HIGH POWER ROCKETRY

MAGAZINE OF THE TRIPOLI ROCKETRY ASSOCIATION

MARCH 2026

Tripoli Southern France Diamant-A

Tripoli Colombia STEM

ROCStock 2025

TRIPOLI ROCKETRY ASSOCIATION, INC.

Celebrating 62 Years

TRIPOLI Report

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Diamant-A Lifts Off on a CTI N1975 Green Motor
Photo ©CNES

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SLS Artemis II at KSC Pad 39A
Photo by NASA/Keegan Barber

From The Editor...

It's a new year and more exciting launches are coming up: LDRS 44 in Indiana, IREC in Texas, Balls in Nevada and many regional prefecture launches are on the books. How many launches do you plan to attend this year?

I used to go to many local launches, but have become so busy that it is hard getting to as many as I used to. However, I still love going to the launches and seeing what others are building and launching. What are your thoughts and experiences about going to launches? I hope it still brings excitement and fun for each of you.

In this issue, there are a couple of great articles from prefecture activities overseas. One is from France and another from Colombia. Maybe I should have titled this the "International" HPR issue. The Diamant-A project, from TRA Southern France, is very detailed and has some great photos and diagrams. The article from TRA Colombia is also very good and talks about their efforts to involve females and students from a STEM and educational perspective and getting them involved in high-power rocketry. Both are fun reads.

There is also a launch report about ROCStock 2025 that has piggy backed onto the Skippy Cup competition.

Finally, page 2 of this issue (the Table of Contents page), has a picture of the Artemis II Rocket sitting on Pad 39B at the Kennedy Space Center. As many of you are surely aware, this rocket was supposed to launch in early February and then again in early March after a successful Wet-Dress-Rehearsal. As this issue was being completed however, they delayed the launch to No-Earlier-Than (NET) April due to a "Helium flow" issue in the upper stage. It was my intention to include an "Opinion" article in this issue about astronauts returning to the moon but... I decided to hold off on that until it actually happens (maybe the next issue?). In any case, it's a great picture of the rocket - don't you think?

By Mark Ketchum

Photo by Jim Wilkerson

And speaking of pictures... I'm always looking for great shots of rockets (whether they are High Power from our members, or from NASA and industry. So, if you have any special projects and have taken pictures, don't be shy and send them in. It will help get your rockets more visibility than just on launch day or on the pad.

In future issues, Justin Freeman will be helping to edit and format the content of both High Power Rocketry and the Tripoli Report. He has recently been reviewing articles to help catch any mistakes and now has the editing software to do some of the work as well. I welcome Justin's help!

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Tripoli Colombia

From STEM Education to High-Power Rocketry in Latin America

By David Pineda TRA #27540 & Juan Fonseca TRA #36180

All images courtesy of SateLab - ALAS Corp.

For decades, experimental and high-power rocketry in Latin America has advanced in a challenging environment - often without well-established technical, institutional, and regulatory frameworks. The talent has always been there, but opportunities to develop the discipline under internationally recognized standards have been limited. In that context, the creation of Tripoli Colombia marks a turning point - not as an isolated milestone, but as the natural outcome of a technical and educational community that has been steadily maturing.

A community built through education

Participants of the Colombian Sport Rocketry Competition (CCCD) 2024 during launch activities, representing the educational foundation from which Tripoli Colombia emerged.

The road to Tripoli Colombia began in education. Since 2023, SateLab Corporation and its educational brand ALAS (Aerospace Latin American Suborbitals) have led the Colombian Sport Rocketry Competition. CCCD, which is the Spanish acronym, is now recognized as one of Colombia's leading platforms for hands-on training in experimental and sport rocketry.

From day one, CCCD was designed to be more than a contest. Its structure mirrors real aerospace engineering practice: mission definition, flight simulation, structural design, manufacturing, integration, risk analysis, recovery, and technical validation. A key part of that rigor is external evaluation: across its three editions, CCCD has included judges from institutions such as NASA Johnson Space Center, NASA JPL, Blue Origin, SpaceX, and Boeing.

CCCD growth at a glance (2023–2025)

In its first edition (2023), CCCD brought together 27 educational institutions - 78% of them public - along

with 137 student participants (38% women) and 25 teachers.

Launch day drew more than 500 attendees, signaling strong community and educational interest from the start.

The second edition (2024) saw significant growth: 31 institutions (71% public), 161 participants, 42 teachers, and 1,250 attendees on launch day. It also marked a milestone as CCCD welcomed international participation, including teams from Mexico.

By 2025, CCCD reached a new scale. Nearly 300 students and mentors from roughly 40 public and private institutions gathered in Santa Fe de Antioquia, Colombia, for three days of applied engineering, innovation, and launches. Female participation remained a priority, with 98 women (36% of participants) across teams - several led entirely by girls and young women.

Across its first three editions, CCCD has engaged more than 590 students, about 100 educational institutions, over 100 teachers, and more than 3,000 attendees during launch days. The numbers reflect sustained educational impact, clear technical progression, and a growing international outlook.

