

PROJECT SUMMARY



Wide Area, Multi-Mission, MDA Network

Client: ASI Group

Location: Port Dalhousie, Ontario, Canada

System: Accipiter® NM1-8A Security Radar System for maritime perimeter intrusion detection and alerting. Repeated successes resulted in expansion and evolution into Accipiter's Great Lakes – Radar Environmental Intelligence Network (G-REIN) which serves multiple missions and users in North America.

The Challenge

The Hamilton and Scourge National Historic Site of Canada is located at the bottom of Lake Ontario 11 km north of Port Dalhousie, near St. Catharines. The site is comprised of the wrecks of two American gunships, the Hamilton and the Scourge, which sank during the War of 1812. Hamilton and Scourge was designated a national historic site of Canada due to them being such rare examples of vessels of that era which have survived to this day in remarkable condition.



The site contains a vast historical treasure of shipboard articles and is a grave site for dozens of American sailors who went down with their ships during the War of 1812. The site is located along Lake Ontario commercial shipping lanes. Parks Canada had a requirement for an unattended perimeter intrusion detection system (PIDS) to identify potential loitering vessels and illegal diving operations, while ignoring legitimate marine traffic just passing through, enabling the Niagara Regional Police Service (NRPS) marine units to be dispatched when suspect activities occur.

The Solution

In 2003, Accipiter partnered with ASI Group, Parks Canada, the City of Hamilton (the custodian) and NRPS to develop and implement a sub-surface, unattended, perimeter intrusion detection, alerting and response system concept and mission to protect this national historic site. This involved the installation of an Accipiter® NM1-8A Security Radar System and pioneering of very specific software algorithms to detect suspicious loitering and behavioral vessel activity, while allowing legitimate vessels to pass without creating false alerts. This project was completed successfully and has been turned into a surveillance service that has continued to be renewed annually to this day.



Accipiter® NM1-8A Radar Surveillance and Camera System, located at Venice en Québec, Canada

This project also gave rise to Accipiter's groundbreaking Radar-as-a-Service (RaaS) concept, and in 2011 Accipiter embarked on a multi-mission, multi-user, RCMP/DRDC-CSS funded program, working with the RCMP to provide an eco-system of decision support tools to the Great Lakes Marine Security Operations Centre (GL-MSOC), supporting multiple missions by the RCMP, DND, Transport Canada, CBSA and the Canadian Coastguard. Accipiter assisted with the development of an Operational Concept (OPSCON) for watchstanders (through special live displays and alerting), analysts (through special historical and analytical tools) and responders (through mobile tools). We refer to these mission-specific/role-specific tools as Surveillance-to-Intelligence (S2I) tools. Surveillance was expanded into a wide area network through the addition of an Accipiter® NM1-8A Security Radar at Windsor, ON,



Project Start: 01/2003; **Project Finish:** Ongoing
Support Commencement: Ongoing
Support Services: Ongoing



Market: Public Safety and Security



Type of Contract: Radar-as-a-Service (RaaS)



Client Contact:
Available upon request



Accipiter® NM1-8A Radar Surveillance and Camera System, located at Port Dalhousie, Ontario, Canada



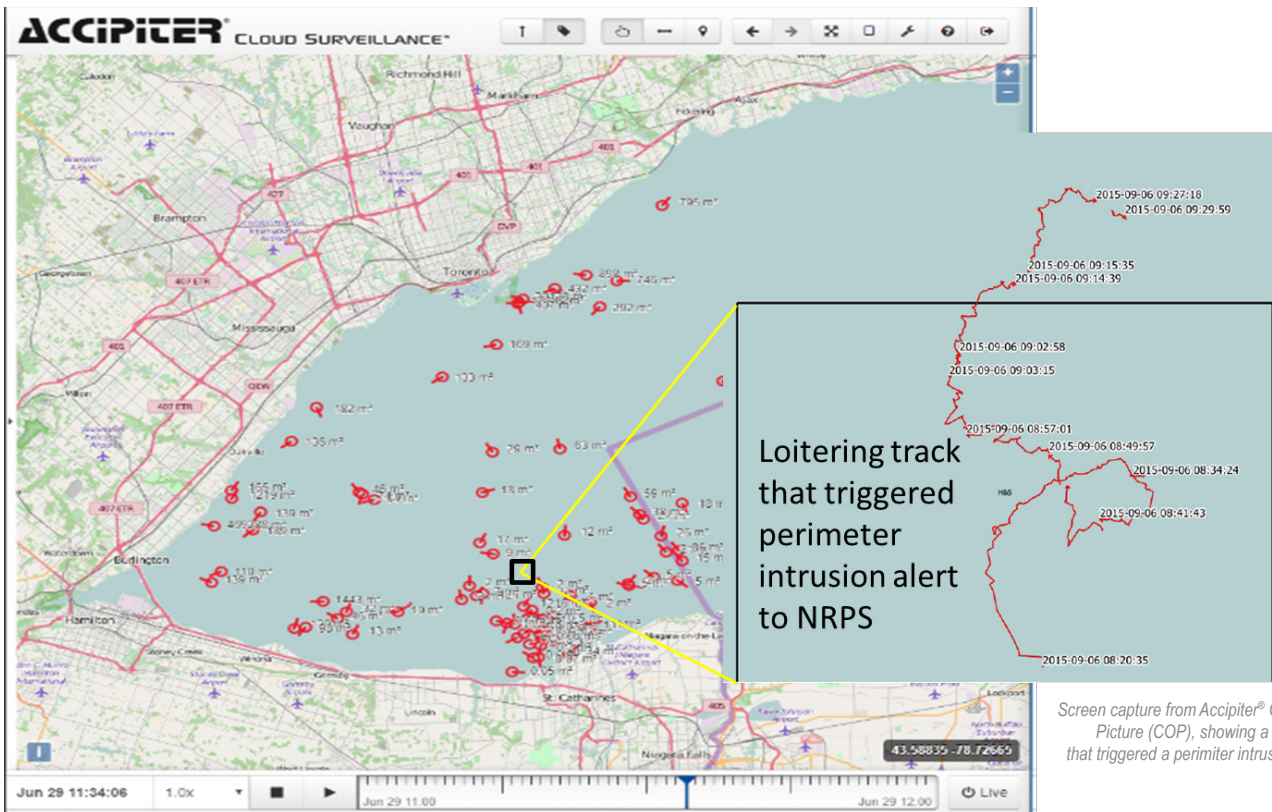
Accipiter® NM1-8A Radar Surveillance and Camera System, located at Windsor, Ontario, Canada

