SPRING 2020

Maplines

#IWD2020

THE MAGAZINE OF THE BRITISH CARTOGRAPHIC SOCIETY

www.cartography.org.uk

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From the Editor ...

Welcome to *Maplines*! In this edition, we are looking towards the women in our industry for inspiration. We have women from around the world, in various industries, from new-to-industry to the top-of-the-ladder. We have opportunities for volunteering, both in person within the BCS and online. Let's celebrate #IWD2020

Please note that COVID-19 was declared an emergency, in different countries, throughout February /March 2020, when most of these articles have been submitted. Impacts of the catastrophic illness are now wide spread and affecting us all. Do support your local journalism, which provides clear, rapid messaging and good cartographic design. Stay home and look after your loved ones this Spring.

Caroline Robinson
Senior Editor

How to get involved:

We are looking for volunteer **Editors** to get involved with creating *Maplines* that reflects the British Cartographic Society. Help sculpt the content, procure the images and come up with the next issue's themes.

We are looking for **Authors** from all Members, Student Members, Corporate Members and Educational Members. Tell us what you've been up to, your latest product or your latest adventure with maps in mind!

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What's coming next?

Summer 2020 edition: Sustainable Development Goals

Request for articles and photos: Monday (18) May 2020
Article and photos: Friday (17) June 2020
Proofreading: Friday (3) July 2020
Artwork date: Friday (31) July 2020
To publisher date: Monday (3) August 2020
Released for summer holidays

Winter 2020: Awards, Archive and Gifts

Publisher: Oxuniprint, Unit 10, Oxonian Park, Langford Locks, Kidlington, Oxon, OX5 1FP

Corrections

1. BSC (should be BCS) in *Maplines* June 2019. Many readers spotted that one.
2. Perth Sketch in *Maplines* December 2019 is actually Aberdeen. Well-spotted by Andrew Cook.

Image: *Members at BCS / GoC Conference 2019*
© 2020 Caroline Robinson

From the BCS President ...
I'd like to start with a few words about **volunteering**: though our administration is run under contract, the vast majority of the Society's activities rely on members being prepared to give of their time to organise, publicise and be there for them – Restless Earth, Better Mapping, special interest groups, symposium, etc. Do get in touch if you feel you could help.

In particular, we are always in need of people with time and capability to support our presence on social media. It's worth reflecting that volunteering is good for you — officially. It doesn't just look good on your CV; research indicates that it's actually beneficial for your mind and body. After all, the Greek philosopher Aristotle once surmised that the essence of life is...

"To serve others and do good."

Also, while following recent adverts we have cover for the position of Hon. Treasurer for the Society for this year, the long-term need remains. Please do spread the word. The role is essentially a strategic one — all day-to-day book-keeping activities are handled by the Society Administrator.

The key activities
for the Treasurer are:

- Ensuring that the Society operates on a sound financial basis

- Proposing a financial strategy and an annual budget for approval by Council

- Monitoring of expenditure throughout the year and authorising some items

Due to the on-going global crisis posed by COVID-19, it is with a heavy heart and careful consideration that we have decided to postpone this year's British Cartographic Society Annual Conference until September 2021. This is due to the severe level of disruption and uncertainty that has been building up over the past few weeks. It is unclear when the situation will improve enough to enable a safe and successful Conference.

The postponement of the Conference means that the Better Mapping and Map Curators' Group event will now take place in 2021. The BCS Annual Awards will also be awarded in 2021 and will include both the 2020 and 2021 entries. You can find full details of categories and information on past winners on our awards page: www.cartography.org.uk/awards

Although the Conference will no longer take place this year, we are working to make material available online for members to enjoy. We expect this to be available over the next few months. We sincerely hope that you and your family remain safe during this uncertain time and that you will join us once again in September 2021.

Richard Carpenter
BCS President

president@cartography.org.uk

Membership

Thank you to all our members who have renewed their membership for 2020. Your continued support for the Society is greatly appreciated.

We are also very pleased to welcome our new members who have joined us since the beginning of December.

Full: Rufus Sweetman, Louis Robinson, Samuel Bradshaw, Adriana Kolar, Kevin Edwards, Helen Cooper, Davinder Jhamat, Tim Goodfellow, Emily Barnes and Daniel Robinson.

Affiliate: Petro Michaelas, Dr Steve Watkins, Francesca Latz, Paul Hesp, Dr Lesley Pullen, Dr Vinicius Mariano de Carvalho and Erica Tucker.

Student: Mia Bennett, Rafidah Berudin, Euan Temporal, Rowan Rush-Morgan and Emma Redfern.

Educational: St Thomas More Catholic School.
Corporate: National Air Traffic Services (NATS).

Our current membership fees are as follows:

Full members: £40 (Overseas £55)
Fellows: £60 (Overseas £75)
Affiliate: £20 (Overseas £35)
Student £20 (Overseas £35)
Educational £72 inc VAT
Small Corporate £120 inc VAT
Corporate £240 inc VAT

For more details see:
www.cartography.org.uk

Our subscription year runs from 1st January to 31st December. New members will receive all issues of *The Cartographic Journal* and *Maplines* for the year of joining (according to availability).
To join or renew your subscription, please use the following methods:

- Website application at www.cartography.org.uk/members/

- Bank transfer to
Account Number: 06753868
Sort code: 55-50-23
Please include your membership number and surname in the reference.

- Cheque made payable to
The British Cartographic Society
Please write your membership number on the back when renewing.

The BCS Administrator is happy to help members with issues or queries they may have related to the Society.

Please contact:
admin@cartography.org.uk

Philip Storey's Obituary

1947 to 2019

Philip Storey passed away at the age of 72 on 12th December after a few months' illness. He was a well respected member of the BCS and known for his Mapdata digitising system developed in the early days of digital cartography. It was widely used as data entry to the Scitex R280 Cartographic process. As PSmapping he created the road mapping for the *Reader's Digest Complete Driver's Atlas of Britain & Ireland* for several years and his Outstanding Map Company created and published relief maps of National Parks including his beloved Lake District.

His funeral was at the Beetham Hall Crematorium, Milnthorpe, Cumbria at 12.30pm on Friday 10th January. He wil be sadly missed by his wife, Jean, family and friends.

HARVEY MAPS

For Sue Harvey, MBE, maps have been a passion for most of her life. She drew her first map at aged 13 to log the family holiday on the Norfolk Broads.

Inevitably, she gravitated towards orienteering; combining map reading with running. That led her to start making the detailed maps needed for the sport. "Map-making is art as well as science," says Sue. "That is what appeals to me. One strives to make the depiction on paper give the map-reader a feel for the appearance of the ground ahead. It is totally absorbing. Drawing in contours is intriguing. From a rudimentary base, making early orienteering maps show intricate contour detail, brings real challenges."

Her degrees in Russian and Arabic enabled her to become internationally famous for her maps. She co-founded Harvey Maps with Robin in 1977. Over 35 years, she rose to become the first female President of the International Orienteering Federation, becoming a Member of the British Empire along the way. Each publication demands a huge investment of time. The staff at Harvey Maps are almost equally broken down by gender. To ensure the longevity of the brand and job security at Harvey Maps became employee-owned in 2017. Sue still remains as Chair; you can't take the map-maker out of her! She is keen to develop Illustrator skills so she can do voluntary mapping for the local community. A totally incorrigible woman!

Juliet Chadwin

www.harveymaps.co.uk

MILITARY MAPS

Long thought to be the ancestors to the Ordnance Survey, George III's treasured collection of military maps is published online to mark the 200th anniversary of his death.

On 29 January 2020, the 200th anniversary of George III's death, the King's unparalleled collection of more than 3,000 military maps, views and prints in the Royal Collection was published online, offering an extraordinary insight into the art of warfare and mapping. The culmination of ten years of research by Dr Yolande Hodson to catalogue one of George III's most prized collections, the new website (militarymaps.rct.uk) makes these important documents publicly available for the first time and allows them to be explored in minute detail.

George III's collection presents a diverse range of material from the 16th to 18th centuries, from highly finished presentation maps of sieges, battles and marches, to rough sketches drawn in the field, depictions of uniforms and fortification plans, providing a vivid contemporary account of major theatres of war in Britain, Europe and America.

Maps were an important part of George's early life and education, and his passion for the cartographic sciences continued once he became King. He never left the south of England or fought on a battlefield, but his vast collection of more than 55,000 topographical, maritime and military prints, drawings, maps and charts allowed him to travel the world from the comfort of his library at Buckingham House, now Buckingham Palace.

Highlights of the collection include two-metre-wide maps of the American War of Independence (1775–83). George III took a close interest in every detail of the war. These vast maps were probably hung on purpose-made mahogany stands in Buckingham House, enabling the King to follow the steady erosion of his hold on the American colonies. A map of the final British defeat at the Battle of Yorktown in 1781 is the only known copy to survive outside the USA. An annotation by the American map-maker marks 'The Field where the British laid down their Arms'.

In 1766, the Scottish military engineer William Roy wrote to George III proposing a national survey of Britain based on his map and survey experience during the Seven Years War (1756–63). This memorandum, which survives in the Royal Archives, is regarded as the founding document of the Ordnance Survey. The King was very keen on the idea, visiting Hounslow Heath in 1784 to watch the preliminary setting out of a baseline. He also paid for the construction of the Ramsden theodolite, the most accurate surveying instrument of its time. Several unique examples of Roy's maps from the Seven Years War survive in the Royal Collection and can now be viewed on the website.

George III's passion for cartography was matched by his enthusiasm for the military sciences and military education. In 1799 he supported the founding of the Royal Military College at High Wycombe, where young officers were taught topography, surveying and mapping.

Martin Clayton, Head of Prints and Drawings, Royal Collection Trust, said, "It is fitting, and rather moving, that on the 200th anniversary of George III's death we are able to make the King's collection of military maps digitally available to all, offering new insight into his contribution to the cartographic sciences.".

