Laboratoire d'Annecy de Physique des Particules

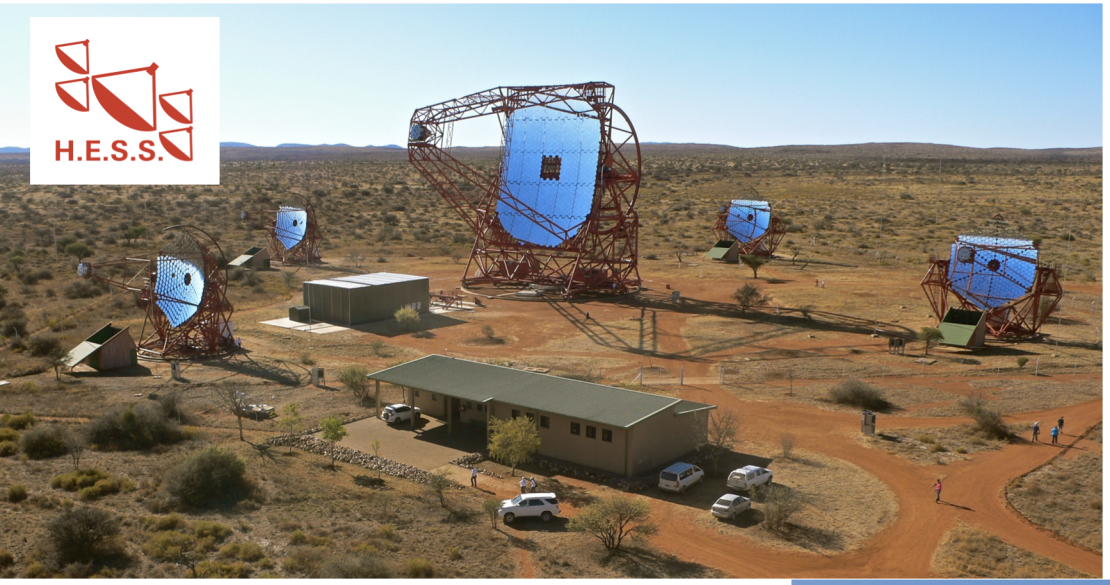
Usage des lappsl par le groupe H.E.S.S./CTA

