

**Volanz Aerospace Inc. in cooperation with the
National Aeronautics and Space Administration (NASA)**

Present the

***Student Troposphere
Sounding Rocket Program***

Unique Opportunities for Educational Scientific Research

The Student Troposphere Sounding Rocket Program (ST-SRP™) was developed by Volanz Aerospace Inc. in cooperation with the National Aeronautics and Space Administration (NASA), as an educational outreach program for United States-based students¹ of all ages (1st Grade through College/University level), and is designed to foster interest in the areas of space science, technology, engineering, and mathematics. With the help of a teacher or mentor, one (or more) students create, design and build an experiment and submit a proposal for the opportunity to fly it on a Sounding Rocket launched from the NASA Wallops Flight Facility (WFF) in Virginia. Experiments are qualified for the program through a flight certification process that includes an experiment proposal review. Proposals are accepted throughout the year, and experiments are typically launched twice a year. This document outlines the program, and the how to submit an educational proposal.

Provides Unique Opportunities for Student Scientific Research

Sounding rockets are utilized to carry student experiments into the Troposphere. Although the overall time in the Troposphere is brief (typically less than 5 minutes from takeoff to landing), this is more than adequate to carry out successful scientific experiments.

Features of Sounding Rockets

- Quick, low cost access to the Earth's Troposphere (0 - 3 km).
- Up to 20 seconds of microgravity per flight.
- Ability to fly numerous payloads on a single launch vehicle.
- Ability to recover and re-fly scientific instruments and experiments.

The Troposphere Experiment Module

The Troposphere Experiment Module (TEM) consists of one or more experiment (TEM) containers. Each container holds a single experiment. One or more containers are flown in a sounding rocket payload bay to an altitude ranging from .45 km (~1,500 feet) to 3 km (~10,000 feet) or higher. Student Researchers can create their own experiments, and consider variables including weather, space radiation, microgravity, and launch environment.

¹ You do not have to be a U.S. citizen or resident, but you must attend school in the U.S. Students must be sponsored by a teacher/mentor working at an educational institution or space-related organization.

Experiment Requirements

In order to qualify for a sounding rocket flight, an experiment must fit inside a single TEM container. The available container sizes are approximately:

- **For Grades 1 through 5:** 3.4 inches (8.6 cm) in diameter, by 2.8 inches (7.1 cm) in length.
- **For Grades 6 through 12:** 4.1 inches (10.4 cm) in diameter, by 2.5 inches (6.4 cm) in length.
- **For College/University Level:** 4.1 inches (10.4 cm) in diameter, by 3.1 inches (7.9 cm) in length. If a larger size is needed, contact the ST-SRP™ Program for more information.

The containers are made of translucent plastic, and have a white plastic cap. Holes may be drilled in the container by the experimenter if needed. Each experimenter will be provided with four (4) TEM containers. Additional TEM containers are available for a small fee. If an experimenter wishes to provide their own container, it must not exceed the size of the largest size TEM container, and this must be stated in your application. In addition, experimenter-provided TEM containers must be made of plastic or other approved lightweight materials. Contact the ST-SRP™ Program for more information.

The following types of items are not allowed in the TEM:

- Living creatures (Only exceptions are non-poisonous plants and non-poisonous fungus)
- Any fluids (liquids), including flammables or combustible liquids
- Pressure vessels
- Hazardous chemicals, corrosives, reactive chemicals, or any chemicals that react with water
- Pyrotechnics, explosives, or blasting agents
- Radioactive sources

All experiments will be subjected to a safety review before being approved for flight.

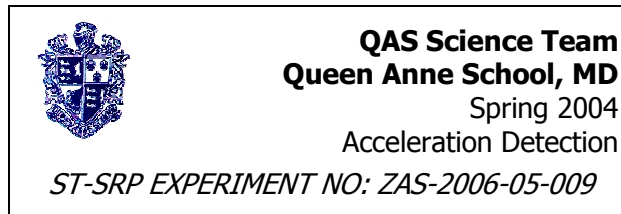
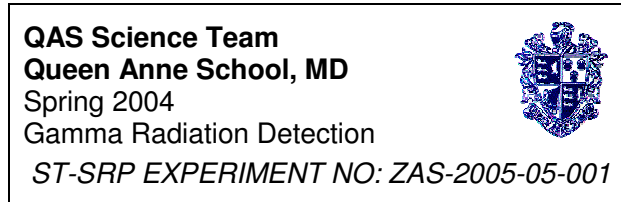
A control sample, identical to the flight experiment, must be provided prior to receipt of the actual flight experiment. This control sample will be used as a ground control and will be subjected to testing. The control sample will not be returned, so it is important that each group keep one (or more) control samples for their own use. If the experiment is so unique (or costly), that providing a control sample is not feasible, a partial or non-functional control sample may be provided, with the approval of the ST-SRP™ Program Manager.