George III's Collection of Military Maps are available at: www.militarymaps.rct.uk.

Dr Yolande Hodson FSA FBCartS
Royal Collections Trust

Inset image: George III, by Benjamin West 1779 (depicted holding a paper recording troop positions.). This page: Military Maps in the Royal Library at Windsor Castle. Both:

First geo-steps for Rita...

"I'm from Lisbon, Portugal, and I have recently concluded a master's degree in Geographic Information Systems and Spatial Modulation from the University of Lisbon."

Her love for geography started at age of 4 when she went on a kid's show and they asked her about which city/country she lived in. Since then, she gained a special interest in maps and knowledge about different countries. Her first experience in the GIS world was an internship in the Portuguese Agriculture Ministry where she could see how GIS can be important in public service giving the tools to better optimise services.

"Now, I'm responsible for collecting, preparing and analysing datasets from different countries and I'm responsible for creating Curiosity Maps — that we broadcast on social media — with some interesting and fun facts about different cities or countries. Working at Mapidea gave me the opportunity to do something I love and have fun while doing it. As a geo-newbie, I make mistakes, but I always try to learn from them, and I would like to keep helping Mapidea grow and keep introducing GIS to new companies."

With the continuous changes in the technology world, geographers will need to adapt to the new challenges that will emerge and learning about new subjects will help us adjust to the new reality, which is why she is currently considering doing a PhD in Geography.

Rita Almeid
Location Analyst, Mapidea

Image: © 2020 Mapidea

UNITED STATES

Main image: *Duboce Triangle neighborhood, San Francisco California*

Finding your way in the worst of times. The next time you head out for work or a school run, think about what changes, particularly, if there's an emergency [Written prior to COVID-19 outbreak – Ed.].

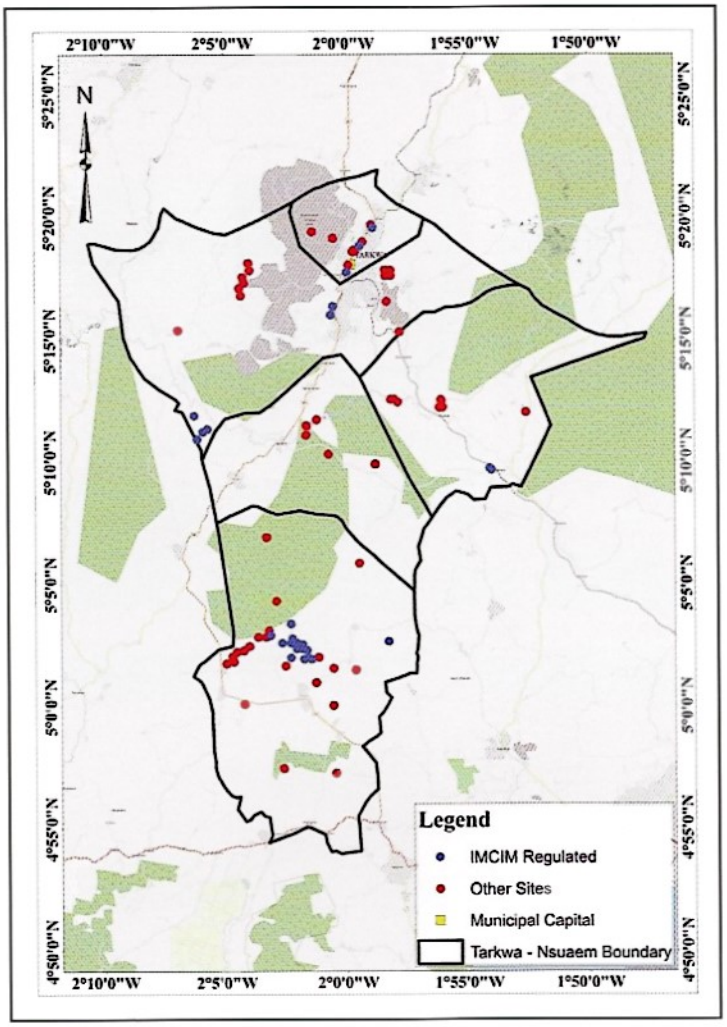
It can be an uppercase Disaster (earthquake, flood) or a lowercase disaster (planned power outage, wildfire) but in any case, you'll need to rethink your route. Trying to answer these questions for myself after moving to an unfamiliar neighbourhood in my hometown of San Francisco, California was the foundation for Resiliency Maps. The goal is to store information about assets, resources, and hazards in a given geographical area on a map that can easily be printed out, and kept in a go-bag for emergencies.

The maps can also be deceptively simple. Take the ones designed for the San Francisco Fire Department Neighbourhood Emergency Response Team (NERT) to give area coordinators much-needed planning tools. These pared-down maps are for use by community groups who meet once or twice a year, print them out and mark them up (new construction, building use change) and keep them at the ready.

The entire tool-kit for the project is open source. Resiliency Maps is getting started and they regularly hold mapathons for community responders and the wider community and were featured as a case study in recent United Nations Office for Disaster Risk Reduction 'Words into Action' guidelines.

Nicole Martinell
www.resiliencymaps.org/

GHANA

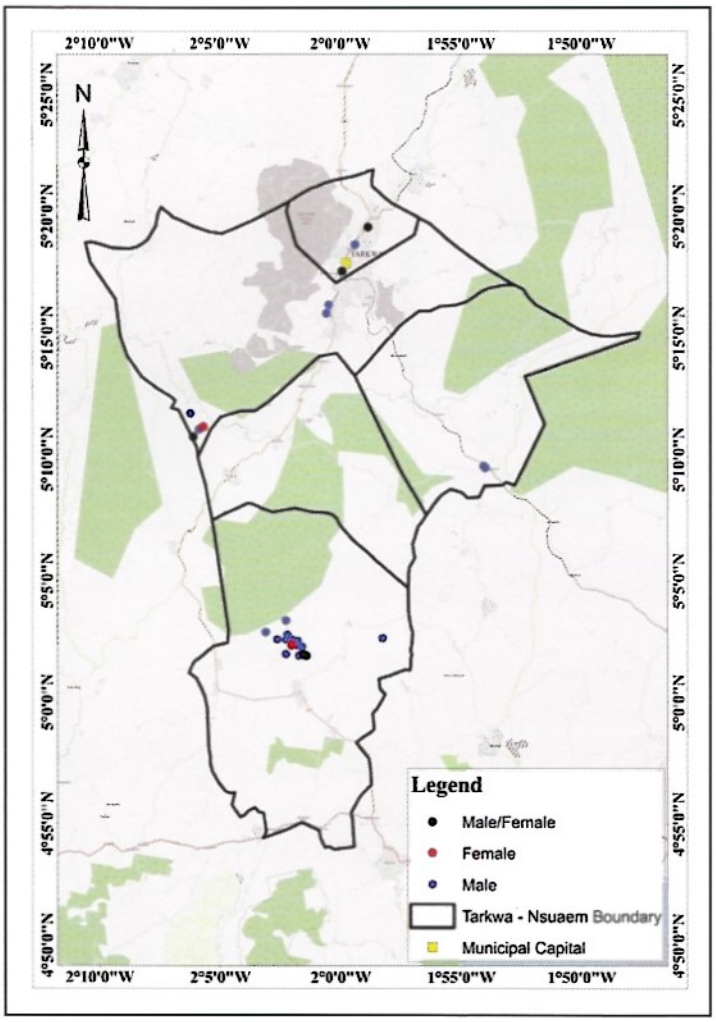


Effects of Artisanal and Small-Scale Mining (ASM) on Vulnerable Groups in Tarkwa Nsuaem Mining Community, Ghana. ASM sub-sector contributes immensely to the local economies and livelihoods of many people, especially those living in the mining communities.

Notwithstanding these benefits, the activities of miners are sometimes unsafe, not well-monitored or illegal. Mining activities pose potential threats to the health and livelihood of vulnerable groups who have little or no option but to take on-board the negative impacts of mining.

My volunteers include Mr Curtis Amo Dwira, Mr Emmanuel Blankson, Mr Felix Andoh, Miss Maame Esi Esaabah, Mr Chris Eshun and Mr Stephen Adusei. We made a journey visiting areas where mining (both legal and illegal) and other mining-related activities were taking place for the community engagement and field data collection. Responses for our questionnaires from volunteers were collected using Kobo Toolbox. Some of the workers at the various mine sites visited had reservations about speaking to the team because of past experiences with researchers and regulations on small-scale mines by the government. Others were willing to share their stories with us and also let the team administer the survey questionnaires prepared.

Data on the twenty-six (26) mining sites that have been vetted and/or mapped by the Inter-Ministerial Committee on Illegal Mining (IMCIM) in the Tarkwa-Nsuaem Municipality indicated that 25% of companies were fully or partly owned by females.



Two legally owned mining sites belong to females (representing 8%), thus implying that the majority of the small-scale mines are owned and managed by males. The women who worked in the sector mainly worked as panners, carrying sand which has been mined out as well as washing of the mined materials to obtain ore, another gap was the fact that the women were paid up to 60% less than their male counterparts besides the fact that they were hindered by a job that offered no social/health security for the employees, much less their families. The women sited lack of employment and the need to take care of their families as the reasons for taking up these jobs in the small-scale mines, however this little money earned is spent on the up-keep of their family so there is none left to take care of the health conditions (body aches, hazards, diseases and risks) that they face due to the nature of their jobs.

The study focused on using GIS techniques to examine the effects of ASM on women and children in the Tarkwa-Nsuaem mining community. It provided UMaT YouthMappers with a platform to generate open and up-to-date geographic data of the Tarkwa-Nsuaem Mining community through Volunteered Geographic Information (VGI) using OpenStreetMap, to investigate the risks and challenges. This study was carried out as part of the YouthMappers Research Fellowship, demonstrating how Open Geospatial Data can be leveraged to promote resilience among vulnerable groups in our communities.

