

Building back better

Terri Freemantle believes that, if 2020 has taught us anything, it is that science and data has a pivotal role in shaping the future

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With 2020 drawn to a close, the dawn of 2021 offers a good opportunity to reflect on the events of the past year. A year which stole the lives and livelihoods from many, but also a year in which humanity responded with great resilience, ground-breaking science and innovation, and a deep compassion for others.

The emergence of the SARS-CoV-2, a novel coronavirus previously unknown to science, led to an unprecedented reliance on science. With it came a wider appreciation of the role for science and data, whether in the fight to understand, treat, and eradicate the virus, or in supporting the road to recovery. It has also provided an opportunity to bring geospatial analytics to the forefront of the global stage.

Effective communication

The need for effective science communication has never been so pertinent. For many months now, governments worldwide have been communicating with their citizens via an array of methods including maps, although with often with mixed success.

Over the last year there have been some great examples of data visualisation that have had a profound effect on our understanding of the world during the pandemic - who hasn't used the award winning Covid-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University?¹

Alas, there have also been many questionable maps, charts, statistics, bad maps, more charts, and even worse maps. Despite this, they all have something in common in exploiting geospatial data in some way. Given we now cannot leave our homes as freely as we require, the need for remote observations has grown substantially!

Geospatial data and analytics have huge

relevance and potential for the pandemic response - from route planning and logistics for distributing PPE and other critical resources², to modelling the spread of the virus using various intervention scenarios³. And from aid compliance with stay-at-home orders⁴, to remotely monitoring our environment. There are opportunities everywhere for geospatial experts to innovate and support the global effort.

Innovation at pace

And innovate they have - from mining big data, such as Flowminders research using anonymised Call Data Records (CDR) to map the flow of people to and from Wuhan using VHR satellite imagery, to estimating mortality rates in data poor regions⁵. Other examples include ESA's call to monitor Covid-19 impact⁶ and global collaboration networks that foster knowledge transfer and approaches to integrated data⁷. People have also come together to volunteer their skills, Examples here include the Geovoluntarios who developed webapps to help locate and assist the distribution of donations and services to those in need⁸, and MapAction's collaboration with the Centre for Humanitarian Data to model and predict the scale, severity, and duration of coronavirus outbreaks⁹.

Overall, the market has coped remarkably well during the crisis and grown against all odds where others have failed. To quote, the 'Geospatial industry has bright future in post-Covid world'¹⁰ - the geospatial analytic market was 'estimated at USD 39.46 billion in 2017 and is expected to register a CAGR of 17.89% during the forecast period, 2018 to 2023'¹¹.

2020 saw the exposure of science and geospatial analysis to wider communities as never before - and this has had an unexpected positive impact. In the UK, an Ipsos MORI study found that public opinion of science remains generally high (>60%)¹², similarly the public are interacting with, learning from, and creating their own maps and dashboards - a common communication tool adopted during the pandemic to share information, sometimes in near-real time¹³.

Growing role

Looking forward to 2021, the role of geospatial analytics will continue to grow, as we continue

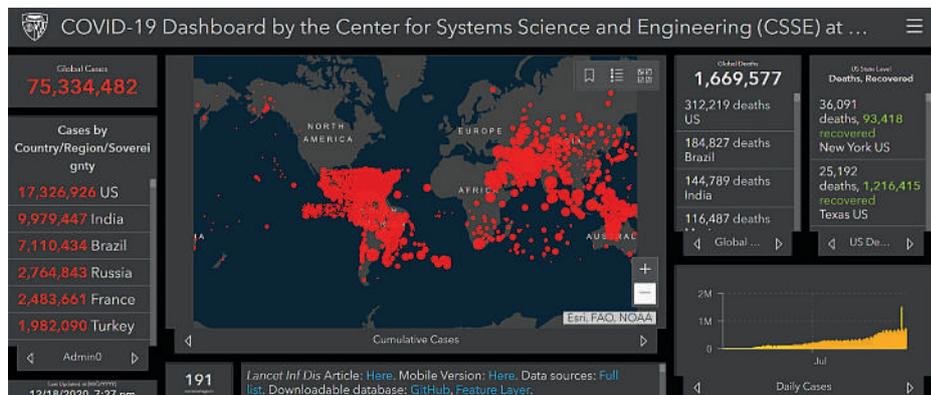


the fight against the coronavirus. Vaccines are being approved at a record-breaking rate and, once secured, the distribution of those vaccines needs to be planned. No one would deny that this is a monumental task, even in developed countries that have access to accurate maps and up-to-date demographic data. For low and middle-income nations, this journey will be more complex and encounter many hurdles.

I take reassurance in the fact that, as technology improves, and the industry continue to innovate, we will see even greater things evolve in the geospatial community. We should also take this time as an opportunity to think seriously about how we can improve the way we interact with our environment and address climate change.

Downtime during lockdown led to observable environmental changes - the UK saw a marked decrease in air pollution of ~50% during 2020 compared to the seven preceding years¹⁴. As people have relied on nature more to cope, there is an increasing shift in public perception that nature needs to be preserved. Now is the time to utilise geospatial data to conduct robust science and help drive evidence-based policy making, learning from our recent experiences to drive positive change.

The emergence of SARS-CoV-2 may be nature's way of telling humanity to slow down, consume less, reconnect with our community, restore nature, and encourage



This dashboard from the Johns Hopkins University is a continuously updated source of COVID-19 data and expert guidance. The best available data is aggregated and analysed to help the public, policymakers and healthcare professionals worldwide respond to the pandemic.

us to redefine what it means to thrive. It is time to heal, and we, as geo-enthusiasts, should seize the opportunity to continue to innovate and help the world rebuild sustainably, and build back better.

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