The following restrictions apply to all educational TEM flights:

- No electric connections are provided. Experimenters are responsible for providing their own electrical power (if needed).
- No telemetry monitoring capability is provided.

Experiment Graphics

Each group will be responsible for developing graphics for the emblem to be mounted onto their SEM containers. The emblem with graphics design will be returned to the experiment group to apply to the experiment. The following are sample layouts for the vial's emblem:



Each emblem must be 2" (5.08cm) wide by 1" (2.54cm) high, and have the experiment's logo/name, organization/school name, and the experiment number at the bottom. The experiment number will be provided for each experiment.

Submission Dates

Educational proposals are accepted throughout the year, and are launched in the spring and fall. If you require a launch at a different time of the year, please contact the ST-SRP™ Program Manager via email, at st-srp@spaceflightamerica.org before submitting a proposal. The program begins September 1, 2005 and ends on July 1, 2009.

Attending Launches

Launches are usually held at the NASA Wallops Flight Facility (WFF), located in Virginia. As this is an official U.S. Government facility, visitors are not normally admitted. Under some circumstances, it may be possible for one (or more) student/teacher/mentor(s) to attend the launch of an approved scientific experiment. The attending student/teacher/mentor(s) must be a US citizen. All expenses are the responsibility of the student/teacher/mentor(s), and must be approved by the ST-SRP™ Program Manager prior to flight. Individuals simply "showing up" at a scheduled launch will not be admitted. There are NO EXCEPTIONS to this policy!

Educational Proposal Submission

You must submit your proposal electronically to the ST-SRP™ Program via email to **st-proposal@spaceflightamerica.org**, by providing the following information:

1. Experiment Name
2. Date of Submittal
3. Experimenter Organization Name
4. Organization Description (Please describe your educational organization. Include grade levels and the number of students enrolled.)
5. Experimenter Team Description (Describe the team who will actually be designing, constructing, and implementing the experiment. Include the number of individuals involved.)
6. Principal Contact (Faculty/Staff)
 - a. Name:
 - b. Full Mailing Address:
 - c. Daytime Telephone Number:
 - d. Evening (Alternate) Telephone Number:
 - e. Email Address:
 - f. Alternate Email Address:
7. Alternate Contact (What is the name of the individual to be contacted regarding the experiment in case the Principal contact cannot be reached? Provide the same information as in #6 above.)
8. Experiment Description (Describe the experiment. Is there a date by which this experiment must be completed?)
9. Experiment Purpose and Hypothesis (What are the expected results of the experiment? What is the potential scientific and/or educational value of the experiment?)
10. Is there any other information that will help us in rendering a decision?

Please include a title page indicating that this educational proposal is an application to the 2004-2005 Student Troposphere Sounding Rocket Program.

The ST-SRP™ Program will acknowledge receipt of your proposal, and will notify you of its status within 60 days of submission. Additional information may be requested in order to make a decision. Rejected proposals will be returned to the experimenter along with the basis for our decision.

Processing Fees

Accepted proposals from students in grades 1-5 are launched without charge.

Accepted proposals from students in grades 6 through 12, will be charged a \$25 USD processing fee for each approved proposal to partially defray the cost of providing the flight, and returning the experiment to the educational institution. Accepted proposals from students in Colleges and Universities will be charged a \$50 USD processing fee for each approved proposal to partially defray the cost of providing the flight, and returning the experiment to the educational institution.

There are no other fees involved in launching your experiment. Once the experiment is accepted, and any fee is paid (if applicable), the experiment will be scheduled for launch. The sponsoring organization is responsible for arranging the shipment of the experiment and the control sample to the TEM Program Office. Shipping information will be sent to out to the Principal Contact listed on the Proposal Submission Form.

Experiment Results

Please provide a copy of all experiment results to the ST-SRP™ Program Office (Volanz Aerospace, Inc.). Please email the results to **st-srp@spaceflightamerica.org**.

For More Information

If you have any additional questions, please contact the ST-SRP™ Program office via email at **st-srp@spaceflightamerica.org**.

Program Sponsorship

The Student Troposphere Sounding Rocket Program (ST-SRP™) is sponsored by:

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Volanz Aerospace Inc. is a non-profit educational corporation organized exclusively for charitable, scientific and educational purposes more specifically to provide high-technology training, education, and scientific research, development, and program management.

We wish to thank the National Aeronautics and Space Administration (NASA), Wallops Flight Facility (WFF), Range and Mission Management Office, for their assistance in making this program a success.

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