In as much ASM activities have negative impacts on the human subjects as well as the environment, the women respondents were against the ban that had been imposed on illegal mining activities since it affected their livelihoods negatively. The creation of geographic data on the rural areas where ASM is located, we can study in more detail the correlation between the locations and the most common effects of ASM. We can fully analyse the extent to which ASM activities affect these vulnerable groups and tailor policies to suit them and for governments and other stakeholders to champion alternative livelihoods or safer mining techniques.

Miss Rubainatu Chalpang Adam,
Student at University of Mines and Technology, Ghana (Department of Geomatic Engineering)

www.youthmappers.org

Acknowledgements to YouthMappers, USAID GeoCenter, Minerals Commission and IMCIM Ghana, Dr Naa Dedei Tagoe and Enock Seth Nyamador and the UMaT YouthMappers.

This study was carried out and awarded as part of YouthMappers Research Fellowship 2018, sponsorship provided by the USAID GeoCenter under the award #AID-OAA-G-15-00007 to the YouthMappers Program of Texas Tech University.

BGS

Leanne Hughes is no ordinary geologist. In her 12 years working at the British Geological Survey, Leanne has defined her career by being creative, innovative and hard-working.

She is a Survey Geologist, and her role involves using the existing maps that British Geological Society (BGS) have created over the last 184 years and improving them. She goes into the field, capturing new lines to define geological boundaries. Leanne uses field observations, such as breaks of slope, changes in soil type, auger holes or outcrops of rock to inform her geological decisions. Her role at the BGS has meant that she has produced some excellent maps, including the new Derby sheet, which she is especially proud of as it's her home turf. Leanne has also visited distant destinations including Sierra Leone, Chile and Liberia, where she teaches other geological surveys organisations how to use digital field mapping equipment to create their own maps.

Leanne is always keen to inspire the next generation to take an interest in geology. Leanne dressed up in a globe to commemorate the Tour of Britain passing through Keyworth, where she works. You'd think dressing up in a globe would be enough, but Leanne rode her bike there wearing it too!

Leanne really is a creative, exciting and inspiring woman in a career historically dominated by men. She has shown numerous times that she is better than most!

Helen F. Burke, Holger Kessler and Stephen Thorpe

www.bgs.ac.uk

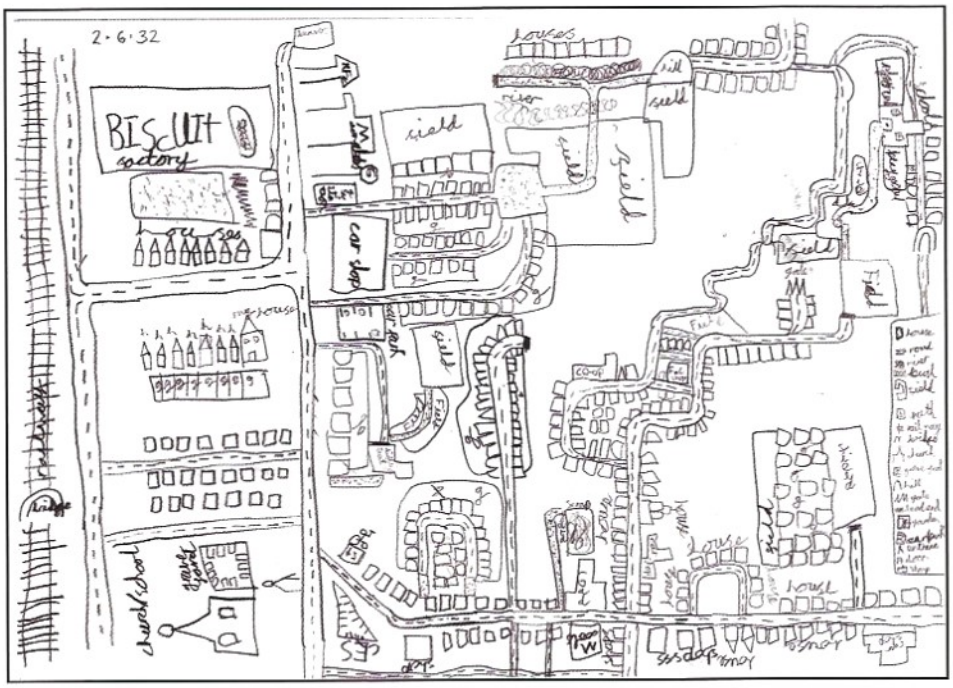
YOUNG MAP-MAKERS

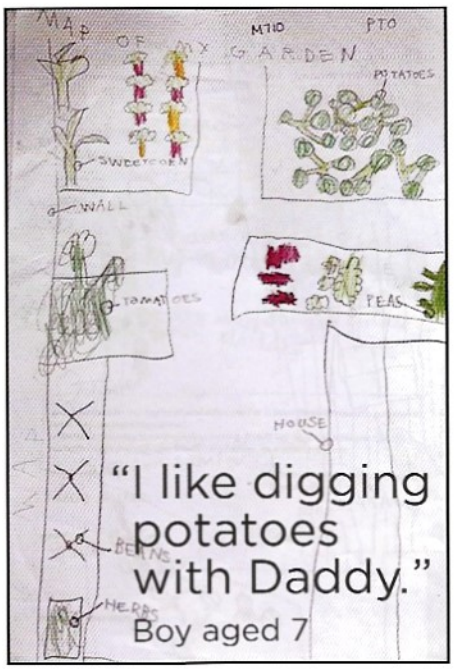
"It is where I live with my family."

Girl aged 9

"I put fields because it's nature and really fun to play in."

Boy aged 8





"I like digging potatoes with Daddy."

Boy aged 7

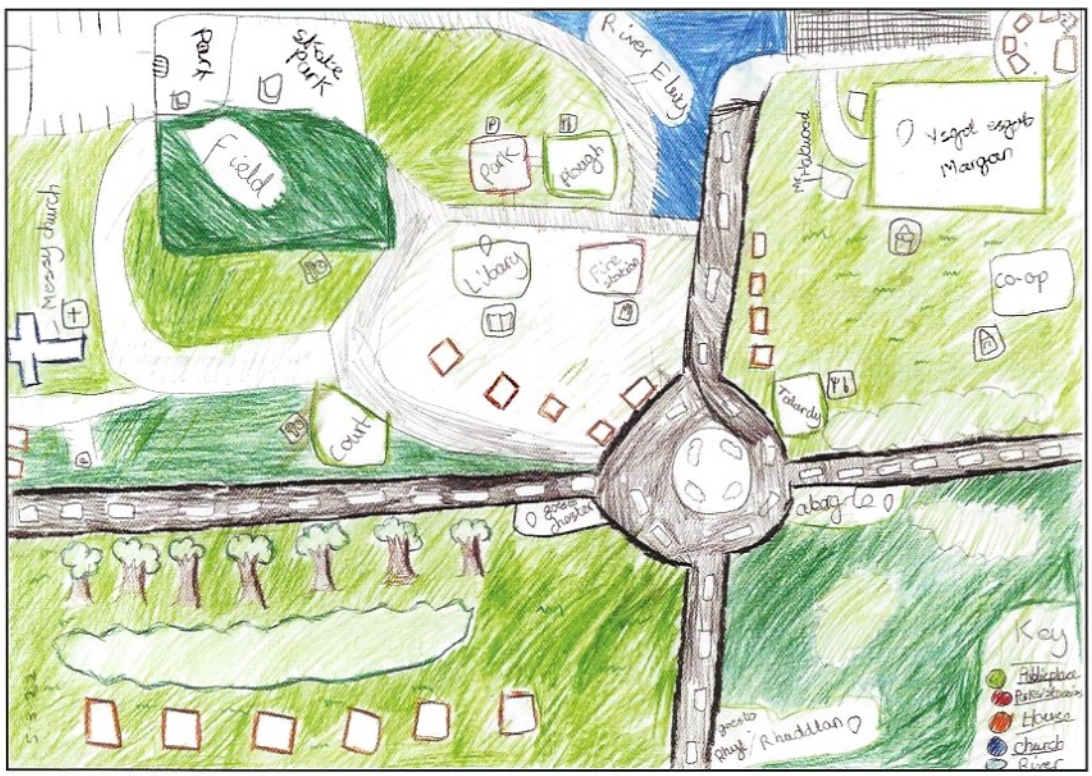
"On my map I will show the school and its surroundings."

Girl aged 8

"Trees in autumn colours."

