

Measuring population mobility using traditional and novel data sources



Over the course of a decade, WorldPop and our collaborators have explored various forms of data covering a wide range of spatial scales and temporal frequencies, particularly those derived from mobile phones, to measure changes and patterns of human mobility. These data are used for a wide range of applications such as disease control, crisis response, demographics, and development planning.

RESEARCH Open Access

Using Google Location History data to quantify fine-scale human mobility

Nick Warren Ruktanonchai^{1,2*}, Corrine Warren Ruktanonchai^{1,2}, Jessica Rhona Floyd^{1,2} and Andrew J. Tatem^{1,2}

Practical geospatial and sociodemographic predictors of human mobility

Corrine W. Ruktanonchai¹, Shengjie Lai, Chigozie E. Utazi, Alex D. Cunningham, Patrycja Koper, Grant E. Rogers, Nick W. Ruktanonchai, Adam Sadilek, Dorothea Woods, Andrew J. Tatem, Jessica E. Steele & Alessandro Sorichetta

Dynamic population mapping using mobile phone data

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<https://doi.org/10.1037/s1599-019-0242-9> OPEN

Exploring the use of mobile phone data for national migration statistics

Shengjie Lai^{1,2,3}, Elisabeth zu Erbach-Schoenberg^{1,2}, Carla Pezzulo¹, Nick W. Ruktanonchai^{1,2}, Alessandro Sorichetta^{1,2}, Jessica Steele¹, Tracey Li², Claire A. Dooley^{1,2} & Andrew J. Tatem^{1,2}

Identifying Malaria Transmission Foci for Elimination Using Human Mobility Data

Nick W. Ruktanonchai^{1,2*}, Patrick DeLeenheer³, Andrew J. Tatem^{1,2}, Victor A. Alegana^{1,2}, T. Trevor Caughlin¹, Elisabeth zu Erbach-Schoenberg^{1,2}, Christopher Lourenco^{1,2,3}, Corrine W. Ruktanonchai^{1,2}, David L. Smith^{1,2,3,4,5,6,7,8,9}

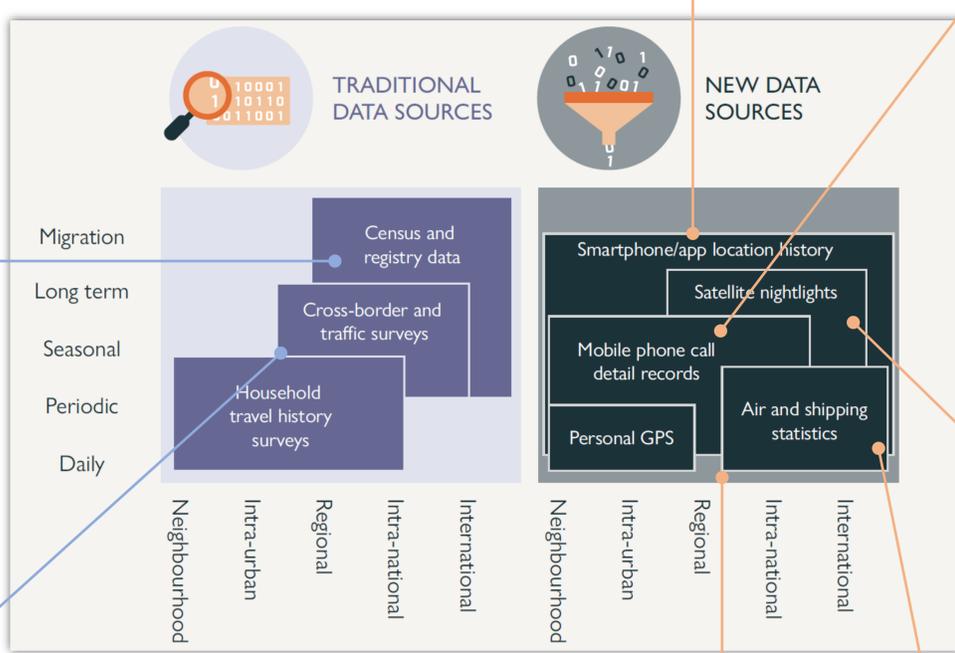
The Use of Census Migration Data to Approximate Human Movement Patterns across Temporal Scales

Amy Wesolowski¹, Caroline O. Buckee^{2,3}, Deepa K. Pindolia^{4,5,6}, Nathan Eagle^{7,8}, David L. Smith^{9,10}, Andres J. Garcia¹¹, Andrew J. Tatem^{12,13}

SCIENTIFIC DATA

OPEN Data Descriptor: Mapping internal connectivity through human migration in malaria endemic countries

