Research outputs

A poisson cokriging modeling of mosquito-borne diseases in Colombia

Payares-Garcia, D., Osei, F. B., Mateu, J. & Stein, A., 13 Feb 2025, (E-pub ahead of print/First online) In: Environmental and ecological statistics. 25 p., e03101.

Multivariate Poisson cokriging: A geostatistical model for health count data

Payares-Garcia, D., Osei, F., Mateu, J. & Stein, A., Sept 2024, In: Statistical methods in medical research. 33, 9, p. 1637-1659 23 p.

Flexible scan statistic with a restricted likelihood ratio for optimized COVID-19 surveillance

Akyereko, E., Osei, F. B., Nyarko, K. M. & Stein, A., 31 Jul 2024, In: Geospatial health. 19, 2, 1265.

Urban inundation mapping by coupling 1D – 2D models and model comparison

Li, Y., Badu Osei, F., Hu, T., Shi, Y. & Stein, A., Jun 2024, In: International Journal of Applied Earth Observation and Geoinformation. 130, 10 p., 103869.

Water hyacinths: Use them or lose them? A holistic approach to a multi-faceted problem

Penning de Vries, M. J. M., Dube, T., Münch, F. B., Ncube, M., Anthonj, C., de Senerpont Domis, L., Lens, P., Marambanyika, T., Nondo, N., Osei, F. B., Shoko, C. & van der Wal, D., 8 Mar 2024. 1 p.

Predicting COVID-19 hospitalizations: The importance of healthcare hotlines, test positivity rates and vaccination coverage

van Zoest, V., Lindberg, K., Varotsis, G., Osei, F. B. & Fall, T., Feb 2024, In: Spatial and Spatio-temporal Epidemiology. 48, p. 1-8 100636.

Evolution of spatial disease clusters via a Bayesian space-time variability modelling

Osei, F. B., Nov 2023, In: Spatial and Spatio-temporal Epidemiology. 47, 9 p., 100617.

A Poisson cokriging method for bivariate count data

Payares-Garcia, D., Osei, F. B., Stein, A. & Mateu, J., Oct 2023, In: Spatial statistics. 57, 29 p., 100769.

Geospatial Health (GeoHealth): Current trends, methods, and applications

Osei, F. B. & Sasidharan, S., 17 Jul 2023, In: Tropical Medicine and Infectious Disease. 8, 7, 366.

Bivariate spatial clustering in differential time trends of related tropical diseases: Application to diarrhea and intestinal parasite infections

Osei, F. B. & Stein, A., Apr 2023, In: Spatial statistics. 54, 100731.

Comparison of the association between different ozone indicators and daily respiratory hospitalization in Guangzhou, China

Lin, G., Wang, Z., Zhang, X., Stein, A., Maji, K. J., Cheng, C., Osei, F. B. & Yang, F. F., 30 Jan 2023, In: Frontiers in Public Health. 11, 1060714.

Urban flood susceptibility mapping based on social media data in Chengdu city, China

Li, Y., Osei, F. B., Hu, T. & Stein, A., Jan 2023, In: Sustainable Cities and Society. 88, 11 p., 104307.

Short-term health impacts related to ozone in China before and after implementation of policy measures: A systematic review and meta-analysis

Zhang, X., Yan, B., Zhou, Y., Osei, F. B., Li, Y., Zhao, H., Cheng, C. & Stein, A., 15 Nov 2022, In: Science of the total environment. 847, 12 p., 157588.

Temporal and spatial evolution of short-term exposure to ozone pollution: Its health impacts in China based on a meta-analysis

Zhang, X., Osei, F., Stein, A., Cheng, C. & Maji, K. J., 1 Nov 2022, In: Journal of cleaner production. 373, 133938.

Early ecological security warning of cultivated lands using RF-MLP integration model: A case study on China's main grain-producing areas

Zou, S., Zhang, L., Huang, X., Osei, F. B. & Ou, G., Aug 2022, In: Ecological indicators. 141, 109059.

A zero-inflated mixture spatially varying coefficient modeling of cholera incidences

Osei, F. B., Stein, A. & Andreo, V., Apr 2022, In: Spatial statistics. 48, p. 1-19 19 p., 100635.

Comparison of surface water flow simulation over structured and unstructured grids

Ajithkumar, N. (Corresponding Author), Verma, P. A., Osei, F. B. & Shankar, H., 1 Feb 2022, In: Spatial Information Research. 30, p. 77-86 10 p.

Bayesian geostatistical modelling of stunting in Rwanda: risk factors and spatially explicit residual stunting burden

Uwiringiyimana, V., Osei, F., Amer, S. & Veldkamp, A., 24 Jan 2022, In: BMC public health. 22, 1, p. 1-14 14 p., 159.

