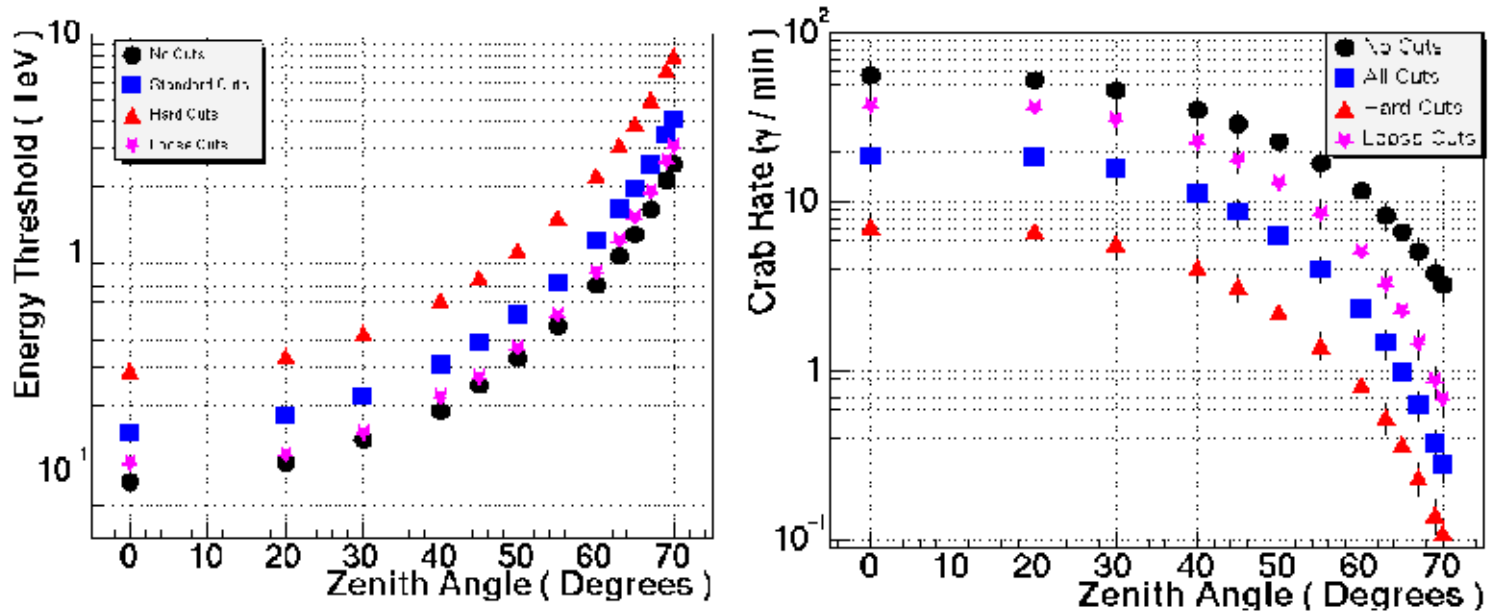# HESS performances (W. Benbow, Palaiseau Conference 2005)

