EDUCATION

Second Launch Canada Competition in Timmins Draws 18 Student Rocket Teams

by **Craig Bamford**

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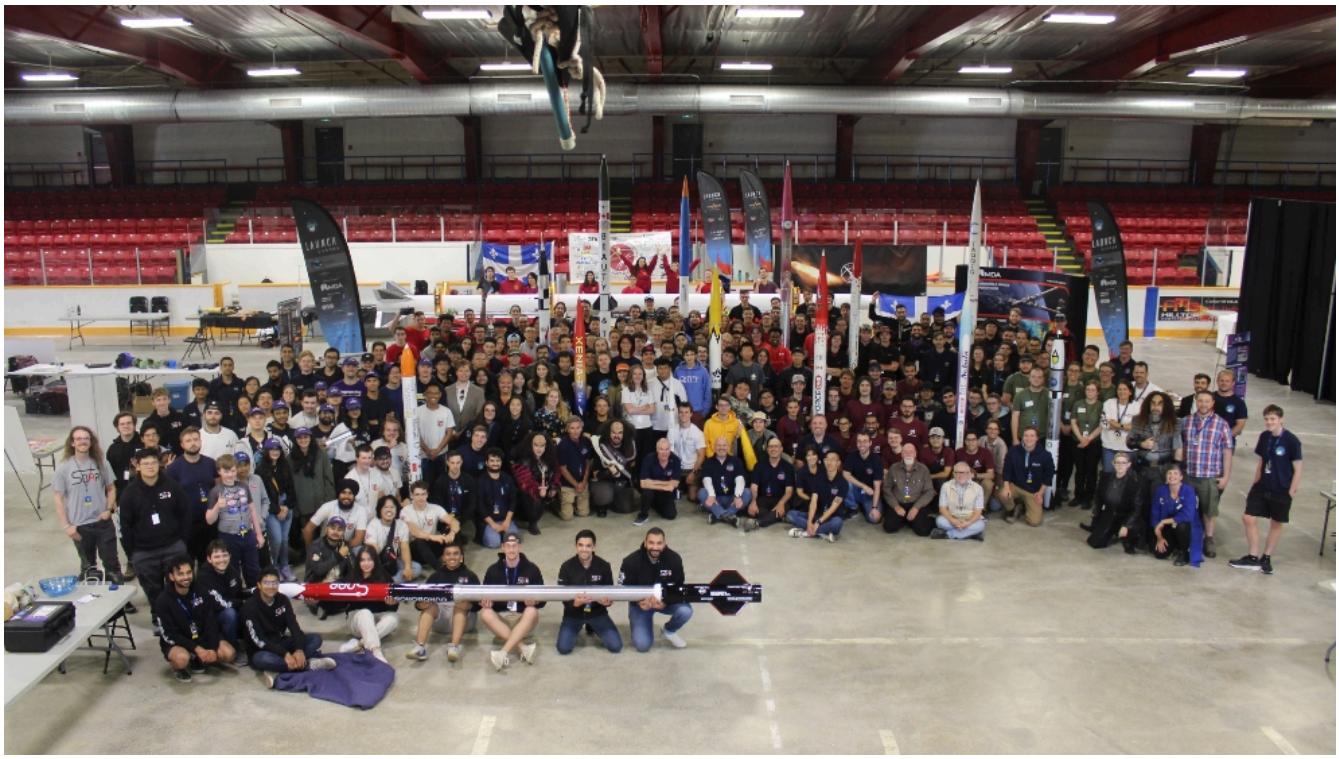


Students from 18 universities from across Canada participated in the Launch Canada Competition 2023. Image credit: Launch Canada.