extending the community of practice to include the Windsor Port Authority, US Border Patrol and the US Coastguard. Here, Accipiter continued to innovate on demand to develop our patented Radar Intelligence Network™ (RIN) platform technology. This included the development of a AIS subsystem for cooperative vessels.

Our innovations directly supported Shiprider operations and contributed to interdiction of cross-border smuggling. Shiprider is a bi-national law enforcement initiative permitting specially trained and cross-designated Canadian (RCMP) and U.S. law enforcement officers (USCG) to jointly crew each other's vessels and patrol common and undisputed waterways along our shared border, while under the direction and control of an officer of the host.

In 2012, DRDC-CSS and DHS S&T successfully joined with Accipiter to fund a bi-national initiative called the Canada US Sensor Sharing Program (CUSSP) which continued the expansion of G-REIN into Québec, where we added a new radar and camera surveillance system at Venise-en-Québec and sold and installed another radar at the land border Port of Entry (POE) in Vermont. This further expanded the community of practice to include RCMP's Montreal OCC and RCMP C Division (Saint-Jean-sur-Richelieu) and working in cooperation with US Border Patrol Swanton Sector, Vermont to protect that border than cross Baie Missisquoi. Accipiter further innovated and demonstrated radar fusion, and enabled rapid response to unauthorized border crossings with automated police dispatch from Montreal and RCMP-vehicle equipped Accipiter® Mobile Response COP.

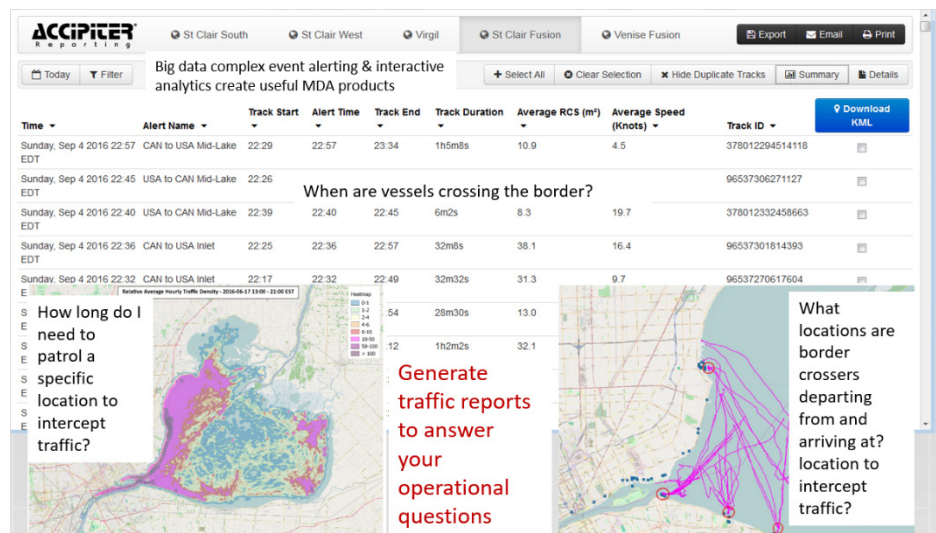
(continued on reverse)



Screen capture from Accipiter® Common Operating Picture (COP), showing a loitering track that triggered a perimeter intrusion alert to NRPS

Further building on success, in 2016, DRDC CSS supported a new project for CCG-led search and rescue (SAR) operations, leading to the development of specialized S2I tools for SAR missions involving overdue vessels which trigger SAR dispatch from the Joint Rescue Coordination Centre (JRCC) at CFB Trenton. These S2I tools and methods help pinpoint search start coordinates. This project successfully demonstrated the potential for significant reduced search times and search cost and the saving of lives. Accipiter is now investing in AI development to operationalize.

