

THE MOON'S A BALLOON

HIGH-ALTITUDE PSEUDO SATELLITES ARE FAR CHEAPER THAN SATELLITES, MAKING THEM A DREAM FOR EARTH OBSERVATION, SAYS **ALISTAIR MACLENAN**

One of the barriers to the growth of the world's remote sensing industry has always been the cost of entry – or, more accurately, the cost of leaving. The planet's surface, that is. Recently, competition has driven this cost down but you still need to pay the best part of a Lionel Messi (€250m) to start viewing the Earth from above. What can be done to reduce this significantly to, say, the cost of one of the best English footballers? Well, what if you don't need to be in space, to get images from space?

Included within the many metaphorical hats I wear is the one that makes me the chairman of the British Association of Remote Sensing Companies (BARSC). This gives me the opportunity to keep up with the array of geo-developments that member companies continue to create. During the last BARSC 'cuddle', one such revelation was a brief mention of how HAPS projects have made significant progress in recent times.

HAPS – High-Altitude Pseudo Satellites or High-Altitude Platform Stations – are well named as they operate high about the surface of the planet, doing a job very similar to that of satellites. In this case, 'high' means in the very much thinner air of the Earth's stratosphere, between 20km and 50km above us.

Nestled between the troposphere below it and the mesosphere above, the

stratosphere is relatively uniform in temperature and low in water vapour, has low wind speeds (relative to jet streams), and is above the height at which commercial aircraft travel. This makes it a relatively benign, cloud-free environment that a very light, solar-powered airship with an appropriate sensor can literally hang around in, taking images of the world below.

Launched in some cases by hand, these HAPS offer earth observation over an almost satellite-sized area without the need for hugely expensive rockets. Additionally,

to operate in darkness for hours. The very best battery technology is needed to ensure that our airship doesn't wake up looking at another part of the world or the ground!

Hard facts about current HAPS development are scarce but one project that has attracted attention is the Zephyr S. Manufacturer Airbus claims that the Zephyr is the 'only flight-proven HAPS platform' and that they have solved the day/night continuity issue. They must be doing something right as the UK's Ministry of Defence placed an order for two, and that

HAPS OFFER EARTH OBSERVATION OVER AN ALMOST SATELLITE-SIZED AREA WITHOUT THE NEED FOR HUGELY EXPENSIVE ROCKETS

they can stay still over a single point on the Earth's surface, something that would usually require a satellite orbit of around 35,000km or an oil tanker-per-hour of helicopter fuel.

Given these obvious cost and functionality advantages, why aren't the skies full of HAPS? Well, they are not simple to make. They must be very light and extremely strong to withstand their operating environment and to carry the payload. Also – and slightly perversely – the benefit of being able to maintain station causes a major design headache. As the world turns away from the sun, the HAPS goes with it and so has

contract is expected to see the development of new and improved models this year.

If cost of entry to the EO marketplace is holding back the number of organisations that could be benefiting from remotely sensed imagery, HAPS could open the floodgates and be as revolutionary as the Cruyff turn, goal line technology or England winning another world cup!

Alistair MacLenan is founder of the geospatial B2B marketing agency Quarry One Eleven (www.quarry-one-eleven.com) and chairman of the British Association of Remote Sensing Companies

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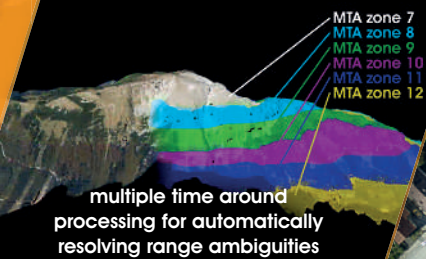


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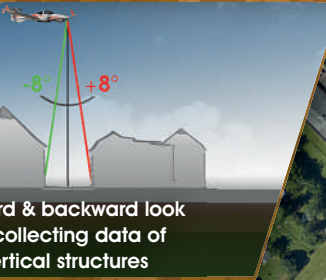
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