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WorldPop

October 2023



Welcome to our new newsletter!

Pictured: Research Fellow Dr Justice Moses Aheto collecting our Geovation International Geospatial Innovation 2023 award.

Making decisions count everyone, everywhere

Welcome to our Autumn 2023 newsletter. Every few months we keep you up to date

with what's happening in our innovative, open, geospatial, demographic research programme.

WorldPop produces estimates of populations with age/sex breakdowns for each 100m x 100m grid square on the planet. These are used as default, open access datasets for NGOs planning humanitarian and development interventions, and help governments fill census gaps.

This month we celebrate our success in the Ordnance Survey's inaugural [Geovation](#) award. We focus on our recent co-development and capacity strengthening work and new [collaborations](#). We update our progress on our [Global 2 project](#), review [new projects](#) and list recent [academic journal articles and datasets](#) produced by our team.



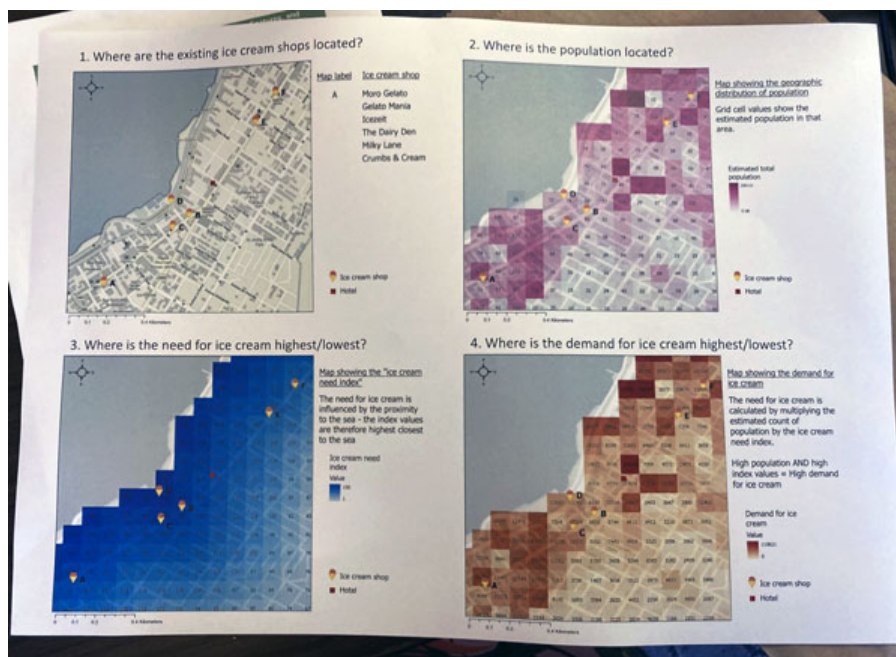
Co-development and Capacity strengthening



Dr Assane Gadiaga working with a Mozambique National Office for Statistics team as they undertake a field validation exercise.

In late April, Research Fellow [Dr Assane Gadiaga](#) travelled to Mozambique to run a 5-day modelled population estimates workshop more than 200 km north of the capital, Maputo. Participants from the Mozambique National Office for Statistics (INE) and representatives from UNICEF country offices gained hands-on experience on how to create gridded population estimates and discussed opportunities for

integrating and improving the use of additional geospatial datasets (e.g., georeferenced households data). Assane also joined an INE team in the field as they undertook a complete enumeration of the household members, and compared them with the predicted population from the top-down model.



Maps used in the DHIS2 workshop ice cream shop mapping activity in Cape Town

In May, [Heather Chamberlain](#) travelled to Cape Town, South Africa for the [DHIS2 Maps Academy](#) workshop, hosted by UNICEF, HISP South Africa and the University of Oslo. Heather supported with workshop facilitation and delivered training on understanding and working with gridded population datasets. This included a popular practical exercise where participants worked in teams to map the locations of local ice cream shops and then used population data and other factors to identify where there was a high- and unmet demand for ice cream.



