This page summarizes the sensitivity and performance of VERITAS. In summer 2009 the array layout was changed; this provided a ~15% improvement in sensitivity, corresponding to a ~25% reduction in the time required to detect a source. In summer 2012, the PMTs on all cameras were upgraded to high-quantum-efficiency PMTs, providing another improvement in sensitivity and a significantly lower energy threshold.

Figures below show performance indicators and sensitivities from all three periods: prior to the array move (V4), the 2009 to 2012 period (V5), and the post-PMT-upgrade period (V6).

Questions can be addressed to our spokesperson or deputy spokesperson.

**Key characteristics:**

- **energy range:** 85 GeV to >30 TeV (spectral reconstruction starts at 100 GeV)
- **energy resolution:** 17% at 1 TeV
- **peak effective area:** 100,000 m²
- **angular resolution:** 0.08 deg at 1 TeV, 0.13 deg at 200 GeV (68% containment radius)
- **source location accuracy:** 50 arcseconds
- **point source sensitivity (with new configuration and upgrades as of summer 2012):** 1% Crab in < 25h, 10% in 25 min

- **observation time per year:** ~750 hours non-moonlight, ~200 hours moonlight. Typically 70-100 hours total per month over 10 months.

**Critical Information:**

- **VERITAS observes only under clear, dark skies:** Observations are not possible under very cloudy conditions, or when it is raining (see [here](#) for local weather conditions). Observations can be made under moonlight, when the moon is less than half full. The observatory shuts down for ~6 days every month around full moon.

- **VERITAS does not observe during the summer:** Observations are not possible during
the summer months of July and August, due to local monsoon conditions.

- **VERITAS is located near Tucson, Arizona:** at $+31^\circ\ 40'\ 30.21'',\ -110^\circ\ 57'\ 7.77''$; Altitude 1268 m (4159 ft).

- **VERITAS works best for sources at high elevation angles:** For observations made below 60 deg elevation, Cherenkov telescopes have significantly reduced sensitivity and higher energy threshold. This limits most VERITAS targets to declinations 0 deg to +60 deg; exceptions can be made for particularly interesting targets slightly outside of this region (-10 deg to +70 deg). A useful source visibility tool is available here.

- **VERITAS sensitivity decreases with source offset from the centre of the field of view.**

- **Energy threshold is defined as peak in the differential counting rate for a Crab-like source.**

**Plots after PMT upgrade in summer 2012:**

- **Observation time vs source strength for a 5 sigma signal or at least 10 events (elevation: 70 deg):**
Angular resolution as a function of gamma-ray energy (elevation: 70 deg):
- Effective area as a function of gamma-ray energy (elevation: 70 deg):
Differential sensitivity (Differential sensitivities indicate the strength of the source VERITAS can detect with 5 sigma significance in 50 hours of exposure time at elevations above 70 degrees)