H.E.S.S. γ-rates & Energy Threshold

Energy threshold defined as the peak of the expected count rate vs energy
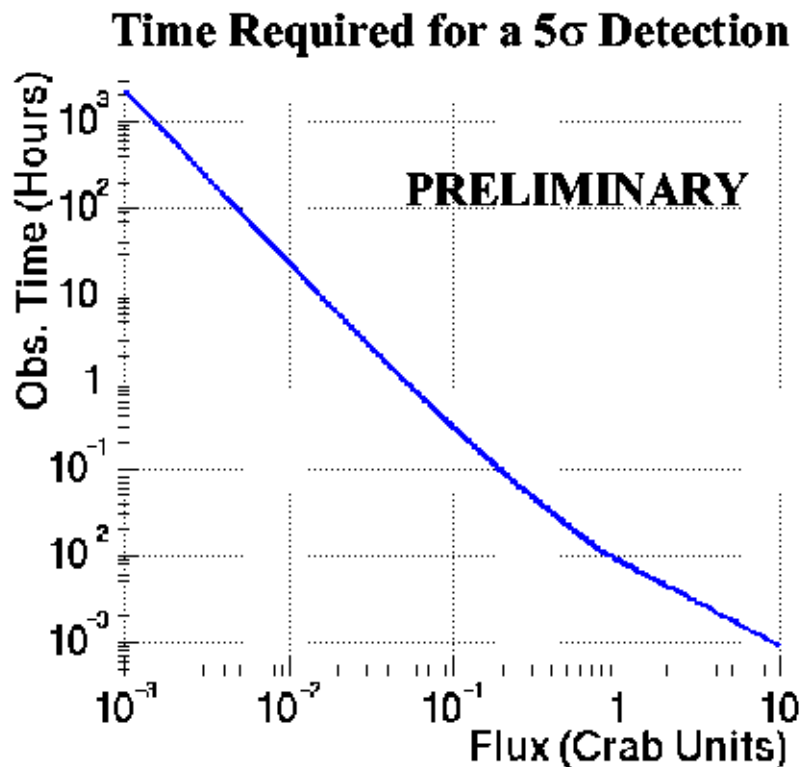There are detected γ-rays below this value
HEGRA Crab spectrum assumed here

HESS performances (W. Benbow, Palaiseau Conference 2005)

H.E.S.S. 4 Telescope Sensitivity

Time Required for a 5σ Detection

PRELIMINARY

Detection time for standard cuts
(zenith angle=20°, offset = 0.5°):

0.01 Crab in ~25 hrs
0.05 Crab in ~1 hr
0.10 Crab in ~20 min
0.50 Crab in ~1.5 min
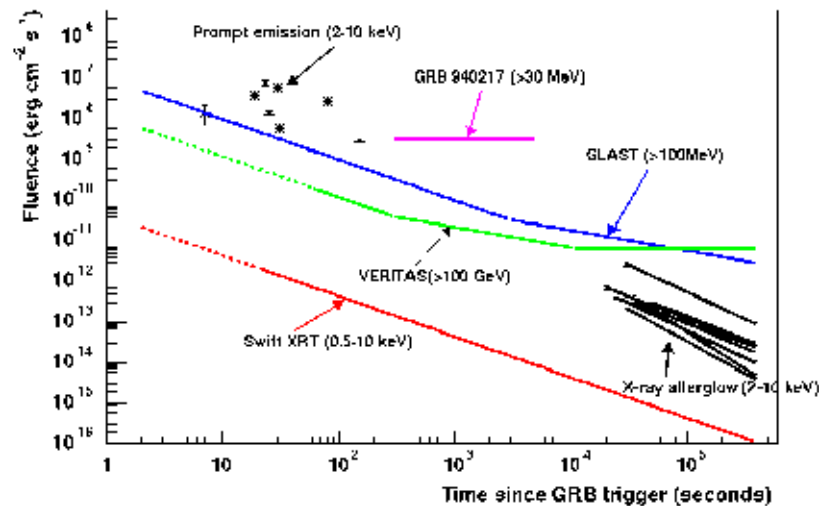1.00 Crab in ~30 sec

For comparison:
HEGRA needed ~100 hrs to
detect 5σ from a 5% Crab source

From:
Predicted MC γ-ray rate (passing std. cuts)
& Actual data rate (passing std. cuts)

One of Julie's few "obsolete plots"

Afterglow searches above 70 GeV

GRB are the top priority at the 3 main ground-based gamma-ray observatories in the U.S. (VERITAS, STACEE and Milagro.

- The most sensitive of these are the atmospheric Cherenkov telescopes which have a small field of view, but which can slew to a gamma-ray burst location within a few minutes.

- Prompt accurate GRB locations provided by Swift will allow ACTs to make the first observations of the latter part of the prompt phase and early afterglow above 70 GeV.