Tom Abbott and Heather Chamberlain with ZamStats workshop participants

Heather then joined [Tom Abbott](#) in Lusaka, Zambia to facilitate a 5-day workshop with ZamStats, the Zambia Statistics Agency. In this workshop, participants learnt how to use the popRF R package to create gridded population estimates from area level population data. This workshop kick-started ongoing collaborative work with ZamStats to create gridded population estimates from the 2022 Zambian census.



Professor Andy Tatem addresses the opening of the Regional Workshop on Modelled Population Estimates, Panama City

In early June Professor Andy Tatem, [Dr Sarchil Qader](#), [Dr Natalia Tejedor Garavito](#) and [Dr Ortis Yankey](#) ran a 4-day workshop on modelling population estimates to support census preparation in Latin America and the Caribbean at the Institute of Statistics and Census, Panama. As well as census experts from Panama, the event was joined by statisticians from the National Statistics Offices of Costa Rica, Colombia, Brazil, Dominican Republic, and Ecuador. Staff from the Economic Commission for Latin America also attended and the Latin American Population Association participated online.



Dr Ortis Yankey running a population modelling workshop

Three days were spent training in population modelling for census support and one day on preparing necessary input datasets for our preEA Tool package. Step-by-step guides on running the tool independently were included, and participants were familiarised with other tools in the package to help prepare workflows for upcoming censuses. The workshops also provided opportunities to receive feedback from census experts in the region.



The event was widely covered by local media, for example, [ECO TV Panama](#), [La Estrella de Panamá](#) and [Metro Libre](#)

[Read more...](#)



Dr Sarchil Qader discussing methodology for generating economic census statistical units with the DANE team

Following the workshop in Panama, Dr Qader travelled on to Bogota, Colombia to meet colleagues at the Departamento Administrativo Nacional de Estadísticas (DANE). Colombia is planning to conduct an economic census next year and the country's priority is to construct a set of accurate customised statistical units across the country to enable the collection and dissemination of economic census data. [Read more...](#)



Dr Kristine Nilsen with the Ghana team at the Countdown to 2030, Country Annual Meeting.

While one WorldPop team was in Latin America, [Dr Kristine Nilsen](#) joined 150 participants from 22 countries and 6 data analytical centres at the Country Annual

Meeting of [Countdown to 2030](#) in Dakar, Senegal. The meeting reviewed progress and lessons learned from the previous Countdown phase - which included the production of country analytical reports and results posters. Building on this, the meeting planned activities for 2023/24 that will support country and regional capacity to monitor progress towards universal coverage of reproductive, maternal, newborn and child health.



Drs Natalia Tejedor-Garavito and Winfred Dotse-Gborgbortsi with GIS analysis workshop participants at the African Population and Health Research Center

In August Principal Enterprise Fellow Dr Natalia Tejedor Garavito and Research Fellow [Dr Winfred Dotse-Gborgbortsi](#) visited the African Population and Health Research Center in Nairobi, Kenya to present a series of seminars on GIS analysis for our colleagues on the Countdown to 2030 project. Further workshops are planned for this two-year project that will focus on tools and methods that can be used by statisticians and analysts to support health interventions in Ghana.

[Read more...](#)



Natalia Tejedor Garavito working with GIS workshop participants

This month Research Fellows Dr Assane Gadiaga and [Dr Justice Moses Aheto](#) travelled to Saly, Senegal to run a population estimation and modelling workshop at the start of our UNICEF-funded "Reach the Unreached" project. The workshop included presentations on population modelling, vaccination coverage modelling and zero-dose estimates. In addition to running the workshop, Assane and Justice engaged in highly valuable interactions with our partners, particularly the regional office team, country office representatives and other stakeholders.