Réunion des utilisateurs

Vendredi 28 juin 2019

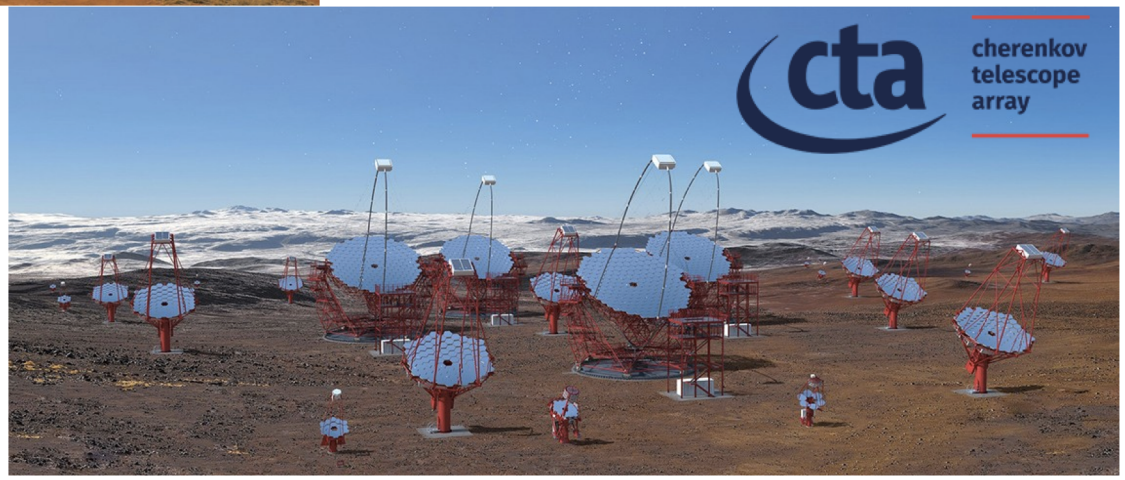
cnrs

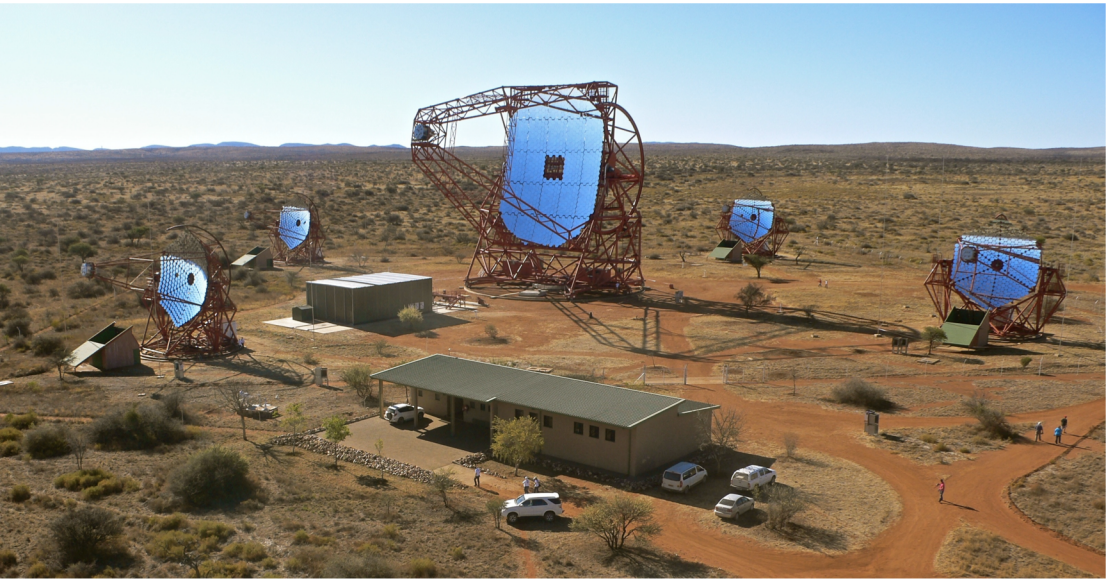
UNIVERSITÉ SAVOIE MONT BLANC



Currently taking data in Namibia

No data. Only simulations



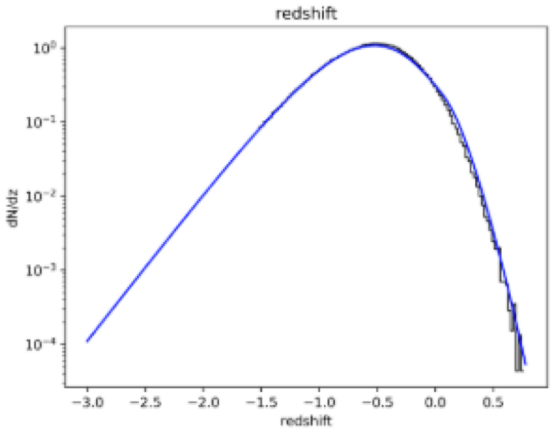


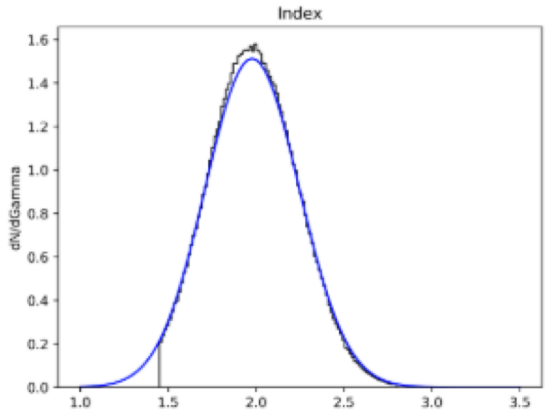
H.E.S.S. data are transferred from Namibia to Europe at the CC IN2P3

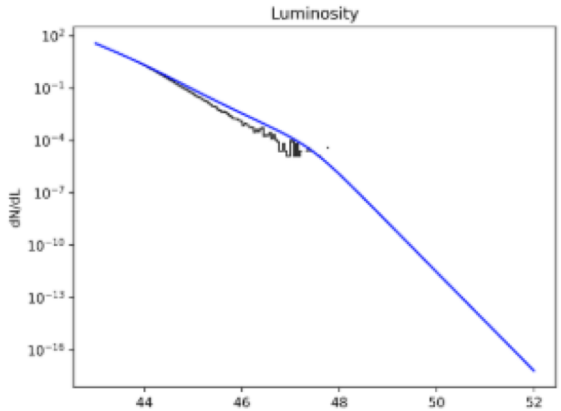
- MUST not involved in the H.E.S.S. data analysis itself
- No H.E.S.S. code, data volume too important, no access to H.E.S.S data base

