What goes up must look down

Turning data from satellite sensors into operational intelligence for Aotearoa's maritime domain awareness

Spacecraft launches are growing at an exponential rate. Earth observation satellites, in particular, can provide efficient monitoring of Aotearoa's vast maritime domain—a growing need as marine resources become increasingly contested and global shipping chains put mounting pressure on our defences against unwanted pests and disease.

At first glance, satellites seemed poised to transform the industry. The diversification of space sensors (optical, radar, radio frequency, GPS, weather) has ushered in a new era of software as a service solutions, reducing the barrier to entry for non specialist users.

The challenge now is that there is too much information. Across border security, biosecurity, and fisheries monitoring control and surveillance, search and rescue, public health, and policy—the problem is always the same—'how can I see through the chaos and focus on the activity and vessels that matter.'

This is the proposition of Starboard®, a NZ-developed maritime intelligence platform that is helping NZ and international customers tackle complex maritime challenges.

In this talk I illustrate several examples of turning data from satellite sensors into operational intelligence for maritime domain awareness. I'll share how commercial shipping crews are epidemiologically assessed for Covid-19 risk based on daily incidence rates from previous ports of call. I'll explain how cargo vessels are triaged for hitchhiker pests based on global travel histories. I'll discuss how machine learning can detect voyage anomalies that may indicate suspicious activity. Finally, I'll share how layers of satellite data and imagery can be fused to uncover nonreporting 'dark' vessels in support of fisheries operations.

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