[Read more...](#)



Assane Gadiaga with Justice Aheto running the UNICEF "Reach the Unreached" workshop, Senegal



Geopalooza 3.0



In April Professor Andy Tatem spoke on *Mixing and matching modelling methods for mapping populations* at the Geopalooza 3.0 symposium, organised by the Bill and Melinda Gates Foundation's Geospatial Insights Support Team. In the recording of the presentation above, Professor Tatem gives an overview of our work, including activities within GRID3 and Countdown to 2030, and collaborations with UNFPA and many in-country partners. He reviews the stages of the census cycle and the work we do to support national statistics offices, ministries of health and others with enumeration, population projections and mapping.

[Read more...](#)

'Geovation' award success



Dr Justice Moses Aheto receives the Ordnance Survey 'Geovation' 2023 award on behalf of the WorldPop team

We were honoured and delighted to receive the Ordnance Survey's inaugural Geovation award for *Resilience, safety, resource quality & protection of life* at a ceremony held at 1 Moorgate Place, London in June. The award was devised by OS's [Geovation](#) team, whose work focuses on supporting startups who use location data to create solutions to global challenges. Around 100 submissions from 26 different countries were evaluated on criteria that included the innovative use of geospatial data and technology, how a project collaborates with its partners, and how open innovation is used to achieve project goals.

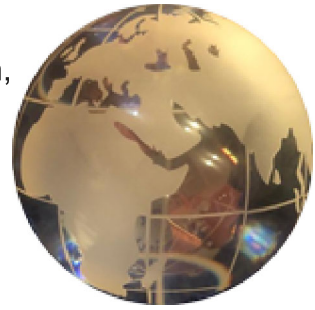
Four awards covering categories which recognised different state-of-the-art uses of geospatial data were awarded at the ceremony. The 'resilience' category rewarded "solutions that help people, communities and countries affected by conflict and natural disasters, and work towards a world where poverty is eradicated, no one goes hungry and everyone has access to clean water and sanitation". WorldPop's entry overcame strong competition in this category from other shortlisted candidates including the National Grid/Arup *Climate Change Risk Tool* project and Cirrolytix Research Services' [AEDES project](#).

Ordnance Survey's Chief Commercial Officer Paul French said "What these awards show so well is just how transformational geospatial data can be. It's so exciting to see the range of innovative ideas and applications being created and shines a light on the people and projects making a real tangible difference to the areas in which they operate".

Global 2 update

Our Global 2 project is making good progress updating our open, gridded population estimates to 2030, incorporating the latest round of census data, and refining methods. We continue to work at pace and expect to release the first tranche of updated country datasets in early 2024.

[Read more](#)



Conferences and workshops



Dr Eimear Cleary with participants at the MOOD Summer School, Split, Croatia

Research Fellow, [Dr Eimear Cleary](#) attended two significant events in the [MOOD H2020](#) calendar this summer to network and develop new skills to support her work on this vital disease surveillance project. In May she joined 50 MOOD summer school participants at the Mediterranean Institute for Life Sciences in Split, Croatia for 6 days of lectures, workshops, hands-on sessions - and an international hackathon - focused on the use of MOOD Epidemic Intelligence tools, coding, modelling, and tool applications.



MOOD Scientific Conference, Helsinki, Finland

This was followed in June by her attendance at the annual MOOD Scientific Conference at the Finnish Institute for Health and Welfare, Helsinki. Eimear joined 90 scientists and policy-makers and took part in discussions around the factors leading to emerging disease outbreaks, and the role of data science in monitoring and response, in a context of global and climate change - driving innovation in the One Health field.

[Read the MOOD blogpost...](#)



Dr Duygu Cihan at the UN-Habitat meeting

Also in June, Research Fellow [Dr Duygu Cihan](#) addressed an expert group meeting at the [United Nations Habitat Assembly](#) (UN-Habitat) in Nairobi, Kenya.

