

# THE GEOSPATIAL RACE



Image captured by Helica in August 2018. However, whether it was obtained by UAV, aircraft or satellite, there is no value in the imagery, unless value is extracted from it and provided to people who need it. The imagery alone did not provide biomass estimation – further analysis was undertaken to extract its true value in assessing deforestation © Arjun Sheoran

## UAVS, AEROPLANES AND SATELLITES ALL GIVE US ACCESS TO BETTER DATA, MORE QUICKLY THAN EVER BEFORE. BUT HAVE WE, AS AN INDUSTRY, LOST TRACK OF THE POINT OF IT ALL, ASKS ARJUN SHEORAN

Over the past decade, we have seen an unprecedented growth in the means of acquiring remote sensing data. Whether it's high resolution satellite imagery, UAVs with an array of multispectral sensors or the traditional aerial survey with airplanes, there is an abundance of data out there. With this blinkered focus on acquiring faster, cheaper and more accurate data, we often forget to ask the question: do we really need more data or do we need more value from the data we have?

We in the geospatial industry need to be conscious of not just acquiring data but of providing services and solutions for our communities. This gets harder for us if we are focused more on winning the geo information race for data acquisition, rather than providing a service. Between satellites,

UAVs and aircraft, we are reaching a saturation point for data acquisition, and the market for extracting valuable information from this data is still in its nascent stages. It's understandable for machine-learning and automated processing to acquire more data from multiple sources; however, there is a greater need for companies to design tools for extracting key information from the same data.

### Satellite imaging

It is estimated that in the coming decade, more than 400 earth observation (EO) satellites with a mass greater than 50kg will be launched, compared to only 163 between 2005-2015. Joining mature satellite imaging organisations such as Airbus and Maxxar, the past decade has seen the rise of many start-ups in the US and Europe. Some of the

successful ones have revolutionised the EO industry and can capture imagery of the entire Earth every day. We are exposed to an abundance of good quality, remotely sensed data at the click of a button.

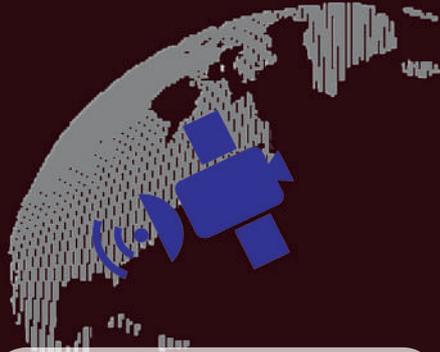
However, the value chain for providing solutions from this data is largely untapped.

Satellite imaging companies are focused on not only collecting high-resolution (a ground sample distance better than 30cm) imagery, but also capturing the Earth every day. With this much data, the question arises: how do we take it and provide real value for real problems, cost-effectively? The focus again is on acquiring data and winning the race with the latest and greatest satellites, with little concern about extracting valuable information from the data.

### UAVs

UAVs are a disruptive technology that has changed the way we collect data. It is a rare geospatial conference that does not expose us to the latest and greatest in UAV technology, with many conferences dedicating an entire section to this market

# NO PERFECT SOLUTION: PROS AND CONS



- + Wide area coverage
- + Daily tasking
- + Extensive archives
- + Multispectral resolutions

- Limited to 30cm GSD
- Limited coverage in some regions
- Limited by cloud cover



- + Wide area coverage
- + High resolution: down to 3cm GSD and >50 pts sq m
- + Flexible data acquisition
- + Multispectral resolutions

- Mobilisation is expensive and time-consuming
- Restriction in flight-permits and customs



- + Fast data acquisition and mobilisation
- + High resolution: down to <1cm GSD and >100 pts sq m
- + Well suited for small, remote sites
- + Multispectral resolution

- Limited by endurance
- Relatively low accuracy
- Restrictions in flight-permits in urban areas

segment. The number of small-medium size companies manufacturing UAVs has grown exponentially in the past decade. Are we in a UAV bubble that is running out of room to expand and could burst at any time, thanks to an over-saturated market?

Like all airborne technologies, UAVs have their pros and cons. However, they have successfully secured a market segment that relies on data acquisition for small and remote geographic locations. However, they are still looked upon with some scepticism for large and restricted airspaces – and for good reason. The regulatory requirements for operating a UAV in city centres to acquire data are still quite unclear; in addition, concerns about litigation and privacy are valid and need to be address before we can consider UAVs as viable options for city surveys.

## Airplanes

Undoubtedly, airplanes have been the backbone of gathering remotely sensed data in the past century. This traditional aerial survey platform has remained largely unchanged and is still the cornerstone of acquiring geospatial data.

However, the technology and sensors on these aircrafts have changed drastically, making it easier than ever to quickly survey vast areas. For example, radar was once only deployed on satellites, but recent developments in our industry mean companies can now acquire radar imagery from airplanes. This is partly because manufacturers are focused on winning the race to acquire more data, faster and



more efficiently. Again, the driving force here is data acquisition, with little focus on exploring the full potential of key information that can be extracted from the data.

## The geospatial race

As professionals in the geospatial industry, we have the responsibility to explore the full potential of the data we capture, to help better manage the finite resources we

REMOTE SENSING



have on this planet. Personally, I believe our industry is unique and is core to addressing many of the global issues we face, whether it's rising sea levels, air pollution, deforestation, asset management or environmental pollution. Scientists and professionals across numerous sectors rely on the data we acquire to address many global issues.

However, we are currently more focused on capturing the market share centred on data acquisition than on addressing the full potential of the data we acquire. I appreciate

the commercial remote sensing industry has provided a support system to government organisations for addressing the need for acquiring geospatial information, but we are at a point where we need to work together to address problem with unique solutions, rather than merely provide data.

As a commercial manager in the remote sensing industry, I find many of my clients tell me the same thing I am saying here – they don't necessarily need data, they need the value extracted from that data. They need solutions, not more information. Most are not interested in whether the data is

acquired from UAVs, satellites or airplanes; they want to know how that data can be used to address their current problems.

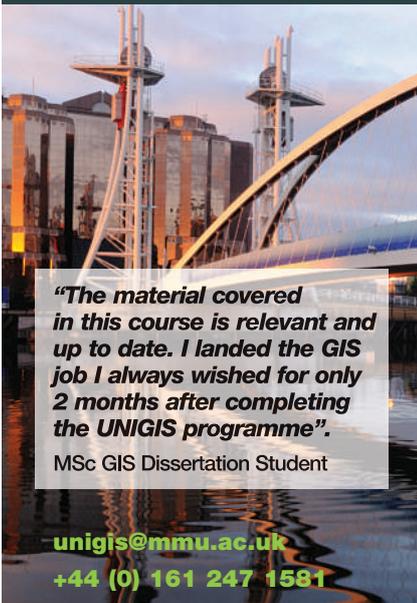
In my opinion, it's time for us to bridge the gap between researchers who are focused on finding solutions and organisations that are focused on winning the race for data acquisition. In the end, it does not matter who wins the race and collects the data – what matters is whether we have been able to use that data to provide a valuable solution to the people who need it.

**Arjun Sheoran is commercial manager at Helica ([www.helica.it](http://www.helica.it))**

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