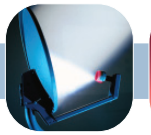

Amy Saunders
Editor

Spreading awareness of satellite

We're all well-versed with the standard, day-to-day applications of satellites like broadcasting, communications, and data relay, among others. These uses are all extremely well-developed and provide a massive array of capabilities that improve the lives of billions around the world. However, because these applications are so well-established, the fact that satellites are providing amazing services all the way from space is largely under the radar of the population. Put simply, satellites are no longer exciting to the general public.

If we want to bring satellite capabilities to the attention of the nation, thus attracting the world's best talent and ensuring the continual development of this vital field, we need to capture the imaginations of our youth and the world at large. We must communicate more, and publicise more, the ground-breaking new developments taking place every month. In August alone, two fantastic new stories caught my eye; one, a new development from China that will no doubt change the entire history of satellite technology; and the second, a human interest story that could see satellite imagery improve the lives of millions of the less well-off around the world.

> "Last month saw China launch the world's first quantum satellite from the Jiuquan Satellite Centre in the Gobi...."

Last month saw China launch the world's first quantum satellite from the Jiuquan Satellite Centre in the Gobi Desert. During its two-year lifespan, the Quantum Science Satellite (QUESS), since renamed Micius after the famous Chinese philosopher, will use photons to test quantum entanglement, where the properties of two particles are linked even when separated, over a distance of 1,200km. The team at the University of Science and Technology of China will also test quantum key distribution, a secure form of communication which prevents hacking via the laws of quantum mechanics. If successful, the team plans to launch a global, unhackable series of communications satellites.

China is far from the only country looking into quantum satellites; Alexander Ling from the Centre for Quantum Technologies in Singapore, commented on the development: "We can test many things on the ground, but the final validation has to be done in orbit. Everyone working on free-space quantum communication is very excited."

In other news, day-time satellite imagery has been used to identify poverty areas in five countries in Africa. While poverty levels are reasonably easy to establish in the developed world, when it comes to developing countries, there's little reliable data. The currently-used method of surveys is costly, while night-time satellite imagery, which looks at night lights from space, has proven unreliable in very low-income areas, as well as areas home to conflict.

A team from Stanford University trained a computer system to recognise key indicators like paved roads and metal roofs from day-time satellite imagery in order to establish poverty levels in Nigeria, Tanzania, Uganda, Rwanda and Malawi. The results were compared with survey results to validate the findings. The research team plans to scale up their project to cover all of Sub-Saharan Africa, and later, the entire developing world.

Joshua Blumenstock, an Assistant Professor at the University of California, stated: "For social welfare programmes, some of which already use satellite imagery to identify eligible recipients, higher-fidelity estimates of poverty can help to ensure that resources get to those with the greatest need."

These are just two stories from the last month demonstrating the amazing things we can do with satellites, both of which could ultimately be used for the greater good of the entire world. What we need is more innovation of this kind, and we can only achieve it if the satellite sector continues to attract the best and brightest to its field. ■