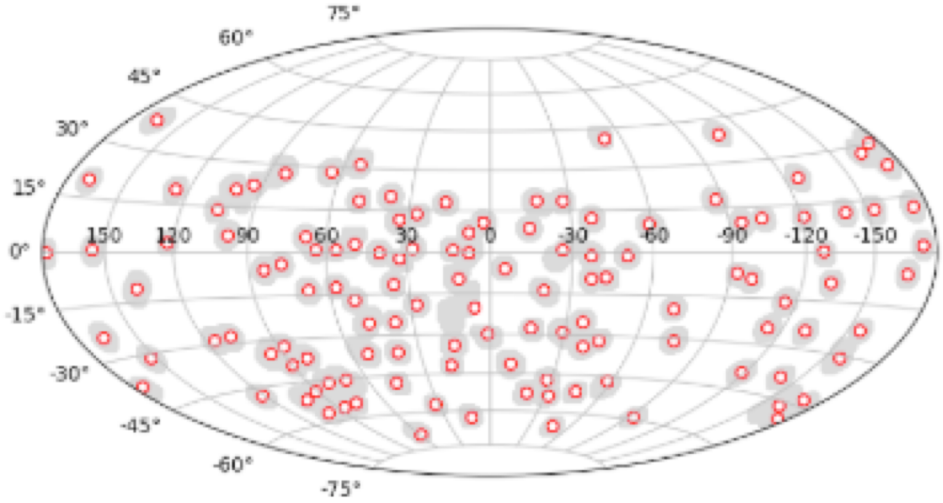
Simulation of population - H.E.S.S. collaboration –

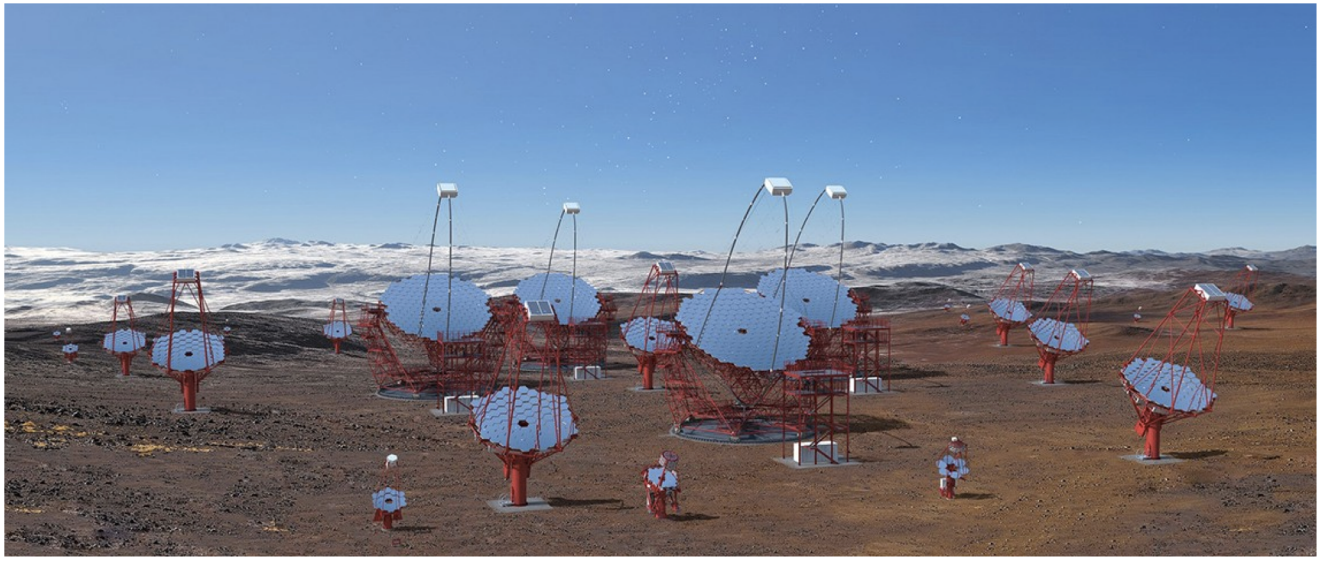
- HESS Survey : sky simulation
- Intensive simulations MCMC, large memory usage