In 2017, as a result of the previous projects successes, US Customs and Border Patrol (CBP) competed and awarded Accipiter with a wide-area, Radar-as-a-Service (RaaS) contract to deliver border security awareness to US Border Patrol (USBP) Detroit Sector, Buffalo Sector and Swanton Sector. Accipiter delivers this RaaS service through a redundant Data Center at Accipiter's US subsidiary, providing cross-border sensor sharing of our expanded G-REIN network with radar sensors installed in Canada and the United States on both sides of the border. The contract is renewed annually and includes sending radar feeds onto USBP's secure network and directly into USBP's own COP/C2.



Screen captures from Accipiter® Surveillance-to-Intelligence™ (S2I) tools, demonstrating a Border Crossing Report, Analytical traffic activity heat map and Track Histories displaying border crossing tracks

(continued on reverse)

M³ Target Information System

Accipiter's multi-sensor, multi-mission, multi-user M³ Target Information System (TIS) provides multi-sensor target data processing, query and retrieval, while Accipiter's Surveillance-to-Intelligence™ (S2I) tools enable rapid and efficient understanding that leads to strategic and tactical decision making. Our complex event management processor incorporates a rules-based and/or artificial intelligence (AI) based priority engine to enable, live event alerting and geo-coordinate queuing of cameras and acoustic hailing in response to identified target scenarios. Behaviors such as exclusion zone incursion, loitering, rendezvous or underlying suspicious activity can all be programmed with appropriate cause and effect response.

Surveillance-to-Intelligence™ (S2I) Tools

Accipiter provides a suite of S2I tools that are easy to use and give users with different roles or missions the situational understanding they need to be more effective at performing their duties. Our tactical tools give watchstanders and dispatchers a real-time map view of target tracks from all sensors with built-in, 24-hour rapid replay and alerting. Our tablet-based Mobile Response COP gives responders in vessels and vehicles a user-centric display. Our strategic S2I tools interactively mine historical target data to give intelligence analysts and managers understanding of target activity patterns and specialized reporting.

About Accipiter

Accipiter Radar is a North American company that develops, sells, and operates high-performance Radar Intelligence Networks™ that monitor the behavior of uncooperative targets such as small vessels, low flying aircraft, drones / UAS, people, vehicles and birds, as well as distributed phenomenon such as weather, waves and ice. Accipiter is a world leader in extracting actionable intelligence from multiple surveillance sources. Its suite of Surveillance-to-Intelligence™ (S2I) analytical user apps provides both tactical (real-time) and strategic (historical) situational awareness for 21st century safety and security applications.

Accipiter provides protection and security for governments, military, security agencies and commercial operators around the world including airports, military airbases, ports, waterways, critical infrastructure, remote mining facilities, LNG plants. Accipiter is a leader in radar surveillance for Beyond Visual Line of Sight (BVLOS) for commercial drone operations.

Products Designed and Built to Exceed Expectations

Accipiter's family of products are designed for persistent detection and tracking of cooperative and uncooperative targets on the water, in the air and on the ground. 2D and 3D radar systems for fixed installation locations or for rapid mission deployment, connect with Accipiter's M³ Target Information System and Surveillance-to-Intelligence™ tools to enable live tactical situational awareness and strategic analytical decision making through 24/7/365 all domain awareness.

Whether you are protecting your homeland through border enforcement, providing coastal surveillance or using surveillance to protect your critical infrastructure perimeter; increasing aviation safety through bird and drone activity monitoring or safety management; or protecting wildlife through wildlife hazard management studies, habitat management and active bird deterrent systems, Accipiter has a proven system for you.

USA

40 Centre Drive, Suite #300
Quaker Centre Business Park
Orchard Park, NY 14127
Phone: 716-508-4432
Fax: 888-393-6421

Website: www.accipiterradar.com

CANADA

576 Highway 20 West
P.O. Box 939
Fonthill, ON L0S 1E0
Phone: 905-228-6888
Fax: 905-892-2249

Email: sales@accipiterradar.com

PATENTS & TRADEMARKS

Accipiter[®], Targeting A Safer World[®], M³[®] and Total Coverage[®] are registered Trademarks of Accipiter Radar Technologies Inc. Accipiter's products and services are protected under one or more patents listed at www.accipiterradar.com/page/patents.