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].

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

Miles overhead, very-high-energy gamma rays enter the atmosphere and collide with all molecules. These collisions produce a shower of secondary particles that move towards the ground at nearly the speed of light. The VERITAS gamma-ray image shows the Earth's shadow of light emitted by these “air showers”. This pulse of Cherenkov light lasts only a few milliseconds or seconds.

The telescope in front of you is one out 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 theory of a gamma-ray source can be determined from the intersection of lines drawn through each image.

The CTA observatory is a supermassive expansion of the VERITAS telescope array. It is the southernmost of the four detectors. It is designed to map the southern sky and produce images of gamma-ray sources.

From a distance, visible light consists of photons, or particles of light. More energetic photons produce more energetic images. The CTA observatory can produce images of gamma-ray sources that are not visible to the naked eye.

Gamma-ray astronomy has opened a new window on the universe. Thanks to gamma-ray telescopes such as VERITAS, scientists are studying phenomena that are only visible in the infrared. Infrared images can produce images of the most energetic phenomena in the Universe, such as black holes, supermassive and starburst galaxies.

Gamma Ray Astronomy
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 @ UCBerkeley
- Lick Observatory ask an astronomer
- NRAO ask an astronomer
- Harvard CfA resources for amateur astronomers
- Phil Plait's Bad Astronomy page