Ideas for a wide FoV gamma ray detector in the Southern Hemisphere

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Southern TeV Astrophysics & Cosmic Rays Experiment: STACEX

A Wide FoV Detector for Gamma-Ray Astrophysics in the Range 100 GeV - 10 TeV in the Southern Hemisphere

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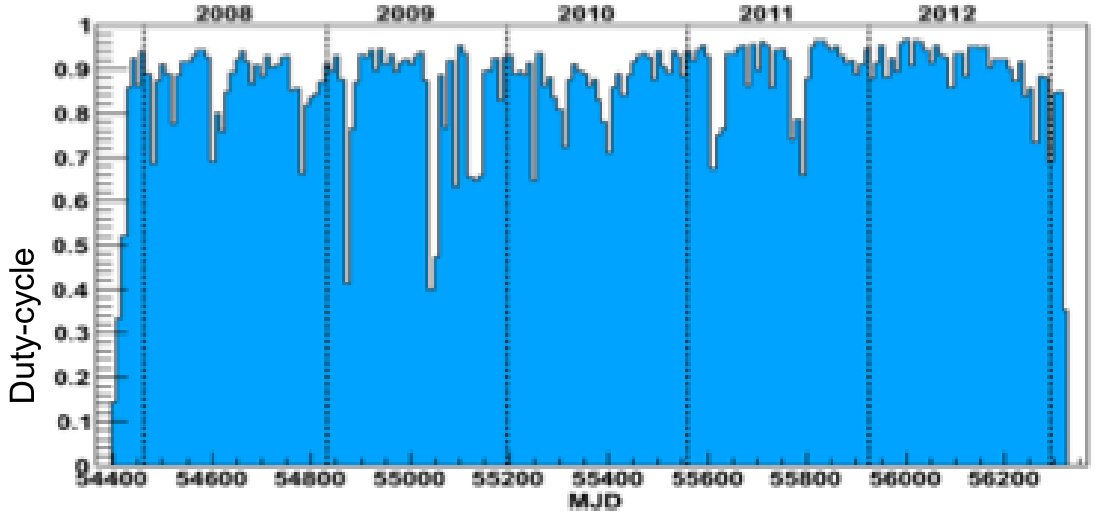
- This proposal like the LATTES one is suggested by the successful operation of the ARGO-YBJ experiment whose apparatus was just a RPC carpet of 6700 m^2.
- The good performance of this detector suggests that an experiment in the southern hemisphere could be carried out with the same approach.
- Trigger rate ~3.5 kHz @ 20 pad threshold
- N. recorded events: ≈ $5 \cdot 10^{11}$ from 100 GeV to 10 PeV
- 100 TB/year data



- The RPCs can count now on a relevant experience made on their application to several experiments (ATLAS, CMS, OPERA)

Main goals to be pursued by the future experiment

- High detector sensitivity and energy threshold down to 100 GeV (altitude, detector size…)
- Gamma / hadron discrimination
- Muon detection whenever possible
- Emphasis on transients phenomena; gamma ray bursts, etc.
- Collaboration with CTA;

New ideas

- A relevant point to be studied is the possibility of a hybrid RPC / water Cherenkov detector which could overcome certain limits observed in ARGO