Mapping Spatial Variation and Impact of the National MDA Program on Lymphatic Filariasis Elimination in Ghana: An Initial Study

Kwarteng, E. V. S., Osei, F. B., Andam-Akorful, S. A., Kwarteng, A., Asare, D.-C. B. M., Quaye-Ballard, J. A. & Duker, A. A., 2022, In: Frontiers in Tropical Diseases. 3, p. 1-12 811909.

A note on the propagation of positional uncertainty in environmental models

van Zoest, V., van Buul, J., Osei, F. & Stein, A., Dec 2021, In: Transactions in GIS. 25, 6, p. 3119-3131 13 p.

Minimum temperature mapping with spatial copula interpolation

Bostan, P., Stein, A., Alidoost, F. & Osei, F. B., 1 Apr 2021, In: Spatial statistics. 42, 17 p., 100464.

Spatial variation in lymphatic filariasis risk factors of hotspot zones in Ghana

Kwarteng, E. V., Andam-Akorful, S. A., Kwarteng, A., Asare, D.-C. B. M., Quaye-Ballard, J. A., Osei, F. B. & Duker, A. A., 28 Jan 2021, In: BMC public health. 21, 1, p. 1-13 13 p., 230.

Deep convolutional neural networks for surface coal mines determination from sentinel-2 images

Madhuanand, L. (Corresponding Author), Sadavarte, P., Visschedijk, A. J. H., Denier van der Gon, H. A. C., Aben, I. & Osei, F. B., 2021, In: European Journal of Remote Sensing . 54, 1, p. 296-309 14 p.

Modeling schistosomiasis spatial risk dynamics over time in Rwanda using zero-inflated Poisson regression

Nyandwi, E., Osei, F. B., Amer, S. & Veldkamp, A., 6 Nov 2020, In: Scientific reports. 10, 1, p. 1-9 9 p., 19276.

Trends in Spatial Epidemiology: Past, Present, and the Future

Osei, F. B., Nov 2020, Newsletter Arbeitskreis Medizinische Geographie und Geographische Gesundheitsforschung in der Deutschen Gesellschaft für Geographie, 2020, 2, p. 4-5 2 p.

Five insights from the Global Burden of Disease Study 2019

Jia, P., Osei, F. B. & GBD 2019 Viewpoint Collaborators, 17 Oct 2020, In: The Lancet. 396, 10258, p. 1135-1159 25 p.

Global age-sex-specific fertility, mortality, healthy life expectancy (HALE), and population estimates in 204 countries and territories, 1950–2019: a comprehensive demographic analysis for the Global Burden of Disease Study 2019

Jia, P., Osei, F. B. & GBD 2019 Demographics Collaborators, 17 Oct 2020, In: The Lancet. 396, 10258, p. 1160-1203 44 p.

Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019

Osei, F. B. & GBD 2019 Diseases and Injuries Collaborators, 17 Oct 2020, In: The Lancet. 396, 10258, p. 1204-1222 19 p.

Global burden of 87 risk factors in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease study 2019

GBD 2019 Diseases and Injuries Collaborators & Osei, F. B., 17 Oct 2020, In: The Lancet. 396, 10258, p. 1223-1249 27 p.

The global distribution of lymphatic filariasis, 2000–18: a geospatial analysis

Local Burden of Disease 2019 Neglected Tropical Diseases Collaborators, 1 Sept 2020, In: The Lancet Global Health. 8, 9, p. e1186-e1194 9 p.

Mapping geographical inequalities in access to drinking water and sanitation facilities in low-income and middle-income countries, 2000–17

Local Burden of Disease 2019 Neglected Tropical Diseases Collaborators, Sept 2020, In: The Lancet Global Health. 8, 9, p. e1162-e1185 24 p.

Mapping geographical inequalities in oral rehydration therapy coverage in low-income and middle-income countries, 2000–17

Local Burden of Disease 2019 Neglected Tropical Diseases Collaborators, Aug 2020, In: The Lancet Global Health. 8, 8, p. e1038-e1060 23 p.

Department of Error: Mapping geographical inequalities in childhood diarrhoeal morbidity and mortality in low-income and middle-income countries, 2000–17: analysis for the Global Burden of Disease Study 2017 (The Lancet (2020) 395(10239) (1779–1801), (S0140673620301148), (10.1016/S0140-6736(20)30114-8))

Osei, F. B. & Local Burden of Disease Diarrhoea Collaborators, 6 Jun 2020, In: The Lancet. 395, 10239, p. 1762 1 p.

Bayesian analysis of the short-term association of NO₂ exposure with local burden of asthmatic symptoms in children
van Zoest, V., Hoek, G., Osei, F. & Stein, A., Jun 2020, In: Science of the total environment. 720, p. 1-10 10 p., 137544.

