Address Mekelweg 4, 2628 CD Delft
Phone
Email treasurer@projectstratos.nl
Website dare.tudelft.nl

1 List of Activities of SStS 2024 - 2025

Last updated: Thursday 17th July, 2025

January 2024 - July 2024: Detailed Design of Stratos V Pathfinder 1, Prototyping, and Testing of Subsystems

The first half of 2024 was dedicated to advancing the detailed design, prototyping, and testing of the Stratos V Pathfinder 1 subsystems. This period involved the following activities:

- Continued development: The team developed the aforementioned systems, adapting them for the Pathfinder. These include the tanks, feed system, engine, thrust structure, ground fire suppression system, etc.
- Engine Test Campaign: Engine tests were conducted to fine-tune performance and validate the design under real-world conditions.
- Fin Manufacturing: The fins were designed and manufactured for the rocket's stability during flight.
- Recovery System Manufacturing: The recovery system, designed to return the rocket or its components after launch safely, was manufactured.
- Avionic system upgrades: Detailed design of the rocket's electronic systems' newest iteration was done, covering navigation, communication, and control.
- Simulation Development. The team worked on defining uncertainties in their simulations to improve accuracy and predictability. Wind profile modelling was conducted to ensure that the rocket's design could handle varying atmospheric conditions. Lastly, an analysis was carried out to predict how variations in launch conditions could affect the rocket's trajectory.

The team also engaged in several important visits and events to further the project:

- SES Visit: A visit to SES provided insights into satellite communications, which could be relevant to the rocket's payload capabilities.
- NXP Visit: This visit explored electronic components and systems that could enhance the rocket's functionality.
- Ford Partnership: A partnership was secured to provide transportation and logistical support for the project.
- TUDelft Fast Fund Application: An application was submitted to secure additional funding from TUDelft, aiming to accelerate the project's progress.
- Moeder Delftsche Bedrijven Avond: The team presented their work at this event, engaging with local businesses and potential sponsors.
- GOSIM & RustNL: Participation in GOSIM and RustNL allowed the team to connect with simulation experts and gather valuable feedback.

September 2024 – May 2025: Installation, Testing Campaigns, Design Reviews, and New Partnerships

This period marked a major transition into active testing, system integration, and external engagement for Stratos V. From team installation to structural testing and new collaborations, the team achieved multiple critical milestones:

- **Team Installation (September 2024):** The new Stratos team for 2024–2025 was officially installed, marking the beginning of a new phase of development and testing for Stratos V.
- **Cold Flow Campaign and Partnerships (October 2024):**
  - A successful cold flow campaign was conducted, validating the in-house designed flight valve.
  - Airbus Netherlands B.V. visited the testing site and became an official SStS partner.
  - Burst disk testing revealed premature rupture at 150 bar instead of the targeted 50 bar.
  - Romynox visited the Aerospace faculty and agreed to extend their partnership.
  - A delegation attended the IAC in Milan, where DARE received the Sustainability Pioneering Award.
  - The contract with Würth Elektronik was renewed.
- **Design Reveal and Cryogenic Testing (November 2024):**
  - A preliminary design reveal was organised to collect feedback from DARE members.
  - The flight valve underwent cryogenic cold flow testing.
  - Hydrostatic burst disk testing showed rupture points between 55 and 75 bar.
  - Thermo Electra became an official SStS partner.
- **Hotfire Testing (December 2024):**
  - A successful hotfire campaign was executed using the DLX-150B engine.
  - Active pressure regulators were tested during the campaign.
- **Prototyping and Post-Machining (January 2025):**
  - The DLX-150C, designated as the flight engine, was post-machined.
  - Prototype antennas were produced, and a fill-level sensor concept was tested.
  - HSP Worldwide joined as an official SStS partner.
  - The partnership with Phoenix Contact was renewed.
- **Engine Validation and Vehicle Support (February 2025):**
  - A second hotfire campaign successfully validated the DLX-150C engine and a new bypass valve.
  - VA Imaging joined as an official partner.
  - Ford supported campaign logistics by providing an electric van.
- **Critical Design Review and Hardware Manufacturing (March 2025):**
  - Prototyping began on the aeroshell and nosecone, with a small-scale nosecone prototype completed.

  - RADEX joints and the upper interstage component entered manufacturing.
  - The critical design reveal took place, inviting DARE-wide feedback.
  - NXP and Batchforce joined as official SStS partners.
- **System Integration and Testing (April 2025):**
  - RADEX joints manufacturing was completed.
  - The COPV was hydrostatically tested up to 200 bar.
  - An integrated cold flow test successfully expelled at 50 bar.
  - Prototype tank manufacturing was completed.
  - Stratos V was pre-selected for the European Rocketry Challenge (EuRoC).
- **Structural and Pressure Testing (May 2025):**
  - The prototype tank was welded and hydrostatically tested.
  - The tank withstood EuRoC's 90 bar proof pressure and yielded between 110 and 120 bar.
  - Feed system and ground system electronics fabrication advanced.
  - The prototype interstage structure endured a compression load of 29.1 kN.
- **Launch Preparations (June - July 2025):**
  - Integrated test campaign was held, performing three ethanol coldflows
  - The rocket was further integrated at TU Delft, preparing for another integrated test campaign in August