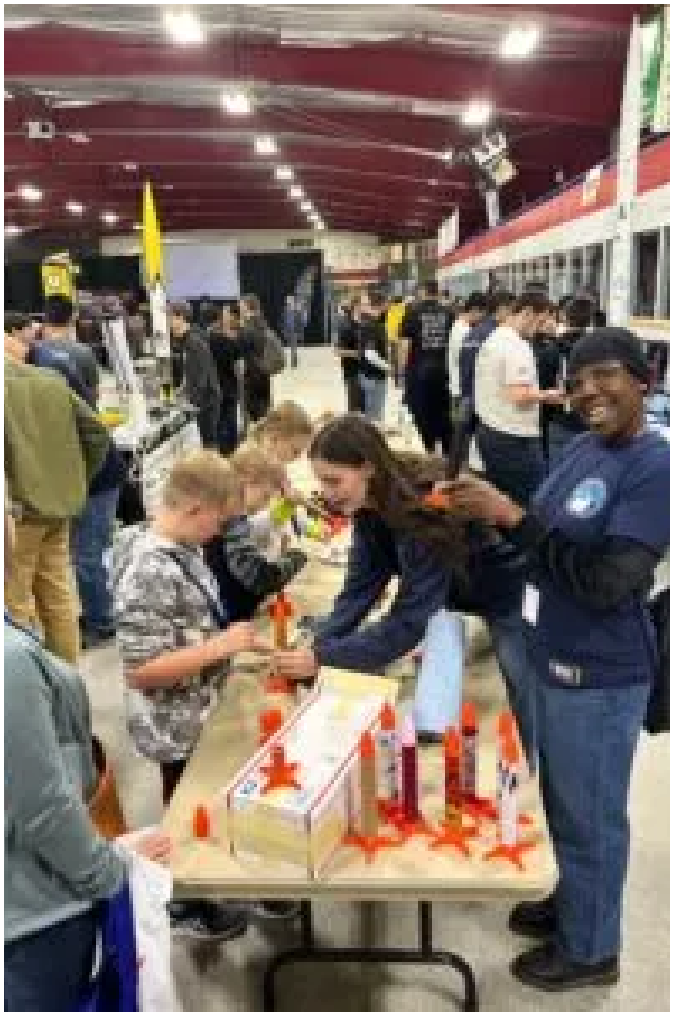
The Launch Canada Competition (LCC) recently took place, from August 25th to September 1st in Timmins, Ontario and the nearby Mattagami First Nation.

The event brought together student rocketry teams from across Canada. Many traveled long distances in order to get the opportunity to interact with other rocketry teams, check out each other's projects, and launch their very own rockets. It was also connected to the space and indigenous culture focused Stardust Festival.

In an interview with SpaceQ, Launch Canada president and founder Adam Trumpour said that this year's event was "a big success."

Trumpour started by acknowledging that the LCC was a "huge undertaking,"especially as they'd doubled the number of teams from last year, with 18 rocket teams in total. He'd said that last year's inaugural

event was one where they were “trying to make the event happen,” this year was the one where they were able to “let loose a little bit more.”



With Timmins as the location for the Stardust Festival, students and children came by to learn more about space and rocketry. Image credit: Launch Canada.