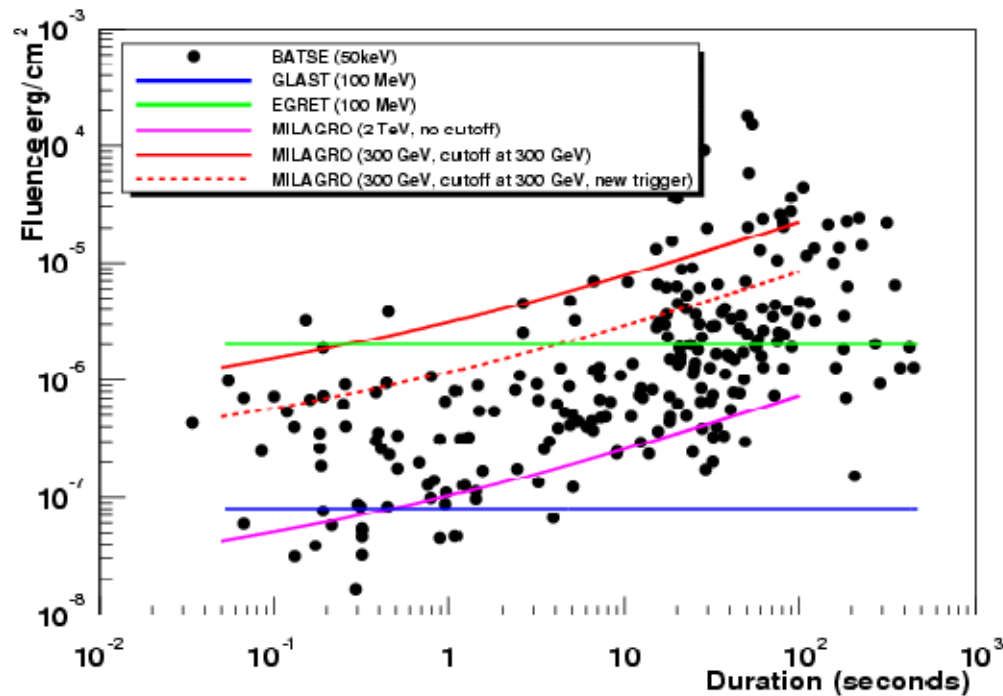# Estimation HESS (4 telescope array) sensitivity to GRBs