Girl (Year 5)

"I like my garden because it is fun."
Boy aged 7



"It is where I live with my family."
Girl aged 9

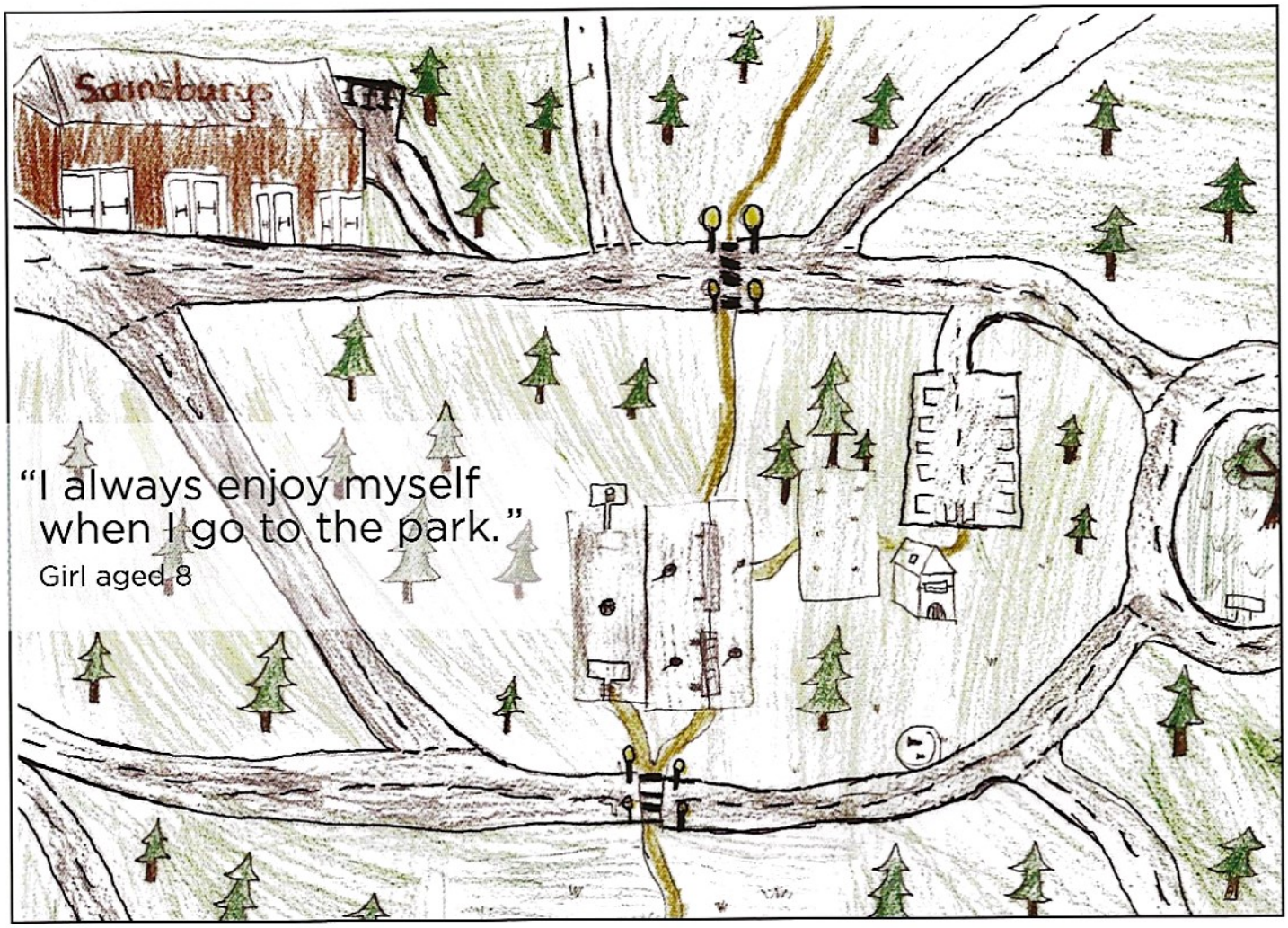
Childscapes mapped by the Meaningful Maps team.

"I decided to pick this area because this is the area that I have lived in my whole life and is the most special place in the world to me."

Children's free-form maps of their neighbourhood provide an incredibly rich resource for understanding issues such as a child's 'sense of place' and interactions with people and environment, their childscape — as well as their map-making ability per se. The Meaningful Maps (MM) project, now in its third year, has collected over five hundred maps produced by primary school children (mainly 8 to 10 years of age) from across Britain showing the places they value.

This article, written for *Maplines'* celebration of International Women's Day 2020, examines the sense of self and knowledge of people and place expressed by both girls and boys through their maps. While our intent at MM is not to focus on gender issues but celebrate all young map makers, some interesting differences have emerged from our study.

The analysis of our sample shows that girls tend to provide a higher number of visual references to the natural or living world than boys. Interestingly, these are often ephemeral or dynamic aspects of their environment that are not normally mapped, such as people or other animals. In some instances, the children included people as symbols, to indicate a play area for example, but in general what they recorded either celebrated the environment or conveyed personal



associations (often reflected in the text provided by the child, e.g. "Where I walk my dog").

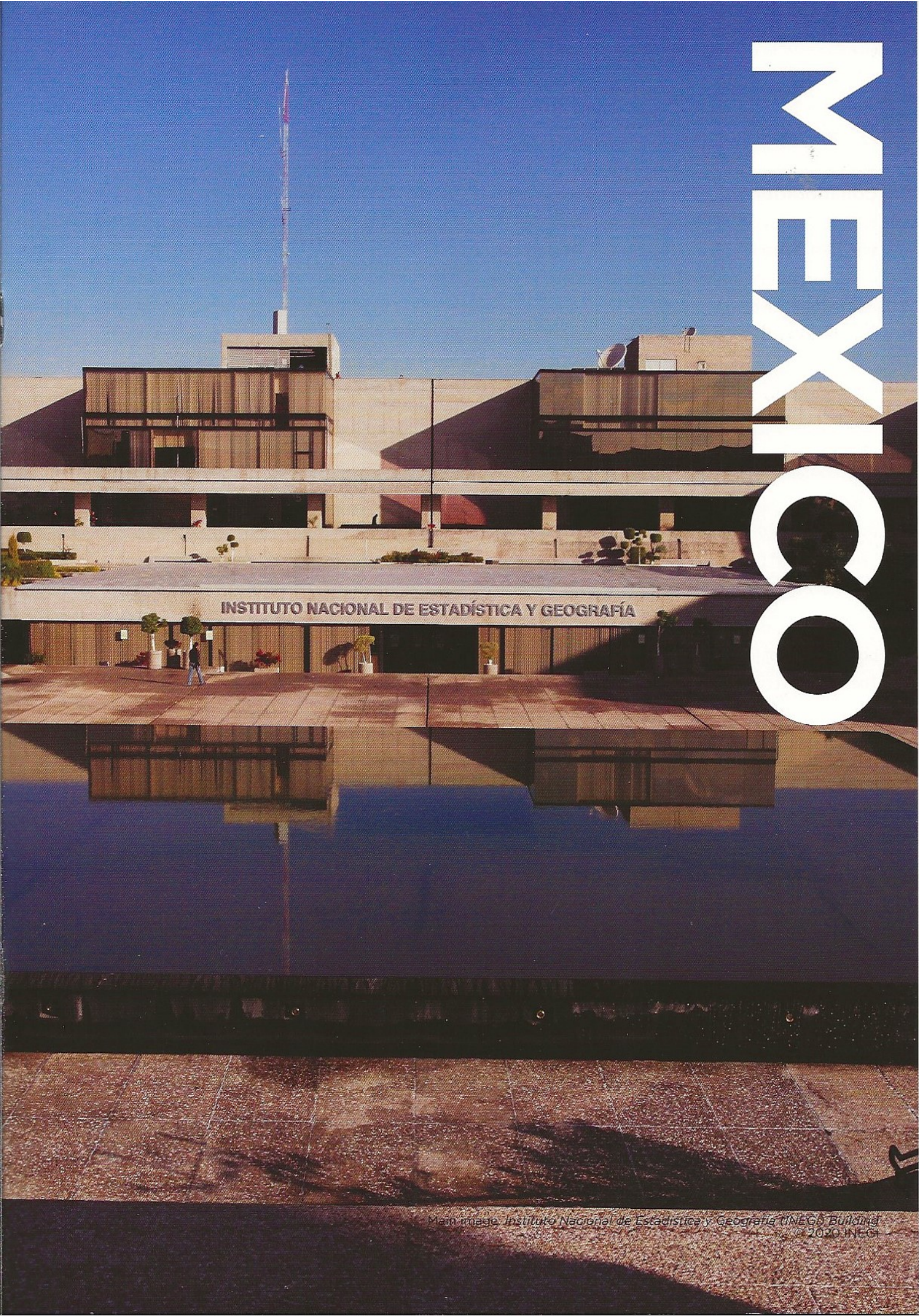
In terms of specific aspects of the living environment, 41% of girls' maps included trees, while only 28% of boys did so. Flowers as more ephemeral aspects of the environment were only included by 12% of girls, and a mere 2% of boys. Girls were about three times more likely to include images of farm animals or pets, and two times as likely to include wildlife (e.g. birds or insects). Girls were also more likely to map physical features of the landscape, hills, ponds and beaches, with only rivers being drawn in comparable numbers by boys. This is perhaps unsurprising as rivers are standard elements of most maps that children will encounter, and they form natural barriers (or 'edges' in Lynchian terms) in their environment. Boys, on the other hand, appeared more likely to draw roads and name them (85% and 28% respectively), compared with girls (79% and 25%) although this is a relatively minor difference.

Gender differences in children's mapping is something that has been noted by past researchers. In his seminal work on children's local area knowledge, Matthews (1992) drew attention to the way that parents allowed boys much greater opportunities to explore their neighbourhood than girls of the same age. It was suggested that this had a negative impact on girls' mapwork skills – something that was later flagged up in the first version of the National Curriculum (1990). With the benefit of hind-sight recommendations to adopt 'girl-friendly' pedagogies that were made at that time seem naïve.

After an interval of nearly three decades, the Meaningful Maps project is now providing a new perspective on the way that children of both sexes spontaneously represent their local environment. See: www.meaningfulmaps.org

Authors: The Meaningful Maps team includes Dr Paula Owens, Dr Stephen Scoffham and Prof Peter Vujakovic, with assistance from Alexandra Bass (student research internship 2019), based at Canterbury Christ Church University.
The project is endorsed by the Geographical Association and the BCS.

MEXICO



Main image: *Instituto Nacional de Estadística y Geografía (INEGI) Building*

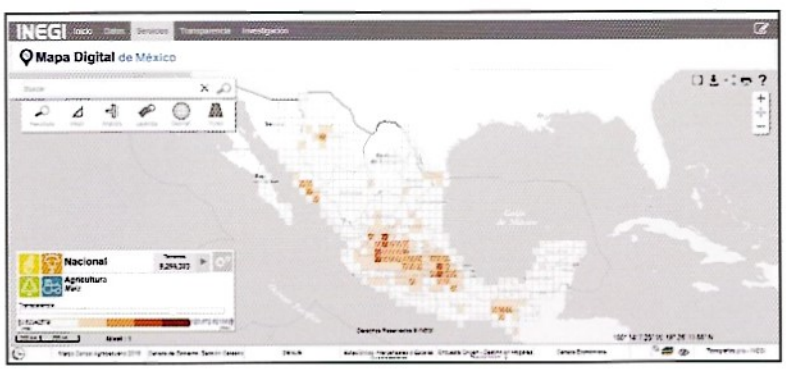
Collaboration to serve a National purpose – interview with Paloma Merodio, the Vice-President of the National Institute of Statistics and Geography of Mexico (INEGI).