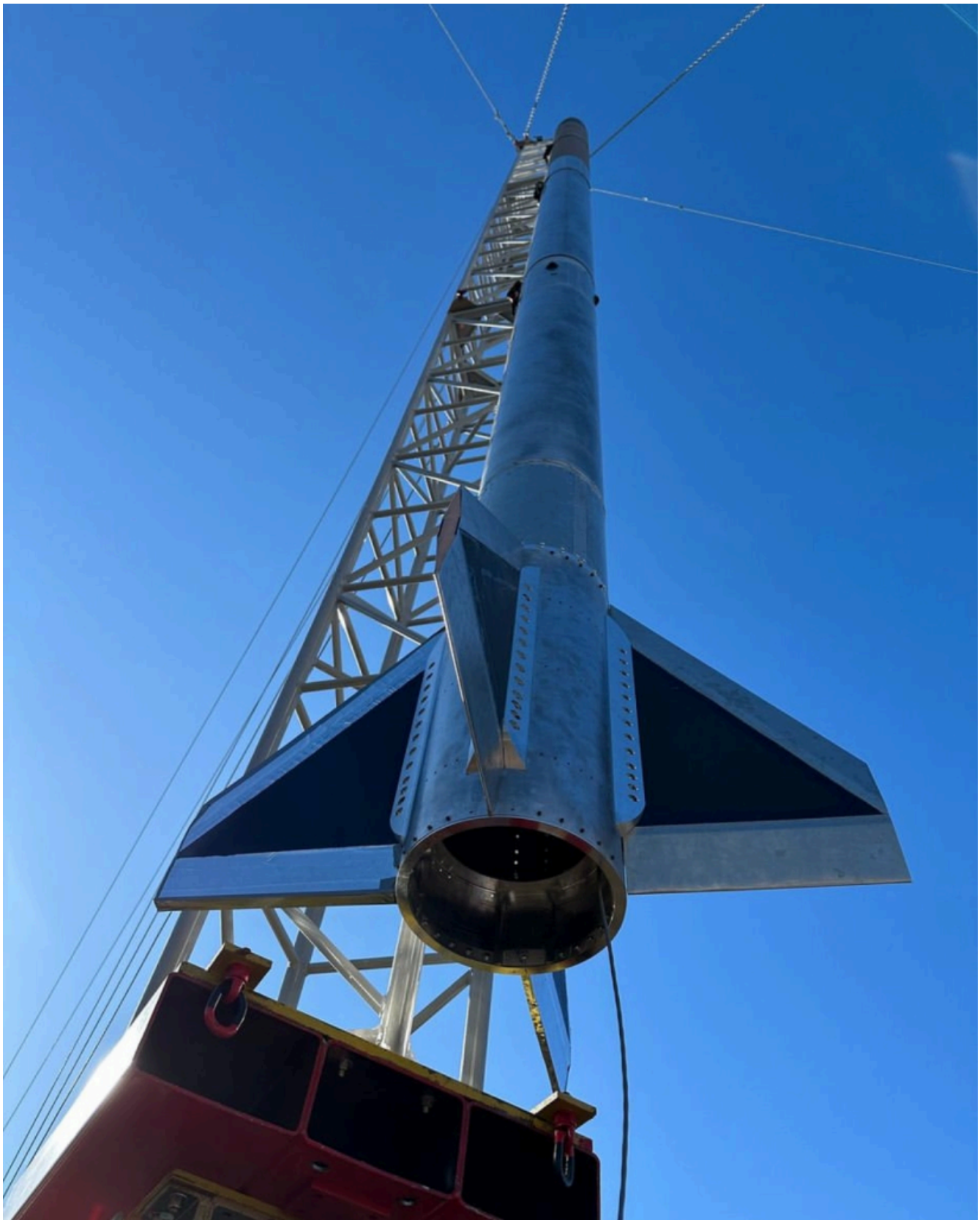
In particular, there was a change in the venue for the event. The original LCC and Stardust Festival took place in Cochrane, Ontario, home of Stardust founder Jason Michaud. While both Michaud and Trumpour had nothing but good things to say about Cochrane as a host, they ultimately decided they needed to move to a larger community with access to an ideal site. They found both in Timmins, as well as in the nearby Mattagami First Nation lands. Timmins was able to play host to the events, while they had the space and support they needed to launch from Mattagami First Nation.

In both locations, Trumpour said that local outreach was a big part of this year’s event, and one he was really proud of. “We had local kids coming and building model rockets and launching them…and the kids were immediately making the connection between what they were doing and those big rockets that they saw. [They were] realizing that, yeah, these are the same thing.” He was also pleased that Timmins had the facilities to be able to support the event; they had access to hotel

space, food, supplies, and even hardware for “last minute rocket surgery.”

The presence of the local airport was also convenient for sponsors and VIPs, who were able to come into Timmins directly to attend the events and speak to attendees.

The first few days of the event were devoted to a conference, where teams were able to present their projects and inspectors were able to check out the rockets. Trumpour said that the extra time that was afforded by stretching the conference section of the event to two days was also a big help. He said that it’s not easy finding people with the time and skillset to perform rocket inspection duty, and giving extra time ensured that they “weren’t just completely wearing out our rocket inspectors.”



Starsailor student rocket. Image credit: Space Concordia.

One big hit during the conference part of the event was Space Concordia's Starsailor rocket. As mentioned in previous SpaceQ

coverage, Space Concordia is gearing up to launch the liquid-fueled rocket to the Kármán line (100 km altitude), which is a generally-accepted boundary between Earth's atmosphere and outer space. It would be the first student-built, liquid-fueled rocket to make it that far, and Starsailor has already set a world record for being the first rocket engine developed and fired by civilians when it was initially tested in 2021.

Seeing the 12.2 metre (40 ft) rocket at the conference was a big draw for both other teams and local students, and one startling moment recounted by Trumpour was when he was walking past the rocket—and somehow saw a student's feet sticking out of the nose cone. She was doing some repairs inside the nose cone, and the particular part was difficult to get access to. Only one Concordia student was the right size to handle it directly, so she climbed in and got to fixing it just as Trumpour walked past. He said the moment "really underscored the size of the thing. It was really, really cool."

The actual competition took place after the conference was over, and just as with last year, it was split into three divisions: Basic, Advanced, and Technical Projects. Basic rockets were ones using off-the-shelf parts, and in particular off-the-shelf solid rocket motors. Advanced rockets are those that involve more complex propulsion: multi-stage rockets, liquid or hybrid propulsion, anything beyond simple off-the-shelf engines.