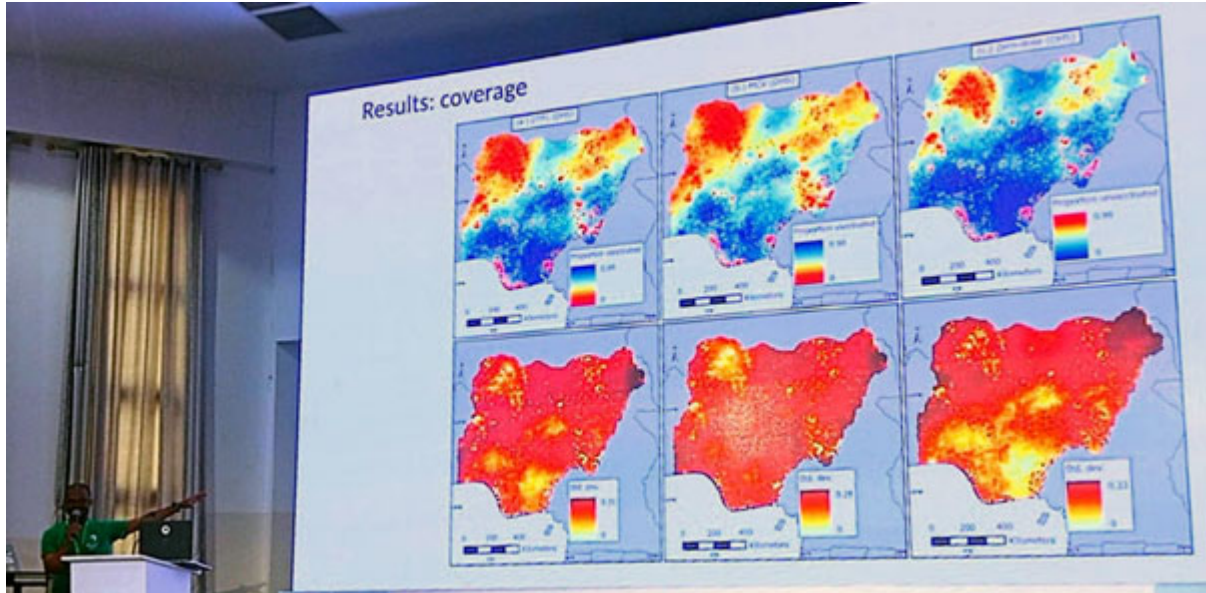
As governance body of the United Nations Human Settlements Programme, UN-Habitat meets every four years, focussing on an important current topic. At this meeting the theme was *A sustainable urban future through inclusive and effective multilateralism: achieving the Sustainable Development Goals in times of global crises*. Duygu gave a presentation summarising our short term population projections and how they are applied to support the achievement of the SDGs in low- and middle-income countries.



Dr Justice Moses Aheto with delegates at Deep Learning Indaba Conference, Accra, Ghana

Research Fellow Dr Justice Moses Aheto joined other industry geospatial experts at the [Geospatial Machine Learning: Research and Social Impact Use Cases workshop](#) at the prestigious Indaba Conference, held in Accra, Ghana in early September. He presented *Geospatial modelling and interactive web-based spatial mapping of zero dose vaccination coverage to inform control efforts in Nigeria* during the conference industry demonstration sessions, where he spoke on our recent work on geospatial modelling and interactive web-based mapping of zero dose vaccination coverage in

Nigeria. He also provided mentorship to delegates on geospatial machine learning and general data analysis, and career progression and opportunities in this field.



Justice presenting at the Deep Learning Indaba Conference

In late September Research Fellow [Édith Darin](#) presented a 3-hour online seminar on *Linking demographics and geography: Using gridded population to gain spatial insights in R* at the Summer Institutes in Computational Social Science (SICSS) networking event. The event was hosted by the University of Calabar, Nigeria and aimed at postgraduate students, early-career University Faculty, and Industry professionals with an interest in applying data science techniques to addressing pressing social problems.