- **Acceptances and background at Zenith angles 30deg and 50deg**

- **Assume Crab-like spectrum as measured by HESS (astro-ph/0407118)**

- **Check results (hard cuts) with Benbow results**

- **Compute time needed for a 5sigma detection and a given a fluence above 100 GeV**
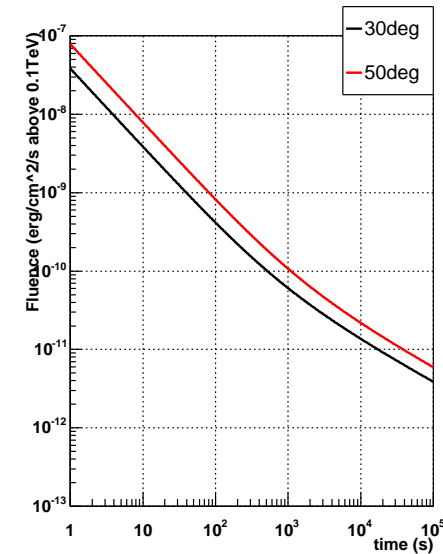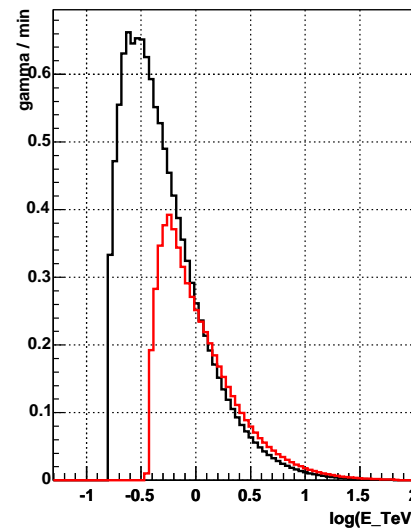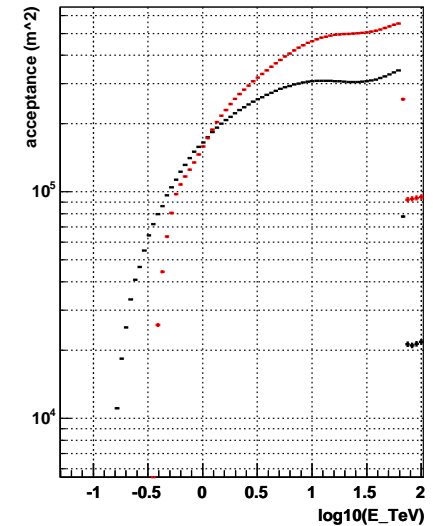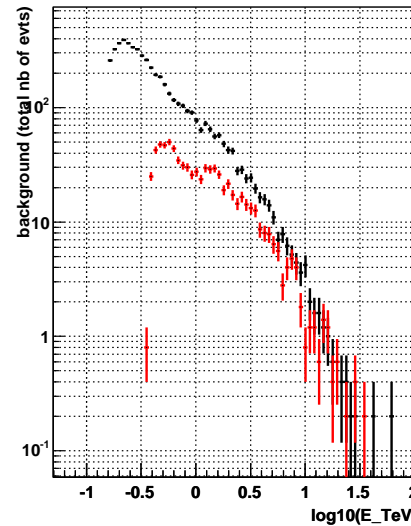
Other plots to update
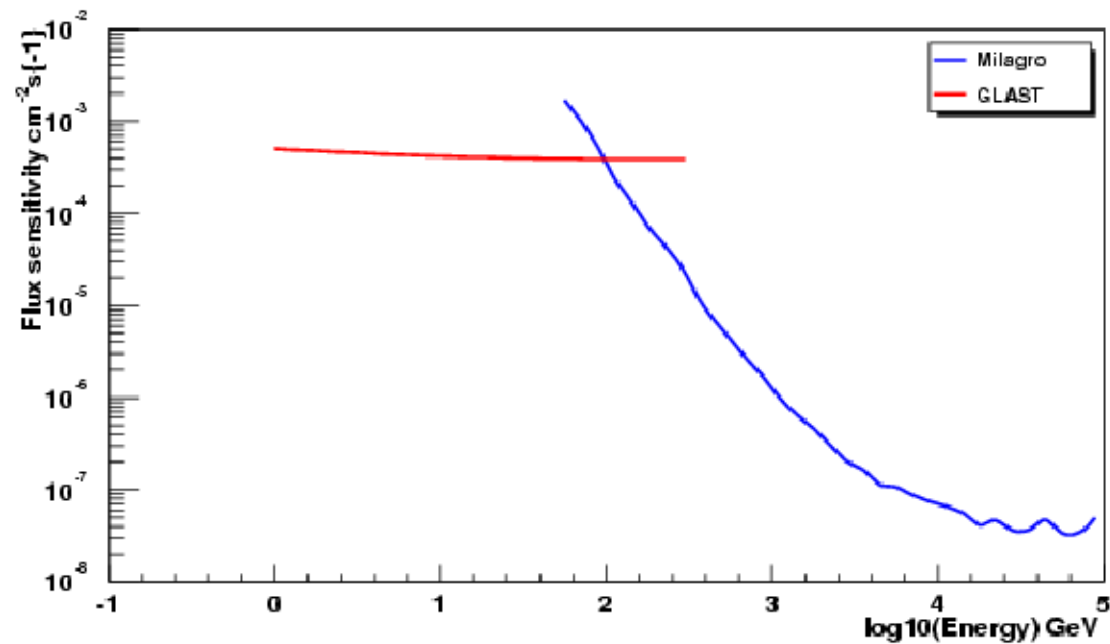
VHE Instrument Sensitivity

For observations of the prompt phase of GRB, current and future high energy gamma-ray instruments (GLAST and Milagro) are very complementary. ACTs can make observations in the T90>~1 min region.

Other plots to update

Milagro and GLAST Sensitivity

For a 1 second observation, Milagro becomes more sensitive than GLAST at ~100 GeV. It would be interesting to remake this plot for different timescales and add more instruments.