No data (yet ?) on disk.
Development of the pipeline by LAPP team

Simulation/analysis of data:

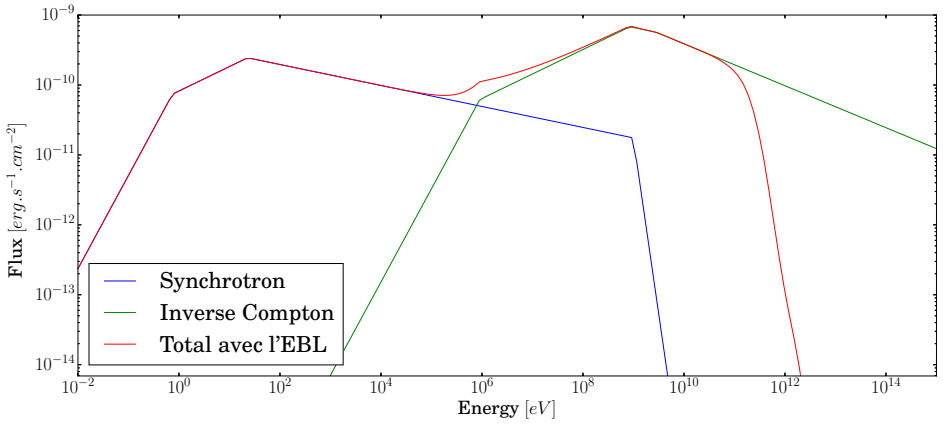
- Suite of tools to analyse CTA data
- GRB simulation – Quentin Piel's Phd and CTA paper

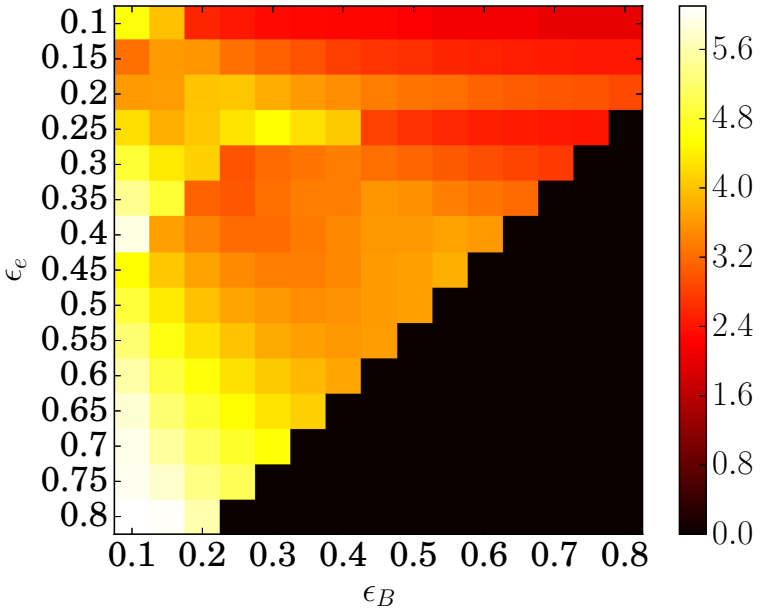
ctools
cherenkov telescope array

GRB simulation

Ctools + GRB emission model and then analysis of the data. No data kept on disk due to space limitation

More 10^5 jobs sent in 1 month





LAT is an all sky monitor, producing data every days

FITS format

Already several GBs on disk download from FSSC (Nasa)

