Elementary school kids in Bolton and Virginia reach for the stars

By Mark?Pavilons

While space may be the final frontier, for elementary students in Bolton and Virginia, it's gotten a lot closer.

St. Thomas Moore School in Arlington, Virgina, and Bolton's St. John Paul II Elementary School have teamed up to build, launch and monitor a micro satellite.

The exciting, hands-on project is the first of its kind for elementary students and has created quite the buzz at both schools and among the partners. It's a dream come true and will open up a whole new learning experience to this group of young people.

The STM Sat-1 mission is to perform Earth observation and engage grade school students around the world as remote Mission Operation Centers. The CubeSat model is very small nano-satellite ? a 10-centimetre cube.

The satellite will include an earth observation camera, transceiver (HAM radio band), plate with the signatures of the entire mission team, a donor payload and a crucifix blessed by Pope Francis.

The camera will take photos every 30 seconds during its orbit and those will be accessed and downloaded by the students.

A project of this nature didn't happen without a lot of cooperation. The program got a boost from the NASA?Goddard CSLI and Bolton's Canadensys Aerospace Corporation.

Canadensys is a space systems and services company with a focus on accessible space. The company is founded on heritage and expertise that spans a number of Canada's historic space achievements of the last three decades, blending them with micro and nano space technology, and modern, commercial business models for effective space program and mission development.

This project ?fit very well with us,??according to Christian Sallaberger, president and CEO of Canadensys.

The company's mandate is improving access to space in low-cost, participatory ways.

?We jumped on it,??Sallaberger said.

The response has been great from educators at both schools, school boards and the kids themselves.

This will give them the experience of a real space mission, Sallaberger pointed out.

The STMSat-1, was built by students at St. Thomas More School in Virginia. The tiny satellite will fly in an orbit 400 kilometres above the Earth. St. Thomas More School won a NASA competition to have their satellite launched into space from the International Space Station later this year. The satellite is the first ever in the world to be built and designed entirely by grade school students, supported by technical advisors from NASA.

A central Mission Operations Centre (MOC) will be based on site at St. Thomas More, augmented by a network of supporting Remote Mission Operations Centers (RMOCs) in various parts of the U.S. and around the world.

Canadensys is providing St. John Paul II School with the technology and support required to build and operate an RMOC in Canada. As an RMOC partner school within the STMSat-1 mission, Canadian students from ages four to 14 will have the opportunity to experience real-life space mission operations from tracking the satellite as it passes overhead and receiving the transmitted images, to archiving them and interpreting the data received. Students will then upload their captured images to the primary MOC at St. Thomas More School in the U.S. for broader distribution to the global network.

?Missions such as STMSat-1 have the unique potential to engage, inspire and teach about international cooperation. It is a privilege to be able to bring this experience to children,? Sallaberger said.

George Consitt, principal of St. John Paul II School, said:??All of our students, from Kindergarten through Grade 8, will have a chance to participate in an actual space mission in various ways. This is a truly unique experience that has fired the imaginations of teachers and students alike. We are happy to partner with St. Thomas More School and the engineers and staff at Canadensys Aerospace to make this possible.?

Consitt and teacher-librarian Carmen Condotta, are particularly interested in how they could contribute to the mission as an RMOC to this mission. The teachers are very enthusiastic and equally energetic about having their own students become part of the mission.

Teacher Charlene Nolan has already started a writing project with a Grade 3 computer class from St. Thomas More. This began with the receipt of ?welcome letters? written by the students at Mission HQ. Future activities will include designing a mission logo, tracking a satellite in orbit, mission pen pals, evaluating satellite imagery, and using a Software Defined Radio to pick up signals from a satellite.

?Our hope is that STMSat-1 can help inspire children around the world to pursue careers in science and engineering,? said Joseph Pellegrino, the STMSat-1 Mission Manager at St. Thomas More School, following a recent visit to the RMOC in Canada.

According to Melissa Pore, STEM Mission Manager and computer teacher at St. Thomas More, the satellite will be launched to the ISS?in the late summer aboard a Japanese rocket. Once the spacecraft is on the ISS, astronauts will place it into an airlock which is

connected to the Japanese Experiment Module. A robotic arm will deploy the spacecraft into low earth orbit by the end of the year. Sallaberger said the satellite is currently being checked over in California. It has a anticipated lifespan of one year.

St. Thomas More Cathedral School will remain the Mission Operation Center Headquarters for the duration of the satellite mission. They will oversee the operations of the RMOCs by conducting all signal receptions during passovers. They will prepare all RMOC sites for their own data collection by training them on how to use the radio receiver and satellite tracker during the mission. RMOC sites will email their data to Mission HQ in Arlington, VA.

?We will form a global network of student scientists and share with the entire mission our findings through the stmsat-1.org website. We hope to empower our children to learn globally and together towards the future of space exploration,? Pore said.

?My goal is to inspire, empower, and challenge the leaders of tomorrow (both teachers and students) to get excited about learning! By engaging them in fun, hands-on projects that are rich in science and math, I hope to nudge those interested in engineering and space towards their dreams. We have designed lessons and activities for our project that suit a wide range of students.?

?By immersing them into current research with true data collection, we can teach them how to collaborate and work together with people from around the world on complicated projects. All of which is a necessary step for science and technology advancements, especially for exploring new frontiers beyond our earth. I also hope to capture the natural enthusiasm for learning something new that is driven purely by the desire to know.?

?Based on the enthusiasm already shown by the Saint John Paul II facility and students, this mission has already started inspiring the next generation of space explorers,? Pellegrino added.

?What an exciting day it will be when the students of Saint John Paul II receive an image of the Bolton area from space.?

The management team at Canadensys is anchored by veterans of the Canadian aerospace sector with executives having multiple decades of experience from both agency and industry sides of NASA, CSA and ESA's human spaceflight, ISS and space exploration programs.

For further information visit www.canadensys.com or email: stmsat_rmoc@canadensys.com. For further information on the STMSat-1 mission and spacecraft please visit www.stmsat-1.org

Students at Saint John Paul II School are excited about launching and monitoring a satellite.