



Firefly: A new NSF CubeSat

Firefly will probe the mysteries of **Terrestrial Gamma-ray Flashes (TGFs)**, which are produced by the most powerful natural particle accelerator on Earth.

TGFs are bremsstrahlung radiation produced by 10-30 MeV electrons that are thought to be accelerated upwards over thunderstorms; a fraction of these electrons could escape the atmosphere and enter the Van Allen radiation belts.

Firefly will probe the **lightning - TGF relationship**, determine which kinds of lightning produce TGFs, and search for evidence of **common but weak TGFs**, which could have a large integrated effect on the upper atmosphere and near-Earth space.

- The National Science Foundation provides the funding, contracts for the launch vehicle, and provides overall management and oversight.
- NASA Goddard will lead the project and provide the Gamma-Ray Detector instrument.
- Siena college will provide systems engineering, the VLF receiver / photometer experiment, and E/PO support. Siena students will be involved with every aspect of the mission.
- The Hawk Institute for Space Sciences will build the spacecraft, lead the E/PO effort (via UMES), and run the ground station. UMES students will intern at HISS, Siena, and GSFC, and help man the ground station.
- NASA Wallops provides technical oversight.