Mapping geographical inequalities in childhood diarrhoeal morbidity and mortality in low-income and middle-income countries, 2000–17: analysis for the Global Burden of Disease Study 2017
Local Burden of Disease 2019 Neglected Tropical Diseases Collaborators, 6 May 2020, In: The Lancet. 395, 10239, p. 1779-1801 23 p.

Spatio-temporal regression kriging for modelling urban NO₂ concentrations
van Zoest, V., Osei, F. B., Hoek, G. & Stein, A., 3 May 2020, In: International journal of geographical information science. 34, 5, p. 851-865 15 p.

Modelling the impact of MAUP on environmental drivers for Schistosoma japonicum prevalence
Araujo Navas, A. L., Osei, F., Soares Magalhães, R. J., Leonardo, L. R. & Stein, A., 2 Mar 2020, In: Parasites & vectors. 13, 18 p., 112.

Mapping 123 million neonatal, infant and child deaths between 2000 and 2017
Osei, F. B., 17 Oct 2019, In: Nature. 574 , p. 353-358 6 p.

Bayesian Random Effect Modeling for analyzing spatial clustering of differential time trends of diarrhea incidences
Osei, F. B. & Stein, A., 13 Sept 2019, In: Scientific reports. 9, 12 p., 13217.

Calibration of low-cost NO₂ sensors in an urban air quality network
van Zoest, V. M., Osei, F. B., Stein, A. & Hoek, G., 1 Aug 2019, In: Atmospheric environment. 210, p. 66-75 10 p.

Association between asthma symptoms and NO₂ exposure
van Zoest, V. M., Hoek, G., Osei, F. B. & Stein, A., Aug 2019, p. 409. 1 p.

Rodents and satellites: Predicting mice abundance and distribution with Sentinel-2 data
Andreo, V. C. (Corresponding Author), Belgiu, M., Hoyos, D. B., Osei, F. B., Provencal, C. & Stein, A., 1 May 2019, In: Ecological informatics. 51, p. 157-167 11 p.

Modeling Schistosoma japonicum Infection under Pure Specification Bias: Impact of Environmental Drivers of Infection
Araujo Navas, A. L., Osei, F. B., Leonardo, L. R., Soares Magalhães, R. J. & Stein, A., 2 Jan 2019, In: International journal of environmental research and public health. 16, 2, p. 1-18 18 p., 176.

Poisson-Gamma Mixture Spatially Varying Coefficient Modeling of Small-Area Intestinal Parasites Infection
Osei, F. B., Stein, A. & Oforu, A., Jan 2019, In: International journal of environmental research and public health. 16, 3, 17 p., 339.

Temporal trend and spatial clustering of cholera epidemic in Kumasi-Ghana
Osei, F. B. & Stein, A., 14 Dec 2018, In: Scientific reports. 8, p. 1-11 11 p., 17848.

Poisson-gamma mixture spatially varying coefficient modeling of small-area intestinal parasites infection
Osei, F., Stein, A. & Oforu, A., 15 Nov 2018, Preprints, 22 p.

Spatial and temporal heterogeneities of district-level typhoid morbidities in Ghana: A requisite insight for informed public health response
Osei, F. B., Stein, A. & Nyadanu, S. D., 1 Nov 2018, In: PLoS ONE. 13, 11, p. 1-19 19 p.

Modelling local areas of exposure to Schistosoma japonicum in a limited survey data environment
Araujo Navas, A. L. (Corresponding Author), Soares Magalhães, R. J., Osei, F., Fornillos, R. J. C., Leonardo, L. R. & Stein, A., 13 Aug 2018, In: Parasites & vectors. 11, 1, p. 1-15 15 p., 465.

Diarrhea Morbidities in Small Areas: Accounting for Non-Stationarity in Sociodemographic Impacts using Bayesian Spatially Varying Coefficient Modelling

Osei, F. B. & Stein, A., 1 Dec 2017, In: Scientific reports. 7, 1, 15 p., 9908.

Spatio-temporal analysis of small-area intestinal parasites infections in Ghana

Osei, F. B. & Stein, A., 1 Dec 2017, In: Scientific reports. 7, 1, 11 p., 12217.

Spatial variation and hot-spots of district level diarrhea incidences in Ghana: 2010-2014

Osei, F. B. & Stein, A., 3 Jul 2017, In: BMC public health. 17, 1, 10 p., 617.

Spatio-temporal dynamics of schistosomiasis in Rwanda between 2001 and 2012: Impact of the national neglected tropical disease control programme

Nyandwi, E., Veldkamp, T., Osei, F. B. & Amer, S., 2017, In: Geospatial health. 12, 1, 514.

Disease isopleth mapping using Poisson regression area-to-point kriging and remotely sensed data : poster

Phuong, P. T. N., Osei, F. B., Hamm, N. A. S. & Stein, A., 18 Jul 2016, p. 1-1.