Paloma is the only woman on the board as one of four Vice-Presidents. The board oversees different sectors of data collection and statistical analysis for Mexico. Each Vice-President is hand-chosen by the President of INEGI, to cover statistics in economics, census, governmental/social justice and geography/natural resources.

Merodio is skilled in policy analysis, statistics, economic research, program evaluation, strategic planning and geospatial information. Merodio was appointed in her role at INEGI in 2017 and is keen to be an ambassador for geography, but also as an advocate for women in the industry.

Q. Tell us a little about data collection in Mexico and what are the current challenges?

A. INEGI is a 35-year-old institution, which only recently in 2006 migrated from direct rule from the President's office to an independent institution. Being autonomous and free of political influence as an institution is critical for the well-being of the country. We make sure that all our geographic data is available as open data to the user. A key to our knowledge is knowing who owns the land which is really important and has a direct effect on our society. Collecting cadastral data as a methodology is fairly new, while, in contrast, our census data is much older. In the past, we used our own planes for collecting aerial imagery, but now we rely on satellite imagery.



Another application of satellite imagery is monitoring our natural resources, which is a priority; we even have a plant, rock and soil historic sample collection, which covers the whole country. Recently, we asked the US government for the Landsat satellite archive, which is basically a high-quality, both current and historic, satellite image collection for Mexico; however, the download speeds made this difficult! Thirty years of periodic images is a lot of data! They eventually sent us the whole catalogue in hard drives – yes, in a box, by post.

Q. What policies or impacts are you particularly proud of?

A. The Open Data Cube (ODC) is a wonderful achievement for INEGI. This is a collaborative project between global Earth observation satellite data providers and nation states such as Australia, Colombia, Switzerland, Taiwan and Mexico. Mexico produced thematic geo-spatial datasets from paper maps, back in the 1970s and 1980s; we obtained aerial photographs, to get a picture of the country; now this is done from satellite images. However, the process involved in analysing this data is visual and exhaustive which delays decision-making.

To speed-up the process from collecting data to decision-making, the ODC initiative seeks to increase the value and impact of satellite imagery by providing an open and free data exploitation architecture for societal benefit. INEGI's ODC will reduce the computational cost of processing satellite imagery traditionally. In summary, the two main challenges for integrating Earth Observations into national

level processes were technology and infrastructure. INEGI worked in the implementation of the Mexican ODC to address these two challenges. The ODC allows for big data time series analysis and will be used for calculating Sustainable Development Goals (SDG) indicators, as well as for monitoring the territory in a much more timely manner.

Q. And from a personal point of view?

A. Being the Vice-President of INEGI, I have a mandate to improve the role of women who work for INEGI. At the moment, the workforce is 50:50 in terms of gender ratio, but only 11% of the positions of power are held by women. This is something we must work on. Conversely, 70% of women – out of 180,000 people – are involved in collecting data for the census round 2020. These women, on their own, working on the streets in Mexico and knocking on doors, is a serious security issue. An institution like INEGI, needs to focus on how to keep its workforce safe, while collecting the best possible data at the same time. This is becoming even more complex as there is a Women's Strike — calling to 'Disappear for a Day'— planned in Mexico on March, 9 2020, right in the middle of the census period. On this date, women all over the country are encouraged to withdraw their labour in protest at gender-based violence by not going to work, not doing domestic work or participating in voluntary work. From a census point of view, we can't miss one day of data collection, so we are planning frantically.

Q. How do you see the landscape of geography changing going into the next decade?

A. We are very excited about the opportunities to work with other organisations and foster relationships internationally. We are learning from the Australian government how to manage our datasets in the ODC. There is great progress in studies for natural resources, for example; as we have successfully used the technology to study the behaviour of water bodies. But over all, there is a major paradigm shift in our role as information producers as we aim to deliver open data faster, if not in real-time; and release not only the source data (re-projected images) but also Python scripts, mainly Jupyter Notebooks, for users to see how we analysed the data, and to enable them to perform the same analysis themselves.

We are also looking at planes again for collecting aerial imagery to complement the satellite imagery that we already make available. Cadastral data is coming into its own since we can add aerial imagery to see in detail new settlements and check on urban growth.

Q. In the future, what would you like to get involved in?

A. Making sure that the data we collect is more rigorous, that accuracy and precision improves in our products and that we keep up with technology. This means investing in training and being able to adapt to new scenarios. Being invited as a speaker at international forums, I feel, is important, but as anyone will tell you, justifying the cost of travel and accommodation can make this difficult, especially for women in geospatial. Hence, I am arranging a list of knowledgable women to attend UN-GGIM conferences, so they have the opportunity to be invited to speak too. Additionally, I work closely with @GeoChicas on Twitter, a network of women in geospatial covering the Spanish-speaking world. Join us!

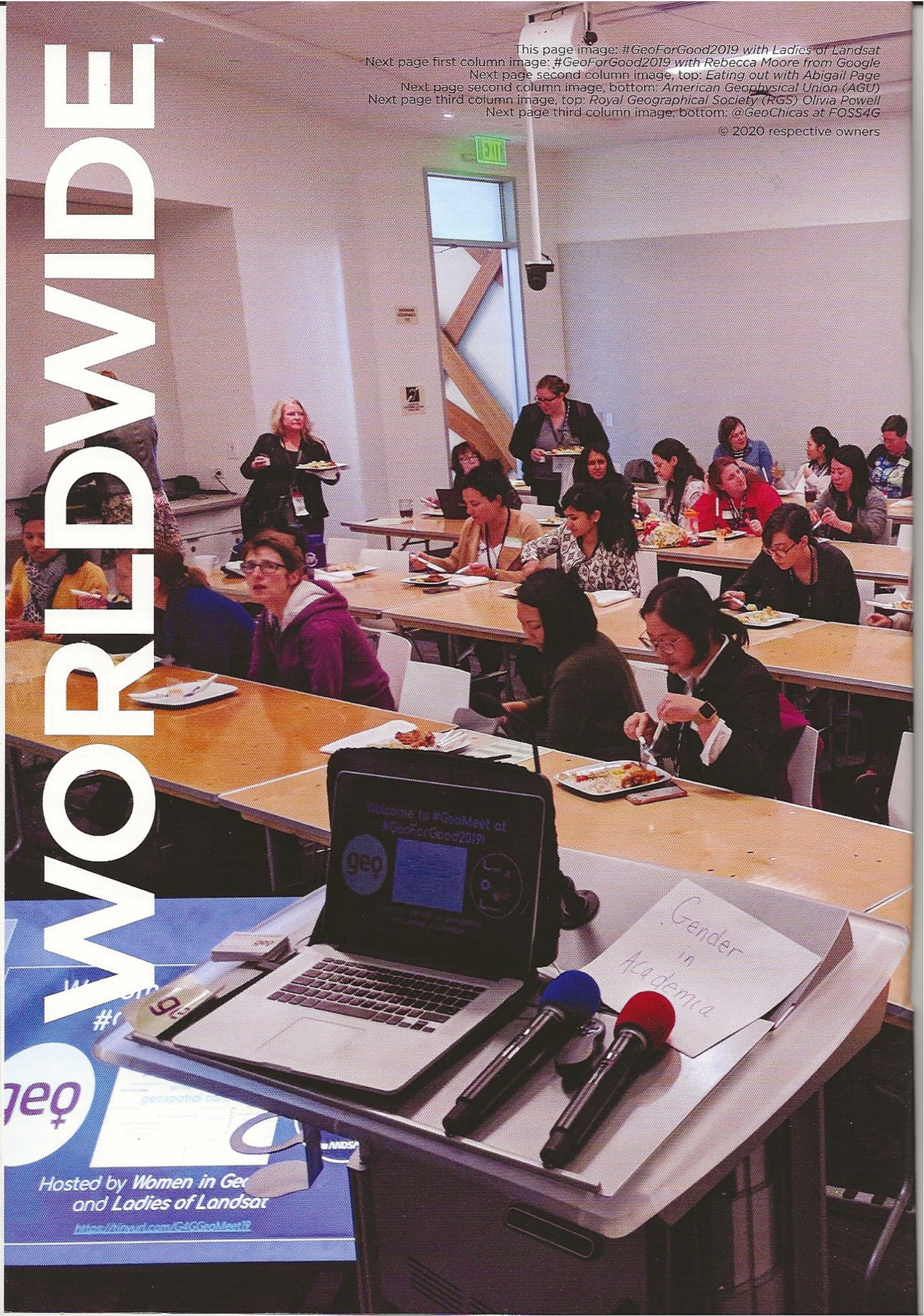
Caroline Robinson
Senior Editor

Profile image: *Paloma Merodio at UN Global Platform for Disaster Risk Reduction*

Left image: *Agricultural Census Framework map 2016*

Right image: Functional Regionalization of Mexico map

WORLDWIDE



This page image: *#GeoForGood2019 with Ladies of Landsat*
Next page first column image: *#GeoForGood2019 with Rebecca Moore from Google*
Next page second column image, top: *Eating out with Abigail Page*
Next page second column image, bottom: *American Geophysical Union (AGU)*
Next page third column image, top: *Royal Geographical Society (RGS) Olivia Powell*
Next page third column image, bottom: *@GeoChicas at FOSS4G*

Women in Geospatial+ is a professional online network that promotes gender-equality and celebrates diversity in the geospatial industry.