Technology development, meanwhile, are principally demonstrations of particularly interesting rocket-related tech. By and large these were demonstration firings of liquid-fueled rocket engines, though Queen's

University demonstrated what Trumpour called “really cool work on a rocket tracking station.”

Most of the teams were launching Basic-category rockets, and Trumpour was happy to report that every team in Basic was able to launch successfully this year—no doubt benefiting from the extra time for preparation and inspection. He said that launching successfully was not the only or primary criteria for the competition, though; the teams were also judged on their pre-conference documentation, their presentation during the conference, and whether their rocket did exactly what it was supposed to do. Did it reach the height they were expecting? Was it a nominal flight with a nominal recovery? And how was the build quality? All those things are factors in the evaluation.

Student rocket teams setting up for launch. Image Credit: Launch Canada.

In the Basic category, a team from Queen’s University came in first, the University of Alberta came in second, and Waterloo came in third. Trumpour was particularly proud of the University of Alberta’s team, which had significant issues last year, and came back again this year with what Trumpour called “a really nice project.”

In the Technical Demonstration category, there were four teams. Three teams were doing rocket engine tests: Space Concordia, a team from Toronto Metropolitan University (formerly Ryerson), and a second liquid engine project from UBC that was separate from their two-stage rocket. Queens' rocket tracking rounded out the category. Concordia won the category and TMU came in second.

There were four teams in the Advanced category this year. The winner was the University of British Columbia, who successfully launched a two-stage rocket. While it was a solid fuel rocket, two-stage rockets are complex enough projects to be placed within the advanced category. Trumpour was particularly happy with UBC's success, as they'd had issues with the rocket at the previous LCC and at the Spaceport America Cup this year. He said that, this time, "they had an absolutely flawless flight."

Rocket engine test. Image credit: Launch Canada.

The second-place Advanced team, McGill with a hybrid propulsion rocket, had an equally dramatic history. They brought their rocket to Spaceport America, like UBC, and had to resolve some issues with their fuel system. They got the problems resolved, but were shocked to watch as a dust devil—a small tornado—swooped in and, in Trumpour's words, "went straight for the team's launchpad. He said it "sheared bolts, it sheared brackets, it ripped out ground anchors…it was a real mess."

So, through no fault of their own, McGill couldn't launch at Spaceport America, and had to launch a GoFundMe to get their rocket rebuilt. But they did it, and McGill launched at this year's LCC. Trumpour said it was a "really nice hybrid rocket launch," and that "they were actually the first launch of the entire event." He was happy they were "able to end their saga with that beautiful flight."

Two other teams from the University of Toronto and the University of Calgary made attempts to launch hybrid rockets. While they weren't successful, Trumpour said he was equally impressed with their work, and that he's sure "they'll absolutely learn from the experience and they'll be back."

Trumpour said that he would like to come back to Timmins and Mattagami First Nation next year, as the welcome he received from both was definitely appreciated. He said he was also open to running smaller launch events on the launch site between LCC's, if Mattagami is amenable to the idea.

The full list of participant teams were:

- Metropolitan Aerospace and Combustion Hub (MACH) – Toronto Metropolitan University
- RockETS – Ecole de Technologie Superieure
- UBCO Aerospace Club – UBC Okanagan
- Student Team for Alberta Rocketry Research (STARR) – University of Alberta
- Groupe Aérospatiale de l'Université Laval (GAUL) – Laval University
- Waterloo Rocketry – University of Waterloo
- uOttawa Rocketry – University of Ottawa
- Oronos Polytechnique – Polytechnique Montreal
- McGill Rocket Team – McGill University
- Student Organization for Aerospace Research (SOAR) – University of Calgary
- University of Toronto Aerospace Team (UTAT) – University of Toronto
- UMSATS Rocketry – University of Manitoba
- University of Victoria Rocketry Team – University of Victoria
- Ontario Tech Rocketry – Ontario Tech University
- UBC Rocket – University of British Columbia
- Queen's Rocket Engineering Team (QRET) – Queen's University
- CU InSpace – Carleton University
- Space Concordia Rocketry Division – Concordia University

Trumpour said that York University's Arbalest Rocketry team also participated in Launch Canada, but actually flew at Spaceport Nova Scotia as a special event.

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Craig started writing for SpaceQ in 2017 as their space culture reporter, shifting to Canadian business and startup reporting in 2019. He is a member of the Canadian Association of Journalists, and has a Master's Degree in International Security from the Norman Paterson School of International Affairs. He lives in Toronto.

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