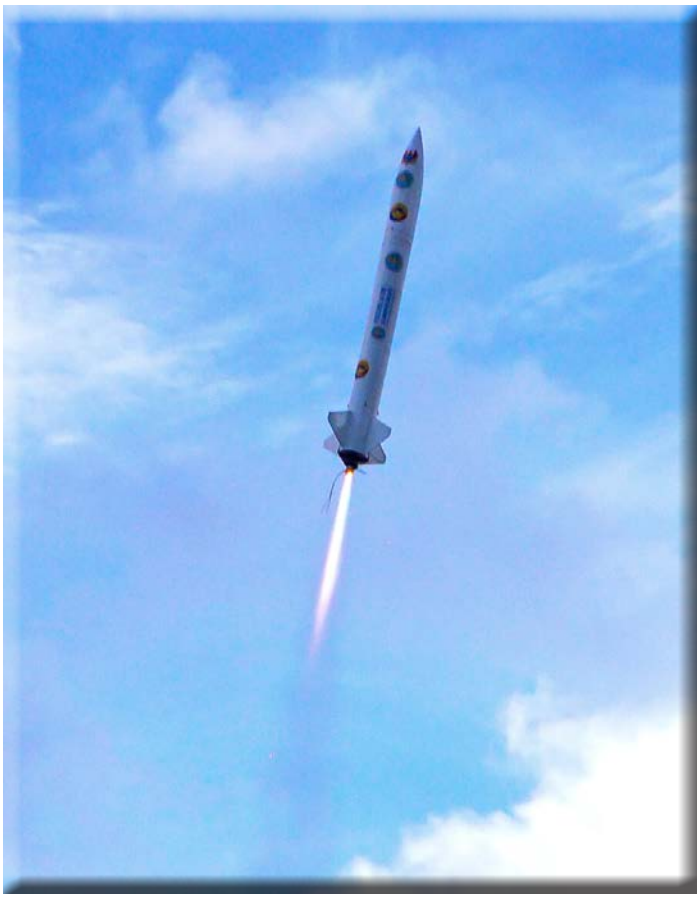
From model rocketry to international standards

High-power rocket developed by Team ASTRA, winners of CCCD 2025, marking the transition from advanced educational rocketry to Tripoli-aligned technical standards.

As CCCD matured, so did the technical level of its projects. The progressive use of rocket motors, the adoption of altimeters, redundant recovery systems, and structured technical documentation (PDR and CDR) made it clear that the next step required an institutional framework for high-power rocketry - built on internationally recognized standards of safety, compliance, and technical discipline.

Students, mentors, and teams gathered during CCCD 2025 in Santa Fe de Antioquia, Colombia, reflecting the program's growth, technical maturity, and international projection.

This is where the Tripoli Rocketry Association (TRA) becomes central. Tripoli is one of the world's most influential high-power rocketry organizations, with an established certification system (L1, L2, and L3) and a truly international presence.



Launch operations during the Colombian Sport Rocketry Competition (CCCD), highlighting progressive motor classes, structured recovery systems, and range safety practices.

In July 2025, Tripoli officially approved the creation of the Tripoli Colombia Prefecture (Prefecture #181). This decision made Colombia the **fourth country in Latin America and the second in South America** to host an active Tripoli prefecture, recognizing not only Colombia's future potential, but the technical, educational, and institutional work already in place.

Tripoli Colombia: Technical and institutional scope

Tripoli Colombia was created to build a national high-power rocketry community operating under international standards and in coordination with Colombian authorities. Based administratively in Medellín, the Prefecture works in coordination with Colombia's civil aviation authority (Aerocivil) and the Colombian Aerospace Force (FAC) to ensure operational safety and regulatory compliance for launch activities.

Its five-year development plan includes regular certified launches, ongoing technical training, a growing membership base - especially across universities and rural communities - and a direct connection with CCCD as a natural pipeline for future Tripoli-certified members.

Technical leadership with an educational mission

Tripoli Colombia has been led by David Pineda (see photo on the next page), a Colombian mechanical engineer and aerospace educator, a Tripoli L2 member, and the founding Prefect.

Pineda co-founded the Aerospace Engineering undergraduate program at the Universidad de Antioquia and brings more than two decades of experience in experimental rocketry and model rocketry education.

His background blends applied research and university teaching. He completed a solid-propellant rocket motor design course at Wickman Spacecraft & Propulsion Company (Casper, Wyoming, USA) and developed his undergraduate thesis as a research internship at the Center for Space Research (CSR) at The University of Texas at Austin.

His thesis - "Preliminary thermodynamic, chemical, and geometric analysis of the propulsion subsystem of the first stage of a solid-propellant launcher for nano- and microsatellites" - was supervised by Dr. Cesar Ocampo, a NASA researcher and the inventor of the Copernicus software for trajectory optimization.

David Pineda, founding Prefect of Tripoli Colombia, during high-power rocketry field activities.

His Tripoli L1 and L2 certifications were completed under the mentorship of Walter Adrian Ahrens Castro - currently the only Latin American Tripoli L3 - strengthening Tripoli Colombia's direct link to Tripoli's technical culture and standards.

Impact, outlook, and an open invitation

Today, Tripoli Colombia stands on an active community, a proven educational platform, and a growing network of partners across academia, public institutions, and industry. The integration between CCCD and the Prefecture creates a clear path from school-level STEM training to internationally recognized high-power rocketry certification.

Looking forward, Tripoli Colombia also aims to become a meeting point. We invite teams from the United States and other regions to take part in the Colombian Sport Rocketry Competition (CCCD): a hands-on engineering experience in a demanding environment, and a chance to visit Colombia, share expertise, and strengthen the international collaboration that this discipline thrives on.

In that sense, the Prefecture is not an endpoint - it marks the beginning of a new chapter in which Colombia is taking a more visible place on the global map of high-power rocketry.

Learn more at the following links

Prefecture Website: www.tripolicolombia.org

CCCD Website: www.cccd.space

Email: Tripoli.colombia@satelab.org