[Materials, Slides & Annotated Code on GitHub](#)

The image is a composite of several elements. At the top left is the WorldPop logo. In the center is the SICSS Calabar logo, which includes the text "September 18 to 29, 2023". To the right is a small video call window showing a woman wearing a headset, identified as Edith Darin. Below these is a large blue banner with white text that reads: "LINKING DEMOGRAPHICS AND GEOGRAPHY: USING GRIDDED POPULATION TO GAIN SPATIAL INSIGHTS IN R" followed by "Edith Darin, Research Fellow Southampton, UK". At the bottom of the image is a row of logos for various partners: academichive, UNIVERSITY OF CALABAR, kapture, Duke UNIVERSITY, Mathematica. Progress Together, SSRC, SICSS, and a logo for the University of Calabar.

Édith presenting at SICSS-Calabar

Welcome Sada and Ian



WorldPop welcome Sada Saxton (3rd from right) and Ian Coady (centre) to the team

Since our last Newsletter we have welcomed two new Deputy Directors to our team. In May, Sada Saxton joined us to head our focus on the group's organisational development, operational effectiveness and new initiatives, and earlier this month we welcomed Ian Coady who is leading enterprise and engagement for WorldPop.

With more than 20 years' experience of programme management in international development Sada has joins us after a long engagement with WorldPop, where she has provide vital, professional advice as our project portfolio has expanded and diversified. Previously, Sada worked for the University of Nottingham Business School, Leadership for Environment and Development (LEAD) capacity development network, and for UKAid-funded technical assistance projects. Sada says "I am delighted to be back with WorldPop to shape our next development phase. I look forward to working, growing, and learning with the excellent WorldPop team and our inspiring partners".

Ian joins us from his pivotal role as Geospatial Adviser at the Foreign, Commonwealth and Development Office, part of his 14 years in the UK Civil Service. His career has involved directorship of the Association for Geographic Information and regular volunteer work for MapAction, the humanitarian mapping charity, where he has gained extensive experience using our open population data. Ian says he is "excited to be joining such an innovative and inspiring team. I've known about WorldPop's contributions to GRID3 Inc. given my previous role but there's so much other exciting work that I'm now able to get stuck into."

Our director Andy Tatem says, "We are thrilled to welcome Sada and Ian to the WorldPop team. Sada has been instrumental in our successful operational growth over recent years, and will support and lead the team as we continue to develop and take on new initiatives. Ian brings a wealth of expertise and experience from his time

in the geospatial sector that will help us strengthen existing partnerships and build new ones to ensure that our data and methods reach those in greatest need".

Collaboration

Over the summer we concluded and signed Memorandum of Understanding (MOU) with the Armed Conflict Location & Event Data Project (ACLED), and the Data Scientists Network (DSN).



ACLED
Bringing clarity to crisis

ACLED is a disaggregated data collection, analysis, and crisis mapping project that records the dates, actors, types, locations, and fatalities of all reported political violence and protest events across the world. Our MOU aims to improve the interoperability of our data with ACLED's to produce visualisations and analysis that provide insight into the impact of political violence.



Based in Nigeria, DSN is Sub-Saharan Africa's leading Artificial Intelligence technology enterprise who work to develop the AI ecosystem and create solutions that improve the quality of life for people living in the region. As well as researching and addressing novel challenges, our collaboration will support the development of new standards in global and African geospatial solutions.



The team welcome Dr Xiaoli Wang (centre in green) and Ms Yonghong Liu (centre in light blue) from the Beijing CDC