Analysis of Buruli Ulcer prevalence in Amansie West district: a geostatistical approach

Osei, F. B. & Duker, A. A., 2016, In: Austin biometrics and biostatistics. 2, 1, 5 p., 1011.

Spatial bayesian methods of flow forecasting in the Black Volta river

Abdul, I. W., Nokoe, K. S., Osei, F. B. & Antwi, E. O., 2016, In: European journal of scientific research. 137, 1, p. 89-105

Spatial modeling of diabetes cases in Ghana

Oti-Boateng, E., Ngesa, O. & Osei, F. B., 2016, In: International journal of science and research. 5, 8, p. 1404-1409

Geographic patterns of malaria in the Brong Ahafo region of Ghana

Osei, F. B. & Yibile, M. M., 22 Sept 2015, In: Austin journal of public health and epidemiology. 2, 2, 5 p., 1020.

Current statistical methods for spatial epidemiology : a review

Osei, F. B., 2014, In: Austin biometrics and biostatistics. 1, 2, 7 p., 7.

Bayesian structured additive regression modeling of epidemic data: Application to cholera

Osei, F. B., Duker, A. A. & Stein, A., 2012, In: BMC medical research methodology. 12, 11 p., 118.

Cholera and Spatial Epidemiology

Osei, F. B., Duker, A. A. & Stein, A., 2012, *Cholera*. Thatha Gowder, S. J. (ed.). Rijeka: InTech, p. 1-18

Evaluating Spatial and Space-Time Clustering of Cholera in Ashanti-Region-Ghana

Osei, F. B., Duker, A. A. & Stein, A., 2012, *Cholera*. Thatha Gowder, S. J. (ed.). Rijeka: IntechOpen, p. 19-32

Simulation of cholera diffusion to compare transmission mechanisms

Augustijn-Beckers, P., Useya, J., Zurita-Milla, R. & Osei, F. B., 20 Jul 2011, *Proceedings of the 11th international conference on GeoComputation, London, UK, 20-22 July 2011 : e-book*. Cheng, T. & [et al], .. (eds.). London: University College London (UCL), p. 39-42 4 p.

Hierarchical Bayesian modeling of the space-time diffusion patterns of cholera epidemic in Kumasi, Ghana

Osei, F. B., Duker, A. A. & Stein, A., 2011, In: Statistica Neerlandica. 65, 1, p. 84-100

Spatial statistics of epidemic data: the case of cholera epidemiology in Ghana

Osei, F. B., 9 Dec 2010, Enschede: University of Twente, Faculty of Geo-Information Science and Earth Observation (ITC) . 179 p.

Spatial dependency of cholera prevalence on potential cholera reservoirs in an urban area, Kumasi, Ghana

Osei, F. B., Duker, A. A., Augustijn, E.-W. & Stein, A., 2010, In: International Journal of Applied Earth Observation and Geoinformation (JAG). 12, 5, p. 331-339 9 p.

Spatial and demographic patterns of Cholera in Ashanti region - Ghana

Osei, F. B. & Duker, A. A., 2008, In: International journal of health geographics. 7, 10 p., 44.

Spatial dependency of *V. cholera* prevalence on open space refuse dumps in Kumasi, Ghana: A spatial statistical modelling

Osei, F. B. & Duker, A. A., 2008, In: International journal of health geographics. 7, 17 p., 62.

Datasets

Poisson-Gamma Mixture Spatially Varying Coefficient Modeling of Small-Area Intestinal Parasites Infection

Osei, F. B. (Creator) & Stein, A. (Contributor), DATA Archiving and Networked Services (DANS), 23 Oct 2019
DOI: 10.17026/dans-zwr-z99u

Spatial and temporal heterogeneities of district-level typhoid morbidities in Ghana: A requisite insight for informed public health response

Osei, F. B. (Creator) & Stein, A. (Contributor), DATA Archiving and Networked Services (DANS), 22 Sept 2019
DOI: 10.17026/dans-x9z-q233, <https://www.persistent-identifier.nl/urn:nbn:nl:ui:13-sa-6gu7>

Temporal trend and spatial clustering of cholera epidemic in Kumasi-Ghana : Scientific Reports 8, Article number: 17848 (2018)

Osei, F. B. (Creator) & Stein, A. (Contributor), DATA Archiving and Networked Services (DANS), 20 Jun 2019
DOI: 10.17026/dans-xef-9476, <https://www.persistent-identifier.nl/urn:nbn:nl:ui:13-e9-f2a3>

2022	Lorem ipsum dolor sit amet
2021	Lorem ipsum dolor sit amet
2020	Lorem ipsum dolor sit amet
2019	Lorem ipsum dolor sit amet
2018	Lorem ipsum dolor sit amet
2017	Lorem ipsum dolor sit amet