Alessandro Sorichetta^{1,2,3}, Tom J. Blom⁴, Nick W. Ruktanonchai^{1,2}, Elisabeth zu Erbach-Schoenberg^{1,2}, Carla Pezzulo¹, Natalia Tajbakhsh^{1,2}, Ian C. Walcott⁵, Jason D. Sadler⁶, Andrew J. Gaughan⁷, Luigi Soldati⁸ & Andrew J. Tatem^{1,2}



Rapid and Near Real-Time Assessments of Population Displacement Using Mobile Phone Data Following Disasters: The 2015 Nepal Earthquake

Robin Wilson¹, Elisabeth zu Erbach-Schoenberg¹, Maximilian Albert², Daniel Power³, Simon Tudge³, Miguel Gonzalez³, Sam Guthrie⁴, Heather Chamberlain¹, Christopher Brooks³, Christopher Hughes⁵, Lenka Pitonakova³, Caroline Buckee⁶, Xin Lu⁷, Erik Wetter⁸, Andrew Tatem¹, Linus Bengtsson⁹

remote sensing MDPI

Exploring the Relationship between Temporal Fluctuations in Satellite Nightlight Imagery and Human Mobility across Africa

Grant Rogers^{1*}, Patrycja Koper¹, Cori Ruktanonchai^{1,2,3}, Nick Ruktanonchai^{1,2}, Edson Utazi¹, Dorothea Woods¹, Alexander Cunningham¹, Andrew J. Tatem¹, Jessica Steele¹, Shengjie Lai^{1,2} and Alessandro Sorichetta^{1,2}

International population movements and regional Plasmodium falciparum malaria elimination strategies

Andrew J. Tatem^{1,2} and David L. Smith³

RESEARCH Open Access

Census-derived migration data as a tool for informing malaria elimination policy

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Plasmodium falciparum malaria importation from Africa to China and its mortality: an analysis of driving factors

Shengjie Lai¹, Nicola A. Wardrop², Zhuojie Huang³, Claudio Bosco⁴, Junling Sun⁵, Tomas Bird⁶, Amy Wesolowski⁷, Sheng Zhou⁸, Qian Zhang⁹, Canjun Zheng¹⁰, Zhongjie Li¹¹, Andrew J. Tatem¹² & Hongjie Yu¹³

OPEN Mapping road network communities for guiding disease surveillance and control strategies

Emmanuel Strain¹, Mathieu F. Viana², Alessandro Sorichetta³ & Andrew J. Tatem^{1,2}

Malaria weighted road network communities

remote sensing MDPI

Exploring the Relationship between Temporal Fluctuations in Satellite Nightlight Imagery and Human Mobility across Africa

Grant Rogers^{1*}, Patrycja Koper¹, Cori Ruktanonchai^{1,2,3}, Nick Ruktanonchai^{1,2}, Edson Utazi¹, Dorothea Woods¹, Alexander Cunningham¹, Andrew J. Tatem¹, Jessica Steele¹, Shengjie Lai^{1,2} and Alessandro Sorichetta^{1,2}

Modeling monthly flows of global air travel passengers: An open-access data resource

Liang Mao^{a,*}, Xiao Wu^b, Zhuojie Huang^{c,d}, Andrew J. Tatem^{e,f,g}

Estimated decrease of passengers from March to April

Estimated increase of passengers from October to November

Seasonal and interannual risks of dengue introduction from South-East Asia into China, 2005-2015

Shengjie Lai^{1,2,3,4}, Michael A. Johansson⁵, Wenzu Yin⁶, Nicola A. Wardrop⁷, Willem G. van Panhuys⁸, Amy Wesolowski⁹, Morteza U. G. Kraemer¹⁰, Isaac I. Bogoch^{11,12}, Dylan Klein¹³, Aidan Findlater¹⁴, Marc Chouhy¹⁵, Zhuojie Huang¹⁶, D. Hu¹⁷, Yiqun Yang¹⁸, Yangni He¹⁹, Qiulan Chen²⁰, Juan Yang²¹, Kamran Khan^{22,23,24}, Andrew J. Tatem²⁵, Hongjie Yu^{26,27}

Inter-annual variation in seasonal dengue epidemics driven by multiple interacting factors in Guangzhou, China

Rachel J. Dobson¹, Shengjie Lai^{2,3}, Zhuojie Huang⁴, Juan Yang⁵, Amir S. Siqueira⁶, Robert C. Bower⁷, Andrew J. Tatem⁸, T. Alex Perkins⁹ & Hongjie Yu¹⁰