International Women's Day 2020 marked the first anniversary of our network, which has quickly grown into a vibrant and active community with almost 2000 registered members globally.

Q. How did the idea for Women in Geospatial+ come up?

A. Our network started one day before International Women's Day 2019, with a call on Twitter to form a community to make the geospatial industry and academia more gender-balanced. Within two days, almost 200 people came on-board and Women in Geospatial+ was born.

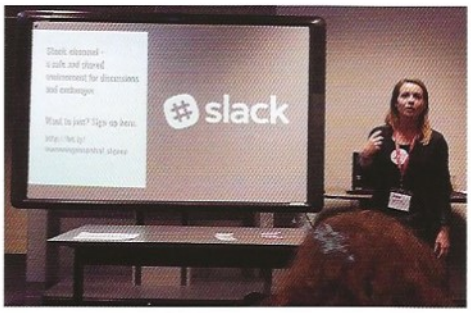
Seeing the pace at which our network has grown, we know we are meeting a need in our field. We believe that the network has great potential to grow and to shape the geospatial space in the future.

Q. What does the network Women in Geospatial+ offer?

A. Women in Geospatial+ connects women and other underrepresented genders in the geospatial field by providing a safe platform via our Slack community for open and honest communication.

We promote and foster the professional development of our members by sharing geospatial news, job vacancies as well as tips about leadership and career development. We also launched a year-long career mentorship program in September 2019, bringing together 42 participants from 17 countries.

Our network is not only virtual. Throughout the year, we create opportunities to meet in person at geospatial conferences, where we regularly run sessions focused on career advancement, featuring the work and achievements of women geospatial leaders, and where we organise informal networking meetups.



Q. One year from now – where can you see Women in Geospatial+?

A. We are full of ideas that we're turning into reality. We are working on registering Women in Geospatial+ as a non-profit organisation. We plan on collaborating with companies and organisations to recognise the contributions of diverse members in the geospatial industry. We have just opened up registrations for a Women in Geospatial+ speakers database. No geospatial conference organiser shall ever have the excuse again that they could not find any women speakers.

We hope that in one year's time, Women in Geospatial+ network will be even stronger. That more voices join us and the more change we can create.

Want to get more information or get involved? See: www.womeningeospatial.org and follow us on Twitter and LinkedIn.

Julia Wagemann

ART

As an artist, Inge Panneels' artistic work has always been informed by the genius loci, making works which respond, intuitively, to place and space, and this has been the main focus of her academic research.

She has been exploring the landscape and literature through her medium of choice: Claude glass. Claude glass series is a collaboration between Panneels and photographer and mountaineer, Kevin Greenfield.

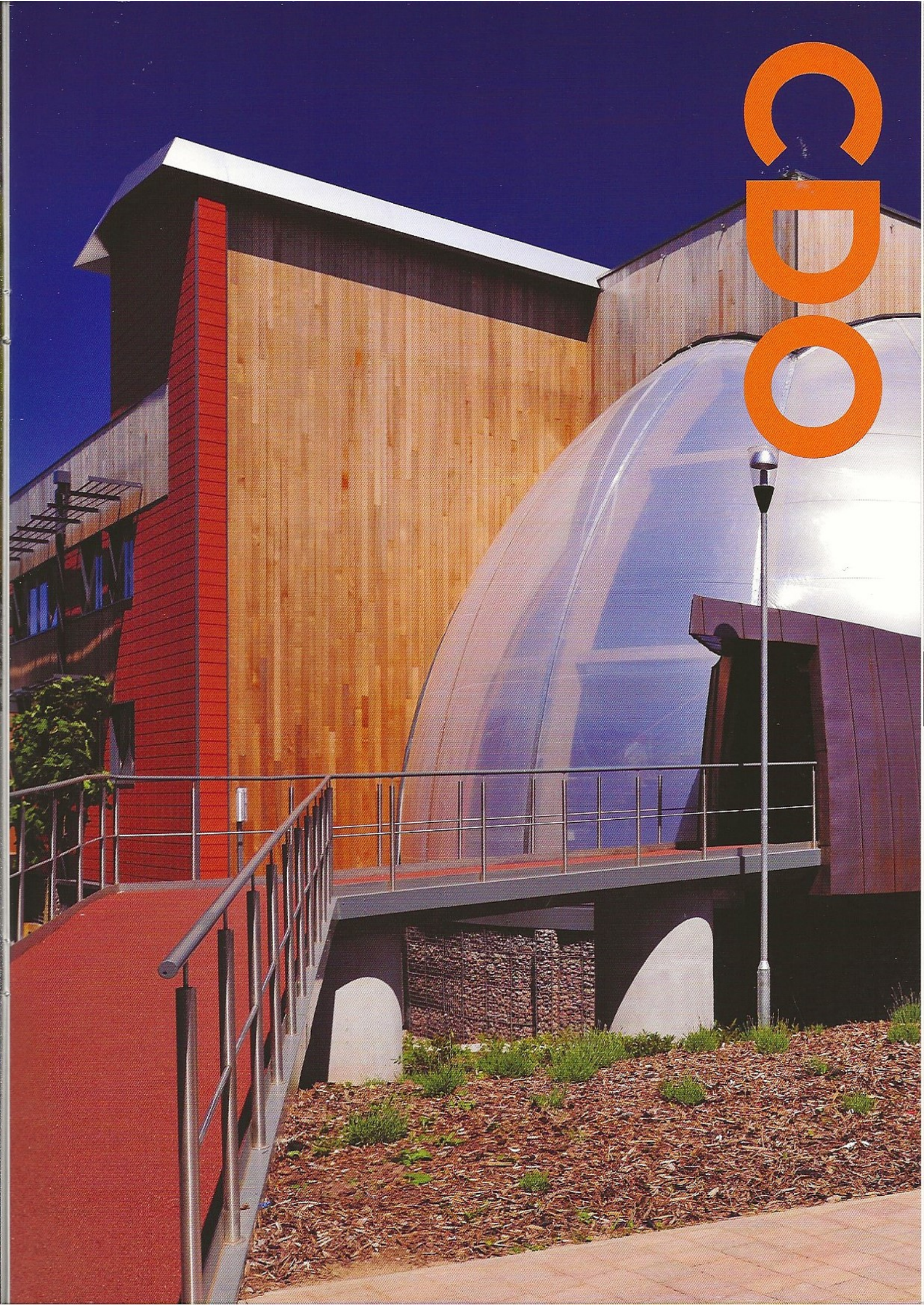
They retraced Wordsworth's steps, where possible, and photographed the landscape at various points, framing it through a cast Claude Glass made by Panneels. The series references the device invented by the 17th-century painter Claude Lorrain: a black glass, or mirror, used to frame the landscape, used extensively by the picturesque landscape painters of the 18th and 19th centuries.

In 2019, the artists walked into the Ettrick valley in the Scottish Borders to retrace the steps of the 'Ettrick Shepherd', the 18th-century poet James Hogg, who – like Wordsworth – was inspired by the landscape in which he lived and worked. The work reflected on the transformations of its current landscape which is arguably going through a second 'clearance' with farmland being cleared for forestry.

The dark grey cast glass has a highly polished flat surface, which reflects the surrounding landscape when placed strategically. The photographs record the temporary and illusory moment of simultaneous vision. The Claude Glass thus offers not only a historical link between the 18th and 21st centuries, but also an alternative vision of the landscape.

Inge Panneels

www.ingepanneels.com


capo

As all good relationships start, I met Professor Katherine Royse on Twitter and mentioned that we are doing an edition for International Women's Day.

Royse is the Chief Digital Officer (CDO) for the British Geological Survey (BGS). She is an honorary Professor of University of Nottingham and is on several boards. Royse is on the members council of the Geological Society of London and the Natural Environment Research Council (NERC). She has a doctorate in Philosophy, Geochemistry and Structural Geology. What an absolute delight to interview a woman who has achieved so much in her career.

Q. Tell us a little about your role as Chief Digital Officer at the BGS?

A. Well, it's mainly a case of the BGS wanting to make everything they do digital; physically in terms of infrastructure, hardware and release of data through the internet. We are aiming to get our organisation better linked, especially about the data we hold, use and develop. We are keen to give more people access to the data that we do have, which is really diverse.

From fossils, rocks, chemical analyses, borehole logs to real-time data streamed directly to us from sensors below the ground or in space, to provide a better understanding into how the natural world behaves. In BGS we see the biggest game changer in geoscience research will be the insights gained from linking our data with other sector's data such as earth observation data, soil data and social media data.

I'm constantly talking about the infrastructure of data and how we describe data. For example how metadata is going to be critically important to enable use to link data across disciplines. Critically important and highly complex data like geological maps makes working on semantics and ontologies so important.

Q. What are the challenges of designing systems for an organisation such as the BGS?

A. The sheer amount of data processed daily is our biggest challenge. We generate a huge amount of data and the ability to process it is one of our biggest challenges. Our second challenge is how to make the diverse types of data in geosciences available and useful to people; the quality of our data is really important. We are seeing more real-time data being ingested and people are needing to have this data processed in real time and accessible in easy-to-read formats. The relative low-cost of Internet of Things (IoT) in ground and satellite devices, means that there is a huge amount of data to process.

There are also difficulties in classifications as the semantics across industries can clash. For example what engineers call 'soil', geologists call 'rocks'. This makes my work really interesting. Understanding user's requirements is really key to making sure our data is FAIR (Findable Accessible Interoperable and Reuseable). Another instance is where users on the BGS website are searching for data on earthquakes, but we list them as seismic events. Common terms by the general public are not necessarily the same terms used in the profession, which can make for awkward classification and communication errors.