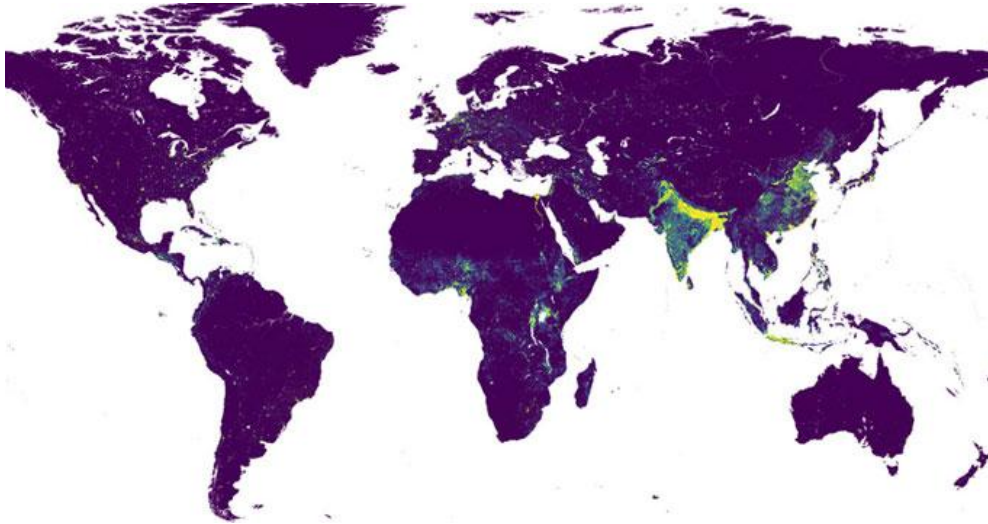
In September we welcomed Dr Xiaoli Wang, Director and statistician, Ms Yonghong Liu from the Beijing Center for Disease Control and Prevention. Over the next few months Yonghong will be working with Dr Shengjie Lai and his team exploring disease and mobility data to better predict the spread of pandemics.



We welcome Shuko Musemangezhi and Ridwan Sorunke (centre) and the rest of the Dev-Afrique team (online)

We have also kicked off a measurement and evaluation exercise with Dev-Afrique Development Advisors. The multi-national consultancy group have been commissioned by the Gates Foundation to measure our impact on decision-making processes at national and global levels, and identify areas for improvement to sustain and maximise the use of our services and products. The project will involve interviews with a wide range of our service beneficiaries and partners and we expect to receive the final report in early Spring next year.

New projects



Three new projects have started in the past 6 months, adding to our programme of [17 geospatial and demographic projects](#).

[Reach the unreached](#)

Digital technologies to map zero-dose and unreached children in West and Central Africa.



Photo credit: [Children of Matam, Conakry](#), by UNICEF Guinea, 2014 (cc-by-nc-2.0)

[Fear of “here”](#)

Integrating place-based travel behaviour and detection into novel infectious disease models

[Thailand II](#)

Online and in-person training and technical support for the Thailand National Statistical Office as they prepare for the country's upcoming census.

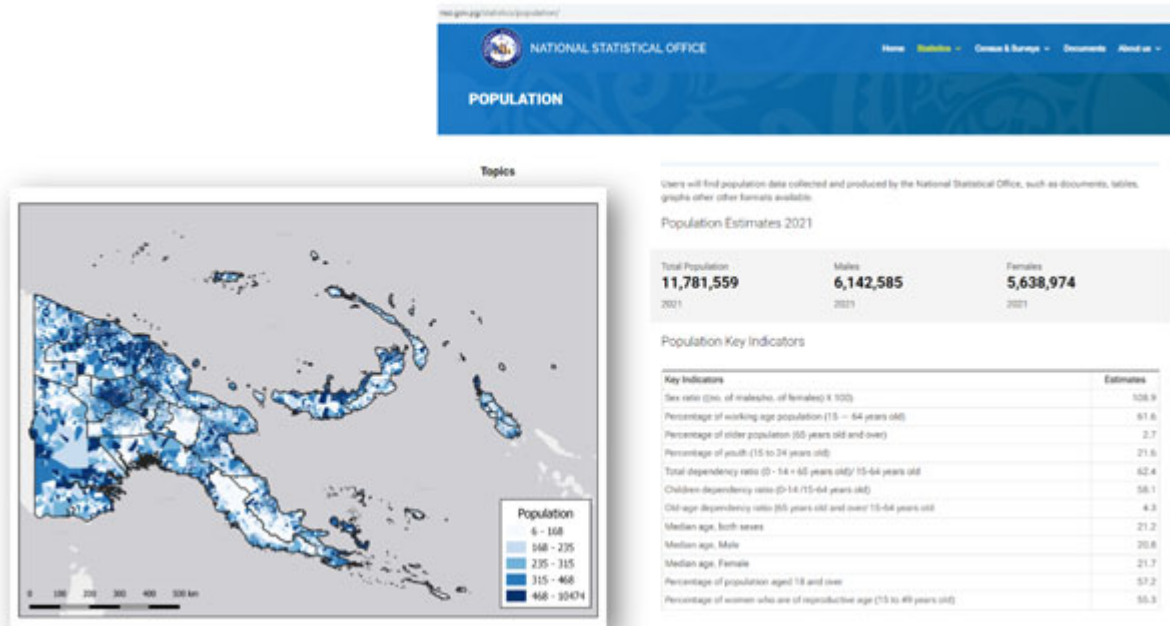
[Starting soon](#)