Code installed using conda environment

Update of the data on demand

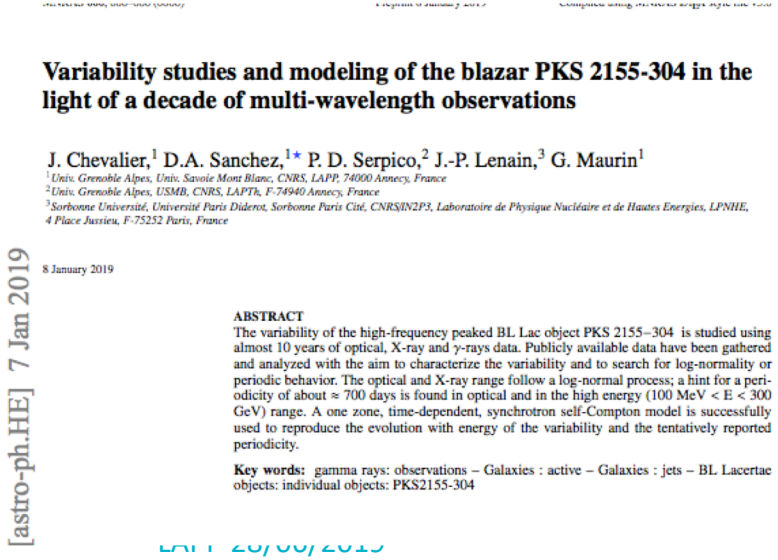
- Job submission, data storage.
- Data and code are accessible to the entire group

- Analysis of the Fermi-LAT data.
  - Useful to have such cluster here to speed up the analysis
  - Use for H.E.S.S. and non-H.E.S.S. studies

Use of the platform by the group

- Must as a computation platform
  - Simulation of variability of sources. Large amount of job
    - Publication made January 2019

    - Simulation of 10 years of data (In step of minutes!!!)
    - All in all, 10^4 jobs maybe more
    - Long jobs, divided into small on and Mail sent at the end



[astro-ph.HE] 7 Jan 2019

Variability studies and modeling of the blazar PKS 2155-304 in the light of a decade of multi-wavelength observations

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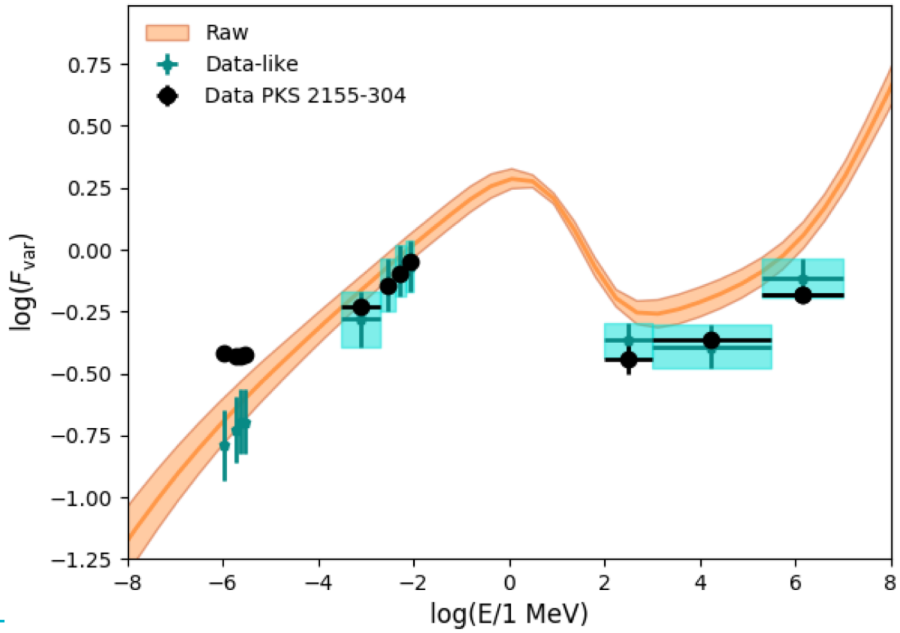
8 January 2019

ABSTRACT
The variability of the high-frequency peaked BL Lac object PKS 2155−304 is studied using almost 10 years of optical, X-ray and γ-rays data. Publicly available data have been gathered and analyzed with the aim to characterize the variability and to search for log-normality or periodic behavior. The optical and X-ray range follow a log-normal process; a hint for a periodicity of about ≈ 700 days is found in optical and in the high energy (100 MeV < E < 300 GeV) range. A one zone, time-dependent, synchrotron self-Compton model is successfully used to reproduce the evolution with energy of the variability and the tentatively reported periodicity.

Key words: gamma rays: observations – Galaxies : active – Galaxies : jets – BL Lacertae objects: individual objects: PKS2155-304



MUST very useful for the group:

- Analysis of Fermi data
- First simulations for CTA
- Modelling of source/ “heavy” simulations in term of number of jobs

Need of diagnostic tools to not disturb the cluster ?
A job cannot submit another job