Q. What has been your most impactful GIS data set that you have developed or worked on?

A. With my own research, I worked on Geographic Information Systems (GIS) trying to identify drift hollows in London. My team thought that these might be relic pingo structures. At the time, we managed to get boreholes from the Olympic park site, where they had found one during the ground

investigation stage of the work. It was a really exciting time. These structures make the ground very soft underneath them so being able to work out where they might be located is a great help to ground engineers. The work I did helped to prevent locating the ground works in the wrong locations, by identifying these features in vulnerable areas. See: www.bgs.ac.uk/research/engineeringGeology/urbanGeoscience/londonAndThames/driftHollows.html

The BGS's most impactful application in terms of amount of users, is the GeoIndex. This is professional open geological data and many engineers use this GIS system for their work. Engineers love it! The second in terms of most amount of users is the iGeology app. 450-odd maps available on your mobile phone, that can show you what you are walking on. It's a big hit with the general public. I like systems where more users can get hold of the data and that is what excites me. See GeoIndex: www.bgs.ac.uk/GeoIndex/
And igeology: www.bgs.ac.uk/igeology/

Q. Did you receive any mentorship or coaching during your career?

A. Had a couple of coaching sessions, but no mentorship. I mentor lots of other women at different stages in their career. Many women suffer mid-career, especially after returning to work after raising their family. I realised early on that either I specialised in a certain field of study or become more of a generalist and move into management. My skills are in scientific communication and leadership and I really enjoy working with people, so I took the managerial route.

I've known that I've had dyslexia since I was six years old and so writing papers is really hard for me. I moved consciously into 3D modelling and digitisation as a result, a new area of expertise at the time. It has not been an easy journey, but I have realised that if you want something you have to work hard. If it wasn't hard everyone would be doing it!

Q. As you are still submitting for publication, working at BGS and advisor on several boards, can I ask you what would be your advice to younger women in the geospatial field?

A. The BGS used to be a very male-dominated organisation, and it is now keen to advocate for a diverse and inclusive culture. Our staff reflect, this although as chair of our Equality Diversity and Inclusion (EDI) committee, I do recognise that we need to continually work to make things accessible to everyone.

I am very proud of my organisation and the work we have done to address gender balance and diversity. I do mentor people who are post-degrees and I ask them: What do you enjoy doing? What are your real skills? Think about other roles that you can do, rather than the traditional academic route. Get networking!

Work is a collaborative task, so develop your networks and be able to use that network when you need to. Many graduates say I can't get this role I really want without experience and I don't have that experience in my current role. There is only so much training that an employer can do.

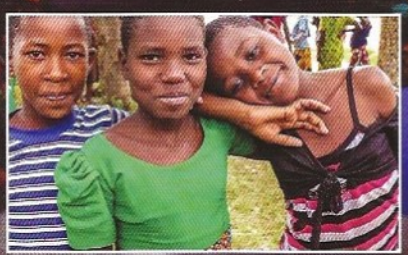
Volunteering is a great way to earn your stripes and get that experience [We have several roles at BCS that require volunteers if you are willing! – Ed.] of different skills sets which can help you get that role up the ladder. You may have to go sideways, go along, go up and see the wider aspects of building up your repertoire of skills.

My current role may not be as exciting as my graduate-self would have wanted, but I love what I do now!

I highly recommend a career in GIS and geospatial. The government are currently looking to put more funding into training in data and spatial data is a good field to go into.

Caroline Robinson
Senior Editor

TANZANIA



How maps are helping protect girls from FGM

A crowd-sourced volunteer project mapping Tanzania into OpenStreetMap

If you live in a village in rural Tanzania, you have probably never seen a map of your village or district. School teachers do not have maps of their area. In some areas, Female Genital Mutilation (FGM) is rife, even though it is illegal. Activists like Rhobi Samwelly get phone calls in the middle of the night saying there are girls about to be cut in a certain village. Without maps it is very difficult to find them.

Crowd2Map, a volunteer, crowd-sourced project was started in 2015 using OpenStreetMap (OSM). The mapping is in two phases — firstly over 14,000 online volunteers trace roads and buildings from satellite images, then volunteers on the ground add local knowledge: names of villages, offices, churches and shops using a free smartphone app Maps.Me. We then train the police and activists to use these maps to quickly find girls at risk.

With minimal budget and no staff we have so far added over 4.1 million buildings and trained community mappers in 26 areas of Tanzania. We ran a workshop at United Nations General Assembly in New York October 2018. We have also set up Youthmapper groups. It is very important to help protect girls and to help Tanzanians navigate and develop their communities. It is something that everyone can get involved in, so please join us today, help your community and learn new, useful skills! Please get in touch and help put Tanzania on the map!

Janet Chapman, Trustee
www.Crowd2Map.org

I confess that I'm an accidental geographer, but many happy things happen by accident and now geography is my passion.

I have always loved exploring. My background is environmental science, and my first experience with GIS wasn't a pleasant one. Now I am a geographer, and I'm very proud of it. I'm also a scientist and a civil servant, not a bad combination in a time where place-based policy evidence is essential. The Government Geography Profession was formed with the aim to be an inclusive, vibrant, broad profession to support those with geography as their career anchors, working closely with other professions and with bodies such as the RGS, AGI, BGS and GA. We're sharing knowledge across multiple organisations and getting the voice of geographers to the highest levels of government. Look out for a whole month-long celebration of Geographer in Government through April, with case studies, blogs, member webinars and more. You can find out more at @GiGMonth

So, what next? I am having an interesting and challenging career and I want all geographers to have similarly stimulating careers, supported by the profession to embed spatial thinking at the heart of policy design and delivery. Not bad for an accidental geographer!

Register here: www.surveymonkey.co.uk/r/CRL289S

Liz Fox-Tucker

Deputy Head of Geography for Government at DEFRA

LANDSAT

At the top of her profession, Barbara Ryan has recently stepped down as the Secretariat Director of the Group on Earth Observations (GEO). We catch-up with her in a long-distance call to her home in Florida.

She is world-renowned for her 44-year career in public service, with many years at the United States Geological Survey (USGS), becoming Associate Director, including responsibility for LANDSAT. Ryan's push to release full and open earth satellite data, at no cost to the user, has provided the world with a model for geographic open data, and for good governance. She was Director of the space programme at the World Meteorological Organisation, and was later appointed to the intergovernmental Group on Earth Observations (GEO), in Geneva, from 2012. As a woman who has definitely reached the top of our profession, not only in the United States (US) but internationally, I was keen to get her opinions on women in spatial data for this special edition of *Maplines*.

Q. What was it like to ask the US government to release all LANDSAT data as open data?

A. Many people thought that this was an important issue for decades, including NASA, the agency that launched the satellites. When the USGS collected the data, it was supposed to be open data, but they found that the cost of collecting the data and making it available was prohibitive. I suppose I was in the right place at the right time. The internet had come along which made distribution much easier. Government and government-funded users were the main users of the data, which meant that the benefits of the EO data largely accrued to the government itself. It was a very frustrating process having to negotiate with different governmental bodies. We had to convince one department and then the next. Fortunately, the economic argument was behind releasing the data as free and open as well as the policy drivers. However, it was still a 7–10 year battle, building on the 40-odd year battle previously raging internally. In the US, the regulation Cost of Fulfilling Users Requests (COFOR) [the equivalent would be Freedom of Information (FOI) request in the UK – Ed.], means that agencies are not supposed to charge for requests, only the method of delivery of that request. For example: paper, printer ink and postage. The non-compliance with this regulation means that really the government had to make the data open and freely available. Restrictions to non-US users would actually incur greater cost than making the data freely available worldwide. The diplomatic benefit to the US could facilitate better relationships with users in other countries. The government would gain leadership on an international platform and benefit from the 'soft-power' approach. Besides, the economic impact was too good to ignore.

Q. What has been the impact and what are the current challenges of open data?

A. Had the US not done this with LANDSAT then I believe, the European Union (EU) would not have followed suit with its Copernicus programme. To meet our own commitments to the Sustainable Development Goals (SDGs), the Paris Agreement, and the Sendai Framework for Disasters, a free and open LANDSAT (and Sentinel) Program is essential.

Q. The role of LANDSAT as open and freely available has seen some wobbles recently, especially due to the current US Administration... how do you see the future of LANDSAT and other open data unfold?

A. Politically, leaders who want to strengthen our borders, by keeping the public's attention within our borders, and to restrict access to open data, pose a risk to open data policies. Open data for all global citizens helps create an inclusive society. When the current Administration came into power, they asked for the LANDSAT free and open data policy to be re-analysed, especially the costs. The economic results put this issue to bed (at least for now). Being ever-vigilant is essential to maintain EO data as open data.

Q. Have you experienced any sexism in the workplace, while climbing the ladder into leadership roles?

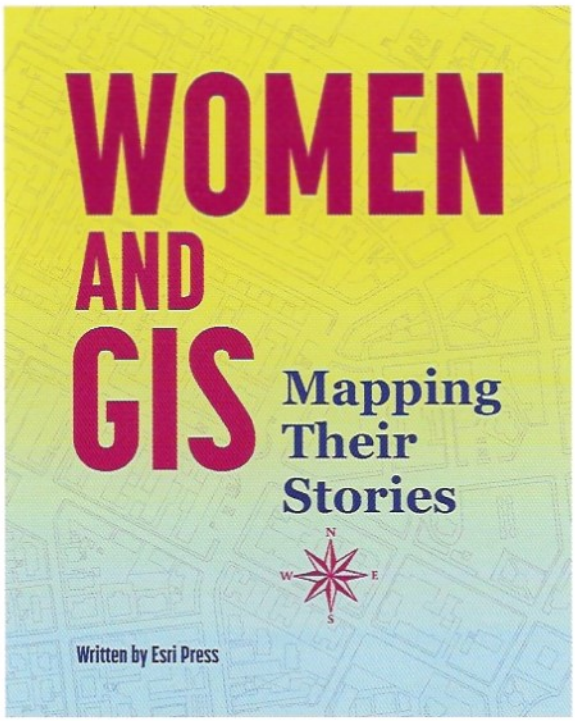
A. Yes, absolutely! At every stage, geology was a mainly male-dominated field. In the late 1980s and 1990s, there was affirmative action by governmental departments. There were quotas for women and people of colour, and both were actively sought for leadership positions. If someone recommended you for a job and you wanted it, you had to work twice as hard to justify your role. It was our responsibility to work hard and help pave the way for other women to come up the ranks.

