Astronomers using the VERITAS telescopes to detect some of the highest-energy photons in the Universe need your help! These photons are gamma-rays that originate in astrophysical environments like the expanding blast waves thrown out by supernova explosions, or from powerful streams of material that flow from the cores of active galaxies at speeds close to that of light. Muons (a particle like an electron, only heavier) are a prominent background contaminant when observing very-high-energy gamma rays on earth. They leave a distinctive ring-like shape making them obvious to the human eye, but incomplete or truncated rings can appear very gamma-ray-like to automatic analysis algorithms. We need your help to identify camera images that contain muon rings so we can teach computers to better identify such images and efficiently filter out those pesky muons that are masquerading as gamma rays.

Find out more at  Muon Hunters
VERITAS Video

Videos on Youtube can be found [here](https://www.youtube.com).

Media

Here are copies of the new (2011) signs posted outside the FLWO Visitors Center close to the T1 telescope (click on the figures for full-size versions):
**Observing Gamma Rays**

Mile overhead, very-high-energy gamma rays enter the atmosphere and collide with air molecules. These collisions produce a shower of secondary particles that moves towards the ground at nearly the speed of light. The VHE gamma-ray image the faint blue/white glow emitted by these “air showers.” This small of Cherenkov light lasts only a few billions of a second.

The telescope in front of you is one of four in an array. Using these telescopes rather than just one enables the detection and energy of each gamma ray to be determined more accurately and to reject numerous charged particles that act like noise in the observation.

Each telescope views the air shower from a different perspective, and the resulting images have different orientations. The position is roughly of a gamma-ray source can be determined from the intersection of lines drawn through each image.

The complete spectrum of visible and invisible light extends far out on both sides of visible light from radio waves to gamma rays. VHE gamma rays, which are considered high-energy, have even more energy than visible light.

Gamma-ray astronomy has opened a new window on the universe. Thanks to gamma-ray telescopes such as VHE, astrophysicists now study the highest-energy visible light produced in the most extreme environments in the Universe. These objects include black holes, supernovae, quasars, and starburst galaxies.

**Gamma Ray Astronomy**

The Crab Nebula is a supernova remnant produced by a stellar explosion seen in 1054 AD. Today it is a pulsar, a superdense remnant of a massive star's core, and the supernova remnant generates gamma rays. The Crab Nebula is a source of gamma rays near 850 keV and is used to calibrate the VERITAS instruments.

Young stars often produce very intense light. However, there are also very dim stars, which can produce intense and interesting sources of material and matter. In these stars, the distance between these two is the surrounding gas may produce abnormalities.

Starburst galaxies, like the Milky Way, born early in cosmic times. These galaxies have a lot of energy and produce many stars. The combination of young and old stars makes up the most extreme environments in the Universe. These objects include black holes, supernovae, quasars, and starburst galaxies.

The gamma-ray region encompasses objects with an extended distribution of energy, which is associated with gamma-ray emissions. These objects include black holes and quasars, which are thought to be the most numerous sources of gamma rays detected by VERITAS.
If you have any questions on astronomy or astrophysics in general please follow one of these links

- [NASA - Ask an astrophysicist](#)
- [Ask an astrophysicist](#) - specialising in cosmic-ray, gamma-ray and X-ray astrophysics
- [Ask an astronomer](#)
- [McDonald's Observatory ask an astronomer](#)
- [Curious about astronomy](#) ask an astronomer
- [Cool cosmos](#) ask an astronomer
- [Ask an astronomer @ UC Berkely](#)
- [Lick Observatory ask an astronomer](#)
- [NRAO ask an astronomer](#)
- [Harvard CfA resources for amateur astronomers](#)
- [Phil Plait's Bad Astronomy page](#)