

HE KNEW WHAT HE SIGNED UP FOR



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ARMIES WANT OTHERS TO DIE FOR THEIR COUNTRIES, NOT VICE VERSA. INTELLIGENCE ACQUIRED THROUGH REMOTE SENSING ADVANCEMENTS CAN BE LITERALLY LIFE-SAVING



It's a cliché about soldiers that movies – and presidents – often use: “He knew what he signed up for.” In other words, soldiers know that they're going to die in combat.

The truth, however, is that no one joins the military expecting to die. On the contrary, the hope is to stop the enemy, preferably without force. If the worst comes to the worst and force has to be used, then the aim is for the enemy to be the one on the receiving end. Together, a country's military works to ensure that everyone gets home – alive.

Key to this is intelligence. ‘Proper planning and preparation prevents poor performance’ and rushing into battle unprepared is significantly more likely to result in casualties and death. Getting that intelligence, particularly geospatial intelligence, is part of the problem. After all, it's not as if a surveyor can go onto the battlefield with a total station to acquire a sub-1m accurate map of the area.

This is where remote sensing is literally life-saving. By offering a way to acquire information from far away, lives are no longer put at risk and battles can even be prevented. And it's the application of remote sensing techniques and technology to defence applications that is our main theme this issue.

The use of satellite imaging can involve trade-offs. On the one hand, you want to be able to see as much as possible in as great a detail as possible. On the other hand, the more detail you acquire, the more information you have to process and the more time it takes to acquire.

That trade-off is at the heart of ‘cueing and tipping’, a technique that has been used to explore developments in the South China Sea. Claimed by China, Taiwan and Vietnam, the Paracel Islands occupy an area of around 15,000 square kilometres and are largely uninhabited. But their tactical importance means that military and civilian construction has been taking place.

In our feature on page 24, Chiara Solimini and Ana Isabel Martínez explain how two satellites with different capabilities were used to monitor these developments – the information from one, lower resolution satellite being used to task the other satellite to obtain more data about potential points of interest.

Of course, advances in one military technology often lead to advances in a counter-technology. Camouflage, for example, has steadily been improving so that it's not just people who are confused by it, but technology, with new materials and patterns used to disguise infrastructure so that “eyes in the sky” can't distinguish them from their backgrounds.

On page 27, Susan Parks explores the growing field of MASINT (measurement and signature intelligence). Hyperspectral remote sensing data can be used to do everything from map soil types in preparation for the deployment of heavy vehicles to near-shore bathymetry. But by collecting the signatures of materials across the spectrum, it's possible to detect camouflaged objects that represent as little as 20% of a remotely sensed image's pixel.

We hope you enjoy the issue.

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