Q. Have you really retired from your role at GEO? What are you currently involved in?

A. No, my husband would say that I haven't really retired! I serve on a number of boards, mainly in a volunteer or pro bono capacity, here in the US, Europe and Asia. I like to work with people internationally. I enjoy helping to connect people. It energises me to know that I can make a difference.

Caroline Robinson

Senior Editor



Women and GIS, Volume 2: Stars of Spatial Science is out now!

Women and GIS: Mapping their Stories
Redlands, California: Esri Press, 2019, ISBN 9781589485679, 232 pp., $24.99 (hbk), $14.99 (pbk and e-book)

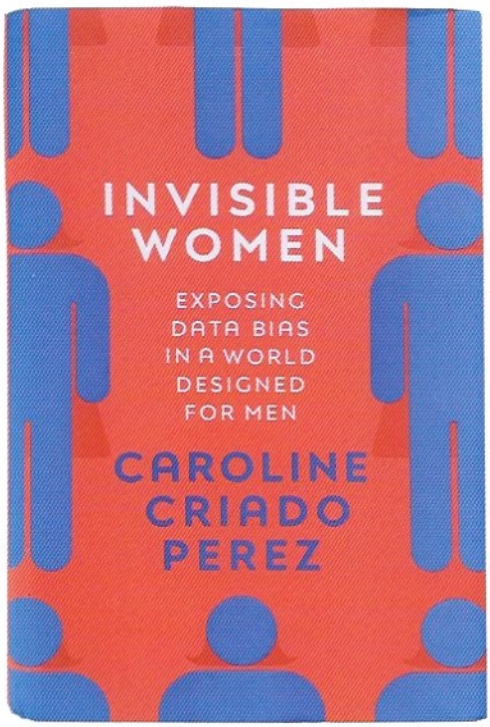
If you are looking for a collection of inspirational stories and pearls of wisdom from colleagues in the world of GIS then look no further. This new book from Esri Press offers a departure from its usual range of how-to technical guides to GIS and cartography and instead says something about the people working within the GIS industry. Among the line-up we find Kathryn Sullivan, America's first woman to walk in space, Wangari Maathai, winner of the Nobel Peace Prize in 2004, and our very own Mary Spence MBE, BCS President from 2006 to 2008.

Why is there a need for this book? As Catherine Ortiz, the Manager and Publisher for Esri Press who came up with the idea explains, "I wanted to show that it didn't matter who you were, where you came from, or the struggles you faced. I wanted people to read about women from different backgrounds, different countries, and different generations who faced struggles along the way but never gave up on their dreams. Women who use science, technology, engineering, and math to make the world, and the lives of the people around them, better. If these women can do it, so can they.".

The appeal of the book therefore lies in the personal stories of what motivated these inspirational women to get involved in mapping and how they overcame various obstacles – from peers to poverty – along the way. These stories are enhanced by quotes that speak directly to new generations of map-makers and form a superb compendium of wisdom that is especially useful for those starting off in their careers.

As with all technology, GIS software empowers people to achieve greater things through mapping, but every now and then we need reminding that cartography is ultimately about people. There is more to maps than accuracy and aesthetics; each one has a story behind its creator as well as its creation. That is the more powerful message of this book, and it is good to see the stories of these extraordinary women reaching a wider audience. Hopefully, they will inspire future generations and show how it is possible to be a cartographer and change the world!

Dr Alexander J. Kent
Immediate Past President



Waterstones Non-Fiction Book of the Month, March 2020

Winner of The Financial Times and McKinsey Business Book of the Year Award 2019

Winner of The Royal Society Insight Investment Science Book Prize 2019

Invisible Women: Exposing data bias in a world designed for men
Caroline Criado Perez OBE
ISBN: 9781784706289, 432 pp., £14.99 (hbk), £7.99 (pbk)

"For the women who persist: keep on being bloody difficult" is the dedication at the beginning of this book and hats off to the author for finding out how data on women is collected (or not).

We think we know how to collect data, as geographers. We try to make sure that social/economic data collects age, sex, faith, house prices, etc and make sure that it is representative of the population within a locality. However, would it surprise you to know that other sectors that rely on data to make informed decisions may not be so rigorous? This book has incredible insights into what constitutes 'normal' or the 'average' human. The 'default male' is the description of the male experience as the 'only' or most 'truthful' experience, when making decisions that affect the whole population.

For instance, women have always known that there are never enough women's toilets at the airport or conference hall. If over 50% of the population are female, why is it so hard to go to the toilet within a reasonable time at the interval? Why are we always late getting back? Not only do women take longer in the toilet – obviously there is a monthly reason – but the area allocated to women is reduced by the amount of stalls allocated compared to the amount of urinals and stalls. Therefore, more men can 'go', whereas less women can 'go' at one time. This is a matter of spatial allocation being unfair. Women also have to share with other vulnerable groups, such as children, the elderly and the infirm. When there is one toilet allocated to all of these groups and then you have to get a key to the 'special' toilet, then you would understand why women take longer to 'go'. Here's looking at you, Toronto Airport!

For women, who not only work in data collection and analytics, but have a life outside of work, this book will confirm what you already know and surprise you with the things you don't. For men, who not only work in data collection and analytics, but have a life outside of work, this highlights a small selection of conscious and unconscious bias towards women in society built for the 'default male'. Really important book for every data collector and analyst, go buy it!

Caroline Robinson
Senior Editor

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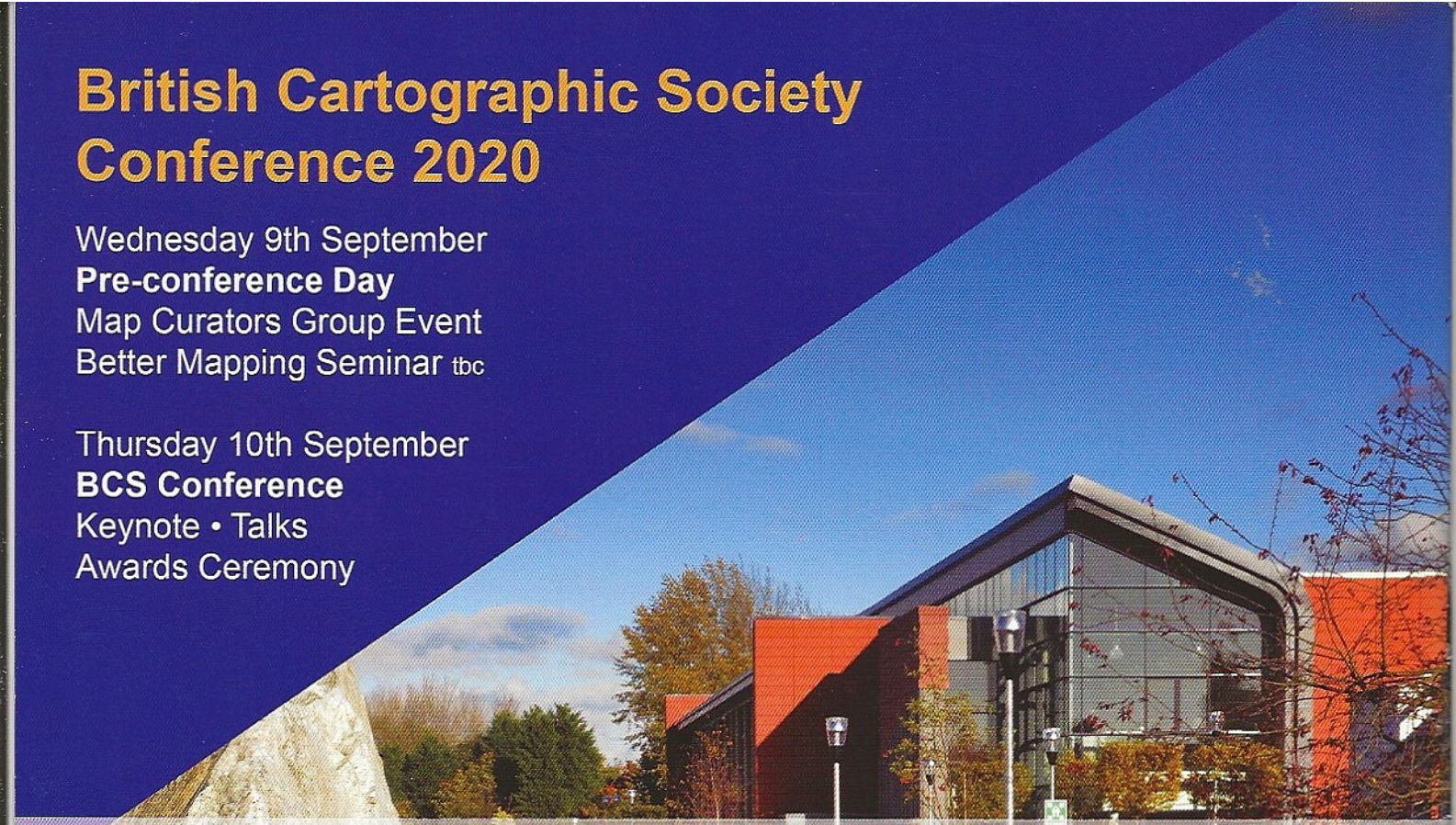
British Cartographic Society Conference 2020

Wednesday 9th September
Pre-conference Day
Map Curators Group Event
Better Mapping Seminar tbc

Thursday 10th September
BCS Conference
Keynote • Talks
Awards Ceremony



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