GRID3 2023-25 - a new 2-year contract with GRID3 Inc., to build on successes and

lessons learned on previous work, provide updates to Africa-wide demographic and geospatial data products, plus country-specific support for Nigeria and the Democratic Republic of the Congo.

[Our latest publications](#)

The National Statistical Office, Papua New Guinea have published new population estimates for 2021, produced in collaboration with WorldPop and the UNFPA. Datasets and method underpinning the estimates are available on the [WorldPop website](#).



Our open population data is now available on [Google Earth Engine](#).

Datasets tagged worldpop in Earth Engine 📌

Filter list of datasets

WorldPop Global Project
Population Data: Estimated
Residential Population per
100 100 0 100



Global high-resolution, contemporary data on human population distributions are a prerequisite for the accurate measurement of the impacts of population growth, for monitoring changes, and for planning interventions. The WorldPop project aims to meet these needs through the provision of detailed and open access population ...

WorldPop Global Project
Population Data: Estimated Age
and Sex Structures of Residential
100 100 0 100



Global high-resolution, contemporary data on human population distributions are a prerequisite for the accurate measurement of the impacts of population growth, for monitoring changes, and for planning interventions. The WorldPop project aims to meet these needs through the provision of detailed and open access population ...

WorldPop Global Project
Population Data: Constrained
Estimated Age and Sex Structures
100 100 0 100



Global high-resolution, contemporary data on human population distributions are a prerequisite for the accurate measurement of the impacts of population growth, for monitoring changes, and for planning interventions. The WorldPop project aims to meet these needs through the provision of detailed and open access population ...

Our team have also authored or co-authored several research papers in the past 4 months, including significant papers on:

- [Data-Driven Models Informed by Spatiotemporal Mobility Patterns for Understanding Infectious Disease Dynamics](#)
- [High-resolution gridded population datasets for Latin America and the Caribbean using official statistics](#)
- [Mapping the timeliness of routine childhood vaccination in The Gambia: A spatial modelling study](#)
- [A zero-dose vulnerability index for equity assessment and spatial prioritization in low- and middle-income countries](#)
- [Combined and delayed impacts of epidemics and extreme weather on urban mobility recovery](#)
- [Effects of public-health measures for zeroing out different SARS-CoV-2 variants](#)
- [Exploring the Relationship between Temporal Fluctuations in Satellite Nightlight Imagery and Human Mobility across Africa](#)
- [Validating indicators for monitoring availability and geographic distribution of emergency obstetric and newborn care \(EmoNC\) facilities: A study triangulating health system, facility, and geospatial data](#)
- [A high-resolution daily global dataset of statistically downscaled CMIP6 models for climate impact analyses](#)

See our [publications list](#) and search more than 200 highly cited papers published since 2004.

We hope you enjoyed our newsletter.

If you did, please share it with your friends and colleagues.

Our next edition will be published in Spring 2024.

Subscribe to our newsletter



The WorldPop research programme, based in the School of Geography and Environmental Sciences at the University of Southampton, is a multi-sectoral team of researchers, technicians and project specialists that produces data on population distributions and characteristics at high spatial resolution.



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