

Space Flight Laboratory to Highlight Autonomous Formation Flight Technology at Small Satellite Conference

TORONTO, Ontario, Canada, 2 August 2018 – Space Flight Laboratory (SFL), which is celebrating its 20th year of developing complete microspace missions, will highlight autonomous formation flight technologies for micro- and nanosatellites next week at the 32nd Annual Small Satellite Conference in Logan, Utah.

The next launch of an SFL-developed mission is expected to be the HawkEye 360 Pathfinder cluster later this year. SFL is a subcontractor to Deep Space Industries, the prime contractor for the mission. These three microsattellites will utilize breakthrough formation flight technology developed by SFL. The HawkEye 360 Pathfinder microsattellites will pave the way for a commercial service providing unique Radio Frequency (RF) geolocation analytics.

“Space Flight Laboratory’s heritage as a provider of formation flying technology was an important factor in its selection to our development team,” said Chris DeMay, CTO and founder of HawkEye 360, Inc., based in Herndon, Virginia.

HawkEye 360 plans to create a constellation of commercial satellites that will map and analyze RF signals coming from numerous communications and transportation sources. Among its applications will be identifying interference sources for communications companies and expediting the location of emergency beacons in search-and-rescue operations.

“Formation flight makes advanced geolocation services viable and cost effective when implemented with multiple nano- or microsattellites flown in precise orbital configurations,” said Dr. Robert E. Zee, Director of SFL.

SFL, which was established in 1998 as a self-sustaining specialty lab at the University of Toronto Institute for Aerospace Studies (UTIAS), has developed and refined numerous microspace technologies for 22 nano- and microsattellites launched over the past two decades. SFL is currently developing 11 new satellites at its Toronto facility.

In the past two decades, SFL has innovated numerous technologies for smaller satellites including precise attitude control, modular power systems and other subsystems which have contributed to development of autonomous formation flying capabilities.

Autonomous formation flying refers to the capability of the satellites to orbit in a constellation with their relative positions predetermined and spacing precisely maintained without assistance from ground-based commands. Advanced onboard hardware and software allow the satellites to communicate with each other to keep their positioning exact.

SFL first achieved an autonomous formation flight breakthrough in technology and cost-effectiveness with the 2014 CanX-4/CanX-5 demonstration mission. With funding from SFL and the Canadian government, the two 7 kg nanosatellites flew autonomously in five planned orbital configurations with separations varying from 50 meters to one kilometer. Their positional accuracy was less than a meter, and relative position knowledge was within a few centimeters.

The results were independently verified by researchers at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR).

“The success of the CanX-4 and CanX-5 mission played a big part in the selection of the DSI/SFL team to build the HawkEye 360 Pathfinder constellation where formation flight will be crucial for accurate mapping of RF signals,” said Zee.

SFL will discuss formation flight and other smallsat advancements in Booth 20 at the 2018 Small Satellite Conference in Logan, Utah. HawkEye 360 will be highlighting the Pathfinder mission in Booth 143. The annual conference will be held August 4-9. For details, visit <https://smallsat.org/>.

About Space Flight Laboratory (www.utias-sfl.net)

SFL generates bigger returns from smaller, lower cost satellites. Small satellites built by SFL consistently push the performance envelope and disrupt the traditional cost paradigm. Satellites are built with advanced power systems, stringent attitude control and high-volume data capacity that are striking relative to the budget. SFL arranges launches globally and maintains a mission control center accessing ground stations worldwide. The pioneering and barrier breaking work of SFL is a key enabler to tomorrow’s cost aggressive satellite constellations. (www.utias-sfl.net) Follow SFL on Twitter @SFL_SmallerSats.

About HawkEye 360 (www.he360.com)

HawkEye 360 is a Radio Frequency (RF) data analytics company. We operate the first of its kind commercial satellite constellation to identify, process, and geolocate a broad set of RF signals. With this unique data set and our suite of proprietary processing and machine learning tools, we create powerful data analytic products that solve hard challenges for our global customers. Our products include maritime domain awareness and spectrum mapping and monitoring designed to serve a wide range of commercial, government and international customers. (www.he360.com)

Contact:

Dr. Robert E. Zee
SFL Director
1-416-